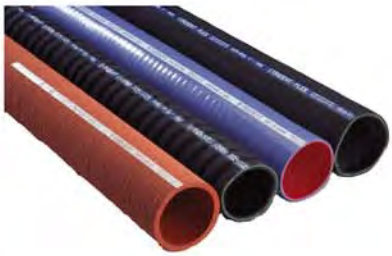
HYDRAULIC SUPPLY COMPANY

HSC



MARINE PRODUCTS CATALOG

THE SOURCE FOR ALL YOUR FLUID POWER NEEDS

Tel: 800.507.9651 | Fax : 954-845-9113

www.hydraulic-supply.com

Powering Business Worldwide

EATON AEROQUIP & SYNFLEX STAINLESS STEEL FITTINGS

This new, exclusive line of Eaton Aeroquip® and Synflex Swage® fittings are manufactured with stainless steel t316 to meet the level of reliability and performance you expect from Eaton products.

- Genuine Eaton parts.
- Designed to work with Matchmate and Synflex hoses to guarantee the functionality and the working lifespan of your equipment.
- Corrosion-resistant properties for maximum durability.
- HSC offers a large selection of products in-stock and ready to ship.

Eaton Reliability you can trust.

Call us today! Ph. 800-507-9651 | www.hydraulic-supply.com

EATON Aeroquip Hose Center

Contents

Company Profile

Our Commitment

SINCE 1947

Core Purpose

To make every experience with our organization a positive one.

Core Values

- **Honesty, integrity, and ethics in everything we do.**
- **Provide the opportunity to grow and advance.**
- **Provide an atmosphere of cooperation, friendliness, and mutal respect.**

The Source For All Your Fluid Power Needs

At Hydraulic Supply Company, our goal goes far beyond just “selling parts.” Our approach is simple — get to know the customers and their specific needs, analyze the possibilities, and help them design new better fluid power systems at the most reasonable cost possible.

We recognize that providing fast response times and high quality, economical solutions to our customers’ needs is the only way to build long lasting relationships.

5 EASY WAYS TO ORDER FROM US

Ordering from us is easy, simply choose the more convenient way to process your order and our team will be here to provide you with 100% customer satisfaction.

PHONE	FAX	E-MAIL	ON-LINE	EDI
800-507-9651	954-845-9113	sales@hydraulic-supply.com	www.hydraulic-supply.com	Contact Us

Company Profile

HSC At-A-Glance

Since our beginning in 1947, Hydraulic Supply Company (HSC) has been dedicated to fulfilling customers needs as a full-service distributor of hydraulic, industrial and pneumatic products.

Our goal is to provide customers with a large selection of hydraulic and pneumatic products with the best professional services, right when you need them, to keep your operations productive and reduce downtime.

60,000 sq. ft. Central Distribution Center that houses two manufacturing departments to produce finished products for our customers.

Stores Locations conveniently located in Florida, Georgia, South Carolina, North Carolina, & Tennessee. Coming soon, locations in Alabama.

Over **20,000** in-stock products from over **100** recognized brands in the industry.

An **Engineering Center** with a team of expert system design engineers.

State-of-the-art **Hydraulic Repair Service Center of Excellence.**

A knowledgeable **Sales & Customer Service Department** to support our customers' individual needs.

Industrial & Hydraulic Hose Assemblies

Services available at all HSC locations.

Custom Build Programs

for hydraulic components.

Retail Stores

Fast turnaround service to get you back up and running quickly and economically

Fluid Power Products Right When You Need Them at a Location Near You

Because managing your inventory can be costly for your company, having a conveniently located Hydraulic Supply Company store near your facility gives you access to our large inventory of hydraulic industrial and pneumatic components and parts right when you need them.

HSC STORE COMMITMENT

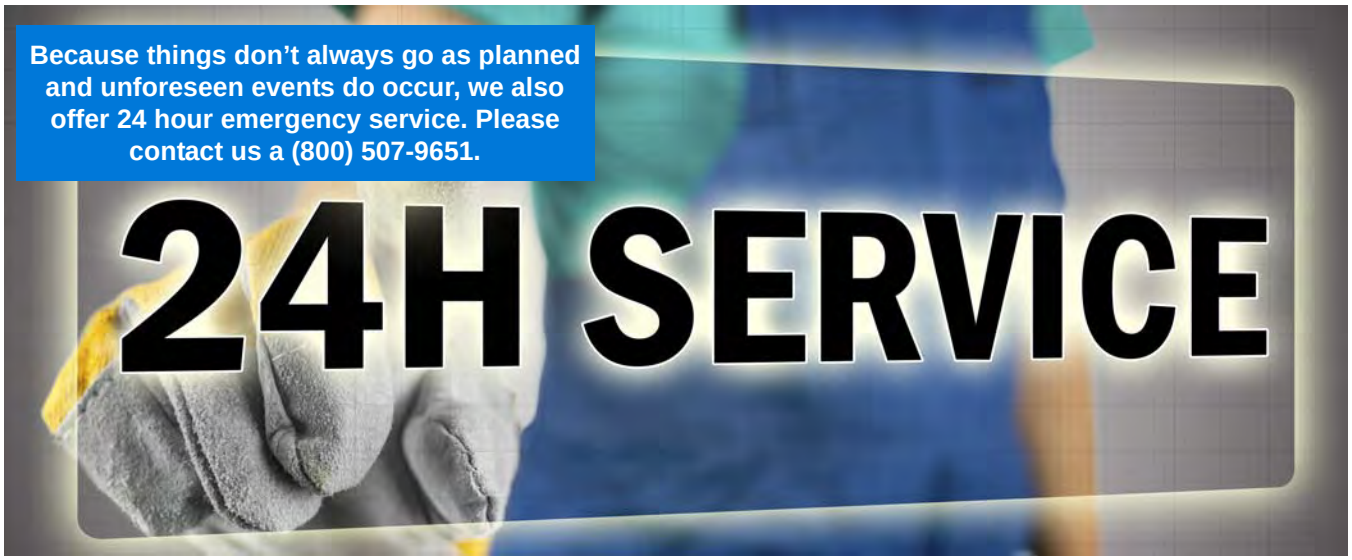
All HSC Retail Store locations offer:

- **Large selection of products -**over 8000 products in stock at our retail stores and access to thousands more from our Central Distribution Center.
- **Knowledgeable and factory certified staff.**
- **Professional service and support.** Our friendly and knowledgeable staff are ready to help you with all of your fluid power needs.

EATON Aeroquip Hose Center

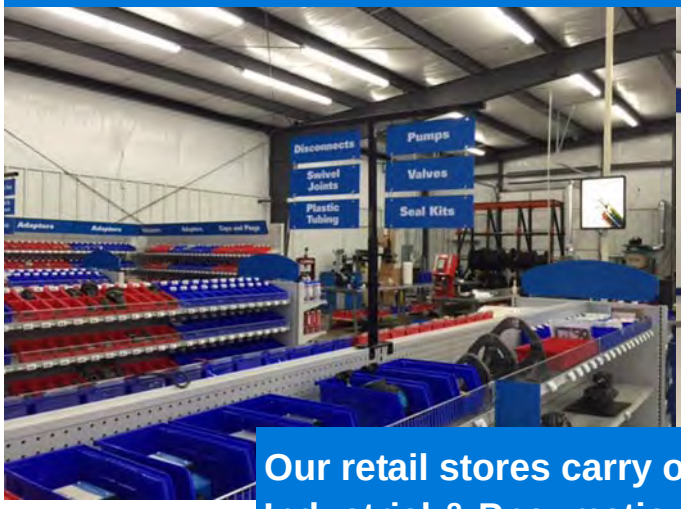
Hydraulic Supply Company retail stores are certified Eaton Aeroquip® Hose Centers. Our dedicated hose specialist can build your hoses right when you need them at one of our locations.

24 HOUR EMERGENCY SERVICE



Company Profile

RETAIL STORES PRODUCTS & SERVICES



Our retail stores carry over 8,000 Hydraulic, Industrial & Pneumatic products in stock and offer a full range of fabrication services.

IN-STORE FABRICATION SERVICES

Hydraulic & Industrial Hose Assemblies

We are a complete hose fabrication shop. As an Aeroquip Premier Distributor, we carry a large selection of Aeroquip hoses, fittings and adapter, including Matchmate Plus™ hoses.

Air Lines - Fuel Lines - Power Steering & Transmission Lines

Cut & Weld

Cable Assemblies

Tube Bending & Assemblies

PRODUCTS AVAILABLE AT THE STORES

- Adapters & Fittings
- Cylinders
- Couplers
- Hoses
- Hydraulic Filters
- Hydraulic Fluids
- High-Force Hydraulics
- Motors
- Power Units
- Pumps
- Pneumatic Products
- Seal Kits
- Tubing
- Valves
- Others

Several of our stores carry a selection of Specialty Marine Products.

HSC Engineering Center

A Team of Expert Design Engineers

Our Engineering Center offers a team of expert system design engineers that specialize in hydraulic, pneumatic, and electric power solutions. They can assist you in everything from component selection to full system design.

HSC Engineering Center Advantages

- Experienced, degreed engineers ready to work on your projects.
- Ability to create 2D schematics and 3D solid models using the latest versions of the software, including SOLIDWORKS.
- We can help you with everything from component design to full product design.
- System commissioning, troubleshooting, and testing in our facility or on-site.
- System components can be stocked in our warehouse to ease supply chain issues.
- Single-source responsibility.

Capabilities

From designing, construction to installation and training, we offer you a complete solution for all your engineering needs.

- **Complete System Design**
- **Prototyping**
- **Application Engineering Support**
- **System Retrofits**
- **Fabrication**
- **Installation and Testing**
- **Control System Design**
- **PLC and Control Programming**
- **User Interface Design**

Custom Build Services

Hydraulic Supply Company offer a wide range of custom build programs that meet and exceed OEM standards.

Hose Assembly

At HSC's Hose Assembly area a full range of hydraulic & industrial hoses are assembled — from 3/16" diameter through 10" diameter in pressure ranges from vacuum to 10,000 psi. The hose assembly area has full cleaning and pressure testing capabilities to meet the varying needs of our customers. We have the capability to provide high production hose assemblies in a clean, controlled environment. We have multiple high speed crimp machines capable of up to 1200 crimps per hour.

Custom Hydraulic Components

We can assemble and test custom hydraulic components to the customers' specifications. Technicians can perform anything from a simple shaft change on a hydraulic pump to a complete custom power unit.

Custom Hose Kitting

Our custom hose kitting capabilities allow us to provide you with custom hose kits built to your specifications and needs. All hose kits are bar coded and labeled for easy identification. All kits are inspected in-house.

Tube Bending

We can custom form hydraulic tubing assemblies to exacting tolerances and specifications. An electronically controlled tube-bending machine insures accuracy and consistency in a wide variety of tubing sizes and wall thicknesses.

Vane Pump Program

Through our vane pump program we can build a wide variety combination of Eaton's pumps (models V10, V20, 25VQ through 45VQ, V2010 and V2020). Built with genuine, new Eaton parts and tested to factory specifications.

Other Custom Programs Available

- **Eaton's 25M through 50M vane motors.**
- **Eaton's X-20 Piston pumps.**
- **Salami gear pumps, motors, and flow dividers.**
- **Salami sectional valves.**
- **Walvoil sectional valves.**

Ask Us About Our New Industrial Hose Program

- Air & Multipurpose
- Cement, Plaster and Grout
- Chemical - Suction & Discharge
- Food & Beverage
- Gaseous - LPG
- Material Handling
- Oil and Gas Exploration
- Petroleum
- Specialty - Steel Mill
- Steam
- Water - Suction & Discharge
- Couplings
- Chemical Resistant
- Others

Repair Services

HYDRAULIC REPAIR & SERVICE CENTER OF EXCELLENCE*

Hydraulic Repair & Service (HRS) Center of Excellence specializes in the repair, reconditioning and overhaul of leading brands of hydraulic components including cylinder, motors, pumps, valves, and power units.

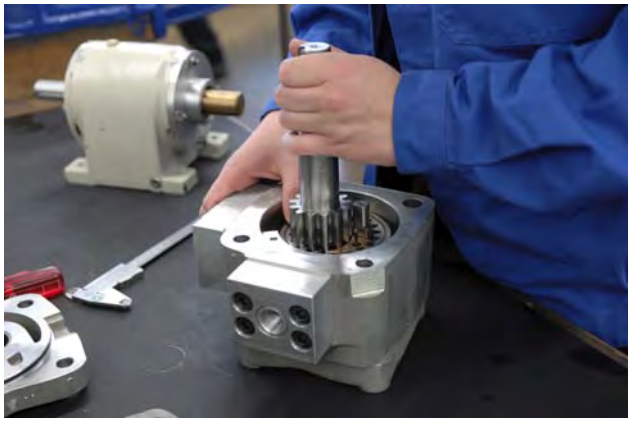
HRS technical capabilities allow us to manufacture and refurbish hydraulic components with quick turnaround to get your equipment back up!

HRS maintains repair and testing facilities staffed by factory trained technicians.

We meet OEM performance specifications and quality standards. Our stringent testing procedures and capabilities are unparalleled.

WE REPAIR:
- CYLINDERS
- MOTORS
- PUMPS
- VALVES
- POWER UNITS

OTHER SERVICES:
- TUBE HONING
- WELDING
- ROD POLISHING
- LAPPING
- TESTING



TESTING CAPABILITES

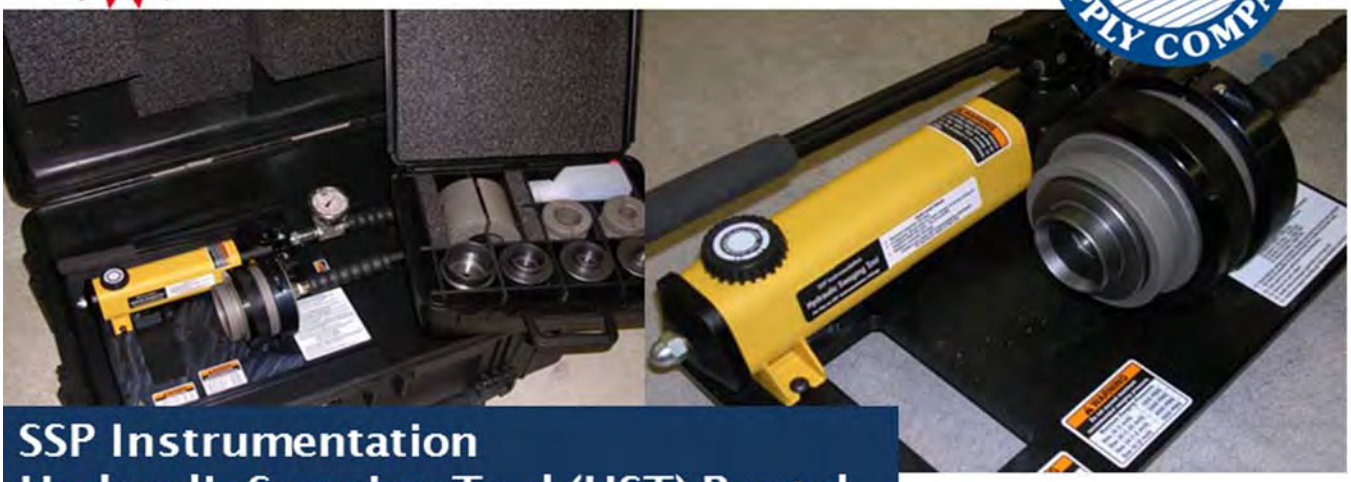
All testing is performed in-house using test methods designed to ensure your repair is guaranteed to work when installed; thus reducing time from removal to reinstallation.

We have a 200 HP test stand with VFD control and data gathering capabilities for all pumps and motors, whether open loop or closed loop systems.

*Contact us for locations in your area.

FABRICATION | REPAIR | ASSEMBLY | TEST | RECONDITIONING

NEW



SSP Instrumentation Hydraulic Swaging Tool (HST) Rental

SSP

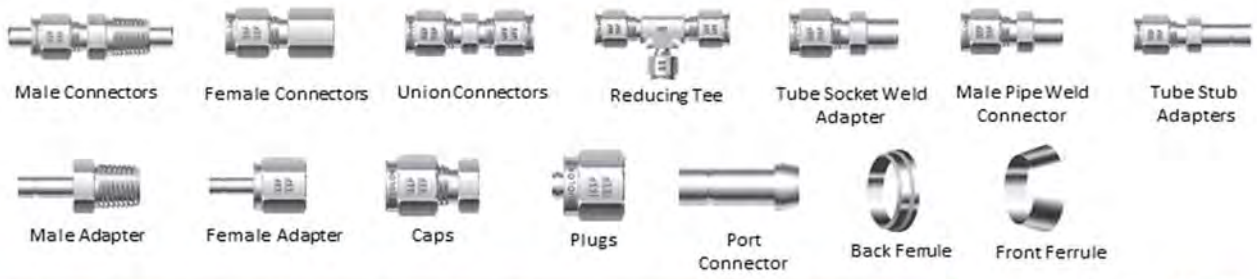
The SSP Instrumentation Hydraulic Swaging Tool swages 1 inch and larger SSP Duolok tube fitting ferrules onto the tubing prior to assembly to the fitting body. Using hydraulic pressure, the SSP Hydraulic Swaging Tool overcomes the challenge of manually applying the torque required to install 1 inch and larger tube fittings. The SSP Hydraulic Swaging Tool reduces installation time and assures sufficient make-up for leak-tight connections on larger Duolok tube fitting sizes.

Features:

- Pre-swages SSP Duolok tube fitting ferrules ont tubing.
- Quick and easy tooling changes to intall 1”, 1.25”, 1.5”, and 2” Duolok tube fittings.
- Minimal setup time.
- Easy to use with instructions printed on the tool base.
- Places no initial strain on nut, fitting body threads or titting body sealing surfaces.
- Includes support base.
- Unique marking feature gives visual indications on nut and tubing that swaging is complete.
- View window for verification of complete swage.
- Installed fittings are 100% gaugeable.
- Rugged plastic, wheeled carrying case with pull handle.

Contact Us for Daily and Weekly Rental Pricing

Duolok® Double-Ferrule Tube Fittings Available



For product information and inquires please contact 1.800.432.6413
www.hydraulic-supply.com

Manufacturer Certifications

ABS DNV

Sales & Ordering Information

Stock Item Catalog

Only items we stock are shown in this catalog (Some exceptions, see below). If you do not find what you are looking for, please contact us. We should be able to help you. A substantial percentage of our sales is for "non-stock" items.

Normal and Bold fonts, and bullets are used in the tables to specify where the item is stocked:

Normal Catalog Part No.	Item is stocked only at our Distribution Center.
Bold Catalog Part No.	Item is stocked at our Distribution Center and at every branch location.
• Bulleted Catalog Part No.	Item is stocked at our Distribution Center and at certain branch locations. (All are subject to change)

Some Non-Stock Items Shown

An underlined Model Number or Part Number in the second column in the tables designates a non-stock item. Any table with non-stock items in it will have a note that calls this to your attention.

Dimensions

All dimensions are in inches unless stated otherwise.

Weights

All weights are in pounds. All weights are unit weights, unless stated otherwise.
Weight listed on some products may vary due to different packaging used by product manufacturer.

Prices

Prices are not shown. For your current price, contact Customer Service, or visit our web site at www.hydraulic-supply.com and click on “Join” to access the e-commerce features of our site.

Copyright

Digital Stock Products Catalog

This catalog is also available digitally on a CD or from our web site. The digital version uses Adobe Acrobat Reader software. A powerful Search Index is included which can rapidly locate products when using the Search feature. Catalog CD’s may be requested by phone (800-507-9651), by fax (954-845-9113) or downloaded on-line at http://www.hydraulic-supply.com.

Abbreviations and Symbols Used

@	At	ft.	Feet	%	Percent
Cd.	Code	gpm	Gallons per minute	Pkg.	Package
cc	Cubic centimeter	Hz	Hertz	PSI	Pounds per square inch
cSt	Centistokes	I.D.	Inside diameter	Qty.	Quantity
cu.in.	Cubic inch	in.	Inch	rpm	Revolutions per minute
cu.in./rev	Cubic inch per revolution	in./Hg.	Inches of mercury	sq.in.	Square inches
Dec.	Decimal	lb	Pounds	ss	Stainless steel
deg.F.	Degrees Farenheit	lb-ft	Foot pounds	St.Thd.	Straight thread
°	Degrees	lb-in	Inch pounds	SUS	Saybolt Universal Seconds
°F	Degrees Farenheit	Min.	Minimum	Temp.	Temperature
Dia.	Diameter	Max.	Maximum	Wt.	Weight
ΔP	Differential Pressure	mm	Millimeter		
Displ.	Displacement	Nom.	Nominal		
Freq.	Frequency	O.D.	Outside diameter		

Product Selection & Application

The determination and methods of the use, suitability, installation and design application for the parts and assemblies we sell is the responsibility of the purchaser.

Hose conforms to the specification and requirements specified by the hose manufacturer.

If you need specific product information on our products or assemblies, we are glad to provide it upon request.

We also have available, upon request, brochures and information regarding general use and safety issues for hydraulic products and assemblies.

Warranty

Our warranty is in this catalog (page 17), on our credit application, on our web site, and is available at all our local stores and on request. We provide our warranty or we extend the manufacturer's warranty where applicable.

Hose Application Warnings

Agency and industry standards may apply to your application. It is your responsibility to decide what regulations and/or standards apply, and inform us. We will then advise you if the products selected meet those standards.

Improper selection, installation and/or routing may significantly shorten the life of a hydraulic hose, which could result in hose rupture and failure, which may then result in serious personal injury or property damage.

Most hydraulic fluids are flammable and proper safeguards have to be taken to contain any fluid if a hose failure occurs in an environment with a source of ignition.

Hoses have a service life, and high, repetitive shock reduces hose service life. You need to inspect and change out hoses within their service life for your application or hose rupture and failure may occur.

S. **T**. **A**. **M**. **P**. - You must consider the **S**ize, **T**emperature, **A**pplication, **M**edium and **P**ressure when selecting hose and hose fittings.

For your application, review the **Important Safety Information** starting on page 218 .

If you don't already have the proper training or information, ask for:

- Eaton/Aeroquip Fluid Conveyance Products Catalog A-HOOV-MC001-E1
  - Warnings - pages 11-12
  - Fluid Compatibility - pages 349-355 (this catalog, page 301)
  - SAE Recommended Practices (SAE J1273) - page 356 (this catalog page 299)
  - Hose Routing & Installation - page 359 (this catalog page 308)
  - Thread Style Pressure Performance - page 376 (this catalog page 293)
- Aeroquip's "How to Identify Fluid Ports and Connectors" (E-SROV-TS009-E)
- Aeroquip's "Matchmate Plus™ The 3 Minute Crimp Hose Assembly System" (A-HX-MC-001-E)
- Aeroquip's "Routing Hose and Tubing" (JA412)
- Aeroquip's "Performance Products" (A-SPPE-MC001-E2)

Eaton/Aeroquip catalogs are also availble for download at http://hydraulics.eaton.com/products/

Sales & Ordering Information

Placing an Order

By Phone
800-507-9651 Toll-free from USA and the Caribbean.
954-845-1040 Local phone number.
800-432-6413 24 hour Emergency Service.

By Fax or E-Mail or Mail

When ordering by fax **(954-845-9113)** or E-mail (**sales@hydraulic-supply.com**) or Mail, please be sure to include the following:
Purchase Order Number (if we need one).
Your name, area code, phone number, fax number and e-mail address.
"Ship to" address if different from "Bill to".
Shipping instructions (carrier).
Complete catalog description including catalog part number, model number, quantity, etc.
If it's your policy to issue a confirming order following phone orders, please mark the order "confirming".

Mailing Address - Hydraulic Supply Co. 300 International Parkway Sunrise, FL 33325.

By visiting a branch office Local service is provided at our branch locations listed on page 20 .

By Internet Visit Our web site at www.hydraulic-supply.com and click on "Join" to access the e-commerce features of our site

By EDI Please call for details.

By Bin Management System / Modem Please call for details.

Minimum Order No minimum order is required.

Opening an Account

Fill out credit application on page 18 and fax in.
If purchases are exempt from Florida sales tax, please furnish a signed copy of your Annual Resale Certificate (Form DR-13).
In Georgia, please furnish a signed copy of your Georgia State Sales Tax Exemption Certificate.
In Tennessee, please furnish a signed copy of your Tennessee Department of Revenue Blanket Certificate of Resale.

Credit Cards We accept MasterCard, Visa and American Express.

Same Day Shipping Orders placed by 4pm will ship the same day.
Orders placed after 4pm can ship same day provided special arrangements are made.

Quotations If you need a written quotation, please let us know.

Terms & Conditions See page 17 .

Note: Some items are only available for sale in our Approved Trading Areas.

Pricing - Prices shown in this catalog are subject to change without notice and are not to be construed as a definite quotation or offer to sell by Hydraulic Supply Co. This catalog is maintained only as a source of general information, and any prices shown herein are subject to confirmation with a specific quotation. Orders are billed at the prices in effect at the time of shipment. Prices are FOB Factory.

Specifications - Specifications are subject to change without notice.

Cross Reference Information - Product cross-reference comparisons do not imply that all products compared are available, or in the case of functional equivalency, that performance and other characteristics are exactly comparable. For critical applications, review specifications prior to purchase.

Quotations - Quotations on large quantities are available on request. All written quotations automatically expire within thirty (30) days from the date quoted.

Taxes - Hydraulic Supply Co. is required to charge state and local tax on items for which a sales tax exemption certificate has not been provided.

Freight Policy - Unless otherwise requested by the buyer, material will be shipped via carriers of our choice with shipping, handling and packaging charges prepaid and added to the invoice. Note: We only insure if specifically requested by the buyer, with insurance charges prepaid and added to the invoice.

Order Cancellation - Any cancellation must be approved by Hydraulic Supply Co., and may be subject to restocking and other charges.

Payment Terms - Payment terms to Customers with satisfactory credit are Net 30 Days, meaning payment is due within 30 days from date of invoice. Customers agree to collection and/or attorney fees not exceeding 30% of amount past due in case of default of payment

Damaged Shipment - Merchandise shipped is carefully packed in compliance with carrier requirements. Title and risk of loss pass to the customer upon tender of shipment to the carrier. If product is damaged in transit, consignee must file claim with the carrier.

Shortages - All claims for shortage or shipment errors must be made within 10 days after receipt of shipment.

Returned Material Policy - We will normally accept returned material under the following conditions: A copy of the invoice is furnished. The material is returned within 30 days from date of invoice. The material is in new resalable condition (unused, unpainted, etc.). The material is normal stock for us (not special order). Please call for a Return Authorization Number (RMA) prior to returning any material. Returned material must be accompanied with the RMA Number.

Limited Warranty - Seller warrants for 90 days from the date of sale that the equipment sold, as described hereon, shall be free from defects in material and workmanship. Seller's liability under this warranty is limited to repair or replacement of any part or parts of said equipment which shall be returned to seller, shipping charges prepaid and which seller's examination discloses to its sole satisfaction to be defective. This is seller's only warranty. By accepting the equipment under this warranty, buyer acknowledges that said equipment is being sold under no other written or oral warranties, neither expressed or implied, of any kind whatsoever such as, but not necessarily limited to, warranty of merchantability of fitness.

Warranty Disclaimer - Hydraulic Supply Co. has made a great effort to illustrate and describe the products in this catalog accurately. However, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are MERCHANTABLE, or FIT FOR A PARTICULAR PURPOSE, or that the products will necessarily conform to the illustrations or descriptions. No warranty or affirmation of fact, express or implied, other than as set forth in the limited warranty statement above is made or authorized by Hydraulic Supply Co.

Repair Warranty - All repairs are warranted for 90 days from the date of invoice. This warranty is limited to the cost of the repair only.

Limitation of Liability - Any liability for consequential and incidental damages is expressly disclaimed. Hydraulic Supply Co.'s liability in all events is limited to, and shall not exceed, the purchase price paid.

Manufacturers' Warranties / MSDS Sheets - Most of the products listed in this catalog are warranted by their manufacturer. Copies of such warranties are available free of charge. Requests should include the catalog part number (if any) and the manufacturer's model number for each item involved. Material Safety Data Sheets (MSDS) are also available upon request. Address requests to: Hydraulic Supply Co., 300 Int'l Pkwy, Sunrise, FL 33325.

***** NOTE *****

Please see our website for the most up-to-date terms:
http://www.hydraulic-supply.com/html/terms.htm

Sales & Ordering Information

Request by: Name: _____ E-mail: _____
Billing Information:
Company Name: _____
Street Address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____
Contact: _____ E-mail: _____
Shipping Information:
Company Name: _____
Street Address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____
Contact: _____ E-mail: _____
Company Information:
Accounts Payable Contact: _____
Sales Contact: _____
Line of Business: _____ Year Established: _____
Size of Business (Small/Large): _____ Own/Rent/Lease: _____
Length of time at present address: _____ Number of employees: _____
Anticipated amount of monthly credit: _____ Owner/President: _____
Secretary: _____ Treasurer: _____
Please indicate FL/GA/NC/SC/TN/AL Sales Tax Status: Charge tax (Yes/No): ___ Is Purchase Order Required (Yes/No): ____
Trade References:
#1: Company Name: _____ Contact: _____
Street Address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____ E-mail: _____
#2: Company Name: _____ Contact: _____
Street Address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____ E-mail: _____
#3: Company Name: _____ Contact: _____
Street Address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____ E-mail: _____

Payment Terms Our terms are Net 30 Days, meaning payment is due within 30 days from date of invoice. In case of default of payment, customers agree to collection and/or attorney fees not exceeding 30% of amount past due.

Returned Material Policy We will normally accept returned material under the following conditions: 1. A copy of the invoice is furnished. 2. The material is returned within 30 days from date of invoice. 3. The material is in new resalable condition (unused, unpainted, etc.). 4. The material is normal stock for us (not special order). Returned material should be paid for when due. Restocking charges may apply.

Retained Title / Warranty Our invoice contains a retained title and warranty as follows:
The buyer hereby grants to Aero Hardware & Supply, Inc. a security interest in the equipment described in this invoice. To secure the debtor's payment for the equipment, title to said equipment shall remain in the seller until payment in full is made by the buyer. If the buyer defaults in such payment, the seller may declare all sums payable by the buyer hereunder immediately due payable and the seller may replevin the equipment and or exercise all of the rights and remedies of a secured party under the Uniform Commercial Code. Reasonable attorney's fees of the secured party in enforcing any right or exercising any remedy hereunder upon default of the buyer shall be paid to the seller by the buyer.

Seller warrants for 90 days from the date of sale that the equipment sold, as described hereon, shall be free from defects in material and workmanship. Seller's liability under this warranty is limited to repair or replacement of any part or parts of said equipment which shall be returned to seller, shipping charged prepaid and which seller's examination discloses to its sole satisfaction to be defective. This is seller's only warranty. By accepting the equipment under this warranty, buyer acknowledges that said equipment is being sold under no other written or oral warranties, neither expressed or implied, of any kind whatsoever such as, but not necessarily limited to, warranty of merchantability of fitness.

If you have any questions concerning our policy, please give us a call.

We authorize Hydraulic Supply Co. to obtain information from our bank and from our creditors. We further understand that this information will be confidential.

Applicant's Signature: _____ Date: _____

Applicant's Title: _____ **HSC Credit Fax Number: (954) 851-9865**

Accumulators, Inc.
Adaptall
Aeroquip®
Air Logic
AIRTEC Pneumatics
Alemite
Alkon
Allied Witan
American Couplings
American Cylinder
Anchor Brass
Anchor Fluid Power
Anderson Brass
Apollo®
Aro® (Ingersoll-Rand)
Arrow Hose (Eaton)
Ashcroft
Attica Hydraulic
Auburn Gear
Ausco Products
BSF Inc.
Band-It
Barco
Barksdale
Black Bruin
Brennan Industries
Boston Industrial Hose (Eaton)
Brand Hydraulics
Canfield Connector
C.W. Mill Equipment
Char-Lynn® (Eaton)
Concentric AB
Cross Manufacturing
Cylinders & Valves
Daman Products
David Brown
Delsteel
Delta Power Hydraulic
Deltrol Fluid Products
Dill Tire Service Products
Dixon Valve & Coupling
DMIC
Doering Company
Durst Power Transmission
ENFM
Eaton Corporation
Enerpac
Europower
Felsted
Flexfab
Flo-Ezy Filters
Flo-Tork
Fulflo Specialties
Funk Mfg.
Galtech
Generant Company
Hannay Reels
Hawe
HDM Hydraulics
Hedland Products
Helland (Zero-Max)
Hercules Sealing Products
Hetronic USA
Hub City
Husco
Hyco
Hydra-Zorb
Hydreco
Hypac
Hypro
Ingersoll-Rand / ARO®
Jefferson Solenoid Valves
Kar-Tech
Kawasaki
Kinedyne
Kocsis Technologies
Kuriyama
L & L Fittings
Lantec Industries
Lincoln Lube
Linderme Copper Tubing
Lion
Lovejoy
Lube Devices
Magnaloy Coupling
Marion Manufacturing
Maurey Manufacturing
Mazzer Industries
Midway Manufacturing
Mobil Oil
Monarch Industries
Muncie Power Products
Oetiker
Pacific Echo
Permco
PowerTeam/SPX
Pressure Devices
Pullmaster
Rawson-Koenig Winch
Ray Snubbers
Red Lion
Reel Craft Industries
SAI Hydraulics
Salami
Schroeder
SLI (Control Enterprises)
Snap Tite
Spartan Scientific
Speciality Fittings America
SPX
SSP Fittings
SSP Instrumentation
Staffa® (Kawasaki)
Stauff
Stone/SPX
Sun-Flow
Synflex® (Eaton)
TR Engineering
Telepneumatic (Parker)
Thermal Transfer
Tobul Accumulator
Trident Marine
Vector Engineering
Vescor
Vickers®
Voss
Walterscheid® (Eaton)
Walvoil
Ward Manufacturing
Williams Controls
Winner® (Eaton)
Winzeler Brass
World Wide Fittings
Yates Industries
Zeromax / Helland

Factory Authorized Repair Services

Manufacturer	Service Program
Alemite	Service Center
Char-Lynn®	Service Center
Enerpac	Service Center
Hein-Werner	Service Center
SPX Power Team	Service Center
Stanley	Warranty Repair Location, Handheld Tools and Railroad Tools
Vickers	QA Service Center

DISTRIBUTION CENTER - CUSTOMER SERVICE - TECHNICAL SUPPORT
24HOUR EMERGENCY SERVICE - CORPORATE OFFICES

300 International Parkway
Sunrise, FL 33325

Tel: (800) 507-9651
Fax: (954) 845-9113

Hours
Mon-Fri 8am-5pm

FLORIDA BRANCH LOCATIONS

Belle Glade
326 S.E. 1st Street
Belle Glade, FL 33430
Tel: 561-996-4431 Fax: 561-996-8531
Hours: Mon-Fri 7:30am-5pm Repair: No

Ft. Lauderdale
2601 S.W. 2nd Avenue
Ft. Lauderdale, FL 33315-3115
Tel: 954-463-6460 Fax: 954-463-3635
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Ft. Myers
12900 Metro Parkway
Ft. Myers, FL 33966
Tel: 239-274-9229 Fax: 239-274-0225
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Homestead
51 S.E. 3rd Terrace
Florida City, FL 33034
Tel: 305-248-3713 Fax: 305-248-3742
Hours: Mon-Fri 7:30am-5pm Repair: No

Jacksonville
30 Lane Avenue South
Jacksonville, FL 32254-3522
Tel: 904-783-4401 Fax: 904-781-9636
Hours: Mon-Fri 8am-5pm Repair: Yes
Sat 8am-12noon

Lakeland
3222 Winter Lake Rd. Bays 9-10
Lakeland, FL 33803
Tel: 863-665-3589 Fax: 863-665-3758
Hours: Mon-Fri 7:30am-5pm Repair: No

Miami Springs
680 KenmoreDrive
Miami Springs, FL 33166-7396
Tel: 305-888-2415 Fax: 305-884-4066
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Naples
4376 Corporate Square Blvd #2 & #3
Naples, FL 34104
Tel: 239-435-1642 Fax: 239-643-2985
Hours: Mon-Fri 8am-5pm Repair: No

Orlando
680 Montgomery Street
Orlando, FL 32808-8193
Tel: 407-295-4537 Fax: 407-291-9982
Hours: Mon-Fri 7:30am-5pm Repair: Yes

Pompano
2600 W. Sample Rd.
Pompano Beach, FL 33073
Tel: 954-973-5900 Fax: 954-973-4070
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Tampa
7200 Dr. Martin Luther King Jr. Blvd. E.
Tampa, FL 33619-1130
Tel: 813-621-0790 Fax: 813-628-0667
Hours: Mon-Fri 7:30am-5pm Repair: Yes

West Palm Beach
7680 Central Industrial Drive
West Palm Beach, FL 33404-3432
Tel: 561-863-6258 Fax: 561-863-6034
Hours: Mon-Fri 7:30am-5pm Repair: No

DISTRIBUTION CENTER - CUSTOMER SERVICE - TECHNICAL SUPPORT
24HOUR EMERGENCY SERVICE - CORPORATE OFFICES

300 International Parkway
Sunrise, FL 33325

Tel: (800) 507-9651
Fax: (954) 845-9113

Hours
Mon-Fri 8am-5pm

GEORGIA BRANCH LOCATIONS

Atlanta (Forest Park)
937 Forest Parkway
Forest Park, GA 30297
Tel: 404-608-0995 Fax: 404-608-1055
Hours: Mon-Fri 8am-5pm Repair: No

Atlanta (Mableton)
6310 Mableton Parkway, Suite 100
Mableton, GA 30126
Tel: 678-398-6673 Fax: 678-398-6817
Hours: Mon-Fri 8am-5pm Repair: No

Atlanta (Marietta)
1200 Cobb Parkway N, Suite 500
Marietta, GA 30062
Tel: 678-290-9227 Fax: 678-290-9265
Hours: Mon-Fri 8am-5pm Repair: No

Augusta
2722 Mike Padgett Hwy, Lot A
Augusta, GA 30906
Tel: 706-790-0628 Fax: 706-790-7043
Hours: Mon-Fri 8am-5pm Repair: No

Columbus
6440 West Hamilton Park Drive, Suite J
Columbus, GA 31909
Tel: 706-322-0707 Fax: 706-322-7430
Hours: Mon-Fri 8am-5pm Repair: No

Savannah
1125 US Hwy 80 East
Suites I & J
Pooler, GA 31322
Tel: 912-965-6771 Fax: 912-965-9219
Hours: Mon-Fri 7:30am-5pm Repair: No

MEXICO

Monterrey
Ave Adolfo Ruiz Cortines #2420 Col. Mitras Centro
Monterrey, Nuevo León 64460, Mexico
Tel: 811.356.6525

NORTH CAROLINA BRANCH LOCATIONS

Charlotte
646 Westinghouse Blvd
Charlotte, NC 28273
Tel: 704-319-9685 Fax: 704-319-9124
Hours: Mon-Fri 7:30am-5pm Repair: No
Sat 8am-12noon

Greensboro
3004 S. Elm Eugene Street
Greensboro, NC 27406
Tel: 336-544-8502 Fax: 336-478-1396
Hours: Mon-Fri 8am-5pm Repair: No

SOUTH CAROLINA BRANCH LOCATIONS

Columbia
1633 Key Road
Columbia, SC 29201
Chattanooga, TN 37421
Tel: 803-567-4098 Fax: 803-567-4099
Hours: Mon-Fri 7:30am-5pm Repair: No

TENNESSEE BRANCH LOCATIONS

Chattanooga
Shallowford Business Park
5959 Shallowford Rd. Suite 111
Chattanooga, TN 37421
Tel: 423-553-8854 Fax: 423-553-8995
Hours: Mon-Fri 8am-5pm Repair: No

Knoxville
5227 N. Middlebrook Pike, Suite B
Knoxville , TN 37921
Tel: 865-321-9120 Fax: 865-321-9121
Hours: Mon-Fri 7:30am-5pm Repair: No

COMING SOON

Greenville, SC
Charleston, SC
Birmingham, AL
Mobile, AL

Notes

Category	Page

Hose Application Warnings

Agency and industry standards may apply to your application. It is your responsibility to decide what regulations and/or standards apply, and inform us. We will then advise you if the products selected meet those standards.

Improper selection, installation and/or routing may significantly shorten the life of a hydraulic hose, which could result in hose rupture and failure, which may then result in serious persinal injury or property damage.

If you don't already have the proper training or information, ask for:

Eaton/Aeroquip Fluid Conveyance Products Catalog A-HOOV-MC001-E
- Warnings - pages 11-12
- Fluid Compatibility - pages 349-355
- SAE Recommended Practices (SAE J1273) - page 356
- Routing & Installation - page 358
- Thread Style Pressure Performance - page 428

Most hydraulic fluids are flammable and proper safeguards have to be taken to contain any fluid if a hose failure occurs in an environment with a source of ignition.

Hoses have a service life, and high repetitive shock reduces hose service life. You need to inspect and change out hoses within their service life for your application or hose rupture and failure may occur.

S.**T**.**A**.**M**.**P**. - You must consider the **S**ize, **T**emperature, **A**pplication, **M**edium and **P**ressure when selecting hose and hose fittings.

WARNING

EATON FITTING TOLERANCES ARE ENGINEERED TO MATCH EATON'S AEROQUIP HOSE TOLERANCES. THE USE OF EATON FITTINGS ON HOSE SUPPLIED BY OTHER MANUFACTURERS AND/OR THE USE OF EATON'S AEROQUIP HOSE WITH FITTINGS SUPPLIED BY OTHER MANUFACTURERS MAY RESULT IN THE PRODUCTION OF UNRELIABLE AND UNSAFE HOSE ASSEMBLIES AND IS NEITHER RECOMMENDED NOR AUTHORIZED BY EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES.

WARNING

APPLICATION CONSIDERATIONS MUST BE OBSERVED IN SELECTING APPROPRIATE COMPONENTS FOR THE APPLICATION OF THESE PRODUCTS CONTAINED HEREIN. THE FAILURE TO FOLLOW THE RECOMMENDATIONS SET FORTH IN THIS CATALOG MAY RESULT IN AN UNSTABLE APPLICATION WHICH MAY RESULT IN SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE.

EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES SHALL NOT BE SUBJECT TO AND DISCLAIMS ANY OBLIGATIONS OR LIABILITIES (INCLUDING BUT NOT LIMITED TO ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES) ARISING FROM TORT CLAIMS (INCLUDING WITHOUT LIMITATION NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW WITH RESPECT TO ANY HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE AEROQUIP HOSE FITTINGS, HOSE AND AEROQUIP APPROVED EQUIPMENT, AND IN CONFORMANCE WITH EATON'S AEROQUIP PROCESS AND PRODUCT INSTRUCTIONS FOR EACH SPECIFIC HOSE ASSEMBLY.

Failure to follow these processes and product instructions and limitations could lead to premature hose assembly failures resulting in property damage, serious injury or death.

2651 Single Wire Braid SAE 100R5 Performance

Construction: Synthetic rubber tube, textile inner braid, single wire braid reinforcement, outer textile braid and black synthetic rubber cover.
Application: Hydraulics, gasoline, fuel and lubricating oils, air and water. Except air, not to exceed 250 psi or +160°F. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299
Operating Temperature Range: -40°F to +212°F, except air +160°F.
Reusable Fittings: Reduced Bore (Steel) page 68 Reduced Bore (Stainless Steel) page 74 Reduced Bore (Brass) page 67

2651

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BJ12	2651-4	0.19	0.52	3000	12000	3	28	540-720	0.16	
•C1BJ15	2651-6	0.31	0.68	2250	9000	4	28	320-420	0.24	
•C1BJ16	2651-8	0.41	0.75	2000	8000	4.62	28	470-620	0.28	
•C1BH98	2651-12	0.62	1.08	1500	6000	6.5	28	230-300	0.52	
•C1BH99	2651-16	0.88	1.23	800	3200	7.38	20	180-240	0.46	
•C1BJ11	2651-20	1.12	1.50	625	2500	9	20	Rolls Only	0.54	

Note: Reeled hose may be purchased by the foot or by the reel.

2661 Wire Inserted Suction Exceeds SAE 100R4 AQP® Blue

Construction: AQP® elastomer tube, reinforcement consisting of a helical wire between two textile braids and blue AQP® elastomer cover.
Application: Suction and transfer applications for petroleum and phosphate ester hydraulic fluids, fuel, lubricating oils, gasoline, water and many other industrial fluids. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299
Operating Temperature Range: -40°F to +300°F.
Hydraulic Crimp Fittings: Global TTC (Steel), -12 requires buffing, -20 requires 1AT or 1AV part number. Global TTC (Stainless Steel), -12 requires buffing, -20 requires 1AT or 1AV part number. Global TTC12, -12 only, no buffing required. Field Crimp, 12 and -16 only.
Industrial Reusable Fittings & Attachment Suggestions: Shank Type Combination Nipples attached with T-Bolt Band Clamps or Preformed Clamps.
Industrial Reusable Fittings: Shank Type Combination Nipples (Steel) . (Stainless Steel) page 53
Industrial Reusable Fitting Attachment: T-Bolt Clamps (stainless band) page 89 Trident #720 S.S. T-Bolt Clamps page 90 Band-It® Jr.Preformed Clamps page 94
Note: Maximum working pressure for clamped hose assembly is 50 psi.

2661

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BJ20	2661-12	0.75	1.25	300	1200	5.0	28	Rolls Only	0.50	
•C1BJ21	2661-16	1.00	1.50	250	1000	6.0	28	Rolls Only	0.90	
•C1BJ22	2661-20	1.25	1.80	200	800	8.0	28	Rolls Only	0.94	
C1BJ23	2661-24	1.50	2.06	150	600	10.0	28	Rolls Only	1.15	
C1BJ24	2661-32	2.00	2.55	100	400	12	28	Rolls Only	1.25	

Note: Maximum working pressure for clamped hose assembly is 50 PSI.

FC300 Single Wire Braid Exceeds SAE 100R5 AQP® Blue

Construction: AQP® elastomer tube, polyester inner braid, single wire braid reinforcement and blue polyester braid cover.

Application: Hydraulics handling petroleum base fluids, air, gasoline, fuel and lubricating oils, fire resistant hydraulic fluids and other industrial fluids. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299

Operating Temperature Range: -55°F to +300°F except air +250°F

Reusable Fittings: Reduced Bore (Steel) page 68 Reduced Bore (Stainless Steel) page 74 Reduced Bore (Brass) page 67

FC300

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR45	FC300-04	0.19	0.52	3000	12000	3	28	490-640	0.15	
•C1CR46	FC300-05	0.25	0.58	3000	12000	3.38	28	390-510	0.19	
C1CR47	**FC300-06**	0.31	0.67	2250	9000	4	28	300-390	0.23	
C1CR48	**FC300-08**	0.41	0.76	2000	8000	4.62	28	450-600	0.26	
C1CR49	**FC300-10**	0.50	0.93	1750	7000	5.5	28	300-390	0.37	
C1CR50	**FC300-12**	0.62	1.08	1500	6000	6.5	28	230-300	0.44	
C1CR51	**FC300-16**	0.88	1.27	800	3200	7.38	20	170-210	0.41	
•C1CR52	FC300-20	1.12	1.50	625	2500	9	20	Rolls Only	0.52	
•C1CR53	FC300-24	1.38	1.75	500	2000	10.5	15	Rolls Only	0.64	
•C1CR54	FC300-32	1.81	2.22	300	1200	13.25	11	Rolls Only	0.84	
C1ZY17	FC300-40	2.38	2.88	300	1200	24.00	8	Rolls Only	1.80	

Note: Reeled hose may be purchased by the foot or by the reel.

Aeroquip® FC300 Cut Lengths

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JK89C 1JK89	300-4-25FT300-4-25FT	FC300-04 x 25 Ft Cut Length		
C1JK90C 1JK90	300-4-50FT300-4-50FT	FC300-04 x 50 Ft Cut Length		
C1JK91C 1JK91	300-5-25FT300-5-25FT	FC300-05 x 25 Ft Cut Length		
C1JK92C 1JK92	300-5-50FT300-5-50FT	FC300-05 x 50 Ft Cut Length		

Aeroquip® FC300 Cut Lengths

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1JK93C 1JK93	300-6-25FT300-6-25FT	FC300-06 x 25 Ft Cut Length		
C1JK94C 1JK94	300-6-50FT300-6-50FT	FC300-06 x 50 Ft Cut Length		
C1JK95C 1JK95	300-8-25FT300-8-25FT	FC300-08 x 25 Ft Cut Length		
C1JK96C 1JK96	300-8-50FT300-8-50FT	FC300-08 x 50 Ft Cut Length		
C1JK83C 1JK83	300-10-25FT300-10-25FT	FC300-10 x 25 Ft Cut Length		
C1JK84C 1JK84	300-10-50FT300-10-50FT	FC300-10 x 50 Ft Cut Length		
C1JK85C 1JK85	300-12-25FT300-12-25FT	FC300-12 x 25 Ft Cut Length		
C1JK86C 1JK86	300-12-50FT300-12-50FT	FC300-12 x 50 Ft Cut Length		
C1JK87C 1JK87	300-16-25FT300-16-25FT	FC300-16 x 25 Ft Cut Length		
C1JK88C 1JK88	300-16-50FT300-16-50FT	FC300-16 x 50 Ft Cut Length		

Trident #365 Barrier Lined Type A1-15 Fuel Hose
USCG Type A1 - SAE J1527

TRIDENT MARINE

Features: Premium Type A1 fuel line hose. Barrier liner is on inside of tube so fuel is not in direct contact with nitrile rubber tube. This provides extraordinary resistance to aging and permeation by all marine fuels including alcohol blends. 2 spiral polyester reinforcement provides maximum working pressure, excellent flexibility and bend radius. Nitrile blend cover provides excellent resistance to fire and heat, cold, ozone and fuel aging. Perfect for all fuel line applications (feed/supply, return, transfer, vent) on all marine engine systems (Inboard, I/O Stern Drives, Gen Sets and Outboards), under all newest marine standards (USCG Type A1, SAE J1527, ISO 7840 A1, ABYC H-24 & H-33, NMMA Type Accepted, CE Certified). Hose I.D. sizes conform to ISO nominal bores and tolerances. Black with red stripe and white letters.

Construction: Nylon Internal Barrier, NBR Tube; NBR/PVC Blend Cover; Polyester 2 spiral Reinforcement

Temperature Range: -20 °F to 212 °F

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel pinch clamps, stainless steel worm gear clamps or brass crimp ferrules.

Fittings: Shank Type (Brass) page 49

Fitting Attachment: Pinch Clamps page 85Worm Gear Clamps page 84 Crimp Ferrules page 97

Trident #365 Barrier Lined Type A1-15 Fuel Hose • USCG Type A1 - SAE J1527

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Winzeler Crimp Ferrule	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT67	365-0146	0.250	0.536	100	2.50	C1BZ37	50 ft reel box	0.16	
•C1FT71	365-0566	0.312	0.611	100	2.50	C1BZ38	50 ft reel box	0.18	
•C1FT72	365-0567	0.312	0.611	100	2.50	C1BZ38	100 ft reel box	0.18	
•C1FT69	365-0386	0.375	0.681	100	2.50	C1BZ40	50 ft reel box	0.21	
•C1FT70	365-0387	0.375	0.681	100	2.50	C1BZ40	100 ft reel box	0.21	
C1GL26	365-0380	0.375	0.681	100	2.50	C1BZ40	600 ft reel	0.21	
•C1FT65	365-0126	0.500	0.821	100	4.50	C1BZ44	50 ft reel box	0.25	
•C1FT66	365-0127	0.500	0.821	100	4.50	C1BZ44	100 ft reel box	0.25	
•C1FT73	365-0586	0.625	1.000	75	4.50	C1BY67	50 ft reel box	0.36	
•C1FT74	365-0587	0.625	1.000	75	4.50	C1BY67	100 ft reel box	0.36	

Note: Hose in 100 ft Reel Box is sold by the foot or by the box. Hose in 50 ft Reel Box is sold by the box.

Winzeler Crimp Ferrules: Crimp Ferrules page 97

Aeroquip® FC234 Type A1 Fuel Hose • Blue Cover USCG Type A1 - SAE J1527

Construction: AQP® elastomer tube, brass plated steel wire reinforcement, braided refractory insulation and blue AQP® elastomer cover.
Application: Diesel fuel, gasoline, hot lube oil and water. A superior hose for marine fuel systems. Meets SAE J1527 Type A1 (Flame resistant, increased permeation resistance). FC234 is an SAE J1942-1 (May 2002) qualified hose for marine fuel lines, no firesleeve required.
Operating Temperature Range: -40°F to +300°F.
Reusable Fittings: Reduced Bore (Steel) page 68 Reduced Bore (Stainless Steel) page 74 Reduced Bore (Brass) page 67

Aeroquip® FC234 Type A1 Fuel Hose • Blue Cover • USCG Type A1 - SAE J1527

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR20	FC234-05	0.25	0.58	1500	6000	1.0	28	410-540	0.22	
•C1CR21	FC234-06	0.31	0.68	1500	6000	1.25	28	310-400	0.25	
•C1CR22	FC234-08	0.41	0.76	1250	5000	1.75	28	449-590	0.30	
•C1CR23	FC234-10	0.50	0.94	1250	5000	2.25	28	310-400	0.45	
•C1CR24	FC234-12	0.62	1.08	750	3000	2.75	20	230-300	0.48	
•C1CR25	FC234-16	0.88	1.24	400	1600	3.5	16	180-230	0.51	

Note: Reeled hose may be purchased by the foot or by the reel.

Trident #327 Type A2 Fuel Fill Hose USCG Type A2 - SAE J1527

Application & Construction: Trident Barrier Lined A1-15 Fuel Hose for both gasoline (including ethanol blends) and diesel (including bio diesel blends). The #365 series exceeds ABYC H-24 & H-33, SAE J1527, ISO 7840, USCG Type A1-15; CARB Executive Order and EPA Certified low permeation Type A1-15; and is NMMA Type Accepted & CE certified. This hose is built with the best fuel, fire and age resistant formulation and a unique "Barrier Liner" on inside surface of the tube, so fuel is not in direct contact with rubber. Provides extraordinary resistance to fuel permeation, aging, and also to fire, heat, cold, and the ozone. Also provides excellent bend-ability.
Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps.
Fittings: Shank Type (Brass) page 49. Shank Type (Brass) page 52. Shank Type (Stainless Steel) page 53
Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 90

Trident #327 Type A2 Fuel Fill Hose • USCG Type A2 - SAE J1527

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT62	327-0346	0.75	1.20	100	2.50		50 ft roll	0.50	
•C1GH48	327-1006	1.00	1.42	80	3.00		50 ft roll	0.48	
•C1GG59	327-1146	1.25	1.70	70	4.50		50 ft roll	0.94	
•C1FT63	327-1126	1.50	2.00	60	5.50		50 ft roll	0.70	
•C1FT64	327-2006	2.00	2.50	50	7.00		50 ft roll	0.90	
C1GB40	327-2386	2.375					50 ft roll	1.48	

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.
Note: Hose may be purchased by the foot or by the roll.

Eaton 35FH fuel hose, meets EPA EETHPLINE035, USCG Type B1-15, SAE J1527

Construction: Polyvinylidene Fluoride (PVDF) barrier layer with polyester reinforcement and a black PVC Alloy cover.

Test Requirements SAE	J30R6	J30R9	J30R11	J1527B1
Burst	Pass	Pass	Pass	Pass
Vacuum Collapse	Pass	Pass	Pass	Pass
Tensile	Pass	Pass	Pass	Pass
Elongation	Pass	Pass	Pass	Pass
Dry Heat AsTmD 573	Pass	Pass	Pass	Pass
Fuel Resistance AsTmD471	Pass	Pass	Pass	Pass
Ozone	Pass	Pass	Pass	Pass
Adhesion	Pass	Pass	Pass	Pass

Application: Marine outboard fuel systems and small gasoline powered lawn, garden, rental and turf equipment. Designed for sustainability of our environment, with exceptionally low fuel permeation. The State of California Air Resources Board (CARB) and the U.S. EPA Clean Air Act, Section 213, mandate that fuel hoses for outboard marine, not to exceed a permeation rate of fuel vapors of 15gm/m2/day. Eaton's 35FH significantly exceeds this regulation with tested average loss rate of <6gm/m2/day. Meets tank to engine requirements on a wide variety of marine out board fuel systems and small gasoline powered turf and lawn care equipment. Meets the requirements of the International Marine Certification institutes Recreational Craft Directive 94/25/EC. Qualified to applicable portions of SAE J1527B1, SAE J30R6, R9 and R11 specifications. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299

Operating Temperature Range: -40°F to +160°F

Reusable Fittings: SOCKETLESS™ page 77

Eaton 35FH fuel hose, meets EPA EETHPLINE035, USCG Type B1-15, • SAE J1527

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1MQ91	35FH-40203-001	0.25	0.49	175	700	300	0.08	
C1MQ92	35FH-50203-001	0.31	0.56	175	700	300	0.96	
C1MQ93	35FH-60203-001	0.37	0.63	175	700	300	0.10	

Note: May be purchased by the reel or by the foot.

Trident #144 Heavy Duty Bilge-Drain-Live Well Hose

Application & Construction: Heavy duty bilge, drain and live well hose. Corrugated clear vinyl (see thru) with black hard PVC helix and smooth tube. Exceptional flexibility and bend radius. NOT RECOMMENDED FOR BELOW WATERLINE THRU-HULL CONNECTIONS. No cuffs required (Even though the O.D. of this hose is not smooth, clamping without cuffs has proven to be successful with this hose style). Clear with black helix.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps.

Fittings: Shank Type (Brass) page 49. Shank Type (Brass) page 52. Shank Type (Stainless Steel) page 53

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 90

Trident #144 Heavy Duty Bilge-Drain-Live Well Hose

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS82	144-1126	1.50	1.79	50			50 ft reel box	0.40	

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Note: Hose may be purchased by the foot, by the roll or by the reel box.

Trident #147 Extra Heavy Duty Bilge-Live Well Hose

Application & Construction: Smooth extra heavy wall vinyl hose. All clear (see thru) with black helix. Excellent durability, flexibility and bend radius for extra heavy duty bilge, live well, drain, scupper lines, etc. No cuffs required. Operating temperatures 10°F to 140°F.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps.

Fittings: Shank Type (Brass) page 49. Shank Type (Brass) page 52. Shank Type (Stainless Steel) page 53

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 90

Trident #147 Extra Heavy Duty Bilge-Live Well Hose

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Color	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS86	147-1006	1.00					Clear, black helix	50 ft reel box	0.24	
•C1FS88	147-1186	1.125	1.375	95			Clear, black helix	50 ft reel box	0.28	

Note: Double Clamping is recommended for below water line connections.
Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.
Note: Hose may be purchased by the foot or by the reel box.

Trident #148 Extra Heavy Duty Sanitation Hose - FDA Sanitation - Potable Water - Critical Bilge - Scupper - Live Well

Application & Construction: Extra heavy duty sanitation hose of smooth white vinyl. Specially compounded to provide excellent resistance to odor permeation and FDA potable water fill. Also for critical bilge, drain scupper, live well, etc. Hard PVC helix gives good flexibility and bend radius. No cuffs required. NOT for use with alcohols, anti freeze, petro-chemicals or solvents. Operating temperatures 10°F to 140°F. White.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps (Stainless steel worm gear clamps may be used for smaller sizes where T-Bolt style is not available).

Fittings: Short Shank Type (Brass) page 49. Medium Shank Type (Brass) page 52. Shank Type (Stainless Steel) page 53

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 90. Worm Gear Clamps page 84

Trident #148 Extra Heavy Duty Sanitation Hose - FDA • Sanitation - Potable Water - Critical Bilge - Scupper - Live Well

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS89	148-0346	0.75	1.00	105			50 ft reel box	0.19	
•C1FS91	148-1006	1.00	1.25	100			50 ft reel box	0.24	

Note: Double Clamping is recommended for below water line connections.
Note: Hose may be purchased by the foot or by the reel box.

Trident #101 Premium Sanitation Hose
Head & Holding Tank

Application & Construction: Premium sanitation hose for all head and holding tank applications. Extra thick tube and cover specially compounded for maximum resistance to odor permeation and winterizing with anti freeze. Helical wire between 2 ply reinforcement provides excellent flexibility and bend radius. Longest odor-free performance on the market, but self draining installations are still recommended. NOT for potable water.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps.

Fittings: Short Shank Type (Brass) page 49Medium Shank Type (Brass) page 52. Shank Type (Stainless Steel) page 53

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 90

Trident #101 Premium Sanitation Hose • Head & Holding Tank

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS61	101-1126	1.50	2.08				50 ft roll	0.60	
•C1GM69	101-1786-TRIDENT	1.875					50 ft roll	0.80	

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Note: Hose may be purchased by the foot or by the roll.

Trident #100 Hardwall Water Hose
Engine Intake - Critical Water - Drain - Scupper

Application & Construction: Premium water hose for engine intake, critical water, drain, scupper, bilge and sanitation uses. Black Hi Temp EPDM rubber rated to 250°F. Extra heavy tube and cover with wire helix between 2 ply reinforcement provides excellent flexibility and bend radius. Resists heat, ozone, exhaust, sanitation chemicals, panting and collapse. Exceeds new SAE J2006, ABYC and NMMA standards. ISO 13363 Standard pending. Black with blue stripe.

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel T-Bolt clamps (Stainless steel worm gear clamps may be used for smaller sizes where T-Bolt style is not available).

Fittings: Short Shank Type (Brass) page 49. Medium Shank Type (Brass) page 52. Shank Type (Stainless Steel) page 53

Fitting Attachment: Trident #720 S.S. T-Bolt Clamps page 90. Worm Gear Clamps page 84

Trident #100 Hardwall Water Hose • Engine Intake - Critical Water - Drain - Scupper

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FS56	100-0346	0.75	1.18	98	2.25		50 ft roll	0.29	
•C1FS59	100-1006	1.00		78	3.00		50 ft roll	0.38	

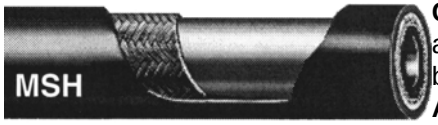
Note: Double Clamping is recommended for below water line connections.

Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Note: Hose with 50 ft roll standard package may be purchased by the foot or by the package. Hose with 12-1/2 ft standard package may be purchased by the package.

Trident MSH Marine Steering Hose

TRIDENT MARINE



Construction: Polymeric core tube, fiber braid reinforcement, abrasion-resistant urethane cover. Black, non-perforated cover. All layers bonded for optimum kink resistance and flexibility.
Application: Marine steering hose provides flexibility and low volumetric expansion for rapid, accurate hydraulic response. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on
Operating Temperature Range: -40°F to 212°F except limited to 135°F for synthetic hydraulic fluids and water-based fluids.
Fittings: Crimp (Brass) page 82 Reusable (Brass) page 81

Trident MSH Marine Steering Hose

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1HX31	MSH-5-RL	0.3125	0.48	1000	4000	2.25		600 ft reel	0.05	
•C1HX32	MSH-6-RL	0.375	0.59	1000	4000	3.0		600 ft reel	0.07	

Note: Reeled hose may be purchased by the foot or by the reel.

Marine Wet Exhaust Hose, Bellows & Elbows

TRIDENT MARINE

Trident Marine Wet Exhaust Hose, Bellows & Elbows SAE J2006 Standard Compliance & Labeling

Lloyd's Register

Only TRIDENT meets marine wet exhaust standard SAE J2006 with the full range of flexible exhaust hose, bellows and elbows. SAE J2006 compliance & labeling is now required for USA boat certification & surveys.

Features & Benefits: Marine design of heavy-wall construction and best rubber & silicone formulations solves the tough marine exhaust problems, including compliance with ABYC, NMMA & ISO (draft) exhaust standards • Greatest heat & aging resistance - Silicone up to 500°F with 6 times longer life than most rubber products • Excellent flexibility & tight bend radius designs for easier and better installations - Solves misalignment, obstruction & space problems with less labor, parts and cost • Smooth interior surface & bend arcs - Reduces engine back pressure, improves performance • Maximum absorption of engine movement, vibration & noise - Smoother, quieter operation • Glossy blue silicone is the yacht exhaust standard - Enhances engine room appearance.

BLACK HT (Hi Temp): EPDM rubber. 250°F maximum continuous. 5 year warranty.

Blue VHT (Very Hi Temp): Silicone rubber. 350°F maximum continuous. 10 year warranty.

Red XHT (Xtra Hi Temp): Silicone rubber. 500°F maximum continuous. 10 year warranty.

Applications: Molded products (certain Hump Hoses and Elbows) are for use in Wet Exhaust systems only. Reinforced products (certain Hump Hoses and Elbows, plus Wet Exhaust hoses), may be used in both Wet Exhaust and Engine Coolant systems, up to rated working pressure of the component.

Installation: Do not damage or kink. Install far enough downstream from the point of wet exhaust system water injection so that the maximum continuous operating temperature at it's location does not exceed that of the component. Install over rigid tubing or pipe with reasonable overlap (May lubricate with water and/or detergent - not oil or grease). Each rubber component requires a minimum of 2 stainless steel clamps (1/2 inch wide minimum) at each end. Recommended clamps are 3/4 inch wide T-Bolt Clamps and 5/8 inch wide Constant Torque Clamps. All components should be supported and strapped the entire length of the system.

Operation: In case of backfire, visually inspect the entire wet exhaust system for damage, leaks or separated connections.

Recommended Clamps: Trident #720 S.S. T-Bolt Clamps page 90 Trident #730 S.S. Constant-Torque® Clamps page 93 Double Clamping is recommended.

Trident #250 Hardwall Wet Exhaust Hose Black HT (Hi Temp) EPDM Rubber

Application & Construction: Premium wet exhaust hose for longer bent connections. Black HT (High Temp) EPDM Rubber. Extra heavy tube and cover with wire helix between 2 ply reinforcement provides excellent flexibility and bend radius. Resists heat, ozone, exhaust, sanitation chemicals, panting and collapse. Exceeds new SAE J2006, ABYC and NMMA standards. ISO 13363 standard pending. Black with blue stripe.

Maximum Continuous Temperature: 250° F.

Trident #250 Hardwall Wet Exhaust Hose • Black HT (Hi Temp) EPDM Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT29	250-1124	1.50	2.00	57	4.25		12-1/2 FT	0.61	
•C1FT31	250-1584	1.625	2.125	54			12-1/2 FT	0.75	
•C1FT30	250-1344	1.75	2.25	54			12-1/2 FT	0.81	
•C1FT33	250-2004	2.00	2.50	47	5.50		12-1/2 FT	0.95	
•C1GB19	250-2144	2.25					12-1/2 FT	1.28	
•C1FT35	250-2384	2.375	2.875	68			12-1/2 FT	1.09	
•C1FT34	250-2124	2.50	3.10	65			12-1/2 FT	1.15	
C1GB22	250-2784	2.875					12-1/2 FT	24.96	
•C1FT36	250-3004	3.00	3.50	57	8.00		12-1/2 FT	1.79	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 90 Trident #730 S.S. Constant-Torque® Clamps page 93
Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Trident #252 Corrugated Hardwall Wet Exhaust Hose Black HT (Hi Temp) EPDM Rubber

Application & Construction: Premium corrugated marine wet exhaust hose for longer connections with substantial bends. Black HT (High Temp) EPDM rubber. Thick tube and cover with wire helix between 2 ply reinforcement. Exceptional flexibility and bend radius. Resists heat, ozone, exhaust fumes, panting and collapse. Exceeds new SAE J2006, ABYC and NMMA standards. ISO 13363 standard pending. Black with blue stripe.

Maximum Continuous Temperature: 250° F.

Trident #252 Corrugated Hardwall Wet Exhaust Hose • Black HT (Hi Temp) EPDM Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT42	252-1124	1.50	2.00	48	4.00		12-1/2 FT	0.75	
•C1FT43	252-2004	2.00	2.50	48	5.25		12-1/2 FT	0.94	
•C1FT44	252-3004	3.00	3.60	60	7.50		12-1/2 FT	1.54	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 90 Trident #730 S.S. Constant-Torque® Clamps page 93
Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Marine Wet Exhaust Hose, Bellows & Elbows

TRIDENT MARINE

Trident #200 Softwall Wet Exhaust Hose
Black HT (Hi Temp) EPDM Rubber

Application & Construction: Premium marine wet exhaust hose for short, straight connections. Black HT (High Temp) EPDM rubber. Extra heavy tube and cover with 2 to 6 ply reinforcement resists heat, aging, ozone, exhaust and sanitation chemicals. Exceeds new SAE J2006, ABYC and NMMA standards. ISO 13363 standard pending. Black with blue stripe.

Maximum Continuous Temperature: 250° F.

Trident #200 Softwall Wet Exhaust Hose • Black HT (Hi Temp) EPDM Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1GA97	200-1124	1.50					12-1/2 FT	0.89	
•C1FS98	200-2004	2.00	2.60	50			12-1/2 FT	0.66	
•C1FS99	200-2124	2.50	3.10	51			12-1/2 FT	1.37	
•C1GB14	200-2344	2.75					12-1/2 FT		
•C1FT11	200-3004	3.00	3.68	51			12-1/2 FT	1.61	
•C1FT13	200-4004	4.00	4.50	54			12-1/2 FT	2.13	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 90 Trident #730 S.S. Constant-Torque® Clamps page 93
Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Trident #202V Silicone Wet Exhaust Hose
Blue VHT (Very Hi Temp) Silicone Rubber

Application & Construction: Ultimate quality silicone marine wet exhaust and water hose. Blue VHT (Very High Temp) silicone rubber with 4 to 6 ply polyester reinforcement. Dramatically exceeds SAE J2006, ABYC and NMMA standards. Blue with white stripe.

Maximum Continuous Temperature: 350° F.

Trident #202V Silicone Wet Exhaust Hose • Blue VHT (Very Hi Temp) Silicone Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT17	202V1124	1.50	1.90	80			12 FT	0.60	
•C1FT20	202V4000-36	4.00	4.40	35			3 FT	1.80	
•C1HN56	202V5000-36	5.00	5.40				3 FT	1.90	
•C1FT21	202V6000-36	6.00	6.50	20			3 FT	2.80	
•C1FT22	202V8000-36	8.00	8.50	20			3 FT	3.80	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 90 Trident #730 S.S. Constant-Torque® Clamps page 93
Note: Hose stocked in 12 ft lengths may be purchased cut in 2 ft multiples. Hose stocked in 3 ft lengths is available as a full 3 ft length.
Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Trident #252V Corrugated Silicone Wet Exhaust Hose
Blue VHT (Very Hi Temp) Silicone Rubber

Application & Construction: Ultimate quality corrugated silicone marine wet exhaust and water hose for longer connections with substantial bends. Blue VHT (Very High Temp) silicone rubber. Thick tube and cover with wire helix between 2 ply reinforcement Dramatically exceeds SAE J2006, ABYC and NMMA standards. Blue with white stripe.
Maximum Continuous Temperature: 350° F.

Trident #252V Corrugated Silicone Wet Exhaust Hose • Blue VHT (Very Hi Temp) Silicone Rubber

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Standard Package	Wt. (per ft)	Price (per ft)
•C1FT45	252V0344	0.75	1.25				12 FT	0.29	
•C1FT46	252V1004	1.00	1.50				12 FT	0.33	
•C1GL19	252V1144	1.25	1.75				12 FT	6.70	
•C1FT47	252V1124	1.50	2.00				12 FT	0.60	
•C1FT48	252V2004	2.00	2.60				12 FT	0.80	
•C1FT49	252V2124	2.50	3.10				12 FT	0.90	
•C1FT50	252V3004	3.00	3.60				12 FT	1.20	

Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 90 Trident #730 S.S. Constant-Torque® Clamps page 93
Note: Hose stocked in 12 ft lengths may be purchased cut in 2 ft multiples. Hose stocked in 3 ft lengths is available as a full 3 ft length.
Note: Other sizes and lengths are readily available from Trident. Please contact us for pricing and delivery.

Trident Wet Exhaust Hump Hose Bellows
Black HT - Blue VHT - Red XHT

Application & Construction: EPDM Rubber & silicone rubber Hump Hose Bellows provide the ultimate flexible straight connectors for marine wet exhaust systems. They offer increased tolerance to heat, misalignment, movement and vibration, while reducing installed cost, back pressure and noise.
Maximum Continuous Temperature: See table below.
Note: Molded models (see table below) are for wet exhaust systems only. Reinforced models may be used in both wet exhaust and engine coolant systems up to the rated working pressure of the component.

Trident Wet Exhaust Hump Hose Bellows • Black HT - Blue VHT - Red XHT

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Construction & Max Continuous Temp	Humps	Length (in)	Hump O.D. (in)	Clampable O.D. (in)	Minimum Clampable Length (in)	Clamps Included	Wt.	Price Each
•C1FV11	THH3SS	3.00	Molded HT EPDM 250°F	Single	5.25	4.50	3.50	2.00	Yes	2.00	
•C1GM66	272V3000SS	3.00	Reinforced VHT Blue Silicone 350°F	Single	6.00		3.40		Yes	1.25	
•C1FT52	272V4000SS	4.00	Reinforced VHT Blue Silicone 350°F	Single	6.00		4.40		Yes	2.00	

Note: Models with "SS" at end of model number come packaged with 4 Trident Marine #720 Series all-stainless steel T-Bolt clamps.
Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 90 Trident #730 S.S. Constant-Torque® Clamps page 93
Note: Other sizes and models are readily available from Trident. Please contact us for pricing and delivery.

Trident Wet Exhaust Elbows
Black HT - Blue VHT - Red XHT

Application & Construction: EPDM Rubber & silicone rubber Elbows provide the ultimate flexible angled connectors for marine wet exhaust systems. They offer increased tolerance to heat, misalignment, movement and vibration, while reducing installed cost, back pressure and noise.
Maximum Continuous Temperature: See table below.
Note: Molded models (see table below) are for wet exhaust systems only. Reinforced models may be used in both wet exhaust and engine coolant systems up to the rated working pressure of the component.

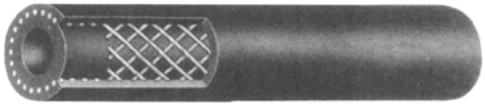
Trident Wet Exhaust Elbows • Black HT - Blue VHT - Red XHT

Catalog Part No.	Trident Marine Model	Hose I.D. (in)	Angle	Construction & Max Continuous Temp	Clampable O.D. (in)	Minimum Clampable Length (in)	Clamps Included	Wt.	Price Each
•C1FV18	TRL290SS	2.00	90°	Molded HT EPDM 250°F	2.40	1.75	Yes	1.50	
•C1FV19	TRL345SS	3.00	45°	Molded HT EPDM 250°F	3.50	1.50	Yes	3.00	
•C1FV22	TRL390SS	3.00	90°	Molded HT EPDM 250°F	3.50	1.50	Yes	3.00	
•C1FT57	290V3000SS	3.00	90°	Molded VHT Blue Silicone 350°F	3.50	1.50	Yes	2.00	
•C1FV21	TRL3590SS	3.50	90°	Molded HT EPDM 250°F	4.00	1.50	Yes	3.50	
•C1FV24	TRL490SS	4.00	90°	Molded HT EPDM 250°F	4.50	1.50	Yes	4.00	
C1FV25	TRL545SS	5.00	45°	Molded HT EPDM 250°F	5.50	1.62	Yes	4.00	

Note: Models with "SS" at end of model number come packaged with 4 Trident Marine #720 Series all-stainless steel T-Bolt clamps.
Double Clamping Recommended: Trident #720 S.S. T-Bolt Clamps page 90 Trident #730 S.S. Constant-Torque® Clamps page 93
Note: Other sizes and models are readily available from Trident. Please contact us for pricing and delivery.

Special Application Hose

4219G Fuel Line & Tank Vent



Construction: Black Buna-N tube. Synthetic high tensile cord reinforcement. Black Buna-N* cover. * Modified Buna-N compound for increased ozone resistance.
Application: Fuel line applications to provide flexible connections between rigid fuel distribution lines and the engine. Exceeds requirements of SAE 30R6 and SAE 30R7. Hose is NMMA type accepted. Also for use in evaporative emission control systems and as a vent line. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 324
Operating Temperature Range: -40°F to +275°F.
Fittings & Fitting Attachment Suggestions: Shank type fittings attached with pinch clamps, preformed clamps or crimp ferrules.
Fittings: Short Shank Type (Brass) page 49. Shank Type (Stainless Steel) page 53
Fitting Attachment: Pinch Clamps page 85 Band-It® Jr.Preformed Clamps page 94 Crimp Ferrules page 97
Caution: NOT recommended for fuel injection systems.

4219G

Catalog Part No.	Gates Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BP85	4219-0107	0.3125	0.56	50	3	24	450-650	0.10	

Note: Reeled hose may be purchased by the foot or by the reel.

FC350 Engine & Air Brake FMVSS106 AQP® Tube Polyester Braid Cover Black

Construction: AQP® elastomer tube, polyester inner braid and a single wire braid reinforcement, black polyester textile braided cover.
Application: Air, gasoline, fuel, lubricating oils and coolants. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299
Operating Temperature Range: -55°F to +300°F, except air +250°F.
Reusable Fittings: Reduced Bore (Steel) page 68 Reduced Bore (Stainless Steel) page 74 Reduced Bore (Brass) page 67

FC350

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR76	FC350-04	0.19	0.52	2000	8000	0.75	28	500-650	0.13	
•C1CR77	FC350-06	0.31	0.68	1500	6000	1.25	28	320-420	0.21	
•C1CR78	FC350-08	0.41	0.77	1250	5000	1.75	28	450-600	0.24	
•C1EU57	FC350-10	0.50	0.94	1250	5000	2.25	28	310-400	0.35	
•C1CR79	FC350-12	0.62	1.08	750	3000	2.75	20	230-300	0.38	
•C1CR80	FC350-16	0.88	1.23	400	1600	3.5	15	180-240	0.45	
C1CR81	FC350-20	1.12	1.50	300	1200	4.5	15	120-160	0.48	
C1GL69	FC350-24	1.38	1.75	250	1000	5.5	11	100-150	0.53	

Note: Reeled hose may be purchased by the foot or by the reel.

SC

Thick Teflon® Tube
Improved Kink Resistant
Stainless Steel Braid
Conductive Liner

Construction: Extruded Teflon® tube (33% more Teflon® than most other manufacturers) with 304 stainless steel wire braid. Also has an internal conductive static dissipating liner that provides a path to the hose end fittings for applications where flow induced electrostatic charges can occur. The additional Teflon® results in improved bend radius, kink resistance and slows permeation of gases.

Application: Marine power trim, hot air, steam, compressor discharge and most chemical applications. Not recommended for steam-cold water cycling. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 218

Operating Temperature Range: -65°F to +450°F.

Crimp Fittings: Everswage™ (Stainless Steel) page 80

SC

Catalog Part No.	Everflex Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1DK72	SC-4	0.1875	0.32	3000	12000	1.875		Rolls Only	0.07	

FC355

Engine & Air Brake
FMVSS106
AQP® Tube
AQP® Cover Blue

Construction: AQP® elastomer tube, polyester inner braid and a single wire braid reinforcement, blue AQP® elastomer cover.

Application: Air, gasoline, fuel, lubricating oils and coolants. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299

Operating Temperature Range: -40°F to +300°F, except air, not to exceed 250 PSI or +250°F.

Reusable Fittings: Reduced Bore (Steel) page 68 Reduced Bore (Stainless Steel) page 74 Reduced Bore (Brass) page 67

FC355

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1EQ11	FC355-04	0.19	0.52	1500	6000	0.75	28	510-670	0.17	
C1HE59	FC355-16	0.88	1.24	400	1600	3.50	15	Rolls Only	0.57	
•C1EQ12	FC355-20	1.13	1.52	300	1250	4.50	15	Rolls Only	0.59	
C1HE60	FC355-24	1.38	1.75	250	1000	5.50	11	Rolls Only	0.70	

Note: Reeled hose may be purchased by the foot or by the reel.

Flexfab

FLX5526

Heater Hose
Silicone Rubber
Blue Hose / Red Core
Meets TMC-RP303B Class 1 Grade 2 Specification

Application: For heavy-duty pressure connections in hostile engine environments.
Characteristics: Continuous operating temperature -65°F to 350°F. Nylon fiber reinforced. Resistant to coolant additives.
Suggested Clamps: Oetiker Stepless® Ear Pinch Clamps page 87 Oetiker Stepless® Spring Clamps page 91 Trident #730 S.S. Constant-Torque® Clamps page 93. Do not use serrated, slotted or wire type clamps.

FLX5526

Catalog Part No.	Flexfab Model	Hose I.D. Min/Max (in)	Hose O.D. Min/Max (in)	Minimum Burst Pressure (psi)	Wt. (per ft)	Price (per ft)
•C1KG96	FLX5526-050	0.480 / 0.520	0.830 / 0.840	250	0.18	
•C1KG20	FLX5526-062	0.605 / 0.645	0.955 / 0.970	250	0.22	
•C1KG21	FLX5526-075	0.730 / 0.770	1.08 / 1.09	200	0.25	
•C1KG22	FLX5526-087	0.855 / 0.905	1.18 / 1.22	175	0.30	
•C1KG27	FLX5526-100	0.970 / 1.020	1.33 / 1.40	175	0.15	

Flexfab

FLX5581

Silicone Rubber
Coolant Hose
Blue

Construction: 4-Ply silicone coolant hose reinforced with polyester fabric and coated with specially compounded silicone elastomer.
Characteristics: Continous operating temperature is -65°F to 350°F. Meets or exceeds the requiprments of SAE J20 R1 Class A, TMC RP303B Class 1 Grade 1 and most OEM truck manufacturers' specifications.
Suggested Clamps: Oetiker Stepless® Ear Pinch Clamps page 87 Oetiker Stepless® Spring Clamps page 91 Trident #730 S.S. Constant-Torque® Clamps page 93

FLX5581

Catalog Part No.	Flexfab Model	Hose I.D. (in)	Hose O.D. (in)	Minimum Burst Pressure (psi)	Length (in)	Wt. (per ft)	Price (per ft)
•C1KL93	FLX5581-087	0.88	1.27	560	36	0.30	
•C1KG97	FLX5581-100	1.00	1.39	550	36	0.39	
•C1KG98	FLX5581-125	1.25	1.64	500	36	0.49	
•C1KL94	FLX5581-138	1.38	1.77	475	36	0.53	
•C1KG99	FLX5581-150	1.50	1.89	450	36	0.59	
•C1KG28	FLX5581-175	1.75	2.14	400	36	0.68	
•C1KL95	FLX5581-187	1.88	2.27	400	36	0.71	
•C1KG56	FLX5581-200	2.00	2.39	400	36	0.78	
•C1KH11	FLX5581-225	2.25	2.64	350	36	0.88	
•C1KG57	FLX5581-238	2.38	2.77	325	36	0.93	

FLX5581

Catalog Part No.	Flexfab Model	Hose I.D. (in)	Hose O.D. (in)	Minimum Burst Pressure (psi)	Length (in)	Wt. (per ft)	Price (per ft)
•C1KG59	FLX5581-250	2.50	2.89	300	36	0.98	
•C1KH12	FLX5581-275	2.75	3.14	275	36	1.07	
•C1KL96	FLX5581-287	2.88	3.27	250	36	1.13	
C1KH13	**FLX5581-300**	3.00	3.39	250	36	1.17	
•C1KG60	FLX5581-350	3.50	3.89	200	36	1.37	
•C1KH14	FLX5581-400	4.00	4.39	150	36	1.56	
C1KL97	FLX5581-425	4.25	4.64	150	36	1.67	
•C1KH15	FLX5581-450	4.50	4.89	150	36	1.76	
•C1KH16	FLX5581-500	5.00	5.39	125	36	1.95	

FC321 L.P. Gas UL Listing MH6044

Construction: Synthetic rubber tube, a textile inner braid, a stainless steel wire braid reinforcement and a synthetic rubber impregnated textile braid cover.

Application: Designed for butane-propane applications on either mobile or stationary equipment. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299

Operating Temperature Range: -40°F to +250°F.

Reusable Fittings: Reduced Bore (Steel) page 68 Reduced Bore (Stainless Steel) page 74 Reduced Bore (Brass) page 67

Warning: LPG is a very hazardous liquid or gas and should be handled with maximum care to prevent leakage. Since the gas is heavier than air, it may flow along the ground if it escapes and cause an explosion or a fire. No leakage should ever be tolerated.

FC321

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
C1CR65	**FC321-06**	0.31	0.67	350	1750	2.00	560	0.17	
•C1ZU74	FC321-08	0.41	0.77	350	1750	2.31	460	0.19	

Note: Reeled hose may be purchased by the foot or by the reel.

STW

Teflon® Tube
Stainless Steel Braid

Construction: Extruded Teflon® tube with stainless steel single wire braid.
Application: Hot air, steam, compressor discharge and most chemical applications. Not recommended for steam-cold water cycling. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299
Operating Temperature Range: -65°F to 450°F.
Reusable Fittings: Teflon® 1-Braid (Steel) Teflon® 1-Braid (Stainless Steel) page 75
Crimp Fittings: Everswage™ (Stainless Steel) page 80 Flat Crimp (Stainless Steel) page 66 Flat Crimp (Steel)
Internal Support Coil: Internal Support Coil (Stainless Steel) page 99
Note: Maximum negative pressure shown for -16 and larger are suitable for hose which has suffered no external damage or kinking. If greater negative pressures are required for -16 and larger hoses, the use of an internal support coil is recommended. Use of an internal support coil in -06 and larger Teflon® hose is recommended for tube support where extended or continuous service at high temperature together with low or negative pressure is expected.

STW

Catalog Part No.	Everflex Model	Braid Material	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1EH81	S-4TW	304SS	0.19	0.31	3000	12000	2.0	28	Rolls Only	0.06	
•C1JJ59	S-4TW316SS	316SS	0.19	0.32	3000	12000	2.0	28	Rolls Only	0.06	
•C1JQ85	S-5TW	304SS	0.25	0.38	3000	12000	3.0	28	Rolls Only	0.08	
•C1JQ87	S-6TW	304SS	0.31	0.43	2500	10000	4.0	28	Rolls Only	0.10	
•C1JQ88	S-8TW	304SS	0.41	0.54	2000	8000	5.0	28	Rolls Only	0.12	
C1JQ78	**S-10TW**	304SS	0.50	0.64	1750	7000	6.5	28	Rolls Only	0.16	
•C1JQ80	S-12TW	304SS	0.63	0.77	1500	6000	7.5	28	Rolls Only	0.19	
•C1JQ82	S-16TW	304SS	0.88	1.03	1000	4000	9.0	12	Rolls Only	0.28	

H900 UL LPG UL 21 Approved

Construction: Tube: Nitrile; Reinforcement: Textile braid; Cover: Pin-pricked vinyl nitrile

Application: • For transfer and delivery of propane and butane • Transfer of natural gas in open, well ventilated areas (1 psig max. working pressure). Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299

Operating Temperature: -40°F to +140°F. Hose is capable of this rating. LP-Gas should never be elevated above 100°F.

Fitting & Fitting Attachment Suggestions: • "U" Series • Swaged or crimp male couplings

Warning: LPG is a very hazardous liquid or gas and should be handled with maximum care to prevent leakage. Since the gas is heavier than air, it may flow along the ground if it escapes and cause an explosion or a fire. No leakage should ever be tolerated.

H900

Catalog Part No.	Eaton Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1NB56	H90004-500R	0.25	0.59	350	1750	500	0.12	
•C1NB57	H90006-500R	0.38	0.73	350	1750	500	0.17	
•C1NB58	H90008-500R	0.50	0.92	350	1750	500	0.24	

Not to be used for NH3: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

Marathoner® Air & Multipurpose Rugged, Abrasion Resistant RMA Class B Tube RMA Class C Cover

Construction: RMA Class B blended nitrile tube. 2 or 4 spiral textile reinforcement. RMA Class C pin-pricked neoprene cover, available in red, green, yellow and black.
Application: Pneumatic tools on production line. Transfer of air and water. Abrasion resistant. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 324
Operating Temperature Range: -40°F to 180°F.
Fittings & Fitting Attachment Suggestions: Shank or Universal type fittings attached with pinch clamps, preformed clamps or bolt clamps.
Fittings: Shank Type (Brass) page 49. Shank Type (Steel) . Shank Type (Stainless Steel) page 53. Universal Type
Fitting Attachment: Pinch Clamps page 85 Band-It® Jr.Preformed Clamps page 94. Bolt Clamps page 96
Branding Type: Ink Print.

Marathoner®

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Number of Reinforcement Spirals	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1FU39	H198204RD-600R	Red	0.25	5/8	4	300		600-700	0.13	
•C1FU40	H198206RD-600R	Red	0.375	3/4	4	300		600-700	0.18	
•C1FU41	H198208RD-600R	Red	0.50	7/8	4	300		600-700	0.23	
•C1FU42	H198212RD-600R	Red	0.75	1-3/16	4	300		600-700	0.37	
C1FV98	H198212RD-250 Box of 5ea 50 ft.	Red	0.75	1-3/16	4	300		--	0.37	
•C1HV56	H198216RD-400R	Red	1.00	1-7/16	4	200		200-400	0.64	

Warning: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart page 324
Note: Reeled hose may be purchased by the foot or by the reel.
Warning: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

Easy Couple™ Air & Multipurpose
Uses SOCKETLESS™ Fittings
Excellent Oil Resistant Tube
Black, Red, Green, Blue

Construction: RMA Class A vinyl nitrile tube (Excellent oil resistance). 1-braid textile reinforcement. Black cover is neoprene (MSHA 2G-13). Blue, Gray, Red, Yellow and Green covers are vinyl nitrile.

Application: Pneumatic tools on production line. Convey air, water, oils, etc. Transfer lubricated air to valves and cylinders. Low pressure hydraulics (NOT for impulse applications). Please review application requirements and limitations found in NAHAD Pressure Guideline Chart NAHAD Pressure Guideline Chart page 324

Operating Temperature Range: Air applications: -40°F to 160°F. Water applications: -40°F to 185°F. Fuel and lubrication oil: -40°F to 260°F.

Fittings & Fitting Attachment Suggestions: SOCKETLESS™ fittings (no clamp required). Shank or Universal type fittings attached with pinch clamps, preformed clamps or bolt clamps.

SOCKETLESS™ Fittings: SOCKETLESS™ (Steel) (Stainless Steel) page 74 SOCKETLESS™ (Brass) page 77

Industrial Hose Fittings: Shank Type (Brass) page 49. Shank Type (Steel) . Shank Type (Stainless Steel) page 53. Universal Type

Industrial Hose Fitting Attachment: Pinch Clamps page 85 Band-It® Jr.Preformed Clamps page 94. Bolt Clamps page 96

Branding Type: Ink Print.

Easy Couple™

Catalog Part No.	Eaton Model	Color	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in.Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1FU44	H20104BK-250R	Black	0.25	1/2	250	3.00	28	250	0.08	
•C1FU45	H20104BU-250R	Blue	0.25	1/2	250	3.00	28	250	0.08	
C1FU47	H20104RD-250R	Red	0.25	1/2	250	3.00	250		0.08	
•C1FU48	H20106BK-250R	Black	0.375	21/32	250	3.00	28	250	0.13	
•C1FU49	H20106BU-250R	Blue	0.375	21/32	250	3.00	28	250	0.13	
C1FU50	H20106GN-250R	Green	0.375	21/32	250	3.00	250		0.13	
•C1FU52	H20108BK-250R	Black	0.50	3/4	250	5.00	28	250	0.15	
•C1FU53	H20108BU-250R	Blue	0.50	3/4	250	5.00	28	250	0.15	
•C1FU56	H20110BK-250R	Black	0.625	15/16	250	6.00	28	250	0.20	
•C1FZ78	H20110BU-250R	Blue	0.625	15/16	250	6.00	28	250	0.26	
•C1FU59	H20112BK-250R	Black	0.75	1-1/16	250	7.00	28	250	0.26	

Warning: Maximum Operating Pressure for the hose assembly (fittings attached to the hose) may be lower than the stated Maximum Operating Pressure in this table. NAHAD Pressure Guideline Chart NAHAD Pressure Guideline Chart page 324

Note: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application. Reeled hose may be purchased by the foot or by the reel.

2556 Air & Multi-Purpose Textile Braid Low Pressure SOCKETLESS™

Construction: Synthetic rubber tube, textile braid reinforcement, black synthetic rubber cover.
Application: For gasoline, fuel and lubricating oils, air and water. Not recommended for marine fuel lines, Not recommended for hydraulic impulse applications, and is Not approved for air brake applications. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 299
Operating Temperature Range: -40°F to +212°F. Water not to exceed +150°F. Air not to exceed +160°F.
Reusable Fittings: SOCKETLESS™ (Steel) (Stainless Steel) page 74 SOCKETLESS™ (Brass) page 77

2556

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1BH31	2556-4RL	0.25	0.49	360	1440	3	28	850	0.08	
C1BH32	**2556-6RL**	0.38	0.62	300	1200	3	28	560	0.09	
C1BH33	**2556-8**	0.50	0.75	300	1200	5	28	600	0.17	
•C1BH29	2556-10	0.63	0.97	250	1000	4.75	10	450-475	0.25	
•C1BH30	2556-12	0.75	1.09	250	1000	5.5	10	367	0.22	

Note: Reeled hose may be purchased by the foot or by the reel.

FC332 Air & Multi-Purpose Textile Braid Low Pressure SOCKETLESS™ AQP® Blue

Construction: AQP® elastomer tube, textile braid reinforcement, blue AQP® elastomer cover.
Application: For gasoline, fuel and lubricating oils, air and water. NOT recommended for marine fuel lines. NOT recommended for hydraulic impulse applications, and is NOT approved for air brake applications. Please review the general guidelines for selection, installation and maintenance of hose assemblies starting on page 218
Operating Temperature Range: -40°F to +300°F. Water not to exceed +180°F. Air not to exceed +250°F.
Reusable Fittings: SOCKETLESS™ (Steel) (Stainless Steel) page 74 SOCKETLESS™ (Brass) page 77

FC332

Catalog Part No.	Aeroquip Model	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Reel Qty (ft)	Wt. (per ft)	Price (per ft)
•C1CR66	FC332-04	0.25	0.49	250	1000	3	28	680	0.08	
C1CR67	**FC332-06**	0.38	0.63	250	1000	3	28	560	0.12	
C1CR68	**FC332-08**	0.50	0.75	250	1000	5	28	600	0.14	
C1CR69	**FC332-10**	0.63	0.91	250	1000	6	18	450-475	0.19	
C1CR70	**FC332-12**	0.75	1.04	250	1000	7	18	367	0.25	

Note: Reeled hose may be purchased by the foot or by the reel.

Hose Fittings

Hose Application Warnings

Agency and industry standards may apply to your application. It is your responsibility to decide what regulations and/or standards apply, and inform us. We will then advise you if the products selected meet those standards.

Improper selection, installation and/or routing may significantly shorten the life of a hydraulic hose, which could result in hose rupture and failure, which may then result in serious persinal injury or property damage.

If you don't already have the proper training or information, ask for:

Eaton/Aeroquip Fluid Conveyance Products Catalog A-HOOV-MC001-E

- Warnings - pages 11-12
- Fluid Compatibility - pages 349-355
- SAE Recommended Practices (SAE J1273) - page 356
- Routing & Installation - page 358
- Thread Style Pressure Performance - page 428

Most hydraulic fluids are flammable and proper safeguards have to be taken to contain any fluid if a hose failure occurs in an environment with a source of ignition.

Hoses have a service life, and high repetitive shock reduces hose service life. You need to inspect and change out hoses within their service life for your application or hose rupture and failure may occur.

S.**T**.**A**.**M**.**P**. - You must consider the **S**ize, **T**emperature, **A**pplication, **M**edium and **P**ressure when selecting hose and hose fittings.

WARNING

EATON FITTING TOLERANCES ARE ENGINEERED TO MATCH EATON'S AEROQUIP HOSE TOLERANCES. THE USE OF EATON FITTINGS ON HOSE SUPPLIED BY OTHER MANUFACTURERS AND/OR THE USE OF EATON'S AEROQUIP HOSE WITH FITTINGS SUPPLIED BY OTHER MANUFACTURERS MAY RESULT IN THE PRODUCTION OF UNRELIABLE AND UNSAFE HOSE ASSEMBLIES AND IS NEITHER RECOMMENDED NOR AUTHORIZED BY EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES.

WARNING

APPLICATION CONSIDERATIONS MUST BE OBSERVED IN SELECTING APPROPRIATE COMPONENTS FOR THE APPLICATION OF THESE PRODUCTS CONTAINED HEREIN. THE FAILURE TO FOLLOW THE RECOMMENDATIONS SET FORTH IN THIS CATALOG MAY RESULT IN AN UNSTABLE APPLICATION WHICH MAY RESULT IN SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE.

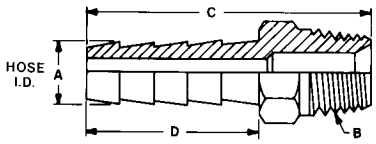
EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES SHALL NOT BE SUBJECT TO AND DISCLAIMS ANY OBLIGATIONS OR LIABILITIES (INCLUDING BUT NOT LIMITED TO ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES) ARISING FROM TORT CLAIMS (INCLUDING WITHOUT LIMITATION NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW WITH RESPECT TO ANY HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE AEROQUIP HOSE FITTINGS, HOSE AND AEROQUIP APPROVED EQUIPMENT, AND IN CONFORMANCE WITH EATON'S AEROQUIP PROCESS AND PRODUCT INSTRUCTIONS FOR EACH SPECIFIC HOSE ASSEMBLY.

Failure to follow these processes and product instructions and limitations could lead to premature hose assembly failures resulting in property damage, serious injury or death.

Shank Type Fittings (Short Shank Hose Barbs)
Brass

Short Shank Brass Fittings

Construction: Machined from free cutting brass rod CDA 360 alloy.
Application: Low pressure fluid transfer, suction and discharge.
Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.
Note: The working pressure of shank type fittings will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.



102
Male Pipe

Catalog Part No.	Dixon Model	Nickel Plated	Hose I.D. (in)	Pipe Thread	C (in)	D (in)	Wt.	Price Each
•C1AG43	102-0202	No	1/8	1/8-27	1.06	0.46	0.02	
•C1EZ96	102-0204	No	1/8	1/4-18	1.16	0.46	0.03	
•C1GH46	32-002	No	3/16	1/8-27			0.02	
•C1GA70	102-0302	No	3/16	1/8-27	1.35	0.75	0.02	
•C1AG44	102-0402	No	1/4	1/8-27	1.57	0.97	0.05	
•C1AG45	102-0404	No	1/4	1/4-18	1.76	0.97	0.05	
•C1AG46	102-0406	No	1/4	3/8-18	1.76	0.97	0.07	
•C1AG47	102-0502	No	5/16	1/8-27	1.57	0.97	0.03	
C1AG48	**102-0504**	No	5/16	1/4-18	1.76	0.97	0.07	
•C1FL18	102-0506	No	5/16	3/8-18	1.76	0.97	0.60	
•C1AG49	102-0602	No	3/8	1/8-27	1.57	0.97	0.07	
C1AG50	**102-0604**	No	3/8	1/4-18	1.76	0.97	0.07	
C1AG51	**102-0606**	No	3/8	3/8-18	1.76	0.97	0.06	
•C1AG52	102-0608	No	3/8	1/2-14	1.97	0.97	0.25	
•C1AG53	102-0804	No	1/2	1/4-18	1.76	0.97	0.07	
C1AG54	**102-0806**	No	1/2	3/8-18	1.76	0.97	0.07	
•C1MH80	102-0808C	No	1/2	1/2-14	1.97	0.97	0.12	
•C1AG56	102-0812	No	1/2	3/4-14	1.97	0.97	0.16	
•C1AG57	102-1006	No	5/8	3/8-18	1.76	0.97	0.10	
C1AG58	**102-1008**	No	5/8	1/2-14	1.97	0.97	0.15	
•C1AG59	102-1012	No	5/8	3/4-14	1.97	0.97	0.25	
C1AG60	**102-1208**	No	3/4	1/2-14	2.19	1.19	0.25	
C1AG61	**102-1212**	No	3/4	3/4-14	2.19	1.19	0.25	
•C1AG62	102-1612	No	1	3/4-14	2.19	1.19	0.25	
•C1AG63	102-1616	No	1	1-11-1/2	2.54	1.19	0.27	
C1GL23	32-028	No	1-1/4	1-11-1/2			0.46	
•C1FN17	4244-20-16	No	1-1/4	1-11-1/2	2.51	1.06	0.47	

Note: 4244 is Tompkins model. 32 is ACR model.

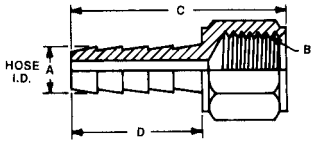
Hose Fittings (Industrial)

Shank Type Fittings (Short Shank Hose Barbs)
Brass

A29E
Male Pipe 90° Elbow

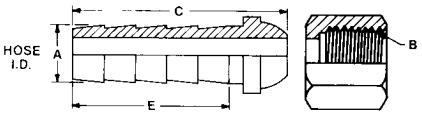
Catalog Part No.	Model Number	Hose I.D. (in)	Pipe Thread	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1CH19	A29E-1/4X1/8	1/4	1/8-27			0.05	
•C1CH18	A29E-1/4X1/4	1/4	1/4-18			0.06	
•C1GH97	A29E-1/4X3/8	1/4	3/8-18			0.11	
•C1CH21	A29E-3/8X1/4	3/8	1/4-18			0.06	
•C1CH22	A29E-3/8X3/8	3/8	3/8-18			0.08	
•C1CH20	A29E-3/8X1/2	3/8	1/2-14			0.10	
C1HD75	32-048	1/2	1/4-18			0.08	
•C1EP40	A29E-1/2X3/8	1/2	3/8-18			0.10	
•C1GM68	32-311	1/2	1/2-14			0.11	
•C1GF80	32-044	5/8	3/8-18			0.09	
•C1GF81	32-045	5/8	1/2-14			0.13	
•C1GC76	312-055	1	1-11-1/2			0.55	

Note: 32 is ACR model.



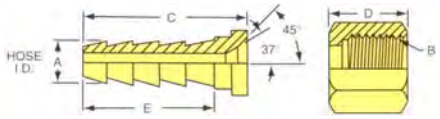
104
Female Pipe (Rigid)

Catalog Part No.	American Coupling Model	Hose I.D. (in)	Pipe Thread	C (in)	D (in)	Wt.	Price Each
•C1AG90	104-0404	1/4	1/4-18	1.66	0.97	0.07	
•C1EL55	104-0504	5/16	1/4-18	1.66	0.97	0.05	
•C1AG92	104-0604	3/8	1/4-18	1.66	0.97	0.05	
•C1AG93	104-0606	3/8	3/8-18	1.66	0.97	0.06	
•C1AG94	104-0806	1/2	3/8-18	1.66	0.97	0.07	



124
Female Pipe (Swivel)

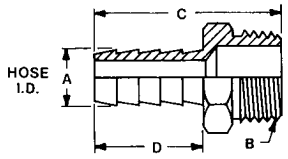
Catalog Part No.	American Coupling Model	Hose I.D. (in)	NPSM Thread	C (in)	E (in)	Wt.	Price Each
•C1AJ49	124-0402	1/4	1/8-27 NPSM	1.30	0.97	0.03	
•C1AJ50	124-0404	1/4	1/4-18 NPSM	1.39	0.97	0.05	
•C1AJ51	124-0504	5/16	1/4-18 NPSM	1.39	0.97	0.50	
•C1AJ52	124-0604	3/8	1/4-18 NPSM	1.37	0.97	0.05	
•C1AJ53	124-0606	3/8	3/8-18 NPSM	1.45	0.97	0.10	
•C1AJ54	124-0806	1/2	3/8-18 NPSM	1.42	0.97	0.08	
•C1AJ55	124-0808	1/2	1/2-14 NPSM	1.54	0.97	0.10	



143 / 144
Female Flare Swivel
143 has Dual 37°/45° Flare Seats
144 has 45° Flare Seat

Catalog Part No.	American Coupling Model	Nickel Plated	Hose I.D. (in)	Thread	C (in)	E (in)	Wt.	Price Each
•C1FS72	143-0407	No	1/4	7/16-20	1.25	0.97	0.04	
•C1FS73	143-0408	No	1/4	1/2-20	1.31	0.97	0.05	
•C1FS79	144-0410	No	1/4	5/8-18	1.27	0.97	0.06	
•C1FS74	143-0508	No	5/16	1/2-20	1.31	0.97	0.05	
•C1FS80	144-0510	No	5/16	5/8-18	1.27	0.97	0.07	
•C1FS81	144-0610	No	3/8	5/8-18	1.27	0.97	0.07	
•C1FS75	143-0612	No	3/8	3/4-16	1.34	0.97	0.10	
•C1FS76	143-0812	No	1/2	3/4-16	1.34	0.97	0.11	
•C1FS77	143-0814	No	1/2	7/8-14	1.34	0.97	0.18	

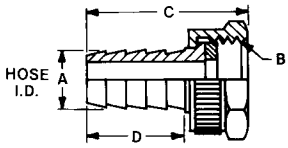
Shank Type Fittings (Short Shank Hose Barbs)
Brass



590

Male Garden Hose (NPSH Thread)

Catalog Part No.	American Coupling Model	Hose I.D. (in)	NPSH Thread	C (in)	D (in)	Wt.	Price Each
•C1BV95	590-0612	3/8	3/4-11-1/2	1.88	1.19	0.12	
•C1BV96	590-0812	1/2	3/4-11-1/2	1.88	1.19	0.12	
•C1BV97	590-1012	5/8	3/4-11-1/2	1.88	1.19	0.13	
•C1BV98	590-1212	3/4	3/4-11-1/2	1.88	1.19	0.15	



591

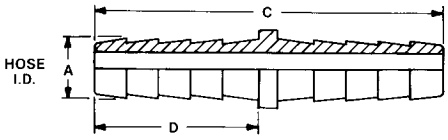
Female Garden Hose (NPSH Thread)

Catalog Part No.	American Coupling Model	Hose I.D. (in)	NPSH Thread	C (in)	D (in)	Wt.	Price Each
•C1ET96	591-0612	3/8	3/4-11-1/2	1.82	1.19	0.11	
•C1BW15	591-0812	1/2	3/4-11-1/2	1.82	1.19	0.12	
•C1BW16	591-1012	5/8	3/4-11-1/2	1.82	1.19	0.12	
•C1BW17	591-1212	3/4	3/4-11-1/2	1.82	1.19	0.30	

BRGHT

Heavy Duty Forged Brass Garden Hose Sets (Male & Female)

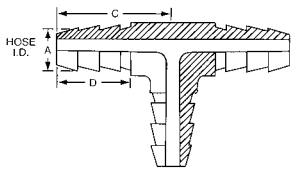
Catalog Part No.	Kuriyama Model	Hose I.D. (in)	NPSH Thread	Shank Length (in)	Wt.	Price Each
•C1GJ26	BRGHT050	1/2	3/4-11-1/2	1.18	0.25	



178

Hose Splicer

Catalog Part No.	American Coupling Model	Hose I.D. (in)	C (in)	D (in)	Wt.	Price Each
•C1GH47	32-092 (ACR Model)	3/16			0.01	
•C1AL46	178-0404	1/4	2.03	0.97	0.02	
•C1FW40	178-0505	5/16	2.06	0.97	0.03	
•C1AL47	178-0606	3/8	2.06	0.97	0.05	
•C1AL48	178-0808	1/2	2.06	0.97	0.06	
•C1FJ62	178-1010	5/8	2.06	0.97	0.07	
•C1FJ63	178-1212	3/4	2.50	1.19	0.13	



179

Hose Tee

Catalog Part No.	ACR Model	Hose I.D. (in)	C (in)	D (in)	Wt.	Price Each
•C1FW55	32-159	1/4			0.06	
•C1FW56	32-160	3/8			0.05	
•C1FW57	32-162	1/2			0.10	

Shank Type Fittings
Brass

Combination Nipples (Brass, Medium Shank)

Construction: Made from tubular brass stock. Male NPT threaded ends.
Application: Combination nipples are recommended for low pressure discharge and suction service for compatible liquids. NOT for compressible products such as air or nitrogen on sizes 1-1/4 and above. NOT for steam.
Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.
Note: The working pressure of combination nipples will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

BST
Male Pipe Combination Nipple

Combination Nipples (Brass, Medium Shank)

Catalog Part No.	Dixon Model	Hose I.D. (in)	Pipe Thread	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1EP49	BST15	1-1/4	1-1/4			0.65	
•C1EP50	BST20	1-1/2	1-1/2			0.01	
•C1EW56	BST25	2	2			1.13	

Note: Not intended for compressed air applications.

Shank Type Fittings
Stainless Steel

Combination Nipples (Stainless Steel, Medium Shank)

Construction: Made from tubular stainless steel stock. Male NPT threaded ends.
Application: Combination nipples are recommended for low pressure discharge and suction service for compatible liquids. NOT for compressible products such as air or nitrogen on sizes 1-1/4 and above. NOT for steam.
Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.
Note: The working pressure of combination nipples will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

RST
Male Pipe Combination Nipple

Combination Nipples (Stainless Steel, Medium Shank)

Catalog Part No.	Dixon Model	Hose I.D. (in)	Pipe Thread	O.A. Length (in)	Cut Off (in)	Wt.	Price Each
•C1ER32	RST-5	3/4	3/4-14			0.23	
•C1ER26	RST-1005	1	3/4-14			0.20	
•C1ER25	RST-10	1	1-11-1/2			0.01	
•C1ER27	RST-15	1-1/4	1-1/4-11-1/2			0.22	
•C1DK32	RST-25	1-1/2	1-1/2-11-1/2			1.02	
•C1ER29	RST-20	1-1/2	1-1/2-11-1/2			0.32	
•C1ER31	RST-2520	2	1-1/2-11-1/2			1.07	

Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters
Brass

Brass Cam & Groove Couplers & Adapters

Applications: Designed for use with liquids. Consult with us for specific recommendations. WARNING: UNDER NO CIRCUMSTANCES should Cam & Groove Couplings be used with compressed air or steam service.
Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.
Sunrise Hose Specifications: INTERCHANGEABILITY: Interchanges with all products produced to standard A-A-59326 (superseding MIL-C-27487F) or DIN 2828. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). PRESSURE RATINGS: 1/2" to 4": 150 PSI, 5" to 8" 75 PSI.
Material: Body Material: brass; Cam levers: stainless steel; Pins, Rings and Safety clips: plated steel. Seals: Buna-N
IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.
WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.
Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.
Safety Pin Feature: Female couplers with this feature (see tables) have cast-in lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.
Reference: NAHAD Pressure Guideline Chart page 324
Gaskets: Cam & Groove Gaskets page 65

Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1MN37	BLC-100	Sunrise Hose	1		
•C1MN38	BLC-125	Sunrise Hose	1-1/4		
•C1MN39	BLC-150	Sunrise Hose	1-1/2		
•C1MN40	BLC-200	Sunrise Hose	2		
C1MN41	BLC-250	Sunrise Hose	2-1/2		
C1MN42	BLC-300	Sunrise Hose	3		
C1MN43	BLC-400	Sunrise Hose	4		
C1MN44	BLC-600	Sunrise Hose	6		

Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MN45	BLDC-100	Sunrise Hose	1		
C1MN46	BLDC-125	Sunrise Hose	1-1/4		
C1MN47	BLDC-150	Sunrise Hose	1-1/2		
C1MN48	BLDC-200	Sunrise Hose	2	1.14	
C1MN49	BLDC-250	Sunrise Hose	2-1/2		
C1MN50	BLDC-300	Sunrise Hose	3	2.04	
C1MN51	BLDC-400	Sunrise Hose	4	2.84	
C1MN52	BLDC-600	Sunrise Hose	6		

Cam & Groove Couplers & Adapters
Brass

Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MN53	BLDP-100	Sunrise Hose	1		
C1MN54	BLDP-125	Sunrise Hose	1-1/4		
C1MN55	BLDP-150	Sunrise Hose	1-1/2		
C1MN56	BLDP-200	Sunrise Hose	2	0.76	
C1MN57	BLDP-250	Sunrise Hose	2-1/2		
C1MN58	BLDP-300	Sunrise Hose	3	1.62	
C1MN59	BLDP-400	Sunrise Hose	4	2.55	

Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1MN60	BLE-100	Sunrise Hose	1		
•C1MN61	BLE-125	Sunrise Hose	1-1/4		
•C1MN62	BLE-150	Sunrise Hose	1-1/2		
•C1MN63	BLE-200	Sunrise Hose	2		
C1MN64	BLE-250	Sunrise Hose	2-1/2		
C1MN65	BLE-300	Sunrise Hose	3		
C1MN66	BLE-400	Sunrise Hose	4		
C1MN67	BLE-600	Sunrise Hose	6		

Nylon Cam & Groove Couplers & Adapters

Applications: Designed for use with liquids. Consult with us for specific recommendations. WARNING: UNDER NO CIRCUMSTANCES should Cam & Groove Couplings be used with compressed air or steam service.
Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.
Sunrise Hose Specification: INTERCHANGEABILITY: Interchanges with all products produced to standard A-A-59326 (superseding MIL-C-27487F) or DIN 2828. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). PRESSURE RATINGS: Sizes 1/2" - 4": 150 PSI, 5" to 8": 75 PSI.
Material: Body Material: Nylon; Cam levers: brass; Pins, Rings and Safety clips: plated steel. Seals: Buna-N
IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.
WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.
Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.
Safety Pin Feature: Female couplers with this feature (see tables) have cast-in lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.
Reference: NAHAD Pressure Guideline Chart page 324
Gaskets: Cam & Groove Gaskets page 65

Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1MN71	NYC-100	Sunrise Hose	1	Yes	Buna-N		
C1MN72	NYC-125	Sunrise Hose	1-1/4	Yes	Buna-N		
C1MN73	NYC-150	Sunrise Hose	1-1/2	Yes	Buna-N		
C1MN74	NYC-200	Sunrise Hose	2	Yes	Buna-N		
C1MN75	NYC-300	Sunrise Hose	3	Yes	Buna-N		
C1MN76	NYC-400	Sunrise Hose	4	Yes	Buna-N		

Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1MN77	NYDC-100	Sunrise Hose	1	Yes	Buna-N		
C1MN78	NYDC-125	Sunrise Hose	1-1/4	Yes	Buna-N		
C1MN79	NYDC-150	Sunrise Hose	1-1/2	Yes	Buna-N		
C1MN80	NYDC-200	Sunrise Hose	2	Yes	Buna-N		
C1MN81	NYDC-300	Sunrise Hose	3	Yes	Buna-N		
C1MN82	NYDC-400	Sunrise Hose	4	Yes	Buna-N		

Cam & Groove Couplers & Adapters
Nylon

Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MN83	NYDP-100	Sunrise Hose	1		
C1MN84	NYDP-150	Sunrise Hose	1-1/2	0.25	
C1MN85	NYDP-200	Sunrise Hose	2	0.35	
C1MN86	NYDP-300	Sunrise Hose	3	0.36	
C1MN87	NYDP-400	Sunrise Hose	4	0.50	

Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MN88	NYE-100	Sunrise Hose	1		
C1MN89	NYE-125	Sunrise Hose	1-1/4		
C1MN90	NYE-150	Sunrise Hose	1-1/2		
C1MN91	NYE-200	Sunrise Hose	2		
C1MN92	NYE-300	Sunrise Hose	3		
C1MN93	NYE-400	Sunrise Hose	4		

Polypropylene Cam & Groove Couplers & Adapters

Application: Designed for use with liquids. Contact us for specific recommendations. WARNING: UNDER NO CIRCUMSTANCES should Cam & Groove Couplings be used with compressed air or steam service.
Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.
Sunrise Hose Specification: INTERCHANGEABILITY: Interchanges with all products produced to MIL-C-27487F and DIN282. (No standard exists for 1/2” and 8” sizes. Generally these sizes do not interchange with other manufacturers). PRESSURE RATINGS: 1/2" to 4" 150 PSI.
Material: 70% polypropylene, 30% fiber glass body. Stainless steel cam lever handles.
IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.
WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.
Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.
Safety Pin Feature: Female couplers with this feature (see tables) have lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.
Reference: NAHAD Pressure Guideline Chart page 324
Gaskets: Polypropylene not recommended for use with Teflon® gaskets. Polypropylene cam & groove should not be mixed with aluminum cam & groove. Cam & Groove Gaskets page 65

Part A
Male Adapter / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1HC71	PPA200	Kuriyama	2	0.19	

Part B
Female Coupler / Male NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1HC73	PPB200	Kuriyama	2	Yes	EPDM	0.47	

Cam & Groove Couplers & Adapters
Polypropylene

Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1KM91	PPC100	Kuriyama	1	Yes	Buna-N	0.28	
C1FQ36	PPC-100	Sunrise Hose	1	No	Buna-N	0.27	
C1FQ37	PPC-125	Sunrise Hose	1-1/4	No	Buna-N	0.53	
•C1KM92	PPC150	Kuriyama	1-1/2	Yes	Buna-N	0.40	
C1FQ38	PPC-150	Sunrise Hose	1-1/2	No	Buna-N	0.54	
•C1MN94	PPC-200	Sunrise Hose	2	Yes	Buna-N	0.62	
C1MN95	PPC-300	Sunrise Hose	3	Yes	Buna-N	1.56	
C1MN96	PPC-400	Sunrise Hose	4	Yes	Buna-N	1.70	

Part D
Female Coupler / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1DH32	PPD200	Kuriyama	2	Yes	EPDM	0.22	

Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1MN97	PPDC-100	Sunrise Hose	1	Yes	Buna-N		
C1MN98	PPDC-150	Sunrise Hose	1-1/2	Yes	Buna-N		
•C1MN99	PPDC-200	Sunrise Hose	2	Yes	Buna-N	0.47	
C1MP11	PPDC-300	Sunrise Hose	3	Yes	Buna-N	1.11	
C1MP12	PPDC-400	Sunrise Hose	4	Yes	Buna-N	1.50	

Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MP13	PPDP-100	Sunrise Hose	1		
C1MP14	PPDP-150	Sunrise Hose	1-1/2		
•C1MP15	PPDP-200	Sunrise Hose	2		
C1MP16	PPDP-300	Sunrise Hose	3	1.11	
C1MP17	PPDP-400	Sunrise Hose	4		

Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1FQ39	PPE-100	Sunrise Hose	1	0.10	
C1FQ40	PPE-125	Sunrise Hose	1-1/4	0.21	
C1FQ41	PPE-150	Sunrise Hose	1-1/2	0.19	
•C1MP18	PPE-200	Sunrise Hose	2	0.30	
C1MP19	PPE-300	Sunrise Hose	3		
C1MP20	PPE-400	Sunrise Hose	4	1.00	

Stainless Steel Cam & Groove Couplers & Adapters

Applications: Designed for use with liquids. Consult with us for specific recommendations. WARNING: UNDER NO CIRCUMSTANCES should Cam & Groove Couplings be used with compressed air or steam service.

Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.

Sunrise Hose Specification: INTERCHANGEABILITY: Interchanges with all products produced to standard A-A-59326 (superseding MIL-C-27487F) or DIN 2828. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). PRESSURE RATINGS: Sizes 1/2" - 4": 150 PSI, 5" to 8": 75 PSI.

Material: Body Material: 316 Stainless Steel; Cam levers: Stainless Steel ; Pins, Rings and Safety clips: Stainless Steel. Seals: Buna-N

IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.

WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.

Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.

Safety Pin Feature: Female couplers with this feature (see tables) have cast-in lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.

Reference: NAHAD Pressure Guideline Chart page 324

Gaskets: Cam & Groove Gaskets page 65

Part A
Male Adapter / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1NC83	SSA-100	Sunrise Hose	1		
C1NC84	SSA-300	Sunrise Hose	3		
C1NC85	SSA-400	Sunrise Hose	4		

Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1MP22	SSC-100	Sunrise Hose	1	Yes	Yes	0.74	
•C1MP23	SSC-125	Sunrise Hose	1-1/4	Yes	Yes		
•C1MP24	SSC-150	Sunrise Hose	1-1/2	Yes	Yes		
•C1MP25	SSC-200	Sunrise Hose	2	Yes	Yes	1.41	
C1MP26	SSC-250	Sunrise Hose	2-1/2	Yes	Yes	3.10	
•C1MP27	SSC-300	Sunrise Hose	3	Yes	Yes	5.00	
•C1MP28	SSC-400	Sunrise Hose	4	Yes	Yes	7.00	
C1MP29	SSC-600	Sunrise Hose	6	Yes	Yes	16.00	

Part D
DFemale Coupler / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1NC86	SSD-300	Sunrise Hose	3	Yes	Buna-N		

Cam & Groove Couplers & Adapters
Stainless Steel

Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1MP46	SSE-100	Sunrise Hose	1	0.60	
•C1MP47	SSE-125	Sunrise Hose	1-1/4	0.92	
•C1MP48	SSE-150	Sunrise Hose	1-1/2		
•C1MP49	SSE-200	Sunrise Hose	2	1.98	
C1MP50	SSE-250	Sunrise Hose	2-1/2	2.86	
•C1MP51	SSE-300	Sunrise Hose	3	3.90	
•C1MP52	SSE-400	Sunrise Hose	4		
C1MP53	SSE-600	Sunrise Hose	6		

Part F
Male Adapter / Male NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1NC87	SSF-100	Sunrise Hose	1		
•C1NC88	SSF-200	Sunrise Hose	2		

Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
C1MP38	SSDP-100	Sunrise Hose	1	0.40	
C1MP39	SSDP-125	Sunrise Hose	1-1/4		
C1MP40	SSDP-150	Sunrise Hose	1-1/2	0.75	
•C1MP41	SSDP-200	Sunrise Hose	2		
C1MP42	SSDP-250	Sunrise Hose	2-1/2	1.47	
C1MP43	SSDP-300	Sunrise Hose	3		
C1MP44	SSDP-400	Sunrise Hose	4		
C1MP45	SSDP-600	Sunrise Hose	6		

Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
C1MP30	SSDC-100	Sunrise Hose	1	Yes	Buna-N		
C1MP31	SSDC-125	Sunrise Hose	1-1/4	Yes	Buna-N		
C1MP32	SSDC-150	Sunrise Hose	1-1/2	Yes	Buna-N		
•C1MP33	SSDC-200	Sunrise Hose	2	Yes	Buna-N		
C1MP34	SSDC-250	Sunrise Hose	2-1/2	Yes	Buna-N		
•C1MP35	SSDC-300	Sunrise Hose	3	Yes	Buna-N		
•C1MP36	SSDC-400	Sunrise Hose	4	Yes	Buna-N		
•C1MP37	SSDC-600	Sunrise Hose	6	Yes	Buna-N		

Aluminum Cam & Groove Couplers & Adapters

Applications: Designed for use with liquids. Consult with us for specific recommendations. WARNING: UNDER NO CIRCUMSTANCES should Cam & Groove Couplings be used with compressed air or steam service.
Operation: To Couple: Slide the adapter into the coupler and with normal hand pressure, press the cam levers down. To Uncouple: Lift the cam arms and remove the adapter from the coupler.
Sunrise Hose Specification: INTERCHANGEABILITY: Interchanges with all products produced to standard A-A-59326 (superseding MIL-C-27487F) or DIN 2828. (No standard exists for 1/2" and 8" sizes. Generally these sizes do not interchange with other manufacturers). PRESSURE RATINGS: Sizes 1/2" - 4": 150 PSI, 5" to 8": 75 PSI.
Material: Body Material: Aluminum A356 or A104; Cam levers: brass; Pins, Rings and Safety clips: plated steel. Seals: Buna-N
IMPORTANT: The working pressure of cam & groove couplers will vary with the size and construction of the hose, the type and number of clamps used, clamp placement, proper installation of clamps, temperature and product being conveyed.
WARNING: Dust caps and dust plugs are NOT to be used in pressure applications for safety and environmental reasons.
Note: Fitting attachment suggestions are listed for each hose in the Hose section of this catalog.
Safety Pin Feature: Female couplers with this feature (see tables) have cast-in lugs that allow safety pins to be attached once the lugs are passed through slots in the special cam lever arms. These pins prevent the coupler from being uncoupled until they are removed.
Reference: NAHAD Pressure Guideline Chart page 324
Gaskets: Cam & Groove Gaskets page 65

Part A
Male Adapter / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1LX81	ALA-075	Sunrise Hose	3/4	0.08	
C1LX82	**ALA-100**	Sunrise Hose	1	0.12	
•C1LX83	ALA-125	Sunrise Hose	1-1/4	0.17	
•C1LX84	ALA-150	Sunrise Hose	1-1/2	0.22	
•C1LX85	ALA-200	Sunrise Hose	2	0.30	
•C1LX86	ALA-250	Sunrise Hose	2-1/2	0.46	
•C1LX87	ALA-300	Sunrise Hose	3	0.49	
•C1LX88	ALA-400	Sunrise Hose	4	0.95	
•C1LX89	ALA-600	Sunrise Hose	6	1.95	

Part B
Female Coupler / Male NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1LX90	ALB-075	Sunrise Hose	3/4	Yes	Buna-N	0.23	
•C1LX91	ALB-100	Sunrise Hose	1	Yes	Buna-N	0.31	
•C1MN32	ALB-125	Sunrise Hose	1-1/4	Yes	Buna-N		
•C1LX92	ALB-150	Sunrise Hose	1-1/2	Yes	Buna-N	0.56	
•C1LX93	ALB-200	Sunrise Hose	2	Yes	Buna-N	0.73	
•C1LX94	ALB-250	Sunrise Hose	2-1/2	Yes	Buna-N	0.80	
•C1LX95	ALB-300	Sunrise Hose	3	Yes	Buna-N	1.10	
•C1LX96	ALB-400	Sunrise Hose	4	Yes	Buna-N	1.64	
•C1MN33	ALB-600	Sunrise Hose	6	Yes	Buna-N		

Cam & Groove Couplers & Adapters
Aluminum

Part C
Female Coupler / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1MN34	ALC-075	Sunrise Hose	3/4	Yes	Buna-N	0.27	
•C1LX97	ALC-100	Sunrise Hose	1	Yes	Buna-N	0.38	
•C1LX98	ALC-125	Sunrise Hose	1-1/4	Yes	Buna-N	0.56	
•C1LX99	ALC-150	Sunrise Hose	1-1/2	Yes	Buna-N	0.67	
•C1LY11	ALC-200	Sunrise Hose	2	Yes	Buna-N	0.88	
•C1LY12	ALC-250	Sunrise Hose	2-1/2	Yes	Buna-N	1.08	
•C1LY13	ALC-300	Sunrise Hose	3	Yes	Buna-N	1.62	
•C1LY14	ALC-400	Sunrise Hose	4	Yes	Buna-N	2.19	
•C1LY15	ALC-600	Sunrise Hose	6	Yes	Buna-N	5.29	

Part D
Female Coupler / Female NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1LY16	ALD-075	Sunrise Hose	3/4	Yes	Buna-N	0.21	
•C1LY17	ALD-100	Sunrise Hose	1	Yes	Buna-N	0.33	
•C1LY18	ALD-125	Sunrise Hose	1-1/4	Yes	Buna-N	0.52	
•C1LY19	ALD-150	Sunrise Hose	1-1/2	Yes	Buna-N	0.93	
•C1LY20	ALD-200	Sunrise Hose	2	Yes	Buna-N	0.72	
•C1LY21	ALD-250	Sunrise Hose	2-1/2	Yes	Buna-N	0.88	
•C1LY22	ALD-300	Sunrise Hose	3	Yes	Buna-N	1.37	
•C1LY23	ALD-400	Sunrise Hose	4	Yes	Buna-N	1.38	
•C1LY24	ALD-600	Sunrise Hose	6	Yes	Buna-N	3.50	

Part DC
Dust Cap

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1LY25	ALDC-075	Sunrise Hose	3/4	Yes	Buna-N	0.19	
•C1LY26	ALDC-100	Sunrise Hose	1	Yes	Buna-N	0.29	
•C1LY27	ALDC-150	Sunrise Hose	1-1/2	Yes	Buna-N	0.50	
•C1LY28	ALDC-200	Sunrise Hose	2	Yes	Buna-N	0.60	
•C1MN35	ALDC-250	Sunrise Hose	2-1/2	Yes	Buna-N	0.88	
•C1LY29	ALDC-300	Sunrise Hose	3	Yes	Buna-N	0.87	
C1CH57	AH-300	Dixon	3	Yes	Buna-N	1.52	
•C1LY30	ALDC-400	Sunrise Hose	4	Yes	Buna-N	1.63	
C1CH58	AH-400	Dixon	4	Yes	Buna-N	2.20	

Hose Fittings (Industrial)

Cam & Groove Couplers & Adapters
Aluminum

Part DP
Dust Plug

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1LY31	ALDP-075	Sunrise Hose	3/4	0.07	
•C1LY32	ALDP-100	Sunrise Hose	1	0.31	
•C1LY33	ALDP-150	Sunrise Hose	1-1/2	0.25	
•C1LY34	ALDP-200	Sunrise Hose	2	0.35	
•C1MN36	ALDP-250	Sunrise Hose	2-1/2		
•C1LY35	ALDP-300	Sunrise Hose	3	0.60	
•C1MK34	ALDP-400	Sunrise Hose	4	1.08	

Part E
Male Adapter / Hose Shank

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1LY36	ALE-075	Sunrise Hose	3/4	0.14	
•C1LY37	ALE-100	Sunrise Hose	1	0.20	
•C1MK35	ALE-125	Sunrise Hose	1-1/4	0.33	
•C1LY38	ALE-150	Sunrise Hose	1-1/2	0.46	
•C1LY39	ALE-200	Sunrise Hose	2	0.62	
•C1LY40	ALE-250	Sunrise Hose	2-1/2	0.90	
•C1LY41	ALE-300	Sunrise Hose	3	1.19	
•C1LY42	ALE-400	Sunrise Hose	4	1.02	
•C1LY43	ALE-600	Sunrise Hose	6	4.70	

Part F
Male Adapter / Male NPT

Catalog Part No.	Model Number	Mfg. Name	Size	Wt.	Price Each
•C1LY44	ALF-075	Sunrise Hose	3/4	0.13	
•C1LY45	ALF-100	Sunrise Hose	1	0.22	
•C1LY46	ALF-125	Sunrise Hose	1-1/4	0.30	
•C1LY47	ALF-150	Sunrise Hose	1-1/2	0.46	
•C1LY48	ALF-200	Sunrise Hose	2	0.53	
•C1LY49	ALF-250	Sunrise Hose	2-1/2	0.78	
•C1LY50	ALF-300	Sunrise Hose	3	1.01	
•C1LY51	ALF-400	Sunrise Hose	4	1.42	
•C1MK36	ALF-600	Sunrise Hose	6	3.28	

Part RDA
Reducing Adapter

Catalog Part No.	Model Number	Mfg. Name	Size	Safety Clip Feature	Gasket Material	Wt.	Price Each
•C1KN16	RDA-A4030	Kuriyama	4x3	Yes	Buna-N	3.36	

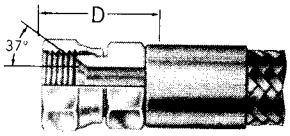
Cam & Groove Couplers & Adapters
Aluminum

Cam & Groove Gaskets

Catalog Part No.	Model Number	Mfg. Name	Size	Material	Wt.	Price Each
•C1FZ19	BUNA075	Kuriyama	3/4	Buna-N	0.01	
•C1FZ20	BUNA100	Kuriyama	1	Buna-N	0.01	
•C1FZ21	BUNA125	Kuriyama	1-1/4	Buna-N	0.02	
•C1FZ22	BUNA150	Kuriyama	1-1/2	Buna-N	0.02	
•C1FZ23	BUNA200	Kuriyama	2	Buna-N	0.02	
•C1FZ24	BUNA250	Kuriyama	2-1/2	Buna-N	0.03	
•C1FZ25	BUNA300	Kuriyama	3	Buna-N	0.04	
•C1FZ26	BUNA400	Kuriyama	4	Buna-N	0.07	
•C1FZ28	BUNA600	Kuriyama	6	Buna-N	0.12	
C1FZ29	BUNA800	Kuriyama	8	Buna-N	0.22	

Flat Crimp Fittings

For use with hose: 2807, FC807, STW



FC8779
Female JIC 37° Swivel

Flat Crimp Fittings

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CT36	FC8779-0404-333	7/16-20	-04	0.96	0.03	
•C1EK57	FC8779-0606-333	9/16-18	-06	1.11	0.05	
•C1CT40	FC8779-0808-333	3/4-16	-08	1.21	0.10	

Note: Image of fitting shows crimp socket (separately purchased item). Select Flat Crimp Socket from FC3443/FC3596 table below.

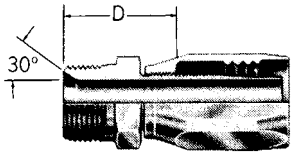
FC3443 / FC3596
Flat Crimp Sockets for use with hose: 2807, FC807

Flat Crimp Fittings

Catalog Part No.	Aeroquip Model	Hose Size	Fits Aeroquip Hose Model	Wt.	Price Each
•C1CR83	FC3596-04C	-04	2807-4, FC807-04	0.01	
•C1CR71	FC3443-04C	-05	2807-5, FC807-05	0.01	
•C1CR73	FC3443-05C	-06	2807-6, FC807-06	0.01	
•C1CR85	FC3596-08C	-08	2807-8, FC807-08	0.03	
•C1FM70	FC3596-12C	-12	2807-12, FC807-12	0.02	

Brass Reusable 1 Wire Braid

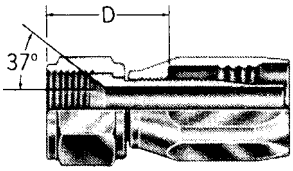
1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose: FC234



412 / 44-412
Male Pipe
(Mandrel required on most sizes)

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1DX22	412-4-6B	Yes	1/4-18	-06	1.23	0.12	
•C1BP42	412-6-8B	Yes	3/8-18	-08	1.33	0.23	
•C1BP30	412-12-12B	Yes	3/4-14	-12	1.67	0.44	

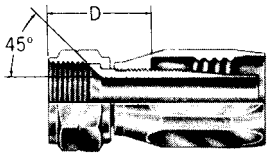
Mandrels: Assembly Mandrels page 98



411 / 44-411
Female JIC 37° Swivel
(Three piece fitting, larger bore)
(Mandrel required all sizes)

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BP22	411-4B	Yes	7/16-20	-04	1.0	0.08	
•C1BP24	411-5B	Yes	1/2-20	-05	1.12	0.10	
•C1BP26	411-6B	Yes	9/16-18	-06	1.15	0.14	
•C1FS49	NP411-6B	Yes	9/16-18	-06	1.15	0.14	
•C1BP28	411-8B	Yes	3/4-16	-08	1.38	0.25	
•C1BP11	411-10B	Yes	7/8-14	-10	1.51	0.36	
•C1BP13	411-12B	Yes	1-1/16-12	-12	1.58	0.52	
•C1BP14	411-16B	Yes	1-5/16-12	-16	1.55	0.50	
•C1BP16	411-20B	Yes	1-5/8-12	-20	1.64	1.26	
•C1FG99	NP411-20B	Yes	1-5/8-12	-20	1.64	1.28	
•C1BP18	411-24B	Yes	1-7/8-12	-24	1.83	1.65	

Mandrels: Assembly Mandrels page 98
NP Models: Nickel Plated.



401
Female SAE 45° Swivel
(Three piece fitting, larger bore)
(Mandrel required all sizes)

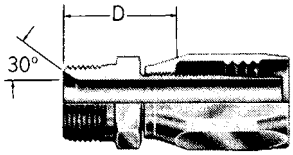
Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BN70	401-4B	Yes	7/16-20	-04	1.00	0.08	
•C1FK82	NP401-4B	Yes	7/16-20	-04	1.00	0.08	
•C1BN71	401-5B	Yes	1/2-20	-05	1.12	0.09	
•C1BN72	401-6B	Yes	5/8-18	-06	1.15	0.14	
•C1FG97	NP401-6B	Yes	5/8-18	-06	1.15	0.15	
•C1BN74	401-8B	Yes	3/4-16	-08	1.38	0.24	
•C1FG98	NP401-8B	Yes	3/4-16	-08	1.38	0.07	
•C1BN66	401-10B	Yes	7/8-14	-10	1.51	0.30	
•C1FK81	NP401-10B	Yes	7/8-14	-10	1.51	0.37	
•C1BN68	401-12B	Yes	1-1/16-14	-12	1.45	0.49	

Mandrels: Assembly Mandrels page 98
NP Models: Nickel Plated.

Hose Fittings

Steel Reusable 1 Wire Braid

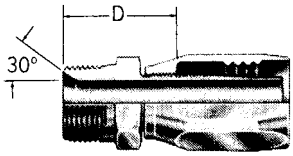
1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose: FC234



412 / 44-412
Male Pipe
(Mandrel required on most sizes)

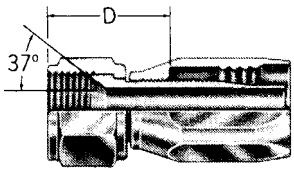
Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BP35	412-2-5S	Yes	1/8-27	-05	1.0	0.07	
•C1BP32	412-12-16S	No	3/4-14	-16	1.53	0.60	
C1BP33	**412-16-16S**	No	1-11-1/2	-16	1.72	0.58	
C1BP34	412-16-20S	No	1-11-1/2	-20	1.84	0.88	
•C1BP36	412-20-20S	No	1-1/4-11-1/2	-20	1.87	0.97	
C1BP37	412-20-24S	No	1-1/4-11-1/2	-24	2.12	1.10	
•C1BP38	412-24-24S	No	1-1/2-11-1/2	-24	2.03	1.31	
•C1BP39	412-32-32S	No	2-11-1/2	-32	2.20	1.75	

Mandrels: Assembly Mandrels page 98



4412
Male Pipe
(No mandrel required)

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ44	4412-2-4S	1/8-27	-04	0.93	0.06	
•C1BQ45	4412-4-4S	1/4-18	-04	1.12	0.08	
•C1BQ46	4412-4-5S	1/4-18	-05	1.18	0.09	
C1BQ47	**4412-4-6S**	1/4-18	-06	1.23	2.12	
C1BQ48	**4412-6-6S**	3/8-18	-06	1.23	0.14	
•C1BQ49	4412-6-8S	3/8-18	-08	1.33	0.21	
•C1BQ52	4412-8-8S	1/2-14	-08	1.58	0.26	
•C1BQ50	4412-8-10S	1/2-14	-10	1.59	0.33	
•C1BQ43	4412-12-12S	3/4-14	-12	1.67	0.45	



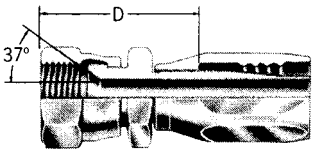
411 / 44-411
Female JIC 37° Swivel
(Three piece fitting, larger bore)
(Mandrel required all sizes)

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
C1BP23	411-4S	Yes	7/16-20	-04	1.0	0.07	
•C1BP27	411-6S	Yes	9/16-18	-06	1.15	0.12	
•C1BP29	411-8S	Yes	3/4-16	-08	1.38	0.23	
•C1BP12	411-10S	Yes	7/8-14	-10	1.51	0.33	
•C1BP15	411-16S	Yes	1-5/16-12	-16	1.55	0.62	
•C1BP17	411-20S	Yes	1-5/8-12	-20	1.64	1.18	
•C1BP19	411-24S	Yes	1-7/8-12	-24	1.83	10.00	
•C1BP21	411-32S	Yes	2-1/2-12	-32	2.03	2.34	

Mandrels: Assembly Mandrels page 98

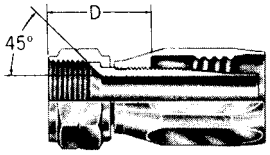
Steel Reusable 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose: FC234



4411
Female JIC 37° Swivel
(Two piece fitting, no mandrel required)

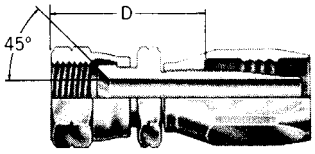
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1BQ36	**4411-4S**	7/16-20	-04	1.23	0.09	
•C1BQ35	4411-4-5S	7/16-20	-05	1.30	0.09	
•C1BQ37	4411-5S	1/2-20	-05	1.35	0.11	
C1BQ39	**4411-6S**	9/16-18	-06	1.43	0.16	
•C1BQ41	4411-8-6S	3/4-16	-06	1.52	0.20	
•C1BQ38	4411-6-8S	9/16-18	-08	1.53	0.22	
C1BQ42	**4411-8S**	3/4-16	-08	1.62	0.26	
C1BQ27	**4411-10-8S**	7/8-14	-08	1.80	0.31	
•C1BQ40	4411-8-10S	3/4-16	-10	1.64	0.34	
•C1BQ28	4411-10S	7/8-14	-10	1.81	0.39	
•C1BQ29	4411-12-10S	1-1/16-12	-10	1.91	0.49	
•C1BQ26	4411-10-12S	7/8-14	-12	1.83	0.45	
C1BQ30	**4411-12S**	1-1/16-12	-12	1.92	0.57	
C1BQ31	**4411-16S**	1-5/16-12	-16	1.93	0.72	
•C1BQ32	4411-20S	1-5/8-12	-20	2.07	1.34	
•C1BQ33	4411-24S	1-7/8-12	-24	2.22	1.60	
•C1BQ34	4411-32S	2-1/2-12	-32	2.55	2.67	



401
Female SAE 45° Swivel
(Three piece fitting, larger bore)
(Mandrel required all sizes)

Catalog Part No.	Aeroquip Model	Mandrel Required	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BN73	401-6S	Yes	5/8-18	-06	1.15	0.12	
•C1BN75	401-8S	Yes	3/4-16	-08	1.38	0.22	
•C1BN69	401-12S	Yes	1-1/16-14	-12	1.45	0.42	
•C1BN91	406-16S	Yes	1-5/16-14	-16	1.33	0.59	

Mandrels: Assembly Mandrels page 98



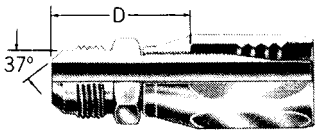
4401
Female SAE 45° Swivel
(Two piece fitting, no mandrel required)

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ20	4401-4S	7/16-20	-04	1.22	0.08	
•C1BQ21	4401-5S	1/2-20	-05	1.34	0.10	
C1BQ22	**4401-6S**	5/8-18	-06	1.46	0.17	
•C1BQ23	4401-8S	3/4-16	-08	1.62	0.27	
•C1BQ18	4401-10S	7/8-14	-10	1.81	0.38	
•C1BQ19	4401-12S	1-1/16-14	-12	1.92	0.56	

Hose Fittings

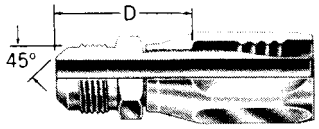
Steel Reusable 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose: FC234



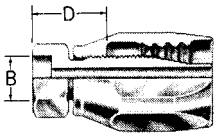
4414
Male JIC 37° Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ53	4414-4S	7/16-20	-04	1.10	0.07	
•C1BQ55	4414-6S	9/16-18	-06	1.22	0.13	
•C1BQ56	4414-8S	3/4-16	-08	1.42	0.24	
•C1EN39	4414-10S	7/8-14	-10	1.72	0.36	
•C1EN40	4414-12S	1-1/16-14	-12	1.92	0.52	



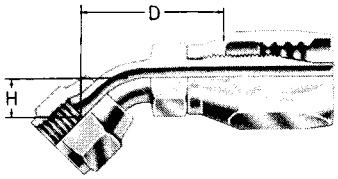
4402
Male SAE 45° Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ24	4402-6S	5/8-18	-06	1.28	0.14	
•C1BQ25	4402-8S	3/4-16	-08	1.52	0.25	



190000
Lifesaver

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Hose Size	B (in)	D (in)	Wt.	Price Each
•C1AL75	190000-4S	0.25	-04	0.25	0.62	0.05	
•C1AL78	190000-6S	0.38	-06	0.38	0.73	0.02	
•C1AL79	190000-8S	0.50	-08	0.50	0.89	0.20	

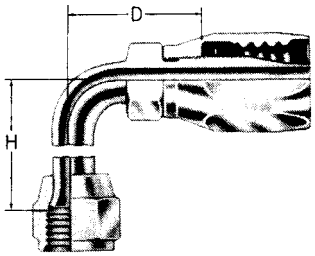


190297 / 190265 / 190299
Female 45° Swivel Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM22	190297-4S	7/16-20	-04	1.10	0.33	0.09	
•C1AM26	190299-6S	5/8-18	-06	1.22	0.39	0.17	
•C1AM11	190265-6S	9/16-18	-06	1.33	0.39	0.15	
•C1AM24	190297-8S	3/4-16	-08	1.84	0.55	0.29	
•C1AM21	190297-10S	7/8-14	-10	1.95	0.64	0.40	
•C1AM25	190299-12S	1-1/16-14	-12	2.21	0.78	0.62	
•C1AL97	190265-12S	1-1/16-12	-12	2.21	0.78	0.63	
•C1AL98	190265-16S	1-5/16-12	-16	2.47	1.07	0.85	
•C1AL99	190265-20S	1-5/8-12	-20	2.85	1.22	1.46	

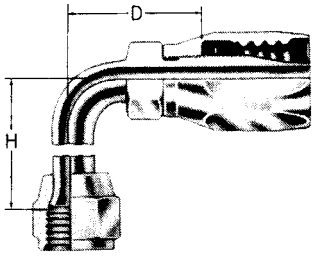
Steel Reusable 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose: FC234



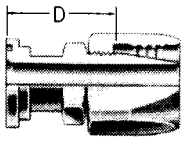
190296 / 190261 / 190302
Female 90° Swivel Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM18	190296-4S	7/16-20	-04	0.99	0.68	0.20	
•C1AM19	190296-5S	1/2-20	-05	1.18	0.77	0.12	
C1AM29	**190302-6S**	5/8-18	-06	1.23	0.85	0.18	
C1AL95	**190261-6S**	9/16-18	-06	1.23	0.85	0.20	
C1AM20	**190296-8S**	3/4-16	-08	1.61	1.09	0.30	
•C1AM17	190296-10S	7/8-14	-10	1.65	1.23	0.41	
•C1AM28	190302-12S	1-1/16-14	-12	2.17	1.82	0.70	
•C1AL92	190261-12S	1-1/16-12	-12	2.17	1.82	0.75	
•C1AL93	190261-16S	1-5/16-12	-16	2.28	2.39	0.92	
•C1AL94	190261-20S	1-5/8-12	-20	2.65	2.75	1.65	



190295 / 190260 / 190301
Female 90° Swivel Elbow, Long

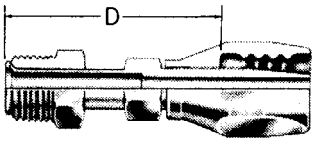
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AM14	190295-4S	7/16-20	-04	0.99	1.80	0.09	
•C1AM15	190295-5S	1/2-20	-05	1.18	1.77	0.14	
•C1AM27	190301-6S	5/8-18	-06	1.23	2.18	0.20	
•C1AL91	190260-6S	9/16-18	-06	1.23	2.18	0.20	
•C1AM16	190295-8S	3/4-16	-08	1.73	2.43	0.33	
•C1AM13	190295-10S	7/8-14	-10	1.90	2.57	0.46	
•C1GD23	190260-12S	1-1/16-12	-12	2.17	3.73	0.74	
•C1BS83	190260-16S	1-5/16-12	-16	2.28	4.58	1.12	



4775
Code 61 Split Flange

Catalog Part No.	Aeroquip Model	Flange Head Dia.	Hose Size	D (in)	Wt.	Price Each
C1HL12	4775-24S	2.38	-24	2.56	1.34	

Note: Flange O-Rings page 201



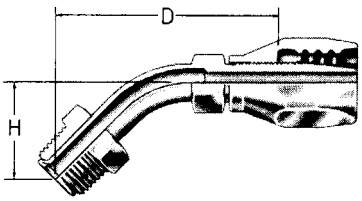
190111
SAE Male Inverted Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1AL80	190111-4S	7/16-24	-04	1.71	0.20	
•C1AL82	190111-5S	1/2-20	-05	1.84	0.20	
•C1AL81	190111-5-6S	1/2-20	-06	1.82	0.30	
•C1AL83	190111-6S	5/8-18	-06	1.82	0.14	
•C1AL84	190111-8S	3/4-18	-08	2.05	0.25	

Hose Fittings

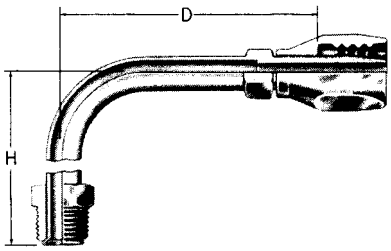
Steel Reusable 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose: FC234



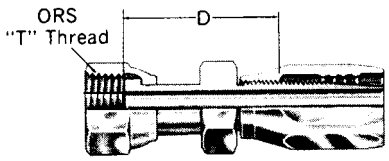
190371
SAE Male Inverted Flare
45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EM25	190371-4S	7/16-20	-04	1.99	0.96	0.07	
•C1AM36	190371-5S	1/2-20	-05	2.12	0.96	0.10	
•C1AM35	190371-5-6S	1/2-20	-06	2.10	0.96	0.20	
•C1AM37	190371-6S	5/8-18	-06	2.10	0.96	0.15	
•C1AM38	190371-8S	3/4-18	-08	2.24	0.93	0.25	



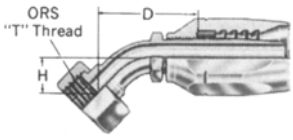
190235
SAE Male Inverted Flare
Short 90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1AL85	190235-4S	7/16-24	-04	1.62	1.69	0.08	
•C1AL86	190235-5S	1/2-20	-05	1.75	1.69	0.10	
•C1EM24	190235-5-6S	1/2-20	-06	1.73	1.69	0.14	
•C1AL87	190235-6S	5/8-18	-06	1.73	1.73	0.25	
•C1AL88	190235-7-6S	11/16-18	-06	1.73	1.73	0.17	
•C1AL90	190235-8S	3/4-18	-08	1.89	1.75	0.25	



FJ9706
Female ORS® Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CW56	FJ9706-0606S	11/16-16	-06	1.53	0.22	
•C1ZV63	FJ9706-0808S	13/16-16	-08	1.98	0.37	
•C1ZV62	FJ9706-1212S	1-3/16-12	-12	2.11	0.77	
•C1EU62	FJ9706-1616S	1-7/16-12	-16	2.23	1.08	

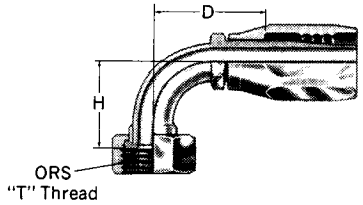


FJ9707
Female ORS® Swivel 45° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1FZ61	FJ9707-0606S	11/16-16	-06	1.37	0.43	0.17	
•C1FZ62	FJ9707-0808S	13/16-16	-08	1.88	0.59	0.28	

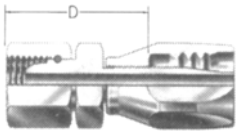
Steel Reusable 1 Wire Braid

1 Wire Braid Reduced Bore Fittings (SAE100R5 Style) for use with hose: FC234



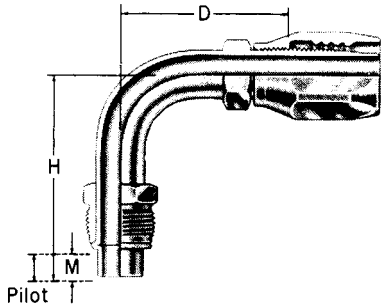
FJ9708
Female ORS® Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1EU65	FJ9708-0606S	11/16-16	-06	1.23	0.90	0.17	
•C1EU66	FJ9708-0808S	13/16-16	-08	1.61	1.15	0.29	
•C1EU67	FJ9708-1616S	1-7/16-12	-16	2.28	2.21	0.96	



07.421
BSP Female Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1FF42	07.421-6-6	3/8-19	-06	1.44	0.23	
•C1EZ93	07.421-8-8	1/2-14	-08	1.59	0.39	



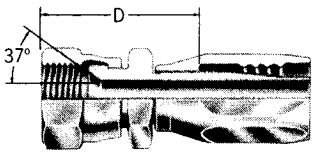
FC7662 / FC7474
Male Bump Tube O-Ring Seal

Catalog Part No.	Aeroquip Model	Pilot O.D.	Pilot Length	Thread	Hose Size	D (in)	H (in)	Wt.	Price Each
•C1CT25	FC7662-0606S	0.34	0.18	5/8-18	-06	1.57	1.76	0.16	

Note: Bump Tube O-Ring Seal O-Rings page 201

1 wire braid Reduced Bore Fittings

For use with hose: FC234



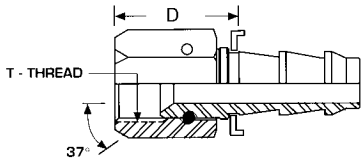
4411
Female JIC 37° Swivel
(Two piece fitting, no mandrel required)

1 wire braid Reduced Bore Fittings

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BH47	259-4411-4	7/16-20	-04	1.23	0.09	
•C1BH48	259-4411-6	9/16-18	-06	1.43	0.15	
•C1BH49	259-4411-8	3/4-16	-08	1.62	0.30	
•C1BH45	259-4411-10	7/8-14	-10	1.81	0.39	
•C1BH46	259-4411-12	1-1/16-12	-12	1.92	0.58	
•C1ZU13	259-4411-16	1-5/16-12	-16	1.93	0.74	

Fittings for use with SOCKETLESS™ Hose

For use with hose: FC332



H80250
Female JIC 37° Swivel

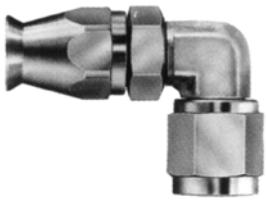
Fittings for use with SOCKETLESS™ Hose

Catalog Part No.	SSP Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1CY22	H80250-4-4	7/16-20	-04	0.75	0.06	
•C1CY23	H80250-6-6	9/16-18	-06	0.86	0.08	
•C1CY24	H80250-8-8	3/4-16	-08	0.93	0.12	
•C1CY21	H80250-12-12	1-1/16-12	-12	1.15	0.32	

Stainless Steel Reusable
Teflon® 1 Braid Fittings for use with hose: 2807, FC807, STW

190600
Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1ZY27	FBM1130	3/8-24	-03		0.04	
•C1AM42	190600-4C	7/16-20	-04	1.13	0.09	
•C1AM44	190600-6C	9/16-18	-06	1.22	0.05	
•C1AM45	190600-8C	3/4-16	-08	1.35	0.20	
•C1EM26	190600-10C	7/8-14	-10	1.54	0.25	
•C1AM40	190600-12C	1-1/16-12	-12	1.67	0.36	
•C1FA28	190600-16C	1-5/16-12	-16	1.91	0.55	



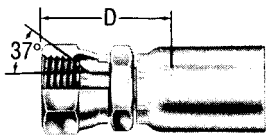
Female JIC 37° Swivel
90° Elbow

Catalog Part No.	Aeroquip Model	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1EA64	FBM1150	3/8-24	-03		0.40	
•C1EA65	FBM1151	7/16-20	-04		0.10	

900568
Stainless Steel Sleeve

Catalog Part No.	Aeroquip Model	Hose Size	Fits Aeroquip Hose	Wt.	Price Each
•C1EH43	900568-4C	-04	2807-4	0.01	
•C1EH42	900568-12C	-12	2807-12	0.02	

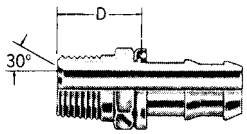
Brass Crimp Polyon™ Crimp
Polyon™ Crimp Fittings for use with hose: FC372, FC373, FC901, FC902



FJ3337
Female JIC 37° Swivel

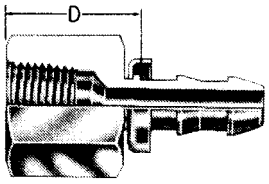
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1FE98	FJ3337-0404B	7/16-20	-04		0.14	
C1FE99	FJ3337-0606B	9/16-18	-06		0.21	

Brass Reusable SOCKETLESS™
SOCKETLESS™ Fittings for use with hose: FC332



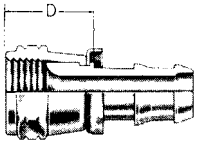
4738
Male Pipe

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1BQ88	**4738-2-4B**	1/8-27	-04	0.65	0.03	
C1BQ89	**4738-4-4B**	1/4-18	-04	0.83	0.06	
C1BQ90	**4738-4-6B**	1/4-18	-06	0.89	0.10	
C1BQ91	**4738-6-6B**	3/8-18	-06	0.89	0.07	
•C1BQ92	4738-6-8B	3/8-18	-08	0.89	0.10	
C1BQ94	**4738-8-8B**	1/2-14	-08	1.14	0.15	
•C1BQ93	4738-8-10B	1/2-14	-10	1.14	0.18	
C1BQ87	**4738-12-12B**	3/4-14	-12	1.21	0.24	



4753
Female Pipe

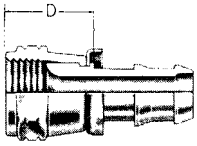
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR28	4753-4-4B	1/4-18	-04	0.77	0.09	
•C1BR30	4753-8-8B	1/2-14	-08	1.02	0.25	



4797
Female JIC 37° and SAE 45° Swivel (Universal) Nut has double notch.

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1BR42	**4797-4B**	7/16-20	-04	0.71	0.04	
•C1FH14	NP4797-4B	7/16-20	-04	0.71	0.04	
•C1BR43	4797-5-4B	1/2-20	-04	0.77	0.05	
•C1BR44	4797-8-6B	3/4-16	-06	0.93	0.10	
C1BR45	**4797-8B**	3/4-16	-08	0.93	0.11	
C1BR40	**4797-10-8B**	7/8-14	-08	1.06	0.16	
C1BR41	**4797-10B**	7/8-14	-10	1.06	0.17	
•C1FH13	NP4797-10B	7/8-14	-10	1.06	0.17	

NP Models: Nickel Plated.



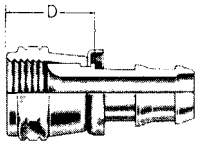
4739
Female SAE 45° Swivel (Nut has single notch)

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1BQ96	**4739-6B**	5/8-18	-06	0.81	0.06	
•C1BQ95	4739-12B	1-1/16-14	-12	1.19	0.27	
•C1FH11	NP4739-12B	1-1/16-14	-12	1.19	0.27	

NP Models: Nickel Plated.

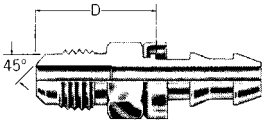
Hose Fittings

Brass Reusable SOCKETLESS™
SOCKETLESS™ Fittings for use with hose: FC332



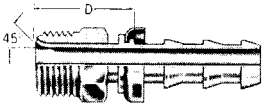
4741
Female JIC 37° Swivel

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
C1BR15	4741-6B	9/16-18	-06	0.80	0.06	
C1BR14	4741-12B	1-1/16-12	-12	1.19	0.28	



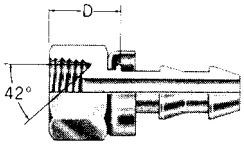
4742
Male SAE 45° Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR16	4742-4B	7/16-20	-04	0.83	0.04	
•C1BR17	4742-5-4B	1/2-20	-04	0.89	0.04	
•C1BR18	4742-6B	5/8-18	-06	0.95	0.07	



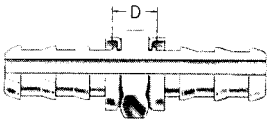
4740
SAE 45° Male Inverted Flare

Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BQ98	4740-3-4B	3/8-24	-04	0.75	0.03	
•C1BQ99	4740-4B	7/16-24	-04	0.75	0.03	
•C1BR11	4740-5-4B	1/2-20	-04	0.82	0.04	
•C1BR12	4740-6B	5/8-18	-06	0.86	0.06	
•C1BR13	4740-8B	3/4-18	-08	0.94	0.10	
•C1BQ97	4740-10B	7/8-18	-10	1.01	0.16	



4743
SAE 42° Inverted Female Flare

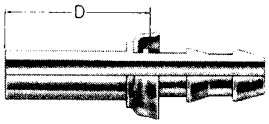
Catalog Part No.	Aeroquip Model	Thread	Hose Size	D (in)	Wt.	Price Each
•C1BR21	4743-4B	7/16-24	-04	0.46	0.05	



4772
Hose Mender

Catalog Part No.	Aeroquip Model	Hose Size	D (in)	Wt.	Price Each
•C1BR33	4772-4B	-04	0.32	0.04	
•C1BR34	4772-6B	-06	0.32	0.06	
•C1BR35	4772-8B	-08	0.38	0.12	
•C1BR31	4772-10B	-10	0.47	0.23	
•C1BR32	4772-12B	-12	0.54	0.29	

Brass Reusable SOCKETLESS™
SOCKETLESS™ Fittings for use with hose: FC332



4750
Compression Type

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Hose Size	Hose Cut Off (in)	Wt.	Price Each
•C1BR26	4750-6B	0.38	-06	1.21	0.03	

Hose Fittings

Stainless Steel Crimp EverSwage
EverSwage™ Crimp Fittings for use with hose: SC

NM
Male Pipe

Catalog Part No.	Everflex Model	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1DF78	NM2-4-S	1/8-27	-4		0.03	

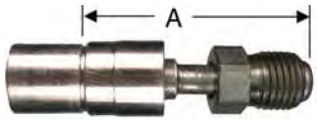
NJIC
Female JIC 37° Swivel
Consists of NNJ nut, NJ insert and NJC short collar

Catalog Part No.	Everflex Model	Material	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1ML47	NJIC-4-316	316 SS	7/16-20	-4	0.90	0.10	
•C1JS62	NJIC-4-S	300 Series SS	7/16-20	-4	0.90	0.05	

**** WARNING **:** Do NOT use Everflex hose end NJIC-4S with Adaptall SS9200-04-06 or SS9200-04-08 adapters. The Adaptall flare is shorter than normal and does not make contact properly with the flare seat on the Everflex hose end.

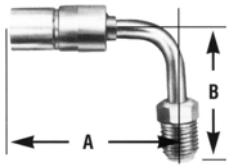
NJ
JIC Female Insert

Catalog Part No.	Everflex Model	JIC Size	Fits Everflex Hose Model	Wt.	Price Each
C1JB27	NJ-4-316	-4	SC-4	0.01	



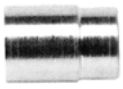
PT
SAE Male Inverted Flare

Catalog Part No.	Everflex Model	Thread	Hose Size	Cut Off (in)	Wt.	Price Each
•C1JJ56	PT-S-4	3/8-24	-4		0.04	



PT90
SAE Male Inverted Flare
90° Elbow

Catalog Part No.	Everflex Model	Thread	Hose Size	Cut Off (in)	A (in)	B (in)	Wt.	Price Each
•C1JB38	PT-90-4	3/8-24	-4		2.00	1.00	0.04	

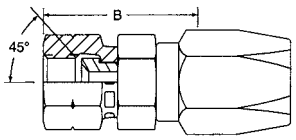


NC
Crimp Sockets for use with hose: SC

Catalog Part No.	Everflex Model	Hose Size	Fits Everflex Hose Model	Wt.	Price Each
•C1DF68	NC-4-316	-4	SC-4	0.01	

Brass Reusable Marine Steering
Reusable Fittings for use with MSH Marine Steering Hose

TRIDENT MARINE



208MS
Female SAE 45° Swivel

Catalog Part No.	Trident Marine Model	Thread	Hose Size	B (in)	Wt.	Price Each
•C1HW38	208MS-6-5B	5/8-18	-05	1.00	0.16	
•C1HW39	208MS-6-6B	5/8-18	-06	1.00	2.25	

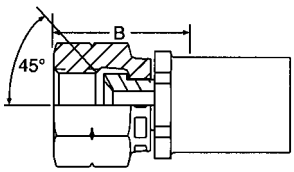
2TFMS
SeaStar® Female Swivel

Catalog Part No.	Trident Marine Model	Tube O.D. (in)	Hose Size	Hose Cut Off (in)	Wt.	Price Each
•C1HW48	2TFMS-6-5B	3/8	-05		0.16	

Note: The SeaStar® female swivel mates with a 3/8 O.D. brass compression tube fitting connection. Eaton Tube Fittings, Brass Compression page 120

Brass Crimp Marine Steering
Crimp Fittings for use with MSH Marine Steering Hose

TRIDENT MARINE



108MS
Female SAE 45° Swivel

Catalog Part No.	Trident Marine Model	Thread	Hose Size	B (in)	Wt.	Price Each
•C1HW23	108MS-6-5B	5/8-18	-05	1.00	0.12	
•C1HW24	108MS-6-6B	5/8-18	-06	1.00	0.13	

1TFMS
SeaStar® Female Swivel

Catalog Part No.	Trident Marine Model	Tube O.D. (in)	Hose Size	Hose Cut Off (in)	Wt.	Price Each
•C1HW37	1TFMS-6-5B	3/8	-05		0.12	

Note: The SeaStar® female swivel mates with a 3/8 O.D. brass compression tube fitting connection. Eaton Tube Fittings, Brass Compression page 120

Hose Clamps & Crimp Ferrules

Category **Page**

Hose Application Warnings

Agency and industry standards may apply to your application. It is your responsibility to decide what regulations and/or standards apply, and inform us. We will then advise you if the products selected meet those standards.

Improper selection, installation and/or routing may significantly shorten the life of a hydraulic hose, which could result in hose rupture and failure, which may then result in serious persinal injury or property damage.

If you don't already have the proper training or information, ask for:

Eaton/Aeroquip Fluid Conveyance Products Catalog A-HOOV-MC001-E
- Warnings - pages 11-12
- Fluid Compatibility - pages 349-355
- SAE Recommended Practices (SAE J1273) - page 356
- Routing & Installation - page 358
- Thread Style Pressure Performance - page 428

Most hydraulic fluids are flammable and proper safeguards have to be taken to contain any fluid if a hose failure occurs in an environment with a source of ignition.

Hoses have a service life, and high repetitive shock reduces hose service life. You need to inspect and change out hoses within their service life for your application or hose rupture and failure may occur.

S.**T**.**A**.**M**.**P**. - You must consider the **S**ize, **T**emperature, **A**pplication, **M**edium and **P**ressure when selecting hose and hose fittings.

WARNING

EATON FITTING TOLERANCES ARE ENGINEERED TO MATCH EATON'S AEROQUIP HOSE TOLERANCES. THE USE OF EATON FITTINGS ON HOSE SUPPLIED BY OTHER MANUFACTURERS AND/OR THE USE OF EATON'S AEROQUIP HOSE WITH FITTINGS SUPPLIED BY OTHER MANUFACTURERS MAY RESULT IN THE PRODUCTION OF UNRELIABLE AND UNSAFE HOSE ASSEMBLIES AND IS NEITHER RECOMMENDED NOR AUTHORIZED BY EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES.

WARNING

APPLICATION CONSIDERATIONS MUST BE OBSERVED IN SELECTING APPROPRIATE COMPONENTS FOR THE APPLICATION OF THESE PRODUCTS CONTAINED HEREIN. THE FAILURE TO FOLLOW THE RECOMMENDATIONS SET FORTH IN THIS CATALOG MAY RESULT IN AN UNSTABLE APPLICATION WHICH MAY RESULT IN SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE.

EATON CORPORATION OR ANY OF ITS AFFILIATES OR SUBSIDIARIES SHALL NOT BE SUBJECT TO AND DISCLAIMS ANY OBLIGATIONS OR LIABILITIES (INCLUDING BUT NOT LIMITED TO ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES) ARISING FROM TORT CLAIMS (INCLUDING WITHOUT LIMITATION NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW WITH RESPECT TO ANY HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE AEROQUIP HOSE FITTINGS, HOSE AND AEROQUIP APPROVED EQUIPMENT, AND IN CONFORMANCE WITH EATON'S AEROQUIP PROCESS AND PRODUCT INSTRUCTIONS FOR EACH SPECIFIC HOSE ASSEMBLY.

Failure to follow these processes and product instructions and limitations could lead to premature hose assembly failures resulting in property damage, serious injury or death.

Hose Clamps

HSS Worm Gear Clamps

Material: SAE 300 series stainless steel band and housing with SAE 410 series stainless steel screw.
Tightening Method: Combination 5/16” hexagon and screwdriver slot.
Max. Recommended Torque: 30 in. lbs.

HSS

HSS Worm Gear Clamps

Catalog Part No.	Dixon Model	Band Width (in)	Minimum Dia. (in)	Maximum Dia (in)	Wt.	Price Each
•C1CY82	HSS6	0.50	0.4375	0.78125	0.04	
•C1CY84	HSS8	0.50	0.50	0.90625	0.05	
•C1CY70	HSS10	0.50	0.5625	1.0625	0.04	
•C1CY71	HSS12	0.50	0.6875	1.25	0.04	
•C1CY72	HSS16	0.50	0.8125	1.50	0.04	
•C1CY73	HSS20	0.50	0.8125	1.75	0.05	
•C1CY74	HSS24	0.50	1.0625	2.0	0.02	
•C1CY75	HSS28	0.50	1.3125	2.25	0.05	
•C1CY76	HSS32	0.50	1.5625	2.5	0.60	
•C1CY77	HSS36	0.50	1.8125	2.75	0.06	
•C1CY78	HSS40	0.50	2.0625	3	0.06	
•C1CY79	HSS44	0.50	2.3125	3.25	0.07	
•C1CY81	HSS56	0.50	3.0625	4	0.08	
•C1CY83	HSS72	0.50	1.875	5	0.09	

MAH Worm Gear Clamps

Material: SAE 300 series stainless steel band and housing with SAE 410 series stainless steel screw.
Tightening Method: Combination 1/4” hexagon and screwdriver slot.
Max. Recommended Torque: 10 in. lbs.

MAH

MAH Worm Gear Clamps

Catalog Part No.	Dixon Model	Band Width (in)	Minimum Dia. (in)	Maximum Dia (in)	Wt.	Price Each
C1DD76	**MAH-4**	0.3125	0.21875	0.63	0.15	
C1DD77	**MAH-6**	0.3125	0.4375	0.78125	0.17	
•C1DD75	MAH-10	0.3125	0.5625	1.0625	0.01	

Trident Marine Compact "HD NON-PERF" Clamp

Material: Enter Feature Label Enter Feature Label Premium Marine Grade, all AISI 316 (high tensile strength) Stainless Steel Compact “HD NON-PERF” Worm Gear Hose Clamp.
Band: The 9.7 mm (0.382”) wide band is Non-Perforated and Smooth on the inside with Rolled Edges. This eliminates hose damage with increased clamping force.
Housing: The High Strength, Compact, One Piece 14mm (0.55”) wide Housing provides one of the highest clamping force ratings of any worm gear style clamp.
Screw Drive: 316 Stainless Steel 7.0 mm Screw Head
Construction: Swedish Std. SMS2298 - W5

705 Series

Trident Marine Compact "HD NON-PERF" Clamp

Catalog Part No.	Trident Model	SAE Size	Hose I.D. (in.)	Clamping Range (in.)	Recommended Torque (in-lbs.)	Wt.	Price Each
C1NM81	705-0560	4	1/4 - 5-16	7/16 - 21-32	11 - 17		
E5KP35	705-0380	6	5/16 - 3/8	11/32 - 25/32	13 - 20		

Oetiker 2-Ear Pinch Clamps

Application: Especially suited for industrial use and with heavy vibrating equipment. These clamps are installed on air, fluid, gas and steam lines. The one piece design offers a positive, tamper-proof seal without damaging the hose.
Installation: While both ears must be closed, 2-Ear clamps are best installed when one ear is closed all the way first. The second ear is then closed so that the first ear opens slightly (gap to be approximately 1/16 inch). This builds a resilient strength into the clamp in a spring-like action to hold against pressure, vibration and hose shrinkage due to temperature changes or aging. (If both ears can be closed all the way, the clamp size selected is probably too big and the next smaller clamp should be used).
Note: To insure a proper grip, Oetiker clamps should be installed with either Oetiker Pincers or a similar style of pincer approved by Oetiker, Inc.
Clamp Installation Tools: page 88
Kits: page 87

2-Ear Clamps

Oetiker 2-Ear Pinch Clamps

Catalog Part No.	Oetiker Model	Material	Nom. Size (in)	Nominal Clamping Range Closed-Open (in)	Band Width (in)	Wt.	Price Each
•C1ZZ59	10100008	Zinc Plated Steel	5/16	0.276 - 0.354	0.276	0.02	
•C1ZZ58	10100011	Zinc Plated Steel	3/8	0.315 - 0.433	0.276	0.03	
•C1ZZ57	10100016	Zinc Plated Steel	1/2	0.433 - 0.512	0.276	0.01	
•C1ZZ56	10100019	Zinc Plated Steel	9/16	0.512 - 0.592	0.295	0.02	
•C1ZZ55	10100024	Zinc Plated Steel	5/8	0.591 - 0.708	0.315	0.06	
•C1ZZ54	10100027	Zinc Plated Steel	3/4	0.669 - 0.787	0.335	0.01	
•C1ZZ53	10100030	Zinc Plated Steel	7/8	0.787 - 0.905	0.354	0.05	
•C1ZZ52	10100032	Zinc Plated Steel	15/16	0.866 - 0.984	0.394	0.04	

Hose Clamps

2-Ear Clamps

Oetiker 2-Ear Pinch Clamps

Catalog Part No.	Oetiker Model	Material	Nom. Size (in)	Nominal Clamping Range Closed-Open (in)	Band Width (in)	Wt.	Price Each
•C1GH18	10100037	Zinc Plated Steel	1-1/8	1.063 - 1.220	0.394	0.03	
•C1ES45	15100004	Stainless	5/16	0.276 - 0.354	0.276	0.03	
•C1ES53	15100023	Stainless	3/8	0.315 - 0.433	0.276	0.04	
•C1ES46	15100006	Stainless	1/2	0.433 - 0.512	0.276	0.05	
•C1ES47	15100007	Stainless	9/16	0.512 - 0.592	0.295	0.06	
•C1ES48	15100009	Stainless	5/8	0.591 - 0.708	0.315	0.07	
•C1ES49	15100010	Stainless	3/4	0.669 - 0.787	0.335	0.11	
•C1ES50	15100012	Stainless	7/8	0.787 - 0.905	0.354	0.14	
•C1ES51	15100013	Stainless	15/16	0.866 - 0.984	0.394	0.17	
•C1ES52	15100014	Stainless	1	0.905 - 1.063	0.394	0.17	

Trident Marine "HD NON-PERF" Clamp

Material: Premium Marine Grade, all AISI 316 (high tensile strength) Stainless Steel “HD NON-PERF” Worm Gear Hose Clamp.

Band: The 11.7 mm (0.46”) wide band is Non-Perforated and Smooth on the inside with Rolled Edges. This eliminates hose damage with increased clamping force.

Housing: The High Strength, Compact, One Piece 16mm (0.63”) wide Housing provides one of the highest clamping force ratings of any worm gear style clamp. Screw Head is 7mm.

Trident Marine "HD NON-PERF" Clamp

Catalog Part No.	Trident Model	SAE Size	Hose I.D. (in.)	Clamping Range (in.)	Recommended Torque (in-lbs.)	Wt.	Price Each
•C1KX95	710-0120	8	3/8 - 1/2	5/8 - 15/16	35 - 45		
•C1KX97	710-0580	10	1/2 - 5/8	3/4 - 1-1/8	35 - 45		
•C1KX96	710-0340	12	5/8 - 1-1/8	7/8 - 1-1/4	35 - 45		
•C1KX98	710-1000	16	7/8 - 1	1-1/16 - 1-1/2	35 - 45		
•C1KY12	710-1140	20	1 - 1-1/4	1-1/4 - 1-3/4	35 - 45		
•C1KY13	710-1380	24	1-5/16 - 1-3/8	1-1/2 - 2	35 - 45		
•C1KY11	710-1120	28	1-1/2 - 1-5/8	1-3/4 - 2-1/4	45 - 60		
		-	1-3/4 - 1-7/8	1-7/8 - 2-1/2	45 - 60		
•C1KY15	710-2000	32	1-3/4 - 2	2 - 2-9/16	45 - 60		
•C1KY17	710-2140	40	2-1/8 - 2-3/8	2-5/16 - 3	45 - 60		
•C1KY16	710-2120	44	2-1/2 - 2-3/4	2-11/16 - 3-3/8	45 - 60		
•C1KY18	710-3000	52	2-5/8 - 3	3 - 3-3/4	45 - 60		
		64	3-1/8 - 3-1/2	3-7/16 - 4-3/4	45 - 60		
•C1KY20	710-4000	80	3-1/2 - 4-1/2	4-1/8 - 5-7/16	45 - 60		
C1KY21	710-5000						
C1KY23	710-6000	96	4-1/2 - 5-1/2	5-1/8 - 6-1/2	45 - 60		
C1KY24	710-6580	122	6-5/8	6-7/8 - 8-1/8	45 - 60		
C1KY25	710-8000	138	8	7-7/8 - 9-1/8	45 - 60		

Oetiker 2-Ear Pinch Clamp Service Kits

Oetiker 2-Ear Pinch Clamp Service Kits

Catalog Part No.	Oetiker Model	Description	Wt.	Price Each
•C1ZZ21	18500064	Stainless Steel Clamp Service Kit with Straight Jaw Pincers Clamps: 15 each of 5/16, 3/8, 1/2, 9/16, and 5/8. 12 each of 3/4, 7/8, 15/16, 1.	2.73	

Oetiker Stepless® Ear Pinch Clamps

Application: For low durometer and/or thin-walled hose and tubing. Well suited for silicon, vinyl and polyurethane lines. The smooth inner band prevents damage to the hose while the unique tongue-in-groove design provides a complete 360° seal.

Installation: 1-Ear clamps are best installed when the clamp shows a gap of approximately 1/16 inch. This builds a resilient strength into the clamp in a spring-like action to hold against pressure, vibration and hose shrinkage due to temperature changes or aging. (If a clamp ear can be closed all the way, the clamp size selected is probably too big and the next smaller clamp should be used).

Note: To insure a proper grip, Oetiker clamps should be installed with either Oetiker Pincers or a similar style of pincer approved by Oetiker, Inc.

Clamp Installation Tools: page 88

Kits: page 88

Stepless® Ear Clamps

Oetiker Stepless® Ear Pinch Clamps

Catalog Part No.	Oetiker Model	Material	Size (mm)	Nom. Size (in)	Nominal Clamping Range Closed-Open (in)	Band Width (in)	Wt.	Price Each
•C1ES57	16700010	Stainless	13.3	1/2	0.425 - 0.524	0.276	0.05	
•C1ES58	16700013	Stainless	14.5	9/16	0.472 - 0.571	0.276	0.05	
•C1ES59	16700016	Stainless	15.7	5/8	0.520 - 0.618	0.276	0.05	
•C1FG42	16701009	Stainless (Degreased)	17.0	11/16	0.571 - 0.669	0.276	0.01	
•C1ES60	16700020	Stainless	18.5	23/32	0.602 - 0.728	0.276	0.07	
•C1ES61	16700026	Stainless	22.6	7/8	0.764 - 0.890	0.276	0.08	
•C1ES62	16700031	Stainless	25.6	1	0.882 - 1.008	0.276	0.08	
•C1ES63	16700035	Stainless	28.6	1-1/8	1.004 - 1.126	0.276	0.09	

Oetiker Stepless® Ear Pinch Clamp Service Kits

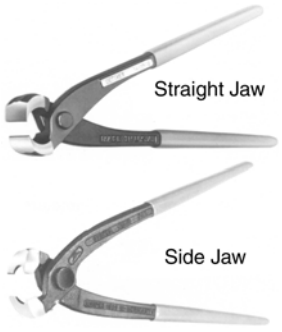
Oetiker Stepless® Ear Pinch Clamp Service Kits

Catalog Part No.	Oetiker Model	Description	Wt.	Price Each
•C1ZZ22	18500060	Stainless Steel Assortment Kit with Straight Jaw Pincers Clamps: 10 each of 1/2, 9/16, 5/8, 23/32, 7/8, 1-1/8, 1-1/4. Pincers: 1 pair.	2.23	

Oetiker Ear Pinch Clamp Installation Tools

1-Ear Clamp Installation: 1-Ear clamps are best installed when the clamp shows a gap of approximately 1/16 inch. This builds a resilient strength into the clamp in a spring-like action to hold against pressure, vibration and hose shrinkage due to temperature changes or aging. (If a clamp ear can be closed all the way, the clamp size selected is probably too big and the next smaller clamp should be used).

2-Ear Clamp Installation: While both ears must be closed, 2-Ear clamps are best installed when one ear is closed all the way first. The second ear is then closed so that the first ear opens slightly (gap to be approximately 1/16 inch). This builds a resilient strength into the clamp in a spring-like action to hold against pressure, vibration and hose shrinkage due to temperature changes or aging. (If both ears can be closed all the way, the clamp size selected is probably too big and the next smaller clamp should be used).



Oetiker Ear Pinch Clamp Installation Tools

Catalog Part No.	Oetiker Model	Description	Wt.	Price Each
•C1ZZ27	14100118	Straight Jaw Pincers	0.72	
•C1ZZ28	14100083	Side Jaw Pincers (For use in confined areas with pincers held parallel to the hose)	0.76	

Dixon TBC T-Bolt Band Clamps (Stainless Band, Carbon Steel Bolt & Nut)

Material: 301 stainless steel band (.025” thick) and carbon steel bolt with self-locking nut.
Tightening Method: Hexagon T-bolt.
Max. Recommended Torque: 70 in. lbs.

TBC

Dixon TBC T-Bolt Band Clamps (Stainless Band, Carbon Steel Bolt & Nut)

Catalog Part No.	Dixon Model	Band Width (in)	Minimum Dia. (in)	Maximum Dia (in)	Wt.	Price Each
•C1GM46	TBC131	0.75	1.1875	1.4375	0.12	
C1DL89	**TBC150**	0.75	1.28125	1.59375	0.12	
C1DL90	**TBC175**	0.75	1.53125	1.84375	0.12	
C1DL91	**TBC188**	0.75	1.65625	1.96875	0.12	
C1DL92	**TBC200**	0.75	1.78125	2.09375	0.12	
C1DL93	**TBC225**	0.75	2.03125	2.34375	0.13	
C1DL94	**TBC238**	0.75	2.15625	2.46875	0.13	
•C1DL95	TBC250	0.75	2.28125	2.59375	0.14	
C1DL96	**TBC256**	0.75	2.34375	2.65625	0.14	
•C1DL97	TBC263	0.75	2.40625	2.71875	0.14	
•C1DL98	TBC275	0.75	2.53125	2.84375	0.15	
C1DL99	**TBC288**	0.75	2.65625	2.96875	0.14	
C1DM11	**TBC300**	0.75	2.78125	3.09375	0.15	
•C1DM12	TBC312	0.75	2.90625	3.21875	0.07	
C1DM13	**TBC325**	0.75	3.03125	3.34375	0.15	
C1DM14	**TBC350**	0.75	3.28125	3.59375	0.16	
•C1DM15	TBC375	0.75	3.53125	3.84375	0.16	
•C1DM16	TBC400	0.75	3.78125	4.09375	0.18	
•C1DM17	TBC425	0.75	4.03125	4.34375	0.07	
C1DM18	**TBC450**	0.75	4.28125	4.59375	0.17	
•C1DM19	TBC475	0.75	4.53125	4.84375	0.75	
•C1GG99	TBC500	0.75	4.78125	5.0625	0.18	
•C1DM20	TBC550	0.75	5.28125	5.59375	0.20	

Note: 700-* models are made by R.G. Ray.

Trident Marine All Stainless Steel T-Bolt Clamps

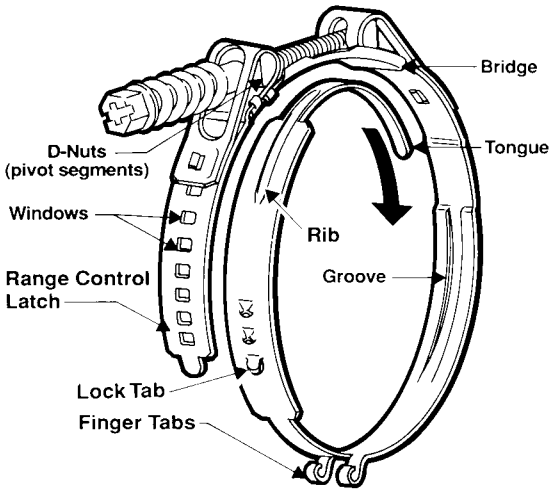
Features: 3/4 inch wide 316 stainless steel band. 18-8 stainless steel T-bolt and lock nut (with nylon insert). Very strong and secure for critical applications. Rounded band edges protect soft rubber or silicone hose materials. T-Bolt clamps provide greater clamping tension than worm gear clamps with less installation torque. Wide band prevents hose extrusions.

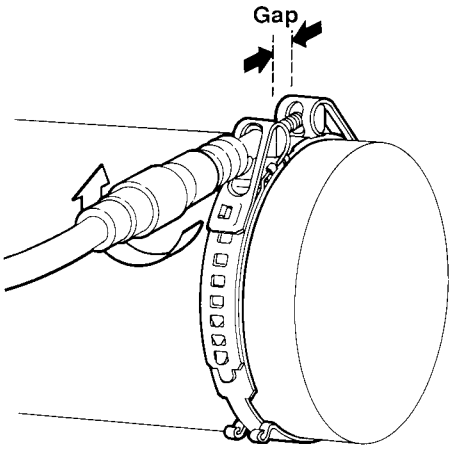
Trident Marine All Stainless Steel T-Bolt Clamps

Catalog Part No.	Trident Marine Model	Use With Hose I.D.'s (in)	Effective Hose O.D. Range (in)	Wt.	Price Each
•C1FT80	720-1000	1	1.28 - 1.59	0.12	
•C1FT83	720-1140	1-1/8 to 1-1/4	1.53 - 1.84	0.13	
•C1FT82	720-1120	1-3/8 to 1-1/2	1.78 - 2.09	0.14	
•C1FT84	720-1340	1-5/8 to 1-3/4	2.03 - 2.34	0.14	
•C1FT85	720-2000	1-7/8 to 2	2.28 - 2.59	0.14	
•C1FT87	720-2140	2-1/8 to 2-1/4	2.53 - 2.84	0.15	
•C1FT86	720-2120	2-3/8 to 2-1/2	2.75 - 3.625	0.19	
•C1FT88	720-2340	2-5/8 to 2-3/4	3.03 - 3.34	0.16	
•C1FT89	720-3000	2-7/8 to 3-1/4	3.28 - 3.59	0.16	
•C1FT90	720-3000L	2-7/8 to 3-1/4	3.37 - 3.94	0.17	
•C1FT91	720-3120L	3-1/2	3.87 - 4.44	0.18	
•C1FT92	720-4000	4	4.28 - 4.59	0.18	
•C1FT93	720-4000L	4	4.37 - 4.94	0.19	
•C1FT95	720-5000L	5	5.37 - 5.94	0.20	
•C1FT96	720-6000	6	6.30 - 6.74	0.21	
•C1FT97	720-6000L	6	6.53 - 7.10	0.22	
•C1FT98	720-8000	8	8.30 - 8.87	0.25	
•C1FT81	720-10000	10	10.25 - 10.69	0.27	

Note: Verify hose O.D. before selecting clamp.

Oetiker Stepless® Spring Clamps for Thermal Cycle Applications





Features: Used on radiators, thermostat to water pump or engine blocks, water pump to oil coolers, heater hose, etc. Self-tightening, light weight, adjustable and reusable. Tongue-in-groove design provides complete 360° seal around the hose. Spring automatically reacts to thermal expansion, contraction and vibration. Low installation torque requirement minimizes stress and damage to delicate silicone hoses. All 300 AISI series stainless steel construction.

Advantages: Prevents Cold Water Leak by continually adjusting to compensate for hose expansion and contraction.

Installation: (1) Open screw until it stops at the D-Nut. (2) Unhook Range Control Latch from the Tabs and place clamp over the hose. (3) Make sure Tongue is in Groove. Engage ALL Tabs in Windows to the tightest position, At this time the should be very little or no play between the clamp and hose. (4) Tighten screw until the spring is fully compressed, the tighten 3 more full revolutions. At this time there should be a small 1/8 inch or larger gap between the two D-Nuts for proper installation and torque.

Removal: Open screw, do not disengage from D-Nut. Lift Range Control Latch.

Stepless® Spring Clamps

Oetiker Stepless® Spring Clamps for Thermal Cycle Applications

Catalog Part No.	Oetiker Model	Nominal Clamping Range Closed-Open (in)	Spring Color / Torque (in.lbs)	Band Width (in)	Wt.	Price Each
•C1ZU35	17800175	1.1875 - 1.4375	Green 12-18 in.lbs	0.35	0.04	
•C1ZU33	17800178	1.6875 - 1.9375	Green 12-18 in.lbs	0.35	0.05	
•C1ZU32	17800180	2.00 - 2.375	Green 12-18 in.lbs	0.35	0.06	
•C1ZU30	17800182	2.375 - 2.75	Green 12-18 in.lbs	0.35	0.06	
•C1ZU28	17800184	2.75 - 3.125	Green 12-18 in.lbs	0.35	0.06	
•C1EW20	17800185	2.9375 - 3.3125	Green 12-18 in.lbs	0.35	0.06	
•C1ZU27	17800186	3.125 - 3.50	Green 12-18 in.lbs	0.35	0.06	
•C1ZU26	17800188	3.5625 - 3.9375	Green 12-18 in.lbs	0.35	0.07	

Light Duty T-Bolt Spring Clamps

Clampco spring-loaded clamps are designed to compensate for fluctuations in all types of hose line assemblies. When temperature and/or pressure changes cause hose lines to expand or contract, Clampco spring-loaded clamps adjust accordingly to provide constant band tension. Band tension (not installation torque) is what ultimately produces desired clamping force.

Features: 300 series stainless steel bands and trunnions for high strength and corrosion resistance • Solid bands prevent hose extrusion • Rounded band edges protect soft hose materials • Low installation torque results in high band tension.

Construction: 300 series stainless steel bands, floating bridges and trunnions. Zinc-plated t-bolts, nuts and springs.

Spring Rate: 1900 pounds per inch, capable of generating a load of 300 pounds.

Recommended Installation Torque: 60 inch pounds.

How to Order: Measure the outside diameter (O.D.) of your hose. Select the clamp with the closest nominal diameter.

Light Duty T-Bolt Spring Clamps

Catalog Part No.	Clampco Model	Band Width (in)	Nominal Dia. (in)	Minimum Dia. (in)	Maximum Dia (in)	Wt.	Price Each
C1FK33	94143-0450	0.75	4.50	4.28	4.58	0.22	
C1JC62	94143-0550	0.75	5.50	5.28	5.58	0.22	

Trident Marine All Stainless Steel Constant-Torque® Clamps

Virtually all rubber hose compresses (cold flow) after installation of clamping device, resulting in an almost immediate torque loss that can exceed 80% of installation torque. Similarly, all metal connections expand as a system heats up, and then contracts as the system cools. Conventional worm gear, T-bolt and other clamps are passive, in that expansion or contraction of components cannot be compensated for without retightening or loosening the clamps. This clamping system is an "active" clamping mechanism, which compensates for the changes by actually changing diameter through a unique wormgear Belleville assembly.

Features: Compensates for "cold flow" and expansion/contraction due to extremes of heat and cold. 5/8 inch wide 304 stainless steel band. 304 stainless steel housing. 410 stainless steel Belleville spring washers and screw. Internal liner helps protect soft or silicone hose from damage, extrusion and shear. Extended adjustment range (7/8 inch O.D.). Use for sealed systems and hard-to-reach installations. Visual "Torque Check" feature.

Installation: A Constant-Torque® clamp is properly tightened when the screw tip is fully extended beyond the housing (approximately 1/4 inch), and the Belleville washer stacks are nearly collapsed flat. The use of a torque wrench is recommended to reach the 90-125 inch pound installation torque.

Trident Marine All Stainless Steel Constant-Torque® Clamps

Catalog Part No.	Trident Marine Model	Use With Hose I.D.'s (in)	Effective Hose O.D. Range (in)	Wt.	Price Each
•C1FU12	730-0340	3/8 to 7/8	0.6875 - 1.25	0.11	
•C1FU13	730-1000	1 to 1-1/8	1.00 - 1.75	0.18	
•C1FU16	730-1140	1 to 1-1/2	1.25 - 2.125	0.19	
•C1FU15	730-1120	1-1/4 to 2	1.75 - 2.625	0.21	
•C1FU17	730-2000	1-7/8 to 2-1/2	2.25 - 3.125	0.22	
•C1FU18	730-2120	2-3/8 to 3	2.75 - 3.625	0.22	
•C1FU19	730-3120	3-1/4 to 3-1/2	3.75 - 4.625	0.24	
•C1FU20	730-4000	4	4.25 - 5.125	0.25	
•C1FU22	730-6000	6	6.25 - 7.125	0.28	
•C1FU23	730-8000	8	8.25 - 9.125	0.30	

BAND-IT® Jr. Preformed Band Clamps

Standard Clamps (J Types): Strong holding power. Vibration resistant. Require no hammering or crimping. Automatically locked in one simple lever movement.

Smooth I.D. Clamps (JS Types): Uniform, gap-free inside diameter. The smooth inside diameter produces a uniform clamping surface to prevent leak paths, while the lower profile reduces the risk of snags when dragging industrial hose assemblies. Same strong holding power and features of Standard clamps.

BAND-IT® Jr. Preformed Band Clamps

Catalog Part No.	Band-It ® Model	Type	Clamp I.D. (in)	Band Width (in)	Band Thickness (in)	Material	Wt.	Price Each
C1HG41	JS309	JS	2.50	0.625	0.030	Galv Steel	0.14	
•C1FZ92	JS310	JS	2.75	0.75	0.030	Galv Steel	0.18	
•C1FZ94	JS312	JS	3.50	0.75	0.030	Galv Steel	0.21	
C1FZ95	JS314	JS	4.50	0.75	0.030	Galv Steel	0.25	
•C1FZ96	JS315	JS	5.00	0.75	0.030	Galv Steel	0.27	
C1HG42	JS317	JS	6.50	0.75	0.030	Galv Steel	0.33	
•C1DB62	JS240	JS	0.75	0.25	0.020	201 SS	0.02	
•C1GC15	JS201	JS	0.8125	0.375	0.025	201 SS	0.03	
•C1DB63	JS242	JS	1.00	0.25	0.020	201 SS	0.01	
•C1GC17	JS203	JS	1.00	0.50	0.030	201 SS	0.06	
•C1GC16	JS202	JS	1.375	0.375	0.025	201 SS	0.04	
•C1DB64	JS252	JS	1.50	0.25	0.020	201 SS	0.10	
•C1GC18	JS205	JS	1.50	0.625	0.030	201 SS	0.10	
•C1GC19	JS206	JS	1.75	0.625	0.030	201 SS	0.11	
•C1GC20	JS207	JS	2.00	0.625	0.030	201 SS	0.11	
•C1GC21	JS208	JS	2.25	0.625	0.030	201 SS	0.13	
•C1GC22	JS209	JS	2.50	0.625	0.030	201 SS	0.14	
•C1GC23	JS212	JS	3.50	0.75	0.030	201 SS	0.20	
•C1GC24	JS213	JS	4.00	0.75	0.030	201 SS	0.23	
•C1FH61	JS215	JS	5.00	0.75	0.030	201 SS	0.26	

Note: J Types (Band-It Standard), JS Types (Band-It Smooth ID).

BAND-IT® Band

Features: Superior yield and tensile strength to provide maximum clamping strength. Fully rounded smooth edges for safety and easy installation.
Material: Type 201 stainless steel.
For Use With: Band-It® Buckles.

BAND-IT® Band

Catalog Part No.	Band-It® Model	Band Width (in)	Band Thickness (in)	Package Quantity (ft)	Wt. (per pkg)	Price (per pkg)
•C1EH76	C205	0.625	0.030	100	7.00	

BAND-IT® Buckles

Features: Designed to accommodate both single and double wrap clamps. Unique teeth and ears provide for maximum clamping strength.
For Use With: Band-It® Band.
Tightening Method: Band-It® Tool.

BAND-IT® Buckles

Catalog Part No.	Band-It® Model	Band Width (in)	Material	Wt.	Price Each
•C1CM28	C255	0.625	201 SS	0.02	

Dixon F Series Center Punch Clamps

For use with Dixon center punch tools F1, F38, F40 and F100. Other manufacturer's punch style tools may be used. On stainless models, band is 300 series stainless steel, buckle is 302 series stainless steel.

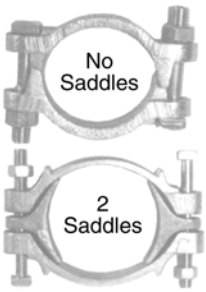
Dixon F Series Center Punch Clamps

Catalog Part No.	Dixon Model	Clamp I.D. (in)	Material	Band Width (in)	Band Thickness (in)	Wt.	Price Each
•C1JE39	F14	3-1/2	Galvanized	5/8	0.031	0.15	

Hose Clamps

Double Bolt Clamps

Material: Malleable iron. Machine bolts and hex nuts.
Features: Inner surface has dual gripping ridges. Bolt lugs are reinforced to prevent bending out of alignment. Torque values for clamps are based on dry bolts. The use of lubricant on bolts will adversely affect clamp performance. NOT recommended for use with helical wire hose.
Tightening Method: Bolts and nuts.



Double Bolt Clamps

Catalog Part No.	Dixon Model	Saddles	Min. Dia. (in)	Max. Dia. (in)	Bolt Torque Rating Foot Pounds	Wt.	Price Each
C1BN59	400-DIXON	2	3.5	3.8125	40	1.62	

TigerClamp™ Spiral Double Bolt Clamps

Application: For use on Tigerflex® hoses with convoluted cover (counter-clockwise spiral only). For adequate holding power, a single clamp may be used on each end for 1-1/2 to 4 inch ID hose. Two clamps are recommended for each end on 5 inch ID and larger. Threaded protective caps help prevent injury.
Hose Styles: TigerClamp™ Spiral Double Bolt Clamps are recommended for use on the following Tigerflex® convoluted hoses: Series 2001, 2020, BW, CG, F, G, GC, GC-C, H, J, JG, K, PF, S, UBK, W, WBS, WE, WG, WH, WST, WSTF, WT, WU. Also recommended for use on Ureflex-1, Ureflex-2, Urevac-3.
Note: Use of pneumatic air tools for tightening purposes is NOT recommended due to potential clamp damage caused by excess torque. Both hex nuts should be tightened equally to prevent possible leakage. If sockets are used, they should be deep well sockets.
CAUTION: Proper evaluation of holding power for clamp must be determined for each individual installation.

TigerClamp™ Spiral Double Bolt Clamps

Catalog Part No.	Kuriyama Model	Description	Wt.	Price Each
•C1GC67	SDBC-6	TigerClamp™ for 6 Inch I.D. Tigerflex® Convoluted Hose	2.00	

Material: Brass.
Application: Used to permanently attach a shank type hose barb fitting to a hose. For use in low pressure applications.
Fitting Suggestions: Short shank type brass hose barbs.
Fittings: page 49

Catalog Part No.	Winzeler Model	I.D. (in)	Length	Center Hole Dia.	Gauge	Maximum Hose Barb Size	Wt.	Price Each
•C1BS22	501	0.500	0.687	0.328	0.016	1/4	0.10	
•C1BZ36	7323	0.525	1.0	0.375	0.025	5/16	0.01	
•C1BZ37	7325	0.562	1.0	0.437	0.025	3/8	0.01	
•C1BZ38	7327	0.63	1.0	0.437	0.025	3/8	0.01	
•C1BZ39	7328	0.656	1.0	0.437	0.025	3/8	0.02	
•C1BZ40	7329	0.687	1.0	0.50	0.025	3/8	0.02	
•C1BZ42	7330	0.718	1.0	0.50	0.025	3/8	0.02	
•C1BZ43	7331	0.75	1.0	0.50	0.025	3/8	0.02	
•C1BZ44	7333	0.812	1.0	0.625	0.025	1/2	0.02	
•C1BZ23	7244	0.88	0.875	0.625	0.025	1/2	0.02	
•C1BS27	5029	0.9	0.875	0.625	0.025	1/2	0.02	
•C1BY66	7113	0.925	0.875	0.69	0.023	5/8	0.02	
•C1BY67	7114	1.025	0.875	0.75	0.025	5/8	0.02	
•C1BY65	7104	1.15	0.875	0.875	0.025	3/4	0.02	
•C1CA52	875/K	1.225	0.875	0.875	0.025	3/4	0.03	

Hose Assembly Lube

Application: A specially compounded lubricant superior to any other lubricant used in hose assembly work. Available in pints or gallons.
Note: Not to be used with green cover fire resistant hydraulic fluid hoses.

222070

Hose Assembly Lube

Catalog Part No.	Aeroquip Model	Container Size	Wt.	Price Each
•C1BC87	222070	1 Pint	0.97	

Reusable Fitting Assembly Mandrels


1582 / 583

Reusable Fitting Assembly Mandrels

Catalog Part No.	Aeroquip Model	Use with Fitting Styles	Wt.	Price Each
•C1ZU76	FBM3407	411-6 (JIC)	0.18	
•C1ZU80	FBM3402	401-6 (SAE)	0.24	
•C1ZU79	FBM3403	401-8, 411-8	0.36	

Stainless Steel Internal Support Coil

Application: Recommended for vacuum service with most hoses.

Stainless Steel Internal Support Coil

Catalog Part No.	Aeroquip Model	Coil O.D. (in)	Wt. (per ft)	Price (per ft)
•C1BC86	222005-15C	1.19	0.75	

Firesleeve

Construction: Uniform single layer of braided fiberglass tubing impregnated with flame resistant silicone rubber.
Application: Firesleeve will protect hose from direct flame.
Clamps: FF9217 Firesleeve Clamps page 99

Firesleeve

Catalog Part No.	Aeroquip Model	Clamp Number (2 Required per Hose Assy)	Sleeve I.D. (in)	Wt. (per ft)	Price (per ft)
•C1BW66	624-10	FF9217-0622S	0.62	0.20	
•C1BW67	624-12	FF9217-0622S	0.75	0.20	
•C1BW68	624-13	FF9217-0622S	0.81	0.21	
•C1EN61	624-14	FF9217-0622S	0.88	0.23	
•C1BW69	624-16	FF9217-0622S	1.00	0.25	
•C1BW70	624-20	FF9217-0648S	1.25	0.29	
•C1HJ65	624-24	FF9217-0648S	1.50	0.38	
•C1EN63	624-28	FF9217-0648S	1.75	0.37	
•C1FD39	624-32	FF9217-0648S	2.00	0.40	
C1HJ66	624-38	FF9217-0648S	2.38	0.48	
C1MZ69	624-46	FF9217-0664C	2.88		

Firesleeve Clamp

Firesleeve Clamp

Catalog Part No.	Aeroquip Model	Clamp Size (in)	Wt.	Price Each
•C1EQ47	FF9217-0622S	1-3/8 dia x 3/8 wide	0.04	
•C1EQ48	FF9217-0648S	3 dia x 3/8 wide	0.25	

Tubing Products

Stainless Steel Tubing

Tubing Material Specifications: ASTM A269 B90 Seamless. Bright Annealed 316 Stainless Steel. Tensile strength 75,000 psi.

Pressure Ratings: Based on using the more conservative Barlow formula where P=(2TxS)/O (P=burst pressure T=wall thickness S=tensile strength O=outside diameter).

Note: A 6:1 safety factor is used in table below for applications where “considerable” hydraulic shock and mechanical strain are present. For applications where hydraulic shock and mechanical strain is not excessive, a 4:1 safety factor (higher working pressures) may be carefully considered. For applications where hydraulic shock and mechanical strain is severe a 8:1 safety factor (lower working pressures) should be applied.

Note: Tubing design pressures have not been de-rated for elevated operating temperatures. Contact us for application information regarding elevated temperatures.

Note: Tubing is stocked in 20 foot nominal lengths.

Flare Nuts & Sleeves: Flare Nuts & Sleeves (Stainless Steel) page 110

Flare Adapters: page 155

Flareless Tube Fittings: SSP Duolok® (Stainless Steel) page 111

Application: Please review important safety & application information starting on page 221

Stainless Steel Tubing

Catalog Part No.	Model Number	O.D. (in)	Wall Thickness (in)	I.D. (in)	Inside Area (sq.in.)	Flow Rate @ 15FPS (gpm)	Maximum Working Pressure 6:1 Safety Factor (psi)	Burst Pressure (psi)	Wt. (per ft)	Price (per ft)
•C1BK43	3/16.035-SS	0.1875	0.035	0.1175	0.01084	0.40	4667	28000	0.06	
C1AF28	1/4.035-SS	0.25	0.035	0.18	0.02543	0.90	3500	21000	0.08	
•C1EG59	1/4.049-SS	0.25	0.049	0.152	0.01814	0.70	4900	29400	0.11	
•C1BR54	5/16.049-SS	0.3125	0.049	0.2145	0.03612	1.70	3920	23520	0.14	
•C1BK87	3/8.035-SS	0.375	0.035	0.305	0.07306	3.4	2333	14000	0.13	
•C1BK89	3/8.049-SS	0.375	0.049	0.277	0.06023	2.80	3267	19600	0.17	
•C1AE76	1/2.049-SS	0.50	0.049	0.402	0.12686	6	2450	14700	0.24	
•C1AE78	1/2.065-SS	0.50	0.065	0.37	0.10747	4.9	3250	19500	0.30	
•C1EX71	5/8.065-SS	0.5625	0.065	0.4325	0.19234	9	2600	15600	0.39	
•C1BK55	3/4.065-SS	0.75	0.065	0.62	0.30175	12	2167	13000	0.48	
•C1BK57	3/4.095-SS	0.75	0.095	0.56	0.24618	11.1	3167	19000	0.67	
•C1AE65	1.109-SS	1.0	0.109	0.788	0.48005	22	2725	16350	1.04	
•C1AE35	1-1/4.120-SS	1.25	0.12	1.01	0.80078	36.7	2400	14400	1.45	

Polyethylene Tubing
Linear Low Density Polyethylene – LLDPE

Features: LLDPE's greatest advantage over low density polyethylene is its superior environmental stress crack resistance (ESCR). Environmental stresses that can shorten the service life of tubing include: chemical exposure, aging, connection to barb-type fittings, or high vibration connections with compression fittings. All colors comply with FDA regulation 21 CFR 177.1520© for food contact applications. Freelin-Wade has chosen to standardize on linear low density polyethylene and no longer offers low density polyethylene.

Application: General low pressure & low temperature applications, instrumentation, food processing. Please review important safety & application information starting on page 309

Operating Temperature Range: -40°F to 150°F.

Vacuum Rating: To 28"Hg

Diameter Tolerance: +/- 0.004"

Hardness: 50 Shore D

Working Pressure: 3:1 Safety Factor

Resin Compliance: FDA, NSF51

Fittings: Brass Push > Connect® page 131 Brass Push > Connect® page 131 Push-In (Brass) page 135 Brass Compression page 120

Polyethylene Tubing • Linear Low Density Polyethylene – LLDPE

Catalog Part No.	Freelin-Wade Model	O.D. (in)	Wall Thickness (in)	I.D. (in)	Minimum Bend Radius (in)	Color	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (pkg)	Price (per pkg)
•C1MJ15	1J-109-10	1/8	0.031	0.062	1/2	Natural	305	1220	100	0.40	
•C1MP65	A43184	3/16	0.031	0.125	1	Natural	200	800	100	0.94	
•C1MN26	1J-048-01	1/4	0.040	0.170	1-1/4	Black	200	800	100	1.20	
•C1MM34	1J-048-10	1/4	0.040	0.170	1-1/4	Natural	200	800	100	1.20	
•C1MM35	1J-077-10	5/16	0.062	0.187	1-1/2	Natural	230	920	100	2.50	
•C1MN27	1J-074-10	3/8	0.062	0.250	2	Natural	190	760	100	2.76	

Note: Polyethylene Tubing may be purchased by the foot or by the package.

PT240 Polyethylene Tubing

Typical Application: Economical, flexible, low density Polyethylene has a wide range of uses in industrial and agricultural applications.
Material: Natural off-white compound covered under 21CFR177.1520 regulations for food contact.
Temperature Range: -40°F to 135°F.
Available Colors: Natural off-white (NA), black (BK), yellow (YW), orange (OR), blue (BU), red (RD), green (GN). FDA colors available on request.
Contains: Ultra-Violet Stabilizer in black tubing.
Fittings: , POLYLINE®, page 124, Brass Push > Connect® page 131, Push>Connect® Flow Controls, Push>Connect® Plus, Molded Compression.
Chemical Compatibility Chart: Chemical Compatibility page 334

PT240 Polyethylene Tubing

Catalog Part No.	Weatherhead Model	Tube O.D. (in)	Tube Wall (in)	Color	Maximum Working Pressure (psi) @ 70°F	Minimum Burst Pressure (psi) @ 70°F	Minimum Bend Radius (in) @ 70°F	Pkg Qty (ft)	Wt. (per 100 ft)	Price (per pkg)
•C1KN12	PT24004NA-500R	1/4	0.062	Natural Off-White	200	600	0.75	500	1.50	
•C1KN13	PT24006NA-200R	3/8	0.062	Natural Off-White	135	400	1.50	200	2.40	

Note: Tubing must be purchased by the package.
Note: These products are available only to select international accounts.

Nylon Tubing

Features: Nylon tubing (also referred to as polyamide) can withstand higher temperatures, making it an ideal choice for a wide variety of applications. When compared to other Nylon resins, Freelin-Wade's tubing allows for a lighter weight wall, greater flexibility and smaller bend radius. It is also more corrosion resistant than other types of Nylon tubing because of its resistance moisture absorbtion. It's heat and UV stabilization makes it resistant to stress-cracking, so it works well in sunny areas. It is chemical resistant which makes it a good choice in areas where exposure to certain chemicals is a possibility.
Application: Pneumatics, hydraulic, vacuum, gasses, lubricants, oils, general chemicals, machine tool, coolant, fuel, fresh & salt water. Please review important safety & application information starting on page 309
Operating Temperature Range: -60°F to 200°F.
Vacuum Rating: To 28"Hg
Diameter Tolerance: < 1/2" +/- .004"; > 1/2" +/- .005"
Hardness: 78 Rockwell R
Resin Compliance: Meets UL94HB Testing Requirements
Fittings: Brass Push > Connect® page 131 Push-In (Brass) page 135 Brass Compression page 120

Nylon Tubing

Catalog Part No.	Freelin Wade Model	O.D.	Wall Thickness	I.D.	Minimum Bend Radius	Color	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (pkg)	Price (per pkg)
•C1MM42	1J-242-10	6 mm	0.65 mm	2.7 mm	17 mm	Natural	340	1360	100	1.17	
•C1MM43	1J-243-10	8 mm	1 mm	6 mm	38 mm	Natural	250	1000	100	1.64	
•C1MQ17	1J-244-10	10 mm	1 mm	8 mm	51 mm	Natural	190	760	100	2.11	
•C1MM44	1J-245-10	12 mm	1 mm	10 mm	76 mm	Natural	150	600	100	2.55	
•C1MM45	1J-247-10	0.125 in	0.023 in	0.080 in	0.375 in	Natural	420	1680	100	0.35	
•C1MM36	1J-202-10	0.188 in	0.025 in	0.138 in	0.625 in	Natural	260	1040	100	0.55	
•C1MM37	1J-204-01	0.250 in	0.035 in	0.180 in	1.000 in	Black	290	1160	100	1.13	
•C1MM38	1J-204-10	0.250 in	0.035 in	0.180 in	1.000 in	Natural	290	1160	100	1.13	
•C1MM39	1J-205-10	0.312 in	0.040 in	0.232 in	1.500 in	Natural	240	960	100	1.64	
•C1MM40	1J-206-10	0.375 in	0.050 in	0.275 in	1.500 in	Natural	250	1000	100	2.45	
•C1MM41	1J-207-10	0.500 in	0.062 in	0.375 in	2.250 in	Natural	240	960	100	4.12	

Note: Nylon Tubing may be purchased by the foot or by the package.

TP160 Polymide "Nylon 11" Tubing

Application: Flexible nylon tubing. Used for instrumentation; lubrication and air lines; gas, chemical and oil processing; low pressure hydraulics.
Operating Temperature Range: -40°F to +200°F
Fittings: Brass Push > Connect® page 131

TP160 Polymide "Nylon 11" Tubing

Catalog Part No.	Eaton Model	Tube O.D. (in)	Tube Wall (in)	Maximum Working Pressure (psi) @ 70° F	Minimum Burst Pressure (psi) @ 70°F	Minimum Bend Radius (in) @ 70°F	Pkg Qty (ft)	Wt. (per ft)	Price (per pkg)
C1KN61	TP16002NA-100	1/8	0.023	250	1000	0.62	100	0.30	
C1KN62	TP16004NA-100	1/4	0.040	250	1000	1.25	100	1.20	
C1KN63	TP16005NA-100	5/16	0.040	250	1000	2.00	100	2.00	
C1KN64	TP16008NA-100	1/2	0.062	250	1000	4.50	100	3.80	

High Pressure Nylon Tubing

High Pressure Nylon 11: Freelin-Wade's High Pressure Nylon tubing is made from a semi-rigid compound that has outstanding tensile strength and chemical resistance, making it the ideal choice for chemical and oil processing lines, tool lubricating systems and other applications that require a high quality Nylon material with much higher burst ratings.
Temperature Range: -60°F to +200°F
Vacuum Rating: To 28" Hg
Diameter Tolerances: O.D. less than 0.5": ±.004"; O.D. greater than 0.5": ±.005"
Hardness: 108 Rockwell R
Working Pressure: 4:1 Safety Factor
UV Stabilized: Yes
Resin Compliance: Meets UL94HB Testing Requirements
Fittings: Brass Compression page 120 Brass Push > Connect® page 131

High Pressure Nylon Tubing

Catalog Part No.	Freelin-Wade Model	O.D. (in)	Wall Thickness (in)	I.D. (in)	Minimum Bend Radius (in)	Color	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (pkg)	Price (per pkg)
•C1MQ18	1J-282-01	1/4	0.050	0.150	9/16	Black	800	3200	100	1.51	

Urethane Tubing

Features: Ether grade urethane. Fuel resistant. Excellent abrasion & tear resistance. 87 shore a durometer. RoHS compliant.
Application: General low pressure & low temperature applications, fuel lines, chemical transfer, powder transfer, petroleum transfer, air transfer, abrasive fluid transfer. Please review important safety & application information starting on page 309
Operating Temperature Range: -40°F to 165°F
Fittings: Machined short shank Hose Barbs page 49

Urethane Tubing

Catalog Part No.	Eaton Model	O.D. (in)	Wall Thickness (in)	I.D. (in)	Color	Maximum Operating Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. per ft.	Price (per pkg)
•C1KL40	EH01804-200R	0.38	0.062	0.25	Clear	50	150	200	0.03	
•C1KL41	EH01806-100R	0.50	0.062	0.38	Clear	40	120	100	0.05	

Note: Urethane tubing may be purchased by the foot or by the package.
Note: Stated working pressures are tested at 68°F. Working pressure decreases as temperature increases.

Air Brake Tubing
4245 & 3270 Eclipse 4247 Solstice

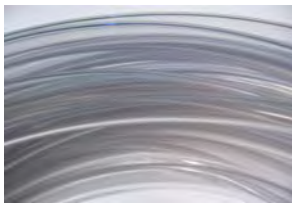
Features: Superior abrasion resistance over rubber and Nylon 11 • Easy burr-free cutting to assemble • Enhanced flexibility over other nylon tubing • Improved flow performance over rubber & nylon.
Construction: 100% polyamide construction with polyester yarn reinforcement. UV stabilized, thermoformable.
Application: Truck & Trailer air brake systems, auxiliary air systems, formed tubes, formed and straight air brake harness assemblies.
Operating Temperature Range: -65°F to 200°F.
Fittings: Brass Air Brake (Nylon Tubing) page 127 Brass Quick > Connect® page 142
Agency Listings: Meets the performance of SAE J844, J1131, J2494-3 DOT-FMVSS 106

Air Brake Tubing • 4245 & 3270 Eclipse 4247 Solstice

Catalog Part No.	Eaton Model	Type	O.D. (in)	Wall Thickness (in)	I.D. (in)	Minimum Bend Radius (in)	Color	Minimum Burst Pressure (psi)	Pkg Qty (ft)	Wt. (lbs./100 ft)	Price (per pkg)
C1KU99	4245-0220-1000	A	1/8	0.02	0.08	0.25	Black	1000	1000	0.33	
C1KX92	**4247-0410-0100**	A	1/4	0.04	0.17	1.00	Black	1200	100	1.50	
C1LX38	4247-0410-1000	A	1/4	0.04	0.17	1.00	Black	1200	1000	1.50	
C1MJ92	4247-0412-1000	A	1/4	0.04	0.17	1.00	Red	1200	1000	1.50	
C1MJ93	4247-0413-1000	A	1/4	0.04	0.17	1.00	Orange	1200	1000	1.50	
C1MJ94	4247-0414-1000	A	1/4	0.04	0.17	1.00	Yellow	1200	1000	1.50	
C1MJ95	4247-0415-1000	A	1/4	0.04	0.17	1.00	Green	1200	1000	1.50	
C1MJ96	4247-0416-1000	A	1/4	0.04	0.17	1.00	Blue	1200	1000	1.50	
C1MJ91	4245-0520-0500	A	5/16	0.04	0.23	1.13	Black	1000	500	1.54	
•C1KZ21	3270-0610-0100	B	3/8	0.06	0.25	1.50	Black	1400	100	2.80	
C1MJ44	3270-0610-0500	B	3/8	0.06	0.25	1.50	Black	1400	500	2.80	
•C1MJ45	3270-0612-0500	B	3/8	0.06	0.25	1.50	Red	1400	500	2.80	
C1MJ46	3270-0613-0500	B	3/8	0.06	0.25	1.50	Orange	1400	500	2.80	
C1MJ47	3270-0614-0500	B	3/8	0.06	0.25	1.50	Yellow	1400	500	2.80	
•C1MJ48	3270-0615-0500	B	3/8	0.06	0.25	1.50	Green	1400	500	2.80	
•C1MJ49	3270-0616-0500	B	3/8	0.06	0.25	1.50	Blue	1400	500	2.80	
•C1KU76	3270-0810-0100	B	1/2	0.06	0.38	2.00	Black	950	100	3.80	
•C1JR67	3270-08104	B	1/2	0.06	0.38	2.00	Black	950	1500	3.80	
C1MJ50	3270-0810-0500	B	1/2	0.06	0.38	2.00	Black	950	500	3.80	
•C1MJ52	3270-08124	B	1/2	0.06	0.38	2.00	Red	950	1500	3.80	
C1MJ51	3270-0812-0500	B	1/2	0.06	0.38	2.00	Red	950	500	3.80	
C1MJ53	3270-0815-0500	B	1/2	0.06	0.38	2.00	Green	950	500	3.80	
•C1JR68	3270-10103	B	5/8	0.09	0.44	2.50	Black	900	750	7.00	
C1MJ54	3270-1010-0250	B	5/8	0.09	0.44	2.50	Black	900	250	7.00	
C1MJ55	3270-1012-0250	B	5/8	0.09	0.44	2.50	Red	900	250	7.00	
C1MJ56	3270-1013-0250	B	5/8	0.09	0.44	2.50	Orange	900	250	7.00	
C1MJ57	3270-1015-0250	B	5/8	0.09	0.44	2.50	Green	900	250	7.00	
C1MJ58	3270-1016-0250	B	5/8	0.09	0.44	2.50	Blue	900	250	7.00	
•C1MJ59	3270-1210-0250	B	3/4	0.09	0.57	3.00	Black	800	250	8.60	
C1MJ60	3270-1215-0250	B	3/4	0.09	0.57	3.00	Green	800	250	8.60	

Note: Air brake tubing sold only by the package.

CLEARFORCE - NR PVC Hose - Non-Toxic FDA Un-pressurized Potable Water - Drain - Vent



Application & Construction: Food Transfer, Drain Lines, Light Vacuum Lines, Sight Gauges. Temperature Range 25°F to 150°F. Materials comply with FDA Specifications. NSF Certified under Standard NSF-51. Clear PVC Tube. Light Weight, Non-Marking & Flexible. Self Extinguishing. RoHS compliant. Special packaging, cut lengths available. Please review application requirements and limitations found in NAHAD Pressure Guideline Chart page 224

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel pinch clamps or stainless steel worm gear clamps.

Fittings: Shank Type (Brass) page 49. Shank Type (Stainless Steel) page 53

Fitting Attachment: Pinch Clamps page 85. Worm Gear Clamps page 84

CLEARFORCE - NR PVC Hose - Non-Toxic FDA • Un-pressurized Potable Water - Drain - Vent

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM14	H160305-500R	0.19	0.310	55	165	500	2.60	
•C1KM15	H160406-200R	0.25	0.380	55	165	200	3.20	
•C1KV99	H160608-100	0.38	0.500	45	135	100	4.50	
•C1KM16	H160608-125R	0.38	0.500	45	135	125	4.50	
•C1KW12	H161216-100	0.75	1.000	35	105	100	18.04	
•C1ML31	H161620-100	1.00	1.25	25	75	100	22.60	

Note: Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application. Non-Reinforced PVC Tubing may be purchased by the package.

CLEARFORCE™-R Reinforced Standard Duty PVC Hose

Application & Construction: Materials comply with FDA Specifications. NSF Certified under Standard NSF-51 plastic materials and components for use in food equipment. Non-toxic. White spiraled polyester yarn reinforcement. Longitudinally reinforced with Blue Tracer Yarn to reduce elongation under pressure. Clear PVC tube with clear PVC cover. Light weight, Non-marking, flexible. Self Extinguishing. Silicone-free. Non-conductive. Compund hardness 75 Durometer, Shore A. RoHS compliant. Air lines, air breathing lines, water lines, deionized, pure or distilled water, food & beverage dispensing, potable water transfer, light vacuum lines, pneumatics, mild chemical resistance (call for details). Please review important safety & application information starting on NAHAD Pressure Guideline Chart page 224

Fittings & Fitting Attachment Suggestions: Shank type fittings attached with stainless steel pinch clamps or stainless steel worm gear clamps.

Fittings: Shank Type (Brass) page 49. Shank Type (Stainless Steel) page 53

Fitting Attachment: Pinch Clamps page 85. Worm Gear Clamps page 84

CLEARFORCE™-R Reinforced • Standard Duty PVC Hose

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Bend Radius (in)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM19	H28504-125R	0.250	0.450	250	1.50	125	6.50	
•C1KW13	H28506-300R	0.380	0.590	225	2.00	300	9.00	
•C1KM20	H28506-75R	0.380	0.590	225	2.00	75	9.00	
•C1KW14	H28508-300R	0.500	0.750	200	2.00	300	15.00	
•C1KW15	H28510-300R	0.625	0.875	200	2.50	300	17.00	
•C1KW16	H28512-300R	0.750	1.031	150	2.50	300	23.00	
•C1KW17	H28516-200R	1.000	1.313	125	3.50	200	32.00	
•C1KW18	H28520-100	1.250	1.688	100		100	58.00	
•C1KW19	H28524-100	1.500	1.938	100		100	69.00	
C1KW20	H28532-100	2.000	2.500	75		100	100.00	

Note: Hose may be purchased by the foot or by the package. Use of damaged hose or improper use may result in bodily injury or property damage. Please consult Eaton catalog or Technical Support for proper application.

PVC Tubing (Clear) Non-Reinforced - FDA Approved

Features: Eaton's line of clear PVC tubing products are manufactured with materials which comply with FDA Regulation 21 CFR 177.1520 and are NSF-51 listed. These products are lightweight, non-marking and flexible.

Application: These are excellent products for food and beverage transfer lines, air lines, drain lines, sight gauges, potable water transfer, and pneumatic applications.

Operating Temperature Range: +15°F to +150°F

Fittings: Hose Barbs page 49. Hose Clamps page 84 Crimp Ferrules page 97

PVC Tubing (Clear) • Non-Reinforced - FDA Approved

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM14	H160305-500R	0.19	0.310	55	165	500	2.60	
•C1KM15	H160406-200R	0.25	0.380	55	165	200	3.20	
•C1KV99	H160608-100	0.38	0.500	45	135	100	4.50	

PVC Tubing (Clear) • Non-Reinforced - FDA Approved

Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Burst Pressure (psi)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM16	H160608-125R	0.38	0.500	45	135	125	4.50	
C1MS81	H161014-100	0.62	0.870	40	120	100		
•C1KW12	H161216-100	0.75	1.000	35	105	100	18.04	
•C1ML31	H161620-100	1.00	1.250	25	75	100	22.60	

PVC Tubing (Clear) Reinforced - FDA Approved

Powering Business Worldwide

Features: Eaton's line of clear PVC hose products are manufactured with materials which comply with FDA Regulation 21 CFR 177.1520 and are NSF-51 listed. These products are lightweight, nonmarking and flexible.

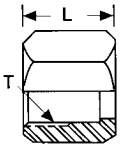
Application: These are excellent products for food and beverage transfer lines, air lines, drain lines, sight gauges, potable water transfer, and pneumatic applications which require higher pressure than our standard Clearforce products can handle.

Operating Temperature Range: +15°F to +150°F

Fittings: Hose Barbs page 49. Hose Clamps page 84 Crimp Ferrules page 97

PVC Tubing (Clear) • Reinforced - FDA Approved

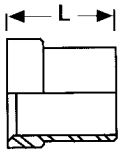
Catalog Part No.	Eaton Model	I.D. (in)	O.D. (in)	Maximum Working Pressure (psi)	Minimum Bend Radius (in)	Pkg. Qty. (ft)	Wt. (per 100 ft)	Price (per ft)
•C1KM19	H28504-125R	0.250	0.450	250	1.50	125	6.50	
•C1KW13	H28506-300R	0.380	0.590	225	2.00	300	9.00	
•C1KM20	H28506-75R	0.380	0.590	225	2.00	75	9.00	
•C1KW14	H28508-300R	0.500	0.750	200	2.00	300	15.00	
•C1KW15	H28510-300R	0.625	0.875	200	2.50	300	17.00	
•C1KW16	H28512-300R	0.750	1.031	150	2.50	300	23.00	
•C1KW17	H28516-200R	1.000	1.313	125	3.50	200	32.00	
•C1KW18	H28520-100	1.250	1.688	100		100	58.00	
•C1KW19	H28524-100	1.500	1.938	100		100	69.00	
C1KW20	H28532-100	2.000	2.500	75		100	100.00	



J-N

JIC 37° Flare Nut

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1CZ67	J3N	0.19	3/8-24	0.6	0.01	
•C1CZ92	J4N	0.25	7/16-20	0.61	0.03	
•C1DA17	J5N	0.31	1/2-20	0.67	0.03	
•C1DA43	J6N	0.38	9/16-18	0.72	0.04	
•C1DA78	J8N	0.50	3/4-16	0.84	0.07	
•C1CZ16	J10N	0.63	7/8-14	0.97	0.15	
•C1CZ35	J12N	0.75	1-1/16-12	1.02	0.17	
•C1CZ50	J16N	1.0	1-5/16-12	1.12	1.15	
•C1GM93	J20N	1.25	1-5/8-12	1.22	0.54	



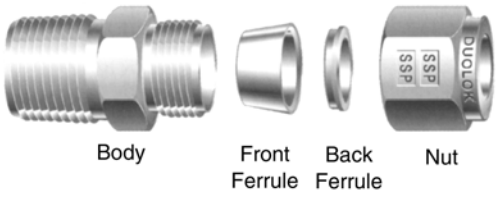
J-S

JIC 37° Flare Sleeve

Catalog Part No.	SSP Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1CZ68	J3S	0.19	0.34	0.01	
•C1CZ94	J4S	0.25	0.41	0.01	
•C1DA19	J5S	0.31	0.44	0.01	
•C1DA45	J6S	0.38	0.50	0.01	
•C1DA80	J8S	0.50	0.56	0.15	
•C1CZ18	J10S	0.63	0.66	0.02	
•C1CZ37	J12S	0.75	0.68	0.03	
•C1CZ52	J16S	1.0	0.78	0.14	
•C1JE70	J20S	1.25	0.91	0.07	

316 Stainless Steel
SSP Duolok® Tube Fittings (Swagelok® Interchange)

SSP Duolok® 316 Stainless Steel Tube Fittings (Swagelok® Interchange)



Features: Duolok® tube fittings provide a reliable, leak-proof connection in instrumentation and process tubing systems. The double ferrule design compensates for the variations in tubing materials, hardness and thickness of the tube wall to provide leak-tight connections in an extensive range of applications.

Materials: Straight fittings are machined from type 316 stainless steel cold-finished bear stock in accordance with ASTM A-276 and ASTM A-479. Shaped bodies are machined from close-grained 316 stainless steel forgings in accordance with ASTM A-182. All components are heat code traceable with certified material test reports (CMTRs) available.

Pressure Ratings: Generally, Duolok® tube fittings are rated for pressures equal to the maximum allowable working pressures of the tubing recommended for use with the fittings (stainless steel tubing). Some specially designed fittings, bored-through fittings, AN fittings, O-Ring Seal fittings and SAE integral end fittings may have a lower pressure rating than that of the tubing. Contact us for application assistance.

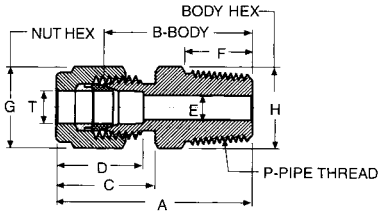
Temperature Factors: Duolok® tube fittings function reliably in an extremely wide range of operating temperatures. Elevated temperatures will reduce the maximum working pressure capability of the tubing system. For applications at elevated temperatures, contact us for application assistance.

Gageability: Duolok® tube fittings are designed, manufactured and quality controlled to be gaugeable for sufficient pull-up during initial installation. Contact us for detailed assembly instructions.

Interchangeability: Duolok® tube fittings are designed, manufactured and quality controlled to be totally interchangeable with the Swagelok® brand of tube fittings.

Tubing Selection: Stainless Steel Tubing page 101

Assembly Instructions & Technical Information: page 145 Also, please review the Important Safety Information starting on page 221

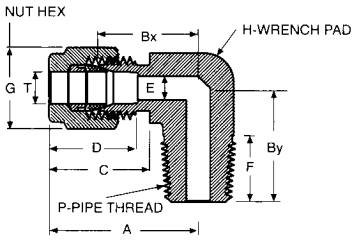


MC
Male Connector

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
C1HG38	ISSD12MC16	0.75	1-11-1/2	2.25	1.85	0.96	0.62	0.53	
•C1FN97	ISSD4MC2	0.25	1/8-27	1.29	1.00	0.60	0.17	0.05	
•C1FN98	ISSD4MC4	0.25	1/4-18	1.49	1.20	0.60	0.19	0.08	
•C1FN99	ISSD4MC6	0.25	3/8-18	1.51	1.22	0.60	0.19	0.10	
•C1FP11	ISSD4MC8	0.25	1/2-14	1.76	1.47	0.60	0.19	0.19	
•C1FP28	ISSD6MC4	0.38	1/4-18	1.57	1.28	0.66	0.28	0.09	
•C1FP29	ISSD6MC6	0.38	3/8-18	1.57	1.28	0.66	0.28	0.11	
•C1FP30	ISSD6MC8	0.38	1/2-14	1.82	1.53	0.66	0.28	0.19	
•C1FP48	ISSD8MC4	0.50	1/4-18	1.71	1.31	0.90	0.28	0.14	
•C1FP49	ISSD8MC6	0.50	3/8-18	1.71	1.31	0.90	0.38	0.15	
•C1FP50	ISSD8MC8	0.50	1/2-14	1.93	1.53	0.90	0.41	0.21	
•C1GE14	ISSD10MC8	0.63	1/2-14	1.93	1.53	0.96	0.47	0.22	
•C1FN86	ISSD12MC8	0.75	1/2-14	1.99	1.59	0.96	0.47	0.26	
•C1FN85	ISSD12MC12	0.75	3/4-14	1.99	1.59	0.96	0.62	0.29	
•C1FN89	ISSD16MC16	1.00	1-11-1/2	2.45	1.97	1.23	0.88	0.55	

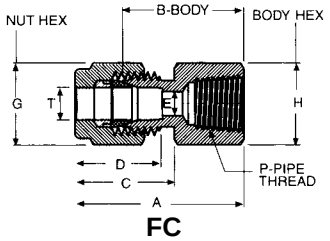
Tube Fittings

316 Stainless Steel
SSP Duolok® Tube Fittings (Swagelok® Interchange)



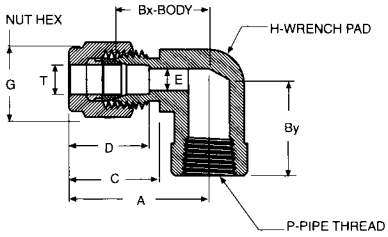
ME
Male Elbow

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	Bx (in)	By (in)	D (in)	E (in)	Wt.	Price Each
•C1FP13	ISSD4ME2	0.25	1/8-27	1.06	0.77	0.74	0.60	0.17	0.08	
•C1FP14	ISSD4ME4	0.25	1/4-18	1.06	0.77	0.92	0.60	0.19	0.09	
•C1FP32	ISSD6ME4	0.38	1/4-18	1.20	0.91	1.00	0.66	0.28	0.13	
•C1FP33	ISSD6ME6	0.38	3/8-18	1.23	0.94	1.03	0.66	0.28	0.17	
•C1FP34	ISSD6ME8	0.38	1/2-14	1.31	1.02	1.30	0.66	0.28	0.29	
•C1FP52	ISSD8ME4	0.50	1/4-18	1.42	1.02	1.11	0.90	0.28	0.23	
•C1FP53	ISSD8ME6	0.50	3/8-18	1.42	1.02	1.11	0.90	0.38	0.24	
•C1FP54	ISSD8ME8	0.50	1/2-14	1.42	1.02	1.30	0.90	0.41	0.31	
•C1GF17	ISSD10ME8	0.63	1/2-14	1.50	1.10	1.38	0.96	0.47	0.34	
C1NZ63	ISSD12ME8	0.75	1/2-14	1.57	1.17	1.45	0.96	0.47		
•C1FQ88	ISSD12ME12	0.75	3/4-14	1.57	1.17	1.45	0.96	0.62	0.45	
•C1KG16	ISSD16ME16	1.00	1-11-1/2	1.93	1.45	1.83	1.23	0.88	0.90	



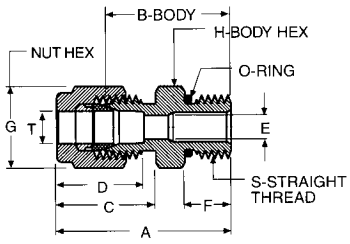
FC
Female Connector

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
•C1FN94	ISSD4FC4	0.25	1/4-18	1.41	1.12	0.60	0.19	0.10	
•C1FP23	ISSD6FC4	0.38	1/4-18	1.48	1.19	0.66	0.28	0.12	
•C1FP24	ISSD6FC8	0.38	1/2-14	1.73	1.44	0.66	0.28	0.21	
•C1FP44	ISSD8FC4	0.50	1/4-18	1.59	1.19	0.90	0.41	0.17	
•C1FP45	ISSD8FC8	0.50	1/2-14	1.84	1.44	0.90	0.41	0.25	
•C1GG88	ISSD12FC12	0.75	3/4-14	1.90	1.50	0.96	0.62	0.37	



FE
Female Elbow

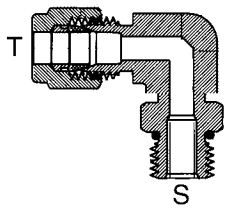
Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	Bx (in)	By (in)	D (in)	E (in)	Wt.	Price Each
•C1JB22	ISSD4FE4	0.25	1/4-18	1.17	0.88	0.88	0.60	0.19	0.15	



MCST
Male Connector Straight Thread O-Ring

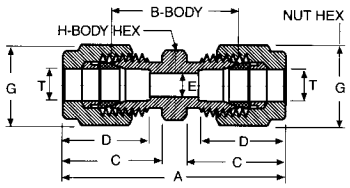
Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread S	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
•C1FP12	ISSD4MCST4	0.25	7/16-20	1.34	1.05	0.60	0.19	0.06	
•C1FP31	ISSD6MCST6	0.38	9/16-18	1.46	1.17	0.66	0.28	0.10	
•C1GC98	ISSD6MCST10	0.38	7/8-14	1.66	1.37	0.66	0.50	0.18	
•C1FP51	ISSD8MCST8	0.50	3/4-16	1.65	1.25	0.90	0.41	0.17	
•C1GC89	ISSD12MCST12	0.75	1-1/16-12	1.93	1.53	0.96	0.62	0.32	
•C1GC95	ISSD16MCST16	1.00	1-5/16-12	2.14	1.66	1.23	0.88	0.55	

316 Stainless Steel
SSP Duolok® Tube Fittings (Swagelok® Interchange)



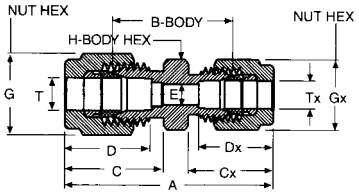
MEST
Male Connector Straight Thread O-Ring 90° Elbow

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread	Wt.	Price Each
•C1GB86	ISSD4MEST4	0.25	7/16-20	0.09	
•C1GB87	ISSD4MEST6	0.25	9/16-18	0.15	
•C1GD11	ISSD6MEST6	0.38	9/16-18	0.16	
•C1GB94	ISSD6MEST8	0.38	3/4-16	0.27	
•C1GC91	ISSD12MEST12	0.75	1-1/16-12	0.65	
•C1GB82	ISSD16MEST16	1.00	1-5/16-12	0.99	



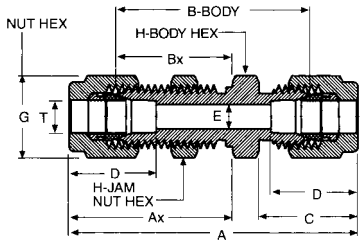
U
Union

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	E (in)	Wt.	Price Each
•C1FP17	ISSD4U	0.25	1.61	1.03	0.19	0.07	
•C1FP38	ISSD6U	0.38	1.77	1.19	0.28	0.11	
•C1FP59	ISSD8U	0.50	2.02	1.22	0.41	0.21	
•C1GF19	ISSD10U	0.63	2.05	1.25	0.50	0.25	
•C1FN88	ISSD12U	0.75	2.11	1.31	0.62	0.31	
•C1FQ90	ISSD16U	1.00	2.55	1.59	0.88	0.64	
•C1NB67	ISSD20U	1.25	2.63	1.89	1.09		
•C1NB72	ISSD24U	1.50	4.25	2.11	1.34		



RU
Reducing Union

Catalog Part No.	SSP Model	Tube O.D. T (in)	Tube O.D. Tx (in)	A (in)	B (in)	D (in)	Dx (in)	E (in)	Wt.	Price Each
•C1FP37	ISSD6RU4	0.38	0.25	1.70	1.12	0.66	0.60	0.19	0.10	
•C1FP57	ISSD8RU4	0.50	0.25	1.85	1.16	0.90	0.60	0.19	0.16	
•C1FP58	ISSD8RU6	0.50	0.38	1.91	1.22	0.90	0.66	0.28	0.17	

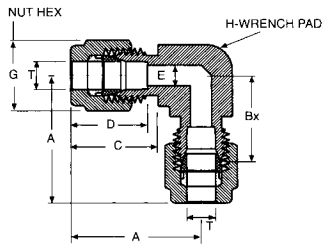


BU
Bulkhead Union

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	E (in)	Max Panel Thickness (in)	Panel Hole Drill Dia (in)	Wt.	Price Each
•C1FN91	ISSD4BU	0.25	2.27	1.69	0.19	0.40	29/64	0.12	
•C1FP21	ISSD6BU	0.38	2.45	1.87	0.28	0.44	37/64	0.17	
•C1FP42	ISSD8BU	0.50	2.80	2.00	0.41	0.50	49/64	0.31	
C1NJ29	ISSD20BU	1.25	4.85	3.11					

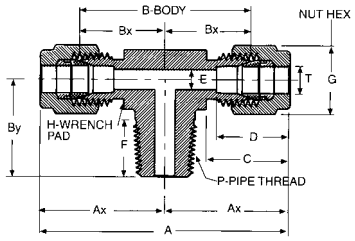
Tube Fittings

316 Stainless Steel
SSP Duolok® Tube Fittings (Swagelok® Interchange)



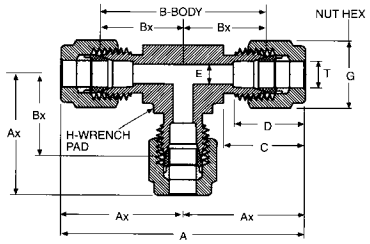
UE
Union Elbow

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	Bx (in)	D (in)	E (in)	Wt.	Price Each
•C1FP18	ISSD4UE	0.25	1.06	0.77	0.60	0.19	0.10	
•C1FP39	ISSD6UE	0.38	1.20	0.91	0.66	0.28	0.16	
•C1FP60	ISSD8UE	0.50	1.42	1.02	0.90	0.41	0.29	
•C1FQ89	ISSD12UE	0.75	1.57	1.17	0.96	0.62	0.47	
•C1HG39	ISSD16UE	1.00	1.93	1.45	1.23	0.88	0.95	
•C1NB68	ISSD20UE	1.25	2.62	1.75	1.62	1.09		
•C1NB73	ISSD24UE	1.50	3.07	2.00	1.78	1.34		



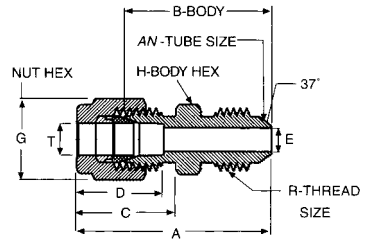
MBT
Male Branch Tee

Catalog Part No.	Catalog Part No.	Tube O.D. T (in)	Thread P	A (in)	B (in)	E (in)	Wt.	Price Each
•C1GF25	ISSD6MBT4	0.38	1/4-18	2.40	1.82	0.28	0.19	
•C1GF30	ISSD8MBT8	0.50	1/2-14	2.84	2.04	0.41	0.43	
C1KG11	ISSD12MBT12	0.75	3/4-14	3.14	2.34	0.62	1.38	



UT
Union Tee

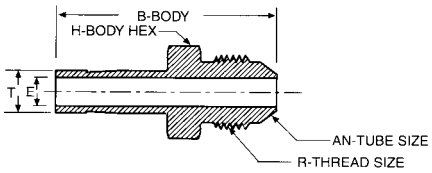
Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	Ax (in)	B (in)	Bx (in)	E (in)	Wt.	Price Each
•C1FP19	ISSD4UT	0.25	2.12	1.06	1.54	0.77	0.19	0.14	
•C1FP40	ISSD6UT	0.38	2.40	1.20	1.82	0.91	0.28	0.22	
•C1FP61	ISSD8UT	0.50	2.84	1.42	2.04	1.02	0.41	0.40	
•C1KG14	ISSD12UT	0.75	3.14	1.57	2.34	1.17	0.62	1.36	
•C1KG19	ISSD16UT	1.00	3.86	1.93	2.90	1.45	0.88	0.75	
•C1NB69	ISSD20UT	1.25	5.24	2.62	3.50	1.75	1.09		
•C1NB74	ISSD24UT	1.50	6.14	3.07	4.00	2.00	1.34		



ANU
AN Union

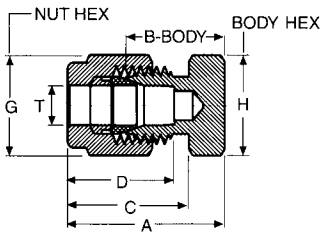
Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread R	A (in)	B (in)	D (in)	E (in)	Wt.	Price Each
•C1FR25	ISSD4ANU4	0.25	7/16-20	1.48	1.19	0.60	0.17	0.06	
•C1FR32	ISSD6ANU6	0.38	9/16-18	1.56	1.27	0.66	0.28	0.09	
•C1GJ95	ISSD8ANU8	0.50	3/4-16	1.81	1.41	0.90	0.39	0.17	
•C1GJ89	ISSD12ANU12	0.75	1-1/16-12	2.10	1.70	0.96	0.61	0.30	
•C1KM60	ISSD16ANU16	1.00	1-5/16-12	2.42	1.94	1.23	0.84	0.75	
•C1NB66	ISSD20ANU20	1.25	1-5/8 - 12	3.06	2.19	1.62	1.08		
•C1NB71	ISSD24ANU24	1.50	1-7/8 - 12	3.55	2.48	1.97	1.31		

316 Stainless Steel
SSP Duolok® Tube Fittings (Swagelok® Interchange)



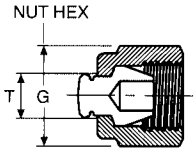
ANA
AN Adapter

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread R	B (in)	Wt.	Price Each
•C1FR24	ISSD4ANA4	0.25	7/16 - 20	1.46	0.03	
•C1FR31	ISSD6ANA6	0.38	9/16 - 18	1.56	0.05	
•C1GJ94	ISSD8ANA8	0.50	3/4 - 16	1.91	0.10	
•C1GM27	ISSD12ANA12	0.75	1-1/16 - 12	2.21	0.23	
•C1NB64	ISSD16ANA16	1.00	1-5/16 - 12	2.58	0.50	
•C1NB65	ISSD20ANA20	1.25	1-5/8 - 12	3.2		
•C1NB70	ISSD24ANA24	1.50	1-7/8 - 12	3.91		



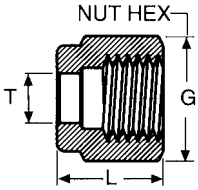
CP
Cap

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	D (in)	Wt.	Price Each
•C1FN92	ISSD4CP	0.25	0.92	0.63	0.60	0.04	
•C1FP22	ISSD6CP	0.38	1.01	0.72	0.66	0.07	
•C1FP43	ISSD8CP	0.50	1.15	0.75	0.90	0.13	
•C1JE68	ISSD12CP	0.75	1.24	0.84	0.96	0.21	
•C1KG15	ISSD16CP	1.00	1.51	1.02	1.23	0.44	



P
Plug

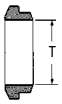
Catalog Part No.	SSP Model	Tube O.D. T (in)	G (in)	Wt.	Price Each
•C1FP16	ISSD4P	0.25	9/16	0.03	
•C1FP36	ISSD6P	0.38	11/16	0.04	
•C1FP56	ISSD8P	0.50	7/8	0.09	
•C1FN87	ISSD12P	0.75	1-1/8	0.14	
•C1KG18	ISSD16P	1.00	1-1/2	0.31	



N
Nut

Catalog Part No.	SSP Model	Tube O.D. T (in)	G (in)	L (in)	Wt.	Price Each
•C1FP15	ISSD4N	0.25	9/16	0.50	0.02	
•C1FP35	ISSD6N	0.38	11/16	0.56	0.03	
•C1FP55	ISSD8N	0.50	7/8	0.69	0.05	
•C1GM87	ISSD12N	0.75	1-1/8	0.69	0.07	

316 Stainless Steel
SSP Duolok® Tube Fittings (Swagelok® Interchange)



BF
Back Ferrule

Catalog Part No.	SSP Model	Tube O.D. T (in)	Wt.	Price Each
C1FP20	ISSD6BF	0.38	0.01	
C1GC83	ISSD10BF	0.63	0.01	
•C1GC92	ISSD16BF	1.00	0.01	

FS
Ferrule Set

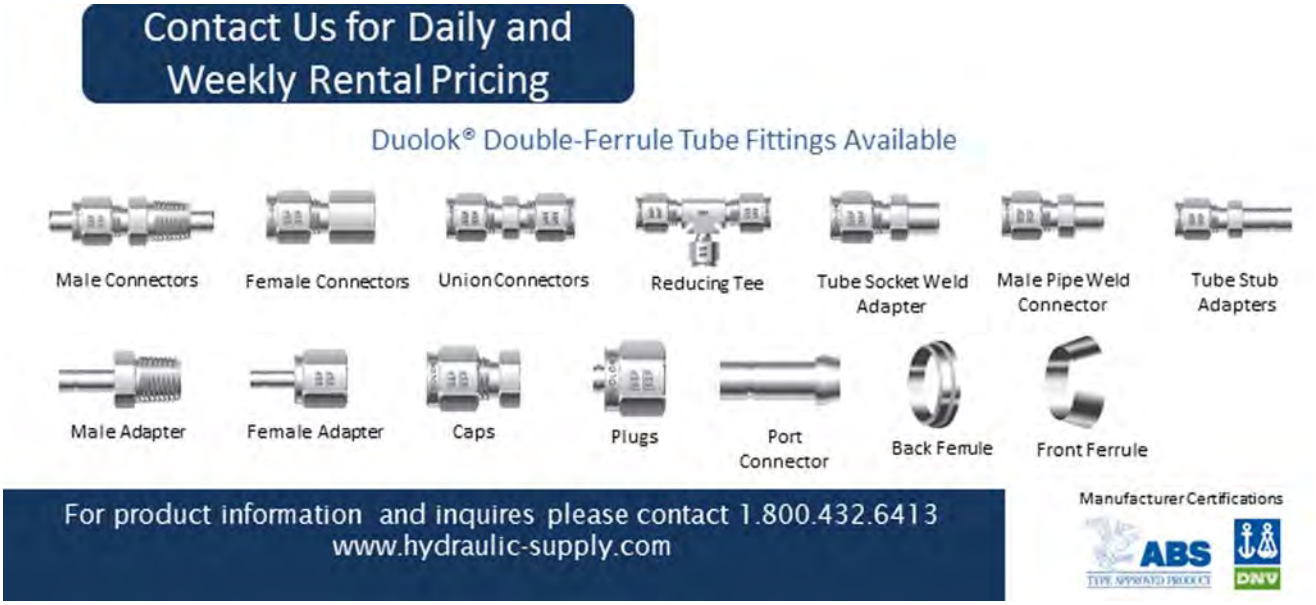
Catalog Part No.	SSP Model	Tube O.D. T (in)	Wt.	Price Each
•C1FN96	ISSD4FS	0.25	0.01	
•C1FP27	ISSD6FS	0.38	0.01	
•C1FP47	ISSD8FS	0.50	0.01	
•C1KF99	ISSD12FS	0.75	0.01	

Note: Each Ferrule Set consists of 1 Front Ferrule (FF) and 1 Back Ferrule (BF).

316 Stainless Steel
SSP Duolok® Tube Fittings (Swagelok® Interchange)

The SSP Instrumentation Hydraulic Swaging Tool swages 1 inch and larger SSP Duolok tube fitting ferrules onto the tubing prior to assembly to the fitting body. Using hydraulic pressure, the SSP Hydraulic Swaging Tool overcomes the challenge of manually applying the torque required to install 1 inch and larger tube fittings.The SSP Hydraulic Swaging Tool reduces installation time and assures sufficient make-up for leak-tight connections on larger Duolok tube fitting sizes.

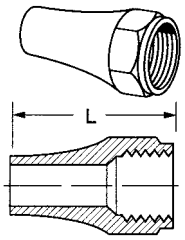
Features: • Pre-swages SSP Duolok tube fitting ferrules onto tubing. • Quick and easy tooling changes to install 1” 1.25”, 1.5” and 2” Duolok tube fittings. • Minimal setup time. • Easy to use with instructions printed on the tool base. • Places no initial strain on nut, fitting body threads or fitting body sealing surfaces. • Includes support base. • Unique marking feature gives visual indications on nut and tubing that swaging is complete. • View window for verification of complete swage. • Installed fittings are 100% gaugeable. • Rugged plastic, wheeled carrying case with pull handle.



SS9201
Tube Nut

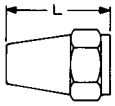
Catalog Part No.	Adaptall Model	Tube O.D. (mm)	Series	Thread Size (mm)	Wt.	Price Each
•C1FP72	SS9201L-08	8	Light	M 14x1.5	0.03	
•C1FP74	SS9201L-12	12	Light	M 18x1.5	0.06	

Brass
Flare & Inverted Flare Nuts



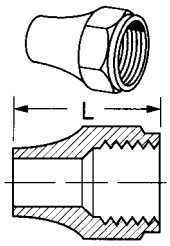
41
Flare Nut (Long)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread	L (in)	Wt.	Price Each
•C1HP82	41X4	0.25	7/16-20	0.94	0.03	
•C1HP83	41X5	0.31	1/2-20	1.12	0.04	
•C1HP84	41X6	0.38	5/8-18	1.31	0.06	
•C1HP85	41X8	0.50	3/4-16	1.62	0.09	



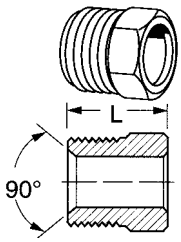
241
Flare Nut (Long)

Catalog Part No.	Model Number	Tube O.D. (in)	Thread	L (in)	Wt.	Price Each
•C1BF78	241X10	0.63	7/8-14	1.88	0.21	



1110
Flare Nut (Short)

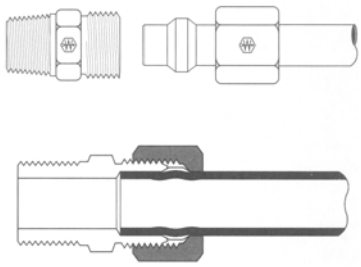
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread	L (in)	Wt.	Price Each
•C1HL59	1110X6	0.38	5/8-18	1.00	0.05	



100
Inverted Flare Tube Nut

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HL48	100X3	0.19	0.56	0.01	
•C1HL49	100X4	0.25	0.56	0.01	
•C1HL50	100X5	0.31	0.62	0.02	
•C1HL51	100X6	0.38	0.66	0.03	

Brass Compression Tube Fittings
Used with Plastic, Copper & Aluminum Tubing



Typical Application: Instrumentation, hydraulic and pneumatic systems. For your particular application, please review the Important Safety Information starting on page 221

Pressure: Working pressure up to 2000 psi with a 4:1 safety factor depending on tube size. When using plastic tubing, use the working pressure for type used.

Vibration: Fair resistance - use long nut when greater vibration resistance is needed.

Temperature Range: -65°F to +250°F with metal tubing. When using a compatible plastic tubing do not exceed the tubing temperature range. (Refer to tubing temperature range.)

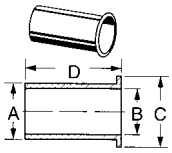
Material: CA360 Brass.

Used With: Aluminum, copper and plastic tubing. Plastic tubing, except for Eaton PT230, requires the 2030 insert. Not recommended for steel tubing.

Features: Low cost. Easy to assemble, no flaring. Available with long or short nut. Broad selection of styles and sizes.

Conformance: Meets specifications and standards of ASA, ASME and SAE. Listed by Underwriter's Laboratories (available on special order) for flammable liquids.

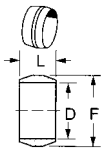
Assembly Instructions: 1. Cut tubing to desired length. 2. Slide nut and then sleeve on tube. Threaded end "A" of nut must face toward fitting. 3. Insert tubing into fitting body. Be sure tubing is bottomed on fitting shoulder. 4. Lubricate threads and assemble nut to fitting body. 5. Tighten nut hand tight. From that point, tighten with a wrench the following number of turns past hand tight, by Tube Size: 1/8 thru 1/4 (1-1/4 turns), 5/16 (1-3/4 turns), 3/8 thru 1 (2-1/4 turns).



2030
Tube Support for Plastic Tubing

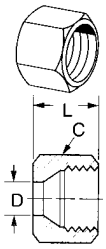
Catalog Part No.	Eaton Model	Tube O.D. (in)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1HN64	2030X4	1/4	1/8	3/32	11/64	19/32	0.00	
•C1KJ55	2030X44	1/4	11/64	9/64	7/32	17/32	0.30	
•C1HN65	2030X5	5/16	3/16	5/32	15/64	5/8	0.01	
•C1HN66	2030X6	3/8	1/4	7/32	11/32	41/64	0.01	
•C1HN67	2030X8	1/2	3/8	11/32	7/16	13/16	0.01	
•C1HN63	2030X10	5/8	1/2	29/64	35/64	13/16	0.01	

Brass
Compression Fittings - Plastic, Copper & Aluminum Tubing



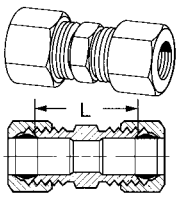
60
Compression Sleeve

Catalog Part No.	Eaton Model	Tube O.D. (in)	D (in)	F (in)	L (in)	Wt.	Price Each
•C1HQ65	60X2	1/8	0.13	0.19	0.19	0.01	
•C1HQ66	60X3	3/16	0.19	0.27	0.22	0.01	
•C1HQ67	60x4	1/4	0.26	0.34	0.25	0.01	
C1HQ68	**60X5**	5/16	0.32	0.41	0.25	0.01	
C1HQ69	**60X6**	3/8	0.38	0.47	0.25	0.01	
•C1HQ70	60X8	1/2	0.51	0.59	0.38	0.01	
•C1HQ64	60X10	5/8	0.63	0.72	0.38	0.01	



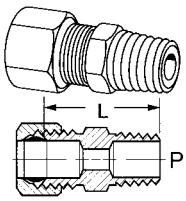
61
Nut

Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	D (in)	L (in)	Wt.	Price Each
•C1HQ74	61X2	1/8	3/8	0.13	0.38	0.01	
•C1HQ75	61X3	3/16	7/16	0.19	0.41	0.01	
•C1HQ76	61X4	1/4	1/2	0.26	0.44	0.01	
•C1HQ77	61X5	5/16	9/16	0.32	0.44	0.02	
•C1HQ78	61X6	3/8	5/8	0.38	0.47	0.02	
•C1HQ79	61X8	1/2	13/16	0.51	0.62	0.05	
•C1HQ73	61X10	5/8	15/16	0.63	0.62	0.05	



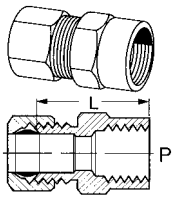
62
(Ref. SAE No. 060101BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HQ82	62X2	1/8	0.66	0.03	
•C1HQ83	62X3	3/16	0.76	0.04	
•C1HQ84	62X4	1/4	0.79	0.05	
•C1HQ85	62X5	5/16	0.88	0.06	
•C1HQ86	62X6	3/8	0.97	0.08	
•C1HQ87	62X8	1/2	1.10	0.16	
•C1HQ81	62X10	5/8	1.25	0.20	



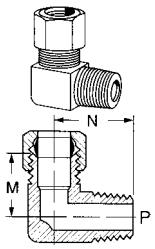
68
(Ref. SAE No. 060102BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HR15	68X2	1/8	1/8-27	0.78	0.02	
•C1HR16	68X3	3/16	1/8-27	0.84	0.04	
C1HR17	**68X4**	1/4	1/8-27	0.88	0.04	
•C1HR18	68X4X4	1/4	1/4-18	1.06	0.06	
•C1HR19	68X5	5/16	1/8-27	0.91	0.04	
•C1HR20	68X5X4	5/16	1/4-18	1.09	0.06	
•C1HR22	68X6X2	3/8	1/8-27	0.97	0.05	
C1HR21	**68X6**	3/8	1/4-18	1.17	0.06	
•C1HR23	68X6X6	3/8	3/8-18	1.16	0.09	
•C1HR24	68X6X8	3/8	1/2-14	1.34	0.12	
•C1HR26	68X8X4	1/2	1/4-18	1.22	0.11	
•C1HR25	68X8	1/2	3/8-18	1.22	0.11	
•C1HR27	68X8X8	1/2	1/2-14	1.41	0.18	
•C1HR14	68X10	5/8	1/2-14	1.50	0.18	



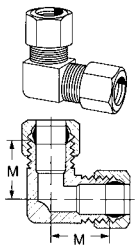
66
Female Connector

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HQ95	66X2	1/8	1/8-27	0.75	0.04	
•C1HQ96	66X3	3/16	1/8-27	0.78	0.04	
•C1HQ97	66X4	1/4	1/8-27	0.78	0.05	
•C1HQ98	66X4X4	1/4	1/4-18	1.03	0.07	
•C1HQ99	66X6	3/8	1/4-18	1.06	0.08	
•C1HR11	66X8	1/2	3/8-18	1.12	0.12	



69
(Ref. SAE No. 060202BA)

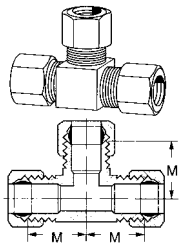
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HR30	69X2	1/8	1/8-27	0.60	0.67	0.04	
•C1HR31	69X3	3/16	1/8-27	0.62	0.69	0.05	
•C1HR32	69X4	1/4	1/8-27	0.62	0.75	0.06	
•C1HR33	69X4X4	1/4	1/4-18	0.62	0.75	0.09	
•C1HR35	69X5X4	5/16	1/4-18	0.69	0.84	0.08	
•C1HR37	69X6X2	3/8	1/8-27	0.69	0.69	0.07	
•C1HR36	69X6	3/8	1/4-18	0.75	0.94	0.09	
•C1HR38	69X6X6	3/8	3/8-18	0.84	0.94	0.12	
•C1HV40	69X6X8	3/8	1/2-14	1.06	1.12	0.20	
•C1HR40	69X8X4	1/2	1/4-18	0.84	0.94	0.16	
•C1HR39	69X8	1/2	3/8-18	0.94	1.12	0.18	
•C1HR41	69X8X8	1/2	1/2-14	0.94	1.31	0.32	
•C1HR29	69X10	5/8	1/2-14	1.06	1.31	0.31	



65
90° Union Elbow

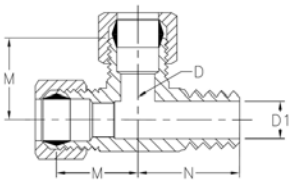
Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HQ92	65X6	3/8	0.73	0.11	

Brass
Compression Fittings - Plastic, Copper & Aluminum Tubing



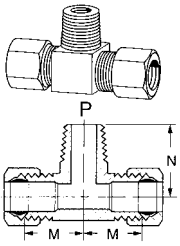
64
Union Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HQ88	64X4	1/4	0.60	0.10	
•C1HQ89	64X6	3/8	0.73	0.15	



71
Male Run Tee

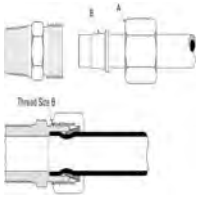
Catalog Part No.	Eaton Model	Tube O.D. (in)	D (in)	D1 (in)	M (in)	N (in)	Wt.	Price Each
•C1MK19	71X6	3/8	0.312	0.344	0.75	0.94		



72
(Ref. SAE No. 060425BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HR45	72X4X4X4	1/4	1/4-18	0.78	0.85	0.13	

Brass SelfAlign Tube Fittings
Used with Plastic, Copper & Aluminum Tubing



Typical Application: Instrumentation, hydraulic and pneumatic systems. For your particular application, please review the Important Safety Information starting on page 309

Pressure: Working pressure up to 2000 psi with a 4:1 safety factor depending on tube size. When using plastic tubing, use the working pressure for type used.

Vibration: Fair resistance - use long nut when greater vibration resistance is needed.

Temperature Range: -65°F to +250°F with metal tubing. When using a compatible plastic tubing do not exceed the tubing temperature range. (Refer to tubing temperature range.)

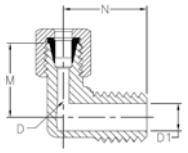
Material: CA360 Brass.

Used With: Aluminum, copper and plastic tubing. Plastic tubing, except for Eaton PT230 and TP160, requires the 2030x insert. Not recommended for steel tubing.

Features: Very low cost and reusable. Self aligning - no need to disassemble fitting to line up sleeve on tube. Easy to assemble, no flaring. Available with long or short nut. Broad selection of styles and sizes.

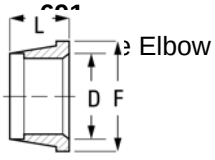
Conformance: Meets specifications and standards of ASA, ASME and SAE. Listed by Underwriter's Laboratories (available on special order) for flammable liquids.

Assembly Instructions: 1. Cut tubing to desired length. 2. Slide nut and then sleeve on tube. Threaded end of nut "A" and small end of sleeve "B" must face toward fitting. 3. Insert tubing into connector body. Be sure tubing is bottomed on connector shoulder. 4. Lubricate threads and assemble nut to connector body. 5. Tighten with wrench to the "ring grip" point. A. Ring Grip is the point when the cutting edge of the sleeve grips the tube. This is determined by turning tube slowly but firmly by hand while tightening the nut with a wrench until tube can no longer be turned by hand and a sharp increase in torque is noticed. 6. Tighten additional turns past "ring grip" as indicated on chart.



601
SelfAlign Sleeve

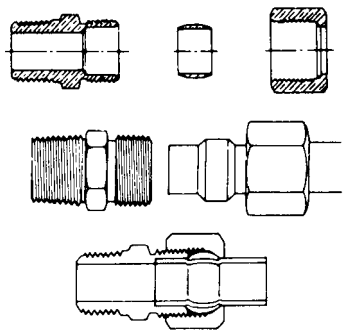
Catalog Part No.	Eaton Model	Tube Size	Male Pipe Thread	D (in)	D1 (in)	M (in)	N (in)	Wt.	Price Each
C1KV25	691X5	5/16	1/8-27	0.25	0.25	0.62	0.75	0.06	



601
SelfAlig e Elbow

Catalog Part No.	Eaton Model	Tube Size	D (in)	F (in)	L (in)	Wt.	Price Each
C1KV20	601X5	5/16	0.318	0.44	0.26		

Brass
Compression Fittings - Copper & Aluminum Tubing



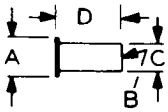
Design Features: Low cost. No flaring required. Easy to assemble.
Applications: Air, oil and water. Suitable for vacuum service. For your particular application, please review the Important Safety Information starting on page 221
Construction: Brass.
Working Pressure: 1/8" to 1/4" tubing sizes: 500 PSI with 4:1 safety factor (2000 PSI burst). 5/16" to 1/2" tubing sizes: 250 PSI with 4:1 safety factor (1000 PSI burst). 3/4" to 1" tubing sizes: 188 PSI with 4:1 safety factor (750 PSI burst).
Operating Temperature Range: -65°F to 250°F.
Tubing: For use with copper & aluminum tubing. Not recommended for steel tubing.

260
Sleeve

Catalog Part No.	Model Number	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1BH71	260X12	0.75	0.44	0.01	

261
Nut

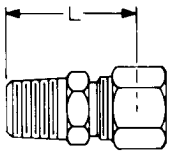
Catalog Part No.	Model Number	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1BH79	261X12	0.75	0.69	0.08	



295
Insert

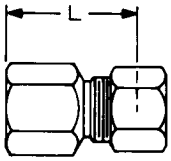
Catalog Part No.	Model Number	Tube O.D. (in)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1BJ94	295X3	0.19	0.19	0.09	0.11	0.51	0.05	

Brass
Compression Fittings - Copper & Aluminum Tubing



268
Male Connector
(261 Nut and 260 Sleeve included)

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	L (in)	Wt.	Price Each
•C1BJ33	268X12X12	0.75	3/4-14	1.50	0.30	

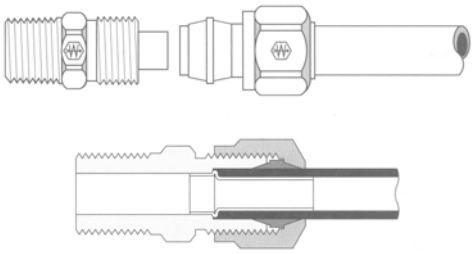


266
Female Connector
(261 Nut and 260 Sleeve included)

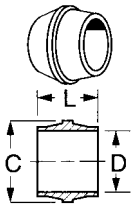
Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	L (in)	Wt.	Price Each
•C1EN25	266X5X4	0.31	1/4-18		2.00	

Brass
DOT Approved Air Brake - Nylon Air Brake Tubing

Brass Air Brake Tube Fittings Used with Nylon Air Brake Tubing

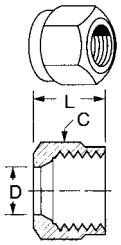


Typical Application: Air brake systems except where temperatures exceed +200°F or where battery acid can drip on tubing. For your particular application, please review the Important Safety Information starting on page 309
Pressure: Maximum operating pressure of 150 psi.
Vibration: Fair resistance.
Temperature Range: -40°F to +200°F.
Material: CA360 Brass.
Used With: NT100 Nylon Tubing - SAE J844 Type A and B.
Features: Easy to assemble (no tube preparation or flaring required.) Built in tube support.
Conformance: Meets specifications and standards of SAE and DOT FMVSS 571.106.
Assembly Instructions: 1. Cut tubing to desired length. 2. Slide nut and then sleeve on tubing. Threaded end of nut "A" must face toward fitting body. 3. Insert tubing into the preassembled fitting. Be sure tubing is bottomed in fitting. 4. Tighten nut to following torque based on Tube Size: 1/4 (85 to 115 in.lbs), 3/8 (12 to 17 ft.lbs), 1/2 (25 to 33 ft.lbs), 5/8 (26 to 35 ft.lbs), 3/4 (38 to 50 ft.lbs). A gauge ring also assures installation to specification.
Disassembly: Remove nut and pull tubing out of fitting body. Insert will remain in tubing.
Reassembly: Push tubing and insert into fitting body until it bottoms. Thread nut onto fitting body and torque as in Step 4.



1460
Sleeve (Ref SAE 100115)

Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	D (in)	L (in)	Wt.	Price Each
•C1HM72	1460X4	1/4	0.359	0.256	0.30	0.01	
•C1HM73	1460X6	3/8	0.479	0.384	0.39	0.01	
•C1HM74	1460X8	1/2	0.625	0.509	0.43	0.01	
•C1HM71	1460X10	5/8	0.745	0.635	0.48	0.01	

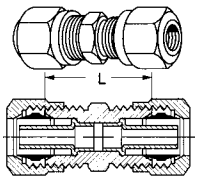


1461
Nut (Ref SAE 100110)

Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	D (in)	L (in)	Wt.	Price Each
•C1HM76	1461X4	1/4	9/16	0.256	0.45	0.02	
•C1HM77	1461X6	3/8	5/8	0.384	0.63	0.03	
•C1HM78	1461X8	1/2	13/16	0.509	0.72	0.05	
•C1HM75	1461X10	5/8	15/16	0.634	0.77	0.06	

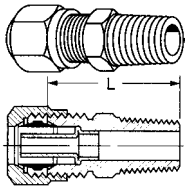
Tube Fittings

Brass
DOT Approved Air Brake - Nylon Air Brake Tubing



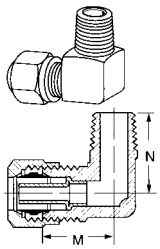
1462
Union (Ref SAE 100101BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HM80	1462X4	1/4	0.85	0.07	
•C1HM81	1462X6	3/8	1.10	0.10	
•C1HM82	1462X8	1/2	1.31	0.19	
•C1HM79	1462X10	5/8	1.43	0.25	



1468
Male Connector (Ref SAE 100102BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Male Pipe Thread	L (in)	Wt.	Price Each
•C1HM85	1468X4	1/4	1/8-27	0.88	0.03	
•C1JA99	1468X4X4	1/4	1/4-18	1.09	0.07	
•C1JB11	1468X6	3/8	1/4-18	1.20	0.08	
•C1JB12	1468X6X6	3/8	3/8-18	1.23	0.11	
C1JB13	1468X6X8	3/8	1/2-14	1.42	0.13	
•C1JB14	1468X8	1/2	3/8-18	1.32	0.13	
•C1JB19	1468X8X8	1/2	1/2-14	1.51	0.20	
•C1JA57	1468X10X6	5/8	3/8-18	1.38	0.17	
•C1JA56	1468X10	5/8	1/2-14	1.57	0.20	

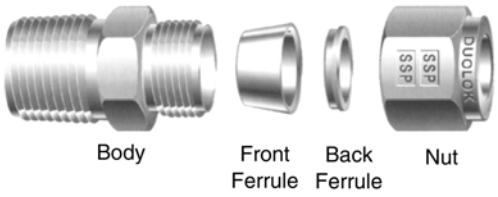


1469
90° Male Elbow (Ref SAE 100202BA)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Male Pipe Thread	M (in)	N (in)	Wt.	Price Each
•C1HH67	1469X4	1/4	1/8-27	0.63	0.67	0.06	
•C1HH68	1469x4x4	1/4	1/4-18	0.69	0.88	0.08	
•C1HH83	1469X6	3/8	1/4-18	0.80	0.93	0.10	
•C1HJ23	1469X6X6	3/8	3/8-18	0.85	0.92	0.14	
•C1JB26	1469X6X8	3/8	1/2-14	0.95	1.11	0.19	
•C1JB31	1469X8	1/2	3/8-18	0.94	1.00	0.20	
•C1JB32	1469X8X8	1/2	1/2-14	1.04	1.19	0.26	
•C1JB20	1469X10X6	5/8	3/8-18	1.01	1.06	0.26	
•C1HM87	1469X10	5/8	1/2-14	1.10	1.25	0.30	

Brass
SSP Duolok® Tube Fittings (Swagelok® Interchange)

SSP Duolok® Brass Tube Fittings (Swagelok® Interchange)



Features: Duolok® tube fittings provide a reliable, leak-proof connection in instrumentation and process tubing systems. The double ferrule design compensates for the variations in tubing materials, hardness and thickness of the tube wall to provide leak-tight connections in an extensive range of applications.

Materials: Straight fittings are machined from CA360 and CA345 premium brass bar stock in accordance with ASTM B-16 and ASTM B-453. Shaped bodies are machined from precision forgings of CA-377 brass in accordance with ASTM B-124.

Pressure Ratings: Generally, Duolok® tube fittings are rated for pressures equal to the maximum allowable working pressures of the tubing recommended for use with the fittings (copper tubing). Some specially designed fittings, bored-through fittings, AN fittings, O-Ring Seal fittings and SAE integral end fittings may have a lower pressure rating than that of the tubing. Contact us for application assistance.

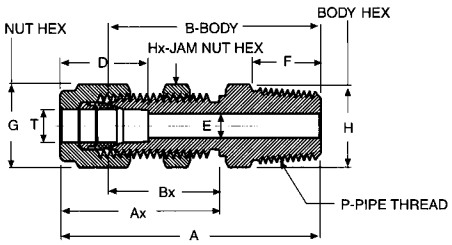
Temperature Factors: Duolok® tube fittings function reliably in an extremely wide range of operating temperatures. Elevated temperatures will reduce the maximum working pressure capability of the tubing system. For applications at elevated temperatures, contact us for application assistance.

Gageability: Duolok® tube fittings are designed, manufactured and quality controlled to be gaugeable for sufficient pull-up during initial installation. Contact us for detailed assembly instructions.

Interchangeability: Duolok® tube fittings are designed, manufactured and quality controlled to be totally interchangeable with the Swagelok® brand of tube fittings.

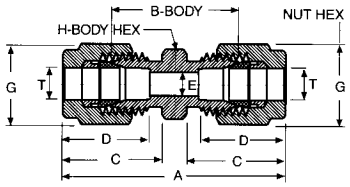
Tubing Selection: Copper Tubing.

Assembly Instructions & Technical Information: page 145 Also, please review the Important Safety Information starting on page 221



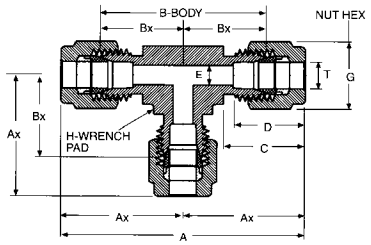
BMC
Bulkhead Male Connector

Catalog Part No.	SSP Model	Tube O.D. T (in)	Thread P	A (in)	Max Panel Thickness (in)	Panel Hole Drill Dia (in)	Wt.	Price Each
C1JB21	ISSD4BMC4	0.25	1/4-18	2.10	0.40	0.45	0.13	



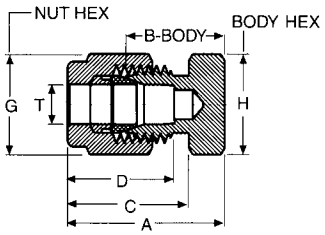
U
Union

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	E (in)	Wt.	Price Each
•C1FN73	IBD6U	0.38	1.77	1.19	0.28	0.12	



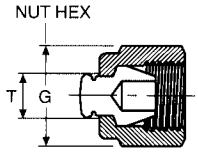
UT
Union Tee

Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	Ax (in)	B (in)	Bx (in)	E (in)	Wt.	Price Each
•C1FN75	IBD6UT	0.38	2.40	1.20	1.82	0.91	0.28	0.23	



CP
Cap

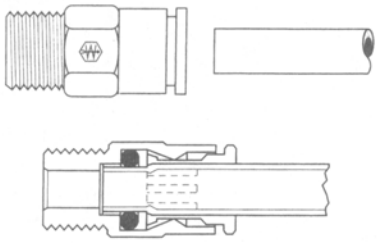
Catalog Part No.	SSP Model	Tube O.D. T (in)	A (in)	B (in)	D (in)	Wt.	Price Each
•C1FN50	IBD4CP	0.25	0.92	0.63	0.60	0.05	



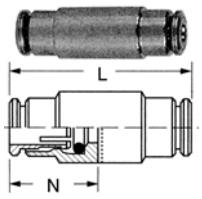
P
Plug

Catalog Part No.	SSP Model	Tube O.D. T (in)	G (in)	Wt.	Price Each
•C1FN59	IBD4P	0.25	9/16	0.03	

Push > Connect® Brass Tube Fittings Used with Nylon & Polyethylene Tubing



Typical Application: Compressed pneumatic instrumentation, circuit, lubricant and cooling lines. For your particular application, please review the Important Safety Information starting on page 309
Pressure: Up to 250 psi depending on tube size. Fittings rated at 29.5 inches of mercury vacuum.
Sealing Method: O-Ring of Buna-N Construction. (Viton® available on request by special order.)
Temperature Range: -40°F to 200°F for these fittings. Also need to take into account when using a compatible plastic tubing, do not exceed the tubing temperature range. (Refer to tubing temperature range).
Material: Brass, Nickel Plated.
Used With: PT230 and TP160 nylon, and PT240 Polyethylene tubing.
Features: Ease of assembly. No tools required, reusability of fittings and the time savings of assembly and disassembly.
Assembly Instructions: 1. To connect, simply push the tubing into the fitting. 2. To disconnect, depress the collet ring with two fingers and withdraw.

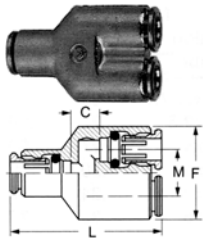


1162
Union

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	N (in)	Wt.	Price Each
•C1HL63	1162X2	1/8	1.26	0.59	0.03	
•C1HL64	1162X2.5	5/32	1.18	0.55	0.02	
•C1HL65	1162X4	1/4	1.40	0.64	0.04	
•C1HY44	1162X5	5/16	1.23	0.69	0.05	
•C1HL67	1162X6	3/8	1.67	0.79	0.09	
•C1HL69	1162X8	1/2	1.75	0.83	0.09	

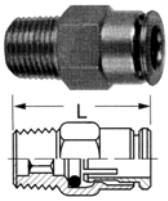
1174
Bulkhead Union

Catalog Part No.	Eaton Model	Tube O.D. (in)	B (in)	L (in)	Max (in)	Wt.	Price Each
•C1HM64	1174X4	1/4	M14 x 1	1.40	0.37	0.06	
•C1HM65	1174X6	3/8	M18 x 1	1.67	0.47	0.12	
•C1HM66	1174X8	1/2	M20 x 1	1.75	0.53	0.12	



1107
Union "Y"

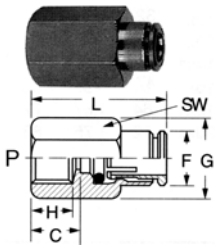
Catalog Part No.	Eaton Model	Tube O.D. (in)	F (in)	L (in)	Wt.	Price Each
•C1HL57	1107X4	1/4	0.96	1.52	0.06	



1168
Male Connector

Catalog Part No.	Eaton Model	Tube O.D. (in)	Male Pipe Thread	L (in)	Wt.	Price Each
•C1HL99	1168X2A	1/8	10-32 UNF thread	0.85	0.01	
•C1HL95	1168X2	1/8	1/8-27	0.85	0.02	
•C1HL97	1168X2.5A	5/32	10-32 UNF thread	0.81	0.01	
•C1HL96	1168X2.5	5/32	1/8-27	0.81	0.02	
•C1HL98	1168X2.5X4	5/32	1/4-18	0.94	0.04	
•C1HM12	1168X4A	1/4	10-32 UNF thread	0.91	0.02	
•C1HM11	1168X4	1/4	1/8-27	0.98	0.02	
•C1HM15	1168X4X4	1/4	1/4-18	1.08	0.04	
•C1HM16	1168X4X6	1/4	3/8-18	1.10	0.08	
•C1HY48	1168X5	5/16	1/8-27	1.14	0.04	
•C1HY49	1168X5X4	5/16	1/4-18	1.14	0.04	
•C1HM20	1168X6X2	3/8	1/8-27	1.38	0.06	
•C1HM17	1168X6	3/8	1/4-18	1.38	0.07	
•C1HM21	1168X6X6	3/8	3/8-18	1.18	0.08	
•C1HM22	1168X8	1/2	3/8-18	1.36	0.08	
•C1HM25	1168X8X8	1/2	1/2-14	1.36	0.10	

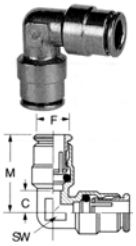
Note: Models with Z suffix have sealant on threads.



1166
Female Connector

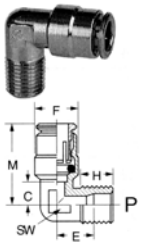
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	F (in)	L (in)	Wt.	Price Each
•C1HL87	1166X4	1/4	1/8-27	0.46	1.06	0.05	

Brass
Push > Connect® Tube Fittings - Nylon & Polyethylene Tubing



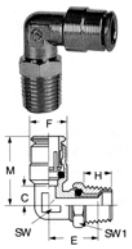
1165
Union Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	F (in)	M (in)	Wt.	Price Each
•C1HL83	1165X4	1/4	0.50	0.91	0.04	
•C1HY46	1165X5	5/16	0.59	0.98	0.06	
•C1HL84	1165X6	3/8	0.69	1.12	0.10	
•C1HL85	1165X8	1/2	0.77	1.22	0.11	



1169
Male Elbow

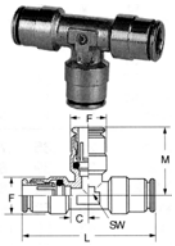
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	E (in)	F (in)	M (in)	Wt.	Price Each
•C1HM34	1169X4	1/4	1/8-27	0.53	0.50	0.91	0.04	
•C1HM40	1169X6	3/8	1/4-18	0.69	0.69	1.12	0.08	



1169S
Swivel Male Elbow

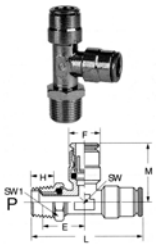
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	E (in)	F (in)	M (in)	Wt.	Price Each
•C1HM33	1169X2S	1/8	1/8-27	0.71	0.39	0.83	0.04	
•C1HM30	1169X2.5AS	5/32	10-32 UNF thread	0.53	0.39	0.79	0.03	
•C1HM31	1169X2.5S	5/32	1/8-27	0.71	0.39	0.79	0.04	
•C1GH24	1169X4S	1/4	1/8-27	0.73	0.50	0.91	0.40	
•C1HM38	1169X4X4S	1/4	1/4-18	0.81	0.50	0.91	0.06	
•C1HM39	1169X4X6S	1/4	3/8-18	0.87	0.50	0.93	0.09	
•C1HY51	1169X5S	5/16	1/8-27	0.77	0.59	0.98	0.05	
•C1HY52	1169X5X4S	5/16	1/4-18	0.85	0.59	0.98	0.07	
•C1HM44	1169X6X2S	3/8	1/8-27	0.75	0.64	1.10	0.09	
•C1HM43	1169X6S	3/8	1/4-18	0.89	0.69	1.12	0.09	
•C1JB97	1169X6X6S	3/8	3/8-18	0.91	0.69	1.12	0.12	
•C1HM49	1169X8X4S	1/2	1/4-18	0.95	0.77	1.22	0.10	
•C1HM48	1169X8S	1/2	3/8-18	0.95	0.77	1.22	0.12	
•C1HM50	1169X8X8S	1/2	1/2-14	1.12	0.77	1.22	0.16	

Note: Models with Z suffix have sealant on threads.



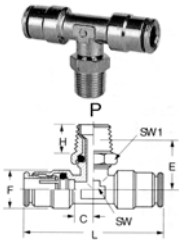
1164
Union Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	F (in)	L (in)	M (in)	Wt.	Price Each
•C1HL73	1164X2	1/8	0.39	1.65	0.83	0.04	
•C1HL74	1164X2.5	5/32	0.39	1.57	0.79	0.04	
•C1HL75	1164X4	1/4	0.50	1.81	0.91	0.06	
•C1HL77	1164X6	3/8	0.69	2.24	1.12	0.15	
•C1HL79	1164X8	1/2	0.77	2.44	1.22	0.15	



1171S
Swivel Male Run Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	F (in)	L (in)	M (in)	Wt.	Price Each
•C1HM55	1171X4X4S	1/4	1/4-18	0.46	1.79	0.89	0.08	
•C1HM56	1171X6X6S	3/8	3/8-18	0.64	2.26	1.10	0.16	

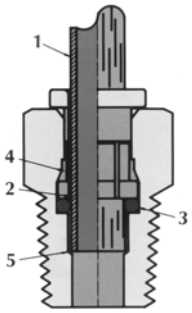


1172S
Swivel Male Branch Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	F (in)	L (in)	Wt.	Price Each
•C1HM58	1172X2S	1/8	1/8-27	0.35	1.57	0.06	
•C1GH25	1172X4S	1/4	1/8-27	0.46	1.77	0.07	
•C1HN52	1172X6S	3/8	1/4-18	0.64	2.20	0.14	

Brass
Push-In Tube Fittings - Polyethylene & Nylon Tubing

ALKON



Application: For your particular application, please review the Important Safety Information starting on page 309

Design Features: Quick connect & disconnect. Positive seal, no leaks. Pre-applied Teflon® based pipe sealant on all male threads. Choice of stationary or swivel elbows and tees. Interior hex in straight connectors for Allen key tightening. Full flow design.

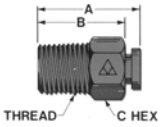
Construction: Brass construction (Elbows and tees are forged brass). Buna-N O-rings are standard.

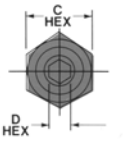
Working Pressure: Suitable for use up to the maximum working pressure of the thermoplastic tubing used. Suitable for vacuum service.

Operating Temperature Range: -10°F to 200°F.

Tubing: Polyethylene Tubing page 102Polyurethane Tubing (90 durometer and over), Polybutylene Tubing and soft metal tubing.

How It Works: When tubing (1) is inserted into the fitting, it first passes through the gripping teeth (2). Just beyond the gripping teeth is the o-ring (3) which provides the leak proof seal against the O.D. of the tube. The gripping teeth grab the tube, which expands the insert. Pulling back on the tube only tightens the grip as the insert moves into the camming surface (4). Pressure through the tube also serves to tighten the grip. The tube bottoms against a positive stop (5) in a cavity providing tube support to prevent leakage.

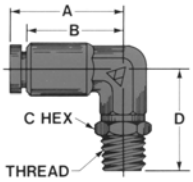




AQ68-P
Male Connector

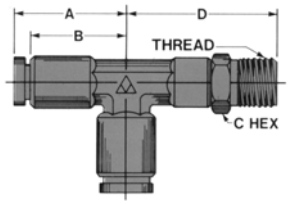
Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1FJ14	AQ68-P-2X1	0.13	1/16	0.81	0.73	0.09	0.02	
•C1CJ87	AQ68-P-3X2	0.19	1/8-18	1.04	0.90	0.16	0.03	

Note: Internal hex "D" can be used for tightening with an Allen key.



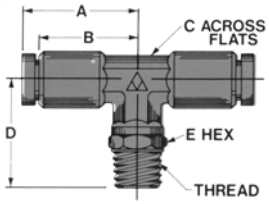
AQ69-PS
Swivel Male Elbow

Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1CK23	AQ69-PS-3X2	0.19	1/8-27	0.89	0.75	1.17	0.05	
•C1CK31	AQ69-PS-6X4	0.38	1/4-18	1.08	0.94	1.45	0.11	



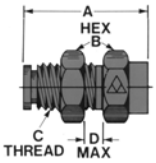
AQ71-PS
Swivel Male Run Tee

Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1CK39	AQ71-PS-6X4	0.38	1/4-18	1.08	0.94	1.45	0.08	



AQ72-PS
Swivel Male Branch Tee

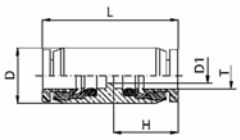
Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	B (in)	D (in)	Wt.	Price Each
•C1CK50	AQ72-PS-4X4	0.25	1/4-18	1.04	0.91	1.33	0.10	
•C1CK51	AQ72-PS-6X4	0.38	1/4-18	1.10	0.97	1.45	0.12	



AQ86-P
Female Bulkhead Union

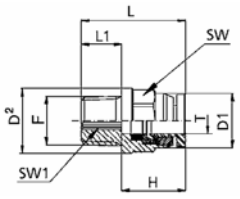
Catalog Part No.	Alkon Model	Tube O.D. (in)	Pipe Thread	A (in)	Thread C	D (in)	Wt.	Price Each
•C1CK58	AQ86-P-4X4	0.25	1/4-18	1.46	1/2-20	0.63	0.10	
•C1CK59	AQ86-P-6X4	0.38	1/4-18	1.89	5/8-18	0.99	0.13	

Brass
Push Tube Fittings



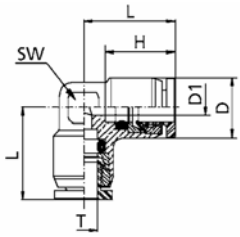
INB100
Union

Catalog Part No.	Numatics Model	Tube O.D. (T)	D	D1	L	H	Wt.	Price Each
C1LC17	**INB100-532-000**	5/32	0.394	0.094	0.984	0.472		
C1LC14	**INB100-104-000**	1/4	0.394	0.118	1.024	0.492		
C1LC16	**INB100-516-000**	5/16	0.591	0.236	1.299	0.630		
C1LC15	**INB100-308-000**	3/8	0.709	0.276	1.398	0.669		
C1LC13	**INB100-102-000**	1/2	0.787	0.413	1.575	0.748		



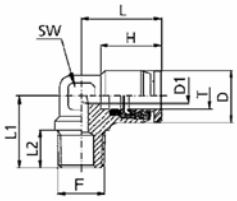
INB103
Male Connector

Catalog Part No.	Numatics Model	Tube O.D. (T)	Thread (F)	D1	D2	L	L1	H	Wt.	Price Each
C1LC21	**INB103-104-020**	1/4	1/8 NPTF	0.472	0.551	0.886	0.374	0.531		
C1LC22	**INB103-104-021**	1/4	1/4 NPTF	0.472	0.551	1.024	0.512	0.531		
C1LC23	**INB103-104-022**	1/4	3/8 NPTF	0.472	0.709	1.024	0.512	0.531		
•C1LC18	INB103-102-021	1/2	1/4 NPTF	0.827	0.906	1.339	0.512	0.748		
C1LC19	**INB103-102-022**	1/2	3/8 NPTF	0.827	0.906	1.339	0.512	0.748		
C1LC20	**INB103-102-023**	1/2	1/2 NPTF	0.827	0.906	1.496	0.709	0.748		



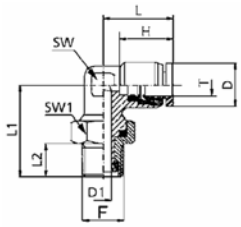
INB106
Union Elbow

Catalog Part No.	Numatics Model	Tube O.D. (T)	D	D1	L	H	Wt.	Price Each
•C1LC28	INB106-532-000	5/32	0.394	0.118	0.657	0.492		
•C1LC25	INB106-104-000	1/4	0.472	0.157	0.740	0.531		
•C1LC27	INB106-516-000	5/16	0.591	0.236	0.858	0.630		
•C1LC26	INB106-308-000	3/8	0.709	0.295	1.004	0.669		
C1LC24	**INB106-102-000**	1/2	0.827	0.413	1.161	0.748		



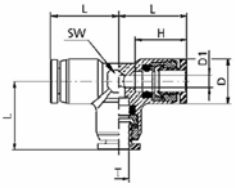
INB107
Fixed Elbow

Catalog Part No.	Numatics Model	Tube O.D. (T)	Thread (F)	D	D1	L	L1	L2	Wt.	Price Each
C1LC33	**INB107-532-020**	5/32	1/8 NPT	0.394	0.118	0.657	0.650	0.374		
C1LC34	**INB107-532-021**	5/32	1/4 NPT	0.394	0.118	0.657	0.787	0.512		
C1LC29	**INB107-104-020**	1/4	1/8 NPT	0.472	0.157	0.740	0.693	0.531		
C1LC30	**INB107-104-021**	1/4	1/4 NPT	0.472	0.157	0.740	0.831	0.531		
C1LC32	**INB107-308-022**	3/8	1/4 NPT	0.709	0.295	1.004	0.945	0.685		
C1LC31	**INB107-308-021**	3/8	3/8 NPT	0.709	0.295	1.004	1.945	0.685		



INB109
Swivel Elbow

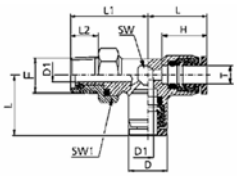
Catalog Part No.	Numatics Model	Tube O.D. (T)	Thread (F)	D	D1	L	L1	L2	Wt.	Price Each
C1LC37	**INB109-104-020**	1/4	1/8 NPT	0.472	0.157	0.740	0.906	0.374		
C1LC38	**INB109-104-021**	1/4	1/4 NPT	0.472	0.236	0.740	1.031	0.512		
C1LC39	**INB109-104-022**	1/4	3/8 NPT	0.472	0.236	0.740	1.071	0.512		
C1LC35	**INB109-102-022**	1/2	3/8 NPT	0.827	0.315	1.181	1.299	0.512		
C1LC36	**INB109-102-023**	1/2	1/2 NPT	0.827	0.315	1.181	1.476	0.709		



INB110
Union Tee

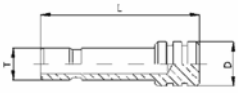
Catalog Part No.	Numatics Model	Tube O.D. (T)	D	D1	L	H	Wt.	Price Each
•C1LC44	INB110-532-000	5/32	0.394	0.118	0.657	0.492		
C1LC41	**INB110-104-000**	1/4	0.472	0.157	0.740	0.531		
C1LC43	**INB110-516-000**	5/16	0.591	0.236	0.858	0.630		
C1LC42	**INB110-308-000**	3/8	0.709	0.295	1.004	0.669		
C1LC40	**INB110-102-000**	1/2	0.827	0.413	1.161	0.748		

Brass
Push Tube Fittings



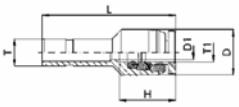
INB116
Swivel Run Tee

Catalog Part No.	Numatics Model	Tube O.D. (T)	Thread (F)	D	D1	L	L1	L2	Wt.	Price Each
C1LC47	**INB116-104-020**	1/4	1/8 NPT	0.472	0.157	0.740	0.996	0.374		
C1LC48	**INB116-104-021**	1/4	1/4 NPT	0.472	0.236	0.740	1.142	0.512		
•C1LC49	INB116-104-022	1/4	3/8 NPT	0.472	0.236	0.740	1.181	0.512		
C1LC45	**INB116-102-022**	1/2	3/8 NPT	0.827	0.315	1.181	1.299	0.512		
•C1LC46	INB116-102-023	1/2	1/2 NPT	0.827	0.315	1.181	1.476	0.709		



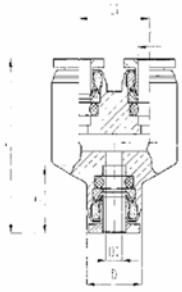
IN118
Plug

Catalog Part No.	Numatics Model	T	D	L	Wt.	Price Each
•C1LC12	IN118-532-000	5/32	0.236	0.906		
C1LB98	**IN118-104-000**	1/4	0.315	0.984		
•C1LC11	IN118-516-000	5/16	0.394	1.063		
•C1LB99	IN118-308-000	3/8	0.472	1.102		
•C1LB97	IN118-102-000	1/2	0.591	1.260		



INB121
Reducer

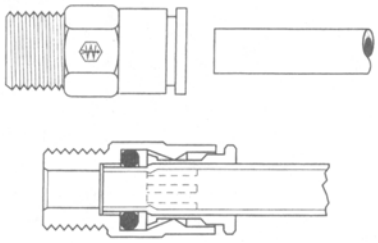
Catalog Part No.	Numatics Model	T	T1	D	D1	L	H	Wt.	Price Each
•C1LC52	INB121-104-532	1/4	5/32	0.394	0.118	1.142	0.492		
•C1LC53	INB121-308-104	3/8	1/4	0.472	0.157	1.339	0.531		
•C1LC50	INB121-102-104	1/2	1/4	0.472	0.157	1.417	0.531		
C1LC51	**INB121-102-308**	1/2	3/8	0.669	0.295	1.673	0.669		



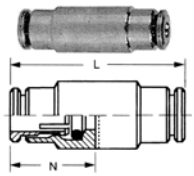
INB131
Union Y

Catalog Part No.	Numatics Model	Tube O.D. (T)	L	H	L1	D	D1	Wt.	Price Each
•C1LC55	INB131-532-000	5/32	1.280	0.492	0.512	0.394	0.118		
•C1LC54	INB131-104-000	1/4	1.398	0.531	0.598	0.472	0.157		

Push > Connect® Brass Tube Fittings
Used with Metric Nylon & Polyethylene Tubing

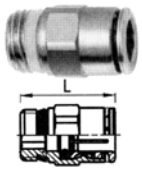


Typical Application: Compressed pneumatic instrumentation, circuit, lubricant and cooling lines. For your particular application, please review the Important Safety Information starting on page 309
Pressure: Up to 250 psi depending on tube size. Fittings rated at 29.5 inches of mercury vacuum.
Sealing Method: O-Ring of Buna-N Construction. (Viton® available on request by special order.)
Temperature Range: -40°F to 200°F for these fittings. Also need to take into account when using a compatible plastic tubing, do not exceed the tubing temperature range. (Refer to tubing temperature range).
Material: Brass, Nickel Plated.
Features: Ease of assembly. No tools required, reusability of fittings and the time savings of assembly and disassembly.
Assembly Instructions: 1. To connect, simply push the tubing into the fitting. 2. To disconnect, depress the collet ring with two fingers and withdraw.



1162M
Union

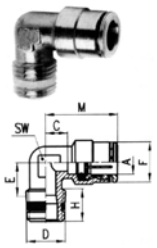
Catalog Part No.	Eaton Model	Tube O.D. (mm)	L (mm)	N (mm)	Wt.	Price Each
•C1HL66	1162X4M	4	30.0	14.0	0.02	
•C1HL68	1162X6M	6	34.0	15.5	0.04	
•C1HL70	1162X8M	8	38.0	17.5	0.05	
•C1HL61	1162X10M	10	41.5	19.5	0.08	
•C1HL62	1162X12M	12	44.5	21.0	0.10	



1168MPT
Male Connector (Universal BSPT/BSPP)

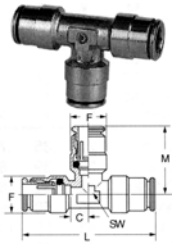
Catalog Part No.	Eaton Model	Tube O.D. (mm)	BSP Thread Size D	F (mm)	L (mm)	Wt.	Price Each
•C1HM13	1168X4MX2PT	4	1/8-28	8.8	18.0	0.02	
•C1HM14	1168X4MX4PT	4	1/4-19	8.8	19.5	0.03	
•C1HM18	1168X6MX2PT	6	1/8-28	11.7	20.5	0.02	
•C1HM19	1168X6MX4PT	6	1/4-19	9.8	20.0	0.03	
•C1HM23	1168X8MX4PT	8	1/4-19	13.7	24.0	0.03	
•C1HM24	1168X8MX6PT	8	3/8-19	13.7	23.5	0.06	
•C1HL91	1168X10MX4PT	10	1/4-19	16.3	28.5		
•C1HL92	1168X10MX6PT	10	3/8-19	16.3	25.5	0.06	
•C1HL93	1168X12MX6PT	12	3/8-19	18.3	30.5	0.06	
•C1HL94	1168X12MX8PT	12	1/2-14	18.3	27.0	0.08	

Brass
Push > Connect® Metric Tube Fittings - Metric Nylon & Polyethylene Tubing



1169MPTS
Swivel Male Elbow (Universal BSPT/BSPP)

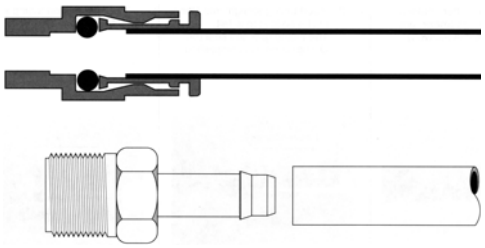
Catalog Part No.	Eaton Model	Tube O.D. (mm)	BSPT Thread Size D	E (mm)	F (mm)	M (mm)	Wt.	Price Each
•C1HM35	1169X4MX2PTS	4	1/8-28	14.5	10.0	20.0	0.04	
•C1HM41	1169X6MX2PTS	6	1/8-28	15.0	12.7	22.0	0.04	
•C1HM42	1169X6MX4PTS	6	1/4-19	15.0	12.7	22.5	0.05	
•C1HM46	1169X8MX4PTS	8	1/4-19	16.0	15.0	25.0	0.06	
•C1HM47	1169X8MX6PTS	8	3/8-19	16.5	15.0	25.0	0.09	
•C1HM26	1169X10MX4PTS	10	1/4-19	18.5	17.5	28.5	0.08	
•C1HM28	1169X12MX6PTS	12	3/8-19	20.0	19.5	31.0	0.12	



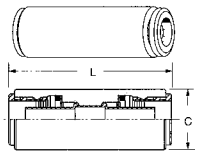
1164M
Union Tee

Catalog Part No.	Eaton Model	Tube O.D. (mm)	F (mm)	L (mm)	M (mm)	Wt.	Price Each
•C1HL76	1164X4M	4	10.0	40.0	20.0	0.04	
•C1HL78	1164X6M	6	12.7	45.0	22.5	0.06	
•C1HL80	1164X8M	8	15.0	50.0	25.0	0.09	

Quick > Connect® Brass Air Brake Tube Fittings Used with Nylon Air Brake Tubing

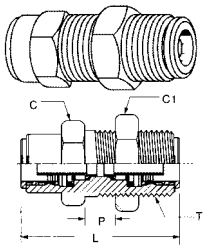


Typical Application: Air brake systems except where temperatures exceed +200°F or where battery acid can drip on tubing. Not for fuel, water or oil. For your particular application, please review the Important Safety Information starting on page 309
Pressure: Vacuum to 150 psi.
Vibration: Moderate vibration resistance.
Temperature Range: -40°F to +200°F.
Material: CA360 Brass (Body & Collet). EP (Ethylene Propylene) - O-ring.
Nylon Air Brake Tubing:
Features: Easy, fast assembly, one-piece fitting, reusable field serviceable.
Conformance: Meets D.O.T. FMVSS 571.106 and SAE J1131 air brake system performance requirements.
Assembly Instructions: 1. Using a tube cutter, make a square cut edge (maximum 15° cutting angle allowed). 2. Insert tubing straight into fitting until a solid stop is felt. The tubing grip and seal (on O-ring) is now accomplished. 3. Gently tug on tubing to ensure tubing is secure.
Disassembly: 1. Check to be sure there isn't any air pressure. 2. Depress collet head using fingers or Eaton tube release tool to release grip on tubing. 3. With the collet depressed, pull the tubing from the fitting.



1862
Union (Ref SAE AA0101)

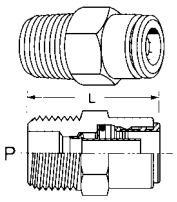
Catalog Part No.	Eaton Model	Tube O.D. (in)	C (in)	L (in)	Wt.	Price Each
C1HM96	**1862X4**	1/4	0.53	1.62	0.07	
C1HM97	**1862X6**	3/8	0.69	1.94	0.13	
C1HM98	**1862X8**	1/2	0.83	1.96	0.18	
•C1HM94	1862X10	5/8	0.96	2.51	0.29	



1874
Quick Connect Bulkhead Union (Ref SAE AA0601)
(Ref SAE AA0601)

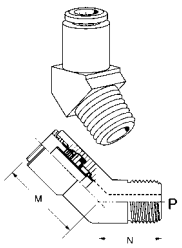
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread T	L (in)	Max P (in)	Wt.	Price Each
•C1HN42	1874X4X4	1/4	9/16-24	1.62	0.47	0.11	
•C1HN43	1874X6X6	3/8	3/4-16	1.96	0.66	0.20	

Brass
Quick > Connect® Air Brake - Nylon Air Brake Tubing



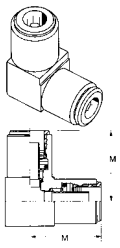
1868
Male Connector (Ref SAE AA0102)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HN16	1868X2.5X1	5/32	1/16	0.92	0.01	
C1HN17	**1868X4**	1/4	1/8-27	0.95	0.03	
•C1HN18	1868X4X4	1/4	1/4-28	1.18	0.05	
•C1HN19	1868X4X6	1/4	3/8-18	1.27	0.07	
•C1HN21	1868X6X2	3/8	1/8-27	1.33	0.08	
•C1HN20	1868X6	3/8	1/4-18	1.29	0.07	
C1HN22	**1868X6X6**	3/8	3/8-18	1.27	0.08	
•C1HN23	1868X6X8	3/8	1/2-14	1.47	0.14	
•C1HN25	1868X8X4	1/2	1/4-18	1.46	0.11	
•C1HN24	1868X8	1/2	3/8-18	1.35	0.10	
•C1HN26	1868X8X8	1/2	1/2-14	1.50	0.14	
•C1HN15	1868X10X6	5/8	3/8-18	1.72	0.18	
•C1HN14	1868X10	5/8	1/2-14	1.71	0.18	



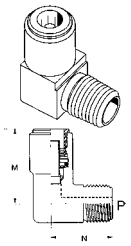
1880
45° Male Elbow (Ref SAE AA0302)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HN46	1880X4	1/4	1/8-27	0.95	0.59	0.06	
•C1HN48	1880X6X2	3/8	1/8-27	1.05	0.48	0.10	
•C1HN47	1880X6	3/8	1/4-18	1.05	0.69	0.10	
•C1HN49	1880X6X6	3/8	3/8-18	1.10	0.63	0.10	
•C1HN45	1880X10	5/8	1/2-14	1.39	0.90	0.25	



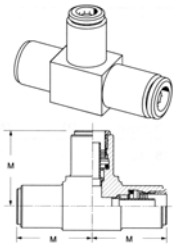
1865
90° Union Elbow (Ref SAE AA0201)

Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
•C1HN13	1865X8	1/2	1.24	0.16	



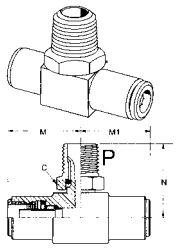
1869S
Swivel 90° Male Elbow
(Ref SAE AA02DD)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HN29	1869X4S	1/4	1/8-27	0.89	0.88	0.06	
C1HN30	**1869X4X4S**	1/4	1/4-18	0.99	1.06	0.09	
•C1HN31	1869X4X6S	1/4	3/8-18	0.98	1.06	0.11	
•C1HN33	1869X6X2S	3/8	1/8-27	1.03	0.97	0.10	
C1HN32	**1869X6S**	3/8	1/4-18	1.10	1.14	0.14	
•C1HN34	1869X6X6S	3/8	3/8-18	1.12	1.15	0.15	
•C1HN35	1869X6X8S	3/8	1/2-14	1.18	1.40	0.20	
•C1HN36	1869X8S	1/2	3/8-18	1.13	1.27	0.22	
•C1HN37	1869X8X8S	1/2	1/2-14	1.20	1.47	0.25	
•C1HN28	1869X10X6S	5/8	3/8-18	1.35	1.34	0.27	
•C1HN27	1869X10S	5/8	1/2-14	1.38	1.54	0.35	



1864
Union Tee (Ref SAE AA0401)

Catalog Part No.	Eaton Model	Tube O.D. (in)	M (in)	Wt.	Price Each
C1HM99	**1864X4**	1/4	0.93	0.11	
•C1HN11	1864X6	3/8	1.15	0.21	
•C1HN12	1864X8	1/2	1.22	0.32	



1872S
Swivel Male Branch Tee
(Ref SAE AA04FF)

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	M (in)	N (in)	Wt.	Price Each
•C1HN38	1872X4S	1/4	1/8-27	0.93	0.80	0.10	
•C1HN40	1872X6S	3/8	1/4-18	1.15	1.14	0.20	

SSP Duolok® Tube Fittings

WARNING Refer to safety information regarding tubing starting on page 309

Installation Instructions

INITIAL INSTALLATION

1. **Duolok** tube fittings come individually bagged and completely assembled for immediate use. There is no need for disassembly prior to use. Simply remove the tube fitting from its bag, insert the tube* until it bottoms in the **Duolok** tube fitting body and then hand tighten the **Duolok** nut. (See Figure #1.)

**Tubing ends should be cut as straight as possible with all O.D. and I.D. burrs removed. Use of a tubing cutter or guide blocks with a hacksaw is recommended.*

Figure #1

[NOTE: For extreme system applications using high pressures or requiring an extra factor of safety, it may be desirable to use a "common makeup starting point" to alleviate the inherent variations in tubing diameters. Installation should begin from a "snug" position, which is achieved by wrench tightening the Duolok nut until the inserted tubing will not move freely by hand (approximately 1/8 turn). From this new "snug" starting point, continue with the recommended installation instructions.]

2. While holding the fitting body stable with a back-up wrench, scribe the nut for a reference point and wrench tighten the nut 1-1/4 turns for sizes 1/4" - 1" and 3/4 turn for sizes 1/16"-3/16". (See Figures #2 and #3.)

Figure #2

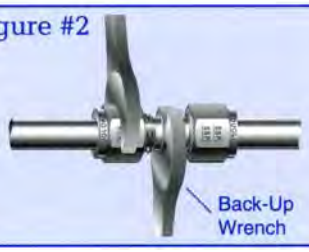
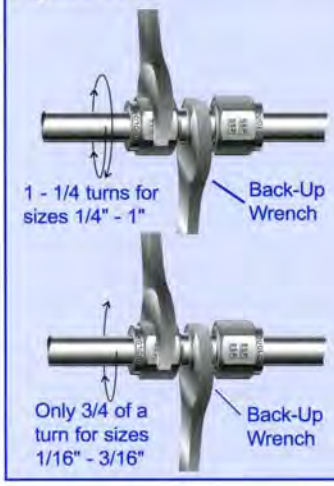


Figure #3



*[NOTE: For all sizes, tighten plugs (P), machined ferrule end of port connector (PC) and the **Duolok** end of the Female AN adapter (ANF) only **1/4** of a turn.]*

REASSEMBLY INSTRUCTIONS

1. To reassemble a **Duolok** tube fitting connection, simply insert the tubing with the previously swaged ferrules and **Duolok** nut into the fitting body until the front ferrule seats within the fitting body, and then tighten the nut by hand. (See Figure #4.)

Figure #4

*[NOTE: By following proper reassembly procedures, **Duolok** tube fitting connections may be disconnected and reconnected repeatedly.]*

2. While holding the fitting body stable with a back-up wrench, use a wrench to rotate the **Duolok** nut to the fitting's original installation position (approximately **1/4** turn from the hand-tight, snug position) then continue to tighten the **Duolok** nut slightly. (See Figure #5.)

Figure #5

COMPONENT ASSEMBLY

Should individual component assembly of a **Duolok** tube fitting ever be required, careful attention must be given to the proper sequence and direction of the **Duolok** components. (See Figure #6.)

Figure #6

Nut

Back Ferrule

Front Ferrule

Body

WARNING Refer to safety information regarding tubing starting on page 309

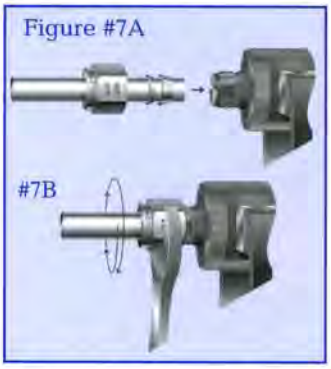
Pre-setting Tool / Gap Gage

The **Duolok** pre-setting tool is used to pre-set the ferrules on the tubing for subsequent installation in a fitting body. The pre-setting tool can be especially helpful when an installation must be made in a tight space or hard-to-work area. The presetting tool allows the major portion of the installation work to occur in a more favorable work setting with only the completion of the installation in the hard-to-work area.

PRE-SETTING INSTRUCTIONS

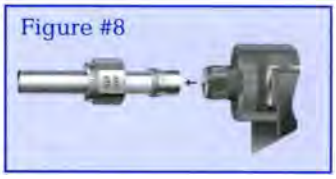
1. Secure the pre-setting tool in a vise.
2. Remove the protective nut, and assemble the **Duolok** nut and ferrules loosely to the pre-setting tool. Insert the tubing through the nut and ferrules until it bottoms in the pre-setting tool, and then follow the standard **Duolok** tube fitting installation instructions from page 8. (See Figure #7A and #7B)

Figure #7A



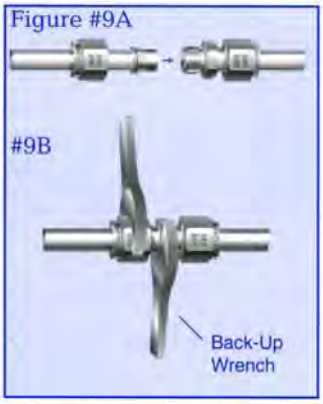
3. Loosen the nut and remove the tubing with the pre-set **Duolok** ferrules and nut from the pre-setting tool. (See Figure #8.) Return the protective nut to the presetting tool.

Figure #8



4. Installation of the tubing, with the pre-set **Duolok** ferrules and nut in the appropriate fitting body, can now be made by following the standard reassembly instructions from page 8. (See Figure #9A and #9B.)

Figure #9A



NOTE: To extend the life of a pre-setting tool, lubricate the tool with a lubricant compatible with the system's tubing material, environment and media. Also, at times an oversized or very soft tubing may tend to stick in the presetting tool after make up. To remove the tubing, gently rock the tube back and forth. Never turn the tube with pliers or another tool as such action may damage the sealing surfaces.

GAGEABILITY

Each **Duolok** tube fitting component is manufactured with utmost precision to provide the optimum performance interaction of the components during assembly. By maintaining such stringent manufacturing tolerances, the **Duolok** tube fittings are considered *gageable* for sufficient pull-up during initial installation. The **Duolok** "Gap Gages" are designed to identify for the installer or inspector, prior to pressurizing a system, that sufficient tightening of the tube fitting has occurred. *Gageability* provides additional reliability for proper installation and ultimate tube fitting safety and performance.

DUOLOK GAP GAGE INSTRUCTIONS

1. Follow proper installation instructions (as supplied with the fittings, or published in the **Duolok** catalog).
2. After completion of the installation instructions and prior to pressuring the system, choose the proper size Gap Gage and try to insert it between the fitting's nut and body hex. (See Figure #10)
3. If the Gap Gage will not enter between the fitting's nut and body hex, no additional tightening is required.
4. If the Gap Gage will enter between the fitting's nut and body hex, additional tightening is required.

Note: Swagelok® Gap Inspection Gages may also be utilized effectively with Duolok tube fittings.

Figure #10

ORDERING INFORMATON

ORDERING INFORMATION

To order Duolok presetting tools and gap gages, specify the part numbers as listed in the following table:

Tube O.D. Size	Pre-Set Tool Part #	Gap Gage Part #
1/16"	ITSD1PST	ITSD1GG
1/8"	ITSD2PST	ITSD2GG
3/16"	ITSD3PST	ITSD3GG
1/4"	ITSD4PST	ITSD4GG
5/16"	ITSD5PST	ITSD5GG
3/8"	ITSD6PST	ITSD6GG
1/2"	ITSD8PST	ITSD8GG
5/8"	n/a	ITSD10GG
3/4"	n/a	ITSD12GG
7/8"	n/a	ITSD14GG
1"	n/a	ITSD16GG
1/4"-3/8"-1/2"	Combination Gage	ITSD468GG

SSP Duolok® Tube Fittings

WARNING Refer to safety information regarding tubing starting on page 309

Selection Guide for Instrumentation Fittings & Tubing

SSP flareless instrumentation quality tube fittings have been designed and manufactured to provide reliable leak free connections in a wide variety of applications. The design characteristics of the tube fittings compensate for many of the field variables involved in the installation of the tube fittings and with the tolerances, wall thickness, finish and quality of the tubing. A reliable leak free tubing system will be achieved by combining the proper selection and handling of tubing with the proper tube fitting selection and installation. The following information is provided to assist in the tube selection process.

MATERIAL

The tubing material chosen must be compatible with the system's contained media, pressure and temperature, as well as with the environment in which it will be installed. Also, the tubing and tube fitting materials should be similar for optimum sealing action to occur (stainless fittings for stainless tube, brass fittings for copper tube, carbon steel fittings for carbon steel tube, etc.). The mixing and contact of dissimilar materials may leave the system susceptible to galvanic corrosion and/or not allow proper tube fitting makeup to be achieved. Additionally, the tube fittings have been designed and manufactured to function within the hardness ranges allowed for similar tubing materials by applicable ASTM specifications as referred to in Tables 1-4.

PRESSURE AND FLOW

The size of the tube's outside diameter (O.D.) and the necessary wall thickness are determined by the system's pressure and flow requirements. Tables 1-4 detail the suggested tubing sizes and wall thicknesses for use with instrumentation tube fittings. Additionally, the tables provide the maximum allowable working pressures for each size of tube recommended for use with instrumentation tube fittings. If no pressure is shown on the table for a particular size, the tube is not recommended for use with instrumentation tube fittings. The tubing system should not be utilized above the tube's maximum allowable working pressure; however, instrumentation tube fittings have been tested as leak tight to the burst pressure of the tubing in all recommended sizes and wall thicknesses.

TEMPERATURE

The system's operating temperature may effect the initial choice of tubing material and may also effect the maximum allowable working pressure for the given tube size (see Table 5 for temperature stress factors).

LIGHT GAS SERVICE

Light gases such as hydrogen, helium, nitrogen, etc. have extremely small molecules which can be released through the smallest of leak paths including tubing surface imperfections or defects. To provide a successful connection for light gas service, the tubing must have a thick enough wall to provide resistance for the setup action of the ferrules to further compensate for the tube's potential surface condition. Tables 1-4 show the tubing sizes and wall thicknesses recommended for light gas service.

HANDLING AND INSTALLATION

Surface scratches and gouges on tubing are a source of potential leaks. Some precaution when handling the tubing can help reduce surface scratches and maintain the surface finish as originally intended by the manufacturer. Tubing should never be dragged across rocks, blacktop, pavement, or the tubing storage rack as scratches and gouges can occur. Sharp blades should always be used in the tube cutters or hacksaws used to cut the tubing so as to provide a clean, square cut. Dull cutting blades can cause internal and external hanging burrs, and cause the tubing to become oval and effect proper insertion within the fitting. As a good handling practice, tubing should always be deburred prior to tube fitting installation to help assure easy and complete tube insertion. Additionally, for bent tube assemblies, it is important to bend tubing prior to installing tube fittings, and to provide a sufficient straight length of tubing after the bend to allow the tube to be fully inserted into the fitting. See Figure A and Table 7 on page 42 for additional information. Also, to eliminate weight stress from the tubing upon the fitting and to provide additional system support for vibration and thermal shock resistance, the tubing should always be supported by tube hangers, clamps or trays.

WARNING Refer to safety information regarding tubing starting on page 309

Selection Guide for Instrumentation Fittings & Tubing

STAINLESS STEEL TUBING - TABLE 1
Maximum Allowable Working Pressure (PSIG)

Tube O.D. Size (inches)	Wall Thickness of Tube (Inches)												
	.010	.012	.014	.016	.020	.028	.035	.049	.065	.083	.095	.109	.120
1/16	5600	6850	8150	9500	12100								
1/8						8550	11000			NOTE: For light gas service, use tubing with wall thickness outside of screened area.			
3/16						5450	7000	10300					
1/4						4000	5100	7500	10300				
5/16							4050	5850	8050				
3/8							3300	4800	6550				
1/2							2450	3500	4750	6250			
5/8								2950	4000	5200	6050		
3/4								2400	3300	4250	4950	5800	
7/8								2050	2800	3600	4200	4850	
1									2400	3150	3650	4200	4700

Calculation Basis: Annealed, seamless 304 or 316 stainless steel tubing ASTM A-269 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 20,000 psi. Ultimate tensile strength of 75,000 psi. Safety factor of 4. Reference: ANSI B 31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Note: For welded and drawn tubing, a derating factor must be utilized. For double welded tube, multiply the above pressure rating by .85; and for single welded tube by .80 (ANSI B 31, Table A-1B).

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless or welded and drawn 316 or 304 stainless steel tubing of ASTM A-269, A-249, A-213 or equivalent. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 90.

COPPER TUBING - TABLE 2
Maximum Allowable Working Pressure (PSIG)

Tube O.D. Size (inches)	Wall Thickness of Tube (Inches)							
	.028	.035	.049	.065	.083	.095	.109	.120
1/8	2700	3600						
3/16	1700	2250	3500					
1/4	1250	1600	2500	3500		NOTE: For light gas service, use tubing with wall thickness outside of screened area.		
5/16		1250	1900	2700				
3/8		1050	1550	2150				
1/2		750	1150	1550	2050			
5/8			900	1200	1600	1850		
3/4			700	1000	1300	1500	1800	
7/8			600	850	1100	1250	1500	
1			550	700	950	1100	1300	1400

Calculation Basis: Annealed (Temper 060), seamless copper tubing ASTM B-75 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 6000 psi. Ultimate tensile strength of 30,000 psi. Safety factor of 5. Reference: ANSI B 31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed (Temper 060), seamless copper tubing of ASTM B-75, B-68, or equivalent specification. Also specify high quality tubing to be free of scratches, and suited for bending. Additionally acceptable: Annealed (Temper O) copper water tubing, Type K or Type L (ASTM B-88). No embossed markings allowed.

SSP Duolok® Tube Fittings

WARNING Refer to safety information regarding tubing starting on page 309

Selection Guide for Instrumentation Fittings & Tubing

CARBON STEEL TUBING - TABLE 3
Maximum Allowable Working Pressure (PSIG)

Tube O.D. Size (inches)	Wall Thickness of Tube (Inches)							
	.028	.035	.049	.065	.083	.095	.109	.120
1/8	8100	10500						
3/16	5150	6700	9900					
1/4	3750	4850	7100	9900		NOTE: For light gas service, use tubing with wall thickness outside of screened area.		
5/16		3800	5500	7600				
3/8		3100	4500	6200				
1/2		2300	3300	4500	5950			
5/8		1800	2600	3500	4600	5350		
3/4			2150	2900	3750	4400	5100	
7/8			1800	2450	3200	3700	4300	
1			1550	2100	2750	3200	3700	4150

Calculation Basis: Annealed, seamless carbon steel tubing ASTM A-179 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 15,700 psi. Ultimate tensile strength of 47,500 psi. Safety factor of 4. Reference: ANSI B 31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless copper tubing of ASTM A-179 or equivalent specification. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 72.

MONEL® ALLOY 400 TUBING - TABLE 4
Maximum Allowable Working Pressure (PSIG)

Tube O.D. Size (inches)	Wall Thickness of Tube (Inches)							
	.028	.035	.049	.065	.083	.095	.109	.120
1/8	8000	10450				NOTE: For light gas service, use tubing with wall thickness outside of screened area.		
1/4	3750	4800	7000	9800				
3/8		3100	4450	6150				
1/2		2300	3300	4450				
3/4			2250	3050	4000	4600		
1				2250	2900	3400	3900	4350

Monel 400 is a trademark of INCO Alloys International Incorporated.

Calculation Basis: Annealed, seamless Monel Alloy 400 tubing ASTM B-165 or equivalent. System temperatures between -20°F and 100°F with allowable stress of 18,700 psi. Ultimate tensile strength of 70,000 psi. Safety factor of 4. Reference: ANSI B 31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.)

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless Monel Alloy 400 tubing of ASTM B-165 or equivalent specification. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 75.

WARNING Refer to safety information regarding tubing starting on page 309

Selection Guide for Instrumentation Fittings & Tubing

STRESS FACTORS FOR DETERMINING TUBING PRESSURE RATINGS AT ELEVATED TEMPERATURES - TABLE 5

TEMPERATURE STRESS FACTORS

Temperature		Stainless Steel		Carbon		Monel®
°F	°C	304SS	316SS	Steel	Copper	400
100	38	1.00	1.00	1.00	1.00	1.00
200	93	1.00	1.00	.96	.80	.88
300	149	1.00	1.00	.90	.78	.82
400	204	.94	.97	.86	.50	.79
500	260	.88	.90	.82	n/a	.79
600	316	.82	.85	.77	n/a	.79
700	371	.80	.82	.73	n/a	.79
800	427	.76*	.80*	.59	n/a	.76
900	482	.73*	.78*	.41	n/a	.43
1000	538	.69*	.73*	.16	n/a	n/a
1200	649	.30*	.37*	n/a	n/a	n/a

Monel 400 is a trademark of INCO Alloys International Incorporated.

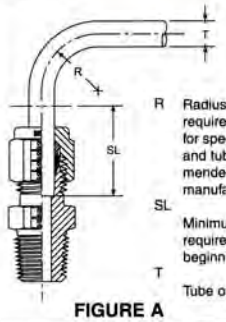
* The precipitation of chromium carbides potentially resulting in intergranular corrosion may occur when exposed to operating temperatures above 800°F. Consult the factory for further information.

INSTRUCTIONS: To determine maximum allowable working pressures for tubing at elevated temperatures, multiply the applicable tube's maximum allowable working pressure from Table 1-4 by the corresponding temperature stress factor from Table 5.

SSP NPT PIPE END PRESSURE RATINGS, ANSI/ASME B 31.3 - TABLE 6

		316 STAINLESS STEEL				BRASS				CARBON STEEL			
NPT/ISO		Male		Female		Male		Female		Male		Female	
Pipe Size	Size	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
1/16"	1	11,050	760	6,750	460	5,550	380	3,350	230	11,050	760	6,750	460
1/8"	2	10,050	690	6,550	450	5,050	350	3,250	220	10,050	690	6,550	450
1/4"	4	8,050	550	6,650	460	4,050	280	3,350	230	8,050	550	6,650	460
3/8"	6	7,850	540	5,350	370	3,950	270	2,650	180	7,850	540	5,350	370
1/2"	8	7,750	530	4,950	340	3,850	260	2,450	170	7,750	530	4,950	340
3/4"	12	7,350	510	4,650	320	3,650	250	2,350	160	7,350	510	4,650	320
1"	16	5,350	370	4,450	310	2,650	180	2,250	150	5,350	370	4,450	310
Reference: bar = .0690 X psig		To obtain ANSI/ASME B 31.1 values, multiply ANSI/ASME B 31.3 values by .94.											

INSTALLING TUBE FITTINGS NEAR TUBE BENDS



R Radius of tubing bend as required or minimum allowed for specified wall thickness and tube size as recommended by tubing manufacturer.

SL Minimum straight tube length required from end of tube to beginning of bend.

T Tube outside diameter.

FIGURE A

When installing fittings near tube bends, it is important to **bend tubing prior to installing tube fittings** and there must be a sufficient straight length (SL) of tubing to allow the tube to be bottomed in the fitting. Note Table 7 for details.

TABLE 7

T=TUBE O.D.	1/16"	1/8"	3/16"	1/4"	5/16"	3/8	1/2"	5/8"	3/4"	7/8	1"
*SL=MINIMUM STRAIGHT LENGTH OF TUBE	1/2"	3/4"	3/4"	13/16"	7/8"	15/16"	1 - 3/16"	1 - 1/4"	1 - 1/4"	1 - 5/16"	1 - 9/16"
R	Radius of tube bend as recommended by bender manufacturer.										

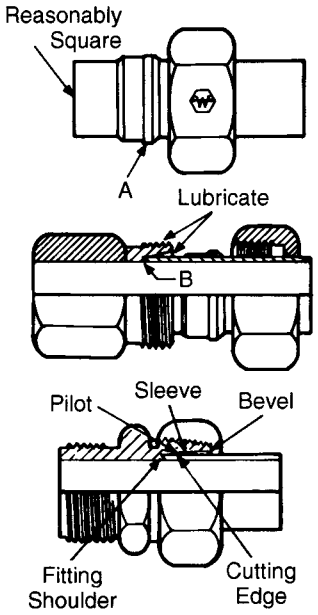
* Consult the factory on an application by application basis for variance.

WARNING

IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE PERSONAL INJURY AND PROPERTY DAMAGE.
It is the sole responsibility of the system designers and users to properly select and use products for their specific applications. This document has been printed for users with technical expertise as a reference for further investigation to determine specific product needs relative to design requirements.

Eaton 7000 Series Ermeto® Tube Fittings

WARNING Refer to safety information regarding tubing starting on page 309



PRESETTING OPERATION

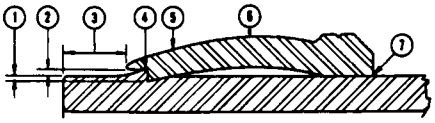
Preset with Preset Tool:

1. **CAUTION:** All stainless steel sleeves should be preset in tool prior to installation.
2. Slide nut and then sleeve on tube. Shoulder of sleeve "A" must be toward nut.
3. Insert tube into presetting tool. Be sure that tube is bottomed on fitting tube stop at point "B". Lubricate threads, seat of fitting and shoulder of sleeve with good grade of lubricant.
4. Turn nut slowly with wrench while turning tube with other hand. When the sleeve grips the tube, that is, when the tube can no longer be turned by hand – **STOP** – and note the position of the wrench. This is the "Ring Grip" point.
5. Tighten nut an additional number of turns past the ring grip point per tube size and wall thickness as shown in Table 1 on next page.
6. Disassemble from preset tool.

Preset in Fitting Body:

1. Follow same procedure as when presetting with preset tool. Once the fitting nut has been turned the proper number of turns past ring grip, the fitting assembly is complete and ready for use.

   NOTE: Only Carbon Steel Sleeves can be preset directly into the fitting body. Due to possible thread galling, the use of presetting tools is required when stainless steel fittings are to be assembled.



FITTING INSTALLATION

1. After sleeve and nut have been preset on the tubing and checked as described, the assembly is ready for installation into the Ermeto® fitting seat.
2. Lubricate threads, seat of fitting and shoulder of sleeve with a good grade of lubricant compatible with system fluid.
3. Insert tube assembly into fitting and tighten nut until sharp rise in torque is felt.
4. Starting at the position of sharp torque rise, tighten nut 1/4 turn to complete assembly.

When the assembly procedure for Ermeto fittings is followed correctly, these points will be evident:

1. Cutting edge of sleeve will be imbedded in tubing to its full depth.
2. Pilot edge of sleeve should be close to or touching O.D. of tubing.
3. Distance between end of tube and leading or pilot edge of sleeve will be at least 1/8".
4. Metal will be piled ahead of cutting edge of sleeve under pilot.
5. Contact area of sleeve will show evidence of being in perfect contact with tapered seat of fitting.
6. Sleeve will show evidence of being bowed within its elastic limits.
7. Back of sleeve will be in contact with tube.

   NOTE: Performance of fitting will not be affected if sleeve rotates on tube after disassembly.

FOR RE-INSTALLATION OF FITTING AFTER DISASSEMBLING

1. Insert tube assembly into fitting, tighten nut until a sharp rise in torque is felt.
2. Starting at the position of sharp torque rise, tighten nut 1/4 turn to complete the reinstallation.

WARNING Refer to safety information regarding tubing starting on page 309

TABLE 1: Number of Additional Turns from "Ring Grip" for Hand Presetting Operation-Ermeto® Sleeve

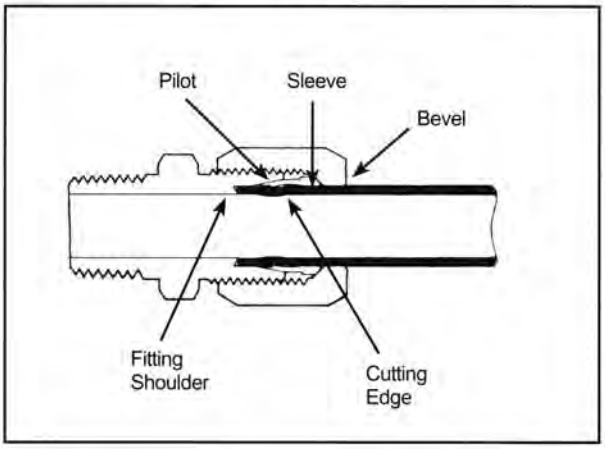
		Tube Wall Thickness									
Tube Size	Tube Material **	.018	.022	.028	.035	.049	.065	.083	.095	.109	.120
2	C 1010 MIL T 8504	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6						
3	C 1010 MIL T 8504	1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1-1/6	1 1						
4	C 1010 MIL T 8504			1-1/6 1-1/6	1-1/6 1	1-1/6 1	1 5/6				
5	C 1010 MIL T 8504			1-1/6 1-1/6	1-1/6 1-1/6	1-1/6 1	1 1				
6	C 1010 MIL T 8504				1-1/6 1-1/6	1-1/6 1	1 5/6	1 5/6			
8	C 1010 MIL T 8504				1-1/6 1-1/6	1-1/6 1	1 5/6	1 5/6	1 5/6		
10	C 1010 MIL T 8504					1-1/6 1-1/6	1 1	5/6 5/6	5/6 5/6	5/6	5/6
12	C 1010 MIL T 8504					1 1-1/6	1 1	5/6 5/6	5/6 5/6	5/6 5/6	
16	C 1010 MIL T 8504					1-1/6 1-1/6	1-1/6 1-1/6	5/6 5/6	5/6 5/6	5/6 5/6	
20	C 1010 MIL T 8504					1-1/6 1	1 1	1 1	1 1	5/6 5/6	5/6 5/6
24	C 1010 MIL T 8504								1	1	1
32	C 1010 MIL T 8504								1	1	1

**C 1010 - Carbon Steel Tubing
**MIL T 8504 - Annealed Stainless Steel

Eaton 7000 Series Ermeto® Tube Fittings

WARNING Refer to safety information regarding tubing starting on page 309

Ermeto® Fittings (7000 Series) are especially designed for making leak-proof tube connections. This fitting will effectively withstand high pressure, severe vibration and extreme temperature. No special tools are needed for assembly. Simply cut tube square, preset sleeve on tubing and assemble.



ERMETO® DESIGN PRINCIPLE PROVIDES POSITIVE SEAL

1. In presetting, as the nut is tightened it forces the sleeve forward into the body taper.
instructions.
2. Pilot of sleeve contracts, forcing the cutting edge of sleeve to shear a groove into outer surface of the tube, making a tight joint between fitting and tube.
3. In assembling the preset sleeve and tube into the fitting body, the nut presses on the bevel at rear of sleeve causing it to clamp tightly to the tube. Resistance to vibration is concentrated at this point rather than at the sleeve cut.
4. When fully tightened, the case hardened sleeve is bowed slightly at the midsection and acts as a spring. This spring action of the sleeve maintains a constant tension between the body and the nut, and thus prevents the nut from loosening.
5. After the first assembly, the sleeve is permanently attached to the tube. Disassembly and reassembly of the fitting can be made without loss of strength or sealing qualities.

"7000" SERIES FITTINGS

Specifically designed to meet all SAE approved standards for hydraulic flareless tube fittings. Available in a complete range of standard body styles. In addition, the "7000" Series includes all body styles for SAE straight thread O-ring boss mounting. Complete size range to 2".

CARBON STEEL "7000" SERIES

Weatherhead Ermeto® Fittings have the exclusive "Weathercote" finish, which fully resists the effects of non-flammable hydraulic fluids.

STAINLESS STEEL "7000" SERIES

Fittings also available in a complete range of body styles and sizes.

Standard stainless steel assemblies may be ordered by quoting the stainless steel part numbers appearing in this catalog. Standard stainless steel assemblies are composed of the following types of material:

BODY – Type 316 Stainless Steel
NUT – Type 316 Stainless Steel
SLEEVE – Type 17-4PH Stainless Steel

Any deviation from the standard assembly must be ordered as component parts. Example: If Type 316 bodies and 17-4PH sleeves are to be used, they can be ordered as follows:

B7217x8 Body only (Type 316 Stainless Steel)
7176x8 Sleeves (Type 17-4PH Stainless Steel)
7105x8 Nuts (Standard Carbon Steel)

In general, the "bite-action" of the sleeves in any given material varies as shown in the following table:

STAINLESS STEEL SLEEVES

Cat. No. 7176 sleeves are made from Armco 17-4PH precipitation hardened stainless steel. When used on "fully-annealed" to 1/8 hard tubing in the 303 to 316 stainless range, they provide the typical seal.

"7000" Series Sleeve	SLEEVE MATERIAL	TUBING USED 303 to 316 Stainless and Cupro-Nickel	"BITE-ACTION"
7165	Heat Treated Carbon Steel (Standard Carbon)	Fully annealed to 1/8 hard	Excellent
7176	17-4PH Stainless (Standard Stainless)	Fully annealed	Excellent

When stainless steel tubing is used for strength and no corrosive conditions exist, use the 7165 sleeve for better performance.

WARNING Refer to safety information regarding tubing starting on page 309

HYDRAULIC PRESSURE DATA - ERMETO® FLARELESS FITTINGS

Ermeto® fittings have been used with success on many and varied applications far exceeding the conservative conditions presented below. Specifically:

- Temperatures up to 800°F, in carbon steel and 1000°F, in stainless steel have been handled without failure.*
- Burst pressures up to 32,000 psi with 1/4" tubing.
- Vibration conditions of 1/8" off-center amplitude with 12" overhang in 1/4" tubing have been withstood at rated operating pressure with 4-to-1 safety factors for over ten million cycles.

Obviously under extreme conditions of pressure, temperature and/or vibration, the safety factor is proportionately reduced.

The Ermeto® flareless fitting is the ultimate hydraulic fitting available today. Special performance conditions as outlined can be accommodated; however, it is recommended that your local Weatherhead representative be consulted for engineering assistance prior to finalizing design.

The values shown in the following table are pressure ratings of Ermeto® flareless fittings under various surge conditions. They apply and are recommended for conservative operating conditions.

Consult tubing selection charts starting on page 316

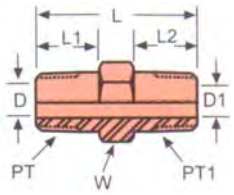
Size No.	Size in Inches	Maximum Pressure† No Surges PSI	Maximum Pressure† With Surges to 50%	Maximum Pressure† With Surges of 50% to 100%	Maximum Pressure† With Surges up to 150%
2	1/8	10,000	6,500	5,000	4,000
3	3/16	9,000	6,000	4,500	3,600
4	1/4	8,000	5,250	4,000	3,200
5	5/16	8,000	5,250	4,000	3,200
6	3/8	7,500	5,000	3,750	3,000
8	1/2	7,000	4,500	3,500	2,700
10	5/8	5,000	3,250	2,500	2,000
12	3/4	5,000	3,250	2,500	2,000
14	7/8	3,750	2,500	1,800	1,500
16	1	3,600	2,400	1,800	1,400
20	1-1/4	3,200	2,100	1,600	1,275
24	1-1/2	3,000	2,000	1,500	1,200
32	2	2,750	1,800	1,350	1,100

† Pressures shown do not apply to pneumatic applications or stainless steel tubing installations.
* Zinc plating discolors at temperatures over 400°F and melts at 750°F.

Category **Page**

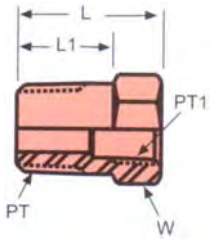
Adapters

Stainless Steel
Pipe to Pipe



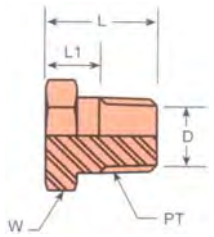
HN
Male Pipe Hex Nipple

Catalog Part No.	SSP Model	Thread PT	Thread PT1	L (in)	Wt.	Price Each
•C1CY47	HN-1/8	1/8-27	1/8-27	1.06	0.03	
•C1CY44	HN-1/4	1/4-18	1/4-18	1.45	0.07	
•C1EQ65	HN-1/4X1/8	1/4-18	1/8-27	1.26	0.06	
•C1CY45	HN-1/4X3	1/4-18	1/4-18	3.00	0.19	
•C1ED94	HN-1/4x4	1/4-18	1/4-18	4.00	0.27	
•C1CY50	HN-3/8	3/8-18	3/8-18	1.45	0.10	
•C1FF14	HN-3/8X1/4	3/8-18	1/4-18	1.45	0.10	
•C1CY40	HN-1/2	1/2-14	1/2-14	1.89	0.16	
•C1CY42	HN-1/2X4	1/2-14	1/2-14	4.00	0.42	
•C1CY48	HN-3/4	3/4-14	3/4-14	1.96	0.24	
•C1CY49	HN-3/4X1/2	3/4-14	3/4-14	1.96	0.28	
•C1CY39	HN-1	1-11-1/2	1-11-1/2	2.34	0.40	



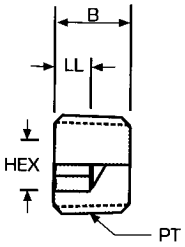
PTR
Male Pipe / Female Pipe Bushing

Catalog Part No.	SSP Model	Thread PT	Thread PT1	L (in)	Wt.	Price Each
•C1DJ20	PTR-1/4X1/8	1/4-18	1/8-27	0.85	0.25	
•C1DJ25	PTR-3/8X1/8	3/8-18	1/8-27	0.85	0.07	
•C1DJ24	PTR-3/8X1/4	3/8-18	1/4-18	0.85	0.06	
•C1DJ18	PTR-1/2X1/4	1/2-14	1/4-18	1.09	0.12	
•C1DJ19	PTR-1/2X3/8	1/2-14	3/8-18	1.10	0.09	
•C1DJ23	PTR-3/4X3/8	3/4-14	3/8-18	1.17	0.20	
•C1DJ22	PTR-3/4X1/2	3/4-14	1/2-14	1.17	0.15	
•C1DJ21	PTR-1X3/4	1-11-1/2	1-11-1/2	1.36	0.40	



HP
Male Pipe Plug

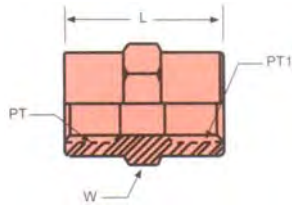
Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
C1HS64	ISST2PP	1/8-27	0.56	0.02	
•C1CY56	HP-1/8	1/8-27	0.56	0.02	
•C1CY55	HP-1/4	1/4-18	0.75	0.05	
•C1CY58	HP-3/8	3/8-18	0.78	0.10	
•C1CY53	HP-1	1-11-1/2	1.25	0.46	



CP
Hex Countersunk Pipe Plug

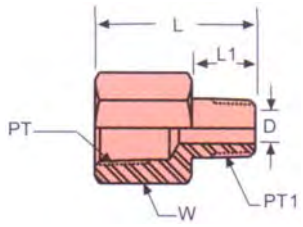
Catalog Part No.	SSP Model	Thread PT	Hex (in)	B (in)	LL (in)	Wt.	Price Each
•C1FC35	CP-1/8	1/8-27	3/16	0.27		0.01	
•C1FC34	CP-1/4	1/4-18	1/4	0.41		0.02	
•C1FC36	CP-3/8	3/8-18	5/16	0.41		0.03	
•C1FC33	CP-1/2	1/2-14	3/8	0.54		0.06	
•C1ZW89	CP-1	1-11-1/2	5/8	0.69		0.19	

Stainless Steel
Pipe to Pipe



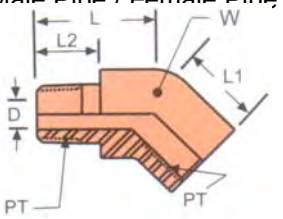
HC
Female Pipe Coupling

Catalog Part No.	SSP Model	Thread PT	Thread PT1	L (in)	Wt.	Price Each
•C1CY30	HC-1/8	1/8-27	1/8-27	0.75	0.05	
•C1CY29	HC-1/4	1/4-18	1/4-18	1.13	0.10	
•C1CY32	HC-3/8	3/8-18	3/8-18	1.13	1.50	
•C1CY28	HC-1/2	1/2-14	1/2-14	1.50	0.23	
•C1CY31	HC-3/4	3/4-14	3/4-14	1.53	0.33	
•C1CY27	HC-1	1-11-1/2	1-11-1/2	1.89	0.51	



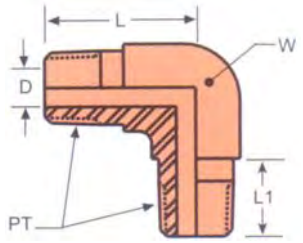
RA
Male Pipe / Female Pipe

Catalog Part No.	SSP Model	Thread PT1	Thread PT	L (in)	Wt.	Price Each
•C1DJ67	RA-1/4X1/4	1/4-18	1/4-18	1.39	0.10	
•C1DJ69	RA-3/8X1/4	1/4-18	3/8-18	1.44	0.13	
•C1DJ66	RA-1/2X3/8	3/8-18	1/2-14	1.69	0.25	



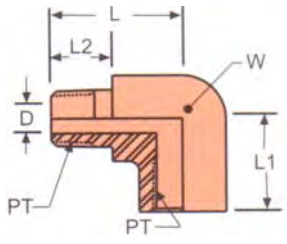
MF-45
Female Pipe / Male Pipe 45° Elbow

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1DE82	MF-1/4-45	1/4-18	1.05	0.14	



MM
Male Pipe / Male Pipe 90° Elbow

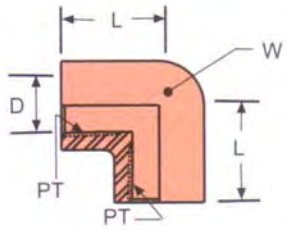
Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1DF17	MM-1/4	1/4-18	1.09	0.11	
•C1DF18	MM-3/8	3/8-18	1.22	0.19	
•C1DF16	MM-1/2	1/2-14	1.47	0.30	
C1KG31	MM-1	1-11-1/2	1.97	0.75	



MF

Male Pipe / Female Pipe 90° Elbow

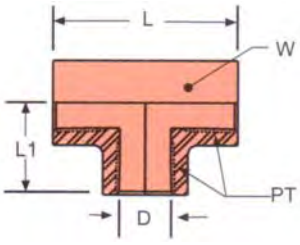
Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1HK72	MF-1/8	1/8-27	0.78	0.07	
•C1DE81	MF-1/4	1/4-18	1.09	0.16	
•C1DE85	MF-3/8	3/8-18	1.22	0.22	
•C1DE80	MF-1/2	1/2-14	1.47	0.40	
•C1DE84	MF-3/4	3/4-14	1.59	0.60	
•C1GF33	MF-1	1-11-1/2	1.97	1.07	



FF

Female Pipe / Female Pipe 90° Elbow

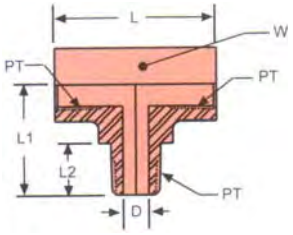
Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CU45	FF-1/8	1/8-27	0.66	0.07	
•C1CU44	FF-1/4	1/4-18	0.88	0.15	
•C1CU43	FF-1/2	1/2-14	0.69	0.34	
•C1CU46	FF-3/4	3/4-14	1.36	0.54	



FFF

Female Pipe Tee

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CV84	FFF-1/8	1/8-27	1.32	0.09	
•C1CV83	FFF-1/4	1/4-18	1.76	0.20	
•C1CV86	FFF-3/8	3/8-18	2.04	1.50	
•C1CV85	FFF-3/4	3/4-14	2.72	0.67	
C1KF80	FFF-1	1-11-1/2	3.26	1.32	

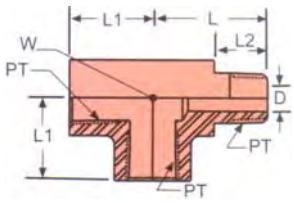


FFM

Male Pipe Branch Tee

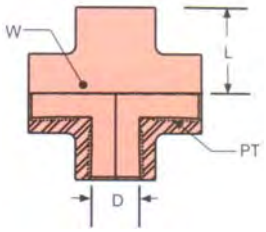
Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CV87	FFM-1/4	1/4-18	1.76	0.20	
•C1CV88	FFM-3/8	3/8-18	2.04	0.28	
C1KF85	FFM-1/2	1/2-14	2.46	0.53	
C1KF86	FFM-3/4	3/4-14	2.72	0.74	

Stainless Steel
Pipe to Pipe



FMF
Male Pipe Run Tee

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1CW68	FMF-1/4	1/4-18	1.09	0.20	
•C1CW69	FMF-3/8	3/8-18	1.22	0.27	
•C1CW67	FMF-1/2	1/2-14	1.47	0.46	

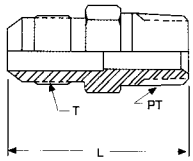


FFFF
Female Pipe Cross

Catalog Part No.	SSP Model	Thread PT	L (in)	Wt.	Price Each
•C1KF81	FFFF-1/2	1/2-14	1.23	0.33	

Adapters

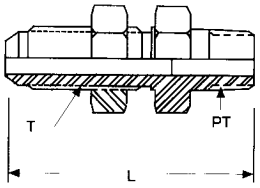
Stainless Steel
Pipe to 37° Flare



J-C

Male 37° Flare / Male Pipe

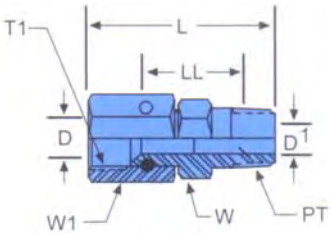
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	L (in)	Wt.	Price Each
•C1CZ65	J3C	0.19	1/8-27	3/8-24	1.14	0.03	
•C1CZ82	J4C	0.25	1/8-27	7/16-20	1.58	0.04	
•C1DA22	J6-2C	0.38	1/8-27	9/16-18	1.24	0.05	
•C1CZ72	J4-4C	0.25	1/4-18	7/16-20	1.78	0.07	
•C1DA33	J6C	0.38	1/4-18	9/16-18	1.90	0.07	
•C1DA56	J8-4C	0.50	1/4-18	3/4-16	1.53	0.11	
•C1CZ77	J4-6C	0.25	3/8-18	7/16-20	1.44	0.10	
•C1DA25	J6-6C	0.38	3/8-18	9/16-18	1.91	0.10	
•C1DA68	J8C	0.50	3/8-18	3/4-16	2.03	0.12	
•C1CZ79	J4-8C	0.25	1/2-14	7/16-20	1.69	0.18	
•C1DA29	J6-8C	0.38	1/2-14	9/16-18	1.69	0.20	
•C1DA64	J8-8C	0.50	1/2-14	3/4-16	2.28	0.18	
•C1CZ11	J10C	0.63	1/2-14	7/8-14	2.54	0.19	
•C1CZ25	J12-8C	0.75	1/2-14	1-1/16-12	2.06	0.12	
•C1DA55	J8-12C	0.50	3/4-14	3/4-16	1.85	0.01	
•C1CZ28	J12C	0.75	3/4-14	1-1/16-12	2.67	0.31	
•C1JE69	J16-12C	1.00	3/4-14	1-5/16-12	2.11	0.39	
•C1CZ45	J16C	1.0	1-11-1/2	1-5/16-12	3.05	0.46	
•C1GM90	J20C	1.25	1-1/4-11-1/2	1-5/8-12	2.45	0.68	



BC

Male 37° Flare / Male Pipe Bulkhead

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	L (in)	Wt.	Price Each
•C1CZ71	J4-4BC	0.25	1/4-18	7/16-20		0.12	
•C1DA63	J8-8BC	0.50	1/2-14	3/4-16	2.34	0.29	

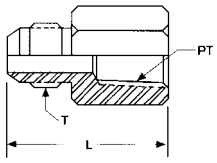


JS-C

Female 37° Flare / Male Pipe

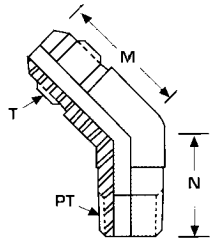
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T1	Thread PT	L (in)	Wt.	Price Each
•C1FZ98	JS6C	0.38	9/16-18	1/4-18	1.54	0.10	
•C1FZ99	JS8C	0.50	3/4-16	3/8-18	1.78	0.15	

Stainless Steel
Pipe to 37° Flare



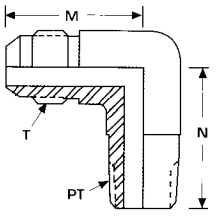
J-FC
Male 37° Flare / Female Pipe

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	L (in)	Wt.	Price Each
•C1CZ84	J4FC	0.25	1/8-27	7/16-20	1.55	0.05	
•C1CZ73	J4-4FC	0.25	1/4-18	7/16-20	1.74	0.09	
•C1DA35	J6FC	0.38	1/4-18	9/16-18	1.87	0.10	
•C1DA26	J6-6FC	0.38	3/8-18	9/16-18	1.88	0.13	
•C1DA70	J8FC	0.50	3/8-18	3/4-16	2.06	0.15	
•C1DA65	J8-8FC	0.50	1/2-14	3/4-16	1.75	0.27	
•C1CZ12	J10FC	0.63	1/2-14	7/8-14	2.54	0.30	
•C1CZ30	J12FC	0.75	3/4-14	1-1/16-12	2.52	0.44	
•C1CZ46	J16FC	1.0	1-11-1/2	1-5/16-12	3.1	0.67	



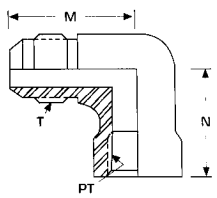
J-ME-45
Male 37° Flare / Male Pipe 45° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
•C1CZ91	J4ME-45	0.25	1/8-27	7/16-20	0.72	0.64	0.04	
•C1CZ76	J4-4ME-45	0.25	1/8-18	7/16-20	0.82	0.86	0.07	
•C1DA42	J6ME-45	0.38	1/4-18	9/16-18	0.83	0.86	0.08	
•C1DA77	J8ME-45	0.50	3/8-18	3/4-16	0.98	0.95	0.15	
•C1CZ34	J12ME-45	0.75	3/4-14	1-1/16-12	1.28	1.20	0.25	



J-ME
Male 37° Flare / Male Pipe 90° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
•C1CZ90	J4ME	0.25	1/8-27	7/16-20	0.89	0.78	0.05	
•C1CZ75	J4-4ME	0.25	1/4-18	7/16-20	1.05	1.09	0.11	
•C1DA41	J6ME	0.38	1/4-18	9/16-18	1.06	1.09	0.11	
•C1DA27	J6-6ME	0.38	3/8-18	9/16-18	1.14	1.22	0.19	
•C1DA66	J8-8ME	0.50	1/2-14	3/4-16	1.33	1.47	0.27	
•C1CZ15	J10ME	0.63	1/2-14	7/8-14	1.45	1.47	0.28	
•C1EZ30	J12-8ME	0.75	1/2-14	1-1/16-12	1.66	1.59	0.50	
•C1CZ33	J12ME	0.75	3/4-14	1-1/16-12	1.66	1.59	0.47	
•C1CZ49	J16ME	1.0	1-11-1/2	1-5/16-12	1.81	1.97	0.70	

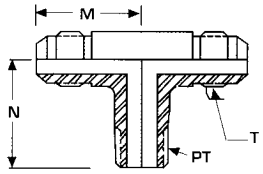


J-FE
Male 37° Flare / Female Pipe 90° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
•C1CZ74	J4-4FE	0.25	1/4-18	7/16-20	1.08	0.66	0.17	
•C1DA36	J6FE	0.38	1/4-18	9/16-18	1.23	0.88	0.18	
•C1DA71	J8FE	0.50	3/8-18	3/4-16	1.42	1.02	0.25	
•C1GJ96	J12FE	0.75	3/4-14	1-1/16-12	1.89	1.36	0.72	

Adapters

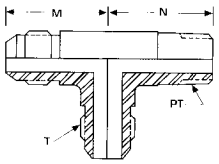
Stainless Steel
Pipe to 37° Flare



J-TTM

Male 37° Flare / Male Pipe / Male 37° Flare Tee

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
•C1CZ70	J4-4-4TTM	0.25	1/4-18	7/16-20	1.05	1.09	0.50	
•C1DA62	J8-8-8TTM	0.50	1/2-14	3/4-16	1.33	1.47	0.38	
C1KG24	J12TTM	0.75	3/4-14	1-1/16-12	1.66	1.59	1.21	
C1KG26	J16TTM	1.00	1-11-1/2	1-5/16-12	1.81	1.97	1.60	

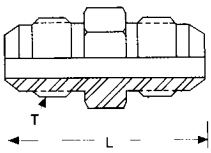


J-TMT

Male 37° Flare / Male 37° Flare / Male Pipe Tee

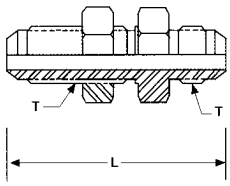
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread PT	Thread T	M (in)	N (in)	Wt.	Price Each
C1KG23	J12TMT	0.75	3/4-14	1-1/16-12	1.66	1.59	1.20	
C1KG25	J16TMT	1.00	1-11-1/2	1-5/16-12	1.81	1.97	1.14	

Stainless Steel
37° Flare Union



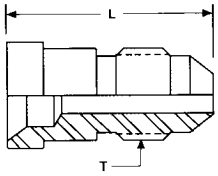
J-U
Male 37° Flare Union

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1DA12	J4U	0.25	7/16-20	1.37	0.05	
•C1DA20	J5U	0.31	1/2-20	1.37	0.04	
•C1FQ93	J6-4U		9/16-18 x 7/16-20	1.40	0.06	
•C1DA53	J6U	0.38	9/16-18	1.41	0.06	
•C1DA87	J8U	0.50	3/4-16	1.62	0.13	
•C1CZ22	J10U	0.63	7/8-14	1.88	0.15	
•C1CZ41	J12U	0.75	1-1/16-12	2.16	0.31	
•C1CZ53	J16U	1.0	1-5/16-12	2.25	0.50	



J-BU
Male 37° Flare Bulkhead Union

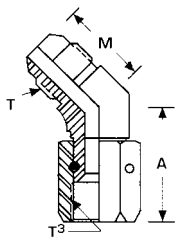
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1CZ81	J4BU	0.25	7/16-20	2.07	0.10	
•C1DA32	J6BU	0.38	9/16-18	2.18	0.14	
•C1DA67	J8BU	0.50	3/4-16	2.44	0.25	
•C1CY99	J10BU	0.63	7/8-14	2.74	0.20	
•C1CZ27	J12BU	0.75	1-1/16-12	3.09	3.00	



J-TER
37° Flare Reducer / Male 37° Flare

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1DA23	J6-4TER	0.25	7/16-20		0.03	
•C1DA57	J8-4TER	0.25	7/16-20		0.04	
•C1DA61	J8-6TER	0.38	9/16-18		0.05	
C1KM62	J10-4TER	0.63	7/16-20		0.05	
•C1CY97	J10-6TER	0.38	9/16-18		0.05	
•C1CY98	J10-8TER	0.50	3/4-16	1.44	1.50	
•C1CZ26	J12-8TER	0.50	3/4-16		0.10	
•C1CZ43	J16-12TER	0.75	1-1/16-12		0.09	

Note: Nuts & Sleeves page 110

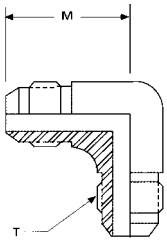


J-SE-45
Male 37° Flare / Female 37° Flare
Swivel 45° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T3	A (in)	M (in)	Wt.	Price Each
•C1CZ97	J4SE-45	0.25	7/16-20	7/16-20	0.94	0.72	0.07	
•C1DA48	J6SE-45	0.38	9/16-18	9/16-18	1.12	0.83	0.11	
•C1DA83	J8SE-45	0.50	3/4-16	3/4-16	1.28	0.98	0.30	

Adapters

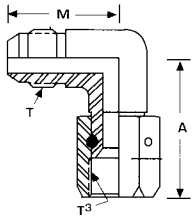
Stainless Steel
37° Flare Union



J-E

Male 37° Flare / Male 37° Flare 90° Elbow

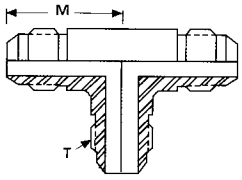
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	M (in)	Wt.	Price Each
•C1CZ83	J4E	0.25	7/16-20	0.89	0.50	
•C1DA34	J6E	0.38	9/16-18	1.06	0.10	
•C1DA69	J8E	0.50	3/4-16	1.25	0.19	



J-SE

Male 37° Flare / Female 37° Flare Swivel 90° Elbow

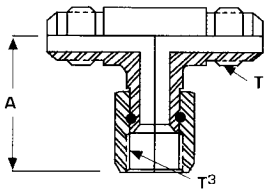
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T3	A (in)	M (in)	Wt.	Price Each
•C1CZ96	J4SE	0.25	7/16-20	7/16-20	1.0	0.89	0.08	
•C1DA47	J6SE	0.38	9/16-18	9/16-18	1.25	1.01	0.13	
•C1DA82	J8SE	0.50	3/4-16	3/4-16	1.38	1.25	0.24	
•C1CZ19	J10SE	0.63	7/8-14	7/8-14	1.62	1.45	0.35	
•C1CZ38	J12SE	0.75	1-1/16-12	1-1/16-12	1.75	1.66	0.62	
•C1FU85	J16SE	1.00	1-5/16-12	1-5/16-12	2.00	1.81	0.91	



J-T

Male 37° Flare Tee

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	M (in)	Wt.	Price Each
•C1CZ99	J4T	0.25	7/16-20	0.89	0.08	
•C1DA50	J6T	0.38	9/16-18	1.06	0.15	
•C1DA85	J8T	0.50	3/4-16	1.25	0.28	

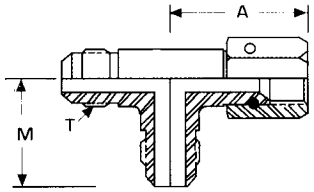


J-SBT

Male 37° Flare / Female 37° Flare Swivel / Male 37° Flare Tee

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T3	A (in)	M (in)	Wt.	Price Each
•C1DA81	J8SBT	0.50	3/4-16	3/4-16	1.38	1.25	0.30	

Stainless Steel
37° Flare Union

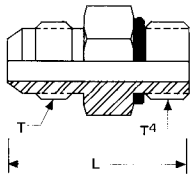


J-SRT
Male 37° Flare / Male 37° Flare / Female 37° Flare Swivel Tee

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	A (in)	M (in)	Wt.	Price Each
•C1CZ98	J4SRT	0.25	7/16-20	1.0	0.89	0.10	
•C1DA49	J6SRT	0.38	9/16-18	1.25	1.06	0.15	
•C1DA84	J8SRT	0.50	3/4-16	1.38	1.25	0.30	
•C1CZ20	J10SRT	0.63	7/8-14	1.62	1.45	0.46	
•C1CZ39	J12SRT	0.75	1-1/16-12	1.75	1.66	0.77	

Adapters

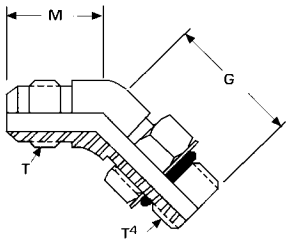
Stainless Steel
Straight Thread O-Ring to 37° Flare



J-GC

Male 37° Flare / Male Straight Thread O-Ring

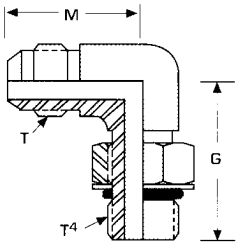
Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T4	L (in)	Wt.	Price Each
•C1CZ86	J4GC	0.25	7/16-20	7/16-20	1.23	0.05	
•C1ZV59	J4-6GC	0.25	7/16-20	9/16-18	1.29	0.08	
•C1DA37	J6GC	0.38	9/16-18	9/16-18	1.30	0.08	
•C1DA30	J6-8GC	0.38	9/16-18	3/4-16	1.38	0.13	
C1KM63	J6-10GC	0.38	9/16-18	7/8-14	1.50	0.18	
C1KM65	J6-12GC	0.38	9/16-18	1-1/16-12	1.75	0.33	
•C1DA58	J8-6GC	0.50	3/4-16	9/16-18	1.38	0.13	
•C1DA72	J8GC	0.50	3/4-16	3/4-16	1.48	0.14	
•C1FC54	J8-10GC	0.50	3/4-16	7/8-14	1.60	0.20	
•C1CZ13	J10GC	0.63	7/8-14	7/8-14	1.70	0.21	
•C1EW92	J12-10GC	0.75	1-1/16-12	7/8-14	1.86	0.28	
•C1CZ31	J12GC	0.75	1-1/16-12	1-1/16-12	1.97	0.34	
•C1CZ47	J16GC	1.0	1-5/16-12	1-5/16-12	2.04	0.48	



J-GE-45

Male 37° Flare / Male Straight Thread O-Ring 45° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T4	G (in)	M (in)	Wt.	Price Each
•C1CZ88	J4GE-45	0.25	7/16-20	7/16-20	1.05	0.72	0.06	
•C1DA39	J6GE-45	0.38	9/16-18	9/16-18	1.14	0.83	0.10	



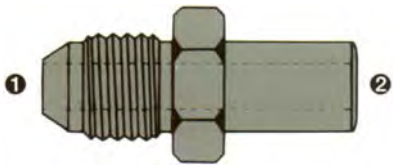
J-GE

Male 37° Flare / Male Straight Thread O-Ring 90° Elbow

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	Thread T4	G (in)	M (in)	Wt.	Price Each
•C1CZ87	J4GE	0.25	7/16-20	7/16-20	1.03	0.89	0.07	
•C1CZ78	J4-6GE	0.25	7/16-20	9/16-18	1.25	0.89	0.13	
•C1DA38	J6GE	0.38	9/16-18	9/16-18	1.25	1.06	0.12	
•C1DA73	J8GE	0.50	3/4-16	3/4-16	1.45	1.25	0.25	
•C1CZ32	J12GE	0.75	1-1/16-12	1-1/16-12	1.94	1.66	0.50	

Stainless Steel
Metric to 37° Flare

adaptall



SS9200

Male JIC 37° Flare / Metric Standpipe

Catalog Part No.	Adaptall Model	Thread 1 (in)	Thread 2 (mm)	Wt.	Price Each
•C1FP65	SS9200-04-06	7/16-20	6	0.04	
•C1FP66	SS9200-04-08	7/16-20	8	0.05	
•C1FP68	SS9200-06-10	9/16-18	10	0.06	

**** WARNING **:** Do NOT use the 7/16-20 thread adapters with Everflex hose end NJIC-4S. The adapter flare is shorter than normal and does not make contact properly with the flare seat on the Everflex hose end.

Adapters

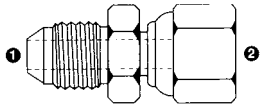
Stainless Steel
BSPP to 37° Flare

adaptall

SS9002
Male 37° Flare / Male BSPP (British Parallel)

Catalog Part No.	Adaptall Model	Thread A (in)	Thread B (BSPP)	Wt.	Price Each
•C1JD17	SS9002-06-04	9/16-18	1/4-19	0.08	

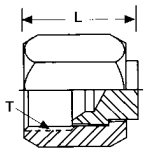
Note: Complete with washer & o-ring.



SS9240
Male 37° Flare / Female BSPP (British Parallel) Swivel

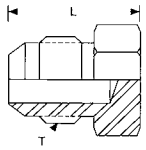
Catalog Part No.	Adaptall Model	Thread 1 (in)	Thread 2 (BSPP)	Wt.	Price Each
•C1GA56	SS9240-04-04	7/16-20	1/4-19	0.08	

Stainless Steel
Auxiliary Components



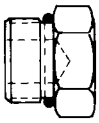
J-Z
JIC 37° Flare Cap

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1DA21	J5Z	0.31	1/2-20	0.77	0.04	
•C1DA54	J6Z	0.38	9/16-18	0.81	0.06	
•C1DA88	J8Z	0.50	3/4-16	0.94	0.11	
•C1CZ23	J10Z	0.63	7/8-14	1.07	0.14	



J-P
JIC 37° Flare Plug

Catalog Part No.	SSP Model	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1CZ93	J4P	0.25	7/16-20	0.80	0.03	
•C1DA44	J6P	0.38	9/16-18	0.84	0.05	
•C1DA79	J8P	0.50	3/4-16	0.94	0.10	

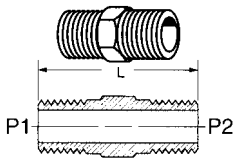


GP
SAE O-Ring Boss Plug

Catalog Part No.	SSP Model	Thread T	L (in)	Wt.	Price Each
•C1CX86	GP-6	9/16-18	0.76	0.06	

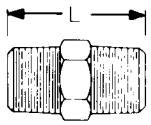
Adapters

Brass
Pipe to Pipe



3325
Male Pipe Hex Nipple

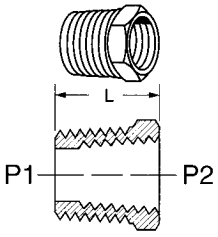
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HP23	3325X2	1/8-27	1/8-27	0.97	0.02	
•C1HP25	3325X4X2	1/4-18	1/8-27	1.19	0.05	
•C1HP24	3325X4	1/4-18	1/4-18	1.38	0.05	
•C1HP27	3325X6X4	3/8-18	1/4-18	1.41	0.07	
•C1HP26	3325X6	3/8-18	3/8-18	1.41	0.08	
•C1HP28	3325X8	1/2-14	1/2-14	1.81	0.14	
•C1HP22	3325X12	3/4-14	3/4-14	1.94	0.22	



Male Pipe Hex Nipple

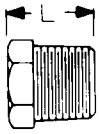
Catalog Part No.	Model Number	Pipe Thread	Pipe Thread	L (in)	Wt.	Price Each
•C1BE84	23325X8X4	1/2-14	1/4-18	1.62	0.09	
•C1BE85	23325X8X6	1/2-14	3/8-18	1.62	0.10	
•C1BE77	23325X12X8	3/4-14	1/2-14		0.16	
•C1FM93	23325X16	1-11-1/2	1-11-1/2		0.42	

NP Models: Nickel Plated.



3220
Male Pipe / Female Pipe Bushing

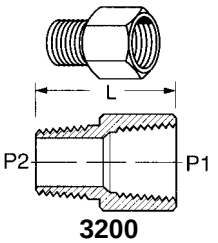
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HN97	3220X4X2	1/4-18	1/8-27	0.59	0.02	
•C1HN98	3220X6X2	3/8-18	1/8-27	0.75	0.05	
•C1HN99	3220X6X4	3/8-18	1/4-18	0.69	0.03	
•C1HP11	3220X8X2	1/2-14	1/8-27	0.75	0.09	
•C1HP12	3220X8X4	1/2-14	1/4-18	0.75	0.08	
•C1HP13	3220X8X6	1/2-14	3/8-18	0.75	0.05	
•C1HN95	3220X12X6	3/4-14	3/8-18	0.88	0.15	
•C1HN96	3220X12X8	3/4-14	1/2-14	0.88	0.10	



Bushing

Catalog Part No.	Model Number	External Pipe Thread	Internal Pipe Thread	L (in)	Wt.	Price Each
•C1BE57	23232X4	3/4-14	1/4-18	0.94	0.18	
•C1BE62	23236X8	1-11-1/2	1/2-14	0.94	0.30	
•C1BE60	23236X12	1-11-1/2	3/4-14	1.12	0.22	

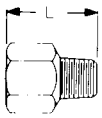
NP Models: Nickel Plated.



3200
Male Pipe / Female Pipe

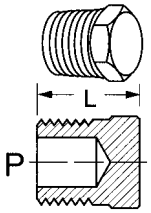
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HN89	3200X2	1/8-27	1/8-27	0.88	0.04	
•C1HN91	3200X4X2	1/4-18	1/8-27	1.06	0.07	
•C1HN90	3200X4	1/4-18	1/4-18	1.25	0.08	
•C1HN93	3200X6X4	3/8-18	1/4-18	1.25	0.10	
•C1HN92	3200X6	3/8-18	3/8-18	1.25	0.11	
•C1HN94	3200X8X6	1/2-14	3/8-18	1.47	0.18	
•C1HD73	3200X12X8	3/4-14	1/2-14	1.69	0.24	

Brass
Pipe to Pipe



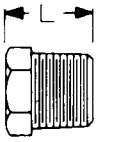
Female Pipe / Male Pipe

Catalog Part No.	Model Number	External Pipe Thread	Internal Pipe Thread	L (in)	Wt.	Price Each
•C1BE46	23200X8	1/2-14	1/2-14	1.31	0.11	



3152
Male Pipe Hex Head Plug

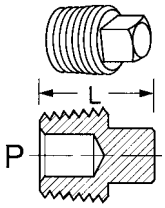
Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HN84	3152X2	1/8-27	0.57	0.02	
•C1HN85	3152X4	1/4-18	0.62	0.03	
•C1HN86	3152X6	3/8-18	0.72	0.06	
•C1HN87	3152X8	1/2-14	0.78	0.09	
•C1HN83	3152X12	3/4-14	0.88	0.13	



Hex Head Pipe Plug

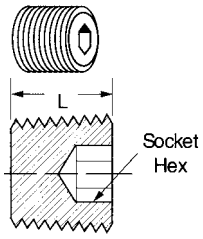
Catalog Part No.	Model Number	Pipe Thread	L (in)	Wt.	Price Each
•C1FK77	NP28-201	1/8-27	0.56	0.02	
C1FK78	NP28-202	1/4-18	0.62	0.03	
•C1FQ68	23152X16	1-11-1/2	1.25	0.28	

NP Models: Nickel Plated.



3151
Male Pipe Square Head Plug

Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HN79	3151X2	1/8-27	0.58	0.02	
•C1HN80	3151X4	1/4-18	0.74	0.03	
•C1HN81	3151X6	3/8-18	0.82	0.05	
•C1HN82	3151X8	1/2-14	0.99	0.09	

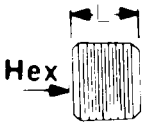


3153
Hex Socket Pipe Plug

Catalog Part No.	Eaton Model	Male Pipe Thread	Socket Hex (in)	L (in)	Wt.	Price Each
•C1HN88	3153X2	1/8-27	3/16	0.27	0.01	

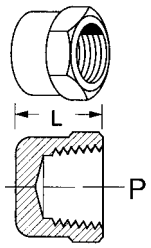
Adapters

Brass
Pipe to Pipe



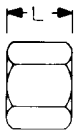
Countersunk Hex Pipe Plug

Catalog Part No.	Model Number	Pipe Thread	L (in)	Wt.	Price Each
•C1BE37	23155X4	1/4-18	0.45	0.04	
•C1BE38	23155X6	3/8-18	0.45	0.05	
•C1BE39	23155X8	1/2-14	0.60	0.07	
•C1BE35	23155X12	3/4-14	0.62	0.09	



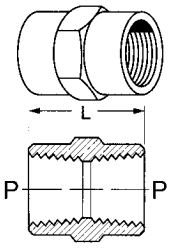
3129
Pipe Cap

Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HN74	3129X2	1/8-27	0.50	0.03	
•C1HN75	3129X4	1/4-18	0.59	0.04	
•C1HN76	3129X6	3/8-18	0.68	0.06	



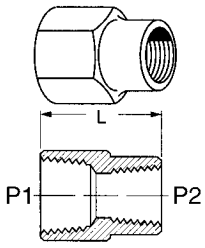
Pipe Cap

Catalog Part No.	Model Number	Pipe Thread	L (in)	Wt.	Price Each
•C1BE22	23129X8	1/2-14	0.84	0.15	



3300
Female Pipe Coupling

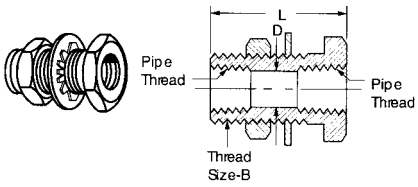
Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HP15	3300X2	1/8-27	0.75	0.03	
•C1HP16	3300X4	1/4-18	1.12	0.09	
•C1HP18	3300X6	3/8-18	1.12	0.11	
•C1HP20	3300X8	1/2-14	1.50	0.19	
•C1HP14	3300X12	3/4-14	1.53	0.23	



3300
Female Pipe Reducer Coupling

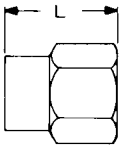
Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HP17	3300X4X2	1/4-18	1/8-27	0.96	0.07	
•C1HP19	3300X6X4	3/8-18	1/4-18	1.16	0.12	
•C1HP21	3300X8X6	1/2-14	3/8-18	1.38	0.19	

Brass
Pipe to Pipe



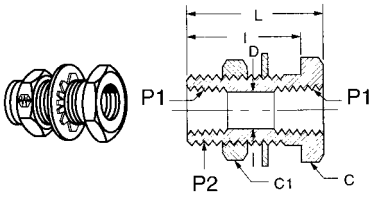
Bulkhead Coupling

Catalog Part No.	Eaton Model	Female Pipe Thread	Thread B	L (in)	Wt.	Price Each
•C1JC96	1345	1/4-18	3/4-16	0.94	0.13	
•C1JC95	1344	1/4-18	3/4-16	1.50	0.17	
•C1JC97	1346	3/8-18	1-14	1.31	0.28	
•C1HC96	1351	1/2-14	1-1/8-14	1.50	0.34	



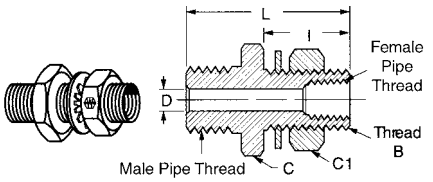
Reducing Pipe Coupling

Catalog Part No.	Model Number	Internal Pipe Thread	Internal Pipe Thread	L (in)	Wt.	Price Each
C1BE74	23308X4	1/2-14	1/4-18	1.28	0.10	



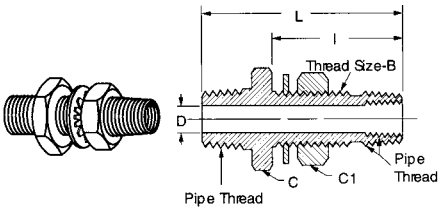
Bulkhead Coupling

Catalog Part No.	Model Number	Thread P1	Thread P2	L (in)	Wt.	Price Each
•C1HH98	28-304	1/2-14	1-1/8-14	1.49	0.34	



Bulkhead Coupling

Catalog Part No.	Eaton Model	Male Pipe Thread	Female Pipe Thread	Thread B	L (in)	Wt.	Price Each
•C1HY63	1340	1/2-14	1/4-18	3/4-16	2.16	0.32	

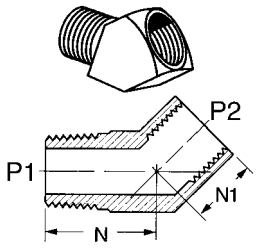


Bulkhead Coupling

Catalog Part No.	Eaton Model	Male Pipe Thread	Female Pipe Thread	Thread B	L (in)	Wt.	Price Each
•C1HX17	1342	1/2-14	1/4-18	1-14	2.94	0.62	

Adapters

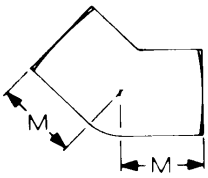
Brass
Pipe to Pipe



3350

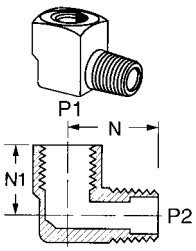
Male Pipe / Female Pipe 45° Street Elbow

Catalog Part No.	Eaton Model	Thread P1	Thread P2	N (in)	N1 (in)	Wt.	Price Each
•C1HP29	3350X2	1/8-27	1/8-27	0.50	0.38	0.04	
•C1HP30	3350X4	1/4-18	1/4-18	0.74	0.56	0.09	
•C1HP31	3350X6	3/8-18	3/8-18	0.78	0.56	0.11	
•C1HP32	3350X8	1/2-14	1/2-14	1.00	0.76	0.22	



Female Pipe / Female Pipe 45° Elbow

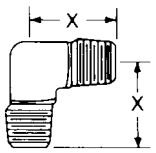
Catalog Part No.	Model Number	Pipe Thread	M (in)	Wt.	Price Each
•C1DV84	23355X2	1/8-27	0.45	0.06	



3400

Male Pipe / Female Pipe 90° Street Elbow

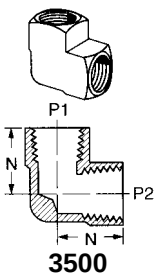
Catalog Part No.	Eaton Model	Thread P1	Thread P2	N (in)	N1 (in)	Wt.	Price Each
•C1HP34	3400X2	1/8-27	1/8-27	0.66	0.47	0.05	
•C1HP35	3400X4	1/4-18	1/4-18	0.91	0.72	0.10	
•C1HP36	3400X6	3/8-18	3/8-18	0.97	0.78	0.15	
•C1HP37	3400X8	1/2-14	1/2-14	1.25	1.03	0.29	
•C1HP33	3400X12	3/4-14	3/4-14	1.38	1.12	0.48	



Male Pipe / Male Pipe 90° Elbow

Catalog Part No.	Model Number	Pipe Thread	Type	X (in)	Wt.	Price Each
•C1BE96	23455X2	1/8-27	Bar Stock	0.75	0.04	
•C1BE97	23455X4	1/4-18	Bar Stock	1.03	0.06	
•C1BE98	23455X6	3/8-18	Bar Stock	1.12	0.11	
C1HR51	ACR-28-268F	3/8-18	Forged		0.10	
•C1GH36	23455X8	1/2-14	Bar Stock	1.33	0.27	
C1HR52	ACR-28-269F	1/2-14	Forged		0.20	

NP Models: Nickel Plated.

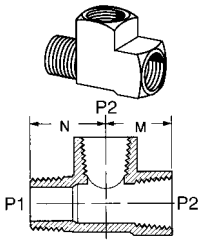


3500

Female Pipe / Female Pipe 90° Elbow

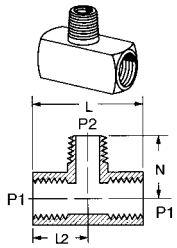
Catalog Part No.	Eaton Model	Thread P1	Thread P2	N (in)	Wt.	Price Each
•C1HP39	3500X2	1/8-27	1/8-27	0.55	0.06	
•C1HP40	3500X4	1/4-18	1/4-18	0.78	0.13	
•C1HP41	3500X6	3/8-18	3/8-18	0.84	0.18	
•C1HP42	3500X8	1/2-14	1/2-14	1.09	0.35	
•C1HP38	3500X12	3/4-14	3/4-14	1.16	0.61	

Brass
Pipe to Pipe



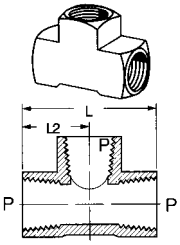
3750
Male Pipe / Female Pipe / Female Pipe Tee

Catalog Part No.	Eaton Model	Thread P1	Thread P2	M (in)	Wt.	Price Each
•C1HP55	3750X2	1/8-27	1/8-27	0.55	0.08	
•C1HP56	3750X4	1/4-18	1/4-18	0.78	0.16	
•C1HP57	3750X6	3/8-18	3/8-18	0.84	0.20	
•C1HP58	3750X8	1/2-14	1/2-14	1.09	0.38	
•C1KK17	3750X12	3/4-14	3/4-14	1.16	0.62	



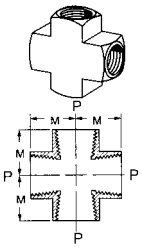
3600
Female Pipe / Male Pipe / Female Pipe Tee

Catalog Part No.	Eaton Model	Thread P1	Thread P2	L (in)	N (in)	Wt.	Price Each
•C1HP46	3600X2	1/8-27	1/8-27	1.10	0.66	0.08	
•C1HP47	3600X4	1/4-18	1/4-18	1.56	0.91	0.16	
•C1HP48	3600X6	3/8-18	3/8-18	1.68	0.97	0.21	



3700
Female Pipe Tee

Catalog Part No.	Eaton Model	Thread P	L (in)	Wt.	Price Each
•C1HP51	3700X2	1/8-27	1.10	0.08	
•C1HP52	3700X4	1/4-18	1.56	0.17	
•C1HP53	3700X6	3/8-18	1.68	0.22	
•C1HP54	3700X8	1/2-14	2.18	0.43	
•C1HP50	3700X12	3/4-14	2.32	0.66	

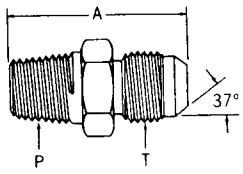


3950
Female Pipe Cross

Catalog Part No.	Eaton Model	Thread P	M (in)	Wt.	Price Each
•C1HP59	3950X2	1/8-27	0.50	0.06	
•C1HP60	3950X4	1/4-18	0.75	0.20	
•C1HP61	3950X6	3/8-18	0.81	0.31	
•C1HP62	3950X8	1/2-14	1.09	0.52	

Adapters

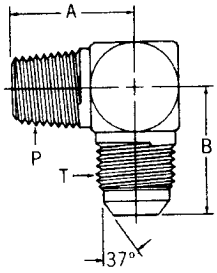
Brass
Pipe to 37° Flare



2021
Male Pipe / 37° Male Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1AV11	2021-4-4B	0.25	1/4-18	7/16-20	1.42	0.06	
•C1AV15	2021-4-6B	0.38	1/4-18	9/16-18	1.43	0.07	
•C1AV23	2021-6-6B	0.38	3/8-18	9/16-18	1.43	0.09	
•C1AV25	2021-6-8B	0.50	3/8-18	3/4-16	1.53	0.12	
•C1AV32	2021-8-6B	0.38	1/2-14	9/16-18	1.69	0.14	
•C1AV34	2021-8-8B	0.50	1/2-14	3/4-16	1.79	0.19	
•C1AV27	2021-8-10B	0.63	1/2-14	7/8-14	1.89	0.20	
•C1AV29	2021-8-12B	0.75	1/2-14	1-1/16-12	2.06	0.30	
•C1AU75	2021-12-12B	0.75	3/4-14	1-1/16-12	2.06	0.29	
•C1AU77	2021-12-16B	1.0	3/4-14	1-5/16-12	2.11	0.39	
•C1AU83	2021-16-16B	1.0	1-11-1/2	1-5/16-12	2.30	0.48	
•C1FA52	2021-20-20B	1.25	1-1/4-11-1/2	1-5/8-12	2.45	0.68	

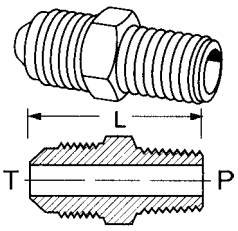
NP Models: Nickel Plated



2024
Male Pipe / Male 37° Flare 90° Elbow

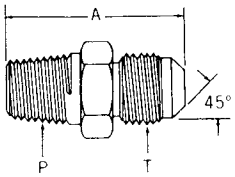
Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1AW20	2024-4-4B	0.25	1/4-18	7/16-20	1.09	1.05	0.11	
•C1AW23	2024-4-6B	0.38	1/4-18	9/16-18	1.09	1.06	0.10	
•C1AW30	2024-6-6B	0.38	3/8-18	9/16-18	1.22	1.14	0.16	
•C1AW37	2024-8-6B	0.38	1/2-14	9/16-18	1.47	1.13	0.30	
•C1AW39	2024-8-8B	0.50	1/2-14	3/4-16	1.47	1.33	0.25	
•C1AV87	2024-12-12B	0.75	3/4-14	1-1/16-12	1.59	1.66	0.50	
•C1AV93	2024-16-16B	1.0	1-11-1/2	1-5/16-12	1.97	1.81	0.68	

Brass
Pipe to 45° Flare



48
Male 45° Flare / Male Pipe

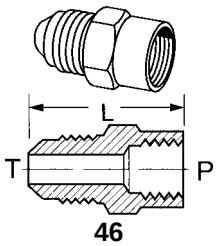
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	L (in)	Wt.	Price Each
•C1HQ17	48X3	0.19	1/8-27	3/8-24	1.00	0.03	
•C1HQ18	48X4	0.25	1/8-27	7/16-20	1.06	0.03	
•C1HQ20	48X5	0.31	1/8-27	1/2-20	1.16	0.04	
•C1HQ23	48X6X2	0.38	1/8-27	5/8-18	1.25	0.06	
•C1HQ19	48X4X4	0.25	1/4-18	7/16-20	1.26	0.04	
•C1HQ21	48X5X4	0.31	1/4-18	1/2-20	1.34	0.06	
C1HQ22	**48X6**	0.38	1/4-18	5/8-18	1.44	0.08	
•C1HQ27	48X8X4	0.50	1/4-18	3/4-16	1.62	0.10	
•C1HQ24	48X6X6	0.38	3/8-18	5/8-18	1.44	0.10	
•C1HQ26	48X8	0.50	3/8-18	3/4-16	1.62	0.11	
•C1HQ13	48X10X6	0.63	3/8-18	7/8-14	1.81	0.17	
•C1HQ25	48X6X8	0.38	1/2-14	5/8-18	1.69	0.18	
•C1HQ28	48X8X8	0.50	1/2-14	3/4-16	1.81	0.18	
•C1HQ12	48X10	0.63	1/2-14	7/8-14	2.00	0.19	
•C1HQ14	48X12	0.75	1/2-14	1-1/16-14	2.18	0.29	
•C1HQ15	48X12X12	0.75	3/4-14	1-1/16-14	2.18	0.33	



248 / 2000
Male Pipe / Male 45° Flare

Catalog Part No.	Model Number	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1FH18	NPACR-10-256	0.25	1/4-18	7/16-20	1.12	0.04	
C1AU23	2000-4-6B	0.38	1/4-18	5/8-18	1.44	0.07	
•C1BG39	248X4X6	0.25	3/8-18	7/16-20	1.25	0.06	
•C1BG43	248X5X6	0.31	3/8-18	1/2-20	1.38	0.07	
•C1FH20	NPACR-10-264	0.38	3/8-18	5/8-18	1.38	0.11	
•C1FH21	NPACR-10-268	0.50	3/8-18	3/4-16	1.56	0.06	
C1AU27	2000-8-8B	0.50	1/2-14	3/4-16	1.81	0.15	
•C1BG49	248X8X12	0.50	3/4-14	3/4-16	1.75	0.18	
•C1BG31	248X10X12	0.63	3/4-14	7/8-14	1.88	0.19	

NP Models: Nickel Plated.
Note: 2000 is Aeroquip® model.

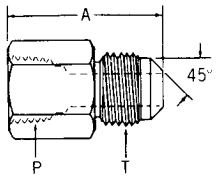


46
Male 45° Flare / Female Pipe

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	L (in)	Wt.	Price Each
•C1HP95	46X4	0.25	1/8-27	7/16-20	1.03	0.04	
•C1HP96	46X4X4	0.25	1/4-18	7/16-20	1.25	0.06	
•C1HP98	46X6	0.38	1/4-18	5/8-18	1.31	0.08	
•C1HP99	46X6X6	0.38	3/8-18	5/8-18	1.38	0.10	
•C1HQ11	46X8	0.50	3/8-18	3/4-16	1.50	0.11	

Adapters

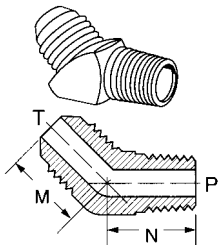
Brass
Pipe to 45° Flare



246 / 2001
Female Pipe / Male 45° Flare

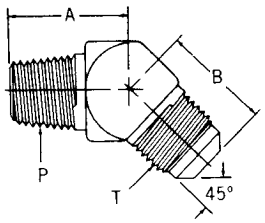
Catalog Part No.	Model Number	Tube O.D. (in)	Thread P	Thread T	A (in)	Wt.	Price Each
•C1BG20	246X3	0.19	1/8-27	3/8-24	0.97	0.01	
•C1BG24	246X5X4	0.31	1/4-18	1/2-20	1.28	0.04	
•C1BG29	246X8X8	0.50	1/2-14	3/4-16	1.44	0.09	
•C1FE71	246X10	0.63	1/2-14	7/8-14	1.62	0.16	

NP Models: Nickel Plated.
Note: 2001 is Aeroquip® model.



54
Male 45° Flare / Male Pipe 45° Elbow

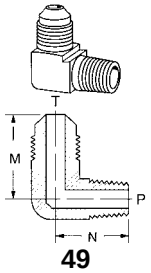
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HQ54	54X4	0.25	1/8-27	7/16-20	0.67	0.64	0.04	
•C1HQ56	54X6	0.38	1/4-18	5/8-18	0.89	0.86	0.11	
•C1HQ57	54X8	0.50	3/8-18	3/4-16	1.06	0.95	0.17	
•C1HQ58	54X8X8	0.50	1/2-14	3/4-16	1.12	1.17	0.23	
•C1HQ53	54X10	0.63	1/2-14	7/8-14	1.23	1.17	0.26	



254 / 2007
Male Pipe / Male 45° Flare 45° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1BH24	254X6X6	0.38	3/8-18	5/8-18	0.78	0.88	0.11	
•C1FJ99	254X12X12	0.75	3/4-14	1-1/16-14			0.30	

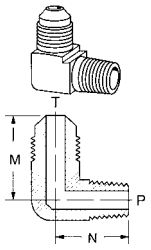
NP Models: Nickel Plated.
F Models: Models with F on end are Forged.



49
Male 45° Flare / Male Pipe 90° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HQ34	49X4	0.25	1/8-27	7/16-20	0.81	0.76	0.05	
•C1HQ37	49X5	0.31	1/8-27	1/2-20	0.91	0.78	0.06	
•C1HQ40	49X6X2	0.38	1/8-27	5/8-18	1.03	0.91	0.11	
•C1HQ35	49X4X4	0.25	1/4-18	7/16-20	0.88	0.94	0.07	
•C1HQ38	49X5X4	0.31	1/4-18	1/2-20	0.95	0.92	0.08	
•C1HQ39	49X6	0.38	1/4-18	5/8-18	0.97	1.06	0.11	

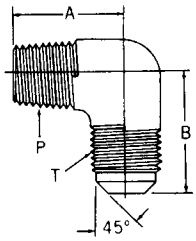
Brass
Pipe to 45° Flare



49

Male 45° Flare / Male Pipe 90° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HQ44	49X8X4	0.50	1/4-18	3/4-16	1.22	1.19	0.16	
•C1HQ36	49X4X6	0.25	3/8-18	7/16-20	0.94	1.03	0.13	
•C1HQ41	49X6X6	0.38	3/8-18	5/8-18	1.06	1.09	0.14	
•C1HQ43	49X8	0.50	3/8-18	3/4-16	1.22	1.12	0.19	
•C1HQ30	49X10X6	0.63	3/8-18	7/8-14	1.41	1.23	0.33	
•C1HQ42	49X6X8	0.38	1/2-14	5/8-18	1.16	1.28	0.24	
•C1HQ45	49X8X8	0.50	1/2-14	3/4-16	1.26	1.36	0.27	
C1HQ29	**49X10**	0.63	1/2-14	7/8-14	1.41	1.38	0.28	
•C1HQ31	49X12	0.75	1/2-14	1-1/16-14	1.62	1.50	0.45	
•C1HQ32	49X12X12	0.75	3/4-14	1-1/16-14	1.59	1.62	0.56	

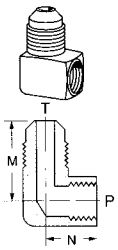


249 / 2003

Male Pipe / Male 45° Flare 90° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Thread P	Thread T	A (in)	B (in)	Wt.	Price Each
•C1FG88	NP10-294F	0.38	1/4-18	5/8-18	0.88	1.0	0.09	
•C1FQ69	249X5X6	0.38	3/8-18	1/2-20			0.08	
•C1FG90	NP10-299F	0.50	3/8-18	3/4-16	1.12	1.22	0.14	
•C1BG61	249X4X8	0.25	1/2-14	7/16-20			0.10	
•C1BG69	249X8X12	0.50	3/4-14	3/4-16			0.21	
•C1BG53	249X10X12	0.63	3/4-14	7/8-14			0.23	

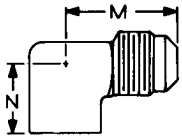
NP Models: Nickel Plated.
Note: Models with F on end are Forged.
Note: 2003 is Aeroquip® model.



50

Male 45° Flare / Female Pipe 90° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HQ48	50X4	0.25	1/8-27	7/16-20	0.88	0.47	0.06	
•C1HQ50	50X6	0.38	1/4-18	5/8-18	1.09	0.69	0.15	



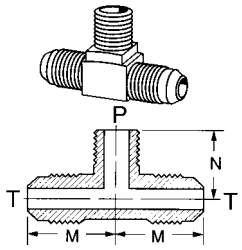
250

Female Pipe / Male 45° Flare 90° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	Tube Thread	M (in)	N (in)	Wt.	Price Each
•C1FE75	250X8X8	0.50	1/2-14	3/4-16			0.15	

Adapters

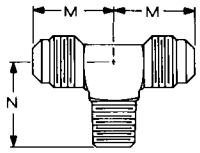
Brass
Pipe to 45° Flare



45

Male 45° Flare / Male Pipe / Male 45° Flare Tee

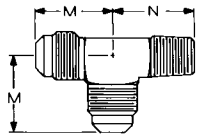
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	Thread T	M (in)	N (in)	Wt.	Price Each
•C1HP94	45X4	0.25	1/8-27	7/16-20	0.81	0.78	0.07	



245

Male 45° Flare / Male Pipe / Male 45° Flare Tee

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	Tube Thread	M (in)	N (in)	Wt.	Price Each
•C1BG15	245X6	0.38	1/4-18	5/8-18	1.0	1.06	0.11	

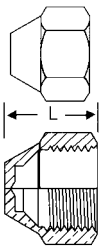


251

Male 45° Flare / Male 45° Flare / Male Pipe Tee

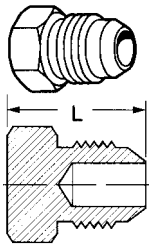
Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	Tube Thread	M (in)	N (in)	Wt.	Price Each
•C1BH13	251X6	0.38	1/4-18	5/8-18			0.10	

Brass
45° Flare Union



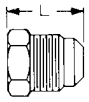
40
45° Flare Cap

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HP77	40X4	0.25	0.53	0.02	
•C1HP79	40X6	0.38	0.69	0.05	
•C1HP80	40X8	0.50	0.84	0.06	
•C1HP75	40X10	0.63	0.97	0.10	
•C1HP76	40X12	0.75	1.09	0.18	



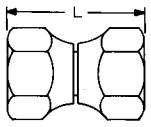
39
45° Flare Plug

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HP65	39X4	0.25	0.69	0.02	
•C1HP66	39X6	0.38	0.88	0.06	
•C1HP67	39X8	0.50	1.06	0.09	
•C1HP63	39X10	0.63	1.19	0.13	
•C1HP64	39X12	0.75	1.31	0.22	



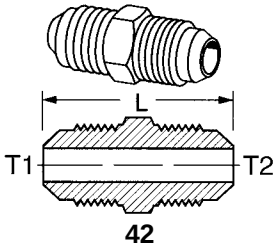
2229
45° Flare Plug

Catalog Part No.	Model Number	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1BC95	2229X5	0.31	1/2-20		0.03	



1350
Female 45° Flare Union

Catalog Part No.	Model Number	Tube O.D. (in)	Thread T	L (in)	Wt.	Price Each
•C1AK46	1350X6	0.38	5/8-18	1.50	0.15	
•C1AK45	1350X10	0.63	7/8-14	2.0	0.20	

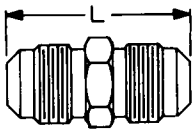


42
Male 45° Flare Union

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread T1	Tube O.D. (in)	Thread T2	L (in)	Wt.	Price Each
•C1HP88	42X4	1/4	7/16-20	1/4	7/16-20	1.19	0.03	
•C1HP89	42X5	5/16	1/2-20	5/16	1/2-20	1.34	0.05	
•C1HP90	42X6	3/8	5/8-18	3/8	5/8-18	1.50	0.09	
•C1HP91	42X8	1/2	3/4-16	1/2	3/4-16	1.81	0.14	
C1HP86	**42X10**	5/8	7/8-14	5/8	7/8-14	2.12	0.21	

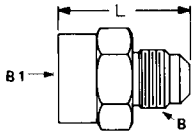
Adapters

Brass
45° Flare Union



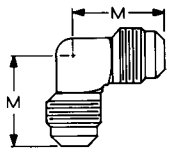
242
Male 45° Flare Union

Catalog Part No.	Model Number	Tube O.D. (in)	Tube Thread	Tube O.D.	Tube Thread	L (in)	Wt.	Price Each
•C1ZY79	242X5X4	0.31	1/2-20	0.25	7/16-20	1.28	0.04	
•C1EN22	242X6X4	0.38	5/8-18	0.25	7/16-20	1.38	0.06	
•C1EX64	242X6X5	0.38	5/8-18	0.31	1/2-20		0.07	
•C1BF92	242X8X6	0.50	3/4-16	0.38	5/8-18	1.69	0.12	
•C1ZU15	242X12X10	0.75	1-1/16-14	0.63	7/8-14		0.30	
•C1BF86	242X12	0.75	1-1/16-14	0.75	1-1/16-14	2.44	0.35	



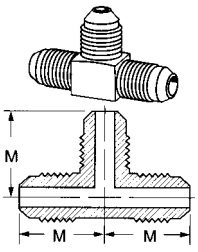
2274
Female 45° Flare / Male 45° Flare

Catalog Part No.	Model Number	Tube O.D. (in)	Thread B1	Tube O.D.	Thread B	L (in)	Wt.	Price Each
•C1BD87	2274X6	0.25	7/16-20	0.38	5/8-18	1.12	0.07	
•C1BD89	2276X8	0.38	5/8-18	0.50	3/4-16	1.41	0.12	
•C1BD90	2278X6	0.50	3/4-16	0.38	5/8-18	1.44	0.20	



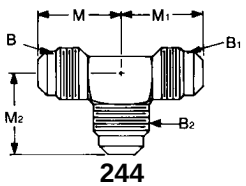
255
Male 45° Flare / Male 45° Elbow 90° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Thread	M (in)	Wt.	Price Each
•C1BH39	255X6	0.38	5/8-18	1.06	0.08	



44
Male 45° Flare Tee

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread	M (in)	Wt.	Price Each
•C1HP92	44X4	0.25	7/16-24	0.86	0.08	

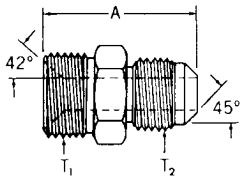


244
Male 45° Flare Tee

Catalog Part No.	Model Number	Tube O.D. B (in)	Tube O.D. B1	Tube O.D. B2	M (in)	M1 (in)	M2 (in)	Wt.	Price Each
C1BG11	244X5	0.31	0.31	0.31	0.91	0.91	0.91	0.09	
•C1BG12	244X6	0.38	0.38	0.38	1.06	1.06	1.06	0.13	

NP Models: Nickel Plated.
F Models: Models with F on end are Forged.

Brass
42° Inverted Flare to 45° Male Flare



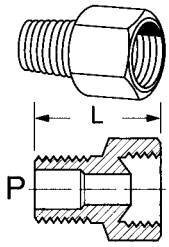
200001

Male 42° Inverted Flare / Male 45° Flare

Catalog Part No.	Aeroquip Model	Tube O.D. (in)	Thread T1	Thread T2	A (in)	Wt.	Price Each
•C1AU29	200001-4-4B	0.25	7/16-24	7/16-20	1.09	0.03	
•C1AU31	200001-5-4B	0.25	1/2-20	7/16-20	1.10	0.03	
•C1AU32	200001-5-6B	0.38	1/2-20	5/8-18	1.25	0.07	
•C1AU33	200001-6-6B	0.38	5/8-18	5/8-18	1.28	0.08	
•C1AU34	200001-7-6B	0.38	11/16-18	5/8-18	1.43	0.10	
•C1AU35	200001-8-8B	0.50	3/4-18	3/4-16	1.56	0.13	
•C1AU28	200001-10-10B	0.63	7/8-18	7/8-14	1.76	0.17	

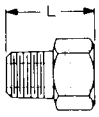
Adapters

Brass
42° Inverted Flare to Pipe



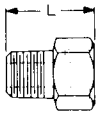
202
Male Pipe / Female 42° Inverted Flare

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	Wt.	Price Each
•C1HN58	202X3	3/16	1/8-27	0.70	0.02	
•C1HN59	202X4	1/4	1/8-27	0.74	0.02	
•C1HN60	202X5	5/16	1/8-27	0.79	0.03	
•C1HD39	202X4X4	0.25	1/4-18	0.89	0.04	
•C1HH75	202X5X4	0.31	1/4-18	0.98	0.05	
•C1HN61	202X6X6	3/8	3/8-18	1.01	0.08	
•C1HN62	202X8	1/2	3/8-18	1.07	0.09	



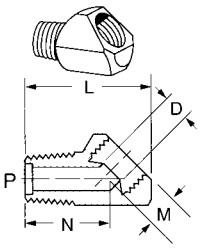
2200
Male Pipe / Female 42° Inverted Flare

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	L (in)	Wt.	Price Each
•C1EN16	2200X6	0.38	1/4-18	1.02	0.06	



2202
Male Pipe / Female 42° Inverted Flare
(Heavy Series)

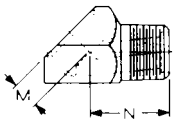
Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	L (in)	Wt.	Price Each
•C1BC99	2232X6	0.38	1/8-27	0.88	0.01	



352
Male Pipe / Female 42° Inverted Flare
45° Elbow

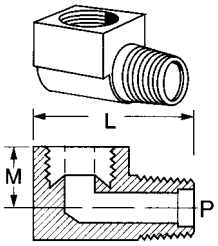
Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	M (in)	Wt.	Price Each
•C1HP43	352X4	1/4	1/8-27	0.94	0.27	0.03	
•C1HP45	352X6	3/8	1/4-18	1.34	0.41	0.08	

Brass
42° Inverted Flare to Pipe



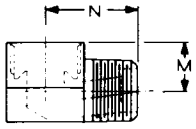
2352
Female 42° Inverted Flare / Male Pipe 45° Elbow

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	M (in)	N (in)	Wt.	Price Each
•C1BF17	2352X8	0.50	.375	0.38	0.91	0.20	



402
Female 42° Inverted Flare / Male Pipe 90° Elbow

Catalog Part No.	Eaton Model	Tube O.D. (in)	Thread P	L (in)	M (in)	Wt.	Price Each
•C1HP68	402X3	3/16	1/8-27	0.85	0.27	0.03	
•C1HP69	402X4	1/4	1/8-27	0.92	0.33	0.04	
•C1HP70	402X5	5/16	1/8-27	0.98	0.47	0.05	
•C1HJ22	402x4x4	1/4	1/4-18	1.09	0.28	0.06	
•C1HD85	402X5X4	0.31	1/4-18	0.45		0.07	
•C1HP71	402X6	3/8	1/4-18	1.32	0.53	0.10	
•C1HP73	402X8	1/2	3/8-18	1.48	0.59	0.16	
•C1HP74	402X8X8	1/2	1/2-14	1.67	0.66	0.25	

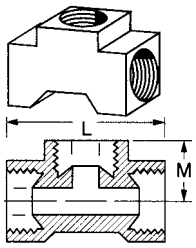


2402
Female 42° Inverted Flare / Male Pipe 90° Elbow (Heavy Series)

Catalog Part No.	Model Number	Tube O.D. (in)	Pipe Thread	M (in)	N (in)	Wt.	Price Each
•C1ZY80	2402X10	0.63	1/2-14			0.15	

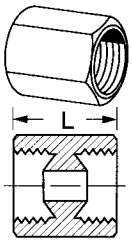
Adapters

Brass
42° Inverted Flare Unions & Accessories



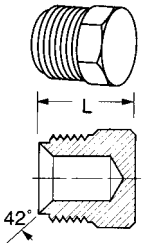
702
Female 42° Inverted Flare Union Tee

Catalog Part No.	Eaton Model	Tube O.D.	L (in)	M (in)	Wt.	Price Each
C1GY27	IG702X3	3/16	1.09	0.39	0.05	
•C1HE19	702X4	1/4	1.13	0.42	0.05	



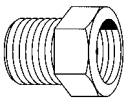
302
Female 42° Inverted Flare Union

Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HD71	302X4	1/4	0.62	0.02	
•C1HN73	302X5	5/16	0.70	0.03	
•C1HD72	302X6	3/8	0.80	0.07	



131
Male 42° Inverted Flare Plug (Steel)

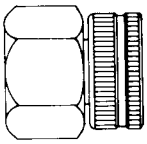
Catalog Part No.	Eaton Model	Tube O.D. (in)	L (in)	Wt.	Price Each
•C1HM67	131X3	3/16	0.53	1.00	
•C1HM68	131X4	1/4	0.54	0.02	
•C1HM69	131X5	5/16	0.59	0.02	
•C1HM70	131X6	3/8	0.66	0.04	



7818
Male x Female 42° Inverted Flare

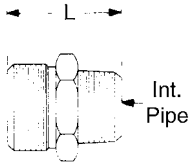
Catalog Part No.	Model Number	Male Thread	Female Thread	Wt.	Price Each
•C1FK27	7818	7/16-24	3/16	0.03	

Brass
Garden Hose Adapters



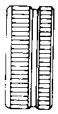
21517
Female Pipe / Female Hose Swivel

Catalog Part No.	Model Number	Straight Thread	Pipe Thread	Wt.	Price Each
•C1BC39	21517X12X8	3/4-11-1/2	1/2-14	0.13	
•C1ZY86	21517X12X12	3/4-11-1/2	3/4-16	0.13	



21502
Male Hose / Male & Female Pipe

Catalog Part No.	Model Number	Straight Thread	External Pipe Thread	Internal Pipe Thread	L (in)	Wt.	Price Each
•C1FE68	21502X12X12X8	3/4-11-1/2	3/4-14	1/2-14	1.31	0.16	



21518
Hose Cap

Catalog Part No.	Model Number	Straight Thread	Wt.	Price Each
•C1EN15	21518X12	3/4-11-1/2	0.06	

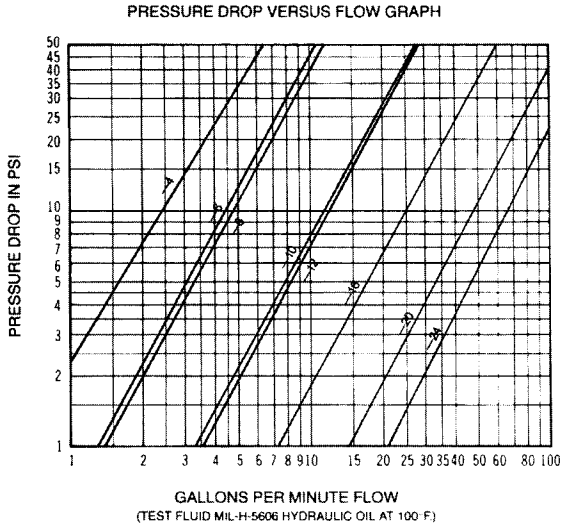
Quick Disconnects

Fluid Transfer & Hydraulic
5100 Series - Low Spill Connect Under Pressure

The 5100 Series brass coupling with steel tubular valve offers minimum air inclusion and fluid loss. Thread together latch provides connect under pressure capability and vibration resistance. It is not rated for continuous hydraulic impulse applications.

Features: Tubular valve construction for virtually no fluid loss during disconnection, reduces environmental and worker safety hazards • Low air inclusion during connection maintains system performance • Available with wing or hex nut configurations • Connect against pressure capability allows connecting of halves even when pressurizing up to 500 psi • Steel flange available for accessible bulkhead mounting • Standard seal material - Buna-N, Viton® and EPR • Standard body material - Brass with steel valving components, hex and wing nuts.

Flow Data

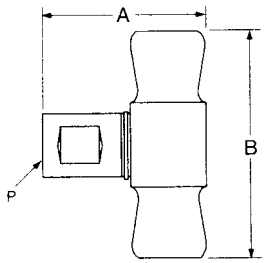


Physical Characteristics

Coupling Dash Size	Coupling Interface Size	Maximum Operating Pressure† (psi connected)	Maximum Operating Pressure (psi disconnected)	
			Male Half S2 and S4	Female Half S5
–4	–4	3000	3000	3000
–6	–8	3000	3000	3000
–8	–8	3000	3000	3000
–10	–12	3000	3000	3000
–12	–12	3000	3000	3000
–16	–16	3000	3000	3000
–20	–20	2750	2500	2750
–24	–24	2500	2500	2000

Coupling Dash Size	Coupling Interface Size	Vacuum (in./Hg.)	Rated Flow (gpm)	Air Inclusion (cc max.)	Fluid Loss (cc max.)
–4	–4	28	4	.03	.01
–6	–8	28	7	.05	.06
–8	–8	28	7	.05	.10
–10	–12	28	18	.14	.10
–12	–12	28	18	.34	.26
–16	–16	28	40	.50	.35
–20	–20	28	75	.68	.70
–24	–24	28	100	.60	.94

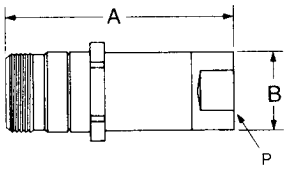
†Minimum burst pressure is equal to three times the maximum operating pressure.
Not recommended for continuous hydraulic impulse applications at maximum operating pressures.



5100-S5
Female Half - Wing Nut
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1BS59	5100-S5-10B	-10	1/2-14	Buna-N	3.09	4.06	1.26	
C1BS60	**5100-S5-12B**	-12	3/4-14	Buna-N	3.09	4.06	1.18	
C1BS61	**5100-S5-16B**	-16	1-11-1/2	Buna-N	3.67	4.38	1.82	
•C1BS62	5100-S5-20B	-20	1-1/4-11-1/2	Buna-N	3.98	5.19	2.69	
•C1BS63	5100-S5-24B	-24	1-1/2-11-1/2	Buna-N	4.02	5.31	3.30	

Fluid Transfer & Hydraulic
5100 Series - Low Spill Connect Under Pressure



5100-S2
Male Half Less Flange
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1BS53	5100-S2-10B	-10	1/2-14	Buna-N	3.11	1.38	0.89	
C1BS54	**5100-S2-12B**	-12	3/4-14	Buna-N	3.11	1.38	0.79	
C1BS55	**5100-S2-16B**	-16	1-11-1/2	Buna-N	3.55	1.76	1.33	
•C1BS56	5100-S2-20B	-20	1-1/4-11-1/2	Buna-N	3.71	2.10	1.64	
•C1BS57	5100-S2-24B	-24	1-1/2-11-1/2	Buna-N	4.12	2.48	2.60	

5100-S7
Dust Cap with Chain

Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1BS65	5100-S7-12	-10, -12	0.32	
•C1BS66	5100-S7-16	-16	0.39	
•C1BS67	5100-S7-20	-20	0.48	
•C1BS68	5100-S7-24	-24	0.60	

5100-S9
Dust Plug with Chain

Catalog Part No.	Aeroquip Model	Coupling Size	Wt.	Price Each
•C1BS69	5100-S9-12	-10, -12	0.40	
•C1BS70	5100-S9-16	-16	0.53	
•C1BS71	5100-S9-20	-20	0.57	
•C1BS72	5100-S9-24	-24	1.01	

Quick Disconnects

Fluid Transfer & Hydraulic
HK Series (Stainless Steel) - Industrial Interchange Series B

The HK Series stainless steel general purpose industrial interchange coupling is available valved or non-valved. They are offered in 303/304 grades of stainless steel for excellent corrosion resistance in rugged applications.

Features: Stainless steel construction for greater corrosion resistance and fluid compatibility • Industrial interchange coupling conforming dimensionally to ISO standard 7241/1 Series B • PUSH-PULL™ ball latch design allows quick and easy connection of hose lines • Self-sealing poppet valve design provides excellent high and low pressure sealing • Standard seal material - Buna N, EPR and Viton® • Standard body material - Stainless steel.

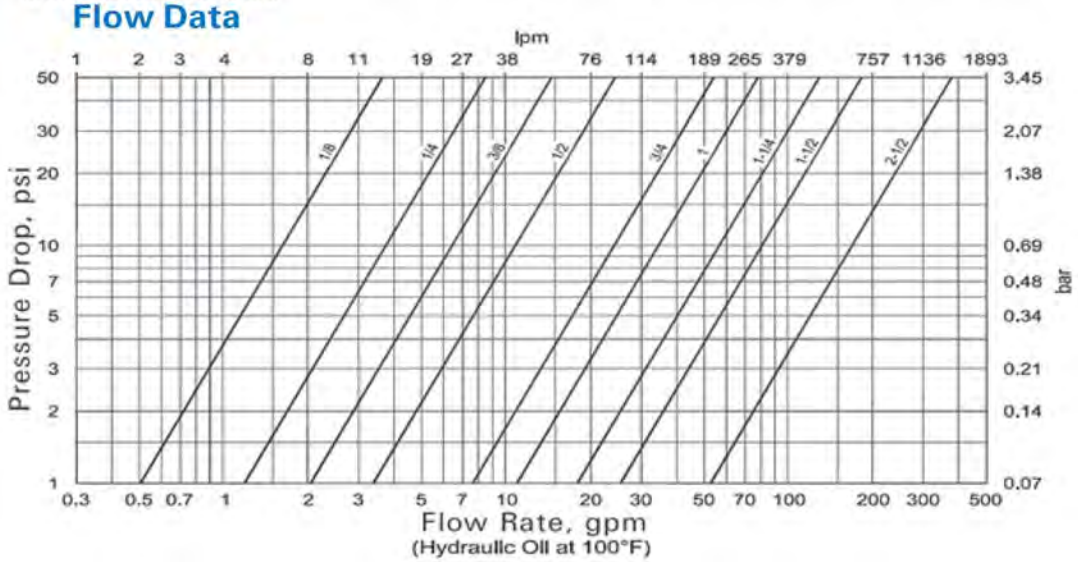
Seal Elastomer Date: Maximum Operation Temperature Range: Buna-N -40°F to +250°F; Neoprene -65°F to +212°F; EPDM (Ethylene Propylene Rubber) -65°F to +300°F; FKM C/-15°F to +400°F

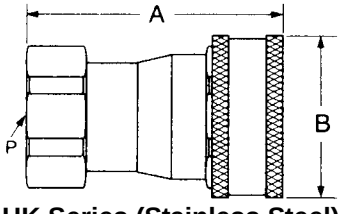
Physical Characteristics

Series	Body Size	ISO Size	Nominal Flow Diameter	Max. Operating Pressure		Rated Flow		Air Inclusion	Fluid Loss
	(in)	(mm)	(mm)	(bar)	(psi)	(lpm)	(gpm)	cc. max.	cc. max.
1HK	⅛	5	4.4	344	5,000	3	0.8	0.6	0.5
2HK	¼	6.3	5.9	255	3,700	12	3	1.2	0.9
3HK	⅜	10	7.8	255	3,700	23	6	2.9	2.1
4HK	½	12.5	10	293	4,250	45	12	3.6	3.5
6HK	¾	20	17	242	3,500	100	26	11.5	9.3
8HK	1	25	19.6	207	3,000	189	50	18.0	16.9
10HK	1¼**	-	26.7	118	1,700	288	76	48.0	48.0
12HK	1½	40	35.1	152	2,200	375	99	91.3	91.3
20HK	2½	50	46	104	1,500	757	200	209.9	209.9

* For questions related to vacuum please contact Eaton.
** No ISO Standard available for the 10HK

Flow Data

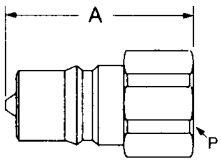




HK Series (Stainless Steel)
Female Half,
FemalePipe-Valved

Catalog Part No.	Hansen Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1KY64	LL2H16	-04	1/4-18	Buna-N	2.26	1.14	0.28	
•C1KW34	LL3H21	-06	3/8-18	Buna-N	2.56	1.42	0.43	
•C1KW35	LL4HP26	-10	1/2-14	Buna-N	2.96	1.86	0.85	
•C1KY66	LL8HP36	-16	1-11-1/2	Buna-N	4.13	2.61	2.30	

Fluid Transfer & Hydraulic
HK Series (Stainless Steel) - Industrial Interchange Series B



HK Series (Stainless Steel)
Male Half
Female Pipe - Valved

Catalog Part No.	Aeroquip Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1LC69	LL2K16	-04	1/4-18	Buna-N	1.52	0.08	
•C1KY65	LL3K21	-06	3/8-18	Buna-N	1.76	0.35	
•C1LC70	LL4KP26	-08	1/2-14	Buna-N	2.03	0.26	
•C1KZ47	LL6KP31	-12	3/4-14	Buna-N	2.36	0.41	

Quick Disconnects

Fluid Transfer & Hydraulic
HK Series (Brass) - Industrial Interchange Series B

Eaton's HK brass is a general purpose industrial interchange coupling available in valved or non-valved designs, offered in brass for excelllent corrosion resistance in rugged applications where stainless steel is unacceptable. The HK Series features a ball latch mechanism with automatic self-sealing poppet valves.

Features: Meets dimensional requirements to ISO standard 7241-1 Series B • Brass construction with stainless steel springs for greater corrosion resistance and fluid compatibility • Self-sealing poppet valves provide excellent high and low pressure sealing • Standard seal material: Buna-N • Seal options available in PTFE, Neoprene, FKM, EPDM, and Kalrez®

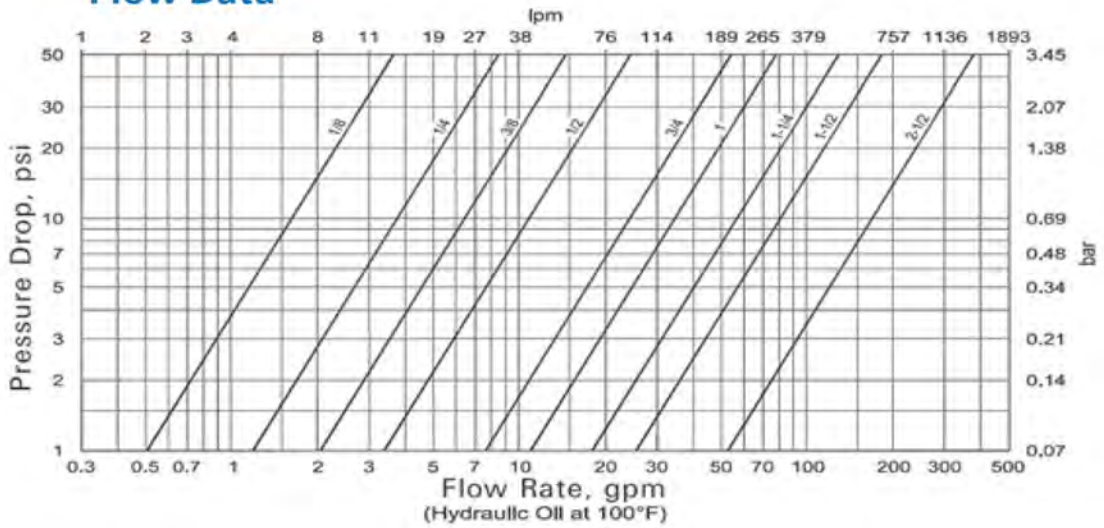
Seal Elastomer Date: Maximum Operation Temperature Range: Buna-N -40°F to +250°F; Neoprene -65°F to +212°F; EPDM (Ethylene Propylene Rubber) -65°F to +300°F; FKM C/-15°F to +400°F

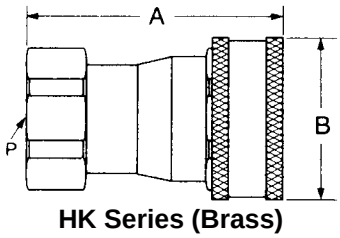
Physical Characteristics

Series	Body Size	ISO Size	Nominal Flow Diameter	Max. Operating Pressure		Rated Flow		Air Inclusion	Fluid Loss
	(in)	(mm)	(mm)	(bar)	(psi)	(lpm)	(gpm)	cc. max.	cc. max.
1HK	⅛	5	4.4	207	3,000	3	0.8	0.6	0.5
2HK	¼	6.3	5.9	186	2,700	12	3	1.2	0.9
3HK	⅜	10	7.8	152	2,200	23	6	2.9	2.1
4HK	½	12.5	10	155	2,250	45	12	3.6	3.5
6HK	¾	20	17	138	2,000	100	26	11.5	9.3
8HK	1	25	19.6	103	1,500	189	50	18.0	16.9
10HK	1¼**	-	26.7	83	1,200	288	76	48.0	48.0
12HK	1½	40	35.1	104	1,500	375	99	91.3	91.3
20HK	2½	50	46	49	700	757	200	209.9	209.9

*For questions related to vacuum please contact Eaton.
** No ISO Standard available for the 10HK

Flow Data

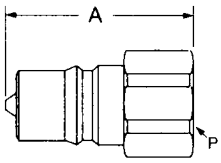




HK Series (Brass)
Female Half, Female Pipe-Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	B (in)	Wt.	Price Each
•C1MM65	B1H11	-02	1/8-27	Buna-N	1.91	0.98		
•C1KV77	B2H16	-04	1/4-18	Buna-N	2.26	1.14	0.29	
•C1KY51	B3H21	-06	3/8-18	Buna-N	2.56	1.42	1.30	
•C1KV79	B4HP26	-08	1/2-14	Buna-N	2.96	1.86	0.90	
•C1KY53	B6HP31	-12	3/4-14	Buna-N	3.48	2.22	1.46	
C1KY55	B8HP36	-16	1 - 11-1/2	Buna-N	4.13	2.61	2.42	

Fluid Transfer & Hydraulic
HK Series (Brass) - Industrial Interchange Series B



HK Series (Brass)
Male Half
Female Pipe - Valved

Catalog Part No.	Eaton Model	Coupling Size	Thread Size (P)	Seal Material	A (in)	Wt.	Price Each
•C1MK39	B1K11	-02	1/8-27	Buna-N	1.26	0.04	
•C1KV78	B2K16	-04	1/4-18	Buna-N	1.52	0.07	
•C1KY52	B3K21	-06	3/8-18	Buna-N	1.76	0.60	
•C1KV80	B4KP26	-08	1/2-14	Buna-N	2.03	0.29	
•C1KY54	B6KP31	-12	3/4-14	Buna-N	2.36	0.44	

Pipe Fittings

Brass

Hex Bushing

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET67	44-511	1 x 3/8	0.26	
•C1ET68	44-512	1 x 1/2	0.21	
•C1ET69	44-513	1 x 3/4	0.18	
•C1ET70	44-516	1-1/4 x 1/2	0.37	
•C1ET71	44-517	1-1/4 x 3/4	0.35	
•C1ET72	44-518	1-1/4 x 1	0.36	
•C1ET73	44-522	1-1/2 x 3/4	0.51	
•C1ET74	44-523	1-1/2 x 1	0.61	
•C1ET75	44-524	1-1/2 x 1-1/4	0.40	
•C1ET76	44-528	2 x 3/4	0.91	
•C1ET77	44-529	2 x 1	0.85	
•C1ET78	44-530	2 x 1-1/4	0.74	
•C1ET79	44-531	2 x 1-1/2	0.61	

Coupling

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET55	44-415	1	0.44	
•C1ET56	44-416	1-1/4	0.56	
•C1ET57	44-418	2	1.06	

90° Elbow

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET43	44-105	1	0.63	
•C1ET44	44-106	1-1/4	1.13	

90° Street Elbow

Catalog Part No.	Model Number	Size	Nickel Plated	Wt.	Price Each
•C1HD90	44-164	3/4	No	0.36	
•C1ET47	44-165	1	No	0.59	
•C1ET48	44-166	1-1/4	No	1.12	
•C1ET49	44-167	1-1/2	No	1.39	
•C1ET50	44-168	2	No	1.76	

Tee

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET51	44-255	1	0.84	
•C1ET53	44-257	1-1/2	1.66	
•C1ET54	44-258	2	2.72	

Square Head Plug

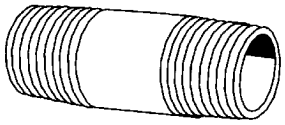
Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET80	44-655	1	0.21	
•C1ET81	44-656	1-1/4	0.32	
•C1ET83	44-658	2	0.59	

Cap

Catalog Part No.	Model Number	Size	Wt.	Price Each
•C1ET58	44-470	1/8	0.03	
•C1ET61	44-473	1/2	0.13	
•C1ET62	44-474	3/4	0.16	
•C1ET63	44-475	1	0.31	
C1ET64	44-476	1-1/4	0.53	

Brass

Brass Pipe Nipples



Brass Pipe Nipples

Catalog Part No.	Model Number	Thread	Length	Wt.	Price Each
•C1AF82	1/8XCLOSE-B	1/8-27	0.75	0.03	
•C1AF64	1/8X1-1/2-B	1/8-27	1.50	0.03	
•C1AF68	1/8X2-1/2-B	1/8-27	2.50	0.05	
•C1AF79	1/8X6-B	1/8-27	6.00	0.12	
•C1AF54	1/4XCLOSE-B	1/4-18	1.00	0.05	
•C1AF31	1/4X1-1/2-B	1/4-18	1.50	0.05	
•C1AF42	1/4X2-B	1/4-18	2.00	0.06	
•C1AF40	1/4X2-1/2-B	1/4-18	2.50	0.08	
•C1AF45	1/4X3-B	1/4-18	3.00	0.10	
•C1AF50	1/4X4-B	1/4-18	4.00	0.14	
•C1BL25	3/8XCLOSE-B	3/8-18	1.00	0.04	
•C1BL11	3/8X2-1/2-B	3/8-18	2.50	0.50	
•C1FA64	3/8X5-B	3/8-18	5.00	0.24	
•C1AF18	1/2XCLOSE-B	1/2-14	1.13	0.06	
•C1AE81	1/2X1-1/2-B	1/2-14	1.50	0.09	
•C1AE88	1/2X2-B	1/2-14	2.00	0.13	
•C1AE91	1/2X3-1/2-B	1/2-14	3.50	0.24	
•C1AE98	1/2X4-1/2-B	1/2-14	4.50	0.29	
•C1AF15	1/2X6-B	1/2-14	6.00	0.42	
•C1ES99	40-080	3/4-14	1.38	0.11	
•C1ET11	40-081	3/4-14	1.50	0.11	
•C1ET12	40-082	3/4-14	2.00	0.18	
•C1ET14	40-084	3/4-14	3.00	0.27	
•C1ET15	40-086	3/4-14	4.00	0.38	
•C1ET18	40-100	1-11-1/2	1.50	0.16	
•C1ET19	40-101	1-11-1/2	2.00	0.19	
•C1ET20	40-103	1-11-1/2	3.00	0.38	
•C1ET21	40-105	1-11-1/2	4.00	0.50	
•C1ET22	40-107	1-11-1/2	5.00	0.60	
•C1ET31	40-140	1-1/2-11-1/2	2.00	0.33	
•C1ET32	40-141	1-1/2-11-1/2	2.00	0.40	
•C1ET35	40-145	1-1/2-11-1/2	4.00	0.91	

Swivel Joints

FS65 Series
Standard Duty Balanced Pressure

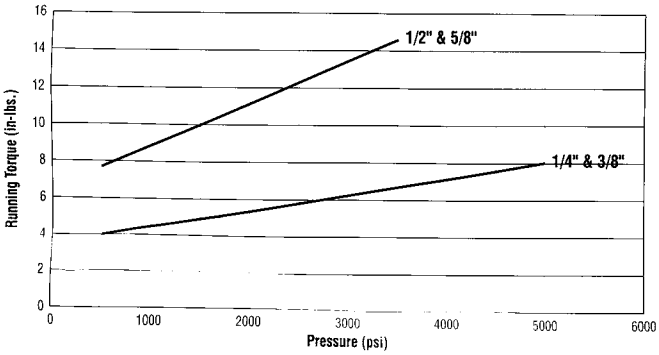
Aeroquip FS65 Balanced-Pressure Series swivel joints answer customer requests for a more cost competitive, compact product. They feature compact forged castings that are less expensive to manufacture than brazing castings. Their balanced-pressure design distributes pressure evenly through the body of the joints, eliminating axial loading of the sleeve. The pressure-balanced design allows the swivel joints to rotate with very low torque - even up to their rated operating pressure.

Features: Balanced-pressure design • Low-drop dimensions • Contamination seals • 360° rotation • Standard o-ring design and repair kits.

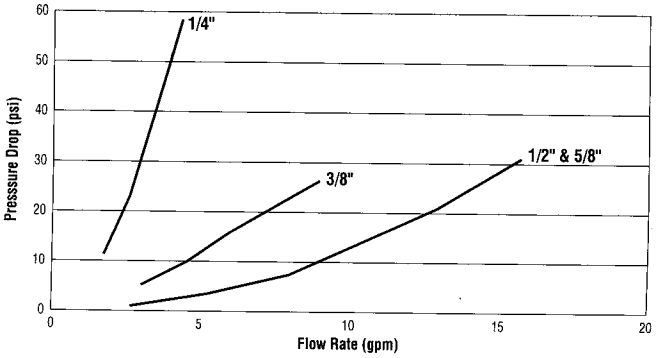
Pressure Ratings: 5000 PSI (Sizes 1/4 and 3/8), 3500 PSI (Sizes 1/2 and 5/8), 3500 PSI (Size 3/4), 3000 PSI (Size 1 inch).

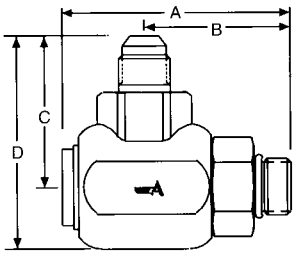
Seal Options: Suffix -01 Buna-N (Standard). Suffix -04 EPR. Suffix -06 Viton®.

RUNNING TORQUE vs. PRESSURE



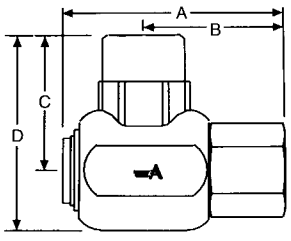
PRESSURE DROP vs. FLOW RATE





FS65009
Male 37° Flare / Male SAE O-Ring Boss

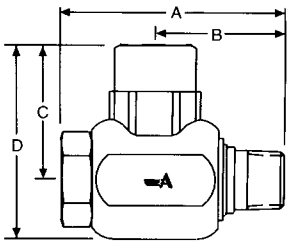
Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
•C1GF12	FS65009-1212-01	3/4	1-1/16-12	1-1/16-12	3.28	2.16	2.36	1.79	



FS65008
Female Pipe (Fixed) / Female Pipe

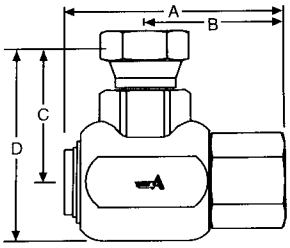
Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
•C1FH52	FS65008-0606-01	3/8	3/8-18	3/8-18	2.49	1.58	1.59	0.75	
•C1FH53	FS65008-0808-01	1/2	1/2-14	1/2-14	3.14	1.97	1.88	1.13	
•C1FK65	FS65008-1616-01	1	1-11-1/2	1-11-1/2	3.84	2.53	2.62	3.00	

FS65 Series
Standard Duty Balanced Pressure



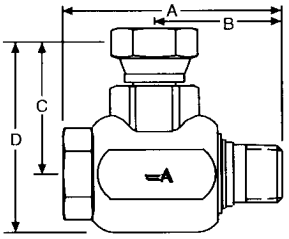
FS65007
Female Pipe / Male Pipe

Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
C1KL98	FS65007-0808-01	1/2	1/2-14	1/2-14	2.88	1.54	1.88	1.01	
C1FK64	FS65007-1616-01	1	1-11-1/2	1-11-1/2	3.91	2.27	2.62	3.04	



FS65005
Female Pipe Swivel / Female Pipe

Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
•C1FH49	FS65005-0808-01	1/2	1/2-14 NPSM	1/2-14	3.14	1.97	1.62	1.14	
•C1FH50	FS65005-1212-01	3/4	3/4-14 NPSM	3/4-14	3.21	2.08	2.14	1.87	



FS65000
Female Pipe Swivel / Male Pipe

Catalog Part No.	Aeroquip Model	Nom. Size	Casing Thread	Sleeve Thread	A (in)	B (in)	C (in)	Wt.	Price Each
•C1FH44	FS65000-0606-01	3/8	3/8-18 NPSM	3/8-18	2.53	1.48	1.45	0.75	
•C1FH45	FS65000-0808-01	1/2	1/2-14 NPSM	1/2-14	2.88	1.54	1.62	1.03	
•C1FH46	FS65000-1212-01	3/4	3/4-14 NPSM	3/4-14	3.21	1.89	2.14	1.86	
•C1FK62	FS65000-1616-01	1	1-11-1/2 NPSM	1-11-1/2	3.91	2.27	2.40	3.06	

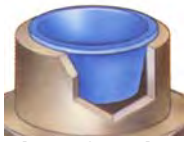
Support Clamps

Split Flange Caps
Natural
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Wt.	Price Each
•C1EJ67	Q-1	-08 Code 61	0.01	
•C1EJ69	Q-4	-16 Code 61	0.01	
•C1EJ71	Q-6	-24 Code 61	0.01	

Tear Caps For Pipe Threads
Blue
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Wt.	Price Each
•C1EJ92	Y-1/8	1/8 NPT	0.01	
•C1EJ91	Y-1/4	1/4 NPT	0.01	
•C1EJ95	Y-3/8	3/8 NPT	0.01	
C1EJ90	**Y-1/2**	1/2 NPT	0.01	
•C1EJ94	Y-3/4	3/4 NPT	0.01	
•C1EJ87	Y-1	1 NPT	0.01	
•C1EJ89	Y-1-1/4	1-1/4 NPT	0.01	
•C1EJ88	Y-1-1/2	1-1/2 NPT	0.01	
•C1EJ93	Y-2	2 NPT	0.01	



Tapered Plugs for Pipe Threads
Blue
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Wt.	Price Each
•C1EJ62	P-8	1/8 NPT	0.01	
•C1EJ55	P-17	3/8 NPT	0.01	
•C1EJ56	P-23	1/2 NPT	0.01	
•C1EJ57	P-31	3/4 NPT	0.50	
•C1EJ58	P-42	1 NPT	0.01	
•C1EJ59	P-53	1-1/4 NPT	0.01	
•C1EJ61	P-68	2 NPT	0.01	

Caps For O-Ring Face Fittings
Blue
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Fits Thread Size	Wt.	Price Each
•C1FQ99	OR-16	1-7/16-12 (-16 O-Ring Face Seal)	0.01	
•C1FK85	OR-20	1-11/16-12 (-20 O-Ring Face Seal)	0.01	

Threaded Plugs For Flared Fittings
Red
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Threads	Wt.	Price Each
•C1EJ75	T-3	-04 JIC / -04 SAE	7/16-20	0.01	
•C1EJ76	T-4	-05 JIC / -05 SAE	1/2-20	0.01	
•C1EJ77	T-5	-06 JIC	9/16-18	0.01	
•C1EJ78	T-6	-06 SAE	5/8-18	0.01	
C1EJ79	**T-7**	-08 JIC / -08 SAE	3/4-16	0.01	
•C1EJ80	T-8	-10 JIC / -10 SAE	7/8-14	0.01	
C1EJ81	**T-9**	-12 JIC	1-1/16-12	0.01	
•C1EJ73	T-10	-12 SAE	1-1/16-14	0.02	
C1EJ74	**T-12**	-16 JIC	1-5/16-12	0.01	
C1EJ64	**PD-200**	-20 JIC	1-5/8-12	0.30	
•C1EJ65	PD-240	-24 JIC	1-7/8-12	0.01	
•C1EJ66	PD-320	-32 JIC	2-1/2-12	0.01	

Threaded Caps For Flared Fittings
Blue
Grade 1 Virgin Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Threads	Wt.	Price Each
•C1EJ46	G-2	-04 JIC / -04 SAE	7/16-20	0.01	
•C1EJ51	G-5	-05 JIC / -05 SAE	1/2-20	0.01	
•C1EJ52	G-8	-06 JIC	9/16-18	0.01	
•C1EJ53	G-9	-06 SAE	5/8-18	0.01	
C1EJ44	**G-14**	-08 JIC / -08 SAE	3/4-16	0.01	
•C1EJ45	G-17	-10 JIC / -10 SAE	7/8-14	0.01	
•C1EJ47	G-22	-12 JIC	1-1/16-12	0.50	
•C1EJ48	G-23	-12 SAE	1-1/16-14	0.01	
•C1EJ49	G-27	-16 JIC	1-5/16-12	0.01	
•C1EJ50	G-30	-20 JIC	1-5/8-12	0.01	

Bolted Flange Protectors
Code 61 Blue / Code 62 Red
Low Density Polyethylene

Catalog Part No.	Alliance Plastics Model	Size	Wt.	Price Each
•C1EJ37	BFP-1	-16 Code 61	0.01	
•C1EJ38	BFP-1-1/2	-24 Code 61	0.01	
C1LY62	BFP-3A	-48 Code 61	0.10	

Hose, Tube & Pipe Cleaning System

Hose/Tube Cleaning Guns & Projectiles

System consists of an air-operated gun-like launcher that cleans hoses, tubes and pipes in seconds. The launcher fires a soft projectile that is sized approximately 20% larger than the inside diameter of the product being cleaned. The projectile strips out the internal contamination or residue as it travels through the product, around bends and through couplings. Interchangeable nozzles handle the wide variety of projectile sizes.

Applications: Hydraulic and pneumatic lines, fuel lines, food and beverage lines, steam pipes, heat exchangers and condensers, air conditioning and refrigeration, and many others.

Launcher Unit: Locking faceplate pivots away from body for easy nozzle size change. O-Ring seals are used for positive sealing. Air inlet port with quick disconnect coupling. Trigger mechanism for firing projectile.

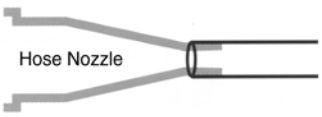
Nozzles: A wide range of nozzle sizes are available in four basic styles. HOSE & PIPE: The nozzle is inserted into the hose or pipe. JIC: The male flared end of the JIC nozzle butts against the female flare of the hose or tube fitting. TUBE: The nozzle is inserted over the tube and the end of the tube butts up against the inside of the nozzle. BSP: The female flared end of the BSP nozzle butts against the male flared end of the hose or tube fitting.

Recommended Operating Pressure: 85 PSI minimum. 150 PSI maximum.

Projectile Sizing: To clean an I.D. of 2 inches or less, the O.D. of the projectile should be approximately 20% larger than the I.D. If I.D. is larger than 2 inches, projectile should be approximately 10% larger than the I.D. (Individual circumstances may require a smaller or a larger projectile than what is listed in the tables. If the projectile is too large it will not leave the nozzle, and if it is too small it will not clean effectively. If a projectile gets stuck inside the I.D., shoot an empty discharge in the opposite end).

Note: Contact us for launcher and nozzle information, and for application assistance.

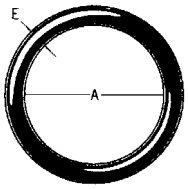
Standard Projectiles



Standard Projectiles

Catalog Part No.	UltraClean Model	Use for I.D. (in)	Nozzle for Hose I.D. (in)	Nozzle for Tube/Pipe O.D. (in)	Pkg. Qty.	Wt. (ea)	Price Each
C1EP28	UC06	0.23622	3/16	H06	100	0.01	
•C1ZV55	UC07	0.2756	1/4	H06	100	0.01	
•C1ZS65	UC22	0.8661	5/8	H16	100	0.01	
•C1ZV53	UC26	1.0236	3/4	H19	50	0.01	
•C1ZV52	UC33	1.2992	1	H25	40	0.02	
•C1KN68	UC36	1.4173	1-1/8	H25	40	0.01	
•C1ZV51	UC40	1.5748	1-1/4	H32	30	0.02	
•C1EP75	UC50	1.9685	1-1/2	H38	20	0.01	
•C1EQ43	UC60	2.3622	2	H50	15	0.01	
C1KN69	UC70	2.7559	2-1/2	H50	15	0.06	

Note: Projectiles may be ordered as "each" - example 100 each.



O-Rings for SAE J518 Split Flange Fittings & Adapters

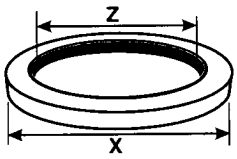
Catalog Part No.	Aeroquip Model	Nominal Flange Size	Flange Dash Size	Material	Operating Temperature Range (°F)	I.D. (A)	Width (E)	O.D. (in)	Wt.	Price Each
•C1CV56	FF9446-210	1/2	-08	Buna-N (90 durometer)	-40 to +250	0.734	0.139	1.012	0.15	
C1CV57	**FF9446-214**	3/4	-12	Buna-N (90 durometer)	-40 to +250	0.984	0.139	1.262	0.15	
C1CV58	**FF9446-219**	1	-16	Buna-N (90 durometer)	-40 to +250	1.296	0.139	1.574	0.15	
C1CV59	**FF9446-222**	1-1/4	-20	Buna-N (90 durometer)	-40 to +250	1.484	0.139	1.762	0.10	
C1CV60	**FF9446-225**	1-1/2	-24	Buna-N (90 durometer)	-40 to +250	1.859	0.139	2.137	0.10	
C1CV61	**FF9446-228**	2	-32	Buna-N (90 durometer)	-40 to +250	2.234	0.139	2.512	0.10	

O-Rings for Bump Tube O-Ring Seal Fittings

Catalog Part No.	Aeroquip Model	Pilot Dash Size	Material	Operating Temperature Range (°F)	I.D. (A)	Width (E)	O.D. (in)	Wt.	Price Each
C1EY12	**FF90178-11**	-06	HNBR (70 durometer)	-25 to +300	0.301	0.0625	0.426	0.01	
C1EY13	**FF90178-13**	-08	HNBR (70 durometer)	-25 to +300	0.426	0.0625	0.551	0.01	
C1EY14	**FF90178-15**	-10	HNBR (70 durometer)	-25 to +300	0.551	0.0625	0.676	0.01	
•C1EY15	FF90178-17	-12	HNBR (70 durometer)	-25 to +300	0.676	0.0625	0.801	0.01	

22546 Neoprene O-Rings: For use with R12 and R22 refrigerants.
FF90178 HNBR O-Rings: For use with R134 refrigerant.

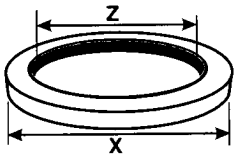
Metric & BSP Seals & Washers



Self-Centering Metric Bonded Seals

Catalog Part No.	Voss Model	Metric Size	Z (in)	Z (mm)	X (in)	X (mm)	Wt.	Price Each
•C1EK35	9500-08MM	M 08	0.342	8.7	0.551	14	0.01	
•C1DW94	400-613-4490-A	M 08	0.342	8.7	0.551	14	0.01	
C1EK36	9500-10MM	M 10	0.421	10.7	0.629	16	0.01	
•C1DW95	400-617-4490-A	M 10	0.421	10.7	0.629	16	0.01	
•C1EK38	9500-12MM	M 12	0.50	12.7	0.708	18	0.01	
•C1DW96	400-622-4490-A	M 12	0.50	12.7	0.708	18	0.01	
•C1FG24	400-010-4490	M 14	0.578	14.7	0.866	22	0.01	
•C1DW97	400-627-4490-A	M 14	0.578	14.7	0.866	22	0.01	
•C1EK39	9500-14MM	M 14	0.578	14.7	0.866	22	0.02	
•C1DW98	400-629-4490-A	M 16	0.657	16.7	0.945	24	0.01	
•C1FG25	400-011-4490	M 16	0.657	16.7	0.945	24	0.01	
C1EK40	9500-18MM	M 18	0.736	18.7	1.024	26	0.01	
•C1DW99	400-632-4490-A	M 18	0.736	18.7	1.024	26	0.01	
•C1FG26	400-024-4490	M 18	0.736	18.7	1.024	26	0.02	
•C1DX11	400-633-4490-A	M 20	0.815	20.7	1.102	28	0.01	
C1EK41	9500-20MM	M 20	0.815	20.7	1.102	28	0.02	
•C1DX12	400-636-4490-A	M 22	0.894	22.7	1.181	30	0.02	
•C1FG29	400-240-4490	M 27	1.09	27.7	1.42	36	0.01	
•C1FG30	400-242-4490	M 30	1.248	31.7	1.535	39	0.01	
•C1GD89	9500-30MM	M 30	1.248	31.7	1.535	39	0.01	
•C1FG31	400-243-4490	M 33	1.326	33.7	1.653	42	0.01	
•C1FG32	400-245-4490	M 36	1.444	36.7	1.811	46	0.01	

Note: 9500 is Adaptall model.



Self-Centering BSP Bonded Seals

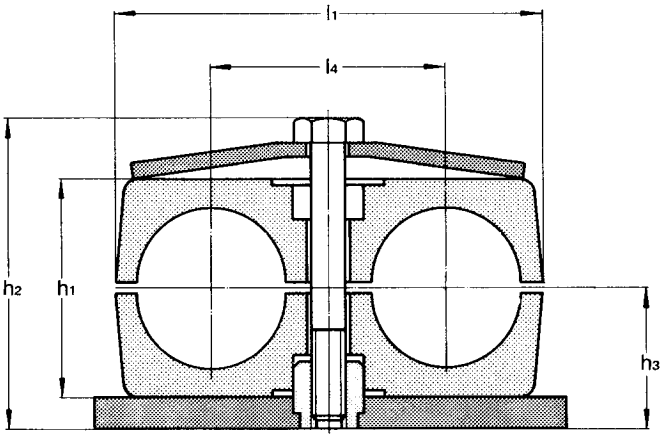
Catalog Part No.	Voss Model	BSP Size	Z (in)	Z (mm)	X (in)	X (mm)	Wt.	Price Each
•C1DX13	400-820-4490-A	1/8	0.407	10.34	0.627	15.94	0.01	
•C1DX14	400-821-4490-A	1/4	0.539	13.71	0.812	20.64	0.01	
•C1DX15	400-823-4490-A	3/8	0.679	17.25	0.939	23.87	0.01	
•C1DX16	400-825-4490-A	1/2	0.847	21.52	1.127	28.64	0.01	
•C1DX17	400-826-4490-A	5/8	0.923	23.46	1.244	31.82	0.01	
•C1DX18	400-827-4490-A	3/4	1.064	27.02	1.377	34.99	0.01	
•C1DX19	400-830-4490-A	1.0	1.333	33.86	1.687	42.87	0.02	
•C1DX20	400-832-4490-A	1-1/4	1.688	42.9	2.064	52.44	0.02	

Copper Washers

Catalog Part No.	Voss Model	I.D. (mm)	O.D. (mm)	Height (mm)	Wt.	Price Each
•C1AD71	082-109	10	13.5	1.0	0.01	
•C1AD72	082-149	12	15	1.0	0.01	
•C1DU48	082-189	14	18	1.0	0.01	
•C1AD73	082-229	16	20	1.0	0.01	
•C1DU49	082-309	18	22	1.50	0.01	
•C1AD74	082-429	22	27	1.50	0.01	

Pipe & Tubing Support Clamps
Stauff Twin Series

Features: For equal or unequal outside diameters from 1/4" to 1-1/2". Weld plate style available for single and group. Rail mounting style available for all sizes. Clamp material available in polypropylene and polyamide.
Recommended Spacing for Pipe: 1/4in=3FT, 3/8in=4FT, 1/2in=4FT, 3/4in=5FT, 1in=7FT, 1-1/4in=8FT.
Recommended Spacing for Tubing: 1/4in-1/2in = 3FT, 5/8in-7/8in=4FT, 1in=5FT, 1-1/4in-1-1/2in=7FT.
Temperature Ratings: Polypropylene -22°F to 194°F. Polyamide -40°F to 284°F. Aluminum -40°F to 500°F.
Note: Hose may be clamped using smooth body I.D. style clamps. MM size x .03937 = Inch size.



SPDS*GDAS
Single Weld Plate
Hex Head Bolts with Cover Plate

SPDS*GDAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H2 (in)	H3 (in)	I1 (in)	Wt.	Price Each
•C1ML87	STNA12789 SP2095/095PPGDASUW10K	9.5		3/8		2	Polypropylene	Profiled	Yes	1.18	1.73	0.73	2.09	0.31	
•C1ML88	STNA12795 SP2127/127PPGDASUW10K	12.7		1/2		2	Polypropylene	Profiled	Yes	1.18	1.73	0.73	2.09	0.50	
•C1ML96	STNA17378 SPDS2127/127PPGDAS-K	12.7		1/2		2	Polypropylene	Profiled	Yes	1.18	1.73	0.73	2.09	0.29	
•C1ML89	STNA12801 SP3134/13PPHGDASUW10K	13.4	1/4		0.528	3	Polypropylene	Smooth	Yes	1.18	1.93	0.92	2.64	0.42	
•C1MM75	SP2172/172PPGDAS	17.2	3/8		0.68	2D	Polypropylene	Profiled	Yes	1.18	1.73	0.73	2.09	0.28	
•C1ML90	STNA12839 SP3174/174DPPHGD	17.4			0.685	3	Polypropylene	Smooth	Yes	1.18	1.93	0.92	2.64	0.41	
C1KN43	SP319/19PPHGDASMW10	19		3/4	0.75	3D	Polypropylene	Smooth	Yes	1.18	2.17	0.92	2.63	0.90	
•C1ML91	STNA12846 SP319/19PPGDASUW10K	19		3/4		3	Polypropylene	Profiled	Yes	1.18	1.93	0.93	2.64	0.39	
•C1ML92	STNA12858 SP3205/205PPHGDASUW10K	20.5			0.807	3	Polypropylene	Smooth	Yes	1.18	1.93	0.92	2.64	0.26	
•C1EU97	SP3213/213DPPGDA	21.3	1/2		0.84	3D	Polypropylene	Profiled	Yes	1.18	2.17	0.92	2.64	0.39	

Support Clamps

Pipe & Tubing Support Clamps
Stauff Twin Series

SPDS*GDAS Stauff Clamps

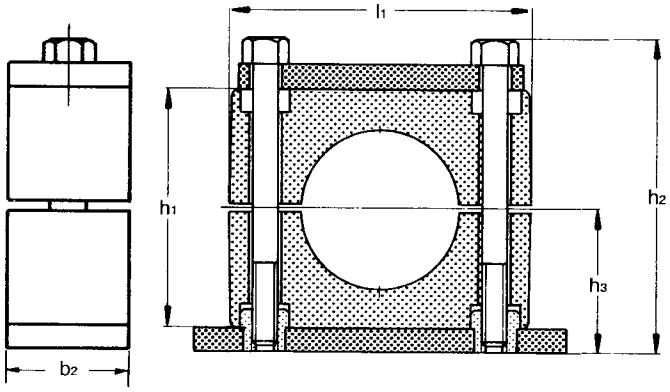
Catalog Part No.	Stauff Model	Size (mm)	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H2 (in)	H3 (in)	I1 (in)	Wt.	Price Each
•C1MM76	SP3222/222PPGDAS	22.2		7/8	0.874	3	Polypropylene	Smooth	Yes	1.18	1.93	0.92	2.64	0.39	
•C1EF39	SPDS3222/222PPGD	22.2		7/8		3D	Polypropylene	Profiled	No	1.18	2.17	0.92	2.64	0.40	
•C1ML93	STNA12908 SP5278/27PPHGDASUW10K	27.8			1.094	5	Polypropylene	Smooth	Yes	1.18	2.72	1.22	4.17	0.69	
•C1MC68	STNA12897 SP428/28PPHGD-ASUW10#K	28			1.102	4	Polypropylene	Smooth	Yes	1.18	2.17	0.94	3.15	0.46	
•C1ML94	STNA12919 SP5357/35PPHGDASUW10K	35.7			1.406	5	Polypropylene	Smooth	Yes	1.18	2.72	1.22	4.17	0.65	

Miscellaneous Stauff Twin Series Parts

Catalog Part No.	Stauff Model	Description	Wt.	Price Each
C1KE61	3205/205PPH	Clamp Body (2 Halves), Polypropylene, Group 3, Smooth Bore 21.5mm (0.846 inches)	0.10	
C1KG73	SI2-5DW3	Safety Locking Plate, Groups 2D thru 5D, Carbon Steel Zinc Plated	0.01	

Pipe & Tubing Support Clamps
Stauff Heavy Series

Features: For outside diameters from 1/4" to 18". Weld plate style available for single clamps. Rail mounting style available for groups 3s thru 6s. Clamp material available in polypropylene, polyamide and aluminum.
Recommended Spacing for Pipe: 1/4in=3FT, 3/8in=4FT, 1/2in=4FT, 3/4in=5FT, 1in=7FT, 1-1/4in=8FT, 1-1/2in=9FT, 2in=10FT, 2-1/2in=11FT, 3in=12FT, 3-1/2in=13FT, 4in=14FT, 5in=16FT, 6in=17FT.
Recommended Spacing for Tubing: 1/4in-1/2in = 3FT, 5/8in-7/8in=4FT, 1in=5FT, 1-1/4in-1-1/2in=7FT.
Temperature Ratings: Polypropylene -22°F to 194°F. Polyamide -40°F to 284°F. Aluminum -40°F to 500°F.
Note: Hose may be clamped using smooth body I.D. style clamps. MM size x .03937 = Inch size.



SPAL*DPALAS
Single Weld Plate
Hex Head Bolts with Cover Plate

SPAL*DPALAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H2 (in)	H3 (in)	l1 (in)	Wt.	Price Each
C1JD89	SPAL3137SPPHDPAL	13.7		1/4	0.54	3s	Polypropylene	Smooth	Yes	1.18	2.17	0.95	2.17	0.69	
•C1EF29	SPAL4213SPPDPALA	21.3		1/2	0.84	4s	Polypropylene	Profiled	Yes	1.18	2.80	1.27	2.77	0.90	
C1JM79	856238	26.9			1.06	4s	Polypropylene	Profiled	Yes	1.18	2.80	1.27	2.77	0.85	
C1MC69	STNA23992 SPAL 4026,9PP DPAL AS U W15K	26.9		3/4		4s	Polypropylene	Profiled	Yes	1.18	2.80	1.27	2.77	0.90	
C1MC70	STNA29288 SPAL40269PPDPALASUW10 #	26.9		3/4		4s	Polypropylene	Profiled	Yes	1.18	2.80	1.27	2.77	0.85	
•C1EF33	SPAL5334SPPDPALA	33.4		1	1.31	5s	Polypropylene	Profiled	Yes	1.25	3.28	1.50	3.34	0.75	
•C1EF34	SPAL5422SPPDPALA	42.2	42	1-1/4	1.66	5s	Polypropylene	Profiled	Yes	1.25	3.28	1.50	3.34	1.04	
C1KW59	STNA24987 SPAL60483PPDPALASUW15 #K	48.3		1-1/2		6s	Polypropylene	Profiled	Yes	1.75	4.61	2.17	4.53	3.07	
C1KK88	834152	48.3		1-1/2	1.90	6s	Polypropylene	Profiled	Yes	1.75	4.61	2.17	4.53	2.73	
C1HS73	SPAL6603SPPDPALAS-BAG	60.3	60	2	2.37	6s	Polypropylene	Profiled	Yes	1.75	4.61	2.17	4.53	2.61	
C1JM72	834153 (SPAL60603PPDPALASUW15K)	60.3	60	2	2.37	6s	Polypropylene	Profiled	Yes	1.75	4.61	2.17	4.53	2.61	
C1EF38	SPAL7889SPPDPALA	88.9		3	3.50	7s	Polypropylene	Profiled	Yes	2.25	5.91	2.75	5.98	5.20	

Support Clamps

Pipe & Tubing Support Clamps
Stauff Heavy Series

SPAL*DPALAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H2 (in)	H3 (in)	I1 (in)	Wt.	Price Each
C1JM73	834154 (SPAL70889PPDPALASUW15K)	88.9		3	3.50	7s	Polypropylene	Profiled	Yes	2.25	5.91	2.75	5.98	5.08	
C1JM74	834155	114		4	4.49	8s	Polypropylene	Profiled	Yes	3.00	8.28	3.86	8.08	10.00	

Models ending in W12K: Weld plate & cover plate phosphated, bolts untreated.
Models ending in W15K: Weld plate & cover plate phosphated, bolts zinc plated.

AF*SIP
Stacking Bolts and Safety Plates

AF*SIP Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	Inch Pipe Size	Inch Tube Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	I1 (in)	Wt.	Price Each
C1EA14	AF5422SPPSIP-BAG	42.2	1-1/4	1.66	5s	Polypropylene	Profiled	Yes	1.25	2.38	3.34	0.60	

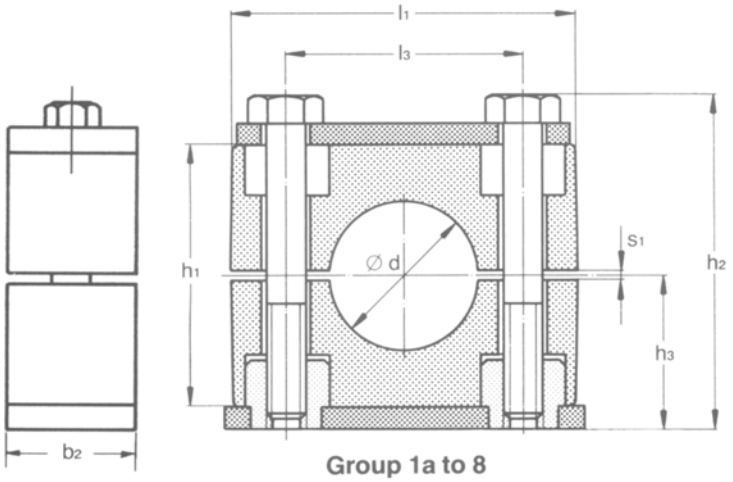
***PP**
Clamp Body (Both Halves)

*PP Stauff Clamp Bodies

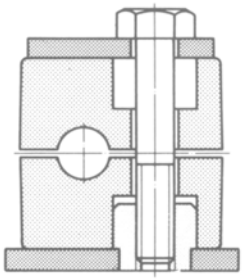
Catalog Part No.	Stauff Model	Size (mm)	Inch Pipe Size	Inch Tube Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	I1 (in)	Wt.	Price Each
C1MM61	60635PP#K	63.5		2.50	6S	Polypropylene	Profiled	Yes	1.77	3.50	4.53	0.20	
C1DZ85	8127SPP-BAG/TAG	127		5.00	8s	Polypropylene	Profiled	Yes	3	6.70	8.08	0.92	
C1JF11	9168S-PP-BAG	168.0	6	6.61	9s	Polypropylene	Profiled	Yes	3.50	7.88	9.84	2.67	

Pipe & Tubing Support Clamps
Stauff Standard Series

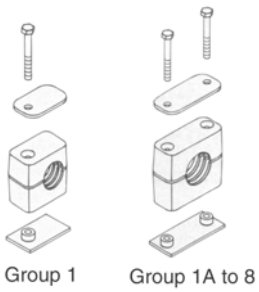
Features: For outside diameters from 1/4" to 4". Weld plate style available for single clamps. Rail mounting style available for all sizes. Clamp material available in polypropylene, polyamide and aluminum.
Recommended Spacing for Pipe: 1/4in=3FT, 3/8in=4FT, 1/2in=4FT, 3/4in=5FT, 1in=7FT, 1-1/4in=8FT, 1-1/2in=9FT, 2in=10FT, 2-1/2in=11FT, 3in=12FT.
Recommended Spacing for Tubing: 1/4in-1/2in = 3FT, 5/8in-7/8in=4FT, 1in=5FT, 1-1/4in-1-1/2in=7FT.
Temperature Ratings: Polypropylene -22°F to 194°F. Polyamide -40°F to 284°F. Aluminum -40°F to 500°F.
Note: Hose may be clamped using smooth body I.D. style clamps. MM size x .03937 = Inch size.



Group 1a to 8



Group 1



Group 1 | Group 1A to 8

SP*DPAS
Single Weld Plate
Hex Head Bolts with Cover Plate

SP*DPAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	H3 (in)	Wt.	Price Each
•C1ML73	STNA11073 SP1064PPDPASUW10#K	6.4		1/4			1	Polypropylene	Profiled	Yes	1.18	1.06	0.65	0.16	
•C1ML74	STNA11076 SP1095PPDPASUW10K	9.5			1/4		1	Polypropylene	Profiled	Yes	1.18	1.06	0.65	0.15	
C1ML75	STNA11079 SP110PPDPASUW10	10		1/8			1	Polypropylene	Profiled	Yes	1.18	1.06	0.65	0.15	
•C1ML69	SP112PPDP-ASUW10	12	12				1	Polypropylene	Profiled	Yes	1.18	1.06	0.65	0.15	
C1ML76	STNA11108 SP2127PPDPASUW10#K	12.7	12.7		1/2		2	Polypropylene	Profiled	Yes	1.18	1.30	0.77	0.22	
C1KN42	SP215PPHDPASMW10	15				0.59	2	Polypropylene	Smooth	Yes	1.18	1.30	0.77	0.20	
•C1ML77	STNA11119 SP216PPDPASUW10#K	16	16		5/8		2	Polypropylene	Profiled	Yes	1.18	1.30	0.77	0.21	

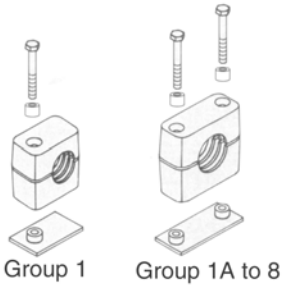
Support Clamps

Pipe & Tubing Support Clamps
Stauff Standard Series

SP*DPAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	H3 (in)	Wt.	Price Each
•C1MM86	STNA11122 SP2171PPDPAS-BAG/TAG	17.1					2	Polypropylene	Profiled	Yes	1.18	1.30	0.77	0.16	
•C1ML78	STNA11125 SP2180PPDPAS-BAG	18	18				2	Polypropylene	Profiled	Yes	1.18	1.30	0.77	0.22	
C1ZS95	SP3174PPHDPAS-BA	17.4				0.69	3	Polypropylene	Smooth	Yes	1.18	1.42	0.83	0.26	
•C1ML79	STNA11148 SP319PPDPASUW10K	19	19		3/4		3	Polypropylene	Profiled	Yes	1.18	1.42	0.83	0.25	
•C1ML80	STNA11152 SP3200PPDPAS-BAG/TAG	20	20				3	Polypropylene	Profiled	Yes	1.18	1.42	0.83	0.25	
•C1MP54	STNA11154 SP3205PPHDPAS-BAG/TAG	20.5				0.807	3	Polypropylene	Smooth	Yes	1.18	1.42	0.83	0.26	
•C1ML81	STNA11157 SP3213PPDPASUW10K	21.3	21.3	1/2			3	Polypropylene	Profiled	Yes	1.18	2.28	0.83	0.35	
•C1GA55	SP3222PPHDPAS	22.0				0.87	3	Polypropylene	Smooth	Yes	1.18	1.42	0.83	0.26	
C1ML82	STNA11166 SP3254PPDPASUW10K	25.4	25.4				3	Polypropylene	Profiled	Yes	1.18	1.42	0.83	0.25	
C1KN45	SP4269PPHDPASMW10	26.9	26.9	3/4			4	Polypropylene	Smooth	Yes	1.18	1.65	0.94	0.30	
•C1ML83	STNA11184 SP4269PPDPASUW10K	26.9	26.9	3/4			4	Polypropylene	Profiled	Yes	1.18	1.65	0.94	0.25	
C1KN46	SP428PPHDPASMW10	28	28				4	Polypropylene	Smooth	Yes	1.18	1.65	0.94	0.30	
•C1ML84	STNA11207 SP5278PPHDPASUW10K	27.8				1.094	5	Polypropylene	Smooth	Yes	1.18	2.28	1.26	0.48	
C1KN47	SP530PPHDPASMW10	30	30			1.18	5	Polypropylene	Smooth	Yes	1.18	2.28	0.94	0.41	
•C1ML85	STNA11209 SP532PPDPASUW10	32	32		1-1/4		5	Polypropylene	Profiled	Yes	1.18	2.28	1.26	0.41	
•C1ML86	STNA11212 SP5337PPDP-ASUW10#K	33.7	33.7	1			5	Polypropylene	Profiled	Yes	1.18	2.28	1.26	0.39	
•C1HG84	SP5370PPHDPAS-K	37.0				1.46	5	Polypropylene	Smooth	Yes	1.18	2.28	1.25	0.42	
C1KN48	SP538PPHDPASMW10	38	38		1-1/2	1.50	5	Polypropylene	Smooth	Yes	1.18	2.28	1.26		
•C1MM87	STNA11217 SP5381PPDPAS-BAG	38	38		1-1/2		5	Polypropylene	Profiled	Yes	1.18	2.28	1.26	0.42	
C1EF22	SP5422PPDPAS-BAG	42.2		1-1/4			5	Polypropylene	Profiled	Yes	1.18	2.28	1.26	0.42	
•C1JR29	SP6445PPHDPAS-K	44.5	44.5	1-3/4		1.75	6	Polypropylene	Smooth	Yes	1.18	2.59	1.42	0.54	
C1EF90	SP7635PPDPAS-BAG	63.5	63.5		2-1/2		7	Polypropylene	Profiled	Yes	1.18	3.66	2.02	4.64	
C1JA49	DP8 Cover Plate for Group 8 size clamps							Carbon Steel						0.35	

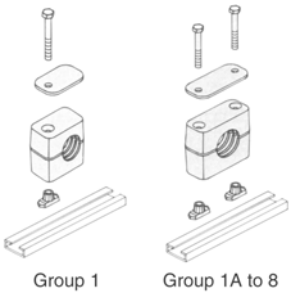
Pipe & Tubing Support Clamps
Stauff Standard Series



SP*ASE
Single Weld Plate
Hex Head Bolts with Spacers

SP*ASE Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	H3 (in)	Wt.	Price Each
C1EF14	SP3213PPASE-BAG/	21.3		1/2		0.84	3	Polypropylene	Profiled	Yes	1.19	1.38	0.80	0.25	
C1FR13	SP4266PPASE-BAG	26.6		3/4		1.05	4	Polypropylene	Profiled	Yes	1.18	1.65	0.92	0.25	
C1EF19	SP5334PPASE-BAG/	33.4		1.0		1.31	5	Polypropylene	Profiled	Yes	1.19	2.33	1.28	0.30	
C1FH29	SP5350PPHASE-BAG	35.0				1.38	5	Polypropylene	Smooth	Yes	1.19	2.33	1.28	0.32	
C1FH30	SP5381PPHASE-BAG	38.1				1.50	5	Polypropylene	Smooth	Yes	1.19	2.33	1.28	0.31	
C1EF21	SP5422PPASE-BAG/	42.2		1-1/4		1.66	5	Polypropylene	Profiled	Yes	1.19	2.33	1.28	0.30	
C1EF24	SP6483PPASE-BAG/	48.3		1-1/2		1.90	6	Polypropylene	Profiled	Yes	1.19	2.59	1.42	0.37	



SM*DPAS
Mounts on TS Mounting Rail
Hex Head Bolts with Cover Plate
(Includes 2ea SM1-8 Rail Nuts)

SM*DPAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	Wt.	Price Each
•C1MM77	STNA10494 SM2127PPDPAS-BAG	12.7			1/2		2	Polypropylene	Profiled	Yes	1.18	1.30	0.20	
•C1MM78	STNA10496 SM2135PPDPASUW3#K	13.5		1/4			2	Polypropylene	Profiled	Yes	1.18	1.30	0.19	
•C1MM79	STNA10503 SM216PPDPASUW3K	16			5/8		2	Polypropylene	Profiled	Yes	1.18	1.30	0.19	
•C1ML71	STNA10522 SM3190PPDPAS-BAG	19			3/4		3	Polypropylene	Profiled	Yes	1.18	1.42	0.22	
•C1EZ56	SM3200PPDPAS-BAG	20.0	20			0.79	3	Polypropylene	Profiled	Yes	1.18	1.42	0.21	
•C1MM80	STNA10528 SM3213PPDPAS-BAG	21.3		1/2			3	Polypropylene	Profiled	Yes	1.18	1.42	0.22	
•C1ML72	STNA10532 SM322PPDPASUW3K	22	22			0.866	3	Polypropylene	Profiled	Yes	1.18	1.42	0.21	
•C1MM81	STNA10535 SM3254PPDPAS-BAG	25.4					3	Polypropylene	Profiled	Yes	1.18	1.42	0.20	
•C1MM82	STNA10543 SM4266PPDPAS-BAG	26.6			1		4	Polypropylene	Profiled	Yes	1.18	1.65	0.21	
•C1MM83	STNA10548 SM4280PPDPAS-BAG	28	28				4	Polypropylene	Profiled	Yes	1.18	1.65	0.25	

Support Clamps

Pipe & Tubing Support Clamps
Stauff Standard Series

SM*DPAS Stauff Clamps

Catalog Part No.	Stauff Model	Size (mm)	MM Tube Size	Inch Pipe Size	Inch Tube Size	Inch Hose O.D. Size	Group	Body Material	Body I.D.	Indiv. Pkg.	B2 (in)	H1 (in)	Wt.	Price Each
•C1MM85	STNA10566 SM5334PPDPAS-BAG	33.4				1.350	5	Polypropylene	Profiled	Yes	1.18	2.28	0.30	
C1JA49	DP8 Cover Plate for Group 8 size clamps							Carbon Steel					0.35	

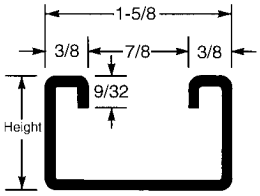
SM1-8
Rail Nut

SM1-8 Stauff Rail Nuts

Catalog Part No.	Stauff Model	Description	Wt.	Price Each
C1EE99	SM1-8	Standard Series rail nut	0.02	

Pipe & Tubing Support Clamps
Hydrazorb 100-200 Series

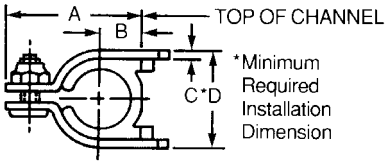
Features: Allows fluid conductors to be removed or added easily without disturbing adjacent conductors. Fast and simple installation.
Clamps: Available in zinc plated steel, galvanized steel, 304/304 stainless, 316 stainless, and aluminum.
Base Channel: Available in single & back-to-back, 12 ga. steel, 14 ga. Steel, 14 ga. 304 stainless, 14 ga. 316 stainless, and 6061T6 aluminum. Channel lengths from 36 to 240 inches are available in most styles.
Operating Temperature Range: Cushion has -65°F to 275°F rating.



Base Channel

Hydrazorb Base Channel

Catalog Part No.	Hydrazorb Model	Type	Material	Length (in)	Height (in)	Wt.	Price Each
•C1EX40	121048-6-101	Single	316 SS	48	0.8125	3.75	
•C1AJ47	121048-1-203	Single	12 gauge mild steel	48	1.0	5.62	



Clamps

Hydra-Zorb 100-200 Series Clamps

Catalog Part No.	Hydrazorb Model	Size & Type	Clamp Material	Stud/Bolt Material	Nut	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
•C1EX25	100025	1/4 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.11	0.22	0.075	0.62	0.11	
C1EX26	100025-4-656	1/4 inch Tubing	316 SS	SS weld stud	SS Nylock	1.11	0.22	0.075	0.62	0.09	
•C1EX27	100031	5/16 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.24	0.28	0.075	0.75	0.12	
•C1AG11	100037	3/8 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.24	0.28	0.075	0.75	0.12	
•C1EX29	100037-4-656	3/8 inch Tubing	316 SS	SS weld stud	SS Nylock	1.24	0.28	0.075	0.75	0.12	
•C1AG12	100050	1/2 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.36	0.34	0.075	0.87	0.25	
•C1AG13	100062	5/8 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.50	0.41	0.075	1.00	0.14	
•C1AG16	100075	3/4 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.78	0.53	0.075	1.33	0.25	
•C1EX32	100075-4-656	3/4 inch Tubing	316 SS	SS weld stud	SS Nylock	1.78	0.53	0.075	1.33	0.17	
•C1AG17	100087	7/8 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	1.91	0.58	0.075	1.45	0.18	
•C1AG18	100100	1 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	2.03	0.66	0.105	1.66	0.25	
•C1HC83	100112	1-1/8 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	2.16	0.72	0.105	1.79	0.54	
•C1AG19	100125	1-1/4 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	2.30	0.78	0.105	1.92	0.50	
•C1EX35	100125-4-656	1-1/4 inch Tubing	316 SS	SS weld stud	SS Nylock	2.30	0.78	0.105	1.92	0.25	
•C1AG20	100150	1-1/2 inch Tubing	Zinc plated steel	Steel weld stud	Steel Nylock	2.75	0.91	0.119	2.22	0.50	

Hose Support Clamps

Features: These light weight vinyl-coated steel support clamps are designed to support hose where long runs are necessary. This clamp not only furnishes a cleaner installation, but prevents damage, exposure and chafing. The lining will withstand high ambient temperatures.

900729

Hose Support Clamps

Catalog Part No.	Aeroquip Model	Clamp I.D. (Closed)	Bolt Hole Dia.	Wt.	Price Each
•C1CB45	900729-18	0.25	0.406	0.18	
•C1CB36	900729-01	0.44	0.406	0.05	
•C1CB37	900729-1	0.50	0.406	0.04	
C1CB47	**900729-2**	0.56	0.406	0.04	
•C1CB48	900729-21	0.63	0.406	0.04	
C1CB55	**900729-3**	0.69	0.406	0.33	
C1CB59	**900729-4**	0.75	0.406	0.04	
C1CB60	**900729-5**	0.81	0.406	0.05	
C1CB61	**900729-6**	0.94	0.406	0.06	
•C1CB49	900729-23	1.00	0.406	0.05	
C1CB62	**900729-8**	1.06	0.406	0.09	
•C1CB63	900729-9	1.13	0.531	0.09	
•C1CB52	900729-27	1.19	0.531	0.01	
•C1CB50	900729-24	1.25	0.531	0.10	
C1CB38	**900729-10**	1.50	0.531	0.11	
•C1CB39	900729-11	1.56	0.531	0.11	
C1CB40	**900729-12**	1.75	0.531	1.30	
•C1CB41	900729-13	2.00	0.531	0.14	
•C1CB42	900729-14	2.25	0.531	0.16	
•C1CB56	900729-30	2.50	0.531	0.16	
•C1CB43	900729-15	2.75	0.531	0.19	
•C1EK29	900729-16	2.88	0.531	0.19	
•C1CB44	900729-17	3.56	0.531	0.24	

FBA AQP® Racing Hose Stainless Steel Braid

Construction: AQP® elastomer tube, partial stainless steel wire inner braid and a full stainless steel outer braid reinforcement.
Temperature Range: Continuous operating temperature from -55°F to +300°F.
Application: Fuel, Lube, Coolant, Air. FBA hose (with FBM reusable fittings) is an SAE J1942-1 (June 2005) qualified hose for marine fuel lines on commercial vessels, firesleeve required on sizes -04 -06 -08, firesleeve not required on sizes -10 thru -20.
Reusable Fittings: page 217
Crimp Fittings: page 219
Note: For vacuum applications do not exceed Minimum Bend Radius.

FBA

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1CP58	FBA0400	-04	0.22	0.44	1000	2.0	28	0.11	
•C1CP59	FBA0600	-06	0.34	0.55	1000	2.50	28	0.16	
•C1CP60	FBA0800	-08	0.44	0.65	1000	3.5	28	0.17	
•C1CP61	FBA1000	-10	0.56	0.80	1000	4	28	0.21	
•C1CP62	FBA1200	-12	0.69	0.94	1000	4.5	28	0.29	
•C1CP63	FBA1600	-16	0.88	1.15	750	5.5	28	0.38	
•C1CP64	FBA2000	-20	1.13	1.41	500	8	28	0.49	

FBU StartLite® Racing Hose Light Weight

StartLite® Racing Hose utilizes a fire-retardant Nomex™ cover and Aeroquip's patented AQP® elastomer inner tube, resulting in an extremely lightweight product. For ultimate weight savings, use aluminum crimp style swivel fittings, which are available in sizes -04 through -20, and are crimped using the Aeroquip ProCrimp® assembly machine. For ultimate field serviceability, choose Aeroquip's high quality reusable fittings.
Construction: AQP® elastomer inner tube and Nomex™ blue cover.
Temperature Range: -45°F to 300°F.
Application: Fuel, lube, coolant, air. NOT recommended for marine fuel lines.
Reusable Fittings: page 217
Crimp Fittings: page 219
ProCrimp® 1380 Crimper:

FBU

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1ZV73	FBU0400	-04	0.22	0.43	200	2.00	20	0.05	
•C1ZV72	FBU0600	-06	0.34	0.55	200	2.50	20	0.08	
•C1ZV71	FBU0800	-08	0.44	0.64	200	3.50	20	0.11	
•C1ZV70	FBU1000	-10	0.56	0.80	200	4.00	20	0.14	

FBU

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1ZV69	FBU1200	-12	0.69	0.93	100 (Reusable) 200 (Crimp)	4.50	20	0.16	
•C1ZV68	FBU1600	16	0.88	1.15	100 (Reusable) 200 (Crimp)	5.50	20	0.20	

FC332 AQP® SOCKETLESS™ Hose Low Pressure

AQP SOCKETLESS hose and fittings are extremely easy to work with. Simply push the hose onto the fitting. It's that simple.

Construction: AQP® elastomer tube, textile braid reinforcement, blue AQP® elastomer cover.

Application: For gasoline, fuel and lubricating oils, air and water. NOT recommended for marine fuel lines. Not recommended for hydraulic impulse applications, and is not approved for air brake applications.

Operating Temperature Range: -40°F to +300°F. Water not to exceed +180°F. Air not to exceed +250°F.

Reusable Fittings: page 220

FC332

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1CR66	FC332-04	-04	0.25	0.49	250	3	28	0.08	
C1CR67	**FC332-06**	-06	0.38	0.63	250	3	28	0.12	
C1CR68	**FC332-08**	-08	0.50	0.75	250	5	28	0.14	
C1CR69	**FC332-10**	-10	0.63	0.91	250	6	18	0.19	
C1CR70	**FC332-12**	-12	0.75	1.04	250	7	18	0.25	

Note: Reeled hose may be purchased by the foot or by the reel.

FBF A/C Hose Nylon Tube Stainless Steel Braid

This new and innovative product offers discriminating motorsport enthusiasts a superior hose and fitting combination specifically designed for A/C component applications. This attractive hose has a stainless steel braid with a nylon inner tube for superior refrigerant performance. Custom designed nickel plated steel reusable fittings, with available charge ports, are an eye appealing compliment to complete these field serviceable hose assemblies.

Application: A/C.

Reusable Fittings: page 223

Lubricant Selection: Always be sure to use the correct lubricant to assemble hoses for your A/C system. Most R-12 systems use mineral oil, while most R-134a systems use a synthetic lubricant called Polyalkylene Glycol (PAG).

FBF

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1GC58	FBF0600	-06	0.33	0.44	500	4.00		0.08	
•C1GC59	FBF0800	-08	0.43	0.54	500	5.25		0.10	

2807 Teflon® Racing Hose Teflon® Tube Stainless Steel Braid

Teflon® Racing Hose is made with an extruded Teflon® inner tube that's compatible with a wide range of fluids, including hydraulic brake fluids. The hose has a bright stainless steel wire-braid cover that resists abrasion and corrosion, providing optimum dependability.

Application: Offroad brake, transmission, clutch, gauge, N^2O, power steering, hydraulic and air conditioning.

Construction: Extruded Teflon® inner tube with stainless steel wire-braid cover.

Operating Temperature Range: -100°F to 450°F.

Reusable Fittings: page 224

2807

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
•C1BJ83	2807-3	-03	0.14	0.25	3000	1.50	28	0.04	
C1BJ84	2807-4	-04	0.19	0.30	3000	2.0	28	0.06	

FC300 AQP® High Pressure Hose Power Steering

AQP® High Pressure Hose is ideal for power steering, hydraulics, air, fuel and lubricating oil applications. It has a blue abrasion resistant fabric cover and a patented AQP® synthetic inner tube. It uses standard steel and brass reusable fittings.

Application: Power steering lines, hydraulics, air, gasoline, fuel and lubricating oils, over-the-wall air tools and DOT-approved air brake.

Construction: AQP® elastomer tube, polyester inner braid, single wire braid reinforcement and blue polyester braid cover.

Operating Temperature Range: -55°F to +300°F except air +250°F

Reusable Fittings: page 226

FC300

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Maximum Operating Pressure (psi)	Minimum Bend Radius (in)	Vacuum Service (in/Hg)	Wt. (per ft)	Price (per ft)
C1CR47	FC300-06	-06	0.31	0.67	2250	4	28	0.23	
C1CR48	FC300-08	-08	0.41	0.76	2000	4.62	28	0.26	
C1CR49	FC300-10	-10	0.50	0.93	1750	5.5	28	0.37	
C1CR50	FC300-12	-12	0.62	1.08	1500	6.5	28	0.44	

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Red/Blue Anodized Aluminum
37° Flare Swivel

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP76	FBM1012	-06	1.21	0.05	
•C1KL54	FBM4412	-06	1.21	0.05	
•C1CP77	FBM1013	-08	1.34	0.08	
•C1KL55	FBM4413	-08	1.34	0.08	
•C1CP78	FBM1014	-10	1.46	0.12	
•C1CP79	FBM1015	-12	1.54	0.18	
•C1CP80	FBM1016	-16	1.73	0.50	
•C1CP81	FBM1017	-20	1.94	0.44	

Note: Part numbers that start with FBM44 are anodized black, all others are anodized red/blue.

Nickel-Plated Aluminum
37° Flare Swivel

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZW87	FBE1012	-06	1.21	0.06	

Red/Silver Plated Steel
37° Flare Swivel

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP75	FBM1011	-04	1.05	0.25	
C1EA57	FBM1076	-08	1.34	0.17	

Red/Blue Anodized Aluminum
37° Flare Swivel, 45° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1CQ71	FBM4022	-06	Yes	1.62	0.08	
•C1KL57	FBM4422	-06	Yes	1.62	0.08	
•C1CQ72	FBM4023	-08	Yes	1.67	0.13	
•C1CQ73	FBM4024	-10	Yes	1.73	0.16	
•C1CQ74	FBM4025	-12	Yes	1.92	0.24	
•C1EC49	FBM4026	-16	Yes	2.06	0.34	

Note: Part numbers that start with FBM44 are anodized black, all others are anodized red/blue.

Nickel-Plated Aluminum
37° Flare Swivel, 45° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZW58	FBE4023	-08	Yes	1.67	0.13	
•C1ZW57	FBE4024	-10	Yes	1.73	0.17	

Red/Silver Plated Steel
37° Flare Swivel, 45° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1EA50	FBM1021	-04	No	1.01	0.07	

Red/Blue Anodized Aluminum
37° Flare Swivel, 60° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZW25	FBM4082	-06	Yes		0.08	
•C1ZW24	FBM4083	-08	Yes		0.14	
•C1ZW23	FBM4084	-10	Yes		0.18	

Red/Blue Anodized Aluminum
37° Flare Swivel, 90° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1CQ75	FBM4032	-06	Yes	1.47	0.08	
•C1KL61	FBM4432	-06	Yes	1.47	0.08	
•C1CQ76	FBM4033	-08	Yes	1.45	0.13	
•C1KL62	FBM4433	-08	Yes	1.45	0.13	
•C1CQ77	FBM4034	-10	Yes	1.56	0.17	
•C1KL63	FBM4434	-10	Yes	1.56	0.17	
•C1CQ78	FBM4035	-12	Yes	1.79	0.25	
•C1CQ79	FBM4036	-16	Yes	1.96	0.35	

Note: Part numbers that start with FBM44 are anodized black, all others are anodized red/blue.

Nickel-Plated Aluminum
37° Flare Swivel, 90° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZW56	FBE4032	-06	Yes	1.47	0.08	

Red/Silver Plated Steel
37° Flare Swivel, 90° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1CP82	FBM1031	-04	No	0.90	0.09	
•C1EA60	FBM1083	-06	No	1.05	0.11	

Hose & Fittings

Red/Blue Anodized Aluminum
37° Flare Swivel, 120° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1EC50	FBM4042	-06	Yes	1.19	0.08	
•C1EC51	FBM4043	-08	Yes	1.16	0.13	
•C1EC52	FBM4044	-10	Yes	1.23	0.01	
•C1EC53	FBM4045	-12	Yes	1.42	0.25	
•C1ZW31	FBM4046	-16	Yes		0.38	

Red/Blue Anodized Aluminum
37° Flare Swivel, 150° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1EC54	FBM4052	-06	Yes	0.86	0.08	
•C1EC55	FBM4053	-08	Yes	0.82	0.13	
•C1EC57	FBM4055	-12	Yes	0.91	0.26	

Red/Blue Anodized Aluminum
37° Flare Swivel, 180° Elbow

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1EC58	FBM4062	-06	Yes	0.55	0.08	
•C1EC59	FBM4063	-08	Yes	0.51	0.14	
•C1EC60	FBM4064	-10	Yes	0.44	0.01	
•C1EC61	FBM4065	-12	Yes	0.42	0.28	

Red/Blue Anodized Aluminum
Banjo

Reusable Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Application	Replacement Crush Washer	Wt.	Price Each
•C1EA55	FBM1070	-06	Banjo Fitting for Solex Carburetors with 12mm x 1.25 thread.	FBM3627	0.01	

Note: Crushwashers page 245

Crimp Fittings for AQP® Racing Hose & StartLite® Racing Hose

Red/Silver Anodized Aluminum
37° Flare Swivel

Crimp Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size / Notes	Cut-Off (in)	Wt.	Price Each
•C1ZW14	FBM4211	-04		0.02	
•C1ZW13	FBM4212	-06		0.03	
•C1ZW12	FBM4213	-08		0.05	
•C1ZW11	FBM4214	-10		0.07	
•C1ZV99	FBM4215	-12		0.12	

Red/Silver Anodized Aluminum
37° Flare Swivel, 45° Elbow

Crimp Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size / Notes	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZV95	FBM4223	-08	Yes		0.10	
C1ZV94	FBM4224	-10	Yes		0.13	
C1ZV93	FBM4225	-12	Yes		0.21	

Red/Silver Anodized Aluminum
37° Flare Swivel, 90° Elbow

Crimp Fittings for AQP® Racing Hose & StartLite® Racing Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size / Notes	Adjustable End	Cut-Off (in)	Wt.	Price Each
•C1ZV91	FBM4232	-06	Yes		0.06	
•C1ZV90	FBM4233	-08	Yes		0.11	

Fittings for AQP® SOCKETLESS™ Hose

Features: Lightweight (Aluminum models). Reusable. Tested by major racing teams.
Note: AQP SOCKETLESS™ Hose page 46
Warning: The SOCKETLESS™ hose fitting is designed for use with Aeroquip® hoses. Use of the fitting on another manufacturer's hose may result in the fitting coming loose when the connection is pressurized with the possibility of personal injury.

Red/Blue Anodized Aluminum
37° Flare Swivel

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP83	FBM1512	-06		0.79	
•C1CP84	FBM1513	-08		0.05	
•C1CP85	FBM1514	-10		0.07	
•C1CP86	FBM1515	-12		0.10	

Nickel-Plated Aluminum
37° Flare Swivel

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZW84	FBE1512	-06		0.03	
•C1ZW83	FBE1513	-08		0.05	
•C1ZW82	FBE1514	-10		0.07	

Brass
37° Flare Swivel

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
C1BR42	**4797-4B**	-04	-04	0.71	0.04	
•C1BR43	4797-5-4B	-04	-05	0.77	0.05	
•C1BR44	4797-8-6B	-06	-08	0.93	0.10	
C1BR45	**4797-8B**	-08	-08	0.93	0.11	
C1BR40	**4797-10-8B**	-08	-10	1.06	0.16	
C1BR41	**4797-10B**	-10	-10	1.06	0.17	

Red/Blue Anodized Aluminum
37° Flare Swivel, 45° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP87	FBM1522	-06		0.04	
•C1CP88	FBM1523	-08		0.06	
•C1CP89	FBM1524	-10		0.15	

Nickel-Plated Aluminum
37° Flare Swivel, 45° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZW81	FBE1522	-06		0.04	

Plated Steel
37° Flare Swivel, 45° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CS76	FC5849-0404S	-04	-04	0.81	0.05	
•C1CS75	FC5847-0606S	-06	-06	0.93	0.10	
•C1CS77	FC5849-0808S	-08	-08	1.28	0.15	

Red/Blue Anodized Aluminum
37° Flare Swivel, 90° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP91	FBM1532	-06		0.05	
•C1CP92	FBM1533	-08		0.02	
•C1CP93	FBM1534	-10		0.09	
•C1CP94	FBM1535	-12		0.04	

Nickel-Plated Aluminum
37° Flare Swivel, 90° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZW78	FBE1532	-06		0.04	
•C1ZW77	FBE1533	-08		0.07	
•C1ZW76	FBE1534	-10		0.10	

Plated Steel
37° Flare Swivel, 90° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AM64	191321-4S	-04	-04	0.70	0.05	
C1AM39	**190516-6S**	-06	-06	0.83	0.09	
•C1AM65	191321-8S	-08	-08	1.05	0.15	

Red/Blue Anodized Aluminum
37° Flare Swivel, 120° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CP95	FBM1542	-06		0.04	

Red/Blue Anodized Aluminum
37° Flare Swivel, 180° Elbow

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1CQ14	FBM1562	-06		0.04	
•C1CQ15	FBM1563	-08		0.05	

Brass
Male Inverted Flare

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1BQ98	4740-3-4B	3/8-24	-04 (3/8-24)	0.75	0.03	
•C1BQ99	4740-4B	7/16-24	-04 (7/16-24)	0.75	0.03	
•C1BR11	4740-5-4B	1/2-20	-04 (7/16-24)	0.82	0.04	
•C1BR12	4740-6B	5/8-18	-06 (5/8-18)	0.86	0.06	
•C1BR13	4740-8B	3/4-18	-08 (3/4-18)	0.94	0.10	
•C1BQ97	4740-10B	7/8-18	-10 (7/8-18)	1.01	0.16	

Brass
Male Pipe

Fittings for AQP® SOCKETLESS™ Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Pipe Size	Cut-Off (in)	Wt.	Price Each
C1BQ88	**4738-2-4B**	-04	1/8 NPTF	0.65	0.03	
C1BQ89	**4738-4-4B**	-04	1/4 NPTF	0.83	0.06	
C1BQ90	**4738-4-6B**	-06	1/4 NPTF	0.89	0.10	
C1BQ91	**4738-6-6B**	-06	3/8 NPTF	0.89	0.07	
•C1BQ92	4738-6-8B	-08	3/8 NPTF	0.89	0.10	
C1BQ94	**4738-8-8B**	-08	1/2 NPTF	1.14	0.15	
•C1BQ93	4738-8-10B	-10	1/2 NPTF	1.14	0.18	
C1BQ87	**4738-12-12B**	-12	3/4 NPTF	1.21	0.24	

Reusable Fittings for Aeroquip FBF A/C Hose

Features: Reusable. Nickel plated steel.
Note: Aeroquip® FBF A/C Hose page 215
Warning: These hose fittings are designed for use with Aeroquip® FBF A/C hose. Use of the fitting on another manufacturer's hose may result in the fitting coming loose when the connection is pressurized with the possibility of personal injury.

Female O-Ring Pilot

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
•C1GB67	FBE1712	-06	0.14	
•C1GB72	FBE1713	-08	0.22	

Female O-Ring Pilot with Charge Port

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
C1GC47	FBE1812	-06	0.23	

Female O-Ring Pilot 45° Elbow

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
C1GC39	FBE1722	-06	0.15	

Female O-Ring Pilot 90° Elbow

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
•C1GC42	FBE1732	-06	0.15	

Female O-Ring Pilot 90° Elbow with Charge Port

Reusable Fittings for Aeroquip FBF A/C Hose

Catalog Part No.	Aeroquip Model	Hose & Fitting Dash Size	Wt.	Price Each
•C1GC51	FBE1833	-08	0.35	

Fittings for Teflon® Racing Hose

Plated Steel, Brass Nipple
37° Flare Swivel

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AM41	190600-3S	-03	-03	1.04	0.05	
C1BW76	**63-190600-4**	-04	-04	1.13	0.07	
•C1KL53	FBM1103	-06	-06	1.22	0.10	
•C1BW79	63-190600-8	-08	-08	1.35	0.19	

Stainless Steel
37° Flare Swivel

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1ZY27	FBM1130	-03	-03		0.04	
•C1AM42	190600-4C	-04	-04	1.13	0.09	
•C1AM44	190600-6C	-06	-06	1.22	0.05	
•C1AM45	190600-8C	-08	-08	1.35	0.20	

Plated Steel
37° Flare Swivel, 45° Elbow

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AM54	190773-4S	-04	-04	1.05	0.09	
•C1AM55	190773-6S	-06	-06	1.20	0.15	

Note: Fitting Sizes -04 and -08 mate with both JIC 37° and SAE 45° male flares.

Plated Steel
37° Flare Swivel, 90° Elbow

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1KV86	FBM1120	-03	-03	0.93	0.06	
•C1AM50	190772-4S	-04	-04	0.95	0.07	
C1AM51	**190772-6S**	-06	-06	1.10	0.14	
•C1AM52	190772-8S	-08	-08	1.41	0.25	

Note: Fitting Sizes -04 and -08 mate with both JIC 37° and SAE 45° male flares.

Forged Stainless Steel
37° Flare Swivel, 90° Elbow

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1EA64	FBM1150	-03	-03		0.40	
•C1EA65	FBM1151	-04	-04		0.10	

Plated Steel, Brass Nipple
45° Flare Swivel

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1BW83	63-190990-6	-06	-06 SAE	1.25	0.11	

Plated Steel
45° Flare Swivel, 45° Elbow

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1EQ29	FC9341-0606S	-06	-06 SAE	1.20	0.13	

Plated Steel
45° Flare Swivel, 90° Elbow

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1EQ28	FC9171-0606S	-06	-06 SAE	1.10	0.14	

Plated Steel, Brass Nipple
Male Pipe

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Pipe Size	Cut-Off (in)	Wt.	Price Each
•C1BM62	38-190627-2-4	-04	1/8 NPTF	0.89	0.25	
•C1BM63	38-190627-4-4	-04	1/4 NPTF	1.08	0.25	
•C1BM65	38-190627-4-6	-06	1/4 NPTF	1.13	0.20	

Plated Steel
Male Inverted Flare

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1CT47	FC9062-0404S	-04	-04 (7/16-24)	1.66	0.07	
•C1CT48	FC9062-0606S	-06	-06 (5/8-18)	1.69	0.11	
•C1CT49	FC9062-0808S	-08	-08 (3/4-18)	1.84	0.20	

Plated Steel
Male Inverted Flare, 90° Elbow

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1AM57	190950-6S	-06	-06 (5/8-18)	1.60	0.13	

Plated Steel
10mm Banjo, Straight

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Size	Cut-Off (in)	Wt.	Price Each
•C1EB89	FBM3091	-03	10 MM		0.05	

Plated Steel
10mm Banjo, 17° Elbow

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Size	Cut-Off (in)	Wt.	Price Each
•C1EB90	FBM3092	-03	10 MM		0.05	

900568
Replacement Sleeves for Reusable Teflon® Racing Hose Fittings

Fittings for Teflon® Racing Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Material	Wt.	Price Each
•C1CA87	900568-3B	-03	Brass	0.01	
•C1CA88	900568-4B	-04	Brass	0.01	
•C1EH43	900568-4C	-04	Stainless Steel	0.01	
•C1CA90	900568-6B	-06	Brass	0.01	

Note: Us brass for re-assembly with steel fittings, stainless for stainless fittings.

Reusable Fittings for AQP® High Pressure Hose

Plated Steel
37° Flare Swivel

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
C1BQ39	**4411-6S**	-06	-06	1.43	0.16	
•C1BQ41	4411-8-6S	-06	-08	1.52	0.20	
•C1BQ38	4411-6-8S	-08	-06	1.53	0.22	
C1BQ42	**4411-8S**	-08	-08	1.62	0.26	
C1BQ27	**4411-10-8S**	-08	-10	1.80	0.31	
•C1BQ40	4411-8-10S	-10	-08	1.64	0.34	
•C1BQ28	4411-10S	-10	-10	1.81	0.39	
•C1BQ29	4411-12-10S	-10	-12	1.91	0.49	
•C1BQ26	4411-10-12S	-12	-10	1.83	0.45	
C1BQ30	**4411-12S**	-12	-12	1.92	0.57	

Plated Steel
37° Flare Swivel, 45° Elbow

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
•C1AM11	190265-6S	-06	-06	1.33	0.15	
•C1AM24	190297-8S	-08	-08	1.84	0.29	
•C1AM21	190297-10S	-10	-10	1.95	0.40	
•C1AL97	190265-12S	-12	-12	2.21	0.63	

Plated Steel
37° Flare Swivel, 90° Elbow

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size	Cut-Off (in)	Wt.	Price Each
C1AL95	**190261-6S**	-06	-06	1.23	0.20	
C1AM20	**190296-8S**	-08	-08	1.61	0.30	
•C1AM17	190296-10S	-10	-10	1.65	0.41	
•C1AL92	190261-12S	-12	-12	2.17	0.75	

Plated Steel
Male Inverted Flare

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1AL81	190111-5-6S	-06	-05 (1/2-20)	1.82	0.30	
•C1AL83	190111-6S	-06	-06 (5/8-18)	1.82	0.14	
•C1AL84	190111-8S	-08	-08 (3/4-18)	2.05	0.25	

Plated Steel
Male Inverted Flare, 45° Elbow

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1AM35	190371-5-6S	-06	-05 (1/2-20)		0.20	
•C1AM37	190371-6S	-06	-06 (5/8-18)	2.10	0.15	
•C1AM38	190371-8S	-08	-08 (3/4-18)	2.24	0.25	

Plated Steel
Male Inverted Flare, 90° Elbow

Reusable Fittings for AQP® High Pressure Hose

Catalog Part No.	Aeroquip Model	Hose Dash Size	Fitting Dash Size & Thread	Cut-Off (in)	Wt.	Price Each
•C1EM24	190235-5-6S	-06	-05 (1/2-20)		0.14	
•C1AL87	190235-6S	-06	-06 (5/8-18)	1.73	0.25	
•C1AL88	190235-7-6S	-06	-07 (11/16-18)	1.73	0.17	
•C1AL90	190235-8S	-08	-08 (3/4-18)	1.89	0.25	

AN Flare Adapters

Male 37° Flare / Male 37° Flare
Blue Anodized Aluminum
(AN 815)

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1CQ43	FBM2051	-04	-04	0.02	
•C1CQ44	FBM2052	-06	-06	0.05	
•C1CQ45	FBM2053	-08	-08	0.05	
•C1CQ46	FBM2054	-10	-10	0.08	
•C1CQ47	FBM2055	-12	-12	0.12	
•C1EA75	FBM2056	-16	-16	0.01	

Note: AN number is for configuration reference only.

Female 37° Flare / Female 37° Flare
Blue Anodized Aluminum

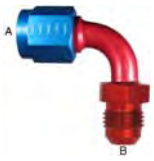
AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1CQ67	FBM2914	-04	-04	0.03	
•C1CQ68	FBM2915	-06	-06	0.05	
•C1CQ69	FBM2916	-08	-08	0.07	
•C1CQ70	FBM2917	-10	-10	0.05	

Female 37° Flare Swivel 90° Elbow

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1GG13	FBM2978	-06	-06	0.05	
•C1GG16	FBM2981	-12	-12	0.19	



Female 37° Flare Swivel / Male 37° Flare 90° Elbow

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" and "B" Dash Size	Material	Wt.	Price Each
•C1GN46	FBM3155	-06	Red Anodized Aluminum	0.04	

Adapters

Male 37° Flare Tee
Blue Anodized Aluminum
(AN 824)

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Dash Size	Wt.	Price Each
•C1ZY25	FBM2060	-03	-03	-03	0.02	
•C1CQ49	FBM2062	-06	-06	-06	0.05	
•C1CQ50	FBM2063	-08	-08	-08	0.09	

Note: AN number is for configuration reference only.

Male O-Ring Boss / Male 37° Flare
Blue Anodized Aluminum

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1EB84	FBM2953	-10	-10	0.07	
•C1EB86	FBM2955	-12	-12	0.12	

Male 37° Flare / Male 37° Flare
(AN 919)

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Material	Wt.	Price Each
•C1EA73	FBM2048	-04	-03	Blue Anodized Aluminum	0.02	
•C1EB26	FBM2156	-06	-04	Blue Anodized Aluminum	0.03	
•C1EB27	FBM2160	-08	-06	Blue Anodized Aluminum	0.05	
•C1EB28	FBM2162	-10	-06	Blue Anodized Aluminum	0.07	
•C1EB29	FBM2163	-10	-08	Blue Anodized Aluminum	0.07	
•C1EB30	FBM2166	-12	-08	Blue Anodized Aluminum	0.11	
•C1EB31	FBM2167	-12	-10	Blue Anodized Aluminum	0.11	

Note: AN number is for configuration reference only.

Male 37° Flare / Male 37° Flare
90° Elbow, Blue Anodized
Aluminum (AN 821)

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Wt.	Price Each
•C1EA90	FBM2120	-06	-06	0.04	
•C1EB40	FBM2190	-08	-08	0.40	

Note: AN number is for configuration reference only.

Female 37° Tee
Blue Anodized Aluminum

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Dash Size	Material	Wt.	Price Each
•C1FN41	FBM2175	-08	-08	-08	Aluminum	0.13	

Adapters

Female 37° Flare Swivel / Male 37° Flare / Male 37° Flare Tee

AN Flare Adapters

Catalog Part No.	Aeroquip Model	Dash Size	Material	Wt.	Price Each
C1FV87	FBM2257	-10	Blue Anodized Aluminum	0.16	

37° Flare Plug
Blue Anodized Aluminum
Aluminum (AN 806)

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC28	FBM3713	-04	0.01	
•C1EC29	FBM3714	-06	0.01	
•C1EC32	FBM3717	-12	0.08	

Note: AN number is for configuration reference only.

37° Flare Cap
Blue Anodized Aluminum
(AN 929)

AN Flare Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC47	FBM3751	-03	0.02	
•C1EC48	FBM3752	-04	0.03	
•C1EC40	FBM3740	-06	0.03	
•C1EC41	FBM3741	-08	0.04	
•C1EC42	FBM3742	-10	0.06	
•C1EC43	FBM3743	-12	0.10	
•C1EC44	FBM3744	-16	0.14	

Note: AN number is for configuration reference only.

O-Ring Boss Adapters

SAE O-Ring Boss Plug
Blue Anodized Aluminum
(AN 814)

O-Ring Boss Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC36	FBM3724	-06	0.03	
•C1EC37	FBM3725	-08	0.04	
•C1EC38	FBM3726	-10	0.05	

Note: AN number is for configuration reference only.

AN Flare Bulkhead Adapters

Male 37° Flare / Male 37° Flare Bulkhead Union (AN 832)

AN Flare Bulkhead Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Material	Wt.	Price Each
•C1EB47	FBM2770	-03	-03	Steel	0.07	
•C1EB46	FBM2769	-03	-03	Blue Anodized Aluminum	0.10	
•C1CQ51	FBM2071	-04	-04	Blue Anodized Aluminum	0.03	
•C1CQ52	FBM2072	-06	-06	Blue Anodized Aluminum	0.04	
•C1CQ53	FBM2073	-08	-08	Blue Anodized Aluminum	0.07	
•C1CQ54	FBM2074	-10	-10	Blue Anodized Aluminum	0.11	
•C1EA79	FBM2076	-16	-16	Blue Anodized Aluminum	0.27	

Note: Aluminum part numbers do NOT include a locknut. Steel part numbers include a locknut. Aluminum Locknuts page 232

Note: AN number is for configuration reference only.

Male 37° Flare / Male 37° Flare 90° Bulkhead Union Elbow Blue Anodized Alum (AN 833)

AN Flare Bulkhead Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	Material	Wt.	Price Each
•C1ZY24	FBM2799	-03	-03	Blue Anodized Aluminum	0.03	
C1FE92	FBM2085	-12	-12	Blue Anodized Aluminum	0.23	

Note: Aluminum part numbers do NOT include a locknut. Steel part numbers include a locknut. Aluminum Locknuts page 232

Note: AN number is for configuration reference only.

Male 37° Flare Bulkhead Run Tee (AN 804)

AN Flare Bulkhead Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Dash Size	Material	Wt.	Price Each
C1ZY22	FBM2815	-03	-03	-03	Blue Anodized Aluminum	0.04	

Note: Aluminum part numbers do NOT include a locknut. Steel part numbers include a locknut. Aluminum Locknuts page 232

Note: AN number is for configuration reference only.

Male 37° Flare Bulkhead Tee (AN 834)

AN Flare Bulkhead Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Dash Size	Material	Wt.	Price Each
•C1FM60	FBM2091	-04	-04	-04	Blue Anodized Aluminum	0.04	
•C1FM62	FBM2093	-08	-08	-08	Blue Anodized Aluminum	0.13	

Note: Aluminum part numbers do NOT include a locknut. Steel part numbers include a locknut. Aluminum Locknuts page 232

Note: AN number is for configuration reference only.

Adapters

Blue Anodized Aluminum
Locknut (AN 924)

AN Flare Bulkhead Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1CQ59	FBM2099	-04	0.02	
•C1CQ60	FBM2100	-06	0.02	
•C1CQ61	FBM2103	-08	0.02	
•C1CQ62	FBM2104	-10	0.05	
•C1CQ63	FBM2105	-12	0.07	
•C1EA82	FBM2106	-16	0.04	

Note: AN number is for configuration reference only.

AN Tube Fittings

37° Flare Nut
Blue Anodized Aluminum
(AN 818)

AN Tube Fittings

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EB97	FBM3555	-04	0.05	
•C1EC19	FBM3675	-06	0.03	
•C1EC20	FBM3676	-08	0.05	

Note: AN number is for configuration reference only.

37° Flare Sleeve
Blue Anodized Aluminum
(AN 819)

AN Tube Fittings

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC15	FBM3671	-06	0.01	
•C1EC16	FBM3672	-08	0.01	

Note: AN number is for configuration reference only.

AN Flare To Pipe Adapters

Adapters

Male 37° Flare / Male Pipe
Aluminum (AN 816)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Pipe Size	Finish	Wt.	Price Each
•C1EA67	FBM2000	-03	1/8	Blue Anodized	0.01	
•C1CQ18	FBM2001	-04	1/8	Blue Anodized	0.01	
•C1CQ20	FBM2003	-06	1/8	Blue Anodized	0.02	
•C1CQ19	FBM2002	-04	1/4	Blue Anodized	0.04	
•C1CQ21	FBM2004	-06	1/4	Blue Anodized	0.10	
•C1ZW74	FBE2004	-06	1/4	Nickel Plated	0.02	
•C1EA68	FBM2006	-08	1/4	Blue Anodized	0.03	
C1KL66	FBM5003	-06	1/8	Black Anodized	0.03	
•C1CQ22	FBM2005	-06	3/8	Blue Anodized	0.03	
•C1ZW73	FBE2005	-06	3/8	Nickel Plated	0.04	
•C1ZW46	FBM2013	-06	1/2	Blue Anodized	0.05	
•C1CQ23	FBM2007	-08	3/8	Blue Anodized	0.04	
•C1ZW72	FBE2007	-08	3/8	Nickel Plated	0.04	
•C1CQ24	FBM2008	-08	1/2	Blue Anodized	0.03	
•C1ZW71	FBE2008	-08	1/2	Nickel Plated	0.07	
•C1CQ25	FBM2009	-10	1/2	Blue Anodized	0.06	
•C1CQ26	FBM2010	-12	1/2	Blue Anodized	0.03	
•C1CQ27	FBM2011	-12	3/4	Blue Anodized	0.10	
C1KL71	FBM5011	-12	3/4	Black Anodized	0.01	
•C1ZW44	FBM2015	-16	3/4	Blue Anodized	0.14	
•C1CQ28	FBM2012	-16	1.0	Blue Anodized	0.16	

Note: Nickel-Plated models have a "stainless steel" appearance.
Note: AN number is for configuration reference only.

Male 37° Flare / Male Pipe
45° Elbow
Aluminum (AN 823)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Pipe Size	Finish	Wt.	Price Each
•C1ZY26	FBM2020	-03	1/8	Blue Anodized	0.02	
•C1CQ29	FBM2021	-04	1/8	Blue Anodized	0.01	
•C1CQ30	FBM2022	-06	1/4	Blue Anodized	0.03	
•C1CQ31	FBM2023	-08	3/8	Blue Anodized	0.05	
•C1CQ32	FBM2024	-10	1/2	Blue Anodized	0.08	
C1ZW67	FBE2024	-10	1/2	Nickel Plated	0.08	

Note: Nickel-Plated models have a "stainless steel" appearance.
Note: AN number is for configuration reference only.

Adapters

Male 37° Flare / Male Pipe
90° Elbow
Aluminum (AN 822)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Pipe Size	Finish	Wt.	Price Each
•C1EA70	FBM2030	-03	1/8	Blue Anodized	0.02	
•C1EA71	FBM2031	-04	1/8	Blue Anodized	0.03	
•C1CQ35	FBM2033	-06	1/8	Blue Anodized	0.03	
C1KL73	FBM5033	-06	1/8	Black Anodized	0.03	
•C1CQ34	FBM2032	-04	1/4	Blue Anodized	0.02	
•C1CQ36	FBM2034	-06	1/4	Blue Anodized	0.04	
•C1CQ37	FBM2035	-06	3/8	Blue Anodized	0.10	
•C1CQ38	FBM2037	-08	3/8	Blue Anodized	0.07	
•C1CQ39	FBM2038	-08	1/2	Blue Anodized	0.05	
C1KL77	FBM5038	-08	1/2	Black Anodized	0.05	
•C1CQ40	FBM2039	-10	1/2	Blue Anodized	0.10	
•C1CQ41	FBM2040	-12	3/4	Blue Anodized	0.16	
•C1CQ42	FBM2041	-16	1.0	Blue Anodized	0.25	

Note: Nickel-Plated models have a "stainless steel" appearance.
Note: AN number is for configuration reference only.

Male 37° Flare / Male 37° Flare
/ Male Pipe Tee
Blue Anodized Aluminum
(AN 825)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Pipe Size	Wt.	Price Each
•C1EP70	FBM2122	-06	-06	1/4	0.05	

Note: AN number is for configuration reference only.

Male 37° Flare / Male 37° Flare
/ Male Pipe Tee
Blue Anodized Aluminum
(AN 826)

AN Flare To Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Pipe Size	"C" Dash Size	Wt.	Price Each
•C1EA91	FBM2124	-04	1/8	-04	0.03	
•C1EA93	FBM2126	-08	3/8	-08	0.09	

Note: AN number is for configuration reference only.

High Pressure Adapters

Male 37° Flare / 42° Inverted
Male Flare

High Pressure Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	Thread "B"	Wt.	Price Each
•C1ZY21	FBM2963	-06	1/2-20	0.05	
•C1ZY19	FBM2965	-06	11/16-18	0.07	
•C1ZY20	FBM2964	-06	5/8-18	0.06	

Metric Adapters

Male 37° Flare / Metric Male
Steel

Metric Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	Thread "B"	Wt.	Price Each
•C1CQ66	FBM2608	-06	M16 x 1.5	0.50	
•C1EB44	FBM2609	-06	M18 x 1.5	0.16	

Note: Used for Saginaw power steering adapter (metric). Also G.M. fuel injection conversion adapter for metric o-ring style porting.

Male 37° Flare / Metric Male
Blue Anodized Aluminum

Metric Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	Thread "B"	Wt.	Price Each
•C1ZW32	FBM2246	-06	12MM x 1.5	0.02	
•C1ZW38	FBM2240	-06	14MM x 1.5	0.02	

Pipe Adapters

Female Pipe Coupling
Blue Anodized Aluminum
(AN 910)

Pipe Adapters

Catalog Part No.	Aeroquip Model	Pipe Size	Wt.	Price Each
•C1EA94	FBM2129	1/8	0.20	

Note: AN number is for configuration reference only.

Male Pipe Hex Nipple
Blue Anodized Aluminum
(AN 911)

Pipe Adapters

Catalog Part No.	Aeroquip Model	Pipe Size	Wt.	Price Each
•C1EA98	FBM2133	1/4	0.25	

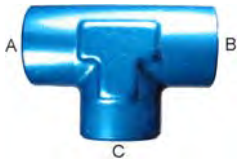
Note: AN number is for configuration reference only.

Male Pipe / Female Pipe
Blue Anodized Aluminum 90° Elbow (AN914)

Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Pipe Size	"B" Pipe Size	Wt.	Price Each
•C1ZT33	FBM2147	1/8	1/8	0.02	

Note: AN number is for configuration reference only.



Female Pipe Tee
Blue Anodized Aluminum
(AN 917)

Pipe Adapters

Catalog Part No.	Aeroquip Model	Pipe Size	Wt.	Price Each
•C1EB23	FBM2150	1/8	0.03	
•C1EB24	FBM2151	1/4	0.08	

Note: AN number is for configuration reference only.

Male Pipe / Female Pipe Bushing
Blue Anodized Aluminum
(AN 912)

Pipe Adapters

Catalog Part No.	Aeroquip Model	"A" Pipe Size	"B" Pipe Size	Wt.	Price Each
•C1EB14	FBM2138	3/8	1/8	0.02	
•C1EB13	FBM2137	3/8	1/4	0.02	
•C1EB16	FBM2140	1/2	1/4	0.40	
•C1EB19	FBM2143	3/4	3/8	0.07	
•C1EB18	FBM2142	3/4	1/2	0.05	
•C1EB21	FBM2145	1.0	3/4	0.09	

Note: AN number is for configuration reference only.

Allen Head Pipe Plug
Blue Anodized Aluminum
(AN 932)

Pipe Adapters

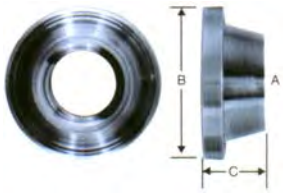
Catalog Part No.	Aeroquip Model	Pipe Size	Wt.	Price Each
•C1EC23	FBM3684	1/16	0.01	
•C1EC24	FBM3685	1/8	0.01	
•C1EC25	FBM3686	1/4	0.01	
•C1EC26	FBM3687	3/8	0.02	
•C1EC45	FBM3749	1/2	0.02	

Note: AN number is for configuration reference only.

Aluminum Tank Welding Bungs

Threaded connection is female SAE O-Ring Boss. Note: AN flare adapters have the same threads as SAE O-Ring Boss adapters. If a properly sized O-Ring is positioned on the adapter, and the hex on the AN flare adapter is large enough to completely cover the O-Ring as it is compressed into the welding bung port, that combination may be used.

Buna-N O-Rings (For use with gasoline fuels): SAE O-Ring Boss O-Rings



Tank Welding Bungs (AN 871)

Aluminum Tank Welding Bungs

Catalog Part No.	Aeroquip Model	"A" Dash Size	"A" Thread Size	B (in)	C (in)	Wt.	Price Each
•C1ZU86	FBM2403	-06	9/16-18	1.56	0.59	0.06	
•C1ZU85	FBM2404	-08	3/4-16	1.75	0.68	0.08	
•C1ZU84	FBM2405	-10	7/8-14	1.87	0.75	0.09	
•C1ZU83	FBM2406	-12	1-1/16-12	2.00	0.90	0.12	
•C1BD79	22617-6	-06 Buna-N O-Ring	--	--	--	0.01	
•C1BD80	22617-8	-08 Buna-N O-Ring	--	--	--	0.15	
•C1BD73	22617-10	-10 Buna-N O-Ring	--	--	--	0.15	
•C1BD74	22617-12	-12 Buna-N O-Ring	--	--	--	0.02	
•C1BD75	22617-16	-16 Buna-N O-Ring	--	--	--	0.01	

Note: AN number is for configuration reference only.
Note: Buna-N O-Rings are for use with gasoline fuels.

Special Flare Adapters

73014
Flare To Braze (Unplated)

Special Flare Adapters

Catalog Part No.	Aeroquip Model	Fitting Dash Size "A"	Tube O.D. "B" (in)	Counterbore Depth "C" (in)	Wt.	Price Each
C1BZ32	**73014-4S**	-04	0.25	0.16	0.02	
C1BZ33	**73014-5S**	-05	0.31	0.16	0.03	
C1BZ34	**73014-6S**	-06	0.38	0.16	0.03	
C1BZ35	**73014-8S**	-08	0.50	0.16	0.07	
•C1BZ27	73014-10S	-10	0.63	0.25	0.10	
C1BZ28	**73014-12S**	-12	0.75	0.25	0.15	
•C1BZ29	73014-16S	-16	1.00	0.25	0.23	
•C1BZ30	73014-20S	-20	1.25	0.25	0.39	
•C1HJ75	73014-24S	-24	1.50	0.25	0.58	
•C1BZ31	73014-32S	-32	2.00	0.25	1.16	

Aluminum Carburetor Adapters

FBM2114
Blue Anodized

Aluminum Carburetor Adapters

Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1CQ65	FBM2114	-06	Holley Dual Feed 750 through Dominator 1350 Series and Quadrajet up to 1974 with 7/8-20 thread. Includes crushwasher FBM3516.	0.03	

FBM2110
Blue Anodized

Aluminum Carburetor Adapters

Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1EA84	FBM2110	-08	Holley Dual Feed 750 through Dominator 1350 Series and Quadrajet up to 1974 with 7/8-20 thread. Includes crushwasher FBM3516.	0.01	

FBM2192
Blue Anodized

Aluminum Carburetor Adapters

Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1EB42	FBM2192	-08	Holley Dual Feed 750 through Dominator 1350 Series and Quadrajet up to 1974 with 7/8-20 thread. Includes crushwasher FBM3516.	0.11	

Aluminum Fuel Pump Adapters

FBM2108
Blue Anodized

Aluminum Fuel Pump Adapters

Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1CQ64	FBM2108	-06	Inverted flare 5/8-18 thread.	0.02	

Blue Anodized JIC 37° Male Flare to Male Pipe

Aluminum Fuel Pump Adapters

Catalog Part No.	Aeroquip Model	Fitting Dash Size	Application	Wt.	Price Each
•C1EB39	FBM2185	-10	3/8 Male Pipe to Flare for Holley Electric Fuel Pumps. Blue Anodized.	0.05	

JIC 37° Male Flare To 42° Inverted Flare

Blue Anodized JIC 37° Male Flare to 42° Inverted Flare

JIC 37° Male Flare To 42° Inverted Flare

Catalog Part No.	Aeroquip Model	Fitting Dash Size	Brake Thread Size "B"	Length	Wt.	Price Each
•C1EB35	FBM2181	-03	1/2-20	1.07	0.02	

Aluminum Fuel Blocks

Blue Anodized Aluminum Fuel Block

Aluminum Fuel Blocks

Catalog Part No.	Aeroquip Model	Pipe Size "A"	Pipe Size "B"	Pipe Size "C"	Pipe Size "D"	Wt.	Price Each
C1EB33	FBM2178	1/4	1/4	1/8	3/8	0.15	

Aluminum In-Line Fuel Pressure Adapters

Blue Anodized Aluminum In-Line Fuel Pressure Adaptor

Aluminum In-Line Fuel Pressure Adapters

Catalog Part No.	Aeroquip Model	"A" Dash Size	"B" Dash Size	"C" Pipe Size	Wt.	Price Each
•C1EB37	FBM2183	-06	-06	1/8	0.05	
•C1EB38	FBM2184	-08	-08	1/8	0.07	

Metric Banjo Hose Barbs

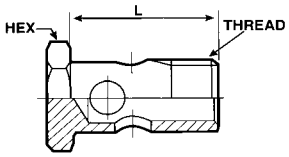
Metric Banjo Hose Barb

Metric Banjo Hose Barbs

Catalog Part No.	Voss Model	Hose I.D.	Bolt Size	Barb Fits	Wt.	Price Each
•C1BZ75	7612-05R-2	5/16	M 12 x 1.5	Rubber Hose	0.15	
•C1DW95	400-617-4490-A	--	M10 Bonded Seal	--	0.01	
•C1DW96	400-622-4490-A	--	M12 Bonded Seal	--	0.01	
•C1DW97	400-627-4490-A	--	M14 Bonded Seal	--	0.01	
•C1DW98	400-629-4490-A	--	M16 Bonded Seal	--	0.01	
•C1DW99	400-632-4490-A	--	M18 Bonded Seal	--	0.01	
•C1DX12	400-636-4490-A	--	M22 Bonded Seal	--	0.02	

Note: 2 bonded seals are required to seal a banjo fitting. 3 are required when they are stacked.
Metric Bonded Seals page 202

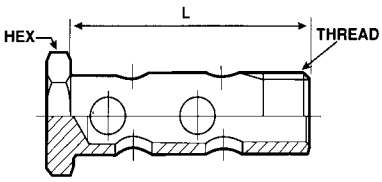
Metric Banjo Bolts



F15M
Single

Metric Banjo Bolts

Catalog Part No.	Adaptall Model	Thread (mm)	L (mm)	Hex (mm)	Wt.	Price Each
•C1FM52	F15M10X1.0	M 10 x 1.0	25	14	0.03	
•C1FM53	F15M12X1.5	M 12 x 1.5	28	17	0.05	
•C1FM54	F15M14X1.5	M 14 x 1.5	32	14	0.06	
•C1FM55	F15M16X1.5	M 16 x 1.5	38	22	0.11	
•C1FM56	F15M18X1.5	M 18 x 1.5	44	24	0.10	

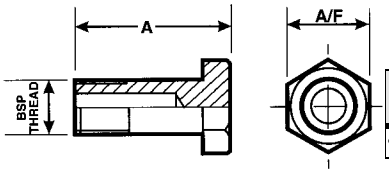


DBF
Double

Metric Banjo Bolts

Catalog Part No.	Adaptall Model	Thread (mm)	L (mm)	Hex (mm)	Wt.	Price Each
•C1FM49	DBF14X1.5	M 14 x 1.5	49	14	0.08	

BSP Banjo Bolts



RX-BMG

BSP Banjo Bolts

Catalog Part No.	Voss Model	BSP Thread	Hex (in)	A (in)	Wt.	Price Each
•C1DK33	RX04BMG	1/4-19	0.69	1.38	0.08	

QUICK-DRAIN Oil Pan Couplings

The easy, quick and high-tech way to change your oil. Great for streetcars, hot rods, race cars, anything that you need to drain fluid from in a clean and efficient way. Eliminates the potential for spillage - drains directly into a waste container.

QUICK-DRAIN Oil Pan Couplings

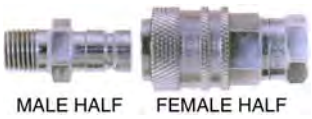
Catalog Part No.	Aeroquip Model	Description	Minimum Assembly Torque (ft. lbs)	Flow Rate (175°F 10W30 Oil)	Wt.	Price Each
•C1EK53	FD14-4002-02-06	Male Half M18 x 1.5 6g	20-40	0.24 GPM	0.28	
•C1EK87	FD14-4002-14-06	Male Half 1-1/8-12 UNF-2A	30-60	0.68 GPM	0.37	
•C1EK98	FD14-4002-17-06	Male Half M25 x 1.5 6g	30-60	0.68 GPM	0.31	
•C1FV92	FD14-4002-18-06	Male Half M22 x 1.5 6g	30-60	0.68 GPM	0.29	
•C1JF24	FD14-4002-27-06	Male Half 1/2-14 NPT			0.21	
•C1EL27	FD14-4003-10-06	Female Half 5/8 Hose Barb			0.26	

Note: Male half comes complete with cap and gasket.
Note: Failure to meet minimum assembly torque could result in fluid leakage. CAUTION: Do not over torque.

Pressure Sensing Couplings

The primary feature of FD90 Series Quick-Disconnect couplings is self-sealing valves in both halves, allowing connection and disconnection with minimal fluid loss and virtually no air inclusion. The FD90 Series coupling is ideal for gauge, diagnostic, wing and chassis adjustment applications.

Coupling Body Size: 1/4 Inch.
Maximum Operating Pressure: 7000 PSI.
Air Inclusion: 0.02 CC maximum.
Fluid Loss: 0.1 CC maximum.



Pressure Sensing Couplings

Catalog Part No.	Aeroquip Model	Description	Thread Size (NPTF)	Length (in)	Wt.	Price Each
•C1CU37	FD90-1021-02-04	Female Half - Female Pipe	1/8-27	1.95	0.25	
C1CU38	**FD90-1021-04-04**	Female Half - Female Pipe	1/4-18	2.25	0.26	
•C1FK54	FD90-1012-02-04	Male Half - Male Pipe	1/8-27	1.60	0.08	
C1CU36	**FD90-1012-04-04**	Male Half - Male Pipe	1/4-18	1.49	0.07	
•C1CU39	FD90-1034-04-04	Male Half - Female Pipe	1/4-18	1.90	0.12	
•C1CU41	FD90-1044-06-04	Male Half - Male SAE O-Ring	9/16-18	1.32	0.07	
•C1CU40	FD90-1040-04	Dust Cap for Male Half			0.01	

Note: Not for use with brake fluid.

Hydraulic Couplings

PUSH-PULL™ Self-Sealing Couplings are ideal for most hydraulic and fluid applications requiring a quick connect/disconnect coupling. The coupling bodies are constructed of high quality plated steel, and have Buna-N seals.

Maximum Operating Pressure: 5000 PSI (1/4 Inch Size), 4000 PSI (3/8 through 1 Inch Sizes).

Air Inclusion: 0.5 CC Max (1/4 Inch Size), 1.5 CC Max (3/8 Inch Size), 2.8 CC Max (1/2 Inch Size), 10.0 CC Max (3/4 Inch Size), 14.2 CC Max (1 Inch Size).

Fluid Loss: 0.5 CC Max (1/4 Inch Size), 1.3 CC Max (3/8 Inch Size), 2.8 CC Max (1/2 Inch Size), 8.2 CC Max (3/4 Inch Size), 14.2 CC Max (1 Inch Size).

Vacuum Service Rating: 28 Inches HG.

Hydraulic Couplings

Catalog Part No.	Aeroquip Model	Description	Rated Flow (GPM)	Length (in)	Wt.	Price Each
•C1BS96	5601-2-4S	Female Half - 1/8-27 Female Pipe	1.0	1.81	0.24	
C1BS97	**5601-4-4S**	Female Half - 1/4-18 Female Pipe	1.0	1.81	0.60	
C1BS98	**5601-6-6S**	Female Half - 3/8-18 Female Pipe	6.0	2.09	0.36	
C1BS99	**5601-8-10S**	Female Half - 1/2-14 Female Pipe	12.0	2.76	0.57	
•C1BS93	5601-12-10S	Female Half - 3/4-14 Female Pipe	12.0	2.91	0.62	
C1BS94	**5601-12-12S**	Female Half - 3/4 Female Pipe	28.0	3.25	1.02	
C1BS95	**5601-16-16S**	Female Half - 1-11-1/2 Female Pipe	50.0	4.09	1.47	
•C1BT14	5602-2-4S	Male Half - 1/8-27 Female Pipe	1.0	1.17	0.05	
C1BT15	**5602-4-4S**	Male Half - 1/4-18 Female Pipe	1.0	1.24	0.08	
C1BT16	**5602-6-6S**	Male Half - 3/8-18 Female Pipe	6.0	1.40	0.12	
C1BT17	**5602-8-10S**	Male Half - 1/2-14 Female Pipe	12.0	1.89	0.23	
•C1BT11	5602-12-10S	Male Half - 3/4 Female Pipe	12.0	2.03	0.38	
C1BT12	**5602-12-12S**	Male Half - 3/4 Female Pipe	28.0	2.28	0.50	
C1BT13	**5602-16-16S**	Male Half - 1-11-1/2 Female Pipe	50.0	2.77	0.76	
•C1EN49	5608-10-10S	Female Half - 7/8-14 Female SAE	12.0	2.81	0.57	
•C1EN50	5610-10-10S	Male Half - 7/8-14 Female SAE	12.0	2.08	0.22	
•C1BT40	5657-4	Dust Cap for -04 Male Half			0.03	
•C1BT41	5657-6	Dust Cap for -06 Male Half			0.04	
•C1BT37	5657-10	Dust Cap for -10 Male Half			0.04	
•C1BT38	5657-12	Dust Cap for -12 Male Half			0.11	
•C1BT39	5657-16	Dust Cap for -16 Male Half			0.19	
•C1BT48	5659-6	Dust Plug for -06 Female Half			0.02	
•C1BT46	5659-10	Dust Plug for -10 Female Half			0.04	
•C1BT47	5659-12	Dust Plug for -12 Female Half			0.07	

Note: Not recommended for brake system applications.

Fuel Check Couplings

Ideal for use to meet NHRA fuel check requirements. Male half mounts in the fuel line. Self-sealing valves in both halves, allowing connection and disconnection with minimal fluid loss and virtually no air inclusion.
Coupling Body Size: 1/4 Inch.
Maximum Operating Pressure: 7000 PSI.
Air Inclusion: 0.02 CC maximum.
Fluid Loss: 0.1 CC maximum.

Fuel Check Couplings

Catalog Part No.	Aeroquip Model	Description	Thread Size (in)	Length (in)	Wt.	Price Each
•C1CU37	FD90-1021-02-04	Female Half - Female Pipe	1/8-27 NPTF	1.95	0.25	

PRO CLAMP™ Aluminum Hose Connectors

PRO CLAMP™ connectors are made of red anodized aluminum to give your band clamp connections a professional look. The PRO CLAMP connector can be used on any rubber or stainless steel braid hose. PRO CLAMP connectors should not be used on brake lines, air conditioning, power steering or other high pressure lines. PRO CLAMP connectors come complete with a quality band clamp.

PRO CLAMP™ Aluminum Hose Connectors

Catalog Part No.	Aeroquip Model	Hose Dash Size	Hose I.D. (in)	Hose O.D. (in)	Wt.	Price Each
•C1CP67	FBM1002	-06	0.34	0.55	0.03	
•C1CP68	FBM1003	-08	0.44	0.65	0.03	
•C1CP69	FBM1004	-10	0.56	0.80	0.05	
•C1CP70	FBM1005	-12	0.69	0.94	0.07	

Stainless Steel Overbraid

Stainless Steel Overbraid is used to dress up existing rubber hoses. Stainless Overbraid simply slips over current radiator hoses and can be clamped with the Aeroquip® PRO CLAMP™ connectors for a finished hose assembly look. Stainless Overbraid provides no additional performance for the hose, but does provide added abrasion resistance and good looks.

Stainless Steel Overbraid

Catalog Part No.	Aeroquip Model	Nominal I.D. (in)	Hose O.D. Range (in)	Wt. (per ft)	Price (per ft)
•C1CQ80	FBR2400	1-1/2	1-1/8 to 2-1/4	0.31	

Support Clamps

Vinyl-coated steel support clamps provide security for supporting hose in long runs and critical bends. Match the clamp I.D. and hose O.D. as close as possible.

900729

Support Clamps

Catalog Part No.	Aeroquip Model	Clamp I.D. (Closed) (in)	Bolt Hole Dia. (in)	Wt.	Price Each
•C1CB45	900729-18	0.25	0.406	0.18	
•C1CB36	900729-01	0.44	0.406	0.05	
•C1CB37	900729-1	0.50	0.406	0.04	
C1CB47	**900729-2**	0.56	0.406	0.04	
•C1CB48	900729-21	0.63	0.406	0.04	
C1CB55	**900729-3**	0.69	0.406	0.33	
C1CB59	**900729-4**	0.75	0.406	0.04	
C1CB60	**900729-5**	0.81	0.406	0.05	
C1CB61	**900729-6**	0.94	0.406	0.06	
•C1CB49	900729-23	1.00	0.406	0.05	
C1CB62	**900729-8**	1.06	0.406	0.09	
•C1CB63	900729-9	1.13	0.531	0.09	
•C1CB52	900729-27	1.19	0.531	0.01	
•C1CB50	900729-24	1.25	0.531	0.10	
C1CB38	**900729-10**	1.50	0.531	0.11	
C1CB40	**900729-12**	1.75	0.531	1.30	
•C1CB41	900729-13	2.00	0.531	0.14	
•C1CB42	900729-14	2.25	0.531	0.16	
•C1CB56	900729-30	2.50	0.531	0.16	
•C1CB43	900729-15	2.75	0.531	0.19	
•C1EK29	900729-16	2.88	0.531	0.19	
•C1CB44	900729-17	3.56	0.531	0.24	

Replacement Aluminum Crush Washers

For use with Banjo Fittings and Carburetor Adapters

Replacement Aluminum Crush Washers

Catalog Part No.	Aeroquip Model	"A" Dash Size	Wt.	Price Each
•C1EC11	FBM3642	-03	0.65	
•C1EB92	FBM3514	-06	0.01	
•C1EB93	FBM3515	-08	0.01	

Fire Sleeve

Firesleeve hose flame shield can prevent or delay hose lines from burning. Select firesleeve with an I.D. slightly larger than the hose O.D.

624

Fire Sleeve

Catalog Part No.	Aeroquip Model	Sleeve I.D. (in)	Wt. (per ft)	Price (per ft)
•C1BW66	624-10	0.62	0.50	
•C1BW67	624-12	0.75	0.17	
•C1BW68	624-13	0.81	0.18	
•C1EN61	624-14	0.88	0.23	
•C1BW69	624-16	1.00	8.00	
•C1EN63	624-28	1.75	20.00	
•C1FD39	624-32	2.00	0.46	
C1HJ66	624-38	2.38	0.48	
C1MZ69	624-46	2.88		

Silicone Reducers

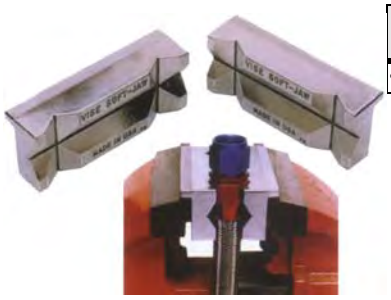
TFCS40

Silicone Reducers

Catalog Part No.	Thermal Flex Model	Size	Length (in)	Color	Wt.	Price Each
•C1HG97	TFCS40-200/250	2 x 2-1/2	3.00	Blue	0.17	
•C1JJ62	TFCS40-200/300	2 x 3	3.00	Blue	0.20	
•C1HG98	TFCS40-250/300	2-1/2 x 3	3.00	Blue	0.25	
•C1HH12	TFCS40-300/350	3 x 3-1/2	3.00	Blue	0.25	
•C1HH13	TFCS40-300/400	3 x 4	3.00	Blue	0.29	

Vise Jaw Inserts For Anodized Fitting Protection

FCM3661 vise-jaw inserts are a must for race teams, engine builders and street rodders. Keep your good-looking fittings from Aeroquip looking good even after assembly. FCM3661 vise-jaw inserts firmly hold the hex of the fitting during assembly, without marring the anodized finish. Made of aluminum with angled pockets, FCM3661 vise-jaw inserts can be used with any size fitting from -03 to -32. A horizontal pocket the length of the FCM3661 vise-jaws is ideal for securely holding steel braided hose in place, making straight cuts fast and simple. FCM3661 vise-jaw inserts also feature magnetic backs, allowing quick set-ups and easy transfer between vises.



Vise Jaw Inserts For Anodized Fitting Protection

Catalog Part No.	Aeroquip Model	Description	Wt.	Price Each
•C1EF79	FCM3661	Vise Jaw Inserts (pair)	0.96	

Hose Assembly Lube

Hose Assembly Lube is a specially compounded lubricant superior to any other lubricant used in hose assembly work. Use for either hand or machine assembly.

222070

Hose Assembly Lube

Catalog Part No.	Aeroquip Model	Container Size	Wt.	Price Each
•C1BC87	222070	1 Pint	0.97	

Hand-Held Hose Cutter

The FT1356 hand-held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as StartLite® and SOCKETLESS™ hose styles. The cutter's compact size makes it ideal for working in confined areas. It provides fast, accurate easy cuts - every time.

Features: Replaceable stainless steel blade that closes into its own handle for safe carrying and handling • Tough, durable nylon handles • Optional tool pouch.

FT1356

Hand-Held Hose Cutter

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1EZ22	FT1356	Hand-Held Hose Cutter	0.28	

SOCKETLESS™ Fitting Assembly Tool

The FT1268 hand-held assembly tool is especially designed for quick and easy assembly of SOCKETLESS™ hose in sizes -04, -06 and -08. The hose is held in position by a manually operated clamp, and the fitting is positioned on the mandrel assembly lever. The SOCKETLESS™ fitting is pushed into the hose by compressing the mandrel assembly lever.

FT1268

SOCKETLESS™ Fitting Assembly Tool

Catalog Part No.	Model Number	Description	Wt.	Price Each
•C1CW78	FT1268	SOCKETLESS™ Fitting Assembly Tool for sizes -4, -6, -8	0.40	

HSC Retail Stores

Hydraulic Supply Company retail stores are certified Eaton® Aeroquip Hose Centers. Our dedicated hose specialists can build your hoses right when you need them at one of our locations.

Felsted High Performance Control Cables

Felsted cables, controls and control systems are used to control such items as PTO's, manual and automatic transmissions, hydraulic valves, clutches, throttles or accelerators, engine shut-offs, and brakes. Our locations equipped to manufacture cables from stock components are Miami Springs, West Palm Beach, Fort Lauderdale, Belle Glade and Atlanta.

Core Construction: Hi-Performance (HP) 1 x 7 coated core is available in 3, 4 and 6 series cables. HP Core utilizes a proprietary coating over 1 x 7 wire rope which offers improved flexibility and higher push loads than armor core construction. Solid stainless steel cores are available in 3 Series Push-Pull, Universal and PTO cables.

Liners: All cables utilize polymer liners which have a temperature rating of -65°F to 225°F. Factory lubrication provides optimum core performance without requiring further service.

Stranded Conduit: Multiple, oil tempered spring wires are placed in a long lay pattern to protect the liner and inner core, maintain flexibility and withstand extreme compressive and tensile loads. This long lay construction results in minimal deflections during cable operation, assuring precise controlling action to the operator.

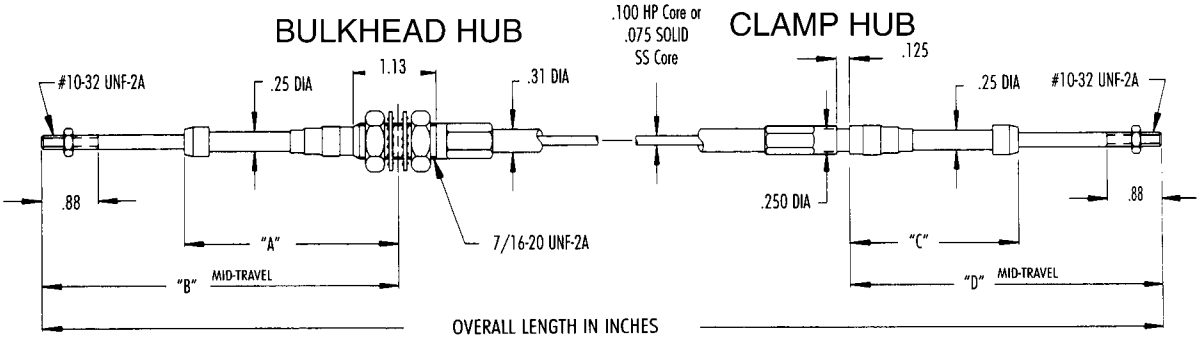
Conduit Jacket: Heavy duty, thick-walled polymer jackets are extruded onto the stranded liner for maximum cable strength. Standard material is HDPE molded to a dark maroon color.

End Fittings: Corrosion resistant materials are used throughout to provide maximum life. Standard 3, 4 and 6 series rods and sleeves are 300 series stainless steel, while hubs are either aluminum or stainless.

Seals & Boots: Durable custom compounded seals are used to prevent moisture and contaminants from entering the cable.

Rod & Sleeve Bearing: An exclusive polymer rod and sleeve bearing is used to improve efficiency, sealing and cable life by preventing metal to metal contact between the rod and sleeve. They also accurately align the rod with the seal to insure superior sealing and a long cable life.

Push-Pull Cables - 3 Series
Push Loads To 80 lbs • Pull Loads To 120 lbs



Cores: Choice of either solid stainless core or HP core. (HP core offers improved flexibility and higher push loads).

Hubs: Each cable assembly has (2) Hubs, which can be the same on each end, or different. Hub styles stocked are Bulkhead (aluminum or stainless), Clamp (stainless) and Bulkhead/Clamp Combo (aluminum). The Bulkhead/Clamp Combo Hub is a flexible solution for applications where exact hub type needed is unknown.

Minimum Bend Radius: 3 Inches (HP Core), 6 Inches (Solid Core).

Hardware: page 251

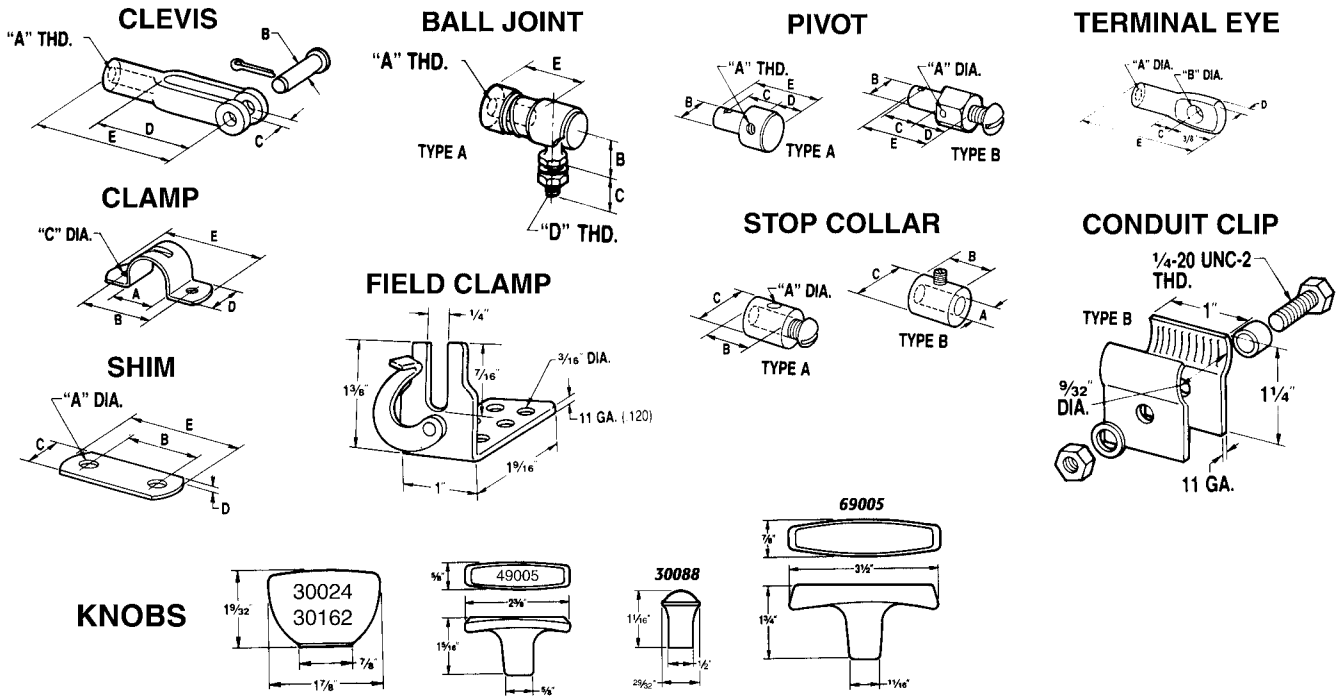
Control Cables

Push-Pull Cables - 3 Series • Push Loads To 80 lbs • Pull Loads To 120 lbs

Catalog Part No.	Felsted Model	Travel (in)	O.A. Length (in)	Core	Hubs	Push Rating (lbs)	Pull Rating (lbs)	A (in)	B (in)	C (in)	D (in)	Wt.	Price Each
N/AN/A	MTO-1INCHMTO-1INCH	1	MTO	MTO	MTO	80(HP) 60(Solid)	120(HP) 60(Solid)	3.00	4.44	2.31	3.75		
N/AN/A	MTO-2INCHMTO-2INCH	2	MTO	MTO	MTO	80(HP) 50(Solid)	120(HP) 60(Solid)	4.00	5.94	3.31	5.25		
N/AN/A	MTO-3INCHMTO-3INCH	3	MTO	MTO	MTO	70(HP) 40(Solid)	120(HP) 60(Solid)	5.00	7.44	4.31	6.75		
N/AN/A	MTO-4INCHMTO-4INCH	4	MTO	MTO	MTO	60(HP) 30(Solid)	120(HP) 60(Solid)	6.00	8.94	5.31	8.25		

MTO Models: Made-To-Order in specified Travel, O.A. Length, Core material and Hub configuration.

Cable Hardware & Knobs



Cable Hardware & Knobs

Catalog Part No.	Felsted Model	Description	Type	A	B	C	D	E	Wt.	Price Each
•C1EU91	39006	Ball Joint, 3 Series	A	10-24 UNF-2B	15/32	9/16	1/4-28 UNF-2A	31/32	0.08	
•C1ES22	000-49006-0000	Ball Joint, 4 Series	A	1/4-28 UNF-2B	15/32	9/16	1/4-28 UNF-2A	31/32	0.08	
•C1EZ29	000-49007-0000	Ball Joint, 4 Series	A	1/4-28 UNF-2B	15/32	7/8	5/16-24 UNF-2A	31/32	0.10	
•C1FE36	000-69007-0000	Ball Joint, 6 Series	A	5/16-24 UNF-2B	17/32	11/16	5/16-24 UNF-2A	1-1/8	0.15	
•C1EU33	39001	Clamp, 3 Series		3/8	1	13/64	1/2	1-1/2	0.01	
•C1EZ80	49001	Clamp, 4 Series		1/2	1	7/32	1/2	1-1/2	0.02	
•C1EW99	000-39003-0001	Clevis, 3 Series		10-32 UNF-2B	3/16	7/32	1	1-9/16	0.01	
•C1EX89	000-49003-0002	Clevis, 3 Series		10-32 UNF-2B	1/4	9/32	1-1/4	2	0.08	
•C1ER99	000-49003-0001	Clevis, 4 Series		1/4-28 UNF-2B	1/4	9/32	1-1/4	2	0.09	
•C1EV29	000-69003-0003	Clevis, 4 Series		1/4-28 UNF-2B	5/16	11/32	1-7/16	2-1/4	0.12	
•C1EW46	000-49003-0003	Clevis, 6 Series		5/16-24 UNF-2B	1/4	9/32	1-1/4	2	0.07	
•C1EZ98	000-69003-0001	Clevis, 6 Series		5/16-24 UNF-2B	5/16	11/32	1-7/16	2-1/4	0.12	

Cable Hardware & Knobs

Catalog Part No.	Felsted Model	Description	Type	A	B	C	D	E	Wt.	Price Each
•C1EZ95	000-89003-0002	Clevis, 6 Series		5/16-24 UNF-2B	3/8	7/16	1-5/8	2-1/2	0.03	
•C1ET99	39030-1	Field Clamp							0.20	
•C1EU72	30162	Knob, PTO, Red		1/4-20 UNC-2B					0.15	
•C1ZV18	49005-1011	Knob, Plain, Black		1/4-20 UNC-2B					0.10	
C1KE82	49005-2011	Knob, Plain, Red		1/4-20 UNC-2B					0.02	
•C1EN33	39011-1	Pivot, 3 Series	B	7/64	1/4	5/32	5/16	9/16	0.02	
•C1ZT92	39011-2	Pivot, 3 Series	B	7/64	1/4	19/64	5/16	11/16	0.02	
•C1EV97	000-49008-0001	Pivot, 4 Series	A	1/4-28 UNF-2B	1/4	5/16	1/2	32/32	0.03	
•C1EV95	000-49042-0000	Pivot, 4 Series	A	1/4-28 UNF-2B	3/8	15/32	1/2	1-3/16	0.05	
•C1EU76	39002	Shim, 3 & 4 Series		13/64	1	1/2	3/32	1-1/2	0.05	
•C1EW27	30103	Stop Collar, 3 Series	A	7/64	5/16	5/16			0.01	
•C1EW98	000-49004-0003	Terminal Eye, 4 Series		1/4-28 UNF-2B	1/4	5/8	3/8	1-7/8	0.11	
•C1EX90	000-49004-0001	Terminal Eye, 4 Series		1/4-28 UNF-2B	5/16	5/8	3/8	1-7/8	0.10	
•C1EW11	000-69004-0004	Terminal Eye, 6 Series		5/16-24 UNF-2B	1/4	5/8	3/8	1-7/8	0.10	
C1KH73	055887-000000	Control, Single Friction B							4.80	
•C1KK29	40313-1	Hub, RVO							0.17	
•C1KK27	40203-10	Hub, 4 Series, RVO							0.06	
•C1KK26	40202	Sleeve, RVO							0.03	
C1KG94	000-59112-0000	Kit							0.02	
C1KG83	000-50036-0001	Switch/Pin Set							0.15	
C1KK85	80016	Rod Bearing, 8 Series							0.01	
•C1KK19	40004-5	Sleeve, 5" Travel							0.20	

SAF-T-LOK® T70 Permanent Thread Lock

Features: Red liquid in squeeze bottle. Very high strength thread locking & sealing. Locks nuts and screws. Gap filling 0.002 - 0.008 inches. Shear strength 3000-4000 PSI. MIL-S-46163 Type I Grade K. ASTM D 5363 - AN9221.
Cure Time: Parts will be fixture tight within one hour. Full cure in 24 hours at 75° F.

SAF-T-LOK® T70 Permanent Thread Lock

Catalog Part No.	SAF-T-LOK Model	Size	Wt.	Price Each
•C1ZX39	T70-50	50cc (1.7 fl.oz.)	0.15	

Staybond™ T262 Permanent Bolt Lock

Features: Red liquid in squeeze bottle. High strength thread locking & sealing. MIL-S-46163 Type II Grade O.
Cure Time: Parts will be fixture tight in minutes. Full cure in 24 hours at 72° F.

Staybond™ T262 Permanent Bolt Lock

Catalog Part No.	Staybond Model	Size	Wt.	Price Each
C1EX19	T262-50	50 ml (1.69 fl.oz.)	0.17	

Denso Petrolatum Tape

Description: Densyl Tape is composed of a non-woven synthetic fabric carrier, fully impregnated with a neutral compound based on saturated petrolatum and inert siliceous fillers.
Uses: Densyl Tapes are designed to withstand extreme temperature variations. The tapes provide long term corrosion protection to pipes, flanges, valves and related surfaces.
Features: Applied to marginally prepared surfaces • Conforms to irregular shapes and profiles • Can be applied to cold, wet surfaces • Not effected by water, acid, salts or soil organics • Encapsulation of lead paint • Contains no solvents • Meets AWWA C217 Standard • Can be applied above and below ground.
Properties: Thickness (ASTM D1000) 46 mils. Maximum Service Temperature 158°F.

Denso Petrolatum Tape

Catalog Part No.	Denso Model	Description	Wt.	Price Each
•C1GM81	DENSYL-TAPE-2IN	Roll of All Purpose Petrolatum Tape, 2 inches wide x 33 feet long	2.01	

Anti-Seizing Products

Applications: Nuts, Bolts & Screws • Pipe Fittings • Boom Guides • Valve Assemblies • Pump Mountings • Chain Drives • Shafts • Gaskets • Press Fit Assemblies • Taps & Drills • Metal Fittings • Machinery

Anti-Seizing Products

Catalog Part No.	Mfg Model	Description	Wt.	Price Each
•C1FG17	NSBT-8	Bostik Never-Seez® Regular Grade Anti-Seize, 8 oz, Brush Top	0.64	

SCRUBS in-a-Bucket® Hand Cleaner Towels

SCRUBS in-a-Bucket® are the pre-moistened, heavy duty hand cleaner towels that go where you go! SCRUBS in-a-Bucket® easily removes soil from your hands and leaves them clean and conditioned anywhere you are working. Powerful, yet safe, patented citrus-based formula works together with an absorbent, non-scratching abrasive hand cleaner towel for proven performance.

Benefits: Portable and convenient • One-step cleaning process • Conditions and softens hands • Will not transfer soils back onto hands • Works fast to loosen, dissolve and absorb dirt, grease and grime • Tough, durable bucket that is light and portable.

Quickly Removes: Adhesives • Caulk • Dirt • Epoxy • Grease • Ink & Dye • Lubricants • Oils • Paint • Sealant • Tar • Urethane • Wax • Asphalt • Polyurethane • Grime

SCRUBS in-a-Bucket® Hand Cleaner Towels

Catalog Part No.	ITW Dymon Model	Description	Wt.	Price Each
•C1EK16	422.30	Small Bucket of 30 Hand Towels	1.19	
C1EV89	**422.72**	Large Bucket of 72 Hand Towels	2.65	
•C1ZT17	MISC-422-WMN	Bracket to Surface Mount a Bucket of Hand Towels	0.66	

Cast Bronze Y-Strainers

CONBRACO

Conbraco's 59 Series "Y" strainers are lightweight and compact. All sizes offer maximum protection against foreign particles in piping systems and process equipment. Cast bronze body and stainless steel screens are completely corrosion resistant. Self-aligning screen is easily accessed for cleaning or service. Operating pressures up to 400 psig make the 59 Series an excellent choice as a versatile, multipurpose strainer. Sizes 1/8" to 1/2" are perfect for OEM applications and are available as UL recognized components for use as a secondary strainer on oil burning equipment. Optional tapped caps are also available for convenient cleaning of the screen and are not plugged.

Working Pressure (Non-Shock): 300 psig @ 350°F Steam. 400 psig @ 150°F Water, Oil, Gas.

Self-Aligning Screens: 304 SS (Standard) available in a large variety of meshes (thru 100).

Cast Bronze Y-Strainers

Catalog Part No.	Conbraco Model	Size	Description	Wt.	Price Each
C1EN59	59-001-01	1/4 NPT	Standard 304SS 50 mesh screen, 1.38 in² screen area	0.44	

Miscellaneous Products

CRC Chemical Maintenance Products

CRC Chemical Maintenance Products

Industrial Cleaning

Industrial Cleaning

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1MH37	MK2832	Spray Away® All Purpose Cleaner	32 fl oz bottle	Cleans grease, grime, oil, rain stains, fish blood and more. Great on virtually any surface. Heavy duty formula is four times stronger than most spray cleaning products. Non-flammable.	2.00	
•C1FR61	14408	All Purpose Cleaner/Degreaser	1 gallon bottle	Biodegradable and concentrated. Non-corrosive, non-abrasive. Non-flammable. Safe on most plastics. Low foaming.	9.20	
•C1FR60	14170	Citrus Cleaner/Degreaser	20 oz aerosol	Pleasant citrus scent. Leaves no residue. Fast evaporation. Biodegradable. Non-corrosive, non-abrasive, non-staining.	1.25	
•C1FR62	14411	Glass Cleaner Professional Strength	30 oz trigger bottle	Professional strength streak-free glass cleaning. Biodegradable, ready to use. Non-abrasive foaming action. Non-flammable, non-ozone depleting.	2.05	
•C1FR44	03176	Battery Cleaner	12 oz aerosol	Removes corrosion quickly while neutralizing acid spills. Assures maximum battery current flow. Promotes longer battery life.	0.92	
•C1FR42	03130	QD™ Contact Cleaner	16 oz aerosol	Quick drying, leaves no residue, safe on all plastics. Effectively removes soil and other contaminants from electrical and electronic components. Ideal for applications where lower flashpoint solvents can be used.	0.96	
•C1MM69	MK2132	Cleaning Detail® Non-Skid Deck Cleaner	32 fl oz bottle	Cleans and brightens fiberglass, stainless steel, chrome, aluminum, and brass. Removes dirt, grease, grime and chalking. Easy to use on most surfaces above the waterline. Great for non-skid decks, shower stalls & tubs.	2.50	
•C1ML44	MK2032	On & Off Hull & Bottom Cleaner	32 fl oz bottle	Works instantly to remove the toughest waterline stains, algae stains, rust & gas exhaust stains. Use on fiberglass only. Will not harm gel coat.	3.70	
•C1MC31	MK2232	Super Suds® Boat Soap	32 fl oz bottle	Highly concentrated synthetic detergent. Non-streaking. Leaves no residue. Cleans away dirt and grime, leaving surfaces sparkling clean. Makes 64 buckets of wash. Will not remove wax.	2.27	
•C1KZ19	18420	Rust Remover	32 fl oz bottle	A safe, effective, fast acting formula. Removes rust, not metal. No sand blasting or heavy wire brushing required. Leaves metal clean and ready to paint, plate or powder coat.	0.50	
•C1ML45	MK2332	Big Bully® Natural Orange Bilge Cleaner	32 fl oz bottle	Works instantly to emulsify oil, grease, & scum. Tough citrus cleaning power absorbs odors and leaves bilge areas clean and fresh. Self-cleaning formula is activated by the rolling action of the boat.	2.00	

CRC Chemical Maintenance Products

Lubricants

Lubricants

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FR38	03005	3-36® Multi-Purpose Lubricant & Corrosion Inhibitor	16 oz aerosol	Cleans, lubricates, penetrates and loosens corrosion. Prevents corrosion by displacing moisture. Penetrates through corrosion to loosen frozen parts. Lubricates without leaving a sticky residue. Cleans light soils and contaminants.	0.93	
•C1FR39	03040	Food Grade Silicone	16 oz aerosol	Meets FDA CFR 21-178.3570 for incidental food contact. Forms a colorless, odorless, non-staining film. Harmless to most rubbers & plastics. -40°F to 400°F. Excellent release agent and lubricant for all surfaces.	0.87	
•C1FR40	03050	Chain & Wire Rope Lubricant	16 oz aerosol	Penetrates deep and leaves a tough film that lubricates & protects. Resists water wash-off and high temperature sling-off. Absorbs pin/bushing shock and cushions rollers, pins and bushings. Can be applied with guards in place.	0.87	
•C1HC80	06077	Marine Silicone Lubricant	12 oz aerosol	A multi-purpose silicone spray. Forms a colorless, odorless, non-staining film that lubricates & protects in most metal to non-metal applications. Dry film eliminates binding & sticking while protecting most surfaces.	0.69	
C1FR41	**03080**	White Lithium Grease	16 oz aerosol	Excellent heat & water resistance. Rust & oxidation inhibitors for superior metal protection. Smooth, buttery consistency. Produces a tough, high viscosity film. White color for easy visual inspection of film coverage.	0.90	
•C1FS54	SL35901	Copper Anti-Seize	8 oz brush top bottle	Copper-based, safe for use on both ferrous and non-ferrous metals. Protects parts up to 1800°F. Electrically conductive. Will not harden. Heat aging won't affect lubricity of product.	0.60	
•C1FR59	14095	Copper Anti-Seize	16 oz aerosol	Copper-based, safe for use on both ferrous and non-ferrous metals. Protects parts up to 1800°F. Electrically conductive. Will not harden. Heat aging won't affect lubricity of product.	1.09	
•C1FS55	SL35911	Nickel Anti-Seize	8 oz brush top bottle	Copper-free formula for use where a clean, chemically inert & stable lubricant is required. Protects parts up to 2400°F. Electrically conductive. Will not harden. Heat aging won't affect lubricity of product.	0.58	
•C1JC26	03060	Screwloose® Super Penetrant	16 oz aerosol	A no-compromise penetrant that attacks corrosion to free corroded fasteners & mechanical components. A super-fast, powerful, concentrated penetrating solvent that loosens & cleans. Instantly penetrates minute & tightly fitted crevices.	0.65	

Corrosion Inhibitors

Corrosion Inhibitors

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1JE82	03282	SP-400™ Corrosion Inhibitor	16 oz aerosol	Long-term indoor/outdoor corrosion inhibitor that provides protection of all equipment subject to heat, humidity, chemicals or severely corrosive atmospheres. Use on machined surfaces & assemblies subjected to long periods of storage.	0.87	
•C1MH68	06068	Engine Stor® Fogging Oil	16 oz aerosol	As fogging fluid, it protects outboard motors, marine engines & internal combustion engines, insures longer life. As long term metal protectant, it keeps pistons, rings & cylinder walls corrosion free. Also protects electrical connections in use/storage.	1.08	
•C1MH41	SX32M	Salt Terminator® Engine Fluch, Cleanter & Corrosion Inhibitor	32 fl oz bottle w/mixer	Cleans & protects anything exposed to salt (saltwater, salt air, road salt). Dissolves salt & leaves a protective coating to inhibit corrosion. Essential as a motor flush for marine engines in both saltwater and freshwater environments.	0.41	
•C1MM26	SX128	Salt Terminator® Engine Flush, Cleaner & Corrosion Inhibitor	1 gal bottle	Cleans & protects anything exposed to salt (saltwater, salt air, road salt). Dissolves salt & leaves a protective coating to inhibit corrosion. Essential as a motor flush for marine engines in both saltwater and freshwater environments.	3.70	
•C1FR43	03175	Battery Terminal Protector	12 oz aerosol	Soft, flexible film completely encapsulates exposed surfaces and will not become brittle, crack or peel. Dries quickly and protects instantly. Red color for easy visual inspection.	0.68	

Miscellaneous Products

CRC Chemical Maintenance Products

Corrosion Inhibitors

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FR63	18412	Zinc-It® Instant Cold Galvanize	16 oz aerosol	Actively fights rust & corrosion with a film of 95% pure zinc. Protects base metal even when scratched or abraded. Fast-drying. Excellent weldability.	1.10	

Electrical Maintenance

Electrical Maintenance

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FR17	02085	Di-Electric Grease	6 oz pressurized tube	Non-curing silicone compound used for electrical sealing, lubricating, protecting & insulating. Meets FDA CFR 21-175.300 (release agent) and CFR 21-178.3570 (lubricant, incidental food contact). Excellent lubricant for rubber & plastic parts.	0.37	
•C1MG23	06106	Marine Premium Electronics Grease	6 oz pressurized tube	Seals, protects & insulates electrical contacts from moisture. Lubricates & seals rubber & plastic parts. Waterproofs components & contacts to protect against arcing. Improves electrical performance during adverse conditions such as rain & fog.	0.50	

Specialty Products

Specialty Products

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FR57	14055	RTV Silicone Adhesive/Sealants	Clear 8 oz pressurized tube	Clear - Forms a barely visible water-tight seal. RTV (Room Temperature Vulcanizing) Adhesive/Sealants are designed for a wide range of sealing, bonding, protecting and waterproofing applications.	0.68	
•C1FR58	14056	RTV Silicone Adhesive/Sealants	White 8 oz pressurized tube	White - Designed for high moisture, indoor/outdoor applications. RTV (Room Temperature Vulcanizing) Adhesive/Sealants are designed for a wide range of sealing, bonding, protecting and waterproofing applications.	0.68	
C1FS52	**SL1712**	Mechanix Orange™ Citrus Lotion Hand Cleaner with Pumice	16 fl oz bottle	Fresh citrus scent. Contains no harsh solvents. pH balanced. Conditions skin. Biodegradable. Fortified with pumice for deep-cleaning power.	1.19	
C1AK48	**14010**	Wasp & Hornet Killer PLUS™	20 oz aerosol	Fast acting, high strength insecticide. Ergonomic trigger that provides control, even with gloved hands, and is accurate up to 15' away Plastic safe - will not damage plastic connectors and other insulating materials.	1.16	

Greases & Oils

Greases & Oils

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
•C1FS53	SL3120	Marine Grease	14 oz cartridge	For boat trailer wheel bearings. Aluminum complex, NLGI #2 grease. Excellent water resistance. Superior rust and corrosion protection. Typical drop point 470°F.	0.98	

CRC Chemical Maintenance Products

Vehicle Maintenance

Vehicle Maintenance

Catalog Part No.	CRC Part No.	Product	Container Size	Description	Wt.	Price Each
C1LW49	**05316**	Motor Treatment	16 fl oz can	Cleans gum, varnish, and carbon from the fuel system, injectors, pistons, and combustion chamber. Removes moisture from fuel and oil systems and lubricates engine components.	1.00	
•C1MH65	05212	Diesel Fuel Therapy® Diesel Injector Cleaner Plus	12 fl oz bottle	This emissions reducing formula is rated "SUPERIOR" in Cummins L-10 Test for injector cleanliness. Cleans injectors, adds lubricity, increases power and MPG.	0.83	
•C1KT97	05412	Diesel Fuel Therapy® Diesel Injector Cleaner with Anti-Gel	12 fl oz bottle	This emissions reducing formula is rated "SUPERIOR" in Cummins L-10 Test for injector cleanliness. Lowers pour point & CFPP, reliquefies gelled fuel, adds lubricity, increases power and MPG.	0.80	
•C1GH16	05557	Bio-Con™ Diesel Fuel Sludge Sediment Remover	12 oz bottle	Improves storage stability of fuel. Prevents fuel filter plugging. Absorbs moisture. Keeps injectors clean.	0.83	
•C1GH15	05089	Brakleen® Brake Parts Cleaner	20 oz aerosol	Quickly removes brake fluid, grease, oil and other contaminants from brake linings and pads. Cleans fast, dries fast, no residue. Non-flammable. Works without disassembly.	1.46	

Gloves

Gloves

Catalog Part No.	Model	Description	Wt.	Price Each
•C1HL32	HSCGLV-LG	Anti-vibration Gloves, Large. Heat resistant Amara synthetic leather with impact & vibration absorbing gel pads.	0.29	
•C1HL33	HSCGLV-XL	Anti-vibration Gloves, Extra Large. Heat resistant Amara synthetic leather with impact & vibration absorbing gel pads.	0.29	
•C1HL31	HSCGLV-2X	Anti-vibration Gloves, Double Extra Large. Heat resistant Amara synthetic leather with impact & vibration absorbing gel pads.	0.29	
•C1JE44	4092	Select split leather palm, leather index finger, leather finger tips, leather thumb and knuckle strap. Wing thumb design with shirred elastic back and striped cotton back with safety cuff.	0.30	
•C1JE96	8426	Cotton poly blend string knit, latex palm, knit wrist.	0.20	
•C1JD52	1SR8427L	Economy string knit with latex palm, knit wrist.	0.30	
•C1JE97	85	10 pack of disposable latex gloves. Seamless and reversible with rolled cuff.	0.14	
•C1JM35	4020	8 oz. 100% Cotton Jersey Gloves. Clute-cut design with knit wrist.	0.10	

Thread Sealants

SAF-T-LOK® TPS Anaerobic Sealant

Features: White paste in squeeze tube. Seals and locks threaded joints on metal piping systems. Instant seal. Lubricates threads for alignment. Prevents vibration loosening. Resists most industrial chemicals and gasses.
Cure Time: Cures totally in 24 hours. Cure can be accelerated with SAF-T-LOK® primer.
Operating Temperature Range: -100°F to 350°F.
Note: Not for use on plastic pipe.

SAF-T-LOK® TPS Anaerobic Sealant

Catalog Part No.	SAF-T-LOK Model	Size	Wt.	Price Each
•C1DM42	TPS-50	50 cc	0.16	
•C1DM41	TPS-250	250 cc	0.61	

Staybond™ S592 Anaerobic Sealant

Features: White paste in squeeze tube. Instantly seals threaded fittings. Lubricates threads. Prevents galling. Prevents vibration loosening. Resists oils and solvents.
Cure Time: Cures totally in 24 hours. Cure can be accelerated with Staybond primer.
Operating Temperature Range: -65°F to 350°F.
Note: Not for use on plastic pipe.

Staybond™ S592 Anaerobic Sealant

Catalog Part No.	Staybond Model	Size	Wt.	Price Each
C1DK64	S592-50	50 ml	0.15	
C1DK63	S592-250	250 ml	0.90	

SAF-T-LOK® HS Anaerobic Hydraulic Sealant

Features: Brown, low strength, liquid in bottle. Seals hydraulic fittings and locks fine threads. Instant seal. Lubricates threads. Prevents vibration loosening.
Shear Strength: 1500-2500 PSI.
Cure Time: Cures totally in 24 hours. Cure can be accelerated with SAF-T-LOK® primer or heat (200°F for 10 to 20 minutes).
Operating Temperature Range:
Note: Not for use on plastic pipe.

SAF-T-LOK® HS Anaerobic Hydraulic Sealant

Catalog Part No.	SAF-T-LOK Model	Size	Wt.	Price Each
•C1CY68	HS-50	50 cc	0.15	

Staybond™ S569 Anaerobic Hydraulic Sealant

Features: Brown, low strength, medium viscosity liquid in bottle. Seals hydraulic fittings and locks mechanical fasteners. Strong resistance to most industrial chemicals. Prevents corrosion between parts.
Cure Time: Fixture tight in minutes. Full cure in 24 hours at 72°F.

Staybond™ S569 Anaerobic Hydraulic Sealant

Catalog Part No.	Staybond Model	Size	Wt.	Price Each
•C1EX13	S569-50	50 ml	0.17	

Teflon® Tapes

Standard Teflon® Tape: Instantly seals threaded fittings. Lubricates threads. Prevents galling. Resists oils and solvents.
Pink Plumbers Tape: Superior, high density tape that is not stretched during manufacturing like ordinary Teflon® tape.
Unasco Gold Tape: A high density thread sealing tape for critical areas. For use on all metal pipe threaded joints where acids, alkalis, oils or solvents are present. Uses include sealing pipe threads on lines for natural gas, LP Gas, butane and propane. Tape is de-greased and can be used on oxygen lines. -450°F to 500°F temperature range.
Copper Anti-Seize Tape: Made from copper filled Teflon®. For general purpose anti-seize applications on most types of metal fasteners. Protects against corrosion, seizure, galling & carbon fusion, rust, galvanic pitting. -450°F to 2200°F temperature range.
Nickel Anti-Seize Tape: Made from nickel filled Teflon®. For anti-seize applications on stainless steel and aluminum. Protects against corrosion, seizure, galling & carbon fusion, rust, galvanic pitting. -450°F to 2400°F temperature range.
Oxygen Tape: Free of any residual petroleum fraction and is safe to use on oxygen systems. -450°F to 500°F temperature range.

Teflon® Tapes

Catalog Part No.	Model Number	Description	Size (in)	Wt.	Price Each
C1DM23	TEFLONTAPE	Standard Teflon® Tape (blue roll/white tape)	1/2 x 520	0.03	
•C1EU45	APP104	Pink Plumbers Tape (orange roll/pink tape)	1/2 x 260	0.04	
•C1EU48	ATG005	Unasco Gold Tape (gold roll/yellow tape)	1/2 x 540	0.01	
•C1EU47	ATC001	Copper Anti-Seize Tape (brown roll/brown tape)	1/2 x 600	0.10	
•C1EU49	ATS001	Nickel Anti-Seize Tape (silver roll/silver tape)	1/2 x 260	0.05	

Ball Valves

Stainless Steel - Hex Body
Stauff 2BVM Series

Features: Two piece hex body • Full and reduced bores • Blowout-proof stem • Anti-static device • Adjustable packing nut • Locking handle standard • Mounting pad
Materials: Body, Stem, and Ball: Stainless Steel A351-CF8M (316); Seals and Ball Seat: Teflon® (PTFE); Handle: 304 Stainless Steel with PVC grip
Preasure Ratings: 2000 PSI (cold, non-shock) up to 175°F. Pressure rating declines with temperature above 175°F.
Temperature Range: -20°F to 400°F
Note: Two-way Stainless Steel ball valves are designed for use as an on/off device.

Stainless Steel - Hex Body • Stauff 2BVM Series

Catalog Part No.	Stauff Model	Ports	Special Features	Wt.	Price Each
C1KU50	2BVM20041144C/LD	1/4 NPT	Full bore	0.60	
C1KU52	2BVM20061144G/LD	3/8 NPT	Full bore	0.62	
C1MW59	2BVM20081144G/LD	1/2 NPT	Full bore	0.64	
C1KU56	2BVM20121144G/LD	3/4 NPT	Full bore	1.40	
•C1KU58	2BVM20161144G/LD	1 NPT	Reduced Bore	1.21	
C1KU60	2BVM20201144G/LD	1-1/4 NPT	Reduced Bore	2.80	
C1KW60	STNA30121 2BVM20241144C/LD	1-1/2 NPT	Reduced Bore	3.24	
•C1KU63	STNA32685 2BVM20321144G-LD	2 NPT	Reduced Bore	4.70	

Brass
Stauff 2BVL Series

Features: Brass Hot Stamping with Chrome Plated Brass Ball. Blow Out Proof Stem. Teflon Seats, Seals & Thrust Washer. Metal Handle.
Maximum Operating Pressure: Up to 600 PSI
Temperature Range: Up to 320°F Up to 320°F at reduced pressure. See chart on page page 269

Brass • Stauff 2BVL Series

Catalog Part No.	Stauff Model	Ports	Maximum Working Pressure (psi)	Special Features	Wt.	Price Each
•C1KU42	2BVL2004F-OSSS	1/4 NPT	600	Stainless steel off-set handle	0.30	
•C1KU43	2BVL2006F-OSSS	3/8 NPT	600	Stainless steel off-set handle	0.30	
•C1KU44	2BVL2008F-OSSS	1/2 NPT	435	Stainless steel off-set handle	0.40	
•C1KU45	2BVL2012F-OSSS	3/4 NPT	435	Stainless steel off-set handle	0.71	
•C1KU46	2BVL2016F-OSSS	1 NPT	435	Stainless steel off-set handle	1.00	
•C1KU47	2BVL2020F-OSSS	1-1/4 NPT	435	Stainless steel off-set handle	1.70	
C1KJ71	2BVL2024F	1-1/2 NPT	362	Carbon Steel, zinc plated handle	2.20	
•C1KU48	2BVL2024F-OSSS	1-1/2 NPT	362	Stainless steel off-set handle	2.32	
C1MJ31	2BVL2032F/2	2 NPT	362	Carbon Steel, zinc plated handle	4.50	
•C1KU49	2BVL2032F-OSSS	2 NPT	362	Stainless steel off-set handle	4.20	
C1MJ32	2BVL2R40FL	2-1/2 NPT	362	Carbon Steel, zinc plated handle	12.90	

Bronze
Apollo® 70-100 Series

Features: Chromium plated ball. RPTFE seats and stuffing box ring. Blow-out proof stem design. Adjustable packing gland.

Standard Materials: Zinc plated steel lever (with vinyl cover) and lever nut. RPTFE seats, stem packing and stem bearing. B16 chrome plated ball. B16 retainer (1/4 through 1 inch). B584-C84400 retainer (1-1/4 through 3 inch). B16 gland nut and stem. PTFE body seal (1-1/4 through 3 inch). B584-C84400 body.

Pressure Ratings: 600 psig WOG, Cold Non-Shock. 150 psig Saturated Steam. Vacuum service to 29 in./Hg.

Note: Valves have a reduced pressure rating at elevated temperatures. See "600# Bronze P-T Rating (Graph 4) on

Note: Numerous options are available on special order. Contact us for assistance.

Seal Kits:

Bronze • Apollo® 70-100 Series

Catalog Part No.	Apollo Model	Ports	Ball Orifice Dia.	CV Rating	Special Features	Seal Kit	Wt.	Price Each
•C1EN78	70-101-01	1/4 NPT	0.37	8.4		70-002-01	0.58	
C1EN82	70-103-01	1/2 NPT	0.50	15		70-003-01	0.63	
•C1EN84	70-104-01	3/4 NPT	0.68	30		70-004-01	1.39	
•C1EN86	70-105-01	1 NPT	0.87	43		70-005-01	1.72	
C1EN77	70-100-01	3 NPT	2.50	370		70-009-01	17.25	

Gate Valves

Brass Gate Valves
Brass M Gate Valve

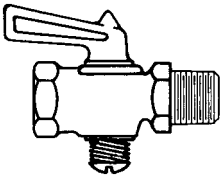
ACR INDUSTRIES

Features: Screw-in bonnet.
Application: For water and steam service.
Maximum Operating Pressure: 125 WSP (steam), 200 PSI (WOG).

Brass Gate Valves • Brass M Gate Valve

Catalog Part No.	ACR Model	Ports	Wt.	Price Each
C1HL21	BGV125	1-1/4 NPT	1.74	
•C1KU82	3801	3/8	0.57	
•C1KU83	3802	1/2	0.51	
•C1KU84	3803	3/4	0.85	
•C1KU85	3804-ACR	1	1.20	
•C1KU86	3805	1-1/4	1.70	
•C1KU87	3806-ACR	1-1/2	2.20	
•C1KU88	3807-ACR	2	3.30	

Brass 2-Way Shut-Off Plug Valves
Male Pipe to Female Pipe (Straight)

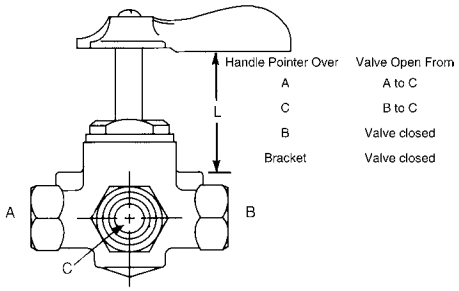


Features: Instantaneous on-off operation with 360° handle rotation. Lapped brass body and plug are individually mated, providing an excellent quality, low friction valve.
Application: Used extensively for water process piping and air supply systems.
Maximum Operating Pressure: 30 PSI.
Operating Temperature Range: -40°F to 250°F.

Brass 2-Way Shut-Off Plug Valves • Male Pipe to Female Pipe (Straight)

Catalog Part No.	Anderson Brass Model	Size	Threads	Wt.	Price Each
•C1AK34	130C-L	1/4	1/4 NPT	0.20	

Brass 3-Way Side Outlet Plug Valves
Female Pipe

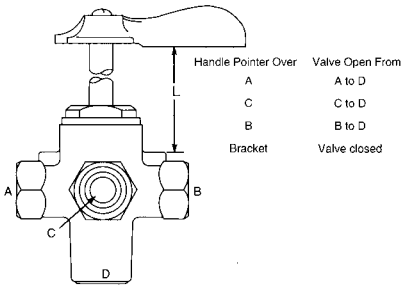


Features: Pointer lever to indicate port selection. Audible Click mechanism is standard. Valves are not lubricated and require no lubrication. O-Ring sealed cap and stem. Brass body and CELCON® plug produce a fine seal that will not seize or gall.
Application: Generally recommended for operation in gasoline, oil, air, water and detergent systems.
Maximum Operating Pressure: 30 PSI.
Operating Temperature Range: -40°F to 180°F.

Brass 3-Way Side Outlet Plug Valves • Female Pipe

Catalog Part No.	Anderson Brass Model	Size	Threads	Fluid Port Dia. (in)	Handle Movement Features	L (in)	Wt.	Price Each
•C1BB99	210C-N	3/8	3/8 NPT	0.312	Click is felt at each position. Handle rotates 360°.	1.375	0.50	

Brass 4-Way Bottom Outlet Plug Valves
Female Pipe



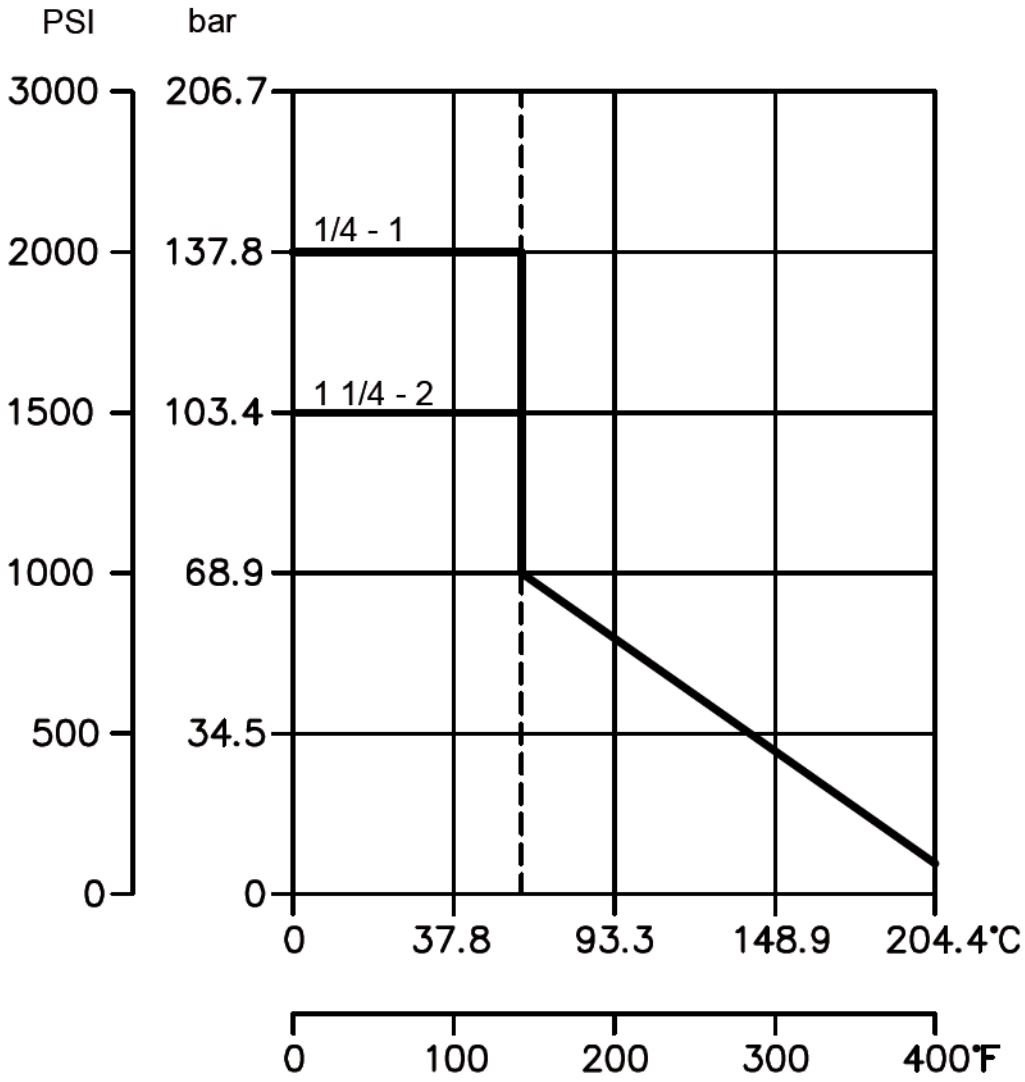
Features: Pointer lever to indicate port selection. Audible Click mechanism is standard. Valves are not lubricated and require no lubrication. O-Ring sealed cap and stem. Brass body and CELCON® plug produce a fine seal that will not seize or gall.
Application: Generally recommended for operation in gasoline, oil, air, water and detergent systems.
Maximum Operating Pressure: 30 PSI.
Operating Temperature Range: -40°F to 180°F.

Brass 4-Way Bottom Outlet Plug Valves • Female Pipe

Catalog Part No.	Anderson Brass Model	Size	Threads	Fluid Port Dia. (in)	Handle Movement Features	L (in)	Wt.	Price Each
•C1EF53	200C-N	3/8	3/8 NPT	0.312	Click is felt at each position. Handle rotates 360°.	1.375	0.54	

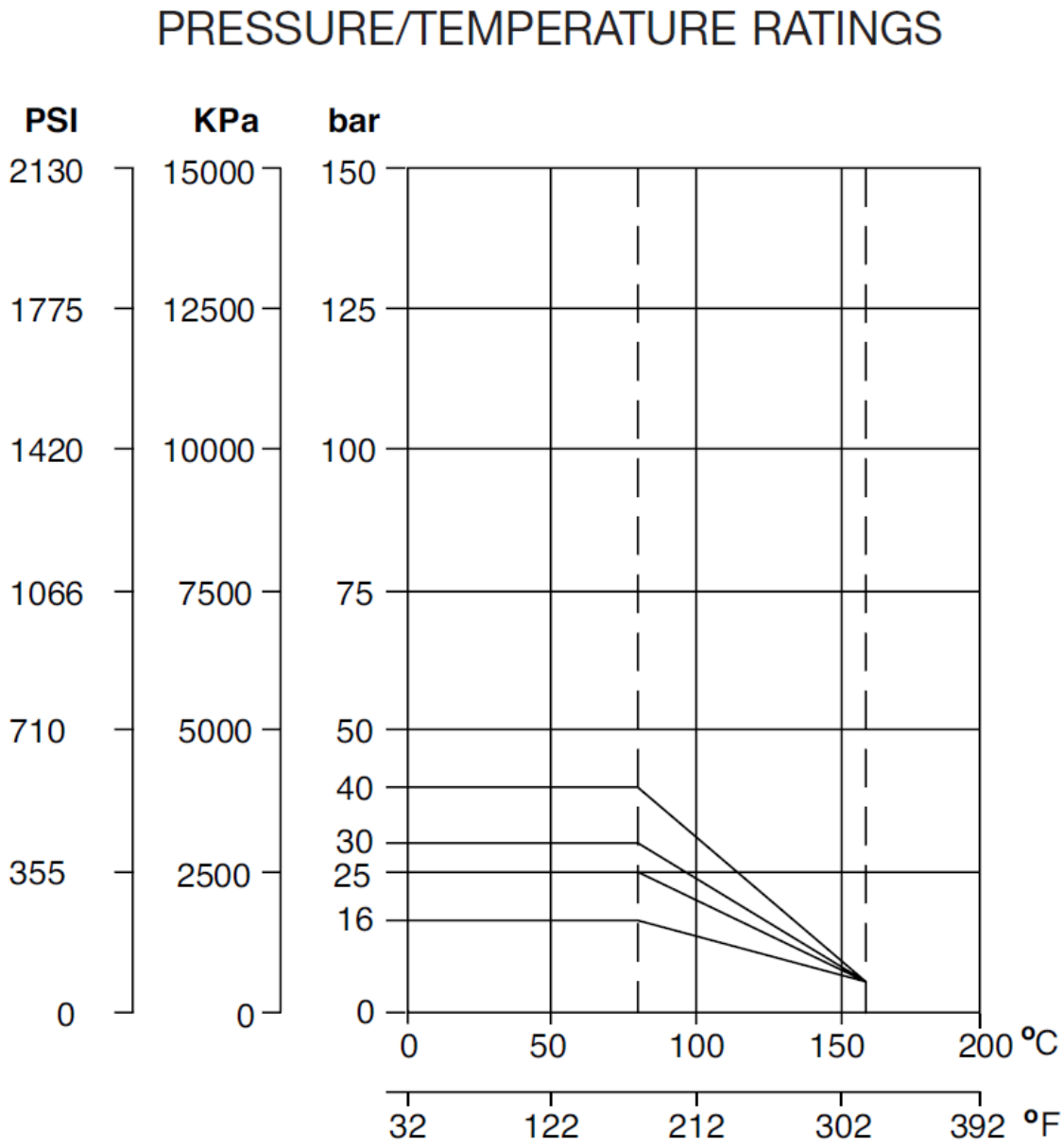
Ball Valves

Stauff 2BVM Ball Valve Pressure-Temperature Graphs



Ball Valves

Stauff 2BVL Ball Valve Pressure-Temperature Graphs



Air-Operated Diaphragm Pumps

Aro® Air-Operated Diaphragm pumps offer several performance advantages over other pump types in fluid transfer applications. (1) When you close the fluid outlet, the pump stops. No movement, no wear, no overload, no heat buildup, no power consumption. (2) Variable flow rates are achieved by simply adjusting air pressure to the pump or by restricting the discharge line. (3) Positive priming provides easy start-ups. Internal fluid check valves are located close to the diaphragm chambers, assuring positive self-priming, even from a dry start. (4) Pumping efficiency remains constant since there are no rotors, gears, vanes or pistons to wear out. (5) Runs dry without damage. (6) No foaming or shearing of material. Process fluids enter and exit unchanged. (7) No lubrication is required so there is less maintenance. (8) Pumps are lightweight and portable and can be carried from job to job with ease.

Features: Patented "Unbalanced" air valve design ensures pump will always resume pumping action when called on. Bolted construction for an improved seal and safer fluid handling. No rotating or sliding seals to leak or fail.

1/4 Inch Ports • 5.3 GPM Capability
Non-Metallic Wetted Parts

Maximum Flow Rate: 5.3 GPM.
Displacement: 0.019 Gallons per Cycle.
Maximum Operating Pressure: 125 PSI
Suspended Solids Capability: 1/16" maximum diameter solids
Fluid Ports: Hybrid ¼" NPT/BSP
Air Inlet: Hybrid ¼" NPT/BSP

1/4 Inch Ports • 5.3 GPM Capability • Non-Metallic Wetted Parts

Catalog Part No.	Aro® Model	Center Section	Port	Wetted End	Seat Material	Ball / Diaphragm	Wt.	Price Each
C1MM73	PD01P-HPS-PAA-A	Polypropylene	Hybrid ¼" NPT/BSP	Polypropylene	Polypropylene	Santoprene	3.78	
C1ML48	PD01P-HPS-PTT-A	Polypropylene	Hybrid ¼" NPT/BSP	Polypropylene	Polypropylene	PTFE	3.78	

Air-Operated Diaphragm Pumps

1/2 Inch Ports • 13 GPM Capability
Non-Metallic Wetted Parts

Maximum Flow Rate: 13 GPM.
Displacement: 0.04 Gallons per Cycle.
Maximum Operating Pressure: 100 PSI.
Suspended Solids Capability: 3/32 inch diameter.
Maximum Dry Suction Lift: 10 ft. (Teflon® fitted).
Fluid Ports: 1/2 NPT Inlet. 1/2 NPT Outlet.
Air Inlet: 1/4 NPT.

1/2 Inch Ports • 13 GPM Capability • Non-Metallic Wetted Parts

Catalog Part No.	Aro® Model	Air Motor	Wetted Parts	Check Valve Seats	Ball Check / Diaphragm	Other Features	Wt.	Price Each
C1BX83	66605J-311	Polypropylene	Polypropylene	Polypropylene	Neoprene / Neoprene	Single Piece Manifold	9.00	
•C1BX79	666053-322	Polypropylene	Polypropylene	Polypropylene	Nitrile / Nitrile		9.24	

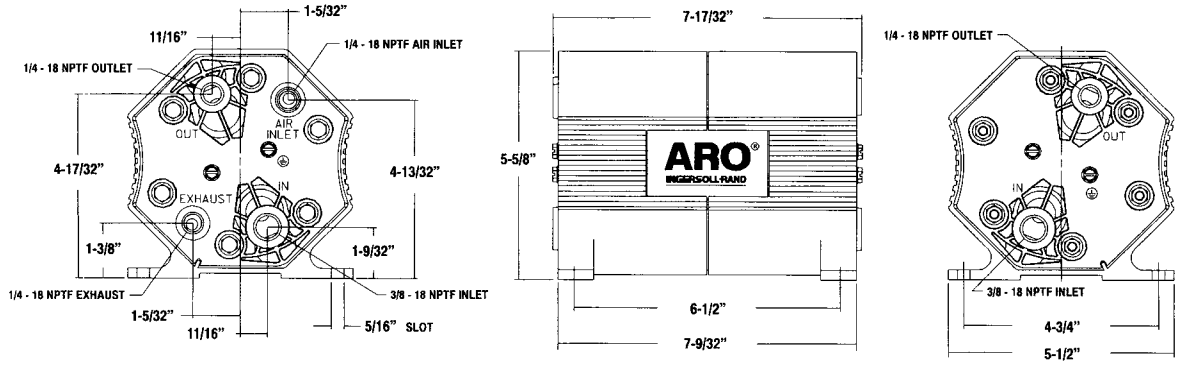
Service Kits & Parts for Aro® 1/2 Inch Diaphragm Pumps

Catalog Part No.	Part Number	Description	Wt.	Price Each
C1BW94	637140-11	Service Kit, Diaphragm Material, Neoprene	0.32	

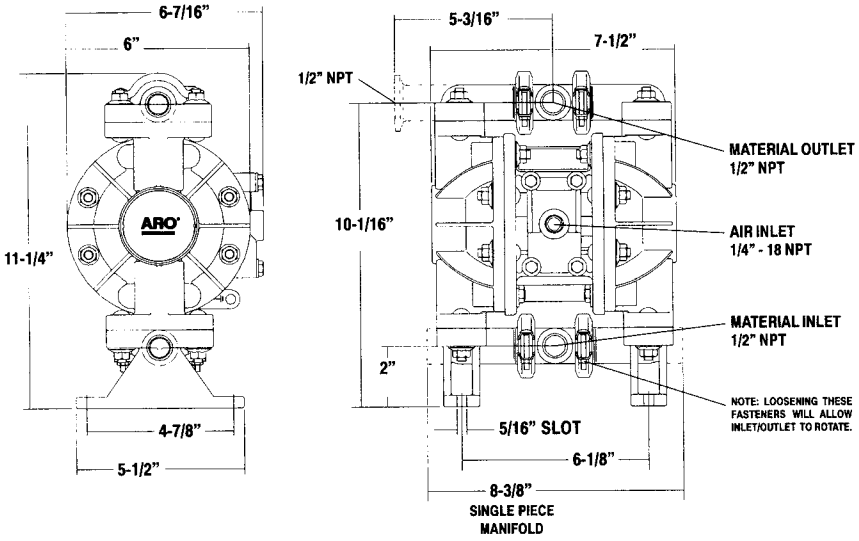
Air-Operated Diaphragm Pumps

Aro Non-Metallic Air-Operated Diaphragm Pumps

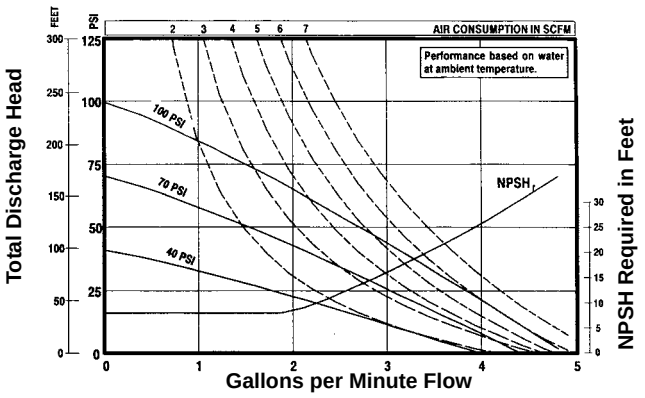
1/4 Inch Pump Dimensions



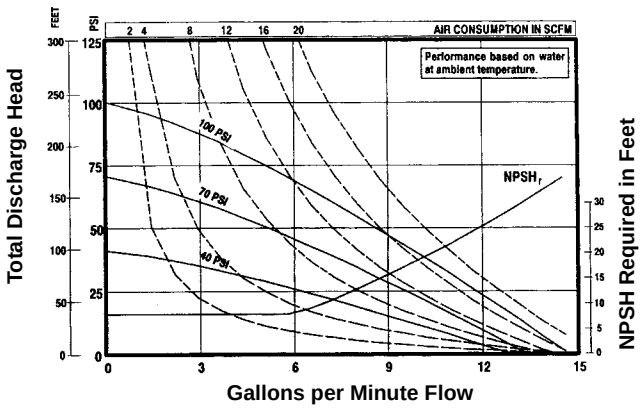
1/2 Inch Pumps Dimensions



1/4 Inch Pump Performance Curves



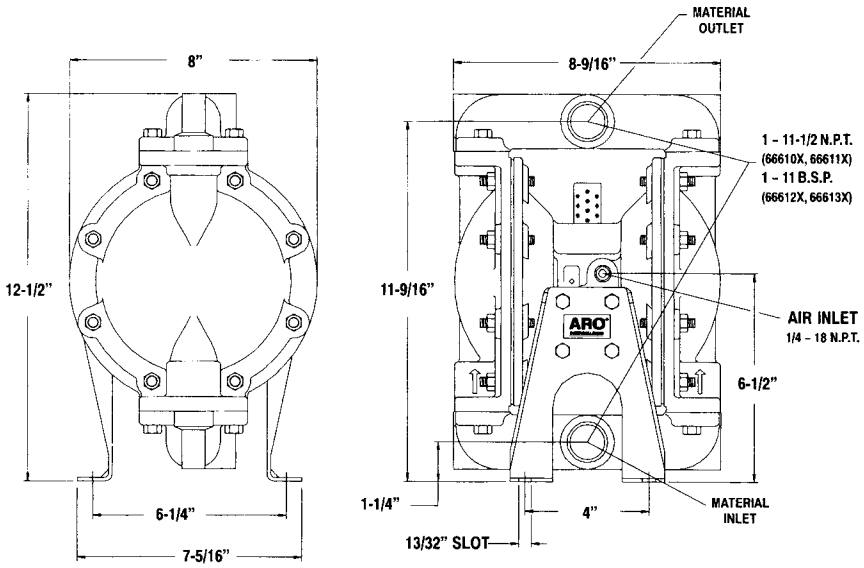
1/2 Inch Pump Performance Curves



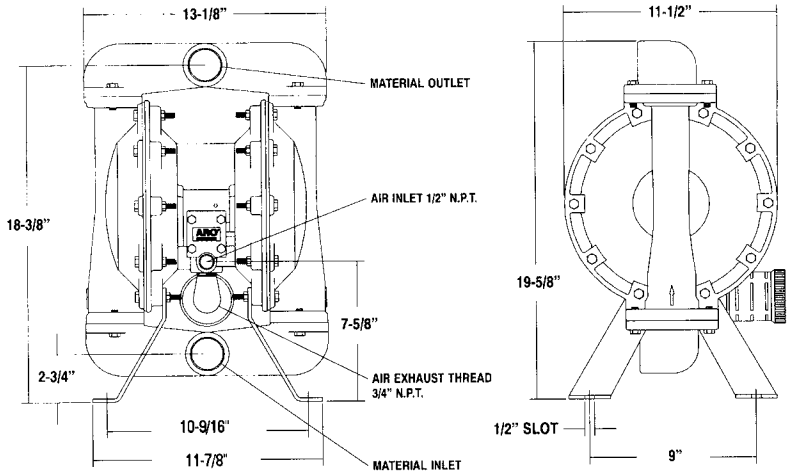
Air-Operated Diaphragm Pumps

Aro Metallic Air-Operated Diaphragm Pumps

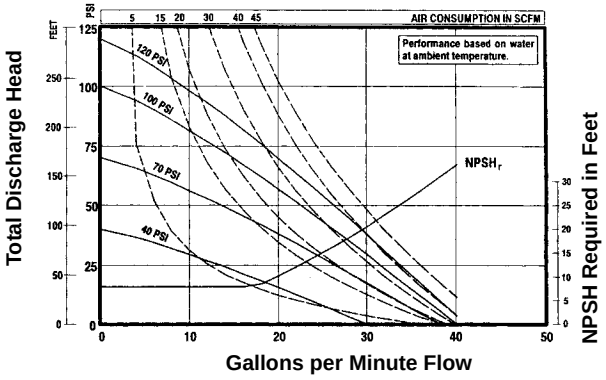
1 Inch Pump Dimensions



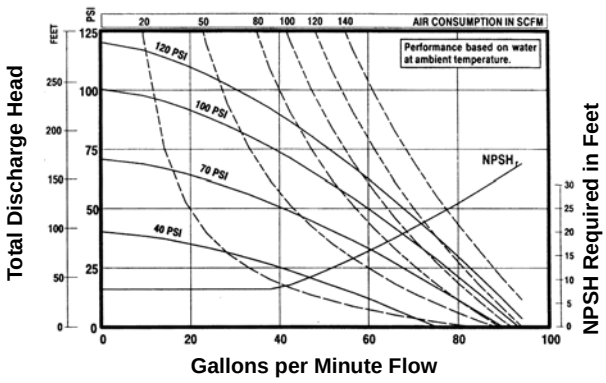
1-1/2 Inch Pumps Dimensions



1 Inch Pump Performance Curves



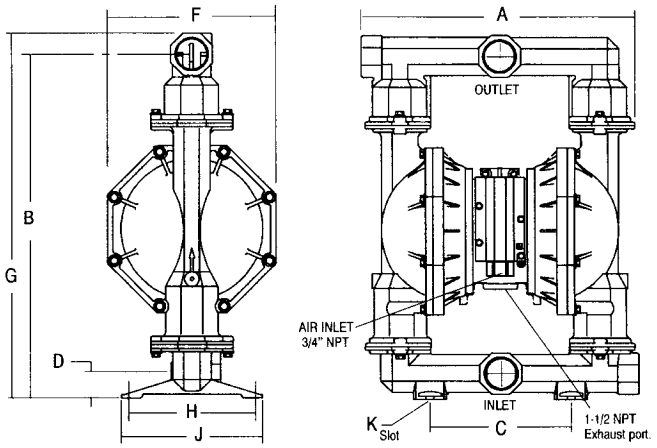
1-1/2 Inch Pump Performance Curves



Air-Operated Diaphragm Pumps

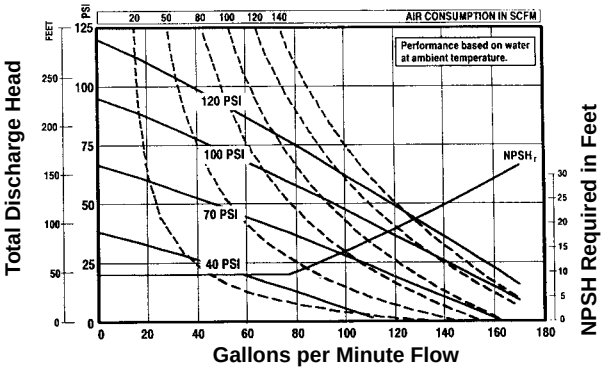
Aro Metallic Air-Operated Diaphragm Pumps

2 Inch Pumps Dimensions



A	19-3/4"	F	12"	L	28-5/8"
B	24-3/4"	G	26-1/4"	M	25-5/8"
C	10-1/16"	H	9-1/16"	N	3-3/8"
D	1-7/8"	J	10-1/16"	P	2-1/4"
		K	9/16"		

2 Inch Pump Performance Curves

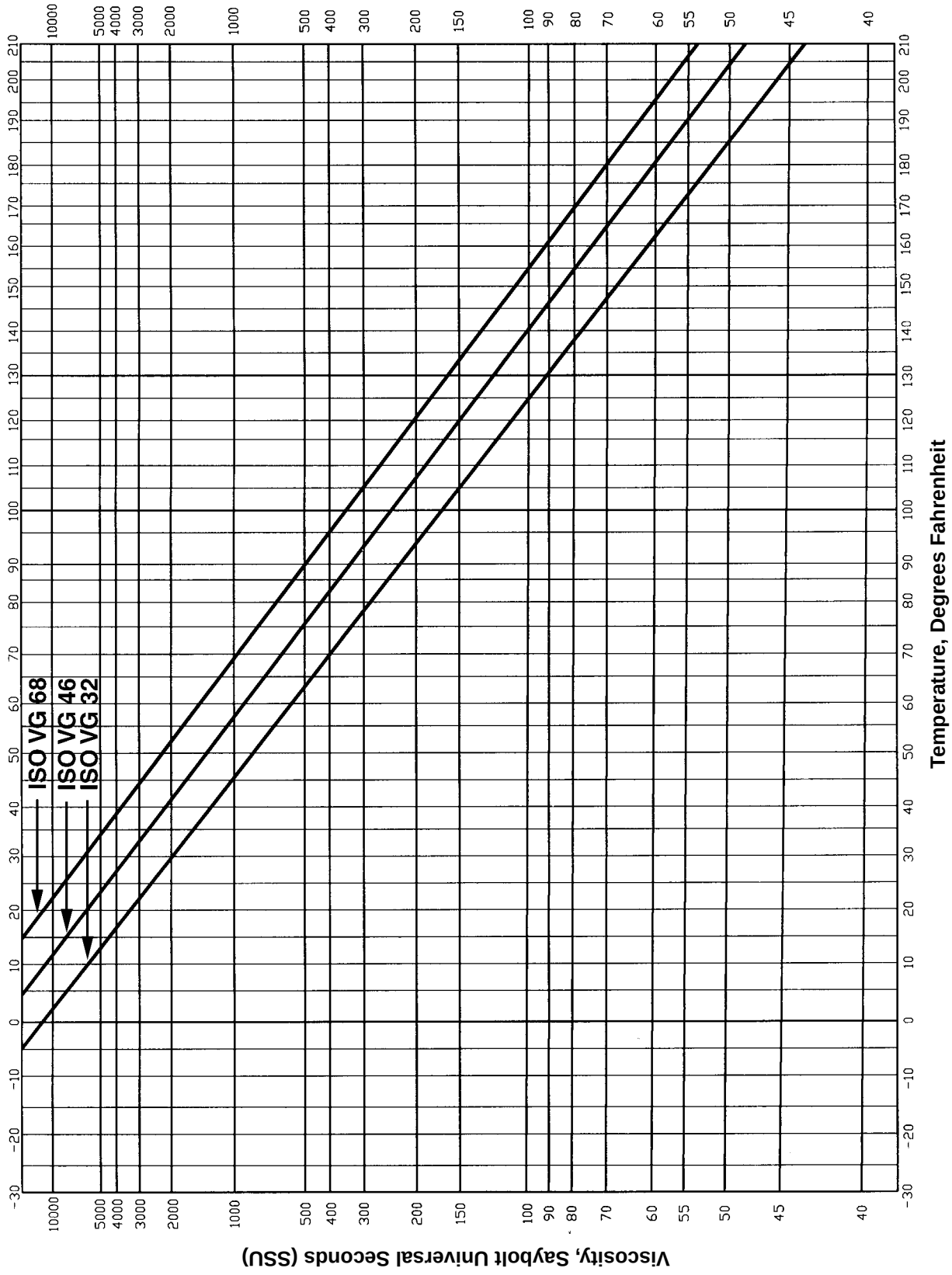


Fluid Power Formulas

FORMULA FOR	WORD FORMULA	LETTER FORMULA
FLUID PRESSURE In Pounds per Square Inch	$\text{PRESSURE} = \frac{\text{FORCE (pounds)}}{\text{UNIT AREA (Sq.In.)}}$	$P = \frac{F}{A}$ or $psi = \frac{F}{A}$
CYLINDER AREA In Square Inches	$\text{AREA} = \pi \times \text{RADIUS}^2$ (Inches)	$A = \pi r^2$
	$\text{AREA} = \frac{\Pi \times \text{DIAMETER}^2}{4}$ (Inches)	$A = \frac{\Pi D^2}{4}$ or $A = .785\text{D}^2$
CYLINDER FORCE In Pounds, Push or Pull	FORCE = PRESSURE (psi) x NET AREA (Sq. In.)	$F = psi \times A$ or $F = PA$
CYLINDER VELOCITY or **SPEED** In Feet per Second	$\text{VELOCITY} = \frac{231 \text{ x FLOW RATE (gpm)}}{12 \text{ x } 60 \text{ x NET AREA (Sq. In.)}}$	$V = \frac{231Q}{720A}$ or $V = \frac{.3208\text{Q}}{A}$
CYLINDER VOLUME CAPACITY In Gallons of Fluid	$\text{VOLUME} = \frac{\pi \text{ x RADIUS}^2 \text{ x STROKE (Inches)}}{231}$	$V = \frac{\pi r^2 t}{231}$ t = stroke
	$\text{VOLUME} = \frac{\text{NET AREA (Sq. In.) x STROKE (Inches)}}{231}$	$V = \frac{At}{231}$ t = stroke
CYLINDER FLOW RATE In Gallons per Minute	$\text{FLOWRATE} = \frac{12\text{x}60\text{x VELOCITY (Ft/Sec) x NET AREA (Sq.In)}}{231}$	$Q = \frac{720vA}{231}$ or Q = 3.117vA
FLUID MOTOR TORQUE In Inch Pounds	$\text{TORQUE} = \frac{\text{PRESSURE(psi)xF.M.DISPLACEMENT (Cu.In./Rev.)}}{2\pi}$	$T = \frac{psid}{2\pi}$ or $T = \frac{Pd}{2\pi}$
	$\text{TORQUE} = \frac{\text{HORSEPOWER x 63025}}{\text{RPM}}$	$T = \frac{63025HP}{n}$
	$\text{TORQUE} = \frac{\text{FLOW RATE (GPM) x PRESSURE (psi) x 36.77}}{\text{RPM}}$	$T = \frac{36.77QP}{n}$ or $T = \frac{36.77Qpsi}{n}$
FLUID MOTOR TORQUE Per 100 PSI In Inch Pounds	$\text{TORQUE per 100 psi} = \frac{\text{F.M.DISPLACEMENT (Cu.In./Rev.)}}{.0628}$	$T_{100psi} = \frac{d}{.0628}$
FLUID MOTOR SPEED In Revolutions per Minute	$\text{SPEED} = \frac{231 \text{ x FLOW RATE (GPM)}}{\text{F.M. DISPLACEMENT (Cu.In./Rev.)}}$	$n = \frac{231Q}{d}$
FLUID MOTOR POWER In Horsepower Output	$\text{HP OUTPUT} = \frac{\text{TORQUE OUTPUT (inch Pounds) x RPM}}{63025}$	$HP = \frac{Tn}{63025}$
PUMP OUTLET FLOW In Gallons per Minute	$\text{FLOW} = \frac{\text{RPM x PUMP DISPLACEMENT (Cu.In./Rev.)}}{231}$	$Q = \frac{nd}{231}$
PUMP INPUT POWER In Horsepower Required	$\text{HP INPUT} = \frac{\text{FLOW RATE OUTPUT (GPM) x PRESSURE (psi)}}{1714 \text{ x EFFICIENCY (Overall)}}$	$HP = \frac{QP}{1714 \times Eff}$ or $\frac{GPM \times psi}{1714 \times Eff}$
FLOW RATE THROUGH PIPING In Feet per Second	$\text{VELOCITY} = \frac{.3208 \text{ x FLOW RATE THROUGH I.D. (GPM)}}{\text{INTERNAL AREA (Square Inches)}}$	$v = \frac{.3208\text{Q}}{A}$
COMPRESSIBILITY OF OIL In Additional Required Oil to Reach Pressure	$\text{Additional Oil Volume} = \frac{\text{Pressure (psi) x Volume of Oil Under Pressure}}{250{,}000}$	$V = \frac{PV}{250,000}$ (Approx. 1/2% per 1000 psi)

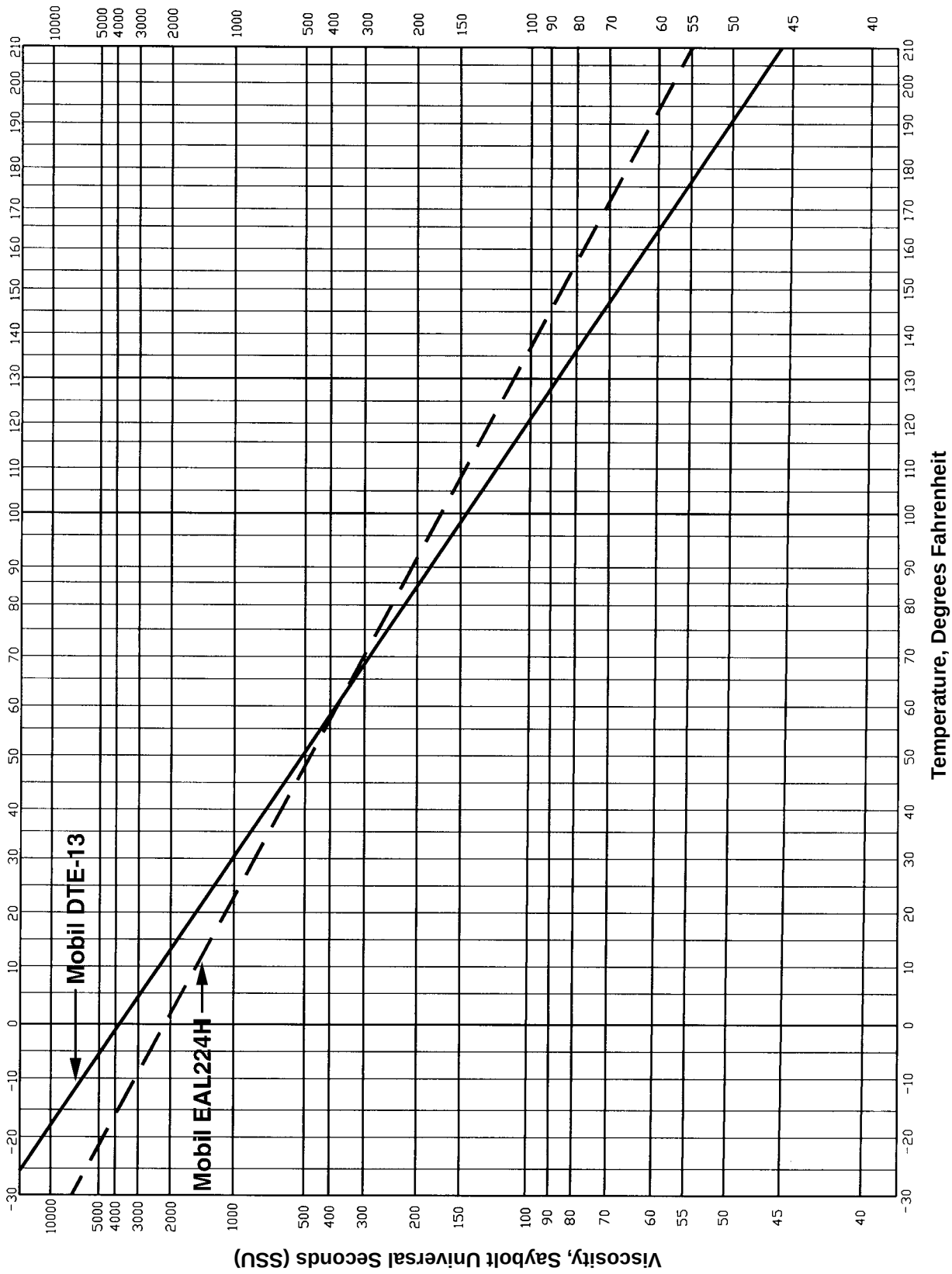
Hydraulic Fluids

Viscosity - Temperature Charts for ISO VG 32-46-68 Fluids



Hydraulic Fluids

Viscosity - Temperature Charts for Specific Fluids



Hydraulic System Design Calculations
Accumulator Sizing

A. System Pressure

In order to achieve maximum accumulator life, the maximum operating system pressure should not be more than three times the minimum operating system pressure. Pressures above this 3:1 ratio can cause an excessive rise in gas chamber temperatures and excessive bladder and diaphragm deformation. Hence, the lower the maximum to minimum pressure ratio, the longer the operating life of the accumulator.

B. Storage Capacity

1. If the 3:1 system pressure is adhered to, the rule of thumb is that the maximum storage capacity that is available in the accumulator is approximately 60% of it's rated size.
Example:1 gallon = 231 cubic inches.Available volume (apprx) = 139 cubic inches.
2. It is very important to always select the accumulator size whose storage capacity is equal to or greater than that which is required. Utilizing accumulators with smaller capacities will result in the complete evacuation of the oil in the accumulator, causing the eventual failure of either the bladder or the diaphragm. There should always be at least 10% of the hydraulic fluid left in the accumulator during normal operations so that the bladder does not come in contact with the oil valve poppet nor the diaphragm comein contact with the oil port.

C. Pre-Charge Pressure

1. Shock and Pulsation Dampener.
When an accumulator is used as a shock and/or pulsation dampener, the pre-charge pressure should be 80% of the minimum system pressure.
2. Energy Storage.
When an accumulator is used for energy storage, the pre-charge pressure should be 90% of the minimum system pressure.

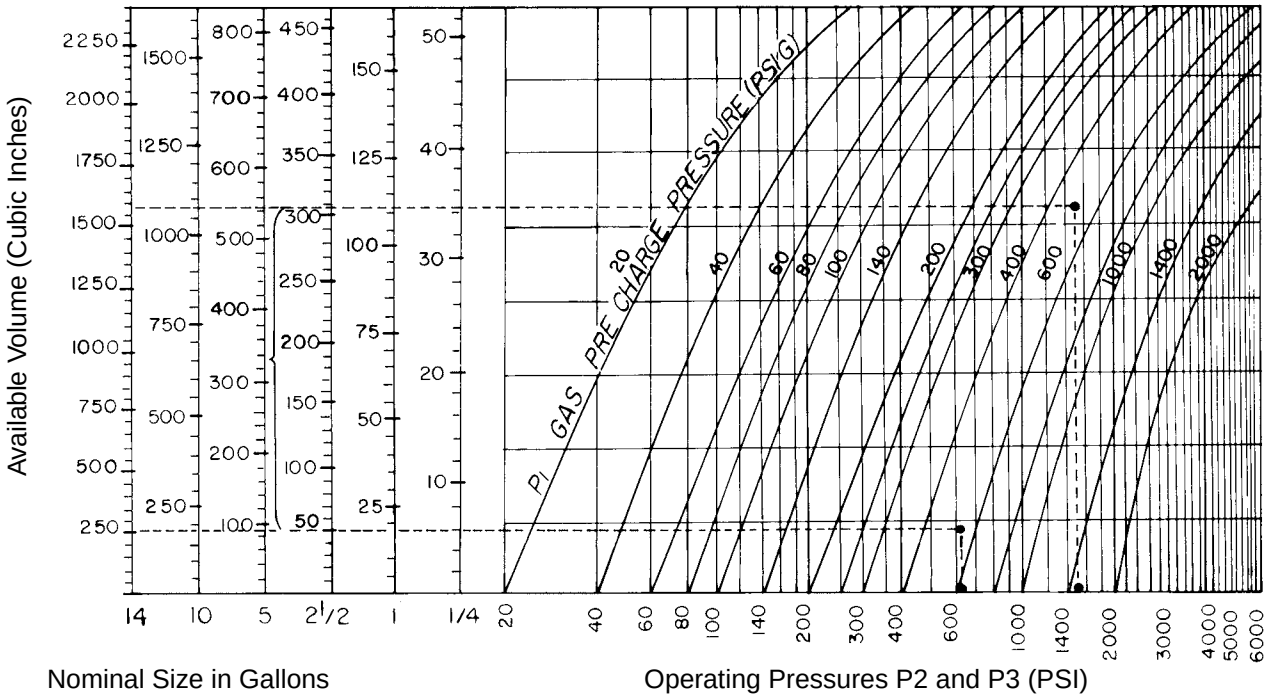
D. Available Fluid Volume

The amount of hydraulic fluid available from the accumulator is based on either the isothermal or adiabatic charge state of the nitrogen gas.
1. Isothermal
Isothermal curves are used when the movement of the fluid into and out of the accumulator occurs so slowly (3 minutes or more) that there is enough time for the complete exchange of heat between the gas and its surroundings. The result is little or no change in gas temperature.
2. Adiabatic
Adiabatic curves are used when the movement of the fluid into and out of the accumulator occurs so rapidly that the temperature of the gas is rapidly changing because of the rapid compression and expansion of the gas.

Hydraulic System Design Calculations
Accumulator Sizing

Sample Sizing Problem
System Requirements:Minimum Operating Pressure (P2)650 PSI
Maximum Operating Pressure (P3)1600 PSI
Liquid Volume Required1 Gallon
Time required for discharge2 seconds

PRESSURE-VOLUME CURVE, ADIABATIC RELATIONSHIP, Bladder Type Accumulator



Solution:

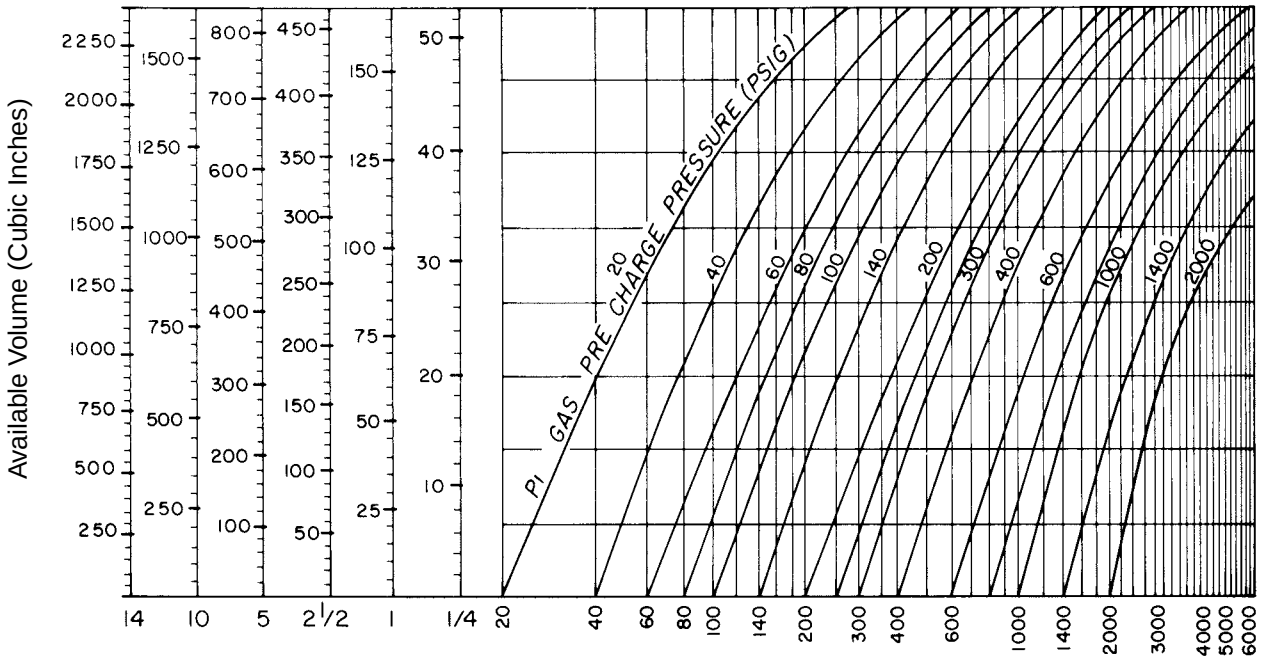
1. Pre-charge Pressure (P1) = 90% of minimum operating pressure (P2) = .90 x 650 = 585 PSI.

2. Accumulator size (using the adiabatic curve due to the rapid discharge time):

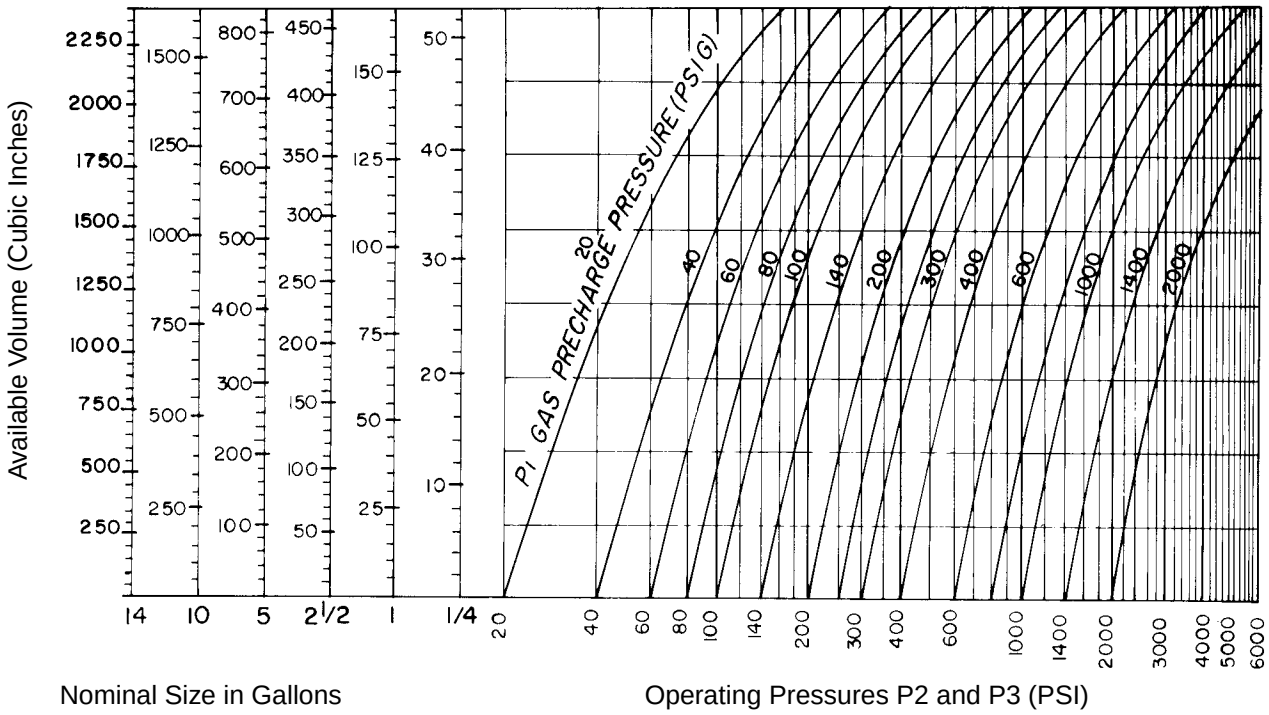
Follow a line vertically upwards from the P2 pressure line (650 PSI) and P3 pressure line (1600 PSI) until they intersect the P1 pre-charge pressure line (585 PSI). Then moving horizontally to the left handscale, read the available fluid volume figures. The difference between the two figures is the volume which can be stored in the specific size accumulator.

3. For the above example, the 2-1/2 gallon accumulator most closely fits the requirements.
(320 cu.in. minus 50 cu.in. = 270 cu.in.)

PRESSURE-VOLUME CURVE, ADIABATIC RELATIONSHIP, Bladder Type Accumulator

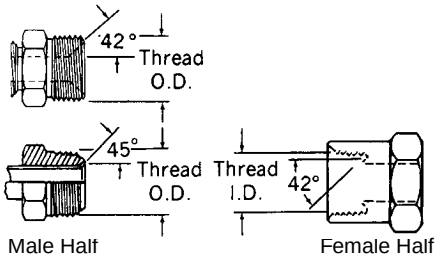


PRESSURE-VOLUME CURVE, ISOTHERMAL RELATIONSHIP, Bladder Type Accumulator



How to Identify Fluid Connectors
American Connections

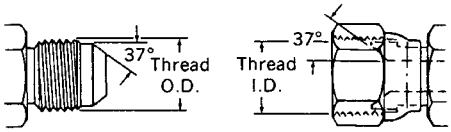
Inverted Flare (SAE J512 Inverted)



This connection is frequently used in automotive systems. The male connector can either be a 45° flare in the tube fitting form or a 42° seat in the machined adaptor form. The female has a straight thread with a 42° inverted flare. The seal takes place on the flared surfaces. The threads hold the connection mechanically.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	5/16-18	5/16	.32	9/32	.28
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-24	7/16	.44	13/32	.40
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	5/8-18	5/8	.63	9/16	.57
7/16	07	11/16-18	11/16	.69	5/8	.63
1/2	08	3/4-18	3/4	.75	23/32	.70
5/8	10	7/8-18	7/8	.88	13/16	.82
3/4	12	1-1/16-16	1-1/16	1.06	1	1.00

JIC Flared (SAE J514 37 Flare)

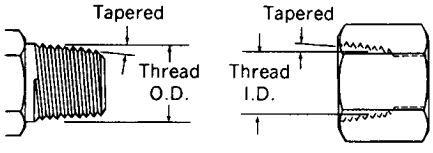


This connection is very common in fluid power systems. Both the male and female halves of the connections have 37° seats. The seal takes place by establishing a line contact between the male flare and the female cone seat. The threads hold the connection mechanically.

Caution: In the -02, -03, -04, -05, -08 and -10 sizes, the threads of the SAE 45° flare and the SAE 37° flare are the same. However, the sealing surface angles are not the same.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	5/16-24	5/16	.31	9/32	.27
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-20	7/16	.44	13/32	.39
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	9/16-18	9/16	.56	17/32	.51
1/2	08	3/4-16	3/4	.75	11/16	.69
5/8	10	7/8-14	7/8	.88	13/16	.81
3/4	12	1-1/16-12	1-1/16	1.06	1	.98
1	16	1-5/16-12	1-5/16	1.31	1-1/4	1.23
1-1/4	20	1-5/8-12	1-5/8	1.63	1-9/16	1.54
1-1/2	24	1-7/8-12	1-7/8	1.88	1-13/16	1.79

NPTF (National Pipe Tapered Fuel)



This connection is still widely used in fluid power systems, even though it is not recommended ny the National Fluid Power Association (NFPA) for use in hydraulic systems. The thread is tapered and the seal takes place by deformation of the threads.

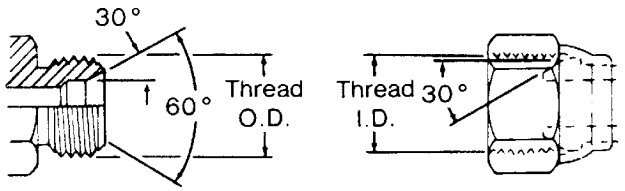
Note: Measure the thread diameter and subtract 1/4 inch to find the nominal pipe size.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	1/8-27	13/32	.41	3/8	.38
1/4	04	1/4-18	17/32	.54	1/2	.49
3/8	06	3/8-18	11/16	.68	5/8	.63
1/2	08	1/2-14	27/32	.84	25/32	.77
3/4	12	3/4-14	1-1/16	1.05	1	.98
1	16	1-11-1/2	1-5/16	1.32	1-1/4	1.24
1-1/4	20	1-1/4-11-1/2	1-21/32	1.66	1-19/32	1.58
1-1/2	24	1-1/2-11-1/2	1-29/32	1.90	1-13/16	1.82
2	32	2-11-1/2	2-3/8	2.38	2-5/16	2.30

Technical Information

How to Identify Fluid Connectors
American Connections

NPSM
(National Pipe Straight Mechanical)



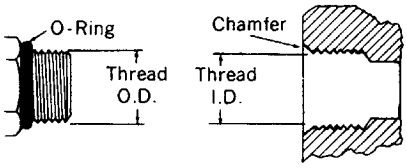
Male Half Female Half

This connection is sometimes used in fluid power systems. The female half has a straight thread and an inverted 30° seat. The male half of the connection has a straight thread and a 30° internal chamfer. The seal takes place by compression of the 30° seat on the chamfer. The threads hold the connection mechanically.

Note: A properly chamfered NPTF male will also seal with the NPSM female.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	1/8-27	13/32	.41	3/8	.38
1/4	04	1/4-18	17/32	.54	1/2	.49
3/8	06	3/8-18	11/16	.68	5/8	.63
1/2	08	1/2-14	27/32	.84	25/32	.77
3/4	12	3/4-14	1-1/16	1.05	1	.98
1	16	1-11-1/2	1-5/16	1.32	1-1/4	1.24
1-1/4	20	1-1/4-11-1/2	1-21/32	1.66	1-19/32	1.58
1-1/2	24	1-1/2-11-1/2	1-29/32	1.90	1-13/16	1.82
2	32	2-11-1/2	2-3/8	2.38	2-5/16	2.30

ORB (SAE J514 Straight Thread O-Ring Boss)

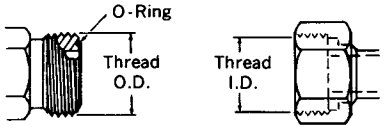


Male Half Female Half

This port connection is recommended by the NFPA for optimum leakage control in medium and high pressure hydraulic systems. The male connector has a straight thread and an O-Ring. The female port has a straight thread, a machined surface (minimum spotface) and a chamfer to accept the O-Ring. The seal takes place by compressing the O-Ring into the chamfer. The threads hold the connection mechanically.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	5/16-24	5/16	.31	9/32	.27
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-20	7/16	.44	13/32	.39
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	9/16-18	9/16	.56	17/32	.51
1/2	08	3/4-16	3/4	.75	11/16	.69
5/8	10	7/8-14	7/8	.88	13/16	.81
3/4	12	1-1/16-12	1-1/16	1.06	1	.98
1	16	1-5/16-12	1-5/16	1.31	1-1/4	1.23
1-1/4	20	1-5/8-12	1-5/8	1.63	1-9/16	1.54
1-1/2	24	1-7/8-12	1-7/8	1.88	1-13/16	1.79
2	32	2-1/2-12	2-1/2	2.50	2-7/16	2.42

ORS (SAE J1453 O-Ring Face Seal)



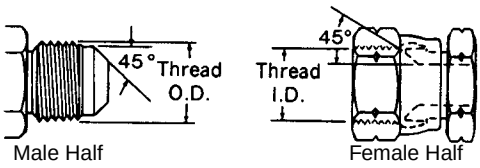
Male Half Female Half

This connection offers the very best leakage control available today. The male connector has a straight thread and an O-Ring in the face. The female has a straight thread and a machined flat face. The seal takes place by compressing the O-Ring onto the flat face of the female, similar to the split flange type fitting. The threads hold the connection mechanically.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/4	04	9/16-18	9/16-18	.56	17/32	.51
3/8	06	11/16-16	11/16	.69	5/8	.63
1/2	08	13/16-16	.13/16	.82	3/4	.75
5/8	10	1-14	1	1.00	15/16	.93
3/4	12	1-3/16-12	1-3/16	1.19	1-1/8	1.11
1	16	1-7/16-12	1-7/16	1.44	1-3/8	1.36
1-1/4	20	1-11/16-12	1-11/16	1.69	1-5/8	1.61
1-1/2	24	2-12	2	2.00	1-15/16	1.92

How to Identify Fluid Connectors
American Connections

SAE Flared (SAE J1512 45 Flare)

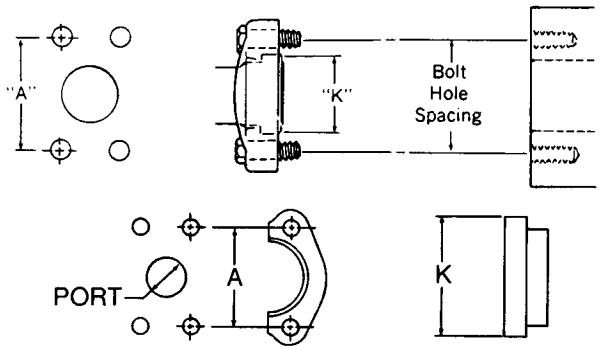


This connection is commonly used in refrigeration, automotive and truck piping systems. The connector is frequently made of brass. Both the male and female connectors have 45° seats. The seal takes place between the male flare and the female cone seat. The threads hold the connection mechanically.

Caution: In the -02, -03, -04, -05, -08 and -10 sizes, the threads of the SAE 45° flare and the SAE 37° flare are the same. However, the sealing surface angles are not the same.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	5/16-24	5/16	.31	9/32	.27
3/16	03	3/8-24	3/8	.38	11/32	.34
1/4	04	7/16-20	7/16	.44	13/32	.39
5/16	05	1/2-20	1/2	.50	15/32	.45
3/8	06	5/8-18	5/8	.63	9/16	.57
1/2	08	3/4-16	3/4	.75	11/16	.69
5/8	10	7/8-14	7/8	.88	13/16	.81
3/4	12	1-1/16-14	1-1/16	1.06	1	.99
7/8	14	1-1/4-12	1-1/4	1.25	1-5/32	1.16
1	16	1-3/8-12	1-3/8	1.38	1-9/32	1.29

SAE J518 4-Bolt Flange



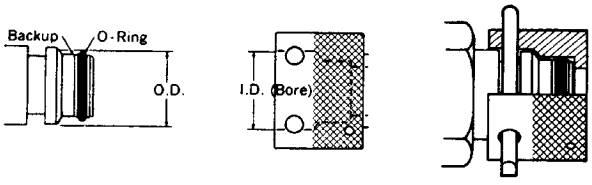
This connection is commonly used in fluid power systems. There are two pressure ratings. Code 61 is referred to as the “standard” series and Code 62 is the “6000 psi” series. The design concept is the same, but the bolt hole spacing and the flanged head diameters are larger for the higher pressure, Code 62 connection.

The female (port) is an unthreaded hole with four threaded bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

Note: SAE J518, JIS B 8363, ISO/DIS 6162 and DIN 20066 are interchangeable, except for bolt sizes.

Inch Size (Dash Size)	Port Hole I.D.	Bolt Dimensions Size (Length)		Bolt Hole Spacing “A” Inch (Dec.)		Flanged Head Dia. “K” Inch (Dec.)	
		Code 61	Code 62	Code 61	Code 62	Code 61	Code 62
1/2 (08)	.50	5/16-18 (1-1/4)	5/16-18 (1-1/4)	1-1/2 (1.50)	1-19/32 (1.59)	1-3/16 (1.19)	1-1/4 (1.25)
3/4 (12)	.75	3/8-16 (1-1/4)	3/8-16 (1-1/2)	1-7/8 (1.88)	2 (2.00)	1-1/2 (1.50)	1-5/8 (1.63)
1 (16)	1.00	3/8-16 (1-1/4)	7/16-14 (1-3/4)	2-1/16 (2.06)	2-1/4 (2.25)	1-3/4 (1.75)	1-7/8 (1.88)
1-1/4 (20)	1.25	7/16-14 (1-1/2)	1/2-13 (1-3/4)	2-5/16 (2.31)	2-5/8 (2.63)	2 (2.00)	2-1/8 (2.13)
1-1/2 (24)	1.50	1/2-13 (1-1/2)	5/8-11 (2-1/4)	2-3/4 (2.75)	3-1/8 (3.12)	2-3/8 (2.38)	2-1/2 (2.50)
2 (32)	2.00	1/2-13 (1-1/2)	3/4-10 (2-3/4)	3-1/16 (3.06)	3-13/16 (3.81)	2-13/16 (2.81)	3-1/8 (3.12)

Staplok (SAE J1467)

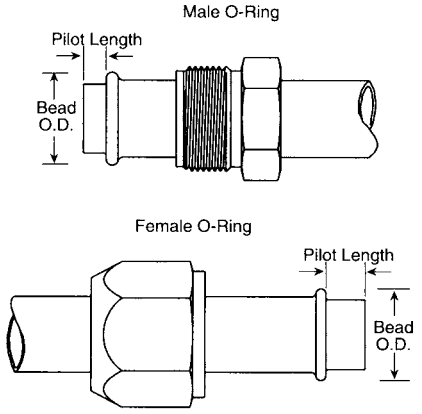


Male Half Female Half Connected

This is a radial O-Ring seal connection developed in Germany and commonly used for hydraulic applications in underground mines. The male contains an exterior O-Ring and backup ring, plus a groove to accept the “staple”. The female has a smooth bore with two holes for the staple. A “U” shaped retaining clip or staple is inserted through the two holes, passing through the groove in the male to lock the connection together. The seal takes place by contact between the O-Ring in the male and the smooth bore of the female.

Inch Size	Dash Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
		Fraction	Dec.	Fraction	Dec.
1/4	04	19/32	.586	19/32	.597
3/8	06	25/32	.783	51/64	.794
1/2	08	15/16	.940	61/64	.951
3/4	12	1-9/64	1.137	1-9/64	1.148
1	16	1-17/32	1.529	1-35/64	1.540
1-1/4	20	1-13/16	1.806	1-13/16	1.817
1-1/2	24	2-5/32	2.163	2-11/64	2.174
2	32	2-33/64	2.517	2-17/32	2.528

Bump Tube O-Ring Seal and O-Ring Pilot Fittings



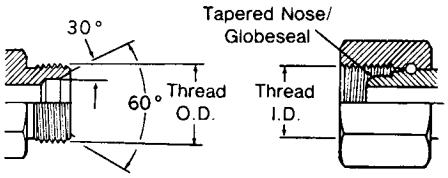
This connection is common to air conditioning systems, both in vehicle and commercial applications. Both the male and female halves of the connections have a pilot, either long or short. The seal takes place by compressing an O-ring adjacent to the bead of the tube. The threads hold the connection together mechanically.

		Male Thread O.D. (inch)			Female Thread I.D. (inch)		
Inch Size	Dash Size	Nominal Thread	Fraction	Dec.	Nominal Thread	Fraction	Dec.
3/8	06	5/8-18	5/8	0.62	5/8-18	9/16	0.57
1/2	08	3/4-18	3/4	0.75	3/4-16	11/16	0.69
5/8	10	7/8-18	7/8	0.87	7/8-14	13/16	0.81
3/4	12	1-1/16-16	1-1/16	1.06	1-1/16-14	1	0.99

		Long Pilot		Short Pilot	
Inch Size	Nominal Tube Size	Bead O.D. (in)	Pilot Length	Bead O.D. (in)	Pilot Length
3/8	06	0.52	0.28	0.52	0.19
1/2	08	0.64	0.39	0.64	0.19
5/8	10	0.77	0.39	0.77	0.19
3/4	12	0.91	0.39	0.91	0.19

How to Identify Fluid Connectors
British Connections

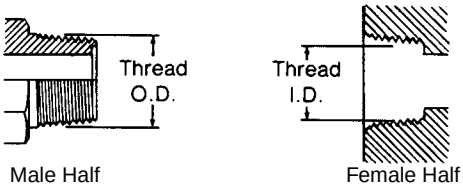
BSP Parallel
(British Standard Pipe Parallel)



Male Half Female Half

The BSP Parallel male is similar to the NPSM male except the thread pitches are different in most sizes. The female swivel BSPP has a tapered nose/Globeseal flareless swivel which seals on the cone seat of the male.

BSP Tapered
(British Standard Pipe Tapered)



Male Half Female Half

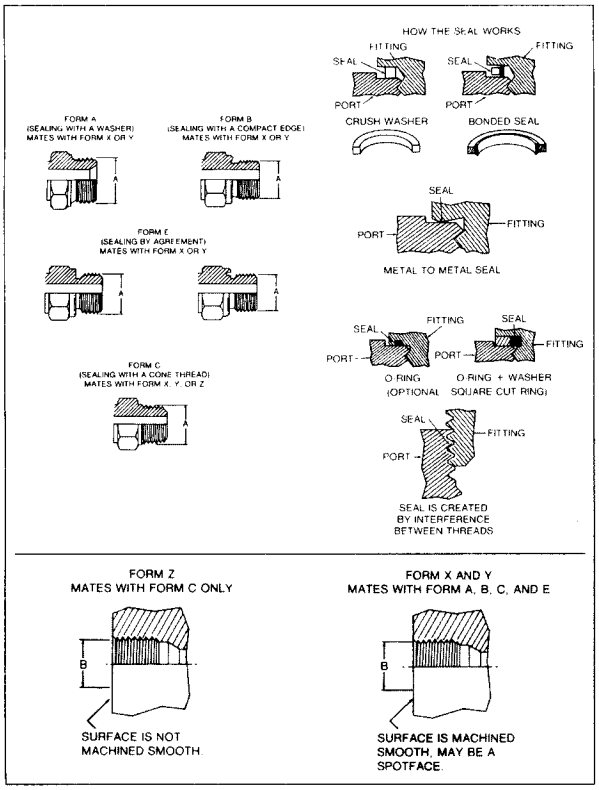
The BSP Tapered connection is similar to the American NPT except that the thread pitches are different in most sizes, and the thread form and O.D.'s are close but not the same. Sealing is accomplished by thread distortion. A thread sealant is recommended.

Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D. (inch)		Female Thread I.D. (inch)	
			Fraction	Dec.	Fraction	Dec.
1/8	02	1/8-28	3/8	.38	11/32	.35
1/4	04	1/4-19	33/64	.52	15/32	.47
3/8	06	3/8-19	21/32	.65	19/32	.60
1/2	08	1/2-14	13/16	.82	3/4	.75
5/8	10	5/8-14	7/8	.88	13/16	.80
3/4	12	3/4-14	1-1/32	1.04	31/32	.97
1	16	1-11	1-5/16	1.30	1-7/32	1.22
1-1/4	20	1-1/4-11	1-21/32	1.65	1-9/16	1.56
1-1/2	24	1-1/2-11	1-7/8	1.88	1-25/32	1.79
2	32	2-11	2-11/32	2.35	2-1/4	2.26

Frequently, the thread size is expressed as a fractional dimension preceded by the letter “G” or the letter “R”. The “G” represents a parallel thread and the “R” indicates a tapered thread. For example, BSPP 3/8-19 may be expressed as G 3/8, and BSPT 3/8-19 may be expressed as R 3/8.

DIN 3852
Male Connectors and Female Ports

The DIN is controlled by Germany, but other countries may use it as a reference for their connector and port designs. The chart below illustrates the various forms and how they seal.

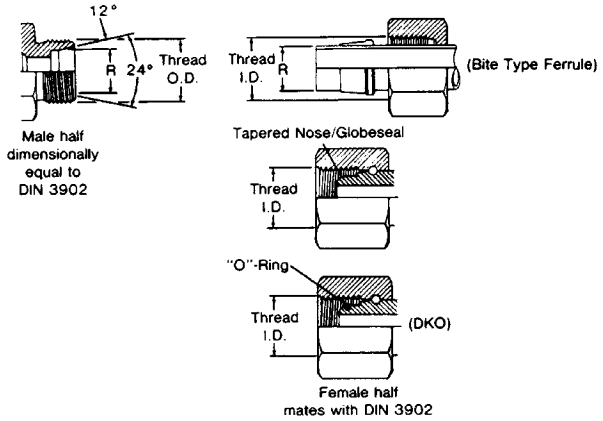


Metric Threads	Male Thread O.D. "A"		Female Thread I.D. "B"	
	mm	Inch	mm	Inch
M12 x 1.5	12	.47	10.5	.41
M14 x 1.5	14	.55	12.5	.49
M16 x 1.5	16	.63	14.5	.57
M18 x 1.5	18	.71	16.5	.65
M20 x 1.5	20	.78	18.5	.73
M22 x 1.5	22	.87	20.5	.81
M24 x 1.5	24	.94	22.5	.89
M26 x 1.5	26	1.02	24.5	.96
M27 x 2	27	1.06	25	.98
M30 x 1.5	30	1.18	28.5	1.12
M30 x 2	30	1.18	28	1.10
M33 x 2	33	1.30	31	1.22
M36 x 1.5	36	1.41	34.5	1.36
M36 x 2	36	1.41	34	1.33
M38 x 1.5	38	1.49	36.5	1.43
M38 x 2	38	1.49	36	1.41
M42 x 1.5	42	1.65	40.5	1.60
M42 x 2	42	1.65	40	1.57
M45 x 1.5	45	1.77	43.5	1.71
M45 x 2	45	1.77	43	1.69
M48 x 1.5	48	1.89	46.5	1.83
M48 x 2	48	1.89	46	1.81
M52 x 1.5	52	2.04	50.5	1.89

For DIN 3852 Whitworth pipe thread dimensions, see BSPT/BSPP dimensions. They are the same.

How to Identify Fluid Connectors
German Connections

DIN 3902



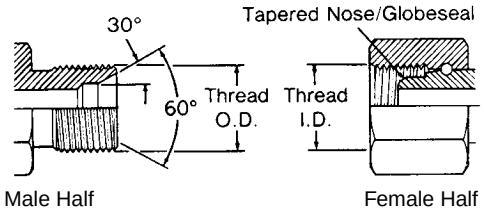
This connection style consists of a common male and three different female halves.

The male has a straight metric thread, a 24° included angle and a recessed counterbore that matches the tube O.D. used with it. The female may be a tube, nut and ferrule, a tapered nose/Globeseal flareless swivel or a tapered nose/Globeseal flareless swivel with an O-Ring in the nose (DKO type).

Tube O.D. "R" Dim. l.Rh. mm(inch)	Tube O.D. "R" Dim. s.Rh. mm(inch	Metric Thread Size	Male Thread O.D.		Female Thread I.D.	
			mm	Inch	mm	Inch
6 (.24)		M12 x 1.5	12	.47	10.5	.41
8 (.32)	6 (.24)	M14 x 1.5	14	.55	12.5	.49
10 (.39)	8 (.32)	M16 x 1.5	16	.63	14.5	.57
12 (.47)	10 (.39)	M18 x 1.5	18	.71	16.5	.65
	12 (.47)	M20 x 1.5	20	.78	18.5	.73
15 (.59)	14 (.55)	M22 x 1.5	22	.87	20.5	.81
	16 (.63)	M24 x 1.5	24	.94	22.5	.89
18 (.71)		M26 x 1.5	26	1.02	24.5	.96
22 (.87)	20 (.78)	M30 x 2.0	30	1.18	28	1.11
28 (1.10)	25 (.98)	M36 x 2.0	36	1.41	34	1.34
	30 (1.18)	M42 x 2.0	42	1.65	40	1.57
35 (1.38)		M45 x 2.0	45	1.77	43	1.70
42 (1.65)	38 (1.50)	M52 x 2.0	52	2.04	50	1.97

l.Rh. is a light duty system
s.Rh. is a heavy duty system.

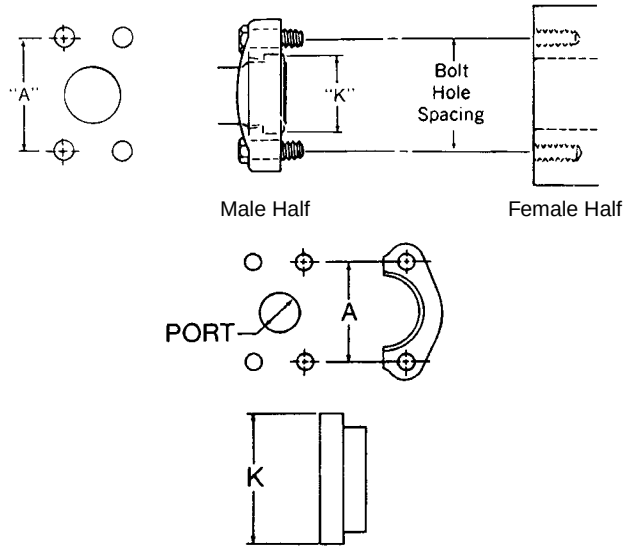
DIN 7631



This connection is frequently used in hydraulic systems. The male has a straight metric thread and a 60° (included angle) recessed cone. The female has a straight thread and a tapered nose/Globeseal seat. The seal takes place by contact between the cone of the male and the nose of the tapered nose/Globeseal flareless swivel. The threads hold the connection mechanically.

Use with Pipe/Tube O.D.		Metric Thread Size	Male Thread O.D.		Female Thread I.D.	
mm	Inch		mm	Inch	mm	Inch
6	.24	M12 x 1.5	12	.47	10.5	.41
8	.32	M14 x 1.5	14	.55	12.5	.49
10	.39	M16 x 1.5	16	.63	14.5	.57
12	.47	M18 x 1.5	18	.71	16.5	.65
15	.59	M22 x 1.5	22	.87	20.5	.81
18	.71	M26 x 1.5	26	1.02	24.5	.96
22	.87	M30 x 1.5	30	1.18	28.5	1.12
28	1.10	M38 x 1.5	38	1.50	36.5	1.44
35	1.38	M45 x 1.5	45	1.77	43.5	1.71
42	1.65	M52 x 1.5	52	2.04	50.5	1.99

DIN 20066 4-Bolt Flange



This connection is commonly used in fluid power systems. There are two pressure ratings. Form R (Code 61) is the "standard" series and Form S (Code 62) is the "heavy duty" series. The design concept for both series is the same, but the bolt hole spacing and flanged head diameters are larger for the higher pressure, Form S connection. Both metric and inch bolts are used.

The female (port) is an unthreaded hole with four threaded bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

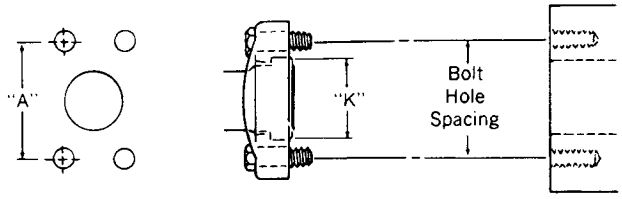
Note: DIN 20066, ISO/DIS 6166, JIS B 8363 and SAE J518 are interchangeable, except for the bolt sizes.

Size mm (inch) Dash	Port Hole mm (inch)	Bolt Dimensions mm and Inch		Bolt Hole Spacing "A" mm (inch)	
		Form R (Cd.61)	Form S (Cd.62)	Form R (Cd.61)	Form S (Cd.62)
12 (1/2) -08	12.7 (.50)	M8 x 1.25 x 30 5/16-18 x 1-1/4	M8 x 1.25 x 30 5/16-18 x 1-1/4	38.10 (1.50)	40.49 (1.57)
20 (3/4) -12	19.1 (.75)	M10 x 1.5 x 30 3/8-16 x 1-1/4	M10 x 1.5 x 40 3/8-16 x 1-1/2	47.63 (1.88)	50.80 (2.00)
25 (1) -16	25.4 (1.00)	M10 x 1.5 x 35 3/8-16 x 1-1/4	M12 x 1.75 x 45 7/16-14 x 1-3/4	52.37 (2.06)	57.15 (2.25)
32 (1-1/4) -20	31.7 (1.25)	M10 x 1.75 x 40 7/16-14 x 1-1/2	M14 x 2 x 45 1/2-13 x 1-3/4	58.72 (2.31)	66.68 (2.63)
40 (1-1/2) -24	38.0 (1.50)	M12 x 1.75 x 40 1/2-13 x 1-1/2	M16 x 2 x 55 5/8-11 x 2-1/4	69.85 (2.75)	79.38 (3.13)
50 (2) -32	50.8 (2.00)	M12 x 1.75 x 40 1/2-13 x 1-1/2	M20 x 2.5 x 70 3/4-10 x 2-3/4	77.77 (3.06)	96.82 (3.81)

Size mm (inch) Dash	Flanged Head Diameter "K" mm (inch)	
	Form R (Code 61)	Form S (Code 62)
12 (1/2) -08	30.18 (1.19)	31.75 (1.25)
20 (3/4) -12	38.10 (1.50)	41.28 (1.63)
25 (1) -16	44.45 (1.75)	47.63 (1.88)
32 (1-1/4) -20	50.80 (2.00)	53.98 (2.13)
40 (1-1/2) -24	60.33 (2.38)	63.50 (2.50)
50 (2) -32	71.42 (2.81)	79.38 (3.13)

How to Identify Fluid Connectors
ISO Connections

ISO / DIS 6162 4-Bolt Flange



This connection is commonly used in fluid power systems. There are two pressure ratings. PN 35/350 bar (Code 61) is the "standard" series and PN 415 bar (Code 62) is the high pressure series. The design concept for both series is the same, but the bolt hole spacing and flanged head diameters are larger for the higher pressure, PN 415 bar connection. Both metric and inch bolts are used. The port will have an "M" stamped on it if metric bolts are required.

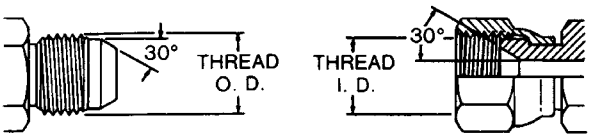
The female (port) is an unthreaded hole with four threaded bolt holes in a rectangular pattern around the port. The male consists of a flanged head, grooved for an O-Ring, and either a captive flange or split flange halves with bolt holes to match the port. The seal takes place on the O-Ring, which is compressed between the flanged head and the flat surface surrounding the port. The threaded bolts hold the connection together.

Note: SAE J518, JIS B 8363, ISO/DIS 6162 and DIN 20066 are interchangeable, except for bolt sizes.

Size mm (inch) Dash	Port Hole mm (inch)	Bolt Dimensions mm and Inch		Bolt Hole Spacing "A" mm (inch)	
		PN 35/350 Bar (Cd.61)	PN 415 Bar (Cd.62)	PN 35/350 Bar (Cd.61)	PN 415 Bar (Cd.62)
13 (1/2) -08	12.7 (.50)	M8 x 1.25 x 30 5/16-18 x 1-1/4	M8 x 1.25 x 30 5/16-18 x 1-1/4	38.10 (1.50)	40.49 (1.57)
19 (3/4) -12	19.1 (.75)	M10 x 1.5 x 35 3/8-16 x 1-1/4	M10 x 1.5 x 40 3/8-16 x 1-1/2	47.63 (1.88)	50.80 (2.00)
25 (1) -16	25.4 (1.00)	M10 x 1.5 x 35 3/8-16 x 1-1/4	M12 x 1.75 x 45 7/16-14 x 1-3/4	52.37 (2.06)	57.15 (2.25)
32 (1-1/4) -20	31.8 (1.25)	M10 x 1.75 x 40 7/16-14 x 1-1/2	M14 x 2 x 50 1/2-13 x 1-3/4	58.72 (2.31)	66.68 (2.63)
38 (1-1/2) -24	38.1 (1.50)	M14 x 2 x 40 1/2-13 x 1-1/2	M16 x 2 x 55 5/8-11 x 2-1/4	69.85 (2.75)	79.38 (3.13)
51 (2) -32	50.8 (2.00)	M14 x 2 x 40 1/2-13 x 1-1/2	M20 x 2.5 x 70 3/4-10 x 2-3/4	77.77 (3.06)	96.82 (3.81)

	Flanged Head Diameter "K" mm (inch)	
Inch Size	PN 35/350 (Code 61)	PN 415 (Code 62)
1/2	30.18 (1.19)	31.75 (1.25)
3/4	38.10 (1.50)	41.28 (1.63)
1	44.45 (1.75)	47.63 (1.88)
1-1/4	50.80 (2.00)	53.98 (2.13)
1-1/2	60.33 (2.38)	63.50 (2.50)
2	71.42 (2.81)	79.38 (3.13)

JIS 30 Female (Cone) Seat, Parallel Pipe Threads (Threads per JIS B 0202)

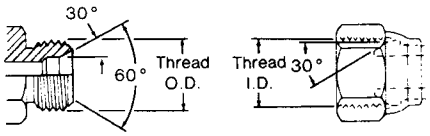


Male Half Female Half

The Japanese JIS 30° flare is similar to the American SAE 37° flare connection in application as well as sealing principles. However, the flare angle and dimensions are different. The threads are similar to BSPP.

Inch Size	Size mm (Dash)	Nominal Thread Size (Similar to BSPP)	Male Thread O.D.		Female Thread I.D.	
			Fraction	mm	Fraction	mm
1/4	6 (-04)	1/4-19	33/64	13.2	15/32	11.9
3/8	9 (-06)	3/8-19	21/32	16.7	19/32	15.3
1/2	12 (-08)	1/2-14	13/16	21.0	3/4	19.2
3/4	19 (-12)	3/4-14	1-1/32	26.4	31/32	24.6
1	24 (-16)	1-11	1-5/16	33.3	1-7/32	30.9
1-1/4	32 (-20)	1-1/4-11	1-21/32	41.9	1-9/16	39.6
1-1/2	38 (-24)	1-1/2-11	1-7/8	47.8	1-25/32	45.5
2	50 (-32)	2-11	2-11/32	59.7	2-1/4	57.4

JIS 30 Male Inverted Seat, Metric Threads (Threads per JIS B 0207)

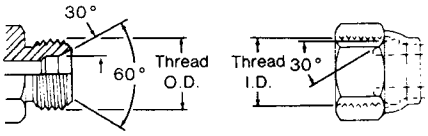


Male Half Female Half

The JIS parallel (metric) is the same as the JIS parallel B 0202 except for the thread difference.

Size mm	Dash Size	Thread Size	Male Thread O.D.		Female Thread I.D.	
			mm	Inch	mm	Inch
6	-04	M14 x 1.5	14	.55	12.5	.49
9	-06	M18 x 1.5	18	.71	16.5	.65
12	-08	M22 x 1.5	22	.87	20.5	.81
19	-12	M30 x 1.5	30	1.18	28.5	1.12
25	-16	M33 x 1.5	33	1.30	31.5	1.24

JIS 30 Male Inverted Seat, Parallel Pipe Threads (Thread per JIS B 0202)



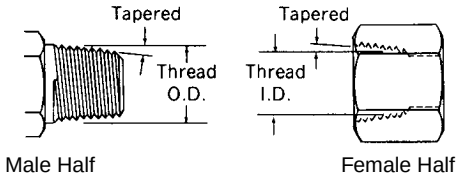
Male Half Female Half

The JIS parallel is similar to the BSPP connection. The JIS parallel thread and the BSPP connection are interchangeable.

Inch Size	Size mm (Dash)	Nominal Thread Size (Similar to BSPP)	Male Thread O.D.		Female Thread I.D.	
			Fraction	mm	Fraction	mm
1/4	6 (-04)	1/4-19	33/64	13.2	15/32	11.9
3/8	9 (-06)	3/8-19	21/32	16.7	19/32	15.3
1/2	12 (-08)	1/2-14	13/16	21.0	3/4	19.2
3/4	19 (-12)	3/4-14	1-1/32	26.4	31/32	24.6
1	25 (-16)	1-11	1-5/16	33.3	1-7/32	30.9
1-1/4	32 (-20)	1-1/4-11	1-21/32	41.9	1-9/16	39.6
1-1/2	38 (-24)	1-1/2-11	1-7/8	47.8	1-25/32	45.5
2	50 (-32)	2-11	2-11/32	59.7	2-1/4	57.4

How to Identify Fluid Connectors
Japanese Connections

JIS Tapered Pipe (PT)
(Threads per JIS B 0203)

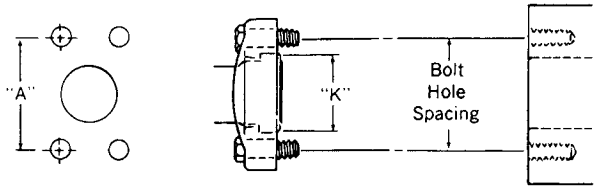


Male Half Female Half

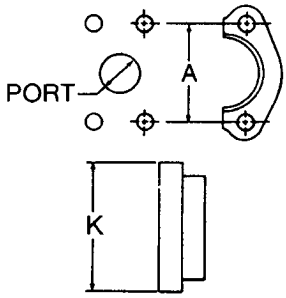
The JIS tapered thread is similar to the BSPT connection in design, appearance and dimensions. The JIS tapered thread and the BSPT connection are interchangeable.

Inch Size	Size mm (Dash)	Nominal Thread Size (Similar to BSPT)	Male Thread O.D.		Female Thread I.D.	
			Fraction	mm	Fraction	mm
1/4	6 (-04)	1/4-19	33/64	13.2	15/32	11.9
3/8	9 (-06)	3/8-19	21/32	16.7	19/32	15.3
1/2	12 (-08)	1/2-14	13/16	21.0	3/4	19.2
3/4	19 (-12)	3/4-14	1-1/32	26.4	31/32	24.6
1	25 (-16)	1-11	1-5/16	33.3	1-7/32	30.9
1-1/4	32 (-20)	1-1/4-11	1-21/32	41.9	1-9/16	39.6
1-1/2	38 (-24)	1-1/2-11	1-7/8	47.8	1-25/32	45.5
2	50 (-32)	2-11	2-11/32	59.7	2-1/4	57.4

JIS B 8363 4-Bolt Flange



Male Half Female Half



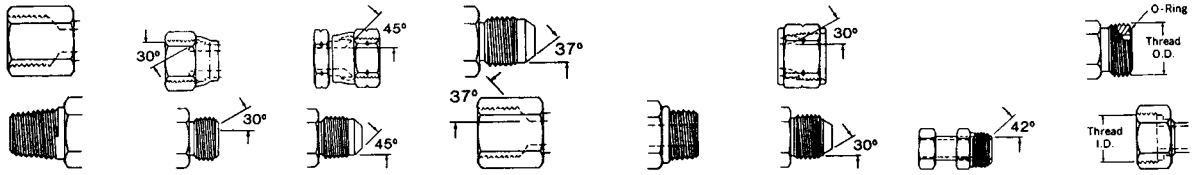
This connection is commonly used in fluid power systems. There are two pressure ratings. Type I (Code 61) is referred to as the "standard" series and Type II (Code 62) is the "6000 PSI" series. The design concept for both series is the same, but the bolt spacing and flanged head diameters are larger for the higher pressure, Type II connection. Both metric and inch bolts are used.

Size mm (inch) Dash	Port Hole mm (inch)	Bolt Dimensions mm and Inch		Bolt Hole Spacing "A" mm (inch)	
		Type I (Code 61)	Type II (Code 62)	Type I (Code 61)	Type II (Code 62)
12 (1/2) -08	12.7 (.50)	M8 x 1.25 x 30 5/16-18 x 1-1/4	M8 x 1.25 x 30 5/16-18 x 1-1/4	38.10 (1.50)	40.49 (1.57)
19 (3/4) -12	19.1 (.75)	M10 x 1.5 x 35 3/8-16 x 1-1/4	M10 x 1.5 x 40 3/8-16 x 1-1/2	47.63 (1.88)	50.80 (2.00)
25 (1) -16	25.4 (1.00)	M10 x 1.5 x 30 3/8-16 x 1-1/4	M12 x 1.75 x 45 7/16-14 x 1-3/4	52.37 (2.06)	57.15 (2.25)
32 (1-1/4) -20	31.7 (1.25)	M10 x 1.5 x 40 7/16-14 x 1-1/2	M14 x 2 x 45 1/2-13 x 1-3/4	58.72 (2.31)	66.68 (2.63)
38 (1-1/2) -24	38.0 (1.50)	M12 x 1.75 x 40 1/2-13 x 1-1/2	M16 x 2 x 55 5/8-11 x 2-1/4	69.85 (2.75)	79.38 (3.13)
50 (2) -32	50.8 (2.00)	M12 x 1.75 x 40 1/2-13 x 1-1/2	M20 x 2.5 x 70 3/4-10 x 2-3/4	77.77 (3.06)	96.82 (3.81)

	Flanged Head Diameter "K" mm (inch)	
Inch Size	Type I (Code 61)	Type II (Code 62)
1/2	30.18 (1.19)	31.75 (1.25)
3/4	38.10 (1.50)	41.28 (1.63)
1	44.45 (1.75)	47.63 (1.88)
1-1/4	50.80 (2.00)	53.98 (2.13)
1-1/2	60.33 (2.38)	63.50 (2.50)
2	71.42 (2.81)	79.38 (3.13)

Technical Information

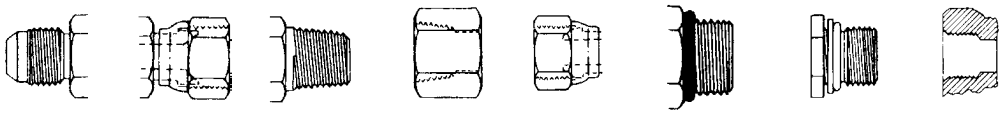
Thread Size Chart



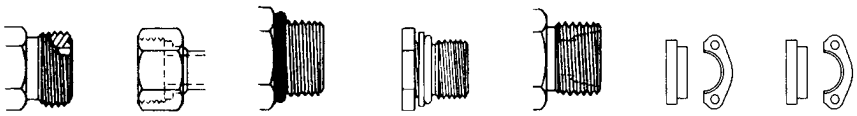
Dash Size	N.P.T.F.	N.P.S.M. apprx. dia.	SAE 45° auto. refrig.	SAE 37° (JIC) hydraulic	SAE O-Ring Boss	P.T.T. 30° automotive	SAE Inverted Flare	ORS®
-02	1/8-27	1/8-27	5/16-24	5/16-24	5/16-24		5/16-24	
-03			3/8-24	3/8-24	3/8-24		3/8-24	
-04	1/4-18	1/4-18	7/16-20	7/16-20	7/16-20		7/16-24	9/16-18
-05			1/2-20	1/2-20	1/2-20		1/2-20	
-06	3/8-18	3/8-18	5/8-18	9/16-18	9/16-18		5/8-18	11/16-16
-07			11/16-24				11/16-18	
-08	1/2-14	1/2-14	3/4-16	3/4-16	3/4-16		3/4-18	13/16-16
-10			7/8-14	7/8-14	7/8-14		7/8-18	1-14
-12	3/4-14	3/4-14	1-1/16-14	1-1/16-12	1-1/16-12		1-1/16-16	1-3/16-12
-14				1-3/16-12	1-3/16-12			
-16	1-11-1/2	1-11-1/2		1-5/16-12	1-5/16-12	1-5/16-14		1-7/16-12
-20	1-1/4-11-1/2	1-1/4-11-1/2		1-5/8-12	1-5/8-12	1-5/8-14		1-11/16-12
-24	1-1/2-11-1/2	1-1/2-11-1/2		1-7/8-12	1-7/8-12	1-7/8-14		2-12
-32	2-11-1/2	2-11-1/2		2-1/2-12	2-1/2-12	2-1/2-12		
-40	2-1/2-8	2-1/2-8		3-12	3-12			
-48	3-8	3-8		3-1/2-12	3-1/2-12			
-64	4-8							

Thread Style Pressure Performance
Maximum Operating Pressure Eaton-Aeroquip (Steel Products)

The table below is a breakdown of hydraulic pressure performance by thread style and size for Aeroquip® steel products. The table is based on limited laboratory test data and is intended only as an approximate guide to field performance of Aeroquip products. Figures shown are maximum operating pressure in psi, based upon a 4:1 safety factor relative to the connection minimum burst pressure. Testing was conducted at SAE recommended assembly torque in hardened test blocks. The pressure rating must be adjusted for any change in mating part material. The maximum operating pressure for the adapter or tube fitting body must be the lower of the chosen mating end types.



Dash Size	Inch Size	SAE100R2 Maximum Operating Pressure	SAE 37° Male Flare (JIC)	SAE 37° Female Swivel (JIC)	Male Pipe NPTF	Female Pipe NPTF	Female Pipe Swivel NPSM	Male O-Ring Boss non-ORS®	Straight Thread O-Ring Adjust. non-ORS®	Female O-Ring Boss
-2	1/8				10000	5000	6000			
-4	1/4	5000	8500	5500	9500	4500	5000	7500	4500	4500
-5	5/16	4250	8500	5000				7500	3500	3500
-6	3/8	4000	7000	4000	8000	3500	4000	7500	4000	3500
-8	1/2	3500	6000	4000	6000	3500	3500	7500	4000	3000
-10	5/8	2750	5500	3000				7500	4000	2500
-12	3/4	2250	4000	3000	5000	3000	3500	5000	3500	1800
-14	7/8	2000	4000	3000				5000	3000	1700
-16	1	2000	3500	2500	4000	2500	3000	4500	2500	1600
-20	1-1/4	1625	3500	2000	3000	2000	2000	4500	2000	1500
-24	1-1/2	1250	2000	1500	2000	1500	1500	3500	2000	1500
-32	2	1125	1250	1250	2000	1400	1500	2000		



Dash Size	Inch Size	SAE100R2 Maximum Operating Pressure	Male ORS®	Female ORS® Swivel	Male O-Ring Boss (ORS®)	Straight Thread O-Ring Adjust. (ORS®)	Male SAE Flareless	Split Flange Code 61	Split Flange Code 62
-2	1/8								
-4	1/4	5000	9000	9000	9000	6000	6000		
-5	5/16	4250							
-6	3/8	4000	9000	9000	9000	6000	6000		
-8	1/2	3500	9000	8000	9000	6000	6000	5000	6000
-10	5/8	2750	9000	8000	9000	6000	6000		
-12	3/4	2250	6000	6000	6000	6000	4500	5000	6000
-14	7/8	2000							
-16	1	2000	6000	6000	6000	5000	4000	5000	6000
-20	1-1/4	1625	4500	4500	4500	4500		4000	6000
-24	1-1/2	1250	4000	4000	4000	3000		3000	6000
-32	2	1125						3000	6000

WARNING

Pressure ratings for Brennan and Eaton-Winner adapters may not be the same as listed on this page. Contact us for more information.

Working Pressure Tables
Brass & Stainless Steel Adapters

Eaton Brass Adapters

	Eaton Fitting Types		
	Pipe	Inverted Flare	SAE 45° Flare
Fitting Material	**Brass**	**Brass**	**Brass**
Tube Size (O.D. range in inches)	1/8 to 3/4	1/8 to 1	1/8 to 3/4
Maximum Working Pressure (psi) Depends on tubing material, O.D., wall thickness and fitting size	1200	2000	2000

SSP Stainless Steel Adapters

Tapered Thread					Parallel Thread			
			Working Pressure Stainless (psi)				Working Pressure Stainless (psi)	
Nominal	BSPT	NPT	Male	Female	SAE	BSPP	Male	Female
1/8	1/8-28	1/8-27	10050	6550	5/16-24	1/8-28	6000	5500
1/4	1/4-19	1/4-18	8050	6650	7/16-20	1/4-19	6000	5400
3/8	3/8-19	3/8-18	7850	5350	9/16-18	3/8-19	6000	5400
1/2	1/2-14	1/2-14	7750	4950	3/4-16	1/2-14	6000	4800
3/4	3/4-14	3/4-14	7350	4650	1-1/16-12	3/4-14	4800	4200
1	1-11	1-11-1/2	5350	4450	1-5/16-12	1-11	3600	2400
1-1/4	1-1/4-11	1-1/4-11-1/2	3450	1800	1-5/8-12	1-1/4-11	3000	2000
1-1/2	1-1/2-11	1-1/2-11-1/2	4550	2800	1-7/8-12	1-1/2-11	2400	1800
2	2-11	2-11-1/2	3050	2450	2-1/2-12	2-11	1800	1500

Source: ANSI/ASME B31.3

Recommended Assembly Torque

The use of a torque wrench is recommended to assure proper assembly of these connections.

	Dash Size	Thread Size (inches)	Swivel Nut Torque (ft. pounds)
ORS	-04	9/16-18	10-12
	-06	11/16-16	18-20
	-08	13/16-16	32-35
	-10	1-14	46-50
	-12	1-3/16-12	65-70
	-16	1-7/16-12	92-100
	-20	1-11/16-12	125-140
	-24	2-12	150-165

	Dash Size	Thread Size (inches)	Jam Nut or Straight Fitting Torque (ft. pounds)
Straight Thread O-Ring Boss Low Pressure with 37° (SAE J514)	-03	3/8-24	8-9
	-04	7/16-20	13-15
	-05	1/2-20	14-15
	-06	9/16-18	23-24
	-08	3/4-16	40-43
	-10	7/8-14	43-48
	-12	1-1/16-12	68-75
	-14	1-3/16-12	83-90
	-16	1-5/16-12	112-123
	-20	1-5/8-12	146-161
	-24	1-7/8-12	154-170
	-32	2-1/2-12	218-240

	Dash Size	Thread Size (inches)	Jam Nut or Straight Fitting Torque (ft. pounds)
Straight Thread O-Ring Boss High Pressure with ORS® (SAE J1453)	-03	3/8-24	8-10
	-04	7/16-20	14-16
	-05	1/2-20	18-20
	-06	9/16-18	24-26
	-08	3/4-16	50-60
	-10	7/8-14	72-80
	-12	1-1/16-12	125-135
	-14	1-3/16-12	160-180
	-16	1-5/16-12	200-220
	-20	1-5/8-12	210-280
	-24	1-7/8-12	270-360

	Dash Size	Thread Size (inches)	Swivel Nut Torque (ft. pounds)
SAE 37° (JIC)	-02	5/16-24	
	-03	3/8-24	
	-04	7/16-20	11-12
	-05	1/2-20	15-16
	-06	9/16-18	18-20
	-08	3/4-16	38-42
	-10	7/8-14	57-62
	-12	1-1/16-12	79-87
	-14	1-3/16-12	
	-16	1-5/16-12	108-113
	-20	1-5/8-12	127-133
	-24	1-7/8-12	158-167
	-32	2-1/2-12	245-258

	Thread Size (mm)	Straight Adapter or Locknut Torque (ft. pounds)
Metric	M10 x 1	13-15
	M12 x 1.5	15-19
	M14 x 1.5	19-23
	M16 x 1.5	33-40
	M18 x 1.5	37-44
	M20 x 1.5	52-66
	M22 x 1.5	55-70
	M26 x 1.5	81-96
	M27 x 2	96-111
	M33 x 2	162-184
	M42 x 2	170-192
	M48 x 2	258-347

	Thread Size (inches)**	Straight Adapter or Locknut Torque (ft. pounds)
BSPP **"G" denotes parallel threads, other than ISO 6149. (Port connection only)	G 1/8-28	13-15
	G 1/4-19	19-23
	G 3/8-19	33-40
	G 1/2-14	55-70
	G 3/4-14	102-118
	G 1-11	162-184
	G 1-1/4-11	170-192
	G 1-1/2-11	258-347

Part Numbers and dash sizes

Dash size designates the nominal size in 16ths of an inch. This number immediately follows the part number and is separated from it with a dash.

Hose Assemblies

Aeroquip® manufacturers the terminal ends of their hose fittings to the appropriate requirements established by the SAE. Therefore, the performance ratings of these hose fittings meet the SAE requirements. It is possible to order a hose assembly with a fitting terminal end that has a performance rating lower than the hose rating. When ordering hose assemblies, please keep the connecting end performance rating in mind since this may affect overall hose assembly performance. See “Thread Style Pressure Performance” on page 293 .

Cut Length Hose

Cut lengths should be as ordered as shown below by specifying lengths in inches.

FC300 - 08 - 00484

Hose type

Hose size (in 16ths of an inch)

Cut length (in inches)

Last digit is in 1/8ths of an inch (00484 = 48-1/2 inches)

Length Tolerances

Length tolerances for hose, hose assemblies and protective sleeve is:

Up to and including 12 inches: ± 1/8 inch

Above 12 inches to and including 18 inches: ± 3/16 inch

Above 18 inches to and including 36 inches: ± 1/4 inch

Above 36 inches: ± 1% of length

Hose Assembly Flow Capacity at Suggested Flow Velocities

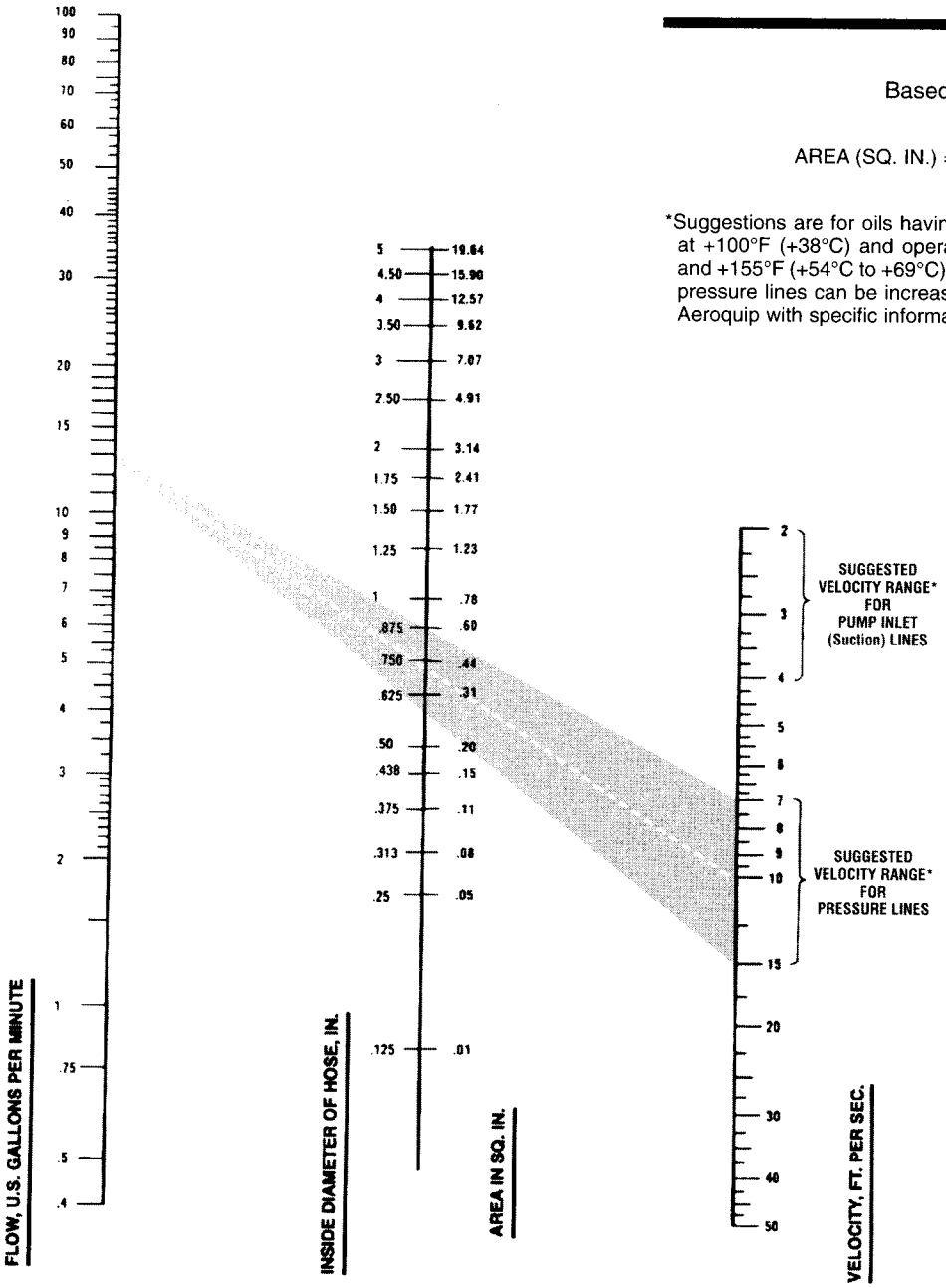
The chart below is designed and provided as an aid in the determination of the correct hose size.

Example:

At 13 U.S. gallons per minute, what is proper hose size within the suggested velocity range for pressure lines?

Solution: Locate 13 U.S. gallons per minute in the left hand column and 10 feet per second in the right hand column (the center of the suggested velocity range for pressure lines). Lay a straightedge across the two points. The inside diameter is shown in the center column nearest the straightedge.

For suction hose, follow the same procedure except use suggested velocity range for pump inlet lines in the right hand column.



Based on Formula

$$\text{AREA (SQ. IN.)} = \frac{\text{G.P.M. x 0.3208}}{\text{VELOCITY (FT./SEC.)}}$$

*Suggestions are for oils having a maximum viscosity of 315 S.S.U. at +100°F (+38°C) and operating at temperatures between +65°F and +155°F (+54°C to +69°C). Under certain conditions, velocities in pressure lines can be increased up to 25 feet per second. Contact Aeroquip with specific information on your application.

To convert

U.S. gallons into Imperial gallons multiply U.S. gallons by 0.83267. Imperial gallons into U.S. gallons multiply Imperial gallons by 1.20095. U.S. gallons to litres multiply by 3.785. Litres to U.S. gallons, multiply by 0.2642.

Hose Assembly Pressure Drop

* Pressure drop in psi (pounds per square inch)/gpm (gallons per minute) **for 10 feet of hose** (smooth bore) without fittings. Fluid specification: Specific gravity = .85; Viscosity = *v* = 20 centistokes (C.S.), (20 C.S. = 97 S.S.U.).

Hose Dash Size →	-04		-05		-06		-08		-10		-12		-16		-20		-24		-32		-40	-48
Hose I.D. (inches) ←	.19	.25	.25	.31	.31	.38	.41	.50	.50	.63	.63	.75	.88	1.00	1.13	1.25	1.38	1.50	1.81	2.00	2.38	3.00
U.S. Gallons per minute .25	10	3.1	3.1																			
.50	19	6	6	2.7	2.7																	
1	40	12	12	5.5	5.5	2.4																
2	95	24	24	10	10	4.8	3.5															
3	185	46	46	17	17	7	5	2.2	2.2													
4		78	78	29	29	12	8	3	3	1.2	1.2											
5		120	120	44	44	18	12	4.5	4.5	1.6	1.6	.72										
8				95	95	39	26	10	10	3.6	3.6	1.4	.60									
10						59	40	15	15	5.7	5.7	2	1	.55								
12						80	52	20	20	7.2	7.2	2.6	1.5	.75	.43							
15							75	30	30	10	10	4.2	2.2	1.2	.67	.38						
18							107	40	40	15	15	6.3	3	1.5	.70	.55	.35					
20								49	49	19	19	8	3.4	2	1.1	.65	.43	.27				
25								72	72	26	26	11	5.5	3	1.6	1	.64	.40	.17			
30										34	34	14	7	3.6	2.2	1.3	.80	.52	.22	.14		
35										47	47	19	9.5	5	2.8	1.7	1.1	.70	.27	.18		
40												25	12	6.5	3.4	2.2	1.4	.90	.38	.24		
50												36	17	9	5.3	3.3	2	1.3	.54	.35	.15	
60												50	23	12	7.5	4.4	2.8	1.8	.75	.45	.20	
70													31	17	9.3	6	3.8	2.4	1	.65	.30	
80													38	21	12	7.1	4.6	3	1.2	.76	.34	.11
90													49	27	15	9	5.9	3.8	1.5	1	.45	.13
100														33	19	12	7	4.7	1.9	1.3	.55	.18
150														60	36	22	13	8.5	3.4	2.2	1	.33
200																36	23	15	6	3.9	1.7	.55
250																54	33	22	8.5	5.3	2.5	.75
300																	45	29	12	7.5	4	1.1
400																		51	21	14	6.5	2.2
500																			32	20	10	3
800																					18	5
1000																						10

*Pressure drop values listed are typical of many petroleum based hydraulic oils at approximately +100°F (+38°C). Differences in fluids, fluid temperature and viscosity can increase or decrease actual pressure drop compared to the values listed.

To convert
U.S. gallons into Imperial gallons multiply U.S. gallons by 0.83267. Imperial gallons into U.S. gallons multiply Imperial gallons by 1.20095. U.S. gallons to litres multiply by 3.785. Litres to U.S. gallons, multiply by 0.2642.

Important Safety Information (Hose & Fittings)

WARNING

General guidelines for selection, installation and maintenance of hose assemblies. Please read these general instructions carefully.

HOSE AND HOSE ASSEMBLIES HAVE A FINITE LIFE and there are a number of factors which will reduce its life.

These general instructions are intended as a guide to assist system designers and/or users in the selection, installation, and maintenance of hose assemblies. The designers and users must make a systematic review of each application and then select, install, and maintain the hose assemblies to fulfill the requirements of the application. The following are general guidelines and are not necessarily a complete list. WARNING: IMPROPER SELECTION, INSTALLATION, OR MAINTENANCE MAY RESULT IN PREMATURE FAILURES, BODILY INJURY, OR PROPERTY DAMAGE.

SELECTION—The following is a list of factors which must be considered before final hose selection can be made:

Pressure—After determining the system pressure, hose selection must be made so that the recommended maximum operating pressure is equal to or greater than the system pressure. Surge pressures higher than the maximum operating pressure will shorten hose life and must be taken into account by the hydraulic designer.

Suction—Hoses used for suction applications must be selected to insure the hose will withstand the negative pressure of the system.

Temperature—Care must be taken to insure that fluid and ambient temperatures, both static and transient, do not exceed the limitations of the hose. Special care must be taken when routing near hot manifolds.

Fluid Compatibility—Hose selection must assure compatibility of the hose tube, cover and fittings with the fluid used. Additional caution must be observed in hose selection for gaseous applications.

Size—Transmission of power by means of pressurized fluid varies with pressure and rate of flow. The size of the components must be adequate to keep pressure losses to a minimum and avoid damage to the hose due to heat generation or excessive turbulence.

Routing—Attention must be given to optimum routing to minimize inherent problems.

Environment—Care must be taken to insure that the hose and fittings are either compatible with or protected from the environment to which they are exposed. Environmental conditions such as ultraviolet light, ozone, salt water, chemicals, and air pollutants can cause degradation and premature failure and, therefore, must be considered.

Mechanical Loads—External forces can significantly reduce hose life. Mechanical loads which must be considered include excessive flexing, twist, kinking, tensile or side loads, bend radius, and vibration. Use of swivel-type fittings or adapters may be required to insure no twist is put into the hose. Unusual applications may require special testing prior to hose selection.

Abrasion—While hose is designed with a reasonable level of abrasion resistance, care must be taken to protect the hose from excessive abrasion which can result in erosion, snagging and cutting of the hose cover. Exposure of the reinforcement will significantly accelerate hose failure.

Proper End Fitting—Care must be taken to insure proper compatibility exists between the hose and coupling selected based on the manufacturer's recommendations substantiated by testing to industry standards such as SAE J517. End fitting components from one manufacturer are usually not compatible with end fitting components supplied by another manufacturer (i.e., using a hose fitting nipple from one manufacturer with a hose socket from another manufacturer). It is the responsibility of the fabricator to consult the manufacturer's written instructions or the manufacturer directly for proper end fitting componentry.

Length—When establishing proper hose length, motion absorption, hose length changes due to pressure, as well as hose and machine tolerances must be considered.

Specifications and Standards—When selecting hose, government, industry and manufacturers' specifications and recommendations must be reviewed as applicable.

Hose Cleanliness—Hose components vary in cleanliness levels. Care must be taken to insure that the assemblies selected have an adequate level of cleanliness for the application.

Electrical Conductivity—Certain applications require that hose be nonconductive to prevent electrical current flow. Other applications require the hose to be sufficiently conductive to drain off static electricity. Hose and fittings must be chosen with these needs in mind.

continued on next page

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

WARNING

Refer to safety information regarding hose & fittings starting on page 299

General guidelines for selection, installation and maintenance of hose assemblies.

continued from previous page

INSTALLATION—After selection of proper hose, the following factors must be considered by the installer:

Pre-Installation Inspection— Prior to installation, a careful examination of the hose must be performed. All components must be checked for correct style, size and length. In addition, the hose must be examined for cleanliness, I.D. obstructions, blisters, loose cover, or any other visible defects.

Follow Manufacturers' Assembly Instructions—Hose assemblies may be fabricated by the manufacturer, an agent for or customer of the manufacturer, or by the user. Fabrication of permanently attached fittings to hydraulic hose requires specialized assembly equipment. Field-attachable fittings (screw style and segment clamp style) can usually be assembled without specialized equipment although many manufacturers provide equipment to assist in the operation. Hose from one manufacturer is usually not compatible with fittings supplied by another manufacturer. It is the responsibility of the fabricator to consult the manufacturer's written assembly instructions or the manufacturers directly before intermixing hose and fittings from two manufacturers. Similarly, assembly equipment from one manufacturer is usually not interchangeable with that of another manufacturer. It is the responsibility of the fabricator to consult the manufacturer's written instructions or the manufacturer directly for proper assembly equipment. Always follow the manufacturer's instructions for proper preparation and fabrication of hose assemblies.

Minimum Bend Radius— Installation at less than minimum bend radius may significantly reduce hose life. Particular attention must be given to preclude sharp bending at the hose/fitting juncture.

Twist Angle and Orientation— Hose installations must be such that relative motion of machine components produces bending of the hose rather than twisting.

Securement—In many applications, it may be necessary to restrain, protect, or guide the hose to protect it from damage by unnecessary flexing, pressure surges, and contact with other mechanical components. Care must be taken to insure such restraints do not introduce additional stress or wear points.

Proper Connection of Ports— Proper physical installation of the hose requires a correctly installed port connection while insuring that no twist or torque is put into the hose.

Avoid External Damage—Proper installation is not complete without insuring that tensile loads, side loads, kinking, flattening, potential abrasion, thread damage, or damage to sealing surfaces are corrected or eliminated.

System Check Out—After completing the installation, all air entrapment must be eliminated and the system pressurized to the maximum system pressure and checked for proper function and freedom from leaks.

NOTE: Avoid potential hazardous areas while testing.

MAINTENANCE—Even with proper selection and installation, hose life may be significantly reduced without a continuing maintenance program. Frequency should be determined by the severity of the application and risk potential. A maintenance program should include the following as a minimum:

Hose Storage—Hose products in storage can be affected adversely by temperature, humidity, ozone, sunlight, oils, solvents, corrosive liquids and fumes, insects, rodents and radioactive materials. Storage areas should be relatively cool and dark and free of dust, dirt, dampness and mildew.

Visual Inspection—Any of the following conditions requires replacement of the hose:

(a) Leaks at fitting or in hose (leaking fluid is a fire hazard).
(b) Damaged, cut, or abraded cover (any reinforcement exposed).
(c) Kinked, crushed, flattened, or twisted hose.
(d) Hard, stiff, heat cracked or charred hose.
(e) Blistered, soft, degraded, or loose cover.
(f) Cracked, damaged, or badly corroded fittings.
(g) Fitting slippage on hose.

Visual Inspection—The following items must be tightened, repaired, or replaced as required:

(a) Leaking port conditions.
(b) Clamps, guards, shields.
(c) Remove excessive dirt buildup.
(d) System fluid level, fluid type, and any air entrapment.

Functional Test—Operate the system at maximum operating pressure and check for possible malfunctions and freedom from leaks.

NOTE: Avoid potential hazardous areas while testing.

Replacement Intervals—Specific replacement intervals must be considered based on previous service life, government or industry recommendations, or when failures could result in unacceptable down time, damage, or injury risk.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

Fluid Compatibility (Hose & Fittings)

WARNING

Refer to safety information regarding hose & fittings starting on page 299

Fluid compatibility

This chart indicates the suitability of various elastomers and metals for use with fluids to be conveyed. It is intended as a guide only and is not a guarantee. Final selection of the proper hose style, seal, or material of metal components is further dependent on many factors including pressure, fluid and ambient temperature, concentration, duration of exposure, etc.

How to use the chart

1. The chart has separate sections for rating elastomers for use as hose inner tubes and as seals. Ratings for a given elastomer may not always be the same in both sections.
2. Both the elastomer and the metal must be considered when determining suitability of a combination for a hose assembly, adapter with o-ring, swivel joint or coupling.
3. Locate the fluid to be conveyed and determine the suitability of the elastomeric and metal components according to the resistance ratings shown for each.
4. Specific hose part numbers can be found under the inner tube material groupings in the Hose Tube Identification Chart below.
5. Dimensional and operating specifications for each hose can be found on the catalog pages shown with each hose part number.
6. Information on o-rings and seal options for swivel joints and couplings, and how to specify them, are shown in the respective sections of this catalog.
7. For further details on the products shown in this catalog, and their applications, contact Hydraulic Supply Co.

Resistance key rating

E = Excellent – Fluid has little or no effect.

G = Good – Fluid has minor to moderate effect.

C = Conditional – Service conditions should be described to Eaton Aeroquip for determination of suitability for application.

U = UNSATISFACTORY

The differences between ratings "E" and "G" are relative. Both indicate satisfactory service. Where there is a choice, the materials rated "E" may be expected to give better or longer service than those rated "G".

NOTE: Special precautions are necessary in gaseous applications due to the potential volume of gaseous fluid in the system. Unless the cover is perforated, hose styles with rubber or thermoplastic covers are not suitable for gases above 250 psi. Hose styles with perforated covers are so noted in their construction descriptions.

WARNING

Compatibility of hose fittings with conveyed fluid is an essential factor in avoiding chemical reactions that may result in release of fluids or failure of the connection with the potential of causing severe personal injury or property damage.

Hose tube identification chart

1. Nitrile			
302A	FC136	FC619	GH120
303	FC211	FC639/	GH466
1503	FC212	FC606	GH493
2556	FC254	FC647	GH506
2565	FC273/	FC659	GH663
2580	FC273B	FC735	GH681
2583	FC310	FC736	GH781
2651	FC466	FC849/	GH793
2681	FC579	FC849B	
2781		FC849B	
2. PTFE			
2807	FC363	FC465	FC563
2808	FC364	FC469	FC807
3. Thermoplastic Elastomer			
4. AQP			
2661	FC323	FC350	FC598
FC194	FC324	FC355	FC650
FC195	FC325	FC498	FC699
FC234	FC332	FC510	GH194
FC300		FC598	GH195

5. Special Application Hose (Not Included in Fluid Chart)				
FC234	FC650			Fuel
CR170	FC321			LPG
1531	1531A			Railroad Air Brake
FC252	FC352	FC629	FC829	Silicone
2550	2554	2570	FC350	Truck Air Brake

6. EPDM Rubber		
FC611	FC636	FC693

SEAL ELASTOMER DATA

Seal Elastomer	Application Specification	Max. Operating Temperature Range
Buna-N†	none	–40°C to +121°C [–40°F to +250°F]
Neoprene	none	–54°C to +149°C [–65°F to +300°F]
EPR (Ethylene Propylene Rubber)/EPDM	none	–54°C to +149°C [–65°F to +300°F]
Viton*	MIL-R-25897	–29°C to +204°C [–15°F to +400°F]

†Buna-N temperature range -65°F to +225°F. Also per MIL-R-6855.
*Viton is a trademark of E.I. DuPont.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

WARNING

Refer to safety information regarding hose & fittings starting on page 299

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Acetaldehyde	U	E	G	U		E	U	C	C	U	U	G	G	E	E	E	E
Acetic Acid, 10%	U	E	C	E		E	U	U	E	G	U	C	U	U	C	C	U
Acetic Acid, Glacial	U	E	C	G		E	U	U	C	U	U	C	U	U	C	C	C
Acetone	U	E	G	G		E	U	U	G	U	U	G	E	E	E	E	E
Acetophenone	U	E	–	C		E	U	U	E	U	U	–	E	E	E	C	E
Acetyl Acetone	U	E	G	G		E	U	U	G	U	U	G	U	C	C	C	C
Acetyl Chloride	U	E	U	G		C	U	U	U	E	U	U	C	C	C	U	E
Acetylene	E	E	G	G		E	U	U	G	E	G	G	E	E	E	E	E
Air, Hot (Up to +160°F)	E	E	E	E		E	E	E	E	E	E	E	E	E	E	E	E
Air, Hot (161°F – 200°F)	C	E	G	E		E	G	G	E	E	G	G	E	E	E	E	E
Air, Hot (201°F – 300°F)	U	E	U	C		G	U	U	G	E	U	U	E	E	E	E	E
Air Wet	E	E	C	E		E	E	E	E	G	C	U	G	E	E	E	E
Aluminum Chloride	E	E	E	E		E	E	E	E	E	G	E	U	U	U	U	U
Aluminum Fluoride	E	E	E	U		E	E	E	E	E	G	E	U	U	U	E	C
Aluminum Nitrate	E	E	E	C		E	E	E	E	E	G	E	U	U	C	C	C
Aluminum Sulfate	E	E	G	E		E	E	E	E	E	–	G	U	C	E	C	C
Alums	E	E	E	E		E	E	E	E	E	E	E	U	C	E	C	C
Ammonia, Cold	E	G	U	U		E	E	E	E	U	–	–	E	U	E	E	E
Ammonia, Hot	U	G	U	U		G	U	G	G	U	–	–	E	U	E	E	E
Ammonia, Anhydrous	G	U	U	E		E	E	E	E	U	–	–	E	U	E	E	E
Ammonia, Aqueous	G	G	U	C		E	E	E	E	U	–	–	E	U	E	E	E
Ammonium Carbonate	U	E	C	G		E	U	E	E	U	–	C	C	U	C	C	C
Ammonium Chloride	E	E	C	E		E	E	E	E	U	–	–	U	U	C	U	C
Ammonium Hydroxide	C	E	U	E		E	C	C	E	C	U	U	G	U	C	C	U
Ammonium Nitrate	E	E	C	G		E	E	G	E	U	G	C	G	U	G	G	U
Ammonium Phosphate	E	E	C	E		E	E	E	E	–	G	C	U	C	G	U	G
Ammonium Sulfate/Sulfide	E	E	C	E		E	E	E	E	U	G	C	U	U	G	U	G
Amyl Acetate	U	E	U	U		G	U	U	G	U	U	U	E	E	E	E	E
Amyl Alcohol	E	E	E	C		E	G	C	E	G	C	E	G	G	E	U	G
Aniline, Aniline Oil	U	E	U	C		G	U	U	G	U	U	U	E	U	E	G	G
Aniline Dyes	C	E	U	U		U	U	G	G	G	U	U	U	C	G	C	G
Arsenic Acid	E	E	G	G		E	E	E	E	E	C	G	U	U	G	U	C
Asphalt	G	E	G	G		U	G	C	U	E	G	G	E	G	E	C	E
ASTM #1	E	E	E	E		U	E	E	C	E	E	E	E	E	E	E	E
ASTM #2	E	E	E	E		U	E	G	U	E	G	E	E	E	E	E	E
ASTM #3	E	E	E	E		U	E	G	U	E	G	E	E	E	E	E	E
Automatic Trans. Fluid	E	E	G	G		E	E	G	U	E	C	G	E	E	E	E	E
Barium Chloride	E	E	C	C		C	E	E	E	E	G	C	U	G	G	G	G
Barium Hydroxide	E	E	G	C		C	E	E	E	E	E	G	G	U	G	U	G
Barium Sulfide	E	E	C	C		C	E	E	E	E	G	C	C	U	G	U	U
Benzene, Benzol	U	E	C	C		U	U	U	E	U	C	G	E	G	E	E	G
Benzin	G	E	C	C		U	E	U	U	E	U	C	E	E	E	E	E
Benzoic Acid	U	E	C	E		C	U	U	U	E	C	C	U	G	G	G	G
Benzyl Alcohol	U	E	C	G		C	U	G	G	E	C	C	E	G	E	G	G
Black Sulfate Liquor	E	E	C	C		E	C	C	C	E	U	C	E	C	E	U	U
Blast Furnace Gas	C	U	C	G		C	U	U	U	E	U	C	E	C	E	U	U
Borax	E	E	G	G		E	G	G	E	E	G	G	E	E	E	G	–
Boric Acid	E	E	C	E		E	G	G	G	E	G	G	U	G	C	C	C
Brine	E	E	C	C		C	E	G	E	E	G	C	U	G	G	U	E
Bromine	U	E	U	U		U	U	U	U	E	U	U	U	C	U	C	C
Butane	LPG Approved Hose Only						E	E	U	E	–	–	E	E	E	E	E
Butyl Acetate	U	E	C	G		G	U	U	G	U	U	C	E	E	E	E	E
Butyl Alcohol	E	E	G	G		E	E	E	G	E	G	G	G	G	G	G	G
Butyl Cellosolve	C	E	C	C		E	U	U	G	U	U	C	E	E	E	E	E
Butylene	G	E	–	C		U	C	U	U	E	U	–	E	E	E	E	E
Butyl Stearate	G	E	–	G		G	G	U	U	E	–	–	G	G	G	G	G
Butyraldehyde	U	E	–	C		G	U	U	G	U	U	–	E	E	E	E	G
Calcium Acetate	E	E	C	E		G	G	G	E	U	U	C	G	G	G	C	G
Calcium Bisulfate	G	E	G	G		E	E	E	U	E	G	G	U	C	C	U	U
Calcium Chloride	E	E	E	C		E	E	E	E	E	E	E	G	G	G	C	G

FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Calcium Hydroxide	E	E	C	C		E	E	E	E	E	U	C	G	G	G	U	G
Calcium Hypochlorite	C	E	C	U		E	U	U	E	E	U	C	U	G	C	U	U
Calcium Nitrate	E	E	E	C		E	E	E	E	E	E	E	G	G	G	G	G
Cane Sugar Liquors	E	E	E	E		E	E	E	E	E	U	E	E	G	E	E	E
Carbitol	G	E	G	C		G	G	G	G	G	U	G	E	E	E	E	E
Carbolic Acid	E	E	U	E		C	U	U	G	E	U	U	U	E	E	–	–
Carbonic Acid	G	E	C	U		G	G	E	E	E	C	C	U	C	E	G	E
Carbon Dioxide	E	E	E	E		G	G	E	E	G	E	E	E	E	E	E	E
Carbon Disulfide	U	E	C	U		U	U	U	E	C	C	G	G	G	E	G	
Carbon Monoxide	U	E	E	E		G	G	G	E	E	G	E	E	E	E	E	E
Carbon Tetrachloride	C	E	U	U		U	U	U	U	E	U	U	U	G	G	U	E
Castor Oil	E	E	G	E		G	E	E	G	E	G	G	E	E	E	E	E
Cellosolve Acetate	C	E	U	U		G	U	U	G	U	U	U	U	U	E	G	E
China Wood Oil (Tung Oil)	E	E	C	U		U	G	G	U	E	U	C	E	G	E	E	E
Chlorine	U	U	U	U		C	U	U	U	G	U	U	C	C	C	C	C
Chloroacetic Acid	U	E	U	U		G	U	U	G	U	U	U	U	U	U	U	G
Chloroacetone	U	E	U	U		C	U	E	U	U	U	U	G	G	G	U	G
Chlorobenzene	U	E	U	U		U	U	U	U	G	U	U	G	G	G	G	G
Chloroform	U	E	U	U		U	U	U	U	E	U	U	G	G	G	G	G
O-Chlorophenol	U	E	U	C		U	U	E	U	C	U	U	G	G	G	U	G
Chlosulfonic Acid	U	E	U	U		E	U	U	U	U	U	U	G	U	G	G	C
Chrome Plating Solution	U	E	–	U		U	U	U	G	E	U	–	C	U	U	U	U
Chromic Acid	U	E	–	U		G	U	U	C	E	U	–	C	U	U	U	U
Citric Acid	G	E	C	G		E	E	E	E	E	E	C	C	C	C	C	C
Coke Oven Gas	C	E	–	C		U	U	U	E	E	U	–	E	C	E	U	U
Copper Chloride	E	E	E	G		E	E	E	E	E	G	E	U	U	U	U	U
Copper Cyanide	E	E	–	E		E	E	E	E	E	E	–	E	U	G	U	G
Copper Sulfate	E	E	G	E		E	E	E	E	E	G	G	U	C	G	U	G
Cotton Seed Oil	E	E	E	G		G	E	G	C	E	E	E	E	E	E	E	E
Creosote (Coal Tar)	G	E	U	G		U	G	C	U	E	U	U	E	C	E	E	E
Crude Oil	G	E	C	E		U	E	G	U	E	G	C	G	U	G	U	U
Cyclohexanol	G	E	C	E		C	E	G	U	E	C	C	E	E	E	C	E
Cyclohexanone	U	E	G	U		G	U	U	G	U	G	G	E	E	E	C	E
Detergent/Water Solution	E	E	C	E		E	E	E	E	E	C	C	G	E	E	E	E
Diacetone Alchohol (Acetol)	U	E	C	U		E	U	U	E	U	C	C	E	E	E	E	E
Dibenzyl Ether	U	E	–	U		G	U	U	G	U	–	–	G	G	G	G	G
Diesel Oil	E	E	C	G		U	E	C	U	E	C	C	E	E	E	E	E
Diethylamine	C	E	–	C		G	G	G	G	U	–	–	E	U	E	–	E
Dioctyl Phthalate (DOP)	U	E	C	C		G	U	U	G	G	C	C	E	E	E	E	E
Dowtherm A&E	U	E	–	U		U	U	U	U	E	–	–	G	U	E	E	E
Dowtherm 209	C	E	–	C		E	C	G	E	U	–	–	–	–	–	–	–
Ester Blend	C	E	C	C		E	E	U	U	E	U	E	E	E	E	E	E
Ethyl Alcohol (Ethanol)	E	E	C	E		E	E	E	E	E	C	C	E	E	E	G	E
Ethyl Acetate	U	E	C	G		G	U	U	G	U	C	C	E	E	E	E	E
Ethyl Benzene	U	E	–	U		U	U	U	E	U	–	–	E	G	G	G	E
Ethyl Cellulose	E	E	C	G		G	G	G	G	U	C	C	E	G	G	G	G
Ethyl Chloride	C	E	U	C		C	U	U	U	E	U	U	E	E	E	G	G
Ethylene Dichloride	U	E	U	U		C	U	U	G	U	U	U	G	C	G	G	G
Ethylene Glycol	E	E	E	G		E	E	E	E	C	C	C	U	G	E	E	E
Ferric Chloride	E	E	–	G		E	E	G	E	E	C	C	U	U	U	U	U
Ferric Nitrate	E	E	C	E		E	E	E	E	E	C	C	U	U	G	U	U
Ferric Sulfate	E	E	C	E		E	G	G	G	E	C	C	U	U	E	U	U
Formaldehyde	G	E	C	G		E	C	C	G	G	C	C	E	E	E	G	G
Formic Acid	C	E	U	C		E	C	G	E	U	U	U	U	C	C	C	C
Fuel Oil	E	E	E	E		U	E	G	U	E	G	G	E	E	E	E	E
Furfural	U	E	–	G		G	C	C	G	U	U	–	G	G	G	G	G
Gallic Acid	U	E	–	C		G	G	G	E	U	–	U	–	G	C	G	
Gasoline	E	E	E	G		U	E	C	U	E	E	E	E	E	E	E	E
Gasohol	C	E	G	C		U	G	G	U	E	E	E	E	E	E	G	E
Glycerine/Glycerol	E	E	E	E		E	E	E	E	E	G	E	E	G	E	E	E
Green Sulfate Liquor	G	E	–	U		E	G	G	E	E	–	–	U	U	E	U	U

This chart is intended for reference use only. The information in this chart pertains strictly to material compatibility and is not intended to be used as an application guide. For information on specific applications not included in this catalog, please contact Hydraulic Supply Co.

*Viton is a DuPont trademark.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

Fluid Compatibility (Hose & Fittings)

Powering Business Worldwide

WARNING

Refer to safety information regarding hose & fittings starting on page 299

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Helium	E	G	C	E		E	E	E	E	E	E	E	E	E	E	E	E
Heptane	E	E	E	C		U	E	G	U	E	G	G	E	E	E	E	E
Hexaldehyde	U	E	–	C		E	U	G	G	U	U	–	G	G	E	E	G
Hexane	E	E	E	E		U	E	G	U	E	G	G	E	E	E	E	E
Hydraulic Oils																	
Ester Blend	C	E	C	G		E	E	U	U	E	U	E	E	E	E	E	E
Phos. Ester/Petroleum Blend	U	E	C	G		–	U	U	U	C	U	G	E	E	E	E	E
Silicone Oils	E	E	E	E		E	E	E	E	E	E	E	E	E	E	E	E
Straight Petroleum Base	E	E	E	E		U	E	G	U	E	E	E	E	E	E	E	E
Straight Phosphate Ester	U	E	C	C		E	U	U	G	C	U	G	E	E	E	E	E
Water Glycol	E	E	C	G		E	E	E	E	E	C	C	E	E	E	G	E
Water Petroleum Emulsion	G	E	C	G		U	E	G	U	E	C	C	C	E	E	G	E
Hydrobromic Acid	U	E	U	E		E	U	U	E	E	U	U	E	U	E	E	U
Hydrochloric Acid	U	E	U	E		C	U	U	G	E	U	U	U	U	U	U	U
Hydrocyanic Acid	C	E	–	U		G	C	C	E	E	–	–	E	E	G	E	G
Hydrofluoric Acid	U	E	U	C		C	U	U	C	U	U	U	U	C	E	E	G
Hydrofluorosilic Acid	G	E	–	G		E	G	G	E	E	–	–	U	U	U	U	U
Hydrogen	G	C	C	G		G	E	E	E	E	E	E	E	E	E	E	E
Hydrogen Peroxide	C	E	G	G		E	G	G	G	E	G	G	U	U	G	E	U
Hydrogen Sulfide, Dry	U	C	C	C		E	U	U	E	U	–	G	E	G	G	G	G
Isocyanate	U	E	U	U		U	U	U	G	E	U	U	G	–	G	–	–
Iso Octane	G	E	E	G		U	E	G	U	E	G	E	E	E	E	E	E
Isopropyl Acetate	U	E	C	U		G	U	U	G	U	U	C	E	–	E	E	E
Isopropyl Alcohol	G	E	C	G		E	G	G	E	E	U	C	E	E	E	G	E
Isopropyl Ether	G	E	–	C		U	G	U	U	U	C	–	G	G	G	–	–
JP-4, JP-5	E	E	G	E		U	E	U	U	E	U	G	E	E	E	E	E
Kerosene	E	E	G	E		U	E	U	U	E	U	G	E	E	E	E	E
Lacquer/Lacquer Solvents	U	E	C	U		U	U	U	U	U	U	G	U	E	E	E	E
Lime Sulfur	C	E	C	C		C	U	E	E	E	C	C	G	U	G	–	U
Linseed Oil	E	E	G	G		U	E	G	U	E	G	G	E	E	E	E	E
LPG	C	–	–	–		U	E	G	U	E	–	–	E	E	E	E	E
Lubricating Oils							See Hydraulic Oils										
Magnesium Chloride	E	E	C	E		E	E	E	E	E	C	C	E	C	C	G	G
Magnesium Hydroxide	G	E	C	G		E	G	G	E	E	C	C	E	G	E	G	G
Magnesium Sulfate	E	E	C	E		E	E	E	E	E	C	C	E	E	E	E	E
Maleic Acid	G	E	C	C		C	U	U	U	E	C	C	E	G	G	G	G
Maleic Anhydride	U	E	C	C		U	U	U	U	E	C	C	G	U	E	G	E
Malic Acid	G	E	–	G		U	G	G	U	G	–	–	U	–	E	G	E
Mercuric Chloride	G	E	E	G		G	E	E	E	E	E	E	U	U	U	U	U
Mercury	E	E	E	E		E	E	E	E	E	E	E	E	U	E	U	G
Methanol	G	E	C	G		E	G	G	E	U	C	C	G	G	E	C	E
Methyl Bromide	C	E	U	U		C	G	U	U	E	U	U	E	E	G	U	E
Methyl Chloride	U	E	U	U		C	U	U	U	E	U	U	E	E	E	U	G
Methyl Butyl Ketone	U	E	C	C		C	U	U	E	U	C	C	E	E	E	–	E
Methyl Ethyl Ketone	U	E	C	U		E	U	U	E	U	U	G	G	G	G	G	G
Methylene Chloride	U	E	U	U		U	U	U	U	G	U	U	G	G	G	G	G
Methyl Isobutyl Ketone	U	E	U	U		G	U	U	U	U	U	U	G	G	G	G	G
Methyl Isopropyl Ketone	U	E	U	C		G	U	U	U	U	U	U	G	G	G	G	G
Methyl Salicylate	U	E	–	U		C	U	U	C	U	–	–	E	G	G	E	G
MIL-L-2104	E	E	E	E		U	E	G	U	E	E	E	E	E	E	–	E
MIL-H-5606	E	E	E	E		U	E	G	U	E	E	E	E	E	E	E	E
MIL-H-6083	E	E	E	E		U	E	E	U	E	E	E	E	E	E	–	E
MIL-L-7808	G	E	G	G		U	G	U	U	E	G	G	G	G	E	–	–
MIL-L-23699	G	E	–	G		U	G	U	U	E	–	–	E	E	E	E	E
MIL-H-46170	G	E	–	G		C	E	G	U	E	–	–	E	E	E	–	E
MIL-H-83282	G	E	–	G		U	E	U	U	E	–	–	E	E	E	–	E
Mineral Oils	G	E	G	G		U	E	G	U	E	G	G	E	E	E	E	E
Naphtha	G	E	G	E		U	C	U	U	E	C	G	–	–	–	–	–
Naphthalene	U	E	G	G		U	U	U	U	E	C	G	E	G	E	G	G
Naphthenic Acid	G	E	–	E		U	C	U	U	E	–	–	–	G	E	G	G
Natural Gas	C	U	U	U		U	E	E	U	E	–	–	G	G	G	G	G

FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Nickel Acetate	G	E	U	G		E	C	C	E	G	U	U	G	C	E	G	E
Nickel Chloride	E	E	U	E		E	E	G	E	E	U	U	U	U	G	U	G
Nickel Sulfate	E	E	U	E		E	E	E	E	E	U	U	U	G	G	U	G
Nitric Acid, to 10%	U	E	C	C		G	U	U	U	E	U	C	U	U	E	U	U
Nitric Acid, over 10%	U	E	U	U		U	U	U	U	G	U	U	U	U	E	C	U
Nitrobenzene	U	E	U	U		U	U	U	U	G	U	U	E	G	E	E	E
Nitrogen	E	E	E	E		E	E	E	E	E	E	E	E	E	E	E	E
Octyl Alcohol	G	E	E	E		E	E	E	E	E	E	E	E	E	E	E	E
Oleic Acid	G	E	G	E		G	U	U	C	G	G	E	C	E	G	C	G
Oleum (Fuming Sulfuric Acid)	U	E	U	U		U	U	U	U	E	U	U	G	U	G	U	U
Oleum (Mineral Spirits)	C	E	G	C		C	E	G	U	E	G	G	E	E	E	E	E
Ortho-Dichlorobenzene	U	E	–	U		U	U	U	U	E	–	–	G	G	G	G	G
Oxalic Acid	C	E	C	E		E	G	G	E	E	C	C	U	C	C	C	C
Oxygen	U	U	U	U		U	–	–	–	–	–	–	G	G	G	G	G
Palmitic Acid	G	E	E	E		G	E	G	G	E	–	E	G	–	E	G	G
Para-Dichlorobenzene	U	E	–	U		U	U	U	U	E	–	–	G	G	G	G	G
Pentane	E	E	G	E		U	E	E	U	E	U	G	G	G	G	E	G
Perchloric Acid	U	E	U	C		G	E	G	G	E	U	U	U	U	U	U	U
Perchloroethylene	U	E	U	U		U	U	U	U	E	U	U	C	G	G	G	E
Petroleum Base	E	E	E	G		U	E	G	U	E	E	E	E	E	E	E	E
Phenol (Carbolic Acid)	U	E	U	G		U	U	U	G	E	U	U	U	E	E	E	G
Phosphate Ester	U	E	C	U		C	U	U	G	C	U	G	E	E	E	E	E
Phosphoric Acid	U	E	U	C		E	U	U	G	E	U	U	U	E	U	C	E
Phosphorous Trichloride	U	E	U	C		E	U	U	E	E	U	U	C	U	C	E	E
Potassium Acetate	E	E	–	E		E	G	G	E	U	–	–	C	G	C	U	G
Potassium Chloride	E	E	E	E		E	E	E	E	E	E	E	E	C	E	U	G
Potassium Cyanide	E	E	E	G		E	E	E	E	E	E	E	C	U	G	U	C
Potassium Dichromate	E	E	E	E		E	E	E	E	E	E	E	C	C	C	C	C
Potassium Hydroxide, to 10%	G	E	C	G		E	G	G	E	G	C	C	G	G	G	U	E
Potassium Hydroxide, over 10%	C	E	U	G		G	C	C	E	U	U	U	G	G	G	U	E
Potassium Nitrate	E	E	E	E		E	E	E	E	E	E	E	G	G	E	G	–
Potassium Sulfate	E	E	E	E		E	E	E	E	E	E	E	–	–	–	–	–
Propane (Liquified)	C	–	–	–		U	C	–	–	–	–	–	E	E	E	E	E
Propyl Acetate	U	E	–	C		C	U	U	G	U	–	–	E	–	E	E	E
Propyl Alcohol	E	E	U	E		E	E	E	E	E	U	U	E	E	E	E	E
Propylene	U	E	–	U		U	U	U	U	E	–	–	E	E	E	E	E
Refrigerant R-12	E	–	G	U		U	G	E	C	E	E	E	E	E	E	E	E
Refrigerant R-13	E	–	G	U		U	G	E	C	E	E	E	E	E	E	E	E
Refrigerant R-22	U	C	U	U		G	U	E	C	U	U	U	E	E	E	E	E
Refrigerant R-134a	U	C	U	U		E	E	C	U	U	U	E	E	E	E	E	E
Sewage	G	E	E	G		G	E	E	E	E	U	E	G	G	G	G	G
Silicone Oils	E	E	E	E		E	E	E	E	E	E	E	E	E	E	E	E
Soap (Water Solutions)	E	E	C	E		E	E	E	E	E	C	C	E	E	E	U	E
Sodium Acetate	G	E	–	G		E	G	G	E	U	–	–	E	E	G	E	E
Sodium Bicarbonate	E	E	E	E		E	E	E	E	E	E	E	G	G	E	G	E
Sodium Borate	E	E	E	E		E	E	E	E	E	E	E	E	E	E	G	–
Sodium Carbonate	E	E	E	E		E	E	E	E	E	E	E	E	G	E	U	E
Sodium Chloride	E	E	E	E		E	E	E	E	E	E	E	U	C	C	C	E
Sodium Cyanide	E	E	E	E		E	E	E	E	E	E	E	E	–	C	U	U
Sodium Hydroxide, to 10%	C	E	G	G		E	U	G	E	E	G	G	C	G	C	U	C
Sodium Hydroxide, over 10%	U	E	C	C		E	U	U	G	E	C	C	C	C	C	U	C
Sodium Hypochlorite	C	E	C	G		G	C	C	E	C	C	C	U	U	U	U	C
Sodium Metaphosphate	E	E	E	E		E	E	E	E	E	E	E	E	G	G	U	G
Sodium Nitrate	G	E	E	E		E	G	G	E	–	E	E	E	C	E	E	E
Sodium Perborate	G	E	–	E		E	G	G	E	E	–	–	C	U	C	U	C
Sodium Peroxide	G	E	–	G		G	G	G	E	E	U	–	U	U	C	C	C
Sodium Phosphates	E	E	E	C		E	E	E	E	E	E	E	U	E	G	U	E
Sodium Silicate	E	E	E	G		E	E	E	E	E	E	E	E	E	E	E	E
Sodium Sulfate	E	E	E	G		E	E	E	E	E	E	E	C	G	G	G	G
Sodium Sulfide	E	E	E	G		E	E	E	E	E	E	E	C	U	C	U	G
Sodium Thiosulfate	G	E	E	G		E	G	E	E	E	E	E	U	U	C	G	E

*Viton is a DuPont trademark.

This chart is intended for reference use only. The information in this chart pertains strictly to material compatibility and is not intended to be used as an application guide. For information on specific applications not included in this catalog, please contact Hydraulic Supply Co.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

WARNING

Refer to safety information regarding hose & fittings starting on page 299

E = EXCELLENT
G = GOOD
C = CONDITIONAL
U = UNSATISFACTORY

FLUID	Nitrile 1	PTFE 2	Thermoplastic Elastomer 3	AQP 4	Special Application Hose 5	EPDM 6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel
	HOSE						SEALS						METAL				
Soy Bean Oil	E	E	G	C		U	E	G	U	E	G	G	E	E	E	E	E
Stannic Chloride	G	E	C	E		E	E	G	E	E	C	C	U	U	U	U	U
Steam (up to 388°F)	U	E	U	U		G	U	U	C	C	U	U	E	E	E	G	E
Stearic Acid	G	E	G	G		G	G	G	G	E	G	G	C	C	E	C	E
Stoddard Solvent	G	E	U	E		U	E	G	U	E	U	U	E	E	E	E	E
Styrene	U	E	U	U		U	U	U	U	G	U	U	E	E	E	E	E
Sulfur	C	E	G	G		E	U	E	E	E	G	G	E	U	G	E	E
Sulfur Chloride	U	E	–	C		U	U	U	U	E	–	–	G	–	G	G	U
Sulfur Dioxide	U	E	U	C		E	U	U	G	E	U	U	E	G	G	E	G
Sulfur Trioxide	C	E	U	U		C	U	U	G	E	U	U	G	C	G	G	G
Sulfuric Acid, to 10%	U	E	U	U		E	U	G	U	E	C	C	U	G	C	–	E
Sulfuric Acid, over 10%	U	E	U	U		U	U	U	U	G	U	U	C	C	C	U	C
Sulfurous Acid	U	E	U	G		G	C	C	U	U	U	U	U	C	C	C	U
Tannic Acid	G	E	G	E		G	E	E	E	E	G	G	E	E	E	C	E
Tar (Bituminous)	G	E	G	G		U	G	U	U	E	G	G	E	G	E	E	E
Tartaric Acid	E	E	G	E		G	E	G	G	E	G	G	U	C	C	E	E
Tertiary Butyl Alcohol	E	E	G	E		E	G	G	G	E	G	G	G	G	G	G	G
Titanium Tetrachloride	C	E	–	U		U	C	U	U	E	–	–	E	U	G	U	
Toluene (Toluol)	U	E	U	U		U	U	U	U	E	U	U	E	E	E	E	E
Trichlorethylene	U	E	U	U		U	U	U	U	E	U	U	E	G	E	E	E
Tricresyl Phosphate	U	E	U	U		E	U	U	E	G	U	U	E	–	C	–	G
Triethanolamine	G	E	U	G		G	E	U	E	U	U	U	E	U	E	E	E
Tung Oil	E	E	C	U		U	G	G	U	E	U	C	E	G	E	E	E
Turpentine	G	E	G	G		U	G	U	U	E	G	G	G	G	G	G	G
Varnish	C	E	G	G		U	G	U	U	E	G	G	E	G	E	E	E
Vinyl Chloride	U	E	U	U		C	U	U	U	E	U	U	E	U	C	E	E
Water (to +150°F)	E	E	E	E		E	E	E	E	E	E	E	C	G	E	G	E
Water (+151°F to +200°F)	G	E	U	G		E	E	E	E	E	U	U	C	G	E	G	E
Water (+201°F to +350°F)	U	E	U	U		E	U	U	U	G	U	U	C	G	E	G	E
Water Glycol	E	E	C	E		E	E	E	E	E	C	C	E	E	E	G	E
Water Petroleum Emulsion	E	E	C	E		U	E	G	U	E	C	C	C	E	E	G	E
Xylene	U	E	E	U		U	U	U	U	E	U	C	E	E	E	E	E
Zinc Chloride	E	E	E	E		E	E	E	E	E	E	E	E	U	U	C	G
Zinc Sulfate	E	E	–	E		E	E	E	E	E	–	–	U	C	G	C	G

*Viton is a DuPont trademark.

This chart is intended for reference use only. The information in this chart pertains strictly to material compatibility and is not intended to be used as an application guide. For information on specific applications not included in this catalog, please contact Hydraulic Supply Co.

Hydraulic fluids & lubricating oils

The following is a representative list of fluids and manufacturers. The fluids are grouped under generic "family" heads and arranged alphabetically. For each generic "family" listing we have included maximum fluid temperature recommendations for the four hose classifications on page 400 (1 through 4). Two maximum fluid temperature ratings are listed under designations of "H" and "LP".

The "H" designation is for hydraulic service up to the maximum rated operating pressure of any particular hose in the classification. The "LP" designation is for low-pressure service such as lubricating oil systems or low-pressure hydraulic return lines.

The letter "U" in the box indicates unsatisfactory resistance to the fluid type.

Fluid temperature ratings are predicated on maximum allowable ambient temperatures as follows:

Classifications 1 and 3 (Synthetic Rubber and Thermoplastic Elastomer)

"H" fluid temp. ratings: +140°F ambient

"LP" fluid temp. ratings: +180°F ambient

Classification 2 (PTFE)

"H" fluid temp. ratings: +400°F ambient

"LP" fluid temp ratings: +400°F ambient

Classification 4 (AQP)

"H" fluid temp. ratings: +160°F ambient

"LP" fluid temp. ratings: +250°F ambient

(If "H" fluid temperature is +225°F or less, allowable ambient temperature may be increased to +200°F)

Ambient temperatures in excess of those recommended, in conjunction with maximum fluid temperatures, can materially shorten the service life of the hose.

CAUTION: The fluid manufacturer's recommended maximum operating temperature for any specific namebrand fluid should be scrupulously observed by the user. These recommended temperatures can vary widely between name brands of different fluid compositions, even though they fall into the same generic "family" of fluids.

Exceeding the manufacturer's recommended maximum temperature can result in fluid breakdown, producing by-products that are harmful to elastomeric products, as well as other materials in the system. If a manufacturer's recommended maximum temperature for his specific fluid is lower than that for the hose rating, it should take precedence over the hose rating for service usage.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

Fluid Compatibility (Fluids)

WARNING

Refer to safety information regarding hose & fittings starting on page 299

STRAIGHT PETROLEUM-BASE

Maximum fluid temperature recommendation**

Fluid Name

Aircraft Hydraulic Oil AA
Ambrex Oils
Arco A.T.F. Dexron
Arco A.T.F. Type F
Arco Fleet Motor
Arco H.T.F. C-2 Fluid
Arco H.T.C. 100 Fluid
Arco 303 Fluid
ATF Special
Automatic Transmission Fluid (Dexron)

Carnea Oils
Citgo Amplex
Citgo ATF, Type F
Citgo ATF, Dexron
Citgo Extra Duty Circulating Oils
Mineral Oil (Heavy Duty) (R & O)
Citgo Motor Oils
Citgo Pacemaker Series Mineral Oil (R & O)
Citgo Pacemaker T Series Mineral Oil (R & O)
Citgo Pacemaker XD Series Mineral Oil (Heavy Duty) (R & O)
Citgo Sentry
Citgo Tractor Hydraulic Fluid
Conoco 303 Fluid
Custom Motor Oil

Dectol R & O Oils
Delo 400 Motor Oils
Delvac Oils
Delvac SHC
Delvac Special 10W-30
Donax T Oils
DTE Oils
Duro
Duro AW

EP Hydraulic Oils
EP Industrial Oils
EP Machine Oils
Energol HL68
Energol HLP C68
Etna Oils
Exxon ATF

Factovis 52 – Conventional R & O Hydraulic Fluid

Gulf Harmony AW
Gulf Security AW
Glide

Hulburt 27 Series
Hydraulic Series
Hydraulic Oils
Hydroil Series

Industron 53 – Anti Wear Hydraulic Fluid

Lubrite Motor 20W-40

Mobil AFT 210
Mobil AFT 220
Mobilfluid 62
Mobilfluid 423
Mobil Hydraulic Oils
Mobiloil Special
Mobiloil Super 10W-40
NUTO Oils

OC Turbine Oils

Peaco Oils
Pennbell Oils
Power-Tran Fluid

Quadroil Series

Rando Oils
Rando Oils HD
Redind Oils
Regal Oils R & O
Rimula Oils
Rotella Oils
Rotella T Oils
RPM Delo 200 Motor Oils
RPM Delo 300 Motor Oils
RPM Delo Special Motor Oils
Rubilene

Shell Brand
Special Motor Oils
Sun R & O Oils
Suntac HP Oils
Suntac WR Oils
Sunvis 700 Oils
Sunvis 800 Oils
Sunvis 900 Oils
Super Hydraulic Oils
Supreme Motor Oils

Tellus Oils
Teresstic Oils
Torque Fluids
Torque Fluid 47
Torque Fluid 56
Tractor Hydraulic Fluid

Union ATF Dexron
Union ATF Type F
Union C-2 Fluid
Union C-P Oil
Union Custom Motor Oil
Union Gas Engine Oil
Union Guardol Motor Oil
Union Heavy Duty Motor Oil
Union Hydraulic Oil AW
Union Hydraulic Tractor Fluid
Union Premium Motor Oil
Union S-1 Motor Oil
Union Special Motor Oil
Union Super Motor Oil
Union Torque Correction Fluid
Union Turbine Oil
Union Turbine Oil XD
Union Unax
Union Unax AW
Union Unax R & O
Union Unax RX
Union Unitec Motor Oil
Univis J13
Univis J26
Univis P32

Vactra Oils
Vitrea Oils

Way Lubricants

XD-3 Motor Oils

** See CAUTION on page 304 for maximum fluid temperatures and limiting ambient temperatures.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

WARNING

Refer to safety information regarding hose & fittings starting on page 299

WATER AND PETROLEUM OIL EMULSION (FR)

Maximum fluid temperature recommendation**

Fluid Name

Fluid Name
Aqualube
Astrol #587

Chevron FR Fluid D
Chrysler L-705
Citgo Pacemaker Invert FR Fluid
Conoco FR Hydraulic Fluid

Dasco IFR
Duro FR-HD

Fire Resistant Hydrafluid
Fire Resistant Hydraulic Fluid B
FR 3110 Hydraulic Fluid (invert)
Fyre-Safe W/O

Gulf R & D FR Fluid

Houghto-Safe 5046
Houghto-Safe 5046W
Hulsafe 500
Hy-Chock Oil
Hydrasol A

Ironsides #814-A
Irus Fluid 905

Kutwell 40

Masol Fire Resistant Fluid
Meltran FR 900
Mine Guard
Mobilmet S122

Penn Drake Hydraqua Fluid
Permamul FR
Puro FR Fluid
Pyrogard C
Pyrogard D

Quintolubric 957 Series
Quintolubric 958 Series

Regent Hydrolube #670

SAFOIL Hydraulic Fluid Anti-Wear
Sinclair Duro FR-HD
Solvac 1535G
Staysol FR
Sunsafe F

Union FR Fluid
Union Soluble Oil HD

Veedol Auburn FRH
Veedol Auburn FRH Concentrate

WATER AND GLYCOL SOLUTION

Maximum fluid temperature recommendation**

Fluid Name

Chem-Trend HF-18
Chem-Trend HF-20
Chevron Glycol FR Fluids
Citgo Glycol FR Fluids
Citgo Glycol FR-20 XD
Citgo Pacemaker

Dasco FR 150
Dasco FR 200
Dasco FR 200 B
Dasco FR 310

Fyrguard 150
Fyrguard 200
Fyre-Safe 225

Gulf FR Fluid G-200
Gulf FR Fluid – G Series

Houghto-Safe 271
Houghto-Safe 416
Houghto-Safe 520
Houghto-Safe 525
Houghto-Safe 616
Houghto-Safe 620
Houghto-Safe 625
Houghto-Safe 640
Hydra Safe 620
Hydra Safe 625
Hydraulic Safety Fluid 200
Hydraulic Safety Fluid 300
Hyspin AF-1
Hyspin AF-2
Hyspin AF-3

Maxmul
Maxmul FR
Melsyn 200
Melsyn Glycol FR

Nyvac FR Fluid
Nyvac FR 200 Fluid
Nyvac 20 (WG)
Nyvac 30 (WG)

Park Water Glycol Hydraulic Fluid
Pennzoil Fluid FR 2X

Quintolubric 700 Series

Santosafe W/G 15
Santosafe W/G 20
Santosafe W/G 30
Standard Glycol FR #15
Standard Glycol FR #20
Standard Glycol FR #25

Ucon Hydrolube 150 CP
Ucon Hydrolube 200 CP
Ucon Hydrolube 275 CP
Ucon Hydrolube 300 CP
Ucon Hydrolube 550 CP
Ucon Hydrolube 900 CP
Ucon Hydrolube 150 DB
Ucon Hydrolube 275 DB
Ucon Hydrolube 150 LT
Ucon Hydrolube 200 LT

Ucon Hydrolube 275 LT
Ucon Hydrolube 300 LT
Ucon M-1
Ucon Hydrolube 200 NM
Ucon Hydrolube 300 NM

** See CAUTION on page 304 for maximum fluid temperatures and limiting ambient temperatures.

Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

Fluid Compatibility (Fluids)

WARNING

Refer to safety information regarding hose & fittings starting on page 299

STRAIGHT PHOSPHATE-ESTER (FR)

Maximum fluid temperature recommendation**

Fluid Name

FR Fluids
Fyrquel 90
Fyrquel 150
Fyrquel 220
Fyrquel 300
Fyrquel 550
Fyrquel 1000
Fyrquel 150 R & O
Fyrquel 220 R & O
Fyrquel 550 R & O

Gulf FR Fluid P-37
Gulf FR Fluid P-40
Gulf FR Fluid P-43
Gulf FR Fluid P-45
Gulf FR Fluid P-47

Houghto-Safe 1010
Houghto-Safe 1055
Houghto-Safe 1115
Houghto-Safe 1120
Houghto-Safe 1130

Pydraul 10E
Pydraul 29-E-LT
Pydraul 30-E
Pydraul 50-E
Pydraul 65-E
Pydraul 115-E

Pyrogard 51
Pyrogard 53
Pyrogard 55

Safetytex 215

Univis P12

PHOSPHATE-ESTER AND PETROLEUM-OIL

Maximum fluid temperature recommendation**

Fluid Name

Citgo Synthetic Oil-Fire Resistant
Fyrtek 290
Fyrtek MF
Pydraul 230-C
Pydraul 312-C
Pydraul 540-C

Stauffer SCC 7204

ESTER BLEND TURBINE OILS

Maximum fluid temperature recommendation**

Fluid Name

Stauffer Jet I
Stauffer Jet II

SILICONE OILS

Maximum fluid temperature recommendation**

Fluid Name

Dow Corning 200 Fluid (100CS)
Dow Corning QF1-2023
Dow Corning 4-3600
Dow Corning 3-3672

POLYOL-ESTER

Maximum fluid temperature recommendation**

Fluid Name

Quintolubric 822 Series

LUBRICANT COMPATIBILITY CHART

	Hose Style						
Lubricant	**FC802**	**FC505**	**FC555**	**FC558**	**GH134**	**FC665**	**FC765**
Mineral Oil	Y	Y	Y	N	N	Y	Y
PAG	Y	Y	Y	Y	Y	Y	Y
Ester Oil	Y	Y	Y	Y	Y	Y	Y
Alkylbenzene	Y	Y	Y	N	N	Y	Y

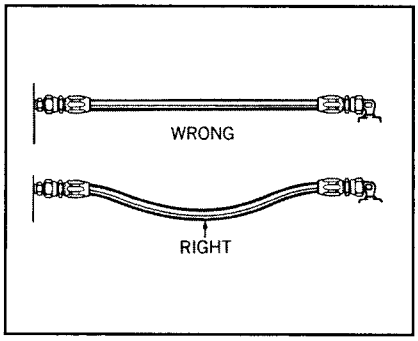
Y = Compatible
N = Non-compatible

** See CAUTION on page 304 for maximum fluid temperatures and limiting ambient temperatures.

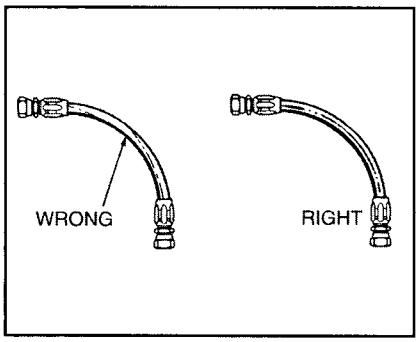
Important Safety, Fluid Compatibility & Hose Routing & Installation Guidelines are continued on next page

WARNING

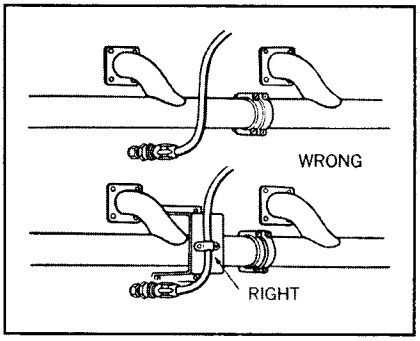
Refer to safety information regarding hose & fittings starting on page 299



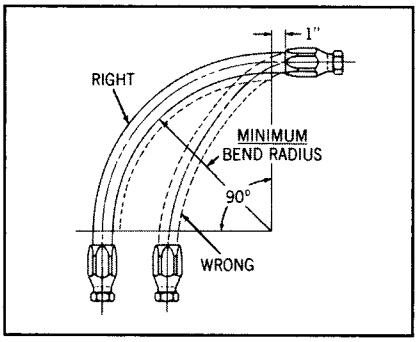
Under pressure, a hose may change in length. Always provide some slack in the hose to allow for this shortening or elongation. (However, excessive slack in hose lines may cause poor appearance.)



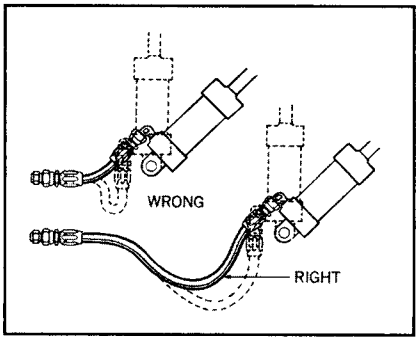
If a hose is installed with a twist in it, operating pressures tend to force it straight. This can loosen the fitting nut. Twisting can cause reinforcement separation and the hose could burst at the point of strain.



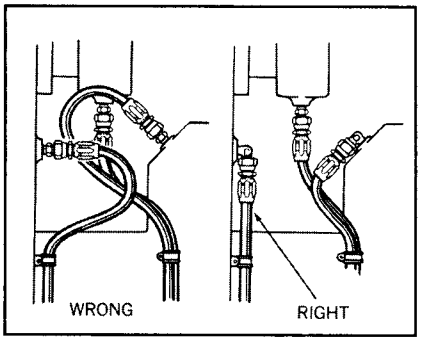
When hose lines pass near an exhaust manifold or other heat source, they should be insulated by a heat resistant boot, firesleeve or a metal baffle. In any application, brackets and clamps keep hoses in place and reduce abrasion. For installations where abrasion to hose cover cannot be prevented with the use of clamps or brackets, a steel protective coil or abrasion resistant sleeve should be placed over the hose.



At bends, provide sufficient hose so that it does not have a bend radius less than its recommended minimum bend radius. Too tight a bend may kink the hose and restrict or stop the fluid flow. In many cases the proper use of adapters and hose fittings can eliminate tight bends or kinks.



In applications where there is considerable vibration or flexing, allow additional hose length. The metal hose fittings, of course, are not flexible, and proper installation protects metal parts from undue stress, and avoids kinks in the hose.



When 90° adapters were used, this assembly became neater-looking and easier to inspect and maintain. It uses less hose, too!

Important Safety Information (Tubing)

WARNING

Selection of Tubing

Selecting the proper tubing for a given application is essential to the proper operation and safe use of the tubing and related equipment. Inadequate attention to the selection of the tubing for your application can result in leakage, bursting, or other failure which can cause serious bodily injury or property damage from spraying fluids or flying projectiles. In order to avoid serious bodily injury or property damage resulting from selection of the wrong tubing, you should carefully review the information in this catalog. Some of the factors that are involved in the selection of the proper tubing are: material of tubing • bends • tubing size • temperature • tubing length • tubing pressure rating • tubing end connections • installation design • fluid conveyed (compatibility).

These factors and the other information in this catalog should be considered by you in selecting the proper tubing for your application. If you have any questions regarding the proper tubing for your application, please contact us.

Proper Selection of Tube Fittings

Selection of the proper tube fittings for the application is essential to the proper operation and safe use of tubing and related equipment. Inadequate attention to the selection of the end fittings for your application can result in tube leakage, bursting, or other failure which can cause serious injury or property damage from spraying fluids or flying projectiles. In order to avoid serious bodily injury or property damage resulting from selection of the wrong tube end fitting, you should carefully review the information in this catalog. Some of the factors which are involved in the selection of the proper tube end fittings are: • tube fitting • installation design • compatibility with tubing • tubing size • temperature • corrosion requirements.

These factors and the other information in this catalog should be considered by you in selecting the proper tube end fitting for your application. If you have any questions regarding the proper tube end fittings for your application, please contact us.

Tubing Installation

Proper installation of the tubing is essential to the proper operation and safe use of the tubing and related equipment. Improper installation of the tubing can result in serious injury or property damage. In order to avoid serious bodily injury or property damage resulting from improper installation of the tubing, you should carefully review the information in this catalog regarding tubing installation. Some of the factors you must consider in installing the tubing properly are: proper installation procedures • changes in length • protection from high temperature sources • twisting • stress • rubbing and abrasion.

These factors and other information in this catalog regarding tubing installation should be considered by you before installing the tubing. If you have any questions regarding proper installation of the tubing, please contact us.

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page

WARNING Refer to safety information regarding tubing starting on page 309

Tubing Assembly

Changes in materials, finishes, and assembly techniques may affect the sealing or holding capability of the joint. Due to the great variety of possible assembly scenarios, assembly procedures should be tested to determine if the joint is adequate for its intended use. We stress the importance of referring to assembly instructions on page 9 for determining the appropriate tightening procedure. Improper assembly or overtightening could result in fitting leakage, tubing separation or other failures which could cause serious bodily injury or property damage from spraying fluids or flying projectiles.

These factors and other information in this catalog regarding tubing assembly should be considered by you before installing the tubing. If you have any questions regarding proper assembly and installation of the tubing, please contact us.

Fitting Dimensions

Eaton molded compression fittings as described in this catalog may not reflect running changes made to improve part performance. Check with us in critical applications.

Operating Pressures

Operating pressures of Eaton molded compression fittings are regulated by ambient and fluid temperatures, type of fluid being carried, tubing type and conditions of mechanical abuse. Pressures in excess of above specifications in all fitting sizes should be tested by the customer for their particular application.

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page

Chemical Compatibility Information (Tubing)

WARNING Refer to safety information regarding tubing starting on page 309

These tables alphabetically list commonly used materials of various chemical composition. After each agent listing you will find the basic tubing and fitting materials rated according to their chemical resistance to each individual agent. The chart is intended to be used as a guide only. Many factors (concentration, temperature, intermittent or continuous exposure, etc.) have a bearing upon the suitability of any tubing or connector for any specific application, and these factors must be considered by you as you review the chemical compatibility chart. Where unusual conditions exist or where questions arise, consult us for expert assistance on your tubing application requirements.

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Acetaldehyde	G	F	X	X	X	X	G
Acetic Acid (Concentrated)	X	X	X	X	X	X	G
Acetic Acid (Dilute)	F	X	F	G	X	X	G
Acetic Anhydride	X	X	X	X	X	F	F
Acetone	G	F	X	G	G	G	G
Acrylonitrile	G	—	G	—	—	G	G
Air	G	G	G	G	G	G	G
Alcohols							
Amyl Alcohol	G	G	X	G	G	F	F
Butyl Alcohol, Butanol	G	G	X	G	G	G	G
Ethyl Alcohol, Ethanol	G	G	F	G	G	F	G
Isopropyl Alcohol, Isopropanol	G	G	G	G	G	G	G
Methyl Alcohol, Methanol	G	G	X	G	G	F	G
Aluminum Chloride	X	X	G	G	X	X	F
Aluminum Fluoride	X	X	G	G	X	X	X
Aluminum Hydroxide	G	G	G	G	X	F	G
Aluminum Nitrate	G	F	G	G	X	X	G
Aluminum Sulfate	G	F	G	G	X	X	G
Alums	F	G	G	G	X	X	F
Ammonia, Anhydrous	Use approved anhydrous ammonia hose				X	F	G
Ammonia Solution (10%)	G	X	G	G	X	G	G
Ammonium Chloride	X	X	G	G	X	G	F
Ammonium Hydroxide	G	X	X	G	X	F	G
Ammonium Nitrate	G	G	G	G	—	—	G
Ammonium Phosphate	G	G	F	G	X	X	G
Ammonium Sulfate	G	G	G	G	X	X	F
Amyl Acetate	G	G	X	X	G	F	G
Amyl Alcohol	G	G	X	G	G	F	F
Aniline	X	X	X	X	X	G	G
Aniline Dyes	X	X	X	X	X	X	F
Animal Oils and Fats	G	—	G	X	G	G	G
Anti-Freeze (Glycol Base)	G	—	G	F	G	G	G
Aqua Regia	X	X	X	X	—	X	X
Aromatic Hydrocarbons	G	G	X	G	G	G	G
Asphalt Emulsion	G	—	X	—	G	G	G
Barium Chloride	G	—	G	G	X	F	G
Barium Hydroxide	G	G	G	G	X	G	G
Barium Sulfate	G	G	G	G	G	G	G
Barium Sulfide	X	—	G	G	X	X	G
Beet Sugar Liquors	G	G	G	G	X	G	G
Benzaldehyde	G	G	X	X	F	F	G
Benzene, Benzol	G	G	X	X	G	G	G
Benzoic Acid	X	X	X	G	F	X	F
Black Sulfate Liquor	X	X	X	G	X	G	G
Bleach Solution	X	X	F	G	X	X	G
Borax Solution	G	—	G	G	G	G	G
Boric Acid	G	G	G	G	X	X	G
Brake Fluid (Glycol Ether Base)	G	—	X	X	G	G	G
Brine	G	—	G	G	—	X	F
Bromine	X	X	X	X	X	X	X

NOTE: All data given herein is believed to be accurate and reliable but presented without guarantee, warranty, or responsibility of any kind, express or implied, on our part. Chemical resistance will vary with the wide diversity of possible mixtures and service conditions. It is not therefore possible to give any guarantee whatsoever in individual cases.

CODES: **G**=Good Resistance **F**=Fair Resistance **X**=Incompatible **–** =No data available **+** Call Technical Support for specific application

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page

Technical Information

Chemical Compatibility Information (Tubing)

WARNING Refer to safety information regarding tubing starting on page 309

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Butane	Use H336 or H243 Hose Only						
Butyl Acetate	G	—	X	X	G	G	G
Butyl Alcohol, Butanol	G	G	X	G	G	G	G
Calcium Bisulfite	G	X	G	G	X	X	X
Calcium Chloride	G	X	G	G	X	F	F
Calcium Hydroxide	G	G	G	G	F	G	G
Calcium Hypochlorite	X	X	G	G	F	X	F
Cane Sugar Liquors	G	--	G	G	F	G	G
Carbon Dioxide (Dry)	G	G	G	G	G	G	G
Carbon Dioxide (Wet)	G	G	G	G	F	G	G
Carbon Disulfide (Bisulfide)	X	X	X	X	G	G	G
Carbon Monoxide (Hot)	X	X	X	X	X	F	G
Carbon Tetrachloride	G	G	X	X	G	G	G
Carbonic Acid	G	—	G	G	X	X	F
Castor Oil	G	—	G	X	G	G	G
Cellosolve Acetate	G	—	X	—	X	X	G
Chlorinated Solvents	F	G	X	X	G	G	F
Chloroacetic Acid	X	X	X	X	X	X	F
Chlorobenzene	X	X	X	X	F	F	G
Chlorine Gas (Dry)	X	X	X	X	F	F	G
Chlorine Gas (Wet)	X	X	X	X	X	X	X
Chloroform	F	G	X	X	G	G	G
Chlorosulfonic Acid	X	X	X	X	X	F	X
Chromic Acid (under 25%)	X	X	F	F	X	X	G
Chromic Acid (over 25%)	X	X	X	X	X	X	F
Citric Acid	X	F	G	G	X	X	G
Coke Oven Gas	G	—	X	G	F	G	G
Copper Chloride	X	X	G	G	X	X	G
Copper Cyanide	G	G	G	G	X	X	G
Copper Sulfate	G	G	G	G	X	X	G
Corn Syrup (Non-food)	G	—	G	G	—	G	G
Cottonseed Oil	G	—	F	G	G	G	G
Creosote	X	X	X	X	F	—	G
Cresol	X	X	X	X	—	G	G
Cyclohexanol	G	G	X	F	G	F	G
Dextrose (Food Grade)	X	X	X	G	—	—	G
Dichlorobenzene	G	—	X	X	—	—	G
Diesel Fuel	G	—	X	X	G	G	G
Diethanolamine	G	—	X	—	X	G	G
Diethylenetriamine	X	X	X	G	—	—	—
Dowtherm A	X	X	X	X	X	F	G
Enamel (Solvent Base)	G	—	X	G	G	—	G
Ethanolamine	G	—	X	G	X	G	G
Ethers (Ethyl Ether)	G	—	X	X	G	G	G
Ethyl Alcohol	G	G	F	G	F	G	G
Ethyl Acetate	G	G	X	G	G	G	G
Ethyl Acrylate	X	—	X	—	—	G	G
Ethyl Methacrylate	X	—	X	—	—	G	G
Ethylamine	X	X	X	G	G	—	G
Ethyl Cellulose	F	—	X	G	F	G	F
Ethyl Chloride	G	—	X	X	F	F	G
Ethylenediamine	X	X	X	G	G	G	G
Ethylene Dibromide	F	—	X	—	—	—	—
Ethylene Dichloride	F	—	X	X	G	X	X
Ethylene Glycol	G	G	G	G	F	G	G
Ethylene Oxide	G	—	X	X	X	F	F

NOTE: All data given herein is believed to be accurate and reliable but presented without guarantee, warranty, or responsibility of any kind, express or implied, on our part. Chemical resistance will vary with the wide diversity of possible mixtures and service conditions. It is not therefore possible to give any guarantee whatsoever in individual cases.

CODES: **G**=Good Resistance **F**=Fair Resistance **X**=Incompatible **–** =No data available **+** Call Technical Support for specific application

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page

Chemical Compatibility Information (Tubing)

WARNING Refer to safety information regarding tubing starting on page 309

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Fatty Acids	G	G	G	G	F	F	G
Ferric Chloride 5%	G	G	G	G	X	X	X
Ferric Sulfate	G	G	G	G	X	X	F
Fertilizer Salts Solution	F	—	G	G	—	—	G
Formaldehyde	G	G	X	G	F	X	G
Formic Acid	X	X	X	G	F	X	G
Freon 12	Use approved Freon 12 hose				G	G	G
Freon 134a	Use approved Freon 134a hose				—	G	G
Fuel Oil	G	—	F	X	F	G	G
Furfural	X	X	X	X	F	G	G
Gasoline (Refined)	G	G	X	X	G	G	G
Gasoline (Unleaded)	G	G	X	X	G	G	G
Gasoline (10% Ethanol)	G	G	X	X	G	G	G
Gasoline (10% Methanol)	G	G	X	X	G	G	G
Glucose (non-food)	G	G	G	G	G	G	G
Glycerine, Glycerol (Non-food)	G	G	G	G	G	G	G
Greases	G	G	G	G	G	G	G
Green Sulfate Liquor	X	X	G	G	X	X	G
Heptane	G	G	X	X	G	G	G
Hexane	G	G	X	X	G	G	G
Houghto Safe 273 to 640	G	—	F	G	G	G	G
Houghto Safe 5046, 5047F	G	—	G	G	G	G	G
Houghto Safe 1000 Series	G	—	X	X	G	G	G
Hydraulic Oils							
Straight Petroleum Base	G	G	G	G	G	G	G
Water Petroleum Emulsion	G	—	—	F	G	G	G
Water Glycol	G	G	X	—	G	G	G
Straight Phosphate Ester	G	G	X	X	G	G	G
Phos. Ester/Petroleum Blend	G	G	X	X	G	G	G
Polyol Ester	G	—	—	—	G	G	G
Hydrobromic Acid (under 48%)	X	X	G	G	X	X	X
Hydrochloric Acid	X	X	G	G	X	X	X
Hydrocyanic Acid	X	X	G	G	X	F	G
Hydrofluoric Acid (under 50%)	X	X	F	F	X	X	G
Hydrofluoric Acid (over 50%)	X	X	X	X	X	X	G
Hydrofluosilicic Acid	X	X	G	G	X	X	X
Hydrogen	Use approved hydrogen hose or metal tubing				—	—	G
Hydrogen Peroxide	X	X	—	G	X	X	G
Hydrogen Sulfide	X	X	G	G	F	F	F
Hydrolube	G	—	G	G	G	G	G
Iodine	X	X	X	X	X	X	X
Isocyanates	X	X	X	X	—	—	—
Isopropyl Alcohol, Isopropanol	G	G	G	G	G	G	G
Isopropylamine	X	—	X	—	G	—	G
Iso-Octane	G	G	X	X	G	G	G
Jet Fuel (Transfer Only)	G	G	X	X	G	F	G
Kerosene	G	G	X	X	G	G	G
Lacquer	G	G	X	F	G	X	G
Lacquer Solvents	G	G	X	F	G	X	G
Lactic Acid	G	G	G	G	F	F	G
Lime Sulfur	G	F	G	G	X	—	G
Lindol	G	G	—	—	F	G	G
Linseed Oil	G	G	G	G	F	G	G
Lubricating Oils	G	G	G	G	G	G	G
Lye	G	F	G	G	F	X	G
Magnesium Chloride	G	G	G	G	F	F	G

NOTE: All data given herein is believed to be accurate and reliable but presented without guarantee, warranty, or responsibility of any kind, express or implied, on our part. Chemical resistance will vary with the wide diversity of possible mixtures and service conditions. It is not therefore possible to give any guarantee whatsoever in individual cases.

CODES: **G**=Good Resistance **F**=Fair Resistance **X**=Incompatible **–** =No data available **+** Call Technical Support for specific application

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page

Chemical Compatibility Information (Tubing)

WARNING Refer to safety information regarding tubing starting on page 309

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Magnesium Hydroxide	G	G	G	G	G	G	G
Magnesium Sulfate	G	G	G	G	F	G	G
Mercuric Chloride	X	X	F	G	X	X	X
Mercury	G	G	F	G	X	G	G
Methyl Alcohol, Methanol	G	G	X	G	F	G	G
Methyl Acrylate	X	X	X	—	G	G	G
Methyl Bromide	G	F	X	X	G	G	G
Methyl Chloride	G	G	X	X	G	G	G
Methylene Chloride	F	F	X	X	G	G	G
Methyl t-Butyl Ether (MTBE)	G	G	X	—	—	G	G
Methyl Ethyl Ketone	G	G	X	G	G	G	G
Methyl Isobutyl Ketone	G	G	X	G	G	G	G
Methyl Isopropyl Ketone	G	G	X	G	G	G	G
Methyl Methacrylate	X	—	X	—	—	G	G
Mineral Oil	G	G	F	X	G	G	G
Mineral Spirits	G	G	X	G	G	G	G
Naphtha	G	G	X	G	F	G	G
Napthalene	G	G	X	X	F	G	G
Nickel Acetate	G	G	G	G	G	G	G
Nickel Chloride	G	G	G	G	X	X	F
Nickel Sulfate	G	G	G	G	X	X	G
Nitric Acid (under 35%)	X	X	G	F	X	X	G
Nitric Acid (35% to 60%)	X	X	F	X	X	X	G
Nitric Acid (over 60%)	X	X	X	X	X	X	G
Nitrobenzene	X	—	X	X	F	G	G
Nitrogen Gas	G	G	G	G	G	G	G
Nitrous Oxide	F	F	X	X	G	G	G
Oleic Acid	G	G	F	G	F	F	G
Oleum (Fuming Sulfuric Acid)	X	X	X	X	X	F	G
Oxalic Acid	X	X	G	G	F	X	G
Oxygen (non-breathing,non-welding) +	G	G	G	G	G	G	G
Ozone (300 pphm)	X	X	X	X	—	F	G
Paint (Solvent Base)	G	G	X	F	G	G	G
Palmitic Acid	G	G	F	G	X	F	F
Paper Mill Liquors	X	X	X	X	—	—	—
Pentane	G	—	X	X	G	G	G
Perchloroethylene	F	G	X	X	F	G	G
Petroleum Ether	G	G	X	X	G	G	G
Petroleum Oils	G	G	G	G	G	G	G
Phenol	X	X	X	X	F	X	F
Phosphoric Acid (to 85%)	X	X	G	G	X	X	F
Picric Acid (Molten)	X	X	X	X	X	X	F
Picric Acid (Solution)	X	X	X	X	X	X	F
Potassium Chloride	G	G	G	G	F	X	G
Potassium Cyanide	G	G	G	G	X	G	G
Potassium Dichromate	F	—	G	G	X	G	G
Potassium Hydroxide	G	F	G	G	F	X	G
Potassium Permanganate	X	X	G	G	—	—	—
Potassium Sulfate	G	G	G	G	F	F	G
Propane Liquid	Use H366 Hose Only						
Propylene Glycol	G	—	F	G	F	G	G
Pyridine	X	X	X	G	F	G	G
Sea Water	G	G	G	G	G	F	G
Silver Nitrate	G	G	G	G	X	X	F
Skydrol	G	G	X	X	G	G	G

NOTE: All data given herein is believed to be accurate and reliable but presented without guarantee, warranty, or responsibility of any kind, express or implied, on our part. Chemical resistance will vary with the wide diversity of possible mixtures and service conditions. It is not therefore possible to give any guarantee whatsoever in individual cases.

CODES: **G**=Good Resistance **F**=Fair Resistance **X**=Incompatible **–** =No data available **+** Call Technical Support for specific application

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page

Chemical Compatibility Information (Tubing)

WARNING Refer to safety information regarding tubing starting on page 309

Fluid	Nylon 11	Nylon 6/6	PVC	Polyethylene	Brass	Steel	316 Stainless
Soap Solution	G	G	G	X	G	G	G
Sodium Bicarbonate	G	G	G	G	F	F	G
Sodium Bisulfate	G	G	G	G	F	F	F
Sodium Bisulfite	G	G	G	G	F	X	G
Sodium Borate	G	G	G	G	G	G	G
Sodium Carbonate	G	G	G	G	X	G	G
Sodium Chloride	G	G	G	G	X	F	G
Sodium Cyanide	G	G	G	G	X	F	G
Sodium Hydroxide	G	F	G	G	F	X	G
Sodium Hypochlorite	X	X	G	G	X	X	F
Sodium Nitrate	G	G	G	G	F	G	G
Sodium Perborate	G	F	G	G	F	F	G
Sodium Peroxide	X	X	X	X	X	F	G
Sodium Phosphates	G	G	G	G	F	F	F
Sodium Silicate	G	G	G	G	F	F	G
Sodium Sulfate	G	G	G	G	F	F	G
Sodium Sulfide	G	G	G	G	X	X	G
Sodium Thiosulfate	G	G	G	G	X	X	G
Soybean Oil	G	—	F	G	G	G	G
Stannic Chloride	F	X	G	G	X	X	X
Steam 450° F	X	X	X	X	F	F	G
Stearic Acid	G	G	F	G	X	X	G
Stoddard Solvent	G	G	X	X	G	G	G
Styrene	G	G	X	X	G	G	G
Sulfur 70o F	G	G	F	G	X	X	G
Sulfur 200o F	X	X	X	X	X	X	G
Sulfur Chloride	X	X	X	G	X	X	X
Sulfur Dioxide	X	X	X	X	X	—	G
Sulfuric Acid (under 50%)	X	X	G	G	X	X	X
Sulfuric Acid (51% to 70%)	X	X	G	X	X	X	X
Sulfuric Acid (71% to 95%)	X	X	X	X	X	X	X
Sulfuric Acid (96% to 98%)	X	X	X	X	X	X	X
Tannic Acid	X	X	G	G	F	X	G
Tar	G	G	X	X	F	F	G
Tartaric Acid	G	G	G	G	F	X	F
Tetrachloroethane	F	—	X	F	—	—	G
Tetrahydrofuran (THF)	G	—	X	X	—	—	G
Toluene	G	G	X	G	G	G	G
Transmission Oil (Petrol. Base)	G	G	G	G	G	G	G
Trichloroethane	F	G	X	G	G	G	G
Trichloroethylene	F	G	X	G	G	G	G
Tung Oil	G	—	—	—	F	G	G
Turpentine	G	G	X	G	F	G	G
Urea (Water Solution)	G	G	G	G	—	G	G
Uric Acid	G	G	G	G	—	—	F
Varnish	G	G	X	G	G	G	G
Vegetable Oil (Non-food)	G	G	F	G	G	G	G
Vinegar	G	X	G	G	X	F	G
Vinyl Acetate	G	—	X	—	F	G	G
Water (non-potable)	G	G	G	G	F	F	G
Water-Glycol Mixture	G	G	X	—	G	G	G
Water-Petroleum Mixture	G	G	—	F	G	G	G
Xylene	G	G	X	G	G	G	G
Zinc Chloride	X	X	G	G	X	X	X
Zinc Sulfate	G	G	G	G	X	X	G

NOTE: All data given herein is believed to be accurate and reliable but presented without guarantee, warranty, or responsibility of any kind, express or implied, on our part. Chemical resistance will vary with the wide diversity of possible mixtures and service conditions. It is not therefore possible to give any guarantee whatsoever in individual cases.

CODES: **G**=Good Resistance **F**=Fair Resistance **X**=Incompatible **–** =No data available **+** Call Technical Support for specific application

Important Safety, Chemical Compatibility & Installation Guidelines are continued on next page

Tubing Selection

WARNING Refer to safety information regarding tubing starting on page 309

To select tubing for a particular installation, two factors must be determined...
1.) Tubing Type - material and construction and
2.) Size - inside diameter (I.D.) and wall thickness.
Information below will aid in your tubing selection.

TUBING TYPES

Commercial tubing is available in a wide variety of materials, types of construction and quality. Each is best suited for certain specific applications.

STEEL TUBING - Seamless SAE 1010 fully annealed and SAE welded types suitable for bending and flaring. This is the only tubing material approved without restrictions by SAE standards.

STAINLESS STEEL TUBING - Both seamless *18-8 fully annealed and welded types suitable for bending and flaring. Stainless steel tubing is recommended for use with very high pressures and where large diameter tubing is required. It is also suited for many applications where corrosion is a problem.
* (302, 303 and/or 304)

ALUMINUM TUBING - Seamless annealed is approved by SAE for low pressure applications.

COPPER TUBING - Seamless fully annealed coils and fully annealed or quarter-hard straight lengths can be used for systems that do not use petroleum based fluids (copper acts as an oil-oxidation catalyst, causing sludge). Copper also tends to work harden when flared or bent and has poor resistance to vibration. Therefore, the use of copper tubing is limited to low-pressure stationary applications and air circuits.

SPECIAL ALLOY TUBING - May be required for specific corrosion problems. Information on these applications can be obtained from your tubing supplier or from tubing manufacturers.

TUBING SIZE

The two variables in tubing size are the inside diameter (ID) and the wall thickness. Each of these is dependent upon a number of factors.

INSIDE DIAMETER - The tubing I.D. will determine the flow and velocity of the fluid in the system.

Flow is the volume of fluid that is to be moved through the line to perform a given job within a specified time. Flow rate is expressed in gallons per minute (gpm).

Velocity is the rate of speed at which the fluid passes through the line. It is expressed in feet per second (fps). With a given flow rate, the velocity will increase as the inside diameter of the tubing decreases.

To determine the appropriate tubing I.D. for specific flow rate and velocity, refer to the Velocity vs. Flow chart on page 318 .

WALL THICKNESS - The required wall thickness of the tubing depends upon operating pressure, safety factor, temperatures, and tubing material.

Operating Pressure is the pressure of the fluid in the system. It is expressed in pounds per square inch (psi).

Safety Factor is a multiplier applied to the wall thickness that compensates for additional mechanical strains and hydraulic shocks to which the tubing may be subjected during operation.

To determine the appropriate wall thickness, refer to the data starting on page 319 .

PRESSURE DROP

Total pressure supplied to a line must equal usable pressure (or output) plus the pressure that is lost through fluid transmission, which is referred to as pressure drop. These pressure drops cause loss of energy and should be kept to a minimum. Elements which cause pressure drop in the transmission of fluids include sudden enlargements or contractions, bends, fittings and valves.

Mathematical analysis of pressure drop, although possible, is not precise because of the interrelationship of factors such as fluid velocity, density, flow area and friction coefficients. Therefore, to obtain optimum efficiency, the system (or the questionable portions of the system) should be mocked-up to obtain empirical pressure drop data.

Tubing Selection

WARNING Refer to safety information regarding tubing starting on page 309

Following is a typical problem that illustrates, step by step, the procedure for determining tube size.

Select 1010 steel tubing with the appropriate I.D. and wall thickness for the following conditions:
Flow— 5 gpm
Velocity— not to exceed 10 fps
Pressure— 2000 psi
Safety Factor — 4:1

SOLUTION:

1. Using the Flow/Velocity chart on page 318 , follow the horizontal flow line (5 gpm) until it intersects the vertical velocity line (10fps). From this point, follow the diagonal line upward to get the required tube I.D. (.444). If the horizontal flow line and the vertical velocity line intersect between two diagonal lines, normally the larger inside diameter would be selected since it would mean less velocity.

2. Refer to the chart of Standard Size Hydraulic Tubing, at right. Note that .444 I.D. tubing is not listed. If you want to use standard tubing, select one with a larger I.D. Do not select a smaller size since this would increase the velocity to over the 10 fps limit. Therefore, by going to the next largest size, you would select the 5/8" O.D. tubing having an I.D. of .459 and a wall thickness of .083.

3. To determine whether this tubing will meet the pressure and safety factor requirements, refer to the Recommended Wall Thickness data on pages 24 and 25. For 5/8" O.D. tubing at 2000 psi, the chart for 1010 steel indicates that the minimum wall thickness with a safety factor of 4:1 is .04545. Since you have selected a tubing with a .083 wall, this would easily fulfill the requirements. However, for savings on weight and cost, you can select another tubing with a thinner wall that will still meet the performance requirements. Therefore, refer again to the chart on standard size tubing and select a tubing with a wall thickness closer to the minimum requirements. This would be the 5/8" O.D. tubing with a .527 I.D. and a .049 wall. This tubing will handle the pressure requirements of 2000 psi with a safety factor of 4:1, and also provides the required flow while keeping the velocity within the 10 fps limitation.

STANDARD SIZE HYDRAULIC TUBING

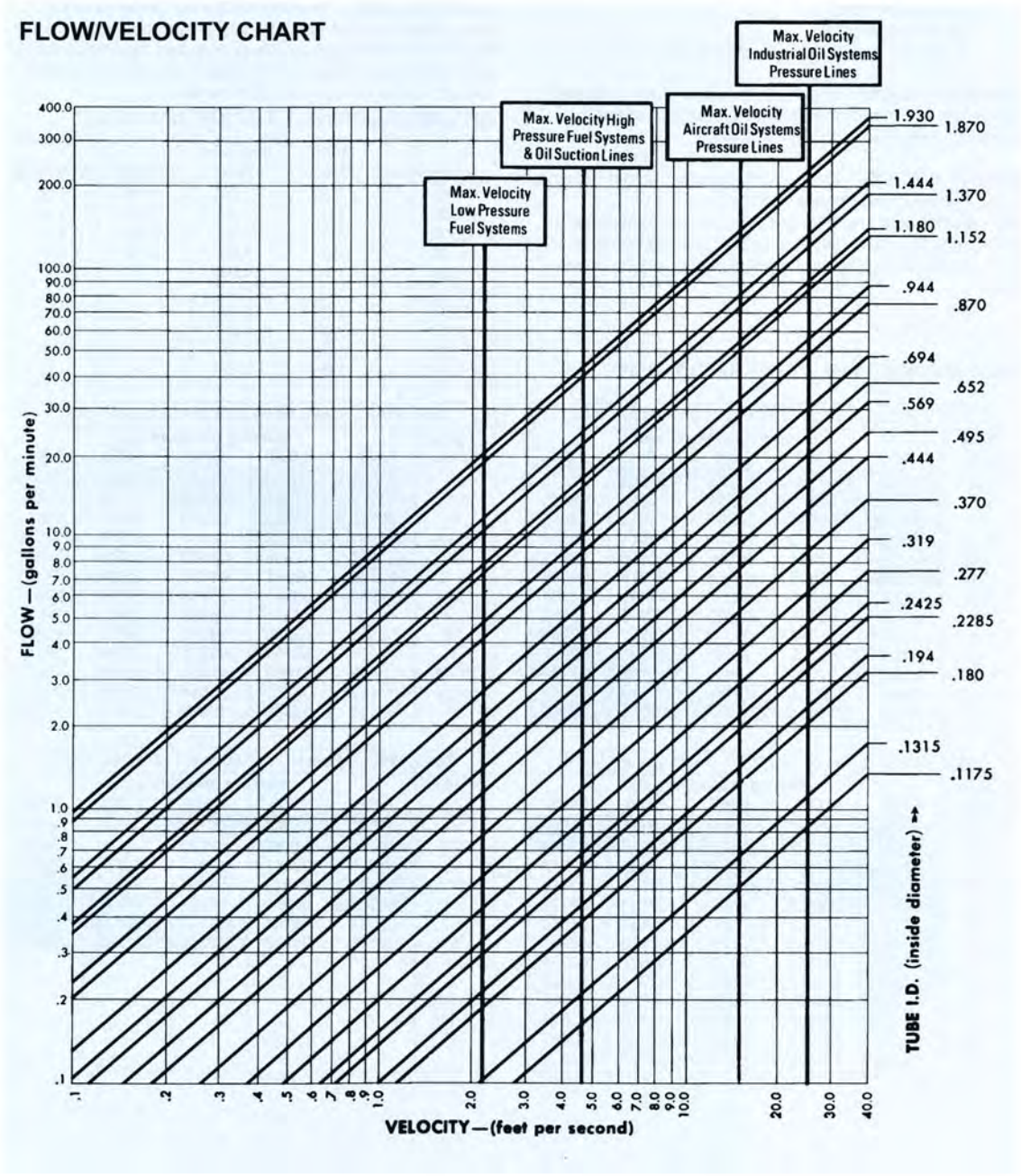
Tube O.D.	Tube I.D.	Wall	Tube O.D.	Tube I.D.	Wall
1/8"	.055	.035	3/4"	.584	.083
	.061	.032		.606	.072
	.065	.030		.620	.065
	.069	.028		.634	.058
3/16"	.117	.035		.652	.049
	.123	.032		.680	.035
	.127	.030	7/8"	.657	.109
1/4"	.120	.065		.685	.095
	.134	.058		.709	.083
	.152	.049		.731	.072
	.166	.042		.745	.065
	.180	.035		.759	.058
	.190	.030		.777	.049
5/16"	.182	.065	1"	.760	.120
	.196	.058		.782	.109
	.214	.049		.810	.095
	.228	.042		.834	.083
	.242	.035		.856	.072
	.248	.032		.870	.065
3/8"	.245	.065		.884	.058
	.259	.058		.902	.049
	.277	.049	1-1/4"	.982	.134
	.291	.042		1.010	.120
	.305	.035		1.032	.109
	.311	.032		1.060	.095
1/2"	.310	.095		1.084	.083
	.334	.083		1.106	.072
	.358	.072		1.120	.065
	.370	.065		1.134	.058
	.384	.058		1.152	.049
	.402	.049	1-1/2"	1.232	.134
	.416	.042		1.260	.120
	.430	.035		1.282	.109
	.436	.032		1.310	.095
5/8"	.435	.095		1.334	.083
	.459	.083		1.356	.072
	.481	.072		1.370	.065
	.495	.065	2"	1.732	.134
	.509	.058		1.760	.120
	.527	.049		1.782	.109
	.541	.042		1.810	.095
	.555	.035		1.834	.083
3/4"	.532	.109		1.856	.072
	.560	.095		1.870	.065

WARNING Refer to safety information regarding tubing starting on page 309

TO FIND REQUIRED TUBE I.D. (Flow–20 gpm • Velocity–9 fps)
Follow horizontal flow line (20 gpm) until it intersects vertical velocity line (9 fps).
From this point follow diagonal line to get required Tube I.D. (.944).

TO FIND PERMISSIBLE FLOW (Velocity–15 fps • Tube I.D.–.495)
Follow vertical velocity line (15 fps) until it intersects diagonal line representing .495 tube I.D.
Then project this point horizontally to get the permissible flow–(9 gpm).

TO FIND VELOCITY OF FLUID IN SYSTEM (Flow–6 gpm • Tube I.D.–.694)
Follow horizontal flow line (6 gpm) until it intersects diagonal line representing .694 tube I.D.
Then project this point vertically downward to get the velocity of fluid –(5 fps).



Tubing Selection

EATON
Powering Business Worldwide

WARNING Refer to safety information regarding tubing starting on page 309

With the following Recommended Wall Thickness tables the tubing wall can be selected that is best suited for a particular application. The data given in these tables are raw figures based on the equation –

$$t = \frac{Dp(FS)}{2S}$$

t–wall thickness (inches)
D–O.D. of tube (inches)
p–pressure (psi)
FS–Safety Factor
S–tensile strength of tubing material

Therefore, many of the wall thicknesses given in these tables are not found on standard tubing, but serve to establish the minimum wall required.

SAFETY FACTOR – The standard safety factors indicate three grades of severity of service:
4:1 –mechanical and hydraulic shocks not excessive
6:1 –considerable mechanical strain and hydraulic shock
8:1 –hazardous applications with severe service conditions

The wall thickness shown in these tables are based on ultimate strength of material and a safety factor of 4:1.

To obtain the recommended wall for a specific pressure based on a safety factor of 6:1, multiply the wall thickness indicated in the table by 1.5. For a safety factor of 8:1, multiply by 2:

TEMPERATURE – The wall thickness found by using these tables can be corrected for temperature by multiplying the wall thickness by the appropriate correction factor given in the chart below. The table is based on strength reduction due to increased temperature.

RECOMMENDED WALL THICKNESS TABLES

Temperature	1010 Steel	Stainless Steel	Copper	Aluminum
+100F.	1.00	1.00	1.00	1.00
+200F.	1.00	1.00	1.08	1.00
+300F.	1.00	1.00	1.22	1.08
+400F.	1.00	1.00	2.30	1.41
+500F.	1.00	1.00	–	2.10
+600F.	1.00	1.00	–	–
+700F.	1.00	1.00	–	–
+800F.	1.08	1.07	–	–
+900F.	1.32	1.13	–	–
+1000F.	1.66	1.22	–	–

RECOMMENDED WALL THICKNESS TABLES

1010 STEEL Based on 55,000#/in.² Strength (F S=4)

TUBE O.D.	working pressure (psi) 1,000	2,000	3,000	4,000	5,000
1/8	.00455	.00909	.01364	.01818	.02273
3/16	.00682	.01364	.02045	.02727	.03409
1/4	.00909	.01818	.02727	.03636	.04545
5/16	.01136	.02273	.03409	.04545	.05682
3/8	.01364	.02727	.04091	.05455	.06818
1/2	.01818	.03636	.05455	.07273	.09091
5/8	.02273	.04545	.06818	.09091	.11364
3/4	.02727	.05455	.08182	.10909	.13636
7/8	.03182	.06364	.09545	.12727	.15909
1	.03636	.07273	.10909	.14545	.18182
1-1/4	.04545	.09091	.13636	.18182	.22727
1-1/2	.05455	.10909	.16364	.21818	.27273
2	.07273	.14545	.21818	.29091	.36364

1020 STEEL Based on 65,000#/in.² Strength (F S=4)

TUBE O.D.	working pressure (psi) 1,000	2,000	3,000	4,000	5,000
1/8	.00385	.00790	.01154	.01538	.01923
3/16	.00577	.01154	.01731	.02308	.02885
1/4	.00769	.01538	.02308	.03077	.03846
5/16	.00962	.01923	.02885	.03846	.04808
3/8	.01154	.02308	.03462	.04615	.05769
1/2	.01538	.03077	.04615	.06154	.07692
5/8	.01923	.03846	.05769	.07692	.09615
3/4	.02308	.04615	.06923	.09231	.11538
7/8	.02692	.05385	.08077	.10769	.13462
1	.03077	.06154	.09231	.12308	.15385
1-1/4	.03846	.07692	.11538	.15385	.19231
1-1/2	.04615	.09231	.13846	.18462	.23077
2	.06154	.12308	.18462	.24615	.30769

4130 STEEL Based on 90,000#/in.² Strength (F S=4)

TUBE O.D.	working pressure (psi) 1,000	2,000	3,000	4,000	5,000
1/8	.00278	.00556	.00833	.01111	.01389
3/16	.00417	.00833	.01250	.01667	.02083
1/4	.00556	.0111	.01667	.02222	.02778
5/16	.00694	.01389	.02083	.02778	.03472
3/8	.00833	.01667	.02499	.03333	.04167
1/2	.01111	.02222	.03333	.04444	.05556
5/8	.01389	.27778	.04167	.05556	.06944
3/4	.01667	.03333	.04999	.06667	.08333
7/8	.01944	.03889	.05833	.07778	.09722
1	.02222	.04444	.06667	.08889	.11111
1-1/4	.02778	.05556	.08333	.11111	.13889
1-1/2	.03333	.06667	.09999	.13333	.16667
2	.04444	.08889	.13333	.17778	.22222

BUNDYWELD Based on 42,000#/in.² Strength (F S=4)

TUBE O.D.	working pressure (psi) 1,000	2,000	3,000	4,000	5,000
1/8	.00595	.01190	.01786	.02381	.02976
3/16	.00893	.01786	.02679	.03571	.04464
1/4	.01190	.02381	.03571	.04762	.05952
5/16	.01488	.02976	.04464	.05952	.07440
3/8	.01786	.03571	.05357	.07143	.08929
1/2	.02381	.04762	.07143	.09524	.11905
5/8	.02976	.05952	.08929	.11905	.14881
3/4					
1					
1-1/4					
1-1/2					
2					

SHADED AREAS Tubing wall thickness listed in the shaded areas are generally either too light or too heavy for practical applications, and are listed only to provide data for accurate computation.

WARNING Refer to safety information regarding tubing starting on page 309

TUBE O.D.	STAINLESS STEEL (304) ANNEALED BASED ON 75,000#/IN.² STRENGTH (F.S. –4) working pressure (psi)					STAINLESS STEEL (304) ANNEALED BASED ON 105,000#/IN.² STRENGTH (F.S. –4) working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.00333	.00666	.00999	.01333	.01666	.00238	.00476	.00714	.00952	.01190
3/16	.00499	.00999	.01498	.01999	.02499	.00357	.00714	.01071	.01429	.01786
1/4	.00666	.01332	.01998	.02667	.03333	.00476	.00952	.01429	.01905	.02381
5/16	.00833	.01665	.02497	.03333	.04165	.00595	.01190	.01786	.02381	.02976
3/8	.0099	.01998	.02997	.03999	.04998	.00714	.01429	.02143	.02857	.03571
1/2	.01332	.02664	.03996	.05333	.06664	.00957	.01904	.02857	.03810	.04762
5/8	.01665	.03333	.04995	.06666	.08330	.01190	.02381	.03571	.04762	.05952
3/4	.01998	.03996	.05994	.07999	.09996	.01429	.02857	.04286	.05714	.07143
7/8	.02331	.04662	.06996	.09333	.11662	.01667	.03333	.05000	.06666	.08333
1	.02664	.05328	.07992	.10666	.13328	.01904	.03810	.05714	.07619	.09524
1-1/4	.03333	.06666	.09999	.13333	.16666	.02381	.04762	.07143	.09524	.11905
1-1/2	.03996	.07992	.11988	.15999	.19992	.02857	.05714	.08371	.11429	.14286
2	.05328	.10656	.15984	.21333	.26666	.03810	.07619	.11428	.15238	.19048

TUBE O.D.	ANNEALED COPPER BASED ON 30,000#/IN.² STRENGTH (F.S. –4) working pressure (psi)					COPPER (UNS C12200 LIGHT DRAWN) BASED ON 40,000#/IN.² STRENGTH (F.S. –4) working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.00833	.01667	.02500	.03333	.04167	.00625	.01250	.01875	.02500	.03125
3/16	.01250	.02499	.03750	.04999	.06250	.00938	.01875	.02812	.03750	.04688
1/4	.01667	.03333	.05000	.06666	.08333	.01250	.02500	.03750	.05000	.06250
5/16	.02083	.04167	.06250	.08333	.10417	.01562	.03125	.04688	.06250	.07812
3/8	.02499	.04999	.07500	.09999	.12499	.01875	.03750	.05625	.07500	.09375
1/2	.03333	.06667	.10000	.13333	.16667	.02500	.05000	.07500	.10000	.12500
5/8	.04167	.08333	.12500	.16666	.20883	.03125	.06250	.09375	.12500	.15625
3/4	.04999	.09999	.15000	.19999	.24999	.03750	.07500	.11250	.15000	.18750
7/8	.05833	.11667	.17500	.23333	.29166	.04375	.08750	.13125	.17500	.21875
1	.06667	.13333	.20000	.26666	.33333	.05000	.10000	.15000	.20000	.25000
1-1/4	.08333	.16667	.25000	.33333	.41667	.06250	.12500	.18750	.25000	.31250
1-1/2	.09999	.19999	.30000	.39999	.49999	.07500	.15000	.22500	.30000	.37500
2	.13333	.26667	.40000	.53333	.66667	.10000	.20000	.30000	.40000	.50000

TUBE O.D.	ALUMINUM 3003 (H-14) BASED ON 20,000#/IN.² STRENGTH (F.S. –4) working pressure (psi)					ALUMINUM 5052 (H-32) BASED ON 31,000#/IN.² STRENGTH (F.S. –4) working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.01250	.02500	.3750	.05000		.00806	.01613	.02419	.03226	.04032
3/16	.01875	.03750	.05650	.07500		.01210	.02419	.03629	.04839	.06048
1/4	.02500	.05000	.07500	.10000		.01613	.03226	.04839	.06452	.08065
5/16	.03125	.06250	.09375	.12500		.02016	.04032	.06048	.08065	.10081
3/8	.03750	.07500	.11250	.15000		.02419	.04839	.07258	.09677	.12097
1/2	.05000	.10000	.15000	.20000		.03227	.06452	.09677	.12903	.16129
5/8	.06250	.12500	.18750	.25000		.04032	.08065	.12097	.16129	.20161
3/4	.07500	.15000	.22500	.30000		.04839	.09677	.14516	.19355	.24194
7/8	.08750	.17500	.26250	.35000		.05645	.11290	.16935	.22581	.28226
1	.10000	.20000	.30000	.40000		.06452	.12903	.19355	.25806	.32258
1-1/4	.12500	.25000	.37500	.50000		.08065	.16129	.24194	.32258	.40323
1-1/2	.15000	.30000	.45000	.60000		.09677	.19355	.29032	.38710	.48387
2	.20000	.40000	.60000	.80000		.12903	.25806	.38710	.51613	.64516

TUBE O.D.	CUPRO-NICKEL 30% BASED ON 52,000#/IN.² STRENGTH (F.S. –4) working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000
1/8	.00481	.00962	.01442	.01923	.02404
3/16	.00721	.01442	.02163	.02885	.03606
1/4	.00962	.01923	.02885	.03846	.04808
5/16	.01202	.02404	.03606	.04808	.06010
3/8	.01442	.02885	.04327	.05769	.07212
1/2	.01923	.03846	.05769	.07692	.09615
5/8	.02404	.04808	.07212	.09615	.12019
3/4	.02885	.05769	.08654	.11538	.14423
7/8	.03365	.06731	.10096	.13462	.16827
1	.03846	.07692	.11538	.15385	.19231
1-1/4	.04808	.09615	.14423	.19231	.24038
1-1/2	.05769	.11538	.17308	.23077	.28846
2	.07692	.15385	.23077	.30769	.38462

SHADED AREAS

Tubing wall thickness listed in the shaded areas are generally either too light or too heavy for practical applications, and are listed only to provide data for accurate computation.

Tubing Selection

WARNING Refer to safety information regarding tubing starting on page 309

These tables provide data on required wall thickness for various sizes and pressures, and when to use flared or flareless fittings. Although heavier wall tubing can be ordered for higher operating pressures, only standard size hydraulic tubing is listed in these tables.

High temperature effects are not considered in these tables.

1010 STEEL TUBING WALL THICKNESS

TUBE O.D.	4:1 SAFETY FACTOR working pressure (psi)					6:1 SAFETY FACTOR working pressure (psi)					8:1 SAFETY FACTOR working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.028	.028	.028	.028	.028	.028	.028	.028	.028	.035	.028	.028	.028	.035	–
3/16	.030	.030	.030	.030	.035	.030	.030	.030	–	–	.030	.030	–	–	–
1/4	.030	.030	.030	.042	.049	.030	.030	.042	.058	–	.030	.035	.058	–	–
5/16	.032	.032	.035	.049	.058	.032	.032	.058	.065	–	.032	.049	.065	–	–
3/8	.032	.032	.042	.058	–	.032	.042	.058	–	–	.032	.058	–	–	–
1/2	.032	.042	.058	.072	–	.032	.058	.083	–	–	.042	.072	–	–	–
5/8	.035	.049	.072	.095	–	.035	.072	–	–	–	.049	.095	–	–	–
3/4	.035	.058	.083	.109	–	.049	.083	–	–	–	.058	.109	–	–	–
7/8	.049	.065	.095	–	–	.049	.095	–	–	–	.065	–	–	–	–
1	.049	.072	.109	–	–	.058	.109	–	–	–	.072	–	–	–	–
1-1/4	.049	.095	–	–	–	.072	–	–	–	–	.095	–	–	–	–
1-1/2	.065	.109	–	–	–	.083	–	–	–	–	.109	–	–	–	–
2	.072	–	–	–	–	.109	–	–	–	–	–	–	–	–	–

1020 STEEL TUBING WALL THICKNESS

TUBE O.D.	4:1 SAFETY FACTOR working pressure (psi)					6:1 SAFETY FACTOR working pressure (psi)					8:1 SAFETY FACTOR working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.028	.028	.028	.028	.028	.028	.028	.028	.028	.030	.028	.028	.028	.030	–
3/16	.030	.030	.030	.030	.030	.030	.030	.030	.035	–	.030	.030	.035	–	–
1/4	.030	.030	.030	.030	.042	.030	.030	.035	.049	.058	.030	.030	.049	–	–
5/16	.032	.032	.032	.042	.049	.032	.032	.042	.058	–	.032	.042	.058	–	–
3/8	.032	.032	.035	.049	.058	.032	.035	.058	.065	–	.032	.049	–	–	–
1/2	.032	.032	.049	.065	.083	.032	.049	.072	–	–	.032	.065	–	–	–
5/8	.035	.042	.058	.083	–	.035	.058	.095	–	–	.042	.083	–	–	–
3/4	.035	.049	.072	.095	–	.035	.072	.109	–	–	.049	.095	–	–	–
7/8	.049	.058	.083	–	–	.049	.083	–	–	–	.058	.109	–	–	–
1	.049	.065	.095	–	–	.049	.095	–	–	–	.065	–	–	–	–
1-1/4	.049	.083	.120	–	–	.058	.120	–	–	–	.083	–	–	–	–
1-1/2	.065	.095	–	–	–	.072	–	–	–	–	.095	–	–	–	–
2	.065	–	–	–	–	.095	–	–	–	–	.134	–	–	–	–

Both JIC 37° flare or flareless recommended.

Only flareless recommended.

NOTE: Only flareless fittings can be used with high pressure, heavy wall tubing which is impractical to flare.

WARNING Refer to safety information regarding tubing starting on page 309

These tables provide data on required wall thickness for various sizes and pressures, and when to use flared or flareless fittings. Although heavier wall tubing can be ordered for higher operating pressures, only standard size hydraulic tubing is listed in these tables.

High temperature effects are not considered in these tables.

STAINLESS STEEL (304) ANNEALED TUBING WALL THICKNESS

TUBE O.D.	4:1 SAFETY FACTOR working pressure (psi)					6:1 SAFETY FACTOR working pressure (psi)					8:1 SAFETY FACTOR working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.028	.028	.028	.028	.028	.028	.028	.028	.028	.035	.028	.028	.028	.028	.035
3/16	.030	.030	.030	.030	.030	.030	.030	.030	.030	.035	.030	.030	.030	.035	–
1/4	.030	.030	.030	.030	.035	.030	.030	.030	.042	.058	.030	.030	.035	.058	.065
5/16	.032	.032	.032	.035	.042	.032	.032	.035	.058	.065	.032	.032	.049	.065	–
3/8	.032	.032	.032	.042	.058	.032	.042	.065	.083	–	.032	.042	.058	–	–
1/2	.032	.032	.042	.058	.072	.032	.042	.065	.083	–	.032	.058	.083	–	–
5/8	.035	.035	.058	.072	.083	.035	.058	.083	.095	–	.035	.065	–	–	–
3/4	.035	.049	.065	.083	.109	.035	.065	.095	–	–	.049	.083	–	–	–
7/8	.049	.049	.072	.095	–	.049	.072	.109	–	–	.049	.095	–	–	–
1	.049	.058	.083	.109	–	.049	.083	.120	–	–	.058	.109	–	–	–
1-1/4	.049	.072	.109	–	–	.058	.109	–	–	–	.065	.134	–	–	–
1-1/2	.065	.083	.120	–	–	.065	.120	–	–	–	.083	–	–	–	–
2	.065	.109	–	–	–	.083	–	–	–	–	.109	–	–	–	–

STAINLESS STEEL (304) 1/8 HARD TUBING WALL THICKNESS

TUBE O.D.	4:1 SAFETY FACTOR working pressure (psi)					6:1 SAFETY FACTOR working pressure (psi)					8:1 SAFETY FACTOR working pressure (psi)				
	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000	1,000	2,000	3,000	4,000	5,000
1/8	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028	.028
3/16	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030	.035
1/4	.030	.030	.030	.030	.030	.030	.030	.030	.030	.035	.030	.030	.030	.042	.049
5/16	.032	.032	.032	.032	.032	.032	.032	.032	.035	.049	.032	.032	.035	.049	.058
3/8	.032	.032	.032	.032	.042	.032	.032	.032	.042	.058	.032	.032	.042	.058	–
1/2	.032	.032	.032	.042	.049	.032	.032	.042	.058	.072	.032	.042	.058	.083	–
5/8	.035	.035	.042	.049	.065	.035	.035	.058	.072	.095	.035	.049	.072	.095	–
3/4	.035	.035	.049	.058	.072	.035	.049	.065	.095	.109	.035	.058	.095	–	–
7/8	.049	.049	.058	.072	.083	.049	.058	.083	.109	–	.049	.065	.109	–	–
1	.049	.049	.058	.083	.095	.049	.058	.095	–	–	.049	.072	–	–	–
1-1/4	.049	.049	.072	.095	.120	.049	.072	.109	–	–	.049	.095	–	–	–
1-1/2	.065	.065	.095	–	–	.065	.095	–	–	–	.065	–	–	–	–
2	.065	.083	.120	–	–	.065	–	–	–	–	.083	–	–	–	–

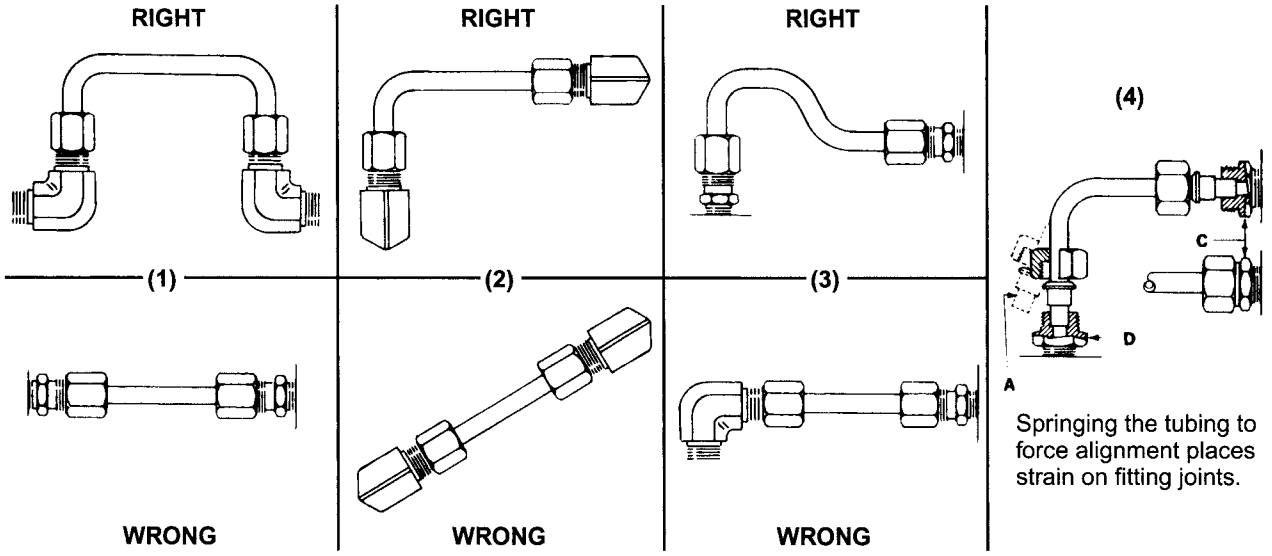
Both JIC 37° flare or flareless recommended.

Only flareless recommended.

NOTE: Only flareless fittings can be used with high pressure, heavy wall tubing which is impractical to flare.

Tubing Installation Guidelines

WARNING Refer to safety information regarding tubing starting on page 309



Nearly all industrial equipment now in service makes some use of fluid lines. From an economic point of view, the best fluid lines system is that which is easiest to maintain at the lowest original cost. The use of tubing and tube fittings on lines up to 2” diameter is usually more economical than the use of pipe and pipe fittings in modern installations. A few of the more important reasons follow:

1. Size for size, tubing is lighter weight, easier to handle and can be bent more easily than iron pipe.
2. Ductile hydraulic tubing reduces the number of connections required, thus reducing material and labor costs. Bent tubing also reduces pressure drop and turbulence in the system.
3. Fewer joints means lower costs and fewer points of potential leakage.
4. The use of tube fittings makes every joint a union, permitting easier, faster maintenance and repair work.
5. Modern flared and flareless tube fittings eliminate the need for threading, soldering, or welding.

TUBE BENDING

Tubing should be bent wherever possible to reduce the number of fittings. Copper tubing can be bent easily with a hand bender. Steel tubing can be bent in sizes 1/8” to 5/8” O.D. by using a hand bender designed for steel tubing. For production quantities, or for sizes larger than 5/8” O.D., a power bender is generally used. Tubing should be bent accurately. Tubing manufacturers will advise the correct radii for various types and wall thicknesses of tubing. Kinks, flattened bends, wrinkles and tube breakage or loss should be avoided by the use of proper tube bending equipment.

PRECAUTIONS

Avoid straight line connections wherever possible, especially in short runs. Design piping systems symmetrically. They are easier to install and present a neat appearance. Care should be taken to eliminate stress from tubing lines. Long tubing runs should be supported by brackets or clips. All parts installed on tubing lines such as heavy fittings, valves, etc., should be bolted down to eliminate tubing fatigue.

Before installing tubing, inspect the tube to see that it conforms to the required specifications, is of the correct diameter and wall thickness and is not out of round. Cut tube ends reasonably square and lightly deburr inside and outside edge. Chamfer on outside edge will destroy bearing of tube end on the fittings seat. To avoid difficulty in assembly and disconnecting, a sufficient straight length of tube must be allowed from the end of the tube to the start of the bend. Allow twice the length of the nut as a minimum. Tubes should be formed to assemble with true alignment to the center line of the fittings, without distortion or tension. Tubing which has to be sprung from position, “A”, (see Fig. 4), to be inserted into the fitting has not been properly fabricated, and when so installed and connected, places the tubing under stress. When assembling the tubing, insert the longer leg to the fitting as at “C” (Fig. 4). With the nut free, the short leg of the tubing can be easily moved and brought to proper position with and inserted into the seat in fitting “D”. The nuts can then be tightened as required.

NAHAD Pressure Guideline Chart

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, http://www.nahad.org.
Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.
All pressure recommendations are in pounds per square inch (PSI).

1. **In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.
2. This chart does not apply to used hose, in non-approved or unsupported applications ir in non-standard assemblies.
3. DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.
4. All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.
   Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.
5. Coupling retention can vary with changes in hose design.
6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.
7. It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.
   Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.
8. For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Air (Soft Wall)	Machined Short Shank	Crimp	200	150	150	100	100	100									
Air (Soft Wall)	Machined Short Shank	Pinch Clamps	100	100	100	100	100	100									
Air (Soft Wall)	Machined Short Shank	Preformed Clamps	200	150	150	100	100	100									
Air (Soft Wall)	Machined Medium Shank	Band & Buckle							225	225	200	200	175	175		75	3 bands on 3, 4 & 6 2 bands on rest
Air (Soft Wall)	Machined Medium Shank	Pinch Clamps	100	100	100	100	100	100									2 clamps on 1/2 to 1 1 clamps on 1/4 & 3/8
Air (Soft Wall)	Machined Medium Shank	Preformed Clamp	300	300	250	200	200	150	150	150	125	125	125	125		50	3 clamps on 3, 4 & 6 1 clamp on 1/4 to 5/8 2 clamps on rest
Air (Soft Wall)	Machined Long Shank	Band & Buckle							300	300	250	250	250	200		100	5 bands on 3, 4 & 6 4 bands on 2 & 2-1/2 3 bands on rest
Air (Soft Wall)	Machined Long Shank	Pinch Clamps	150	150	220	220	300	300									2 clamps on 1/2 to 1 1 clamp on 1/4 & 3/8
Air (Soft Wall)	Machined Long Shank	Preformed Clamps			300	300	300	300	225	225	200	200	175	175		75	5 clamps on 3, 4 & 6 4 clamps on 2 & 2-1/2 3 clamps on rest
Air (Soft Wall)	Universal	Crimp		110	110	110	110	110									
Air (Soft Wall)	Universal	Interlocking		110	110	110	110	110									
Air (Soft Wall)	Universal	Preformed Clamps		110	110	110	110	110									2 clamps on 3/4 to 1 1 clamp on 3/8 to 5/8
Air	Crimp Or Swage	Crimp	600	600	600	600	600	600	600	600	600	600	600	500		400	
Air	Crimp Or Swage	Swage	600	600	600	600	600	600	600	600	600	600	600	500		400	
Air	Ground Joint	Interlocking	600	600	600		600	600	600	600	600	450	450	230		230	

Continued on next page

Industrial Hose & Fittings

NAHAD Pressure Guideline Chart, continued from previous page

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, http://www.nahad.org.
Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.
All pressure recommendations are in pounds per square inch (PSI).

1. **In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.
2. This chart does not apply to used hose, in non-approved or unsupported applications ir in non-standard assemblies.
3. DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.
4. All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.
   Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.
5. Coupling retention can vary with changes in hose design.
6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.
7. It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.
   Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.
8. For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Asphalt & Hot Tar	Ground Joint	Interlocking						600	600	600	600	450	450	230			
Chemical (Plastic)	Cam & Groove	Crimp			150		250	250	250	250	250	150	125	100			
Chemical (Plastic)	Cam & Groove	Swage			150		250	250	250	250	250	150	125	100			
Chemical (Plastic)	Cam & Groove	Preformed Clamps			125		125	125	125	125	100	75	75	50			
Chemical (Plastic)	Cam & Groove	Band & Buckle							150	150	125	100	75	50			
Chemical (Plastic)	Crimp or Swage	Crimp			600		600	600	600	400	350	600	300	500		400	
Chemical (Plastic)	Crimp or Swage	Swage			600		600	600	600	600	600	600	600	500		400	
Chemical (Plastic)	Machined Medium Shank	Preformed Clamps			125		125	125	125	125	100	75	75	50			3 clamps on 3 &4 2 clamps on rest
Chemical (Plastic)	Machined Medium Shank	Band & Buckle							150	150	125	100	75	50			3 bands on 3 &4 2 bands on rest
Chemical (Plastic)	Machined Long Shank	Preformed Clamps			150		150	150	150	150	125	100	75	50			5 clamps on 3 & 4 4 clamps on 2 & 2-1/2 3 clamps on rest
Chemical (Plastic)	Machined Long Shank	Band & Buckle							200	175	150	125	100	75			5 bands on 3 & 4 4 bands on 2 & 2-1/2 3 bands on rest
Chemical (Rubber)	Data for these categories will be added to this table as we start stocking hose for these categories. In the meantime, please see NAHAD web site for this data (http://www.nahad.org).																
Food Grade (Regulated)																	
Food Grade (Unreg.)																	

Continued on next page

NAHAD Pressure Guideline Chart, continued from previous page

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, http://www.nahad.org.
Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.
All pressure recommendations are in pounds per square inch (PSI).

1. **In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.
2. This chart does not apply to used hose, in non-approved or unsupported applications ir in non-standard assemblies.
3. DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.
4. All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.
   Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.
5. Coupling retention can vary with changes in hose design.
6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.
7. It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.
   Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.
8. For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Layflat	Cam & Groove	Crimp								250	250	150	125	100	75	50	
Layflat	Cam & Groove	Preformed Clamps								250	250	150	125	100	75	50	
Layflat	Cast	Preformed Clamps								75	75	50	50	50	50	25	3 clamps on 3, 4, 5 & 6 2 clamps on rest
Layflat	Machined Medium Shank	Preformed Clamps								250	200	150	125	100	75	50	3 clamps on 3, 4, 5 & 6 2 clamps on rest
Layflat	Machined Long Shank	Preformed Clamps								300	250	175	150	125	100	75	5 clamps on 3, 4, 5 & 6 3 clamps on 1-1/2 4 clamps on rest
Material Handling	Cam & Groove	Crimp								250	250	150	125	100	75	75	
Material Handling	Cam & Groove	Swage								250	250	150	125	100	75	75	
Material Handling	Cam & Groove	Preformed Clamps								250	250	150	125	100	75	75	
Material Handling	Cam & Groove	Band & Buckle								250	250	150	125	100	75	75	
Material Handling (soft wall)	Machined Medium Shank	Bolt Clamp								250	200	150	125	100	75	75	
Material Handling	Machined Medium Shank	Preformed Clamps								250	200	150	125	100	75	75	3 clamps on 3, 4, 5 & 6 1 clamp on up to 5/8 2 clamps on rest
Material Handling	Machined Medium Shank	Band & Buckle								300	250	175	150	125	100	100	3 bands on 3, 4, 5 & 6 1 bands on up to 5/8 2 bands on rest
Material Handling (soft wall)	Machined Long Shank	Bolt Clamp								300	250	175	150	125	100	75	
Material Handling	Machined Long Shank	Preformed Clamps								300	250	175	150	125	100	100	5 clamps on 3, 4, 5 & 6 4 clamps on 2 & 2-1/2 3 clamps on rest

Continued on next page

Industrial Hose & Fittings

NAHAD Pressure Guideline Chart, continued from previous page

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, http://www.nahad.org.
Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.
All pressure recommendations are in pounds per square inch (PSI).

1. **In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.
2. This chart does not apply to used hose, in non-approved or unsupported applications ir in non-standard assemblies.
3. DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.
4. All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.
   Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.
5. Coupling retention can vary with changes in hose design.
6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.
7. It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.
   Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.
8. For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Material Handling	Machined Long Shank	Band & Buckle								375	325	250	200	150	125	125	5 bands on 3, 4, 5 & 6 4 bands on 2 & 2-1/2 3 bands on rest
Material Handling (soft wall)	Cast	Bolt Clamp								75	75	50	50	50	50	25	
Material Handling	Cast	Preformed Clamps								75	75	50	50	50	50	25	
Material Handling	Cast	Band & Buckle								75	75	50	50	50	50	25	
Material Handling	Crimp or Swage	Crimp								600	600	600	600	500	450	400	
Material Handling	Crimp or Swage	Swage								600	600	600	600	500	450	400	
Material Handling	Internal Expansion	Internal Expansion								800	800	600	600	500		400	
Material Handling (Cement)	Crimp or Swage	Crimp						600	600	600	600	600	600	500	450	400	erosion is very possible
Material Handling (Cement)	Crimp or Swage	Swage						600	600	600	600	600	600	500	450	400	erosion is very possible
Material Handling (Cement)	Ground Joint	Interlocking						600	600	600	600	450	450	230		230	erosion is very possible
Material Handling (Cement)	Internal Expansion	Internal Expansion						800	800	800	800	600	600	500		400	erosion is very possible
Petroleum Transfer	Cam & Groove	Band & Buckle							250	250	250	150	125	100	75	75	
Petroleum Transfer	Cam & Groove	Crimp			150		250	250	250	250	250	150	125	100	75	75	
Petroleum Transfer	Cam & Groove	Preformed Clamps			150		250	250	250	250	250	150	125	100	75	75	

Continued on next page

NAHAD Pressure Guideline Chart, continued from previous page

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, http://www.nahad.org.
Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.
All pressure recommendations are in pounds per square inch (PSI).

1. **In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.
2. This chart does not apply to used hose, in non-approved or unsupported applications ir in non-standard assemblies.
3. DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.
4. All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.
   Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.
5. Coupling retention can vary with changes in hose design.
6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.
7. It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.
   Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.
8. For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Petroleum Transfer	Cam & Groove	Swage			150		250	250	250	250	250	150	125	100	75	75	
Petroleum Transfer	Crimp or Swage	Crimp	600	600	600	600	600	600	600	600	600	600	600	500	450	400	
Petroleum Transfer	Crimp or Swage	Swage	600	600	600	600	600	600	600	600	600	600	600	500	450	400	
Petroleum Transfer	Internal Expansion	Internal Expansion							800	800	800	600	600	500		400	
Petroleum Transfer	Machined Medium Shank	Band & Buckle							300	300	250	175	150	125	100	100	1 band on 1/4 to 5/8 2 bands on rest
Petroleum Transfer	Machined Medium Shank	Preformed Clamps			125		250	250	250	250	200	150	125	100	75	75	1 clamp on 1/4 to 5/8 2 clamps on rest
Petroleum Transfer	Machined Long Shank	Band & Buckle							375	375	325	250	200	150	125	125	4 bands on 2 & 2-1/2 3 bands on rest
Petroleum Transfer	Machined Long Shank	Preformed Clamps			300		300	300	300	300	250	175	150	125	100	100	4 clamps on 3 & 2-1/2 3 clamps on rest
Push-On	Push-On	N/A			175	175	175	175	150	150	200	300	300				
Sand Blast	Sand Blast	N/A			175	175	175	175	150	150	200	300	300				
Steam	Ground Joint	Interlocking			600		600	600	600	600	600	450	450	230		230	
Water	Cam & Groove	Band & Buckle							250	250	250	150	125	100	75	75	
Water	Cam & Groove	Crimp			150		250	250	250	250	250	150	125	100	75	75	
Water	Cam & Groove	Preformed Clamps			150		250	250	250	250	250	150	125	100	75	75	
Water	Cam & Groove	Swage			150		250	250	250	250	250	150	125	100	75	75	

Continued on next page

Industrial Hose & Fittings

NAHAD Pressure Guideline Chart, continued from previous page

Information in this chart can be found on the NAHAD (National Association of Hose & Accessories Distributors) web site, http://www.nahad.org.
Mark hose assembly with pressure on this chart or hose working pressure, whichever is lower.
All pressure recommendations are in pounds per square inch (PSI).

1. **In lieu of an actual test to certify the pressure rating of a specific hose, fitting and fitting attachment method, use the information in these charts as a general guideline.** This chart applies to metal couplings for ambient temperature (70°F) applications with true I.D. hose. It assumes new fittings, new clamps, new hose and proper installation by a qualified assembler using proper procedures and equipment.
2. This chart does not apply to used hose, in non-approved or unsupported applications ir in non-standard assemblies.
3. DO NOT use this chart if it conflicts with the hose manufacturer's recommendations.
4. All hose assemblies should be pressure tested to hose manufacturers specifications prior to being put in service.
   Note: We will pressure test, if required, for a fee. Otherwise, pressure testing is the customer's responsibility.
5. Coupling retention can vary with changes in hose design.
6. All hose assembly components must be compatible with the materials and environments with which they are to come in contact.
7. It is recommended that all hose assemblies be marked with the assembly working pressure and media of the intended application. Under no circumstances should the assembly working pressure exceed the working pressure of the lowest rated component.
   Note: We will label, if required, for a fee. Otherwise, labeling is the customer's responsibility.
8. For applications requiring higher temperatures than 70°F ambient, or for general application assistance, contact us.

Hose	Fitting	Attachment Method	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	Special Notes
ALL PRESSURE RECOMMENDATIONS ARE "UP TO OR HOSE RATING", WHICHEVER IS LOWER																	
Water	Cast	Band & Buckle							75	75	75	50	50	50	25	25	
Water	Cast	Preformed Clamps	200	200	150	100	100	100	75	75	75	50	50	50	25	25	
Water	Crimp or Swage	Crimp	600	600	600	600	600	600	600	600	600	600	600	500		400	
Water	Crimp or Swage	Swage	600	600	600	600	600	600	600	600	600	600	600	500		400	
Water	Ground Joint	Interlocking	600	600	600		600	600	600	600	600	450	450	230		230	
Water	Machined Short Shank	Crimp	200	150	150	100	100	100									
Water	Machined Short Shank	Pinch	100	100	100	100	100	100									
Water	Machined Short Shank	Preformed Clamps	200	150	150	100	100	100									
Water	Machined Medium Shank	Pinch Clamps	100	100	100	100	100	100									
Water	Machined Medium Shank	Preformed Clamps	300	300	300	300	300	250	250	125	75	75	50	50	25	25	3 clamps on 3, 4 & 6 1 clamp on 1/4 to 5/8 2 clamps on rest
Water	Machined Long Shank	Preformed Clamps			400	400	400	300	300	150	125	100	75	50			5 clamps on 3, 4 & 6 4 clamps on 2 & 2-1/2 3 clamps on rest
Water	Universal	Interlocking	110	110	110	110	110	110									
Water	Universal	Preformed Clamps	110	110	110	110	110	110									
Water (Soft Wall)	Cast	Bolt Clamp	200	200	150	100	100	100	75	75	75	50	50	50	25	25	
Water (Soft Wall)	Machined Medium Shank	Bolt Clamp	300	300	300	300	300	250	250	125	75	75	50	50	25	25	
Water (Soft Wall)	Machined Long Shank	Bolt Clamp			400	400	400	300	300	150	125	100	75	50			

Temperature vs. Pressure Table for Boston Reinforced PVC Hose

This table has been prepared to demonstrate the effects of temperature vs. working pressure on Eaton Boston® reinforced PVC hose products. Working pressures for PVC hoses are tested at 68°F.

Temperature	Allowable Percent of Original Working Pressure	
°F	2-Spiral Reinforcement	4-Spiral Reinforcement
68	100%	100%
77	86%	90%
86	75%	81%
95	65%	73%
104	56%	66%
113	47%	59%
120	40%	53%
131	33%	47%
140	27%	43%
149	23%	40%
158	20%	38%
167	17%	37%
176	15%	35%

Agency Hose Listings

The listings below are intended only as guides in identifying which hoses in this catalog comply with requirements of various agencies. For current and complete information, contact us.

Government Agencies

DOT/FMVSS - US Department of Transportation, Federal Motor Vehicle Safety Standard
FDA - US Food and Drug Administration
MIL/DOD - US Military Specification, Department of Defense
USCG/MMT - US Coast Guard, Merchant Marine Technical (SAE J1942 has replaced USCG approval)

Industry Agencies

ABS - American Bureau of Shipping
DIN - Deutsche (German) Industrial Norme (Replaced by EN)
EN - Committee for European Normalization
SAE - Society of Automotive Engineers
UL - Underwriters Laboratories

Manufacturer	Hose Style	DOT FMVSS	FDA	MIL DOD	USCG MMT	ABS	DIN	EN	SAE	UL
Aeroquip	2556									
Aeroquip	2570	106 Type AII							J1402	
Aeroquip	2651				★	★			100R5	
Aeroquip	2661				★	★			100R4	
Aeroquip	2807				★	★			100R14A	
Aeroquip	FC195				★		20 022 Type 2ST	EN 853 Type 2ST	100R2A	
Aeroquip	FC234				★	★			J1527 A1	
Aeroquip	FC252									
Aeroquip	FC254				★	★			100R11	
Aeroquip	FC273				★	★		EN 856 Type R13	100R13	
Aeroquip	FC300	106 Type AII			★	★			100R5, J1019, J1402	
Aeroquip	FC321									UL21
Aeroquip	FC332									
Aeroquip	FC350	106 Type AII			★	★			J1402	
Aeroquip	FC355	106 Type AII				★			J1402	
Aeroquip	FC363		▲		★					
Aeroquip	FC372							EN 855 Type R7	100R7	
Aeroquip	FC373							EN 855 Type R7	100R7	
Aeroquip	FC374							EN 855 Type R8	100R8	
Aeroquip	FC375							EN 855 Type R8	100R8	
Aeroquip	FC505								J2064 Type E	
Aeroquip	FC558								J2064 Type B Class 1	
Aeroquip	FC579									
Aeroquip	FC606					★			100R15	
Aeroquip	FC619								100R4	
Aeroquip	FC636									
Aeroquip	FC639								100R17	
Aeroquip	FC647									
Aeroquip	FC693									
Aeroquip	FC735							EN 857 Type 2SC	100R16 Type S	
Aeroquip	FC802								J51 Type D	
Aeroquip	FC902							EN 855 Type R7	100R7	
Aeroquip	FC914							EN 855 Type R7	100R7	

Continued on next page

▲ = See catalog page for details
★ = Approved details available.

Agency Hose Listings, continued from previous page

Manufacturer	Hose Style	DOT FMVSS	FDA	MIL DOD	USCG MMT	ABS	DIN	EN	SAE	UL
Aeroquip	GH134								J2064 Type E	
Aeroquip	GH195					★	20 022 Type 2SN	EN 853 Type 2SN	100R2AT	
Aeroquip	GH663				★	★	20 022 Type 1SN	EN 853 Type 1SN	100R1AT	
Aeroquip	GH493				★	★			100R12	
Aeroquip	GH781				★	★		EN 857 Type 2SC	100R16	
Aeroquip	GH793				★	★	20 022 Type 2SN	EN 853 Type 2SN	100R2AT	
Everflex®	SC									
Everflex®	STW								100R14A	
Gates	4219G								30R7	
Kuriyama	K010		▲							
Kuriyama	K3130		▲							
Kuriyama	K3150		▲							
Synflex	25CT								100R7	
Synflex	30CT								100R18	
Synflex	3130								100R7	
Synflex	3770									
Synflex	37AL									
Synflex	3800									
Synflex	3R80								100R8	
Thermal Flex	TFC40			MIL A-A-52426					J20 R1	
Thermal Flex	TFH								J20 R3	
Trident Marine	100								J2006	
Trident Marine	110								J2006	
Trident Marine	130								J20 R3	
Trident Marine	134								J20R3	
Trident Marine	148		▲							
Trident Marine	200								J2006	
Trident Marine	202V								J2006	
Trident Marine	240V								J2006	
Trident Marine	250								J2006	
Trident Marine	252								J2006	
Trident Marine	252V								J2006	
Trident Marine	272V								J2006	
Trident Marine	274V								J2006	
Trident Marine	290V								J2006	
Trident Marine	292V								J2006	
Trident Marine	327				USCG Type A2 Fuel				J1527 A2	
Trident Marine	365				USCG Type A1 Fuel				J1527 A1	
Trident Marine	MSH									
Trident Marine	THH								J2006	
Trident Marine	TRL								J2006	

▲ = See catalog page for details
★ = Approved details available.

THE SOURCE FOR ALL YOUR FLUID POWER NEEDS

EATON Powering Business Worldwide
Aeroquip PERFORMANCE PRODUCTS An Eaton Brand
TRIDENT MARINE
SPX Power Team
SSP
HYDRAULIC SUPPLY COMPANY HSC
PERMCO
salami
Schroeder INDUSTRIES Advanced Fluid Conditioning Solutions
AuburnGear
ASHCROFT
numatics
Thermal Transfer Products An API Heat Transfer Company
STAUFF

Orders received by 4:00 PM ship the same day.

Place your order today !

Technical Information
Industrial Hose Chemical Compatibility

Chemical Resistances

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Aluminum Chloride	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	G	G	X	G	X	X	F
Aluminum Fluoride	G	G	G	G	G	F	G	G	X	G	G	G	—	G	X	G	G	X	G	X	X	X
Aluminum Hydroxide	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	X	F	G
Aluminum Nitrate	G	G	G	G	G	G	G	G	F	G	G	G	—	X	—	G	G	G	G	X	X	G
Aluminum Sulfate	G	G	G	G	G	G	G	G	F	G	G	G	G	G	G	G	G	G	G	X	X	G
Alums	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	F	G	X	X	F
Ammonia, Anhydrous	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	F	G
Ammonia Solution (10%)	G	G	G	G	G	F	G	G	X	G	G	F	X	X	X	—	G	G	—	X	G	G
Ammonium Chloride	G	G	G	G	G	G	G	G	X	G	G	G	G	F	G	G	G	X	G	X	G	F
Ammonium Hydroxide	G	G	X	F	F	F	G	G	X	G	G	F	X	X	G	G	G	G	F	X	F	G
Ammonium Nitrate	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	—	—	G
Ammonium Phosphate	G	G	F	G	G	G	G	G	G	G	G	G	G	F	G	G	G	G	G	X	X	G
Ammonium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	X	F
Amyl Acetate	G	G	X	X	X	X	G	G	G	F	X	X	F	X	X	X	X	G	X	G	F	G
Amyl Alcohol	G	G	X	G	G	F	G	G	G	G	G	G	G	X	G	G	G	G	X	G	F	F
Aniline	G	G	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	X	X	G	G
Aniline Dyes	G	G	X	F	F	F	G	G	X	G	F	F	X	X	X	X	X	X	X	X	X	F
Animal Oils and Fats	G	G	G	G	G	X	G	G	—	F	F	X	G	X	F	X	X	G	X	G	G	G
Anti—Freeze (Glycol Base)	G	G	G	G	G	G	G	G	—	G	G	G	G	X	G	G	F	G	G	G	G	G
Aqua Regia	X	X	X	X	X	X	G	F	X	X	X	X	X	X	X	X	X	X	F	—	X	X
Aromatic Hydrocarbons	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	G*	G	—	G	G	G
Asphalt Emulsion	X	X	X	G	X	X	G	G	—	X	X	X	G	X	F	X	—	G	F	G	G	G
Barium Chloride	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	G	G	G	G	X	F	G
Barium Hydroxide	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	X	G	G
Barium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	X	G	X	G	G	G	G	G	G	G
Barium Sulfide	G	G	G	G	G	G	G	G	—	G	G	G	X	G	G	G	G	X	G	X	X	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇Use Pinpricked Hose for Gas Applications

Industrial Hose Chemical Compatibility

Chemical Resistances

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Beet Sugar Liquors	G	G	G	G	G	G	G	G	G	X	G	G	—	X	G	G	G	G	—	X	G	G
Benzaldehyde	G	G	X	X	X	X	G	G	G	F	X	X	X	X	X	X	X	G	X	F	F	G
Benzene, Benzol	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	F	X	X	G	F	G	G	G
Benzoic Acid	G	G	X	X	X	G	G	G	X	X	X	X	X	X	G	G	G	X	G	F	X	F
Black Sulfate Liquor	G	F	X	F	F	G	G	G	X	G	F	X	G	X	X	G	G	X	G	X	G	G
Bleach Solution	F	F	F	X	X	X	G	G	X	G	F	X	F	F	G	G*	G	X	G	X	X	G
Borax Solution	G	G	G	F	F	G	G	G	—	G	G	G	G	G	G	G	G	G	G	G	G	G
Boric Acid	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	X	X	G
Brake Fluid (Glycol Ether Base)	G	G	X	X	X	F	G	G	—	G	X	X	—	X	G	—	X	G	X	G	G	G
Brine	G	G	G	G	G	G	G	G	—	G	G	G	G	X	G	G	G	G	G	—	X	F
Bromine	X	X	X	X	X	X	G	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Butyl Acetate	G	G	X	X	X	X	G	G	—	F	X	X	F	X	F	—	X	G	X	G	G	G
Butyl Alcohol, Butanol	G	G	X	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	F	G	G	G
Calcium Bisulfite	G	G	G	G	G	G	G	G	X	G	G	G	X	G	X	G	G	G	G	X	X	X
Calcium Chloride	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	G	G	G	G	X	F	F
Calcium Hydroxide	G	G	G	F	F	G	G	G	G	G	F	G	G	X	G	G	G	G	G	F	G	G
Calcium Hypochlorite	G	G	G	F	F	F	G	G	X	G	F	X	F	X	G	G	G	X	G	F	X	F
Cane Sugar Liquors	G	G	G	G	G	G	G	G	—	G	G	G	G	X	G	G	G	G	—	F	G	G
Carbon Dioxide (Dry)	G	G	G	G	G	G	G	G	G	G	G	F	G	G	G	G	G	G	G	G	G	G
Carbon Dioxide (Wet)	G	G	G	G	G	G	G	G	G	G	G	F	—	G	—	G	G	G	G	F	G	G
Carbon Disulfide (Bisulfide)	F	X	X	X	X	X	G	G	X	X	X	X	X	G	X	—	X	X	—	G	G	G
Carbon Monoxide (Hot)	—	—	X	F	F	F	G	G	X	F	G	X	G	F	G	G	X	X	G	X	F	G
Carbon Tetrachloride	G*	G*	X	X	X	X	G	G	G	X	X	X	F	X	X	—	X	G	X	G	G	G
Carbonic Acid	G	G	G	G	G	G	G	G	—	G	G	G	X	G	X	G	G	G	G	X	X	F
Castor Oil	G	G	G	G	G	F	G	G	—	F	G	X	F	F	G	X	X	G	G	G	G	G
Cellosolve Acetate	G	G	X	X	X	X	G	G	—	F	F	X	X	X	X	X	—	G	G	X	X	G
Chlorinated Solvents	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	X	F	X	G	G	F

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇Use Pinpricked Hose for Gas Applications

Technical Information
Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Chloroacetic Acid	G	G	X	X	X	X	G	G	X	F	X	X	X	X	X	X	X	X	F	X	X	F
Chloro-benzene	G*	G*	X	X	X	X	G	G	X	X	X	X	X	X	—	X	X	X	X	F	F	G
Chlorine Gas (Dry)	X	X	X	X	X	X	G	X	X	X	X	X	X	X	X	X	X	X	G	F	F	G
Chlorine Gas (Wet)	X	X	X	X	X	X	G	X	X	X	X	X	X	X	X	X	X	X	F	X	X	X
Chloroform	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	X	X	F	U	G	G	G
Chlorosul-fonic Acid	F*	F*	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	X	X	F	X
Chromic Acid (under 25%	G	X	F	X	X	X	G	G	X	G	G	X	X	X	X	G	F	X	G	X	X	G
Chromic Acid (25-40%)	G	X	X	X	X	X	G	G	X	G	G	X	X	X	X	F	X	X	F	X	X	F
Citric Acid	G	G	G	F	F	G	G	G	F	G	G	G	G	X	X	G	G	X	G	X	X	G
Coke Oven Gas	X	X	X	X	X	X	G	G	—	X	X	X	—	X	X	—	G	—	G	F	G	G
Copper Chloride	G	G	G	G	G	F	G	G	X	G	G	G	G	G	X	G	G	X	G	X	X	G
Copper Cyanide	G	G	G	G	G	F	G	G	G	G	G	G	—	G	—	G	G	G	G	X	X	G
Copper Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	X	G
Corn Syrup (Non-food)	G	G	G	G	G	F	G	G	—	G	F	F	G	G	—	G	G	G	G	—	G	G
Cottonseed Oil	G	G	F	G	G	X	G	G	—	F	F	X	G	G	G	G	G	G	G	G	G	G
Creosote	G	G	X	F	F	X	G	G	X	X	F	X	X	F	F	X	X	X	X	F	—	G
Cresol	G	G	X	X	X	X	G	G	X	X	X	X	X	X	G	X	X	X	—	—	G	G
Cyclohexanol	G	G	X	F	F	F	G	G	G	G	G	F	—	—	G	G	F	G	X	G	F	G
Dextrose (Food Grade)	G	X	X	X	X	X	G	G	X	X	X	X	X	X	X	G	G	X	—	—	—	G
Dichloro-benzene	G*	G*	X	X	X	X	G	G	—	X	X	X	X	X	X	X	X	X	G	X	—	—	G
Diesel Fuel	G	G	X	G	G	X	G	G	—	X	F	X	F	F	G	—	X	G	—	G	G	G
Diethanol-amine	G	G	X	F	X	X	G	G	—	G	X	F	X	X	—	—	—	G	—	X	G	G
Diethylene-triamine	G	G	X	F	X	X	G	G	X	G	X	F	—	X	—	—	G	X	—	—	—	—
Dowtherm A	—	—	X	X	X	X	G	G	X	X	X	X	X	—	X	X	X	X	X	X	F	G
Enamel (Solvent Base)	G	G	X	F	F	X	G	G	—	X	X	X	G	—	G	—	G	G	—	G	—	G
Ethanolamine	G	G	X	F	F	X	G	G	—	G	X	G	—	X	—	—	G	G	—	X	G	G
Ethers (Ethyl Ether)	G	G	X	X	X	X	G	G	—	X	X	X	X	X	G	X	X	G	X	G	G	G
Ethyl Alcohol	G	G	F	G	G	G	G	G	G	G	G	G	G	G	G	F	G	G	G	F	G	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇ Use Pinpricked Hose for Gas Applications

Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Ethyl Acetate	G	G	X	X	X	X	G	G	G	G	X	X	F	X	F	F	G	G	X	G	G	G
Ethyl Acrylate	G	G	X	X	X	X	G	G	—	F	X	X	—	X	F	—	—	X	X	—	G	G
Ethyl Methacrylate	G	G	X	X	X	X	G	G	—	F	X	X	—	X	F	—	—	X	—	—	G	G
Ethylamine	G	G	X	X	X	X	G	G	X	F	X	X	—	X	—	—	G	X	—	G	—	G
Ethyl Cellulose	G	G	X	F	F	F	G	G	—	F	F	G	—	F	G	—	G	F	—	F	G	F
Ethyl Chloride	G*	G*	X	X	X	X	G	G	—	X	X	X	X	F	X	X	X	G	X	F	F	G
Ethylene-diamine	G	G	X	F	X	G	G	G	X	G	F	G	—	X	—	—	G	X	—	G	G	G
Ethylene Dibromide	G	G	X	X	X	X	G	G	—	X	X	X	—	X	—	—	—	F	—	—	—	—
Ethylene Dichloride	G*	G*	X	X	X	X	G	G	—	X	X	X	X	X	X	X	X	F	X	G	X	X
Ethylene Glycol	G	G	G	G	G	G	G	G	G	G	G	G	G	F	G	G	G	G	G	F	G	G
Ethylene Oxide	G	G	X	X	X	X	G	G	—	X	X	X	G	X	X	X	X	G	X	X	F	F
Fatty Acids	G	G	G	F	F	X	G	G	G	F	X	X	G	—	F	F	G	G	G	F	F	G
Ferric Chloride 5%	G	G	G	G	G	G	G	G	G	G	G	G	—	F	G	G	G	G	G	X	X	X
Ferric Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	X	X	F
Fertilizer Salts Solution	G	G	G	F	F	F	G	G	—	G	G	G	—	—	—	—	F	G	—	—	—	G
Formaldehyde	G	G	X	F	F	F	G	G	G	G	X	F	F	X	G	G	G	X	G	F	X	G
Formic Acid	G	G	X	F	F	F	G	G	X	G	X	X	X	X	G	G	G	X	—	F	X	G
Freon 12**	—	—	—	—	—	—	G	—	—	—	—	—	—	—	—	—	—	—	—	G	G	G
Freon 134a**	—	—	—	—	—	—	G	—	—	—	—	—	—	—	—	—	—	—	—	—	G	G
Fuel Oil	G	G	F	G	G	F	G	G	—	X	X	X	—	F	G	X	X	G	G	F	G	G
Furfural	G	G	X	X	X	X	G	G	X	F	F	X	—	—	F	X	X	X	X	F	G	G
Gasoline (Refined)	G	G	X	F	F	X	G	G	G	X	X	X	G	F	G	—	X	G	X	G	G	G
Gasoline (Unleaded)	G	G	X	G	G	X	G	G	G	X	F	X	X	X	G	—	X	G	F	G	G	G
Gasoline (10% Ethanol)	G	G	X	G	G	X	G	G	G	X	X	X	X	X	—	—	X	G	F	G	G	G
Gasoline (10% Methanol)	G	G	X	F	F	X	G	G	G	X	X	X	X	X	—	—	X	G	F	G	G	G
Glucose (Non-food)	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Glycerine, Glycerol (Non-food)	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	G	G
Greases	G	G	G	G	G	F	G	G	G	X	F	X	G	G	G	—	G	G	G	G	G	G
Green Sulfate Liquor	G	G	G	F	F	F	G	G	X	G	G	G	X	G	X	G	G	X	F	X	X	G
Heptane	G	G	X	G	G	F	G	G	G	X	F	X	G	F	G	X	X	G	G	G	G	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇Use Pinpricked Hose for Gas Applications

Technical Information
Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Hexane	G	G	X	G	G	F	G	G	G	X	F	X	G	F	G	X	X	G	X	G	G	G
Houghto Safe 273 to 640	G	G	F	G	G	G	G	G	—	G	—	F	—	X	G	—	G	G	—	G	G	G
Houghto Safe 5046, 5047F	G	G	G	G	G	G	G	G	—	X	X	X	G	X	G	—	G	G	—	G	G	G
Houghto Safe 1000 Series	G	G	X	X	X	X	G	G	—	G	X	X	—	X	—	—	X	G	—	G	G	G
Hydraulic Oils:																						
Straight Petroleum Base	G	G	G	G	G	F	G	G	G	X	F	X	G	G	G	F	G	G	G	G	G	G
Water Petroleum Emulsion	G	G	—	G	G	F	G	G	—	X	F	X	G	X	G	—	F	G	—	G	G	G
Water Glycol	G	G	X	G	G	G	G	G	G	G	X	F	X	X	G	—	—	G	—	G	G	G
Hydraulic Oils:																						
Straight Phosphate Ester	G	G	X	X	X	X	G	G	G	G	X	X	—	X	G	—	X	G	—	G	G	G
Phos. Ester/ Petroleum Blend	G	G	X	X	X	X	G	G	G	X	X	X	—	X	G	—	X	G	—	G	G	G
Polyol Ester	G	G	—	G	G	X	G	G	—	X	—	X	—	G	G	—	—	G	—	G	G	G
Hydrobromic Acid (under 48%)	G	G	G	X	X	X	G	G	X	G	G	X	X	X	G	G	G	X	G	X	X	X
Hydrochloric Acid	G	G	G	X	X	X	G	G	X	G	G	X	X	X	G	G	G	X	G	X	X	X
Hydrocyanic Acid	G	G	G	F	F	X	G	G	X	F	G	X	X	—	X	G	G	X	F	X	F	G
Hydrofluoric Acid (under 50%)	G	G	F	X	X	X	G	G	X	F	G	X	X	X	X	G	F	X	G	X	X	G
Hydrofluoric Acid (over 50%)	G	G	X	X	X	X	G	G	X	X	G	X	X	X	X	G	X	X	G	X	X	G
Hydrofluosilicic Acid	G	G	G	F	F	X	G	G	X	G	G	X	—	—	G	—	G	X	—	X	X	X
Hydrogen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	F	—	—	F	—	—	G
Hydrogen Peroxide	F	F	—	X	X	X	G	G	X	F	X	X	—	—	G	X	G	X	F	X	X	G
Hydrogen Sulfide	G	G	G	X	X	X	G	G	X	X	F	X	G	—	X	G	G	X	G	F	F	F
Hydrolube	G	G	G	G	G	F	G	G	—	G	—	—	F	X	—	—	G	G	—	G	G	G
Iodine	F	F	X	F	X	X	G	G	X	G	G	X	—	X	G	X	X	X	X	X	X	X
Isocyanates	G	X	X	X	X	X	G	—	X	X	X	X	X	X	X	—	X	X	—	—	—	—
Isopropyl Alcohol, Isopropanol	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	—	G	G	G	G	G	G
Isopropylamine	G	G	X	X	X	F	G	G	—	F	X	F	—	—	—	—	—	X	—	G	—	G
Iso-Octane	G	G	X	G	G	F	G	G	G	X	F	X	G	X	G	—	X	G	X	G	G	G
Jet Fuel (Transfer Only)	G	G	X	G	G	F	G	G	G	X	X	X	G	F	G	—	X	G	X	G	F	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇Use Pinpricked Hose for Gas Applications

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Kerosene	G	G	X	G	G	F	G	G	G	X	F	X	F	G	G	X	X	G	X	G	G	G
Lacquer	G	G	X	X	X	X	G	G	G	X	X	X	X	X	F	X	F	G	X	G	X	G
Lacquer Solvents	G	G	X	X	X	X	G	G	G	X	X	X	F	X	F	X	F	G	X	G	X	G
Lactic Acid	G	G	G	X	X	G	G	G	G	F	G	X	X	X	X	G	G	G	G	F	F	G
Lime Sulfur	G	G	G	X	X	G	G	G	F	G	F	F	—	—	—	G	G	G	G	X	—	G
Lindol	G	G	—	X	X	X	G	G	G	G	X	X	—	X	—	—	—	G	X	F	G	G
Linseed Oil	G	G	G	G	G	X	G	G	G	X	F	X	F	F	G	X	G	G	G	F	G	G
Lubricating Oils	G	G	G	G	G	F	G	G	G	X	F	X	G	F	G	X	G	G	G	G	G	G
Lye	G	G	G	F	F	G	G	G	F	G	G	G	—	X	F	—	G	G	—	F	X	G
Magnesium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	F	F	G
Magnesium Hydroxide	G	G	G	F	F	G	G	G	G	G	F	G	—	X	G	G	G	G	G	G	G	G
Magnesium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	—	—	G	G	G	G	G	F	G	G
Mercuric Chloride	G	G	F	F	F	G	G	G	X	G	G	F	—	—	X	G	G	X	G	X	X	X
Mercury	G	G	F	G	G	G	G	G	G	G	G	F	G	G	G	G	G	G	G	X	G	G
Methyl Alc., Methanol	G	G	X	G	G	G	G	G	G	G	G	G	G	F	G	G	G	G	X	F	G	G
Methyl Acrylate	G	G	X	X	X	X	G	G	X	F	X	X	—	X	X	—	—	X	—	G	G	G
Methyl Bromide	X	X	X	X	X	X	G	G	F	X	X	X	X	X	X	X	X	G	X	G	G	G
Methyl Chloride	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	F	X	X	G	X	G	G	G
Methylene Chloride	G*	G*	X	X	X	X	G	G	F	X	X	X	X	X	X	X	X	F	X	G	G	G
Methyl-t-Butyl Ether (MTBE)	G	G	X	F	F	X	G	G	G	X	X	X	—	—	G	—	—	G	—	—	G	G
Methyl Ethyl Ketone	G	G	X	X	X	X	G	G	G	F	X	X	G	X	X	X	G	G	X	G	G	G
Methyl Iso-butyl Ketone	G	G	X	X	X	X	G	G	G	F	X	X	—	X	X	X	G	G	X	G	G	G
Methyl Iso-propyl Ketone	G	G	X	X	X	X	G	G	G	F	X	X	—	X	X	—	G	G	X	G	G	G
Methyl Methacrylate	G	G	X	X	X	X	G	G	—	X	X	X	—	X	X	—	—	G	—	—	G	G
Mineral Oil	G	G	F	G	G	F	G	G	G	X	F	X	G	G	G	X	X	G	G	G	G	G
Mineral Spirits	G	G	X	G	G	F	G	G	G	X	X	X	G	F	G	—	G	G	—	G	G	G
Naphtha	G	G	X	F	F	F	G	G	G	X	X	X	G	F	G	X	G	G	X	F	G	G
Napthalene	G	G	X	X	X	X	G	G	G	X	X	X	F	F	G	X	X	G	X	F	G	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇Use Pinpricked Hose for Gas Applications

Technical Information
Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Nickel Acetate	G	G	G	X	X	G	G	G	G	G	G	G	—	X	—	G	G	G	G	G	G	G
Nickel Chloride	G	G	G	G	G	F	G	G	G	G	G	G	X	X	G	G	G	G	G	X	X	F
Nickel Sulfate	G	G	G	G	G	F	G	G	G	G	G	G	—	F	G	G	G	G	G	X	X	G
Nitric Acid (under 35%)	G	F*	G	X	X	X	G	G	X	F	F	X	X	X	X	G	F*	X	G	X	X	G
Nitric Acid (35% to 60%)	F	X	F	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	G	X	X	G
Nitric Acid (over 60%)	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	G	X	X	G
Nitrobenzene	G	G	X	X	X	X	G	G	—	X	X	X	X	X	X	X	X	X	X	F	G	G
Nitrogen Gas◇	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	—	G	G	—	G	G	G
Nitrous Oxide	G	G	X	X	X	X	G	G	F	X	X	G	X	X	X	—	X	F	G	G	G	G
Oleic Acid	G	G	F	F	F	X	G	G	G	F	F	X	G	F	G	X	G	G	G	F	F	G
Oleum (Fuming Sulfuric Acid)	X	X	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	X	X	F	G
Oxalic Acid	G	G	G	X	X	X	G	G	X	G	X	X	X	—	G	G	G	X	G	F	X	G
Oxygen (non-breathing, non-welding)◇	G	G	G	F	F	G	G	G	G	G	G	F	G	G	G	G	G	G	G	G	G	G
Ozone (300 pphm)	F	F	X	X	X	X	G	G	X	G	G	X	X	G	G	X	X	X	X	—	F	G
Paint (Solvent Base)	G	G	X	F	F	X	G	G	G	X	X	X	—	X	—	—	F	G	—	G	G	G
Palmitic Acid	G	G	F	F	F	F	G	G	G	F	X	X	G	X	G	F	G	G	F	X	F	F
Paper Mill Liquors	G	G	X	F	F	F	G	G	X	G	F	F	X	X	—	—	X	X	—	—	—	—
Pentane	G	G	X	G	G	F	G	G	—	X	F	X	G	X	G	—	X	G	X	G	G	G
Perchloro-ethylene	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	F	X	F	F	G	G
Petroleum Ether	G	G	X	G	F	X	G	G	G	X	X	X	—	G	G	X	X	G	F	G	G	G
Petroleum Oils	G	G	G	G	G	F	G	G	G	X	F	X	G	G	G	—	G	G	—	G	G	G
Phenol	G	G	X	X	X	X	G	G	X	X	X	X	X	—	G	X	X	X	X	F	X	F
Phosphoric Acid (to 85%)	G	G	G	X	X	F	G	G	X	G	G	F	X	X	X	G	G	X	G	X	X	F
Picric Acid (Molten)	X	X	X	X	X	X	G	G	X	X	F	X	X	X	X	G	X	X	X	X	X	F
Picric Acid (Solution)	G	G	X	F	F	X	G	G	X	F	G	X	X	F	X	G	X	X	X	X	X	F
Potassium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	F	X	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

◇Use Pinpricked hose for gas applications

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Potassium Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	G	G	F	X	G	G
Potassium Dichromate	G	G	G	X	X	X	G	G	—	G	X	X	—	G	G	G	G	F	G	X	G	G
Potassium Hydroxide	G	G	G	F	F	F	G	G	F	G	G	G	F	X	G	G	G	G	G	F	X	G
Potassium Permanganate	G	G	G	X	X	X	G	G	X	G	G	G	X	X	—	X	G	X	G	—	—	—
Potassium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	F	F	G
Propane Liquid***	—	—	—	G	—	—	—	G	—	—	—	—	—	—	—	X	—	—	—	G	G	G
Propylene Glycol	G	G	F	G	F	G	G	G	—	G	G	G	G	—	G	G	G	G	—	F	G	G
Pyridine	G	G	X	X	X	X	G	G	X	F	X	X	X	X	X	—	G	X	—	F	G	G
Sea Water	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	F	G
Silver Nitrate	G	G	G	G	G	G	G	G	G	G	G	G	—	G	—	G	G	G	G	X	X	F
Skydrol	G	G	X	X	X	X	G	G	G	G	X	X	—	X	G	—	X	G	—	G	G	G
Soap Solution	G	G	G	G	G	F	G	G	G	G	G	X	G	G	G	G	X	G	G	G	G	G
Sodium Bicarbonate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	F	G
Sodium Bisulfate	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G	G	G	G	G	F	F	F
Sodium Bisulfite	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	X	G
Sodium Borate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	—	—	G	G	—	G	G	G
Sodium Carbonate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	G	G
Sodium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	F	G
Sodium Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	F	G
Sodium Hydroxide	G	G	G	F	F	G	G	G	F	G	G	G	—	X	F	G	G	G	F	F	X	G
Sodium Hypochlorite	G	G	G	X	X	X	G	G	X	G	G	X	G	X	F	G	G	X	G	X	X	F
Sodium Nitrate	G	G	G	G	G	F	G	G	G	G	G	G	G	F	G	G	G	G	G	F	G	G
Sodium Perborate	G	G	G	G	G	X	G	G	F	G	X	G	G	X	X	—	G	G	—	F	F	G
Sodium Peroxide	G	G	X	F	F	F	G	G	X	G	F	X	G	X	X	—	X	G	—	X	F	G
Sodium Phosphates	G	G	G	G	G	F	G	G	G	G	G	G	G	G	X	G	G	G	G	F	F	F
Sodium Silicate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	F	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇Use Pinpricked Hose for Gas Applications

Technical Information
Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Sodium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	F	G
Sodium Sulfide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	X	X	G
Sodium Thiosulfate	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G	G	G	G	G	X	X	G
Soybean Oil	G	G	F	G	G	F	G	G	—	F	G	X	G	G	G	—	G	G	—	G	G	G
Stannic Chloride	G	G	G	G	G	X	G	G	X	G	G	G	G	G	G	G	G	F	G	X	X	X
Steam 450°F	X	X	X	X	X	X	G	G	X	G	X	X	X	X	X	—	X	X	—	F	F	G
Stearic Acid	G	G	F	F	F	F	G	G	G	F	F	X	G	G	G	G	G	G	F	X	X	G
Stoddard Solvent	G	G	X	G	G	F	G	G	G	X	X	X	G	G	G	X	X	G	G	G	G	G
Styrene	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	X	G	X	G	G	G
Sulfur 70°F	G	G	F	X	X	G	G	G	G	G	G	X	G	F	G	G	G	G	G	X	X	G
Sulfur 200°F	X	X	X	X	X	X	G	G	X	X	G	X	X	X	X	—	X	X	—	X	X	G
Sulfur Chloride	G	G	X	X	X	X	G	G	X	X	F	X	X	X	G	—	G	X	—	X	X	X
Sulfur Dioxide	X	X	X	X	X	X	G	G	X	G	X	X	X	X	X	X	X	X	F	X	—	G
Sulfuric Acid (under 50%)	G	G	G	X	X	X	G	G	X	G	G	X	X	X	X	G	G	X	G	X	X	X
Sulfuric Acid (51% to 70%)	G	G	G	X	X	X	G	G	X	F	G	X	X	X	X	X	X	X	F	X	X	X
Sulfuric Acid (71% to 95%)	G	F	X	X	X	X	G	G	X	F	F	X	X	X	X	X	X	X	G	X	X	X
Sulfuric Acid (96% to 98%)	G	X	X	X	X	X	G	G	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tannic Acid	G	G	G	F	F	F	G	G	X	G	G	G	G	G	G	G	G	X	G	F	X	G
Tar	X	X	X	F	F	F	G	G	G	X	X	X	G	F	F	—	X	X	—	F	F	G
Tartaric Acid	G	G	G	G	G	F	G	G	G	G	G	G	—	G	G	G	G	G	G	F	X	F
Tetrachloro-ethane	G*	G*	X	X	X	X	G	G	—	X	X	X	X	X	X	—	F	F	X	—	—	G
Tetrahydro-furan (THF)	G	G	X	X	X	X	G	G	—	X	X	X	—	X	—	X	X	G	X	—	—	G
Toluene	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	X	G*	G	X	G	G	G
Transmission Oil (Petrol. Base)	G	G	G	G	G	F	G	G	G	X	F	X	G	G	G	X	G	G	—	G	G	G
Trichloro-ethane	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	—	G*	F	—	G	G	G
Trichloro-ethylene	G*	G*	X	X	X	X	G	G	G	X	X	X	X	X	X	X	G*	F	—	G	G	G
Tung Oil	G	G	—	G	G	F	G	G	—	X	F	X	G	F	X	—	—	G	—	F	G	G
Turpentine	G	G	X	F	F	X	G	G	G	X	X	X	F	X	F	X	G	G	G	F	G	G
Urea (Water Solution)	G	G	G	X	X	G	G	G	G	G	G	G	G	G	G	G	G	G	G	—	G	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇Use Pinpricked Hose for Gas Applications

Industrial Hose Chemical Compatibility

Chemical Resistance

Fluid	Hose and Tubing Material																			Metals		
	UHMW	XLPE	PVC	Nitrile	Vinyl Nitrile	Neoprene	Teflon (PTFE)	Teflon (FEP)	Nylon 6/66	EPDM	Hypalon	Natural Rubber/SBR	Hytrel	Polyurethane	CPE	EVA	LLDPE	Nylon 11	PVC / PU Blends	Brass	Steel	316 Stainless
Uric Acid	G	G	G	—	—	—	G	G	G	—	—	—	X	X	—	G	G	G	G	—	—	F
Varnish	G	G	X	X	X	X	G	G	G	X	X	X	—	X	F	X	G	G	X	G	G	G
Vegetable Oil (Non-food)	G	G	F	G	G	X	G	G	G	X	G	X	—	G	—	X	G	G	G	G	G	G
Vinegar	G	G	G	F	F	G	G	G	X	G	G	F	—	X	F	G	G	G	—	X	F	G
Vinyl Acetate	G	G	X	X	X	X	G	G	—	F	X	X	—	X	—	X	—	G	X	F	G	G
Water (non-potable)	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	F	F	G
Water—Glycol Mixture	G	G	X	G	G	G	G	G	G	G	X	F	X	X	G	G	—	G	G	G	G	G
Water—Petroleum Mixture	G	G	—	G	G	F	G	G	G	X	F	X	G	X	G	G	F	G	G	G	G	G
Xylene	G*	G*	X	X	X	X	G	G	G	X	X	X	F	X	X	X	G*	G	X	G	G	G
Zinc Chloride	G	G	G	G	G	G	G	G	X	G	G	G	X	G	X	G	G	X	G	X	X	X
Zinc Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	—	G	X	G	G	G	G	X	X	G

G - Good F - Fair X - Not Recommended — - Insufficient Information *For Intermittent Transfer Only **Use Approved Freon Hose

***Use Propane Approved Hose Only ◇Use Pinpricked Hose for Gas Applications

Model Number Index

Model Number Index

Model Number Index

Model Number Index

Product Index

Product Index

Product Index

D

E

Product Index

Product Index

Product Index

Product Index

Product Index

Product Index

Product Index

Product Index

Locations

FLORIDA

Corporate Headquarters
300 International Pkwy
Sunrise, FL 33325
Tel. 800.507.9651

Belle Glade
326 SE 1st Street
Belle Glade, FL 33450
Tel. 561.996.4431

Fort Lauderdale
2601 SW 2nd Avenue
Ft. Lauderdale, FL 33315
Tel. 954.463.6460

Fort Myers
12900 Metro Parkway
Ft. Myers, FL 33966
Tel. 239.274.9229

Homestead
51 SE 3rd Terrace
Florida City, FL 33034
Tel. 305.248.3713

Jacksonville
30 Lane Avenue South
Jacksonville, FL 32254
Tel. 904.783.4401

Lakeland
3222 Winter Lake Rd. Bay #9-10
Lakeland, FL 33803
Tel. 863.665.3589

Miami
680 Kenmore Drive
Miami Springs, FL 33166
Tel. 305.888.2415

Naples
4376 Corporate Square #2-3
Naples, FL 34104
Tel. 239.435.1642

Orlando
680 Montgomery Street
Orlando, FL 32808
Tel. 407.295.4537

Pompano
2600 W. Sample Road
Pompano Beach, FL 33073
Tel. 954-973-5900

Tampa
7200 dr. MLK Jr. Blvd. E.
Tampa, FL 33619
Tel. 813.621.0790

West Palm Beach
7680 Central Industrial Drive
West Palm Beach, FL 33404
Tel. 561.863.6258

GEORGIA

Augusta
2722-A Mike Padgett Hwy
Augusta, GA 30906
Tel. 706.790.0628

Columbus
6440 W. Hamilton Pk. Dr. Unit J
Columbus, GA 31909
Tel. 706.322.0707

Forest Park - Atlanta
937 Forest Parkway
Forest Park, GA 30297
Tel. 404.608.0995

Mableton - Atlanta
6310 Mableton Pkwy, SW #100
Mableton, GA 30126
Tel. 678.398.6673

Marietta
1200 Cobb Pkwy. N. #500
Marietta, GA 30062
Tel. 678.290.9227

Pooler - Savannah
1125 US Hwy 80 E.
Pooler, GA 31322
Tel. 912.965.6771

NORTH CAROLINA

Charlotte
646 Westinghouse Blvd.
Charlotte, NC 28373
Tel. 704.319.9685

Greensboro
3004 S. Elm-Eugene St.
Greensboro, NC 27406
Tel. 336.544.8502

SOUTH CAROLINA

Columbia
1633 Key Road
Columbia, SC 29201
Tel. 803.567.4098

TENESSESSE

Chattanooga
5959 Shallowford Rd. #111
Chattanooga, TN 37421
Tel. 423.553.8854

Knoxville
5227 Middlebrook Pike, #B
Knoxville, TN 37921
Tel. 865.321.9120

REPAIR CENTER

Pompano Beach
Hydraulic Repair & Service
3550 Gateway Drive
Pompano Beach, FL 33069
Tel. 954.861.4200

MEXICO

Monterrey
Ave. Adolfo Ruiz Cortines #2420
Monterrey, Mexico CP 64460
Tel. 81 13 56 65 25

COMING SOON
NEW LOCATIONS!
Greenville & Charleston in South Carolina
Birmingham & Mobile in Alabama

HYDRAULIC SUPPLY COMPANY

HSC

®

SINCE 1947

THE SOURCE FOR ALL YOUR FLUID POWER NEEDS

Over 20,000 hydraulic , pneumatic and industrial products in stock.

NAHAD THE ASSOCIATION FOR HOSE AND ACCESSORIES DISTRIBUTION

FLUID POWER SOCIETY INTERNATIONAL

THE FPDA MOTION & CONTROL NETWORK

NATIONAL FLUID POWER ASSOCIATION NFPA