Transportation Connectors Products & Custom Solutions

Catalog 3560DOT | July 2020

Parker

ENGINEERING YOUR SUCCESS.

OTSEGO, MICHIGAN

TIJUANA, MEXICO

ALBION, INDIANA

LAKEVIEW, MICHIGAN

MESA, ARIZONA

⚠ WARNING – USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated on the separate page of this document entitled "Offer of Sale".

Safe Drinking Water Act

In accordance with 42 USC § 300g-6, parts in this catalog are to be used exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption. The only exceptions are parts described explicitly as "low lead" or suitable for potable water.

Directives and Regulations

Parker complies with the directives and regulations listed below and goes beyond its statutory obligations for the ranges in question.

D.O.T. FMVSS 571.106
Fittings comply with the performance requirements

Fittings meet the requirements of the specific SAE standard called out in the product sections

DIN 74324
Fittings comply with the performance requirements

Fittings are listed under 1 of 3 categories depending on the application. Fittings meet dimensional and testing requirements as specified by Underwriter Laboratories and carry the UL symbol.

ISO 6149-3
Fittings meet the dimensional requirements

Gold Seal Program
Fittings comply with the ANSI standards and approved by WQA for contact with drinks and foodstuffs.

REACH regulation: no. 1907/2006
As product manufacturer, we are subject to article 33 of the regulation which defines a duty to inform when a candidate substance is present at more than 0.1% weight for weight.

European RoHS directives: 2015/863
Relating to the limitation of the use of 10 hazardous substances in electrical and electronic equipment (Lead, Mercury, Cadmium, Hexavalent Chromium, PBB, PBDE, Bis Phthalate, BBP, DBP, DIBP).

CFR 21: Code of Federal Regulation Title 21: Food and Drugs
This code consists of lists of prohibited substances for materials intended to come into contact with foodstuffs.

Regulation 1935/2004
This framework regulation relates to materials and objects designed to come into contact with foodstuffs. It describes specific measures per product group (Art. 5).

NSF 51: NSF / ANSI-51
Fittings and tubes complying with this standard are tested and approved by NSF for contact with drinks and foodstuffs.

NSF 61: NSF / ANSI-61
Fittings and tubes complying with this standard are tested and approved by NSF for contact with drinking water.

NSF 42 and 58: NSF/ANSI-42/58
Tubes complying with this standard are tested and approved by NSF for drinking water treatment systems.

WRAS: Water Regulations Advisory Scheme
(UK) Fittings approved by this programme are declared compliant for water supply by WRc - NSF.

WHY PARKER
FOR FLUID SYSTEM CONNECTORS

More Selection

More Materials
Materials suited to your application, including plastic, composite, brass, stainless steel, and plated brass.

More Connector Styles
Choose from push-to-connect, compression, barbed, flare, and pipe fittings, as well as flow controls, ball valves, angle stops, manifolds, and cartridges in both inch and metric sizes from 1/8" to 1-1/2".

Customized Solutions
Don't be boxed in by conventional thinking or the conventional parts that go with it. Whether you need a valve, fitting or manifold, we can produce it in any quantity or configuration, with any connector end.

For prototypes, one-of-a-kind pieces, and emergency repair parts to small or large production runs, our customized solutions can reduce lead times as well as the price of lower-volume components. Three of our locations now specialize in non-standard service, ensuring you get what you need ASAP. Plus they comply with SAE, ISO, DIN, JIS, ASTM, and MIL standards.

WARNING These products can expose you to chemicals including NICKEL, CARBON BLACK, TITANIUM DIOXIDE, or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Lower Overall Product Cost

Due to tested and approved products with longer life

Find Your Fittings Solution. Fast.

The FittingFinder app helps identify replacement fittings, pull specs and dimensions, locate nearby distributors and more.

THE PARKER BINS PROGRAM

A line of bins and cabinets used for bin fill placements at OEM and MRO accounts. Sizes and styles range from scoop boxes to open bins and a rolling pneumatic cabinet for storage flexibility. Bins provide increased visibility of Parker products and centralize all fittings needed in one location. When paired with Parker's Bin Labeling Program, distributors can offer customers the benefits of simple part identification and easy restocking.

www.parker.com/bins

Reliable System Solutions

Fittings, valves, and manifolds engineered to work together to provide easy-to-assemble, leak-free connections.

Reduced Time to Market

Our ability to design, prototype, and manufacture world-wide will shorten your design cycle, improve production efficiency, and simplify procurement procedures.

The Power of Partnership

13,000

distributors, sales offices, and MRO outlets – instant access to parts, products, maintenance, service, and solutions.

Global and Local Support

Your language, your time zone, your currency.
No matter where you develop, assemble, manufacture or install, Parker is there.

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WHY PARKER FOR FLUID SYSTEM CONNECTORS

EDI Transmission
Computerized data exchange to increase productivity and speed communication.

Improved Stock Management
Packaging, barcodes, and customized labels according to your needs.

E-Catalog
Integration of our product data into your information systems (e-procurement, e-commerce site, etc.)

Communication Tools

We can provide you with any promotional sales material you might need, from brochures and flash animations to sample kits.

PRODUCTS FOR NEWLY MANDATED POTABLE WATER SYSTEMS

Effective on January 4, 2014, amendments to the Safe Drinking Water Act (42 USC § 300g-6) now limit the lead content of components installed in potable water systems to 0.25% weighted average. Potable water systems are systems that provide water suitable for human ingestion i.e., drinking, food preparation, dishwashing, and maintaining oral hygiene.

The good news? Our LIQUIfit™ and TrueSeal™ fittings, valves, angle stops, and cartridges are already NSF and FDA approved and conform to the new "lead free" standard. In addition, we offer pipe and compression products in "lead free" brass and can quote "lead free" fittings as a special.

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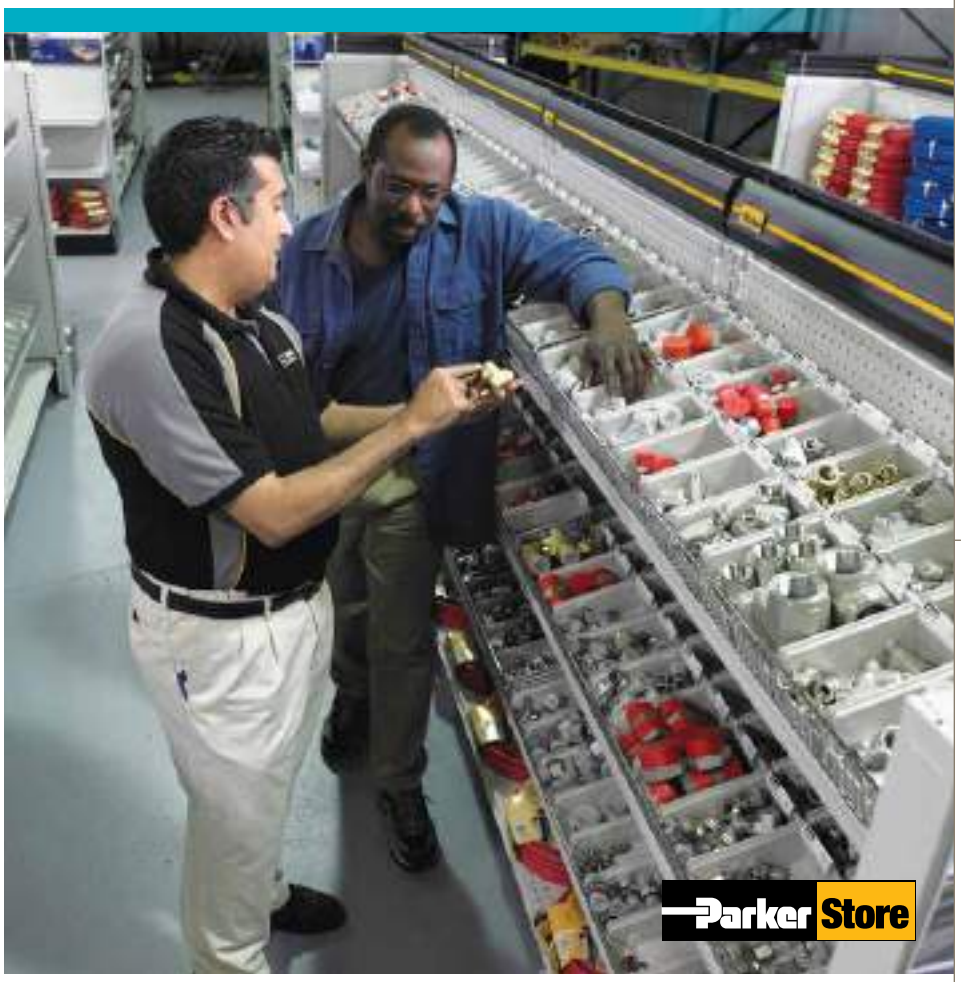
ParkerStores

Around the corner and around the world, ParkerStores meet customer needs to stay productive by providing the broadest range of products and service choices. Whether for individual parts or entire system solutions, the professionals at the ParkerStore are here to help. Visit us online at **www.parkerstore.com**.



CAD Library

Available online at www.parker.com. Dimensional drawings of every product in various industry formats to help in the design process.

PTAC

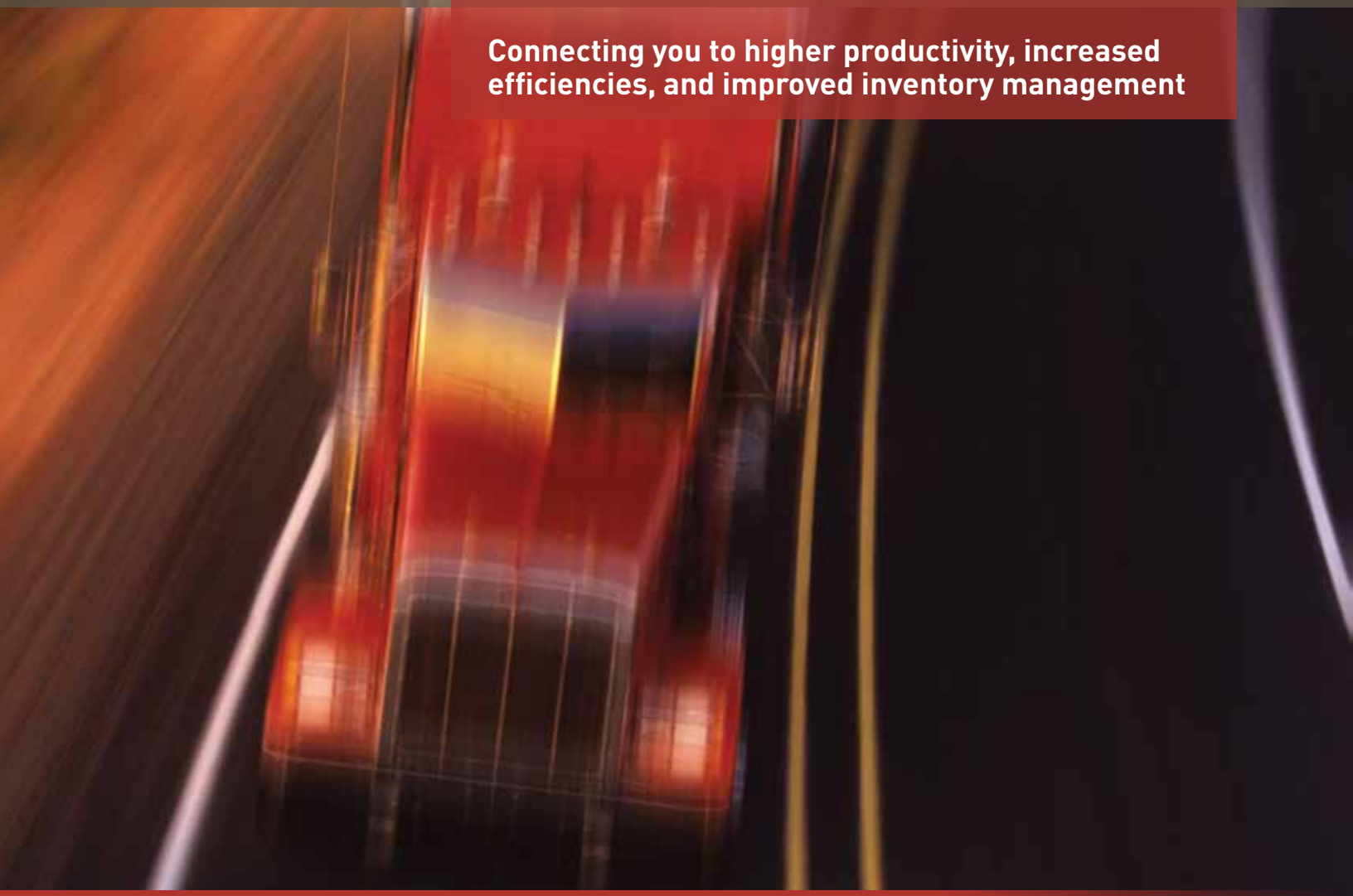
Through education and technical training on FCG products and safe practices, the Parker Training and Certification (P-TAC) program is designed to improve the professionalism and technical skills of participating distributors and Parker employees.

Kitting

Multiple components in a customized kit with a single part number for easier order processing and assembly.

IN TRANSPORTATION, GLOBAL LOGISTICS AND VENDOR PARTNERSHIPS

Connecting you to higher productivity, increased efficiencies, and improved inventory management



Industry experts see growth for the U.S. in most modes of transportation, particularly truck, rail, and intermodal. With the global economy still on the mend, trade is predicted to grow at a modest 3-4% as developed nations contend with weak growth, eurozone debt, a slowdown in China as well as other emerging economies, and unpredictable oil prices. Concern over environmental issues will continue, spurring biofuels and hybrid vehicles. The need for global system solution partners will remain strong.

APPLICATIONS

Air Brakes | Cab Controls | Fuel System | Engine | Transmission | Cooling | Air Tanks

PERFORMANCE EXPECTATIONS

- Compact design
- Impact resistant
- Meets DOT and SAE requirements
- Robustness
- Vibration resistance
- High reliability
- High temperature resistance
- Installation flexibility

APPLICABLE PRODUCTS

PTC Brass Fittings
PTC/PTCR Composite Fittings
SAE Encapsulated Cartridges
Manifolds
NTA Fittings
Transmission Fittings
Vibra-Lok Fittings
Truck Valves
Lanyard Valve

ENGINEERING AN INNOVATIVE SOLUTION QUICKLY

SLA model confirms solution design and fit, saves time and expense

SITUATION: A major North American truck manufacturer initiated a tubing routing change that required a fitting not currently in stock. To meet the build schedule, the customer needed a production-ready solution in six weeks.

SOLUTION: With the application requirements understood, the Parker team provided a 3D model within two days to confirm the tube connection configurations. The customer approved the functionality of the design, but still needed to confirm fit in the confined application. In fewer than 10 days, the Parker team provided a stereolithography (SLA) model that confirmed the design's fit. Satisfied with the results, the client authorized the go-ahead to create the final part, meeting his need for a production-ready solution.

BENEFITS: Concept to production in less than five weeks • Reduced prototype costs

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Transportation Push-to-Connect — Section A

- PTC Composite
- Prestomatic Fittings
- Metric Prestomatic Fittings
- Parker Safe Lock

Transportation Compression Fittings & Valves — Section B

- Air Brake–NTA® Fittings
- Transmission Fittings
- Air Brake – AB Fittings
- Air Brake Hose Ends Fittings
- Vibra-Lok Fittings
- Truck Valves & Lanyard Valve

Industrial Flare Fittings — Section C

- 45° Flare Fittings

Industrial Barbed Fittings — Section D

- Hose Barb Fittings

Industrial Adapters — Section E

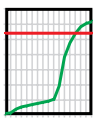
- Pipe Fittings
- ISO Port Adapters

Industrial Valves — Section F

- Ball Valves Brass Series 500
- Ball Valves Brass Series 501
- Ball Valves Brass Series 502
- Ball Valve Brass Series 506
- Ball Valves Brass Series 509
- Ball Valves Brass Series 510
- Ball Valves Brass Series 520
- Ball Valves Brass Series 525
- Ball Valves Brass Series 533 3-Way Diversion / Series 540 4-Way
- Ball Valves Brass Series 590/591
- Ball Valves Brass Series 500HB
- Needle Valves
- Drain Cocks/Ground Plug Shutoff

Hose and Tube — Section G

- Fuel Line Hose
- Coolant/Heater Hose
- Air Brake Tubing
- Diesel Fuel Tubing



General Technical — Section H

Transportation Push-to-Connect

PTC & PTCR Composite Fittings

PTC Brass Fittings

Metric Prestomatic Fittings

Parker Safe Lock

For more product information visit:
www.parker.com/dot

Parker Hannifin Corporation | Fluid System Connectors | Otsego, MI

Threaded Fittings

169PTC
Male Elbow
NPT
p. A13


169PTCR
Male Elbow
Positional – NPT
p. A13


169PTCL
Male Elbow Long
NPT
p. A14


169PTCNS
Male Elbow Rigid
NPT
p. A14


171PTC
Run Tee Swivel
NPT
p. A15


171PTCNS
Run Tee Rigid
NPT
p. A15


172PTC
Branch Tee Swivel
NPT
p. A15


172PTCNS
Branch Tee Rigid
NPT
p. A16


179PTC
45° Male Elbow
Swivel – NPT
p. A16


179PTCR
45° Male Elbow
Positional – NPT
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179PTCNS
45° Male Elbow
Rigid – NPT
p. A16


189PTCR
Dual Port Elbow
Positional –NPT
p. A16


68PTC / VS68PTC
Male Connector
NPT
p. A12


169PTCNS
Male Elbow
NPT
p. A13


VS369PTCR
Male Elbow
NPT
p. A7


VS368PTCR
Male Y Connector
NPT
p. A7


VS371PTCR
Run Tee
NPT
p. A8


VS372PTCR
Branch Tee
NPT
p. A8


VS379PTCR
45° Male Elbow
NPT
p. A8


170PTC
Female Elbow
Swivel – NPT
p. A14


170PTCNS
Female Elbow
Rigid – NPT
p. A15


66PTC
Female Connector
NPT
p. A12


370PTCR
Female Elbow
NPT
p. A7


377PTCR
Female Branch Tee
NPT
p. A8


169TCNS-X-M
Male Elbow Rigid
p. A14


F8UPMTB
Male Connector
p. A18


C8UPMTB
Male Elbow
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S8UPMTB
Branch Tee
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F2PMTB
Male Connector
NPT
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Tube to Tube Fittings

62PTC
Union
p. A12


164PTC
Union Tee
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165PTC
Union Elbow
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32PTC
Union
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362PTC
Union Y
p. A7


364PTC
Union Tee
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365PTC
Union Elbow
p. A7


HPMTB
Union
p. A18


JPMTB
Union Tee
p. A18


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Bulkhead Unions

165PTCBH
Elbow Union Bulkhead
p. A13

169PTCBH
Male Elbow Bulkhead
p. A14

Plug-In Fittings

37PTCSP
Adapter
p. A8

369PTCSP
Male Elbow
p. A8

371PTCSP
Run Tee
p. A9

372PTCSP
Branch Tee
p. A9

Accessories

ERHD
External Retainer
p. A10

ES
External Seal
p. A10

639PLP
Plug
p. A16

Manifolds

24M
Presto Manifold
p. A9

Safe Lock Fittings

A613, A614
Safe Lock Straight
p. A20

A623, A624
Safe Lock Elbow
p. A20

68ALS
Brass Adapter
p. A20

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PTC & PTCR Composite Fittings

Parker's PTC & PTCR fittings are composite push-to-connect fittings that meet SAE and D.O.T. specifications. Designed for all D.O.T truck and trailer applications, Parker PTC fittings reduce assembly time versus compression style fittings .

Product Features:

- Brass Collet
- Buna N O-ring or HNBR
- Stainless Steel Tube Support or Brass
- Meets D.O.T. FMVSS571.106
- Meets SAE J2494-3
- Composite Body – Strong, Lightweight, Compact and Impact Resistant
- Plug-in configurations

Markets:

- Heavy Duty Truck
- Trailer
- Mobile

Applications:

- Air Brakes
- Air Tanks
- Air Ride
- Sliders
- Tire Inflation
- Primary & Secondary Air Lines
- Cab Controls

Specifications:

Pressure Range	Up to 250 PSI (17.2 bar)
Temperature Range	-40˚ to +200˚ F (-40° to +93.3° C)

Compatible Tubing:

- SAE J844 Type A & B nylon tubing

Assembly Instructions

1. Cut tubing squarely – maximum of 15˚ angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Mark tubing to appropriate tube insertion length. (see Tube Insertion Chart on page N22)
4. Insert tubing until it bottoms
5. Pull on tubing to verify it is fully inserted
6. To disassemble, simply press release button, hold against body and pull tubing out of fitting.

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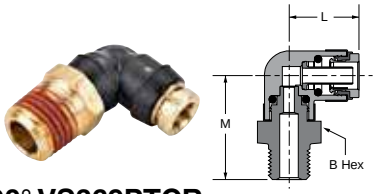
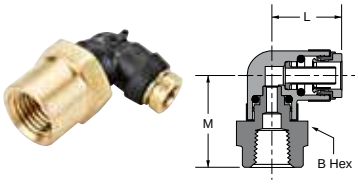
Click here for CADs, Product Specifications or to Configure Parts Online



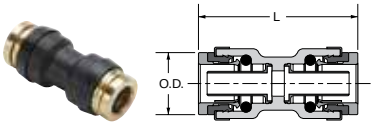
Male Elbow Swivel 90° VS369PTCR

PART NO.	TUBE SIZE	PIPE THREAD	B HEX	L	M
VS369PTCR-4-2	1/4	1/8	9/16	.74	1.00
VS369PTCR-4-4	1/4	1/4	9/16	.74	1.14
VS369PTCR-4-6	1/4	3/8	11/16	.74	1.14
VS369PTCR-6-2	3/8	1/8	3/4	1.01	1.13
VS369PTCR-6-4	3/8	1/4	3/4	1.01	1.28
VS369PTCR-6-6	3/8	3/8	3/4	1.01	1.28
VS369PTCR-6-8	3/8	1/2	7/8	1.01	1.49
VS369PTCR-8-4	1/2	1/4	15/16	1.13	1.42
VS369PTCR-8-6	1/2	3/8	15/16	1.13	1.42
VS369PTCR-8-8	1/2	1/2	15/16	1.13	1.61
VS369PTCR-10-6	5/8	3/8	1-1/16	1.36	1.61
VS369PTCR-10-8	5/8	1/2	1-1/16	1.36	1.80
VS369PTCR-12-8	3/4	1/2	1-3/16	1.47	1.92



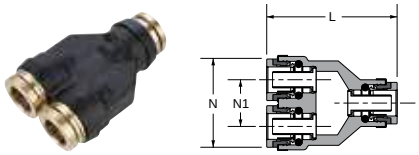
Female Elbow Swivel 90° 370PTCR

PART NO.	TUBE SIZE	PIPE THREAD	B HEX	L	M
370PTCR-4-2	1/4	1/8	5/8	.74	.98
370PTCR-4-4	1/4	1/4	3/4	.74	1.20
370PTCR-6-2	3/8	1/8	3/4	1.01	.75
370PTCR-6-4	3/8	1/4	3/4	1.01	1.04
370PTCR-6-6	3/8	3/8	3/4	1.01	1.19
370PTCR-8-6	1/2	3/8	3/4	1.13	1.24
370PTCR-8-8	1/2	1/2	15/16	1.13	1.49



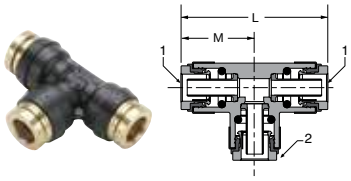
Union 32PTC

PART NO.	TUBE SIZE	L	O.D.
32PTC-4	1/4	1.33	..53
32PTC-6	3/8	1.61	.73
32PTC-8	1/2	1.75	.88
32PTC-10	5/8	2.15	1.02
32PTC-12	3/4	2.50	1.17



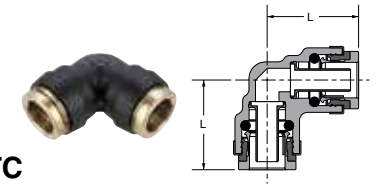
Union Y 362PTC

PART NO.	TUBE SIZE	L	N	N1
362PTC-4	1/4	1.52	1.06	.50
362PTC-6	3/8	2.03	1.43	.68
362PTC-8	1/2	2.20	1.74	.84



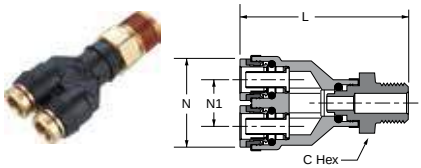
Union Tee 364PTC

PART NO.	TUBE SIZE 1	TUBE SIZE 2	L	M
364PTC-4	1/4	1/4	1.42	.71
364PTC-6	3/8	3/8	1.99	.99
364PTC-8	1/2	1/2	2.25	1.13
364PTC-10	5/8	5/8	2.88	1.44
364PTC-6-6-4	3/8	1/4	2.03	1.01
364PTC-6-6-5/32	3/8	5/32	2.03	1.01



Union Elbow 365PTC

PART NO.	TUBE SIZE	L
365PTC-6	3/8	.99
365PTC-8	1/2	1.11



Union Y Male Connector VS368PTCR

PART NO.	TUBE SIZE	PIPE THREAD	L	C HEX	N	N1
VS368PTCR-4-2	1/4	1/8	1.96	9/16	1.03	.50
VS368PTCR-4-4	1/4	1/4	2.12	9/16	1.03	.50
VS368PTCR-6-4	3/8	1/4	2.56	3/4	1.41	.68

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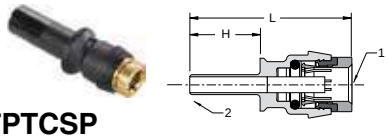
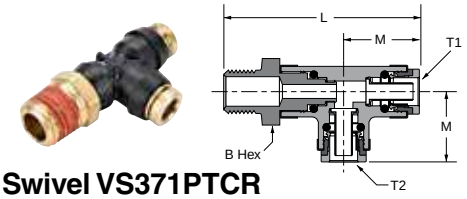
Click here for CADs, Product Specifications or to Configure Parts Online



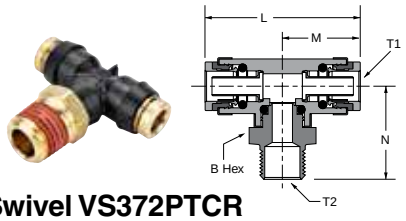
Plug-In Adapter 37PTCSP

PART NO.	TUBE SIZE 1	TUBE SIZE 2	H	L
37PTCSP-4-6	1/4	3/8	.90	1.71
37PTCSP-6-4	3/8	1/4	.76	1.66
37PTCSP-10-8	5/8	1/2	1.10	2.44



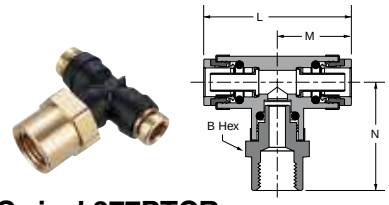
Male Run Tee Swivel VS371PTCR

PART NO.	TUBE SIZE 1	TUBE SIZE 2	PIPE THREAD	B HEX	L	M
VS371PTCR-4-2	1/4	1/4	1/8	9/16	1.80	.76
VS371PTCR-4-4	1/4	1/4	1/4	9/16	1.94	.76
VS371PTCR-6-4	3/8	3/8	1/4	3/4	2.29	.1.01
VS371PTCR-6-6	3/8	3/8	3/8	3/4	2.29	.1.01
VS371PTCR-8-4	1/2	1/2	1/4	15/16	2.59	1.15
VS371PTCR-8-6	1/2	1/2	3/8	15/16	2.59	1.15
VS371PTCR-8-8	1/2	1/2	1/2	15/16	2.78	1.15
VS371PTCR-10-8	5/8	5/8	1/2	1-1/16	3.24	1.44



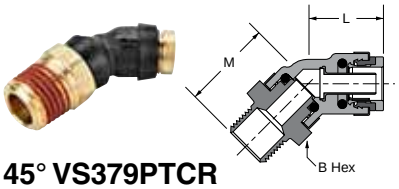
Male Branch Tee Swivel VS372PTCR

PART NO.	TUBE SIZE	PIPE THREAD	B HEX	L	M	N
VS372PTCR-4-2	1/4	1/8	9/16	1.52	.76	1.04
VS372PTCR-4-4	1/4	1/4	9/16	1.52	.76	1.18
VS372PTCR-6-2	3/8	1/8	3/4	2.02	1.01	1.16
VS372PTCR-6-4	3/8	1/4	3/4	2.03	1.01	1.31
VS372PTCR-6-6	3/8	3/8	3/4	2.02	1.01	1.31
VS372PTCR-8-4	1/2	1/4	15/16	2.30	1.15	1.42
VS372PTCR-8-6	1/2	3/8	15/16	2.30	1.15	1.42
VS372PTCR-8-8	1/2	1/2	15/16	2.30	1.15	1.61
VS372PTCR-10-8	5/8	1/2	1-1/16	2.88	1.44	1.80



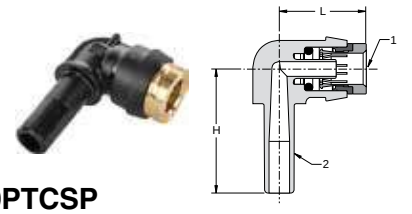
Female Branch Tee Swivel 377PTCR

PART NO.	TUBE SIZE	PIPE THREAD	B HEX	L	M	N
377PTCR-4-4	1/4	1/4	3/4	1.48	.74	1.27



Male Elbow Swivel 45° VS379PTCR

PART NO.	TUBE SIZE	PIPE THREAD	B HEX	L	M
VS379PTCR-4-2	1/4	1/8	9/16	.68	.91
VS379PTCR-4-4	1/4	1/4	9/16	.68	1.05
VS379PTCR-6-2	3/8	1/8	3/4	.89	.99
VS379PTCR-6-4	3/8	1/4	3/4	.89	1.14
VS379PTCR-6-6	3/8	3/8	3/4	.89	1.15
VS379PTCR-6-8	3/8	1/2	15/16	.89	1.36
VS379PTCR-8-4	1/2	1/4	15/16	1.03	1.22
VS379PTCR-8-6	1/2	3/8	15/16	1.03	1.22
VS379PTCR-8-8	1/2	1/2	15/16	1.03	1.41
VS379PTCR-10-6	5/8	3/8	1-1/16	1.21	1.43
VS379PTCR-10-8	5/8	1/2	1-1/16	1.21	1.62
VS379PTCR-12-8	3/4	1/2	1-3/16	1.29	1.72



Plug-In Elbow 369PTCSP

PART NO.	TUBE SIZE 1	TUBE SIZE 2	H	L
369PTCSP-4-4	1/4	1/4	1.06	.74
369PTCSP-4-6	1/4	3/8	1.20	.74
369PTCSP-6-4	3/8	1/4	1.18	.96
369PTCSP-6-6	3/8	3/8	1.32	0.96
369PTCSP-6-8	3/8	1/2	1.52	.96
369PTCSP-8-4	1/2	1/4	1.16	1.12
369PTCSP-10-8	5/8	1/2	1.57	1.36

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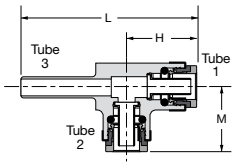
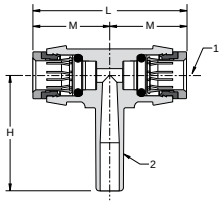


Plug-In Run Tee 371PTCSP

PART NO.	TUBE SIZE 1	TUBE SIZE 2	TUBE SIZE 3	H	L	M
371PTCSP-4-4	1/4	1/4	1/4	.78	1.84	.76
371PTCSP-4-6	1/4	1/4	3/8	.78	1.98	.76
371PTCSP-6-4	3/8	3/8	1/4	1.01	2.11	1.01
371PTCSP-6-6	3/8	3/8	3/8	1.01	2.25	1.01
371PTCSP-6-4-6	3/8	1/4	3/8	0.76	2.24	1.01
371PTCSP-8-4-8	1/2	1/4	1/2	0.96	2.58	1.15

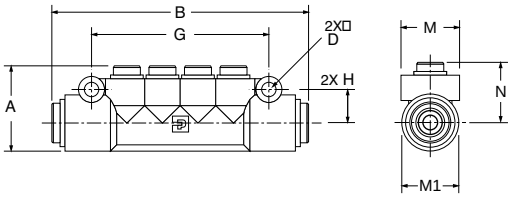


Plug-In Branch Tee 372PTCSP

PART NO.	TUBE SIZE 1	TUBE SIZE 2	H	L	M
372PTCSP-4-4	1/4	1/4	1.06	1.48	.74
372PTCSP-4-6	1/4	3/8	1.20	1.48	.74
372PTCSP-6-4	3/8	1/4	1.18	2.02	1.01
372PTCSP-6-6	3/8	3/8	1.32	2.02	1.01

Presto Manifold 24M

PART NO.	TUBE O.D. INLET	TUBE O.D. OUTLET	A	B	D	G	H	M	M1	N
24M-4-4	1/4	1/4	1.33	3.98	.21	2.75	.53	.90	.88	.89
24M-6-4	3/8	1/4	1.33	4.00	.21	2.75	.53	.90	.88	.89
24M-6-6	3/8	3/8	1.65	6.49	.22	4.55	.60	1.02	1.02	1.33
24M-8-8	1/2	1/2	1.65	6.49	.22	4.55	.60	1.02	1.02	1.33
24M-8-6446	1/2	3/8 - 1/4	1.65	6.49	.22	4.55	.64	1.02	1.02	1.17



Assembly Instructions

1. Cut tubing squarely with Parker tube cutter PTC-001. Be certain that Manifold ports are clean and free of debris.
2. Insert tubing into port until it bottoms. Pull on tubing to verify that it is properly retained in the manifold.
3. To disassemble, simply hold release button against the manifold body and remove the tubing.
4. To reassemble, make certain that the Manifold ports are clean and free of debris and lubricate leading end of the tubing with light oil or petroleum jelly.

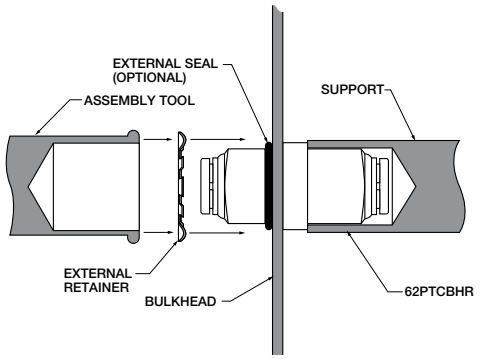
Retaining Ring Bulkhead Unions

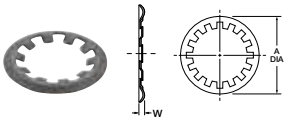
Retaining ring bulkhead unions feature a unique design that provides the user with an economical method to install and assemble a union connection through a bulkhead.

The retaining ring bulkhead unions feature a smaller envelope size than standard bulkhead union connectors and do not require a wrench to mount or assemble in cramped areas.

The external seal feature provides a moisture barrier and can also prevent external contamination from entering into an enclosed area.

To install, simply support the bulkhead union from behind and apply the external seal. Then push the external retainer against the external seal with an assembly tool and you have a reliable bulkhead connection in a confined area.

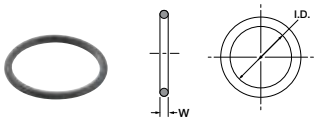




External Retainer ERHD*

PART NO.	TUBE SIZE	BULKHEAD UNION O.D.	A DIA.	W
ERHD-50	1/4	.500	.83	.05
ERHD-75	3/8	.750	1.08	.05
ERHD-87	1/2	.875	1.20	.05
ERHD-100	5/8	1.000	1.33	.06

*Material Carbon Spring Steel



External Seal ES*

PART NO.	TUBE SIZE	BULKHEAD UNION O.D.	I.D.	W
ES-50	1/4	.500	.489	.07
ES-75	3/8	.750	.739	.07
ES-87	1/2	.875	.864	.07

*Material is Nitrite (Buna N), 70 Durometer

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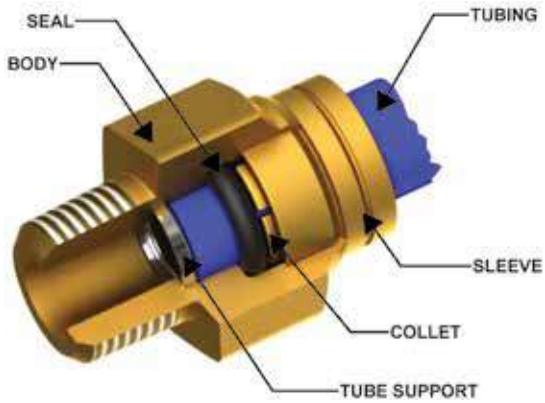
More Information

PTC Brass Fittings

Parker's PTC Brass Fittings are robust, all brass push-to-connect fittings that meet SAE and D.O.T. specifications. Designed for all D.O.T truck and trailer applications, Parker PTC Brass fittings reduce assembly time versus compression style fittings by 90%.

Product Features:

- Brass Collet
- Buna N O-ring
- Stainless Steel Tube Support
- Meets D.O.T. FMVSS571.106
- Meets SAE J2494 & SAE J2494-3



Markets:

- Heavy Duty Truck
- Trailer
- Mobile

Applications:

- Air Brakes
- Air Tanks
- Air Ride
- Sliders
- Tire Inflation
- Primary & Secondary Air Lines

Specifications:

Pressure Range	Up to 250 PSI (17.2 bar)
Temperature Range	-40˚ to +200˚ F (-40° to +93.3° C)

Compatible Tubing:

- SAE J844 Type A & B nylon tubing

Assembly Instructions

1. Cut tubing squarely – maximum of 15˚ angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Mark tubing to appropriate tube insertion length. (see Tube Insertion Chart on page N22)
4. Insert tubing until it bottoms
5. Pull on tubing to verify it is fully inserted
6. To disassemble, simply press release button, hold against body and pull tubing out of fitting.

Note:
5/32 and 3/16 units have black button

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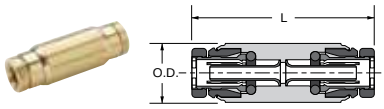
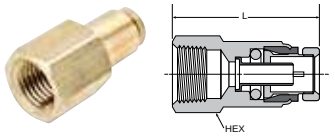


Union 62PTC

PART NO.	TUBE SIZE	L	O.D.
62PTC-5/32*	5/32	1.37	.41
62PTC-3*	3/16	1.36	.44
62PTC-4	1/4	1.37	1/2
62PTC-6	3/8	1.77	3/4
62PTC-6-4	3/8-1/4	1.57	3/4
62PTC-8	1/2	1.92	7/8
62PTC-10	5/8	2.32	1

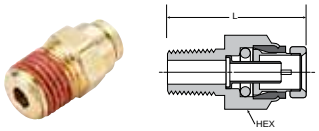
*5/32 and 3/16 with black button



Female Connector 66PTC

PART NO.	TUBE SIZE	PIPE THREAD	L	HEX
66PTC-5/32-2*	5/32	1/8	1.17	9/16
66PTC-5/32-4*	5/32	1/4	1.34	11/16
66PTC-3-2*	3/16	1/8	1.17	9/16
66PTC-4-2	1/4	1/8	9/16	1.17
66PTC-4-4	1/4	1/4	11/16	1.37
66PTC-6-2	3/8	1/8	3/4	1.38
66PTC-6-4	3/8	1/4	3/4	1.59
66PTC-6-6	3/8	3/8	3/4	1.59
66PTC-8-4	1/2	1/4	7/8	1.61
66PTC-8-6	1/2	3/8	15/16	1.87
66PTC-8-8	1/2	1/2	15/16	1.87

*5/32 and 3/16 with black button



Male Connector 68PTC

PART NO.	TUBE SIZE	PIPE THREAD	HEX	L
68PTC-5/32-1*	5/32	1/16	3/8	.85
68PTC-5/32-2*	5/32	1/8	7/16	.92
68PTC-5/32-4*	5/32	1/4	9/16	1.02
68PTC-3-1*	3/16	1/16	7/16	.92
68PTC-3-2*	3/16	1/8	7/16	.85
68PTC-3-4*	3/16	1/4	9/16	1.02
VS68PTC-4-2	1/4	1/8	1/2	.98
VS68PTC-4-4	1/4	1/4	9/16	1.02
VS68PTC-4-6	1/4	3/8	11/16	.93
VS68PTC-6-2	3/8	1/8	11/16	1.27
VS68PTC-6-4	3/8	1/4	11/16	1.36
VS68PTC-6-6	3/8	3/8	11/16	1.16
VS68PTC-6-8	3/8	1/2	7/8	1.33
VS68PTC-8-4	1/2	1/4	7/8	1.49
VS68PTC-8-6	1/2	3/8	7/8	1.49
VS68PTC-8-8	1/2	1/2	7/8	1.49
VS68PTC-10-6	5/8	3/8	1	1.74
VS68PTC-10-8	5/8	1/2	1	1.81
VS68PTC-12-8	3/4	1/2	1-1/8	1.89

*5/32 and 3/16 with black button

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More Info

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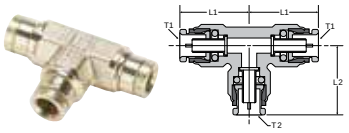
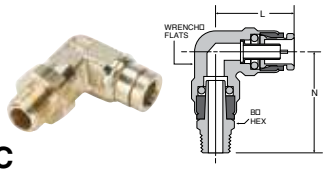
Union Tee 164PTC



PART NO.	TUBE 1 SIZE	TUBE 2 SIZE	L1	L2
164PTC-5/32*	5/32	5/32	.77	.77
164PTC-3*	3/16	3/16	.77	.77
164PTC-4	1/4	1/4	.85	.85
164PTC-6	3/8	3/8	1.21	1.21
164PTC-6-6-4	3/8	1/4	1.21	.93
164PTC-8	1/2	1/2	1.27	1.27
164PTC-10	5/8	5/8	1.57	1.57

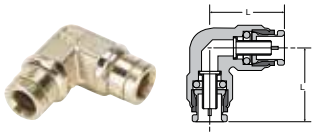
*5/32 and 3/16 with black button

Male Elbow 90° 169PTC



PART NO.	TUBE SIZE	PIPE THREAD	L	N	WRENCH FLATS	B HEX
169PTC-4-2	1/4	1/8	.84	1.01	1/2	9/16
169PTC-4-4	1/4	1/4	.84	1.23	1/2	9/16
169PTC-4-6	1/4	3/8	.84	1.23	1/2	11/16
169PTC-6-2	3/8	1/8	1.11	1.18	9/16	11/16
169PTC-6-4	3/8	1/4	1.11	1.30	9/16	11/16
169PTC-6-6	3/8	3/8	1.11	1.33	9/16	11/16
169PTC-6-8	3/8	1/2	1.11	1.54	9/16	7/8
169PTC-8-4	1/2	1/4	1.27	1.73	11/16	5/8
169PTC-8-6	1/2	3/8	1.27	1.81	11/16	3/4
169PTC-8-8	1/2	1/2	1.27	1.96	11/16	7/8
169PTC-10-6	5/8	3/8	1.47	1.41	7/8	7/8
169PTC-10-8	5/8	1/2	1.47	1.6	7/8	7/8

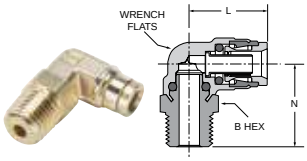
Union Elbow 165PTC



PART NO.	TUBE SIZE	L
165PTC-5/32*	5/32	.77
165PTC-3*	3/16	.77
165PTC-4	1/4	.85
165PTC-6	3/8	1.11
165PTC-8	1/2	1.24
165PTC-10	5/8	1.49

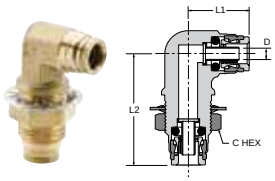
*5/32 and 3/16 with black button

Male Elbow Positional 90° 169PTCR



PART NO.	TUBE SIZE	PIPE THREAD	B HEX	L	N	WRENCH FLATS
169PTCR-4-4	1/4	1/4	9/16	.84	1.13	1/2
169PTCR-6-6	3/8	3/8	3/4	1.12	1.19	9/16
169PTC-10-8	5/8	1/2	1.47	1.6	7/8	7/8

Union Bulkhead Elbow 165PTCBH



PART NO.	TUBE SIZE	L1	L2	C HEX	FLOW DIA. D	BULKHEAD HOLE DIA.
165PTCBH-8	1/2	1.29	2.45	1 1/4	.34	1

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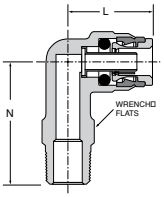
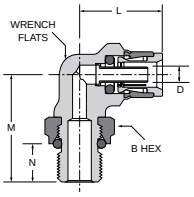


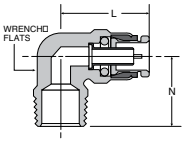
Male Elbow Long Rigid 90° 169PTCL

PART NO.	TUBE SIZE	PIPE THREAD	L	N	WRENCH FLATS
169PTCL-6-4	3/8	1/4	1.06	1.63	9/16
169PTCL-6-8	3/8	1/2	1.19	2.50	7/8
169PTCL-6-6	3/8	3/8	1.19	2.50	7/8
169PTCL-8-8	1/2	1/2	1.22	2.50	7/8



Male Elbow to Metric Adjustable 169PTCNS-X-M

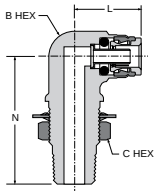
PART NO.	TUBE SIZE	METRIC THREAD	WRENCH FLATS (MM)	HEX (MM)	L	M	N
169PTCNS-4-MI2	1/4	M12X1.5	10	17	.84	1.11	.37
169PTCNS-4-M16	1/4	M16X1.5	11	24	.96	1.27	.41
169PTCNS-4-M22	1/4	M22X1.5	19	30	1.09	1.53	.41
169PTCNS-6-M12	3/8	M12X1.5	16	17	1.10	1.15	.66
169PTCNS-6-M16	3/8	M16X1.5	19	24	1.23	1.27	.41
169PTCNS-8-M12	1/2	M12X1.5	16	17	1.21	1.31	.37
169PTCNS-8-M16	1/2	M16X1.5	16	24	1.26	1.34	.41
169PTCNS-8-M22	1/2	M22X1.5	19	30	1.26	1.59	.41



Male Elbow Rigid 90° 169PTCNS

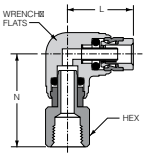
PART NO.	TUBE SIZE	PIPE THREAD	L	N	WRENCH FLATS
169PTCNS-5/32-1*	5/32	1/16	.77	.62	.40
169PTCNS-5/32-2*	5/32	1/8	.77	.65	.40
169PTCNS-5/32-4*	5/32	1/4	.77	.85	.50
169PTCNS-3-2*	3/16	1/8	.77	.65	.40
169PTCNS-3-4*	3/16	1/4	.77	.85	.49
169PTCNS-4-2	1/4	1/8	.84	.72	1/2
169PTCNS-4-4	1/4	1/4	.84	.90	1/2
169PTCNS-4-6	1/4	3/8	.84	1.06	1/2
169PTCNS-6-2	3/8	1/8	1.05	.75	9/16
169PTCNS-6-4	3/8	1/4	1.05	.94	9/16
169PTCNS-6-6	3/8	3/8	1.05	.94	3/4
169PTCNS-6-8	3/8	1/2	1.12	1.26	11/16
169PTCNS-8-4	1/2	1/4	1.17	1.06	11/16
169PTCNS-8-6	1/2	3/8	1.22	1.06	11/16
169PTCNS-8-8	1/2	1/2	1.22	1.26	11/16
169PTCNS-10-6	5/8	3/8	1.49	1.05	7/8
169PTCNS-10-8	5/8	1/2	1.48	1.24	7/8
169PTCNS-12-8	3/4	1/2	1.81	1.44	1

*5/32 and 3/16 with black button



Male Elbow Bulkhead 169PTCBH

PART NO.	TUBE SIZE	PIPE THREAD	L	N	B HEX	C HEX	BULKHEAD HOLE DIA.
169PTCBH6-8	3/8	1/2	1.19	2.50	1-1/4	7/8	1
169PTCBH8-8	1/2	1/2	1.29	2.50	1-1/4	7/8	1



Female Elbow Swivel 90° 170PTC

PART NO.	TUBE SIZE	PIPE THREAD	L	N	HEX	WRENCH FLATS
170PTC-4-2	1/4	1/8	.84	1.06	1/2	1/2

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More Info

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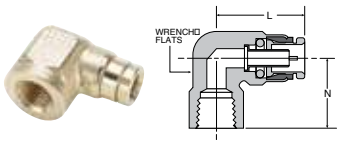
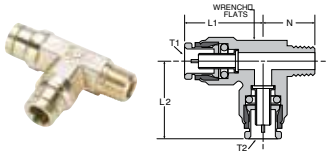
Click here for CADs, Product Specifications or to Configure Parts Online



Female Elbow Rigid 90° 170PTCNS

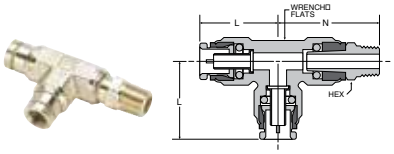
PART NO.	TUBE SIZE	PIPE THREAD	L	N	WRENCH FLATS
170PTCNS-4-2	1/4	1/8	.84	.56	11/16
170PTCNS-4-4	1/4	1/4	1.00	.67	11/16
170PTCNS-6-2	3/8	1/8	1.12	.64	9/16
170PTCNS-6-4	3/8	1/4	1.25	1.00	11/16
170PTCNS-6-6	3/8	3/8	1.25	1.00	13/16
170PTCNS-8-4	1/2	1/4	1.25	.75	11/16
170PTCNS-8-6	1/2	3/8	1.32	.88	11/16
170PTCNS-8-8	1/2	1/2	1.70	.98	1



Male Run Tee Rigid 171PTCNS

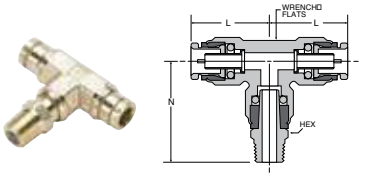
PART NO.	TUBE 1 SIZE	TUBE 2 SIZE	PIPE THREAD	L1	L2	N	WRENCH FLATS
171PTCNS-5/32-2*	5/32	5/32	1/8	.78	.78	.75	7/16
171PTCNS-5/32-4*	5/32	5/32	1/4	.78	.78	.88	7/16
171PTCNS-3-2*	3/16	3/16	1/8	.77	.77	.75	7/16
171PTCNS-4-2	1/4	1/4	1/8	.91	.91	.77	15/32
171PTCNS-4-4	1/4	1/4	1/4	.91	.91	.94	15/32
171PTCNS-4-6-4	1/4	3/8	1/4	.93	1.21	.97	5/8
171PTCNS-6-4	3/8	3/8	1/4	1.21	1.21	.97	5/8
171PTCNS-6-4-4	3/8	1/4	1/4	1.21	.93	.97	5/8
171PTCNS-6-4-6	3/8	1/4	3/8	1.22	.97	.93	5/8
171PTCNS-6-6	3/8	3/8	3/8	1.21	1.21	.97	5/8
171PTCNS-6-8	3/8	3/8	1/2	1.17	1.17	1.26	5/8
171PTCNS-8-4	1/2	1/2	1/4	1.28	1.28	1.06	7/8

*5/32 and 3/16 with black button



Male Run Tee Swivel 171PTC

PART NO.	TUBE SIZE	PIPE THREAD	L	N	HEX	WRENCH FLATS
171PTC-4-2	1/4	1/8	.85	1.01	9/16	1/2
171PTC-4-4	1/4	1/4	.85	1.23	9/16	1/2
171PTC-4-6	1/4	3/8	.85	1.23	11/16	1/2
171PTC-6-4	3/8	1/4	1.21	1.42	11/16	5/8
171PTC-6-6	3/8	3/8	1.21	1.45	11/16	5/8
171PTC-8-4	1/2	1/4	1.27	1.74	5/8	7/8
171PTC-8-6	1/2	3/8	1.27	1.83	3/4	7/8
171PTC-8-8	1/2	1/2	1.27	1.99	7/8	7/8



Male Branch Tee Swivel 172PTC

PART NO.	TUBE SIZE	PIPE THREAD	L	N	HEX	WRENCH FLATS
172PTCNS-5/32-2*	5/32	1/8	.78	.75	7/16	.47
172PTCNS-5/32-4*	5/32	1/4	.78	.88	7/16	.47
172PTCNS-3-2*	3/16	1/8	.77	.75	7/16	.47
172PTC-4-2	1/4	1/8	.85	1.01	9/16	1/2
172PTC-4-4	1/4	1/4	.85	1.23	9/16	1/2
172PTC-6-2	3/8	1/8	1.22	1.30	11/16	5/8
172PTC-6-4	3/8	1/4	1.22	1.42	11/16	5/8
172PTC-6-6	3/8	3/8	1.22	1.45	11/16	5/8
172PTC-8-4	1/2	1/4	1.27	1.73	5/8	7/8
172PTC-8-6	1/2	3/8	1.27	1.79	3/4	7/8
172PTC-8-8	1/2	1/2	1.27	1.97	7/8	7/8

*5/32 and 3/16 with black button

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More Info

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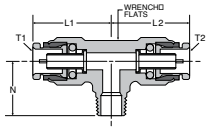
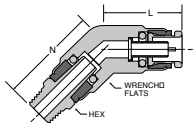
Male Branch Tee Rigid 172PTCNS



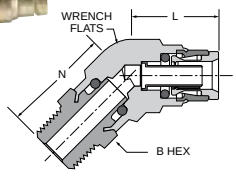
PART NO.	TUBE 1 SIZE	TUBE 2 SIZE	PIPE THREAD	L1	L2	N	WRENCH FLATS
172PTCNS-4-2	1/4	1/4	1/8	.91	.91	.78	1/2
172PTCNS-6-4	3/8	3/8	1/4	1.21	1.21	.97	5/8
172PTCNS-6-4-4	3/8	1/4	1/4	1.21	.93	.97	5/8
172PTCNS-6-6	3/8	3/8	3/8	1.21	1.21	.97	5/8
172PTCNS-6-8	3/8	3/8	1/2	1.17	1.17	1.26	7/8
172PTCNS-8-6	1/2	1/2	3/8	1.28	1.28	1.06	7/8
172PTCNS-8-6-8	1/2	3/8	1/2	1.25	1.25	1.25	7/8
172PTCNS-8-8	1/2	1/2	1/2	1.34	1.34	1.25	7/8

Male Elbow Swivel 45° 179PTC



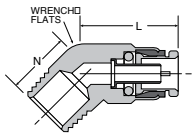
PART NO.	TUBE SIZE	PIPE THREAD	L	N	HEX	WRENCH FLATS
179PTC-4-2	1/4	1/8	.79	.92	9/16	9/16
179PTC-4-4	1/4	1/4	.79	1.14	9/16	9/16
179PTC-6-2	3/8	1/8	.99	1.02	11/16	3/4
179PTC-6-4	3/8	1/4	.99	1.14	11/16	3/4
179PTC-6-6	3/8	3/8	.99	1.17	11/16	3/4
179PTC-8-4	1/2	1/4	1.20	1.70	5/8	7/8
179PTC-8-6	1/2	3/8	1.20	1.78	3/4	7/8
179PTC-8-8	1/2	1/2	1.20	1.93	7/8	7/8

Male Elbow Positional Swivel 45° 179PTCR



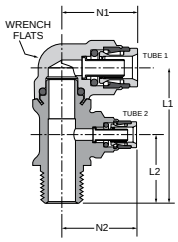
PART NO.	TUBE SIZE	PIPE THREAD	B HEX	L	N	WRENCH FLATS
179PTCR-4-4	1/4	1/4	9/16	.79	1.18	9/16
179PTCR-8-8	1/2	1/2	7/8	1.17	1.35	7/8

Male Elbow Rigid 45° 179PTCNS



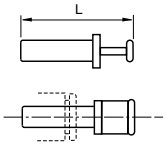
PART NO.	TUBE SIZE	PIPE THREAD	L	N	WRENCH FLATS
179PTCNS-4-2	1/4	1/8	.80	.56	9/16
179PTCNS-4-4	1/4	1/4	.80	.75	9/16
179PTCNS-6-2	3/8	1/8	.99	.55	3/4
179PTCNS-6-4	3/8	1/4	.99	.73	3/4
179PTCNS-6-6	3/8	3/8	.99	.73	3/4
179PTCNS-8-4	1/2	1/4	1.28	.81	13/16
179PTCNS-8-6	1/2	3/8	1.28	.81	13/16
179PTCNS-8-8	1/2	1/2	1.28	1.06	13/16
179PTCNS-10-6	5/8	3/8	1.2	.76	7/8
179PTCNS-10-8	5/8	1/2	1.21	.95	7/8
179PTCNS-12-8	3/4	1/2	1.41	1.25	1

Dual Port 90 Male Elbow Positional 189PTCR



PART NO.	TUBE 1 SIZE	TUBE 2 SIZE	PIPE THREAD	L1	L2	N1	N2	WRENCH FLATS
189PTCR6-4-6	3/8	1/4	3/8	2.12	1.05	1.21	1.19	11/16
189PTCR6-6-4	3/8	3/8	1/4	2.06	.98	1.12	1.20	9/16
189PTCR6-6-6	3/8	3/8	3/8	2.06	.98	1.12	1.20	9/16
189PTC-10-4-6	5/8	1/4	3/8	2.27	.99	1.47	1.13	7/8
189PTC-10-6-6	5/8	3/8	3/8	2.35	1.06	1.47	1.13	7/8

639PLP Plug



PART NO.	TUBE SIZE (IN)	L
639PLP-4	1/4	1.44
639PLP-6	3/8	1.67
639PLP-8	1/2	1.91

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Metric Prestomatic Fittings

Parker's Metric Prestomatic Fittings are robust, all brass push-to-connect fittings that meet DIN and D.O.T. specifications. Designed for all D.O.T truck and trailer applications, Parker Metric Prestomatic fittings reduce assembly time versus compression style fittings by 90%.

Product Features:

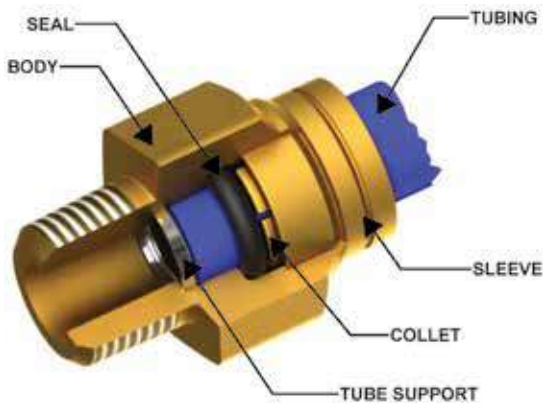
- Brass Collet
- Buna N O-ring
- Stainless Steel Tube Support
- Meets D.O.T. FMVSS571.106
- Meets DIN 74324

Markets:

- Heavy Duty Truck
- Trailer
- Mobile

Applications:

- Air Brakes
- Air Tanks
- Air Ride
- Sliders
- Tire Inflation
- Primary & Secondary Air Lines



Specifications:

Pressure Range	Up to 250 PSI (17.2 bar)
Temperature Range	-40˚ to +200˚ F (-40° to +93.3° C)

Compatible Tubing:

- DIN 73378 Virgin Nylon
- SAE J844 Type A & B nylon tubing

Assembly Instructions

1. Cut tubing squarely – maximum of 15˚ angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Mark tubing to appropriate tube insertion length. (see Tube Insertion Chart on page N22)
4. Insert tubing until it bottoms
5. Pull on tubing to verify it is fully inserted
6. To disassemble, simply press release button, hold against body and pull tubing out of fitting.

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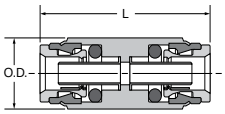
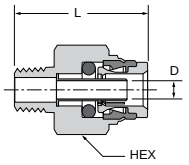


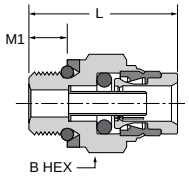
Union HPMTB

PART NO.	TUBE SIZE (MM)	L (MM)	O.D. (MM)
HPMTB6	6	45.2	15.9
HPMTB8	8	45.3	17.5
HPMTB10	10	51.7	22.2
HPMTB12	12	51.7	22.2



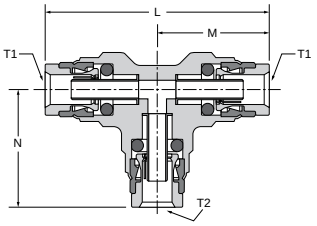
Male Connector F2PMTB

PART NO.	TUBE (MM)	PIPE THREAD	L (MM)	HEX (MM)	FLOW DIA. D(MM)
F2PMTB8-1/8	8	1/8	33.79	19	4.90
F2PMTB10-1/4	10	1/4	36.83	20	6.35



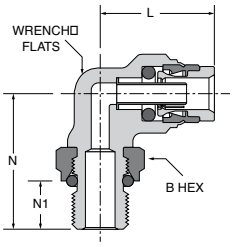
Male Connector Metric Straight Thread F8UPMTB

PART NO.	TUBE SIZE (mm)	METRIC THREAD	L (mm)	B HEX (MM)	M1 (MM)
F8UPMTB6-M10	6	M10X1	29.7	17	6.4
F8UPMTB6-M12	6	M12X1.5	29.1	17	7.5
F8UPMTB6-M22	6	M22X1.5	29.7	27	9.5
F8UPMTB8-M16	8	M16X1.5	31.0	22	10.0
F8UPMTB10-M16	10	M16X1.5	37.5	22	10.0
F8UPMTB10-M22	10	M22X1.5	31.1	27	9.5
F8UPMTB12-M12	12	M12X1.5	37.3	22	7.5
F8UPMTB12-M22	12	M22X1.5	33.4	27	9.5
F8UPMTB16-M22	16	M22X1.5	33.3	27	9.5



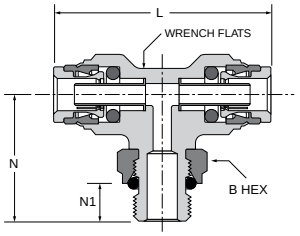
Union Tee JPMTB

PART NO.	TUBE 1 (MM)	TUBE 2 (MM)	L (MM)	M (MM)	N (MM)
JPMTB6	6	6	51.3	25.6	26.7
JPMTB12	12	12	63.3	31.7	35.0
JPMTB12-12-6	12	6	63.3	31.7	28.1



Male Elbow Metric Straight Thread C8UPMTB

PART NO.	TUBE SIZE (MM)	B METRIC THREAD	WRENCH FLATS (MM)	HEX (MM)	L (MM)	N (MM)	N1 (MM)
C8UPMTB6-M12	6	M12X1.5	10	17	24.8	28.2	9.5
C8UPMTB6-M16	6	M16X1.5	11	24	25.0	34.0	10.5



Male Branch Tee Swivel Metric Straight Thread S8UPMTB

PART NO.	TUBE SIZE (MM)	METRIC THREAD	WRENCH FLATS (MM)	HEX (MM)	L (MM)	N (MM)	N1 (MM)
S8UPMTB12-M16	12	M16X1.5	19	24	65.9	37.6	10.5

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Parker Safe Lock

Parker Safe Lock push-to-connect fittings reduce assembly time and the exclusive locking mechanism minimizes leaks and installation failures.

Parker Safe Lock Product Features:

- Composite Body – Strong, Lightweight, Compact and Impact Resistant
- Fluorocarbon and Fluorosilicone O-ring
- Meets SAE J2044

Markets:

- Heavy Duty Truck
- Trailer
- Mobile

Applications:

- Engine Fuel, Coolant and Vapor Lines

Parker Brass Adapter Product Features:

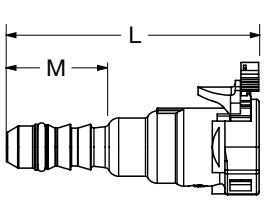
- **Construction**: Corrosion resistant high temperature brass
- **Configuration**: Rigid male pipe
- **Industry Standard**: SAE J2044

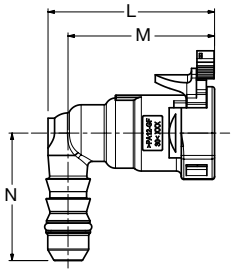
Specifications:

Pressure Range	-7.2 to +72 PSI (-0.4 to 4.9 bar)
Temperature Range	-40˚ to +239˚ F (-40° to +115° C)

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Click here for CADs, Product Specifications or to Configure Parts Online





Parker Safe Lock A613, A614, A623, A624

END FORM	BARB TAIL	CONFIGURATION	PART NUMBER** AVAILABLE FROM FSC*	L (MM)	M (MM)	N (MM)
5/16"	5/16"	STRAIGHT	A614A50G06 02	49.40	19.50	N/A
		90 DEGREE	A624A50D06 02	29.50	19.50	25.70
10MM	3/8"	STRAIGHT	A613 52 08 00	55.00	19.00	N/A
		90 DEGREE	A623A52 08 00	34.40	19.00	32.00
3/8"	3/8"	STRAIGHT	A614M53 08 02	55.00	21.50	N/A
		90 DEGREE	A624M53 08 02	34.05	21.50	28.60
12MM	1/2"	STRAIGHT	A614A58 55 04	59.35	21.00	N/A
		90 DEGREE	A624A58 55 04	39.00	21.00	29.70
1/2"	1/2"	STRAIGHT	A614C56 55 05	59.15	21.00	N/A
		90 DEGREE	A624C56 55 05	39.00	21.00	29.70
5/8"	5/8"	STRAIGHT	A614D57 56 02 A	58.20	20.00	N/A
		90 DEGREE	624F57 56 02	39.10	20.00	30.10

*FSC is the Parker Fluid System Connectors Division. See back cover for contact information.
**Safe Lock Connector part numbers contain spaces.

Parker Safe Lock Brass Adapter 68ALS

PART NUMBER AVAILABLE FROM FSC*	END FORM	THREAD SIZE	PART NUMBER AVAILABLE FROM FSC*	END FORM	THREAD SIZE
68ALS-5-4	5/16"	1/4"	68ALS-12M-8	12MM	1/2"
68ALS-6-4	3/8"	1/4"	68ALS-8-6	1/2"	3/8"
68ALS-6-6	3/8"	3/8"	68ALS-8-8	1/2"	1/2"
68ALS-12M-6	12MM	3/8"	68ALS-10-8	5/8"	1/2"

Adapters are available with Metric Straight Thread O-Rings and Electroless Nickel Plating Upon Request

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Transportation Compression Fittings & Valves

Air Brake–NTA® Fittings

Transmission Fittings

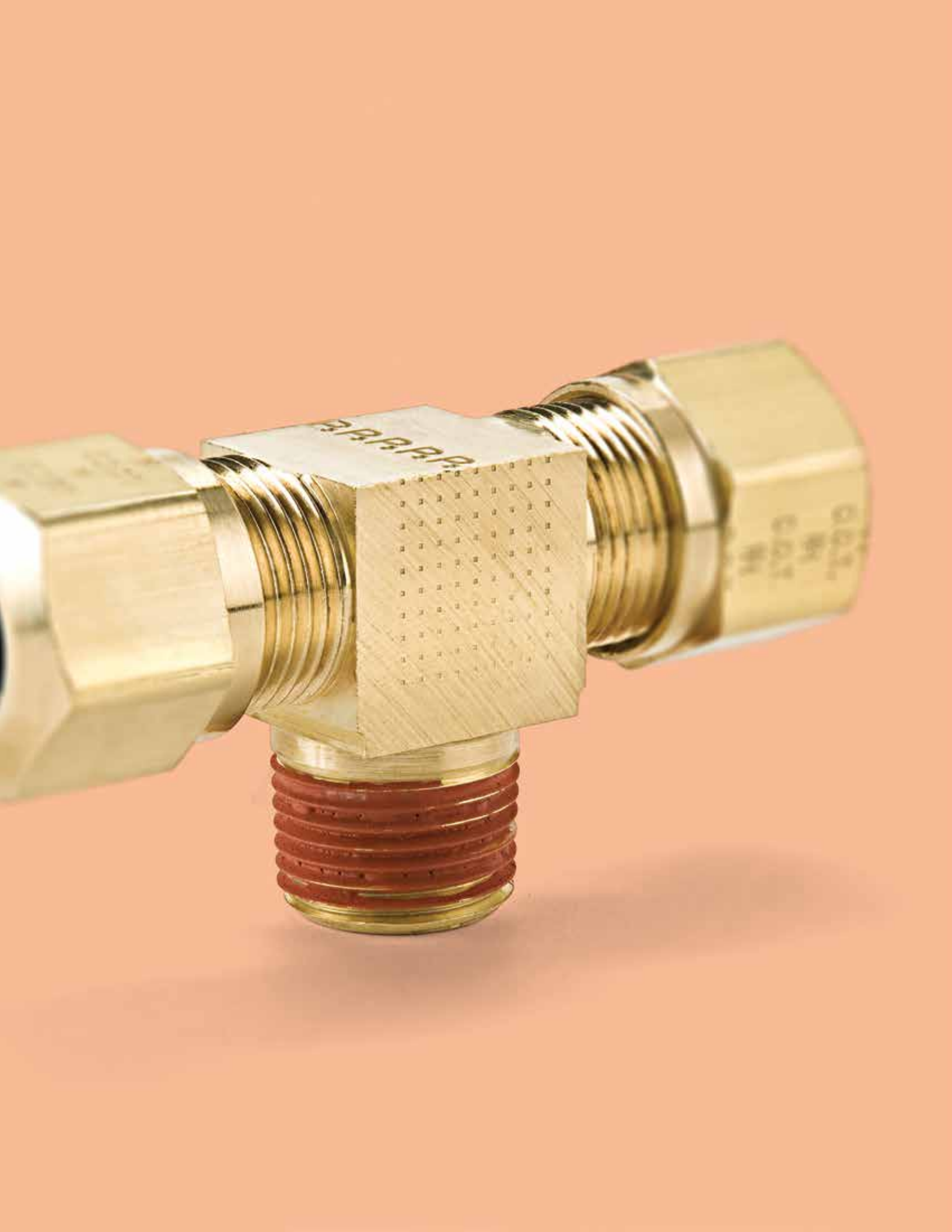
Air Brake – AB Fittings

Air Brake Hose Ends Fittings

Vibra-Lok Fittings

Truck Valves & Lanyard Valve

Parker Hannifin Corporation | Fluid System Connectors | Otsego, MI



Air Brake–NTA® Fittings

60NTA
Sleeve
p. B7

61NTA
Nut
p. B7

62NTA
Union
p. B7

63NTA
Tube Support
p. B7

62ANBH
Bulkhead Union
p. B7

62NBH
Bulkhead Union
p. B7

62NFBH
Bulkhead Union
p. B7

66NBH
Bulkhead Union
p. B7

66NTA
Female Connector NPTF
p. B8

VS68NTA
Male Connector NPTF
p. B8

68NTA-X-MIX
Male Connector
p. B8

VS176NTA
Adapter NPTF
p. B8

264NTA
Union Tee
p. B8

265NTA
Union Elbow
p. B8

VS269NTA
Male Elbow NPTF
p. B9

270NTA
Female Elbow NPTF
p. B9

VS271NTA
Male Run Tee NPTF
p. B9

VS272NTA
Male Branch Tee NPTF
p. B9

VS279NTA
45° Male Elbow NPTF
p. B9

Transmission Fittings

60TF
Sleeve
p. B11

61TF
Nut
p. B11

62TF
Union
p. B11

68TF
Male Connector NPTF
p. B11

269TF
Male Elbow NPTF
p. B11

Air Brake – AB Fittings

60AB
Sleeve
p. B13

61AB
Nut
p. B13

62AB
Union
p. B13

62ABH
Bulkhead Union
p. B13

66AB
Female Connector NPTF
p. B13

VS68AB
Male Connector NPTF
p. B13

264AB
Union Tee
p. B13

265AB
Union Elbow
p. B13

VS269AB
Male Elbow NPTF
p. B14

270AB
Female Elbow NPTF
p. B14

VS271AB
Male Run Tee NPTF
p. B14

VS272AB
Male Branch Tee NPTF
p. B14

VS279AB
45° Male Elbow NPTF
p. B14

207ACBH
Anchor Coupling NPTF
p. B14

WARNING These products can expose you to chemicals including NICKEL, CARBON BLACK, or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Air Brake Hose Ends Fittings

56RBSG
Spring
p. B16

60RB
Sleeve
p. B16

61RB
Nut
p. B16

61RBSG
Spring Guard Nut
p. B16

62RB
Union
p. B16

66RBSV
Female Connector
NPTF
p. B16

67RBSG
Nut & Spring
p. B16

68RB
Male Connector
NPTF
p. B16

68RB
Male Connector
Body Only – NPTF
p. B16

68RBSG
Male Connector
NPTF
p. B16

76RB
Adapter
NPTF
p. B16

Vibra-Lok Fittings

60VL
Sleeve
p. B18

60VLV
Sleeve
p. B18

61VL
Nut
p. B18

62VL
Union
p. B18

66VL
Female Connector
NPTF
p. B19

68VL
Male Connector
NPTF
p. B19

685VLV
Male Connector
p. B19

164VL
Union Tee
p. B19

169VL
Male Elbow
NPTF
p. B19

682VL
Tank Fitting
NPTF
p. B19

1695VL
Male Elbow
p. B20

170VL
Female Elbow
NPTF
p. B20

171VL
Male Run Tee
NPTF
p. B20

172VL
Male Branch Tee
NPTF
p. B20

179VL
45° Male Elbow
NPTF
p. B20

Truck Valves & Lanyard Valve

V404P
Hose – Pipe
p. B22

V404PH
Hose – Pipe
p. B22

SV404P
Hose – Pipe
p. B22

V405P
Female – Male
p. B22

V408NTA
Tube – Pipe
p. B22

V409F
Flare – Pipe
p. B22

V410NTA
Tube – Pipe
p. B22

V412F
Tube – Flare
p. B22

LV91
Lanyard Valve
p. B22

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Air Brake–NTA® Fittings

Parker's NTA Fittings utilize a ribbed sleeve for compression and positive grip. Fittings meet SAE and D.O.T. specifications. Designed for all D.O.T truck and trailer applications. Electroless nickel plated bodies can be used with bio-diesel.

Product Features:

- Brass Body
- Meets D.O.T. FMVSS571.106 Performance
- Meets functional Requirements SAE J246 & SAE J1131
- Pre-applied Thread Sealant
- Nickel Plated Versions Available for Bio-diesel

Markets:

- Heavy Duty Truck
- Trailer
- Mobile

Applications:

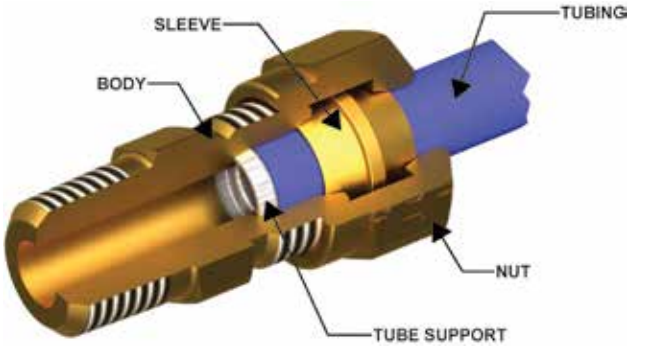
- Air Brakes
- Air Tanks
- Air Ride
- Sliders
- Tire Inflation
- Primary & Secondary Air Lines
- Cab Controls

Specifications:

Pressure Range	Up to 150 PSI (10.3 bar)
Temperature Range	-40˚ to +200˚ F (-40° to +93.3° C)

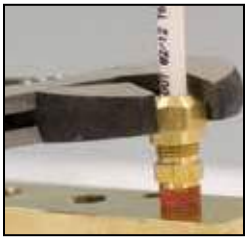
Compatible Tubing:

- SAE J844 Type A & B nylon tubing



Assembly Instructions

1. Cut tubing squarely – maximum of 15˚ angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Insert tubing until it bottoms on seat.
4. Tighten nut with wrench until one thread remains visible on the fitting body; (this will allow for a number of remakes) or, the nut should be screwed down finger tight, then wrench-tightened as indicated in the following table.



TUBE SIZE	ADDITIONAL NUMBER OF TURNS FROM HAND-TIGHT
3/16	2-1/2
1/4	3
3/8 &1/2	4
5/8 &3/4	3-1/2

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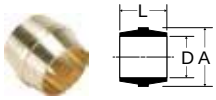
Sleeve 60NTA

REF. SAE 100115

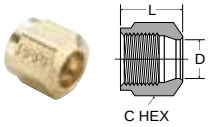


PART NO.	TUBE SIZE	A	D	L
60NTA-3*	3/16	.255	.194	.23
60NTA-4	1/4	.359	.256	.30
60NTA-6	3/8	.479	.384	.39
60NTA-8	1/2	.624	.509	.43
60NTA-10	5/8	.746	.634	.49
60NTA-12	3/4	.922	.760	.54

*Meets D.O.T. FMVSS 571.106 specification. No applicable SAE specification for this tube size.

Nut 61NTA

REF. SAE 100110

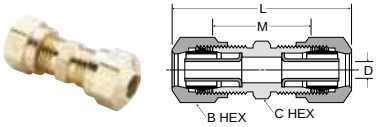


PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	D	L
61NTA-3*	3/16	5/16-24	7/16	.194	.40
61NTA-4	1/4	7/16-24	9/16	.256	.45
61NTA-6	3/8	17/32-24	5/8	.384	.63
61NTA-8	1/2	11/16-20	13/16	.509	.72
61NTA-10	5/8	13/16-18	15/16	.634	.77
61NTA-12	3/4	1-18	1-1/8	.760	.81

*Meets D.O.T. FMVSS 571.106 specification. No applicable SAE specification for this tube size.

Union 62NTA

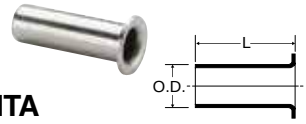
REF. SAE 100101 BA



PART NO.	TUBE SIZE	STRAIGHT THREAD	B HEX	C HEX	L	M	FLOW DIA. D
62NTA-4	1/4	7/16-24	9/16	7/16	1.49	.83	.137
62NTA-6	3/8	17/32-24	5/8	9/16	2.00	1.08	.217
62NTA-8	1/2	11/16-20	13/16	11/16	2.32	1.29	.338
62NTA-10	5/8	13/16-18	15/16	13/16	2.39	1.41	.398
62NTA-12	3/4	1-18	1-1/8	1	2.60	1.58	.523

Stainless Steel Insert 63NTA

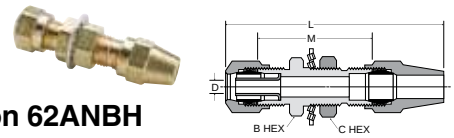
(FOR SAE J844 TUBING)



PART NO.	TUBE SIZE	L	O.D.
63NTA-4	1/4	.53	.163
63NTA-6	3/8	.64	.245
63NTA-8	1/2	.81	.370
63NTA-10	5/8	.86	.434
63NTA-12	3/4	1.04	.559

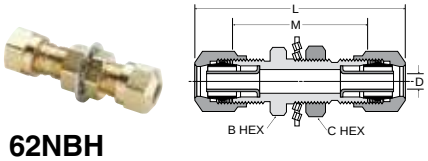
Bulkhead Union 62ANBH

(NTA® & AIR BRAKE)



PART NO.	TUBE SIZE	STRAIGHT THREAD	B HEX	C HEX	L	M	FLOW DIA. D	BULKHEAD HOLE DIA.
62ANBH-4	1/4	7/16-24	9/16	9/16	2.28	1.38	.137	7/16
62ANBH-6	3/8	17/32-24	11/16	3/4	2.97	1.62	.217	17/32
62ANBH-8	1/2	11/16-20	13/16	1	3.36	1.88	.338	11/16

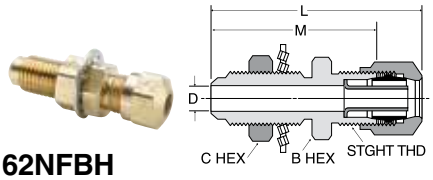
Bulkhead Union 62NBH



PART NO.	TUBE SIZE	STRAIGHT THREAD	B HEX	C HEX	L	M	FLOW DIA. D	BULKHEAD HOLE DIA.
62NBH-3*	3/16	5/16-24	7/16	7/16	1.80	1.21	.087	5/16
62NBH-4	1/4	7/16-24	9/16	9/16	2.04	1.38	.137	7/16
62NBH-6	3/8	17/32-24	11/16	3/4	2.54	1.62	.217	17/32
62NBH-8	1/2	11/16-20	13/16	1	2.92	1.88	.338	11/16
62NBH-10	5/8	13/16-18	15/16	1	2.99	2.01	.398	13/16

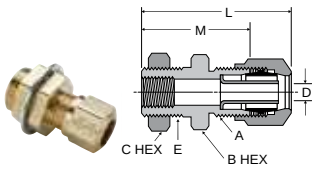
*Meets D.O.T. FMVSS 571.106 specification. No applicable SAE specification for this tube size.

Bulkhead Union 62NFBH



PART NO.	TUBE SIZE	FLARE SIZE	STGHT THD	B HEX	C HEX	L	M	FLOW DIA. D	BKHD HOLE DIA.
62NFBH-4	1/4	1/4	7/16-24	9/16	9/16	1.86	1.53	.137	7/16
62NFBH-6	3/8	3/8	17/32-24	3/4	3/4	2.24	1.78	.217	5/8
62NFBH-8	1/2	1/2	11/16-20	7/8	7/8	2.73	2.22	.338	3/4
62NFBH-10	5/8	5/8	13/16-18	1	1	2.68	2.21	.398	7/8
62NFBH-10-8	5/8	1/2	13/16-18	7/8	7/8	2.90	2.40	.398	3/4

Bulkhead Union 66NBH



PART NO.	TB SZ	PIPE THD	A STGHT THD	E STGHT THD	B HEX	C HEX	L	M	FLOW DIA. D	BKHD HOLE DIA.
66NBH-8-6	1/2	3/8	11/16-20	7/8-14	1-1/16	1-1/16	1.94	1.42	.338	7/8

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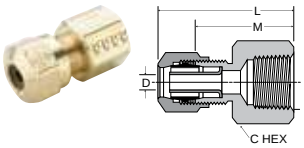
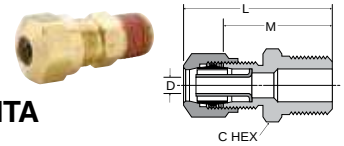
Click here for CADs, Product Specifications or to Configure Parts Online



Female Connector 66NTA

REF. SAE 100103 BA

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	C HEX	L	M	FLOW DIA. D
66NTA-4-2	1/4	1/8	7/16-24	9/16	1.17	.84	.137
66NTA-4-4	1/4	1/4	7/16-24	11/16	1.40	1.07	.137
66NTA-6-2	3/8	1/8	17/32-24	9/16	1.46	1.00	.217
66NTA-6-4	3/8	1/4	17/32-24	11/16	1.64	1.18	.217
66NTA-6-6	3/8	3/8	17/32-24	7/8	1.64	1.18	.217
66NTA-8-6	1/2	3/8	11/16-20	7/8	1.79	1.27	.338
66NTA-8-8	1/2	1/2	11/16-20	1-1/16	1.96	1.44	.338
66NTA-10-6	5/8	3/8	13/16-18	7/8	1.80	1.31	.398
66NTA-10-8	5/8	1/2	13/16-18	1-1/16	1.99	1.50	.398

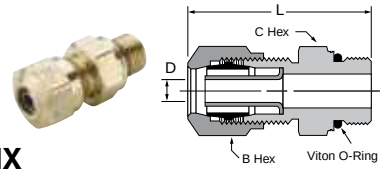


Male Connector VS68NTA

Ref. SAE 100102 BA

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	C HEX	L	M	FLOW DIA. D
VS68NTA-3-1*	3/16	1/16	5/16-24	3/8	1.16	.87	.087
VS68NTA-3-2*	3/16	1/8	5/16-24	7/16	1.15	.86	.087
VS68NTA-3-4*	3/16	1/4	5/16-24	9/16	1.35	1.05	.087
VS68NTA-4-2	1/4	1/8	7/16-24	7/16	1.22	.89	.137
VS68NTA-4-4	1/4	1/4	7/16-24	9/16	1.43	1.10	.137
VS68NTA-4-6	1/4	3/8	7/16-24	11/16	1.47	1.14	.137
VS68NTA-6-2	3/8	1/8	17/32-24	9/16	1.49	1.03	.217
VS68NTA-6-4	3/8	1/4	17/32-24	9/16	1.67	1.21	.217
VS68NTA-6-6	3/8	3/8	17/32-24	11/16	1.70	1.24	.217
VS68NTA-6-8	3/8	1/2	17/32-24	7/8	1.89	1.43	.217
VS68NTA-8-4	1/2	1/4	11/16-20	11/16	1.85	1.33	.338
VS68NTA-8-6	1/2	3/8	11/16-20	11/16	1.85	1.33	.338
VS68NTA-8-8	1/2	1/2	11/16-20	7/8	2.04	1.52	.338
VS68NTA-10-6	5/8	3/8	13/16-18	13/16	1.88	1.39	.398
VS68NTA-10-8	5/8	1/2	13/16-18	7/8	2.10	1.58	.398
VS68NTA-12-6	3/4	3/8	1-18	1	2.00	1.49	.440
VS68NTA-12-8	3/4	1/2	1-18	1	2.19	1.68	.523
VS68NTA-12-12	3/4	3/4	1-18	1-1/8	2.22	1.71	.523

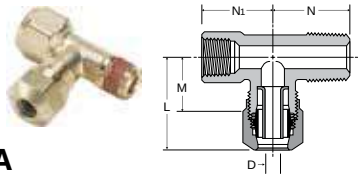
*Meets D.O.T. FMVSS 571.106 specification. No applicable SAE specification for this tube size.



NTA® to Metric Adaptor 68NTA-X-MIX

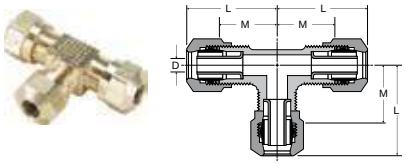
PART NO.	TUBE SIZE	METRIC THREAD	B HEX	C HEX	L	D
68NTA-4-MI10	1/4	M10 X 1.0	9/16	9/16	1.33	.140

Note: Fluorocarbon o-ring is standard



Adapter Tee VS176NTA

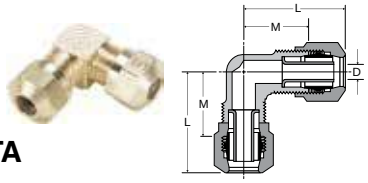
PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	N1	FLOW DIA. D
VS176NTA-4-2	1/4	1/8	7/16-24	1.02	.69	.75	.66	.137



Union Tee 264NTA

REF. SAE 100401 BA

PART NO.	TUBE SIZE	STRAIGHT THREAD	L	M	FLOW DIA. D
264NTA-4	1/4	7/16-24	.95	.62	.137
264NTA-6	3/8	17/32-24	1.24	.78	.217
264NTA-8	1/2	11/16-20	1.45	.93	.338
264NTA-10	5/8	13/16-18	1.58	1.09	.398



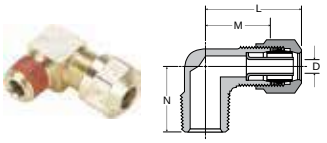
Union Elbow 265NTA

REF. SAE 100201 BA

PART NO.	TUBE SIZE	STRAIGHT THREAD	L	M	FLOW DIA. D
265NTA-4	1/4	7/16-24	.95	.62	.137
265NTA-6	3/8	17/32-24	1.25	.79	.217
265NTA-8	1/2	11/16-20	1.45	.93	.338
265NTA-10	5/8	13/16-18	1.58	1.09	.398

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Male Elbow VS269NTA

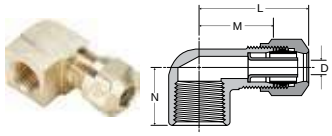


REF. SAE 100202 BA

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
VS269NTA-3-2*	3/16	1/8	5/16-24	.90	.60	.67	.087
VS269NTA-3-4*	3/16	1/4	5/16-24	.91	.62	.87	.087
VS269NTA-4-2	1/4	1/8	7/16-24	.95	.62	.66	.137
VS269NTA-4-4	1/4	1/4	7/16-24	1.00	.68	.87	.137
VS269NTA-4-6	1/4	3/8	7/16-24	1.16	.73	.86	.137
VS269NTA-6-2	3/8	1/8	17/32-24	1.19	.73	.75	.217
VS269NTA-6-4	3/8	1/4	17/32-24	1.25	.79	.92	.217
VS269NTA-6-6	3/8	3/8	17/32-24	1.30	.84	.91	.217
VS269NTA-6-8	3/8	1/2	17/32-24	1.40	.94	1.10	.217
VS269NTA-8-4	1/2	1/4	11/16-20	1.38	.86	.99	.338
VS269NTA-8-6	1/2	3/8	11/16-20	1.44	.92	.99	.338
VS269NTA-8-8	1/2	1/2	11/16-20	1.55	1.03	1.18	.338
VS269NTA-10-6	5/8	3/8	13/16-18	1.49	1.00	1.05	.398
VS269NTA-10-8	5/8	1/2	13/16-18	1.58	1.09	1.24	.398
VS269NTA-10-12	5/8	3/4	13/16-18	1.76	1.25	1.32	.400
VS269NTA-12-8	3/4	1/2	1-18	1.70	1.19	1.33	.523
VS269NTA-12-12	3/4	3/4	1-18	1.77	1.26	1.32	.523

*Meets D.O.T. FMVSS 571.106 specification. No applicable SAE specification for this tube size.

Female Elbow 270NTA

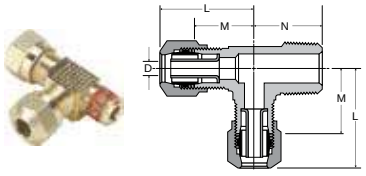


REF. SAE 100203 BA

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
270NTA-3-2*	3/16	1/8	5/16-24	.96	.67	.52	.087
270NTA-4-2	1/4	1/8	7/16-24	1.02	.69	.52	.137
270NTA-4-4	1/4	1/4	7/16-24	1.11	.78	.71	.137
270NTA-6-2	3/8	1/8	17/32-24	1.29	.83	.59	.217
270NTA-6-4	3/8	1/4	17/32-24	1.35	.89	.77	.217
270NTA-6-6	3/8	3/8	17/32-24	1.39	.93	.77	.217
270NTA-8-6	1/2	3/8	11/16-20	1.55	1.03	.82	.338
270NTA-8-8	1/2	1/2	11/16-20	1.65	1.13	1.01	.338
270NTA-10-8	5/8	1/2	13/16-18	1.70	1.19	1.07	.398

*Meets D.O.T. FMVSS 571.106 specification. No applicable SAE specification for this tube size.

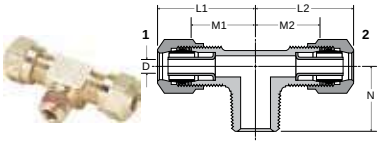
Male Run Tee VS271NTA



REF. SAE 100424 BA

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
VS271NTA-4-2	1/4	1/8	7/16-24	.95	.62	.66	.137
VS271NTA-4-4	1/4	1/4	7/16-24	1.00	.68	.87	.137
VS271NTA-6-4	3/8	1/4	17/32-24	1.25	.79	.92	.217
VS271NTA-6-6	3/8	3/8	17/32-24	1.30	.84	.91	.217
VS271NTA-8-6	1/2	3/8	11/16-20	1.45	.93	.99	.338
VS271NTA-8-8	1/2	1/2	11/16-20	1.55	1.03	1.18	.338
VS271NTA-10-8	5/8	1/2	13/16-18	1.60	1.09	1.24	.398

Male Branch Tee VS272NTA

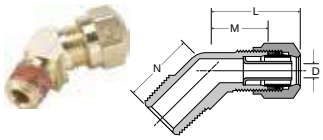


REF. SAE 100425 BA

PART NO.	TB 1	TB 2	PIPE THD	STGHT THD	L1	L2	M1	M2	N	FLOW DIA. D
VS272NTA-3-2*	3/16	3/16	1/8	7/16-24	.90	.90	.61	.61	.66	.087
VS272NTA-4-2	1/4	1/4	1/8	7/16-24	.95	.95	.62	.62	.66	.137
VS272NTA-4-4	1/4	1/4	1/4	7/16-24	1.00	1.00	.68	.68	.87	.137
VS272NTA-6-2	3/8	3/8	1/8	17/32-24	1.18	1.18	.72	.72	.75	.217
VS272NTA-6-4	3/8	3/8	1/4	17/32-24	1.25	1.25	.91	.91	.92	.217
VS272NTA-6-4-4	3/8	1/4	1/4	7/16-24 17/32-24	.99	1.25	.67	.79	.91	.137
VS272NTA-6-6	3/8	3/8	3/8	17/32-24	1.30	1.30	.84	.84	.91	.217
VS272NTA-8-4	1/2	1/2	1/4	11/16-20	1.41	1.41	.89	.89	.99	.338
VS272NTA-8-6	1/2	1/2	3/8	11/16-20	1.45	1.45	.93	.93	.99	.338
VS272NTA-8-8	1/2	1/2	1/2	11/16-20	1.55	1.55	1.03	1.03	1.18	.338
VS272NTA-10-8	5/8	5/8	1/2	13/16-18	1.60	1.60	1.09	1.09	1.24	.398

*Meets D.O.T. FMVSS 571.106 specification. No applicable SAE specification for this tube size.

45° Elbow VS279NTA



REF. SAE 100302 BA

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
VS279NTA-4-2	1/4	1/8	7/16-24	.81	.49	.63	.137
VS279NTA-4-4	1/4	1/4	7/16-24	.93	.60	.85	.137
VS279NTA-6-2	3/8	1/8	17/32-24	1.17	.71	.68	.217
VS279NTA-6-4	3/8	1/4	17/32-24	1.17	.71	.85	.217
VS279NTA-6-6	3/8	3/8	17/32-24	1.21	.75	.94	.217
VS279NTA-6-8	3/8	1/2	17/32-24	1.24	.78	1.16	.217
VS279NTA-8-4	1/2	1/4	11/16-20	1.36	.84	.94	.338
VS279NTA-8-6	1/2	3/8	11/16-20	1.36	.84	.94	.338
VS279NTA-8-8	1/2	1/2	11/16-20	1.39	.87	1.16	.338
VS279NTA-10-6	5/8	3/8	13/16-18	1.43	.94	.98	.398
VS279NTA-10-8	5/8	1/2	13/16-18	1.42	.93	1.16	.398
VS279NTA-12-8	3/4	1/2	1-18	1.61	1.10	1.18	.523

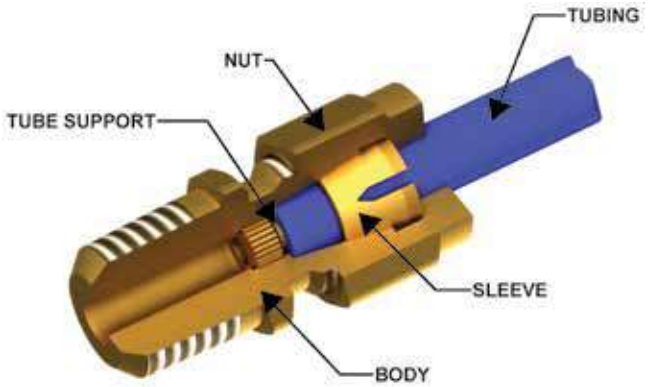
WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Transmission Fittings

Parker's Transmission Fittings utilizes a specially designed slotted sleeve to help eliminate notch stress related to over-torque. Ideal for pressure protected pneumatic transmission applications. Electroless nickel plated bodies can be used with bio-diesel.

Product Features:

- Brass Body
- D.O.T. Approved with Staked in Tube Support
- 3/16" & 5/32" Tube sizes
- Slotted Sleeve
- Nickel Plated Versions Available for Bio-diesel



Markets:

- Heavy Duty Truck

Applications:

- Air Shift Transmissions
- Seat Controls
- Dash Controls

Specifications:

Pressure Range	Up to 150 PSI (10.3 bar)
Temperature Range	-40˚ to +200˚ F (-40° to +93.3° C)

Compatible Tubing:

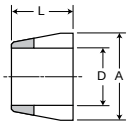
- SAE J844 Type A & B nylon tubing

Assembly Instructions

1. Cut tubing squarely and remove burrs
2. Insert tubing into fitting until bottomed
3. Tighten nut 1 1/2 turns from finger tight

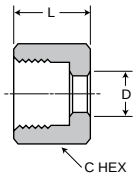
WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Sleeve 60TF



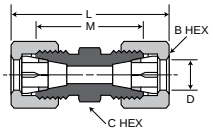
PART NO.	TUBE SIZE	A	D	L
60TF-2	1/8	.235	.130	0.17
60TF-5/32	5/32	.251	.165	0.18

Nut 61TF



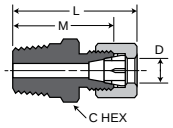
PART NO.	TUBE SIZE	D	L	STRT THD	C HEX
61TF-2	1/8	.133	.32	5/16-24	3/8
61TF-5/32	5/32	.163	.32	5/16-24	3/8

Union 62TF



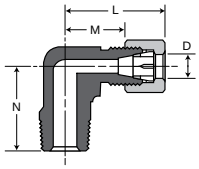
PART NO.	TUBE SIZE	D	L	STRT THD	M	C HEX	B HEX
62TF-2	1/8	.109	1.04	5/16-24	.68	5/16	3/8
62TF-5/32	5/32	.068	1.04	5/16-24	.68	5/16	3/8

Male Connector 68TF



PART NO.	TUBE SIZE	PIPE THREAD	D	L	STRT THD	M	C HEX
68TF-2-1	1/8	1/16	.109	.96	5/16-24	.78	11/32
68TF-2-2	1/8	1/8	.109	.96	5/16-24	.78	7/16
68TF-5/32-1	5/32	1/16	.068	.84	5/16-24	.66	11/32
68TF-5/32-2	5/32	1/8	.068	.96	5/16-24	.78	7/16

Male Elbow 269TF



PART NO.	TUBE SIZE	PIPE THREAD	D	L	STRT THD	M	N
269TF-2-2	1/8	1/8	.109	.79	5/16-24	.61	.66
269TF-5/32-2	5/32	1/8	.068	.79	5/16-24	.61	.66

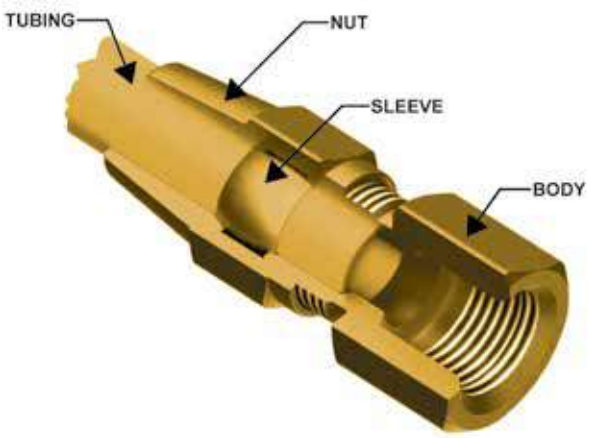
WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Air Brake – AB Fittings

Parker's Air Brake - AB Fittings are economical compression style fittings for copper air brake lines. AB fittings meet the functional requirements of SAE and the performance requirements of D.O.T.

Product Features:

- Brass Body
- Meets D.O.T. FMVSS571.106 Performance
- Meets functional Requirements SAE J246
- Reusable
- Pre-applied Thread Sealant



Markets:

- Heavy Duty Truck
- Trailer
- Mobile

Applications:

- Copper Air Brake Lines
- Coolant Lines
- Fuel Lines

Specifications:

Pressure Range	Up to 400 PSI (27.5 bar)
Temperature Range	-65˚ to +250˚ F (-53.8° to +121.1° C)

Compatible Tubing:

- Copper Air Brake Tubing

Assembly Instructions

1. Cut tubing squarely and remove burrs
2. Slide nut and sleeve onto tubing.
3. Insert tubing into fitting until bottomed on seat. The nut should be screwed down finger tight, then wrench tightened as indicated in the chart

TUBE SIZE	TURNS REQUIRED TO SEAL FROM HAND-TIGHT
1/4, 3/8, 1/2	2
5/8, 3/4	3

WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

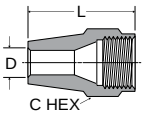
Sleeve 60AB

REF. SAE 120115

PART NO.	TUBE SIZE	A	D	L
60AB-4	1/4	.322	.255	.250
60AB-6	3/8	.461	.382	.310
60AB-8	1/2	.594	.507	.380
60AB-10	5/8	.734	.632	.440
60AB-12	3/4	.874	.758	.500

Nut 61AB

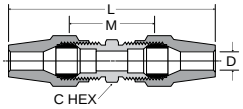
REF. SAE 120111



PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	D	L
61AB-4	1/4	7/16-24	9/16	.256	.75
61AB-6	3/8	17/32-24	5/8	.384	1.13
61AB-8	1/2	11/16-20	13/16	.509	1.25
61AB-10	5/8	13/16-18	15/16	.634	1.38
61AB-12	3/4	1-18	1-1/8	.760	1.56

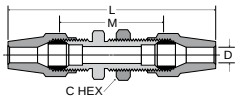
Union 62AB

REF. SAE 120101 BA



PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	L	M	FLOW DIA. D
62AB-4	1/4	7/16-24	7/16	1.98	.83	.189
62AB-6	3/8	17/32-24	9/16	2.87	1.08	.314
62AB-8	1/2	11/16-20	11/16	3.21	1.29	.405
62AB-10	5/8	13/16-18	13/16	3.59	1.41	.531
62AB-12	3/4	1-18	1	4.08	1.59	.656

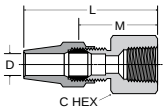
Bulkhead Union 62ABH



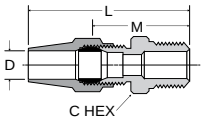
PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	L	M	FLOW DIA. D	BULKHEAD HOLE DIA.
62ABH-4	1/4	7/16-24	9/16	2.53	1.38	.188	7/16
62ABH-6	3/8	17/32-24	3/4	3.41	1.62	.314	17/32
62ABH-8	1/2	11/16-20	1	3.80	1.88	.408	11/16

Female Connector 66AB

REF. SAE 120103 BA



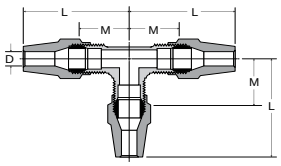
PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	C HEX	L	M	FLOW DIA. D
66AB-4-2	1/4	1/8	7/16-24	9/16	1.42	.84	.188
66AB-4-4	1/4	1/4	7/16-24	11/16	1.65	1.07	.188
66AB-6-2	3/8	1/8	17/32-24	9/16	1.89	1.00	.314
66AB-6-4	3/8	1/4	17/32-24	11/16	2.07	1.18	.314
66AB-6-6	3/8	3/8	17/32-24	7/8	2.07	1.18	.314
66AB-8-6	1/2	3/8	11/16-20	7/8	2.23	1.27	.408
66AB-8-8	1/2	1/2	11/16-20	1-1/16	2.40	1.44	.408
66AB-10-6	5/8	3/8	13/16-18	7/8	2.40	1.31	.533
66AB-10-8	5/8	1/2	13/16-18	1-1/16	2.59	1.50	.533



Male Connector VS68AB

REF. SAE 120102 BA

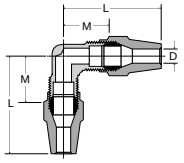
PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	C HEX	L	M	FLOW DIA. D
VS68AB-4-2	1/4	1/8	7/16-24	7/16	1.47	.89	.189
VS68AB-4-4	1/4	1/4	7/16-24	9/16	1.68	1.10	.189
VS68AB-4-6	1/4	3/8	7/16-24	11/16	1.72	1.14	.189
VS68AB-6-2	3/8	1/8	17/32-24	9/16	1.92	1.03	.189
VS68AB-6-4	3/8	1/4	17/32-24	9/16	2.10	1.21	.314
VS68AB-6-6	3/8	3/8	17/32-24	11/16	2.13	1.24	.314
VS68AB-6-8	3/8	1/2	17/32-24	7/8	2.32	1.43	.314
VS68AB-8-4	1/2	1/4	11/16-20	11/16	2.29	1.33	.314
VS68AB-8-6	1/2	3/8	11/16-20	11/16	2.29	1.33	.408
VS68AB-8-8	1/2	1/2	11/16-20	7/8	2.48	1.52	.408
VS68AB-10-6	5/8	3/8	13/16-18	13/16	2.48	1.39	.408
VS68AB-10-8	5/8	1/2	13/16-18	7/8	2.67	1.58	.533
VS68AB-12-8	3/4	1/2	1-18	1	2.92	1.68	.533
VS68AB-12-12	3/4	3/4	1-18	1-1/8	2.95	1.71	.658



Union Tee 264AB

REF. SAE 120401 BA

PART NO.	TUBE SIZE	STRAIGHT THREAD	L	M	FLOW DIA. D
264AB-4	1/4	7/16-24	1.20	.62	.189
264AB-6	3/8	17/32-24	1.67	.78	.314
264AB-8	1/2	11/16-20	1.89	.93	.408
264AB-10	5/8	13/16-18	2.18	1.09	.533



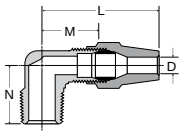
Union Elbow 265AB

REF. SAE 120201 BA

PART NO.	TUBE SIZE	STRAIGHT THREAD	L	M	FLOW DIA. D
265AB-4	1/4	7/16-24	1.20	.62	.189
265AB-6	3/8	17/32-24	1.68	.79	.314
265AB-8	1/2	11/16-20	1.89	.93	.408
265AB-10	5/8	13/16-18	2.18	1.09	.533

WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

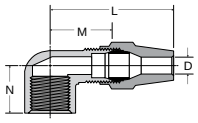
Click here for CADs, Product Specifications or to Configure Parts Online

Male Elbow VS269AB

REF. SAE 120202 BA

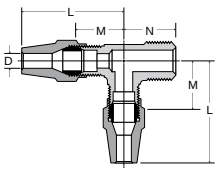
PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
VS269AB-4-2	1/4	1/8	7/16-24	1.20	.62	.66	.189
VS269AB-4-4	1/4	1/4	7/16-24	1.26	.68	.87	.189
VS269AB-4-6	1/4	3/8	7/16-24	1.31	.73	.86	.189
VS269AB-6-2	3/8	1/8	17/32-24	1.62	.73	.75	.189
VS269AB-6-4	3/8	1/4	17/32-24	1.68	.79	.92	.314
VS269AB-6-6	3/8	3/8	17/32-24	1.73	.84	.91	.314
VS269AB-6-8	3/8	1/2	17/32-24	1.83	.94	1.10	.314
VS269AB-8-4	1/2	1/4	11/16-20	1.82	.86	.99	.314
VS269AB-8-6	1/2	3/8	11/16-20	1.88	.93	.99	.408
VS269AB-8-8	1/2	1/2	11/16-20	1.99	1.03	1.18	.408
VS269AB-10-6	5/8	3/8	13/16-18	2.09	1.00	1.05	.408
VS269AB-10-8	5/8	1/2	13/16-18	2.18	1.09	1.24	.533
VS269AB-12-8	3/4	1/2	1-18	2.33	1.19	1.32	.533
VS269AB-12-12	3/4	3/4	1-18	2.50	1.26	1.32	.533

Female Elbow 270AB

REF. SAE 120203 BA

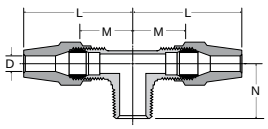
PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
270AB-4-2	1/4	1/8	7/16-24	1.27	.69	.52	.189
270AB-4-4	1/4	1/4	7/16-24	1.36	.78	.71	.189
270AB-6-2	3/8	1/8	17/32-24	1.72	.83	.59	.314
270AB-6-4	3/8	1/4	17/32-24	1.78	.89	.77	.314
270AB-6-6	3/8	3/8	17/32-24	1.82	.93	.77	.314
270AB-8-6	1/2	3/8	11/16-20	1.99	1.03	.82	.408
270AB-8-8	1/2	1/2	11/16-20	2.09	1.13	1.01	.408
270AB-10-8	5/8	1/2	13/16-18	2.28	1.19	1.07	.533

Male Run Tee VS271AB

REF. SAE 120424 BA

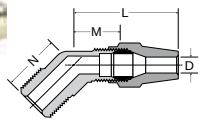
PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
VS271AB-4-2	1/4	1/8	7/16-24	1.20	.62	.66	.189
VS271AB-4-4	1/4	1/4	7/16-24	1.26	.68	.87	.189
VS271AB-6-4	3/8	1/4	17/32-24	1.68	.79	.92	.314
VS271AB-6-6	3/8	3/8	17/32-24	1.73	.84	.91	.314
VS271AB-8-6	1/2	3/8	11/16-20	1.89	.93	.99	.408
VS271AB-8-8	1/2	1/2	11/16-20	1.99	1.03	1.18	.408
VS271AB-10-8	5/8	1/2	13/16-18	2.18	1.09	1.24	.533

Male Branch Tee VS272AB

REF. SAE 120425 BA

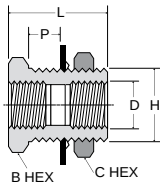
PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
VS272AB-4-2	1/4	1/8	7/16-24	1.20	.62	.66	.189
VS272AB-4-4	1/4	1/4	7/16-24	1.26	.68	.87	.189
VS272AB-6-2	3/8	1/8	17/32-24	1.61	.72	.75	.189
VS272AB-6-4	3/8	1/4	17/32-24	1.68	.79	.92	.314
VS272AB-6-6	3/8	3/8	17/32-24	1.73	.84	.91	.314
VS272AB-8-6	1/2	3/8	11/16-20	1.89	.93	.99	.408
VS272AB-8-8	1/2	1/2	11/16-20	1.99	1.03	1.18	.408
VS272AB-10-8	5/8	1/2	13/16-18	2.18	1.09	1.24	.533

45° Elbow VS279AB

REF. SAE 120302 BA

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
VS279AB-4-2	1/4	1/8	7/16-24	1.07	.49	.63	.189
VS279AB-4-4	1/4	1/4	7/16-24	1.18	.60	.85	.189
VS279AB-6-2	3/8	1/8	17/32-24	1.60	.71	.68	.189
VS279AB-6-4	3/8	1/4	17/32-24	1.64	.71	.85	.314
VS279AB-6-6	3/8	3/8	17/32-24	1.64	.75	.94	.314
VS279AB-6-8	3/8	1/2	17/32-24	1.67	.78	1.16	.314
VS279AB-8-6	1/2	3/8	11/16-20	1.80	.84	.94	.408
VS279AB-8-8	1/2	1/2	11/16-20	1.83	.87	1.16	.408
VS279AB-10-6	5/8	3/8	13/16-18	2.03	.94	.98	.408
VS279AB-10-8	5/8	1/2	13/16-18	2.13	1.05	1.16	.533
VS279AB-12-8	3/4	1/2	1-18	2.34	1.10	1.18	.533

Anchor Coupling 207ACBH

PART NO.	FEMALE PIPE THREAD	STRAIGHT THREAD	MAX .BKHD P	B HEX	C HEX	L	BKHD HOLE DIA. H	FLOW DIA. D
207ACBH-2	1/8	5/8-18	.89	7/8	15/16	1.50	5/8	.339
207ACBHS-2	1/8	5/8-18	.35	7/8	15/16	.96	5/8	.339
207ACBH-4	1/4	3/4-16	.81	1	1-1/8	1.50	3/4	.441
207ACBHS-4	1/4	3/4-16	.26	1	1	.94	3/4	.441
207ACBH-6	3/8	1-14	.62	1-1/8	1-1/4	1.31	1	.571
207ACBH-8	1/2	1-1/8-14	.75	1-1/4	1-3/8	1.50	1-1/8	.703
207ACBH-12	3/4	1-5/16-12	.65	1-1/2	1-1/2	1.50	1-5/16	.906
207ACBH-16*	1	1-5/8-14	1.00	2	2	1.68	1-5/8	1.140

*Lock Washer not Available

WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Air Brake Hose Ends Fittings

Parker's Air Brake Hose Fittings are field attachable fittings for use with Parker 271 air brake hose. Easy to assemble and disassemble, these fittings meet D.O.T. requirements when used with SAE J1402 air brake hose.

Product Features:

- Brass Body
- Meets D.O.T. FMVSS571.106 when used with SAE J1402 air brake hose

Markets:

- Heavy Duty Truck
- Trailer

Applications:

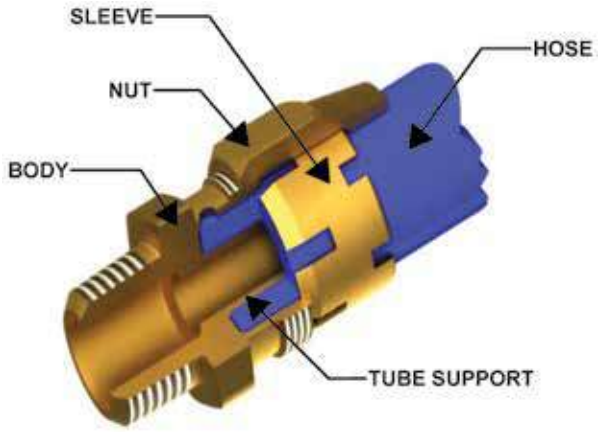
- Air Lines Frame to Axle

Specifications:

Pressure Range	Up to 400 PSI (27.5 bar)
Temperature Range	-65˚ to +250˚ F (-53.8° to +121.1° C)

Compatible Tubing:

- Parker 271 air brake hose
- SAE J1402 air brake hose



Assembly Instructions

1. Slide nut onto hose
2. Slide sleeve onto hose with tapered edge toward fitting body
3. Bottom hose into fitting
4. Tighten nut until it contacts body hex

Note: When reassembling fitting, body and nut should be inspected. Only reuse if parts are in proper condition. Sleeves should never be Reused.

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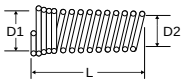
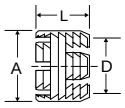
Click here for CADs, Product Specifications or to Configure Parts Online

Spring 56RBSG

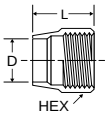
PART NO.	HOSE SIZE	L	D1	D2
56RBSG-6	3/8	2.75	.84	.78
56RBSG-8	1/2	3.00	1.03	.91

Sleeve 60RB

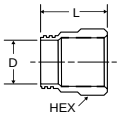
PART NO.	HOSE SIZE	L	A	D
60RB-6	3/8	.69	.90	.78
60RB-8	1/2	.69	1.03	.92

Nut 61RB

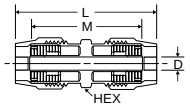
PART NO.	HOSE SIZE	STRAIGHT THREAD	HEX	L	D
61RB-6	3/8	31/32-20	1-1/16	1.12	.80
61RB-8	1/2	1-3/32-20	1-1/4	1.12	.93

Spring Guard Nut 61RBSG

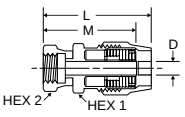
PART NO.	HOSE SIZE	STRAIGHT THREAD	HEX	L	D
61RBSG-6	3/8	31/32-20	1-1/16	1.22	.80
61RBSG-8	1/2	1-3/32-20	1-1/4	1.19	.92

Union 62RB

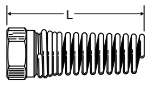
PART NO.	HOSE SIZE	STRAIGHT THREAD	HEX	L	M	D
62RB-6	3/8	31/32-20	31/32	2.98	2.56	.281
62RB-8	1/2	1-3/32-20	1-1/8	2.99	2.55	.390

Female Swivel Connector 66RBSV

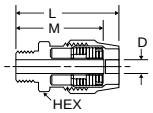
PART NO.	HOSE SIZE	STRAIGHT THREAD	HEX1	HEX2	L	M	D
66RBSV-6-3/4	3/8	3/4-20	31/32	7/8	2.30	2.09	.281
66RBSV-8-7/8	1/2	7/8-20	1-1/8	1"	2.36	2.14	.390

Air Brake Hose Nut & Attached Spring 67RBSG

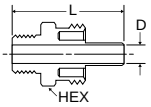
PART NO.	L
67RBSG-6	3.50
67RBSG-8	3.75

Male Connector 68RB

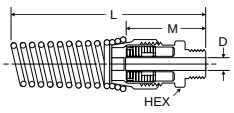
PART NO.	HOSE SIZE	STRAIGHT THREAD	PIPE THREAD	HEX	L	M	D
68RB-6-4	3/8	31/32-20	1/4	31/32	2.24	1.91	.281
68RB-6-6	3/8	31/32-20	3/8	31/32	2.24	1.91	.281
68RB-6-8	3/8	31/32-20	1/2	31/32	2.38	2.06	.281
68RB-8-6	1/2	1-3/32-20	3/8	1-1/8	2.24	1.91	.390
68RB-8-8	1/2	1-3/32-20	1/2	1-1/8	2.29	2.07	.390

Male Connector Body Only 68RB

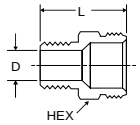
PART NO.	HOSE SIZE	STRAIGHT THREAD	PIPE THREAD	HEX	L	D
68RB-6-4B	3/8	31/32-20	1/4	31/32	1.91	.281
68RB-6-6B	3/8	31/32-20	3/8	31/32	1.91	.281
68RB-6-8B	3/8	31/32-20	1/2	31/32	2.06	.281
68RB-8-6B	1/2	1-3/32-20	3/8	1-1/8	1.91	.390
68RB-8-8B	1/2	1-3/32-20	1/2	1-1/8	2.07	.390

Male Connector with Spring Guard 68RBSG

PART NO.	HOSE SIZE	PIPE THREAD	HEX	L	M	D
68RBSG-6-4	3/8	1/4	31/32	4.8	1.91	.281
68RBSG-6-6	3/8	3/8	31/32	4.8	1.91	.281
68RBSG-6-8	3/8	1/2	31/32	4.9	2.06	.281
68RBSG-8-6	1/2	3/8	1-1/8	5.0	1.91	.390
68RBSG-8-8	1/2	1/2	1-1/8	5.2	2.07	.390

Adapter 76RB

PART NO.	PIPE THREAD	STRAIGHT THREAD	HEX	L	D
76RB-3/4-4	1/4	3/4-20	3/4	1.06	.310
76RB-3/4-6	3/8	3/4-20	3/4	1.12	.422
76RB-7/8-6	3/8	7/8-20	7/8	1.25	.440
76RB-7/8-8	1/2	7/8-20	7/8	1.47	.500

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Vibra-Lok Fittings

Parker's Vibra-Lok Fittings provide a positive reliable seal under vibration conditions, mechanical shock or tube movement. The sleeve cushions the tubing, permitting the tubing to flex back and forth in the fitting. The seal design compensates for tube misalignment and tube surface defects.

Product Features:

- Brass Body
- Sleeves in Buna N and Fluorocarbon
- NPTF and SAE J1926 Straight Threads are Standard
- Excellent Vibration Resistance

Markets:

- Heavy Duty Truck
- Trailer
- Mobile

Applications:

- Oil, Fuel and Coolant Lines on engines

Specifications:

Pressure Range	Dependent on condition and tube size, refer to pressure chart
Temperature Range	-15˚ to +450˚ F (-26.1° to +232.2° C) with Fluorocarbon Sleeve
	-30˚ to +275˚ F (-34.4° to +135° C) with Buna N Sleeve

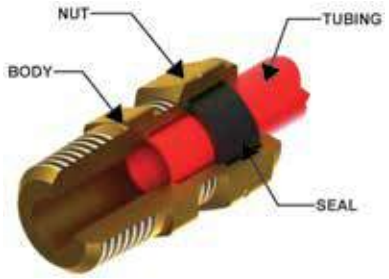
Compatible Tubing:

- Copper
- Aluminum
- Steel (Bundy)
- Stainless Steel
- Glass

Pressure Chart

CONDITION	TUBE O.D.	TUBE NOT BELLED	TUBE BELLED OR FLARED
STATIC PRESSURE	3/16" 1/4" 5/16" 3/8" 1/2" 5/8"	500 500 450 350 200	1000 1000 900 700 500 400
MINOR SURGES AND/OR VIBRATIONS	3/16" 1/4" 5/16" 3/8" 1/2" 5/8"	400 400 325 225 150	800 800 700 500 375 300
SEVERE VIBRATIONS OR SHOCK	3/16" 1/4" 5/16" 3/8" 1/2" 5/8"	300 300 225 175 100	600 600 500 400 250 100

In high pressure applications and sizes larger than 1/2" O.D., the tube end should be belled or flared.



WARNING These products can expose you to chemicals including CARBON BLACK, or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Click here for CADs, Product Specifications or to Configure Parts Online

Assembly Instructions

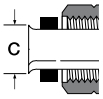
1. Cut the tubing squarely removing burrs
2. Slip nut and sleeve over tube
3. Bottom tubing into fitting and tighten nut until stop is reached. The elastic sleeve ordinarily will extrude slightly around the tube at the end of the nut. This extrusion further aids in isolating the tube from the nut.

For Higher Pressure applications

4. Consult pressure chart to determine if tubing should be belled
5. Slip nut and sleeve over tube. The sleeve should be positioned near end of tubing just behind the surface to be belled
6. Bell tubing with standard 45˚ flaring tool or 90˚ punch. The size of bell should be approximately that shown.

Recommended Size of Bell

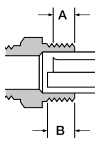
TUBE O.D.	BELL DIA. C
1/8	.190-.160
3/16	.255-.225
1/4	.318-.288
5/16	.381-.351
3/8	.444-.414
1/2	.569-.539
5/8	.694-.664
3/4	.819-.789
7/8	.944-.914

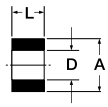


Tube Length Calculator

This table shows distance tube extends beyond face of Vibra-Lok fitting body on installation with bell on tubing and without bell on tubing.

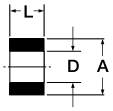
O.D. OF TUBE	A WITH BELL	B WITHOUT BELL
1/8	3/16	3/16
3/16	3/16	7/32
1/4	3/16	1/4
5/16	3/16	1/4
3/8	3/16	1/4
1/2	3/16	11/32
5/8	3/16	TUBING SHOULD BE BELLED
3/4	3/16	
7/8	1/4	





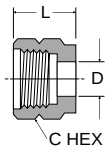
Sleeve 60VL

PART NO.	TUBE SIZE	A	D	L
60VL-2	1/8	.306	.100	.20
60VL-3	3/16	.359	.156	.20
60VL-4	1/4	.422	.219	.21
60VL-5	5/16	.484	.281	.24
60VL-6	3/8	.547	.344	.25
60VL-8	1/2	.688	.469	.36
60VL-10	5/8	.875	.594	.48
60VL-12	3/4	1.000	.720	.59



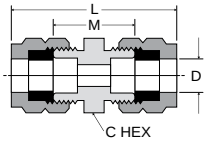
Sleeve (Fluorocarbon) 60VLV

PART NO.	TUBE SIZE	A	D	L
60VLV-3	3/16	.359	.156	.20
60VLV-4	1/4	.422	.219	.21
60VLV-5	5/16	.484	.281	.24
60VLV-6	3/8	.547	.344	.25
60VLV-8	1/2	.688	.469	.36
60VLV-10	5/8	.875	.594	.48
60VLV-12	3/4	1.000	.720	.59



Nut 61VL

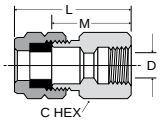
PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	D	L
61VL-2	1/8	3/8-24	7/16	.156	.44
61VL-3	3/16	7/16-24	1/2	.218	.47
61VL-4	1/4	1/2-24	9/16	.281	.50
61VL-5	5/16	9/16-24	5/8	.344	.53
61VL-6	3/8	5/8-24	3/4	.406	.53
61VL-8	1/2	13/16-18	15/16	.531	.67
61VL-10	5/8	1-18	1-1/8	.656	.88
61VL-12	3/4	1-1/8-18	1-1/4	.781	.98



Union 62VL

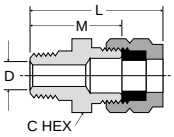
PART NO.	TUBE SIZE	C HEX	L	M	FLOW DIA. D
62VL-4	1/4	9/16	1.39	.77	.188
62VL-5	5/16	5/8	1.49	.81	.250
62VL-6	3/8	11/16	1.49	.80	.312
62VL-8	1/2	7/8	1.90	.94	.437

WARNING These products can expose you to chemicals including CARBON BLACK, or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



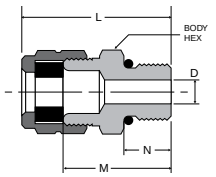
Female Connector 66VL

PART NO.	TUBE SIZE	PIPE THREAD	C HEX	L	M	FLOW DIA.D
66VL-4-2	1/4	1/8	9/16	1.09	.78	.188
66VL-5-4	5/16	1/4	11/16	1.32	.97	.250



Male Connector 68VL

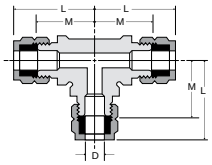
PART NO.	TUBE SIZE	PIPE THREAD	C HEX	L	M	FLOW DIA.D
68VL-2-2	1/8	1/8	7/16	1.12	.81	.093
68VL-3-2	3/16	1/8	1/2	1.10	.81	.125
68VL-4-2	1/4	1/8	9/16	1.15	.84	.188
68VL-4-4	1/4	1/4	9/16	1.34	1.03	.188
68VL-5-4	5/16	1/4	5/8	1.41	1.06	.250
68VL-6-2	3/8	1/8	11/16	1.22	.87	.235
68VL-6-4	3/8	1/4	11/16	1.41	1.06	.312
68VL-6-6	3/8	3/8	11/16	1.41	1.06	.312
68VL-8-6	1/2	3/8	7/8	1.64	1.16	.406
68VL-8-8	1/2	1/2	7/8	1.64	1.35	.406
68VL-10-8	5/8	1/2	1-1/16	2.10	1.44	.560
68VL-12-8	3/4	1/2	1-3/16	2.26	1.50	.530
68VL-12-12	3/4	3/4	1-3/16	2.26	1.50	.688



Male Connector 685VLV

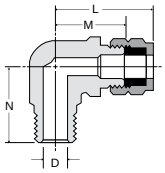
PART NO.	TUBE SIZE	STRAIGHT THREAD	BODY HEX	L	M	N	D
685VLV-4-4	1/4	7/16-20	9/16	1.14	.83	.36	.18
685VLV-5-4	5/16	7/16-20	5/8	1.18	.83	.36	.18
685VLV-6-4	3/8	7/16-20	11/16	1.18	.83	.36	.18
685VLV-6-6	3/8	9/16-18	11/16	1.25	.90	.39	.30
685VLV-8-8	1/2	3/4-16	7/8	1.52	1.04	.44	.39
685VLV-10-10	5/8	7/8-14	1 1/16	1.84	1.20	.50	.50
685VLV-12-12	3/4	1 1/16-12	1 1/4	2.10	1.34	.59	.62

Note: Fluorocarbon seal & o-ring standard



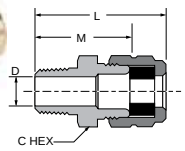
Union Tee 164VL

PART NO.	TUBE SIZE	BODY HEX	L	M	FLOW DIA. D
164VL-3	3/16	3/8	.98	.69	.160
164VL-4	1/4	1/2	1.06	.75	.190
164VL-5	5/16	15/32	1.22	.88	.250
164VL-8	1/2	13/16	1.64	1.16	.406



Male Elbow 169VL

PART NO.	TUBE SIZE	PIPE THREAD	L	M	N	FLOW DIA.D
169VL-3-2	3/16	1/8	.98	.69	.75	.156
169VL-4-2	1/4	1/8	1.00	.69	.78	.188
169VL-4-4	1/4	1/4	1.16	.84	1.00	.188
169VL-5-4	5/16	1/4	1.16	.81	1.00	.252
169VL-6-2	3/8	1/8	1.19	.84	.91	.235
169VL-6-4	3/8	1/4	1.19	.84	1.06	.312
169VL-6-6	3/8	3/8	1.29	.94	1.13	.312
169VL-8-6	1/2	3/8	1.48	1.00	1.06	.406
169VL-8-8	1/2	1/2	1.54	1.06	1.44	.406
169VL-10-8	5/8	1/2	1.92	1.28	1.47	.565



Straight Through Tank Fitting 682VL

PART NO.	TUBE SIZE	PIPE THREAD	C HEX	L	M	FLOW DIA.D
682VL-4-2	1/4	1/8	9/16	1.15	.84	.265
682VL-4-4	1/4	1/4	9/16	1.34	1.03	.265
682VL-5-4	5/16	1/4	5/8	1.41	1.06	.328
682VL-6-6	3/8	3/8	11/16	1.41	1.06	.406

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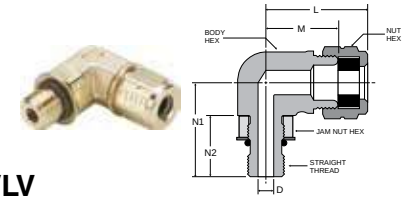
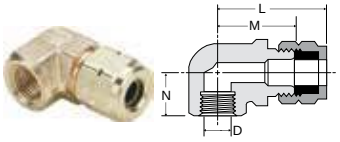
Click here for CADs, Product Specifications or to Configure Parts Online



Male Elbow 1695VLV

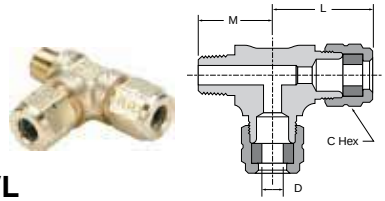
PART NO.	TUBE SIZE	STRAIGHT THREAD	NUT HEX	BODY HEX	JAM NUT HEX	L	M	N1	N2	D
1695VLV-4-4	1/4	7/16-20	9/16	9/16	9/16	1.15	.84	1.07	.71	.18
1695VLV-5-4	5/16	7/16-20	5/8	9/16	9/16	1.16	.81	1.07	.71	.18
1695VLV-6-4	3/8	7/16-20	3/4	5/8	9/16	1.19	.84	1.10	.71	.18
1695VLV-6-6	3/8	9/16-18	3/4	5/8	11/16	1.29	.94	1.17	.78	.30
1695VLV-8-8	1/2	3/4-16	15/16	3/4	7/8	1.54	1.06	1.44	.89	.39
1695VLV-10-10	5/8	7/8-14	1 1/8	1.00	1.00	1.92	1.28	1.68	1.03	.50
1695VLV-12-12	3/4	1 1/16-12	1 1/4	1.00	1 1/4	2.04	1.28	1.82	1.17	.62

Note: Fluorocarbon seal & o-ring standard



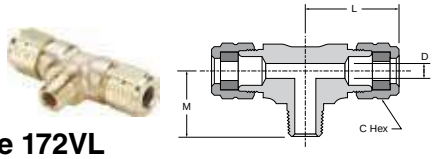
Female Elbow 170VL

PART NO.	TUBE SIZE	PIPE THREAD	L	M	N	FLOW DIA.D
170VL-4-2	1/4	1/8	.96	.65	.50	.188
170VL-5-4	5/16	1/4	1.16	.81	.70	.250



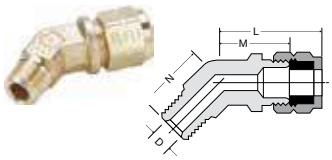
Male Run Tee 171VL

PART NO.	TUBE SIZE	PIPE THREAD	C HEX	L	M	FLOW DIA.D
171VL-4-2	1/4	1/8	9/16	1.03	.76	.188
171VL-4-4	1/4	1/4	9/16	1.12	1.03	.188



Male Branch Tee 172VL

PART NO.	TUBE SIZE	PIPE THREAD	C HEX	L	M	FLOW DIA.D
172VL-4-2	1/4	1/8	9/16	1.06	.75	.188



45° Elbow 179VL

PART NO.	TUBE SIZE	PIPE THREAD	L	M	N	FLOW DIA.D
179VL-4-2	1/4	1/8	1.06	.75	.69	.188
179VL-6-4	3/8	1/4	1.07	.72	.84	.315

Truck Valves & Lanyard Valve

Parker's Truck Valves have metal-to-metal seats with fine thread screwdown. Parker's Lanyard Valves' compact design is ideally suited for releasing condensate from air tanks.

Product Features:

Truck Valves

- Brass Body and Stem
- Flare, Hose, Tube and Pipe Connections
- Round and Pin Handles

Lanyard Valve

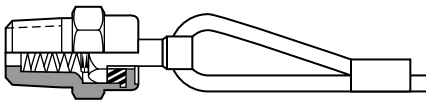
- Low Temperature Seal
- All Brass Body
- Manual Release

Markets:

- Heavy Duty Truck
- Trailer
- Mobile

Applications:

- Water
- Oil
- Coolant lines



Lanyard Valve Operating Instructions
A pulling action exerted on the cable cocks the stem, allowing condensate to pass through the valve. Releasing the cable resets the stem which returns the valve to its closed position.

Truck Valve Specifications:

Pressure Range	Up to 150 PSI (10.3 bar)
Temperature Range	-30˚ to +250˚ F (-34.4° to +121.1° C)

Lanyard Valve Specifications:

Pressure Range	Up to 150 PSI (10.3 bar)
Temperature Range	-40˚ to +200˚ F (-40° to +93.3° C)

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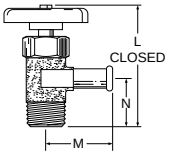
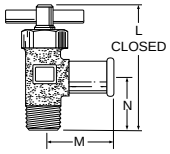
Truck Valve V404P



Hose to Male Pipe
Temperature Range: -30˚ to +250˚ F (-34.4° to +121.1° C)

PART NO.	HOSE I.D.	PIPE THREAD	FLOW	L	M	N
V404P-6-6	3/8	3/8	.281	2.35	1.36	.94
V404P-10-6	5/8	3/8	.406	2.75	1.31	1.10

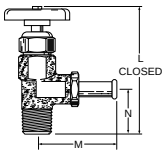
Truck Valve V404PH



Hose to Male Pipe with Pin Handle
Temperature Range: -30˚ to +250˚ F (-34.4° to +121.1° C)

PART NO.	HOSE I.D.	PIPE THREAD	FLOW	L	M	N
V404PH-10-6	5/8	3/8	.406	2.47	1.31	1.10

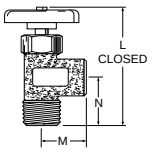
Truck Valve SV404P



Hose to Male Pipe
Temperature Range: -30˚ to +250˚ F (-34.4° to +121.1° C)

PART NO.	HOSE I.D.	PIPE THREAD	FLOW	L	M	N
SV404P-10-8	5/8	1/2	.468	3.71	2.31	1.34
SV404P-12-6	3/4	3/8	.438	3.73	2.31	1.34
SV404P-12-8	3/4	1/2	.562	3.73	2.31	1.34

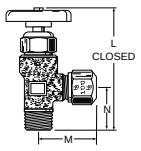
Truck Valve V405P



Female Pipe to Male Pipe
Temperature Range: -30˚ to +250˚ F (-34.4° to +121.1° C)

PART NO.	FEMALE PIPE THREAD	MALE PIPE THREAD	FLOW	L	M	N
V405P-6-6	3/8	3/8	.406	2.72	.91	1.19
V405P-6-8	3/8	1/2	.406	2.95	.91	1.31
V405P-8-8	1/2	1/2	.562	3.15	1.17	1.34

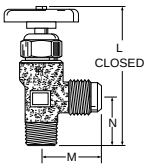
Truck Valve V408NTA



Tube to Male Pipe
Temperature Range: -30˚ to +250˚ F (-34.4° to +121.1° C)

PART NO.	TUBE SIZE	PIPE THREAD	FLOW	L	M	N
V408NTA-8-8	1/2	1/2	.328	3.28	1.15	1.19

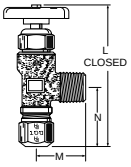
Truck Valve V409F



Flare to Male Pipe
Temperature Range: -30˚ to +250˚ F (-34.4° to +121.1° C)

PART NO.	TUBE SIZE	PIPE THREAD	FLOW	L	M	N
V409F-8-6	1/2	3/8	.406	3.07	1.31	1.00
V409F-8-8	1/2	1/2	.406	3.28	1.31	1.19
V409F-10-8	5/8	1/2	.500	3.47	1.50	1.25
V409F-12-8	3/4	1/2	.562	3.70	2.31	1.34

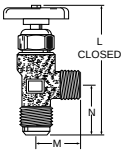
Truck Valve V410NTA



Tube to Male Pipe
Temperature Range: -30˚ to +250˚ F (-34.4° to +121.1° C)

F PART NO.	TUBE SIZE	PIPE THREAD	FLOW	L	M	N
V410NTA-8-8	1/2	1/2	.328	3.58	1.38	1.31

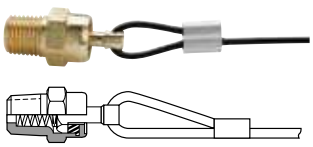
Truck Valve V412F



Tube to Male Pipe
Temperature Range: -30˚ to +250˚ F (-34.4° to +121.1° C)

PART NO.	TUBE SIZE	PIPE THREAD	FLOW	L	M	N
V412F-10-8	5/8	1/2	.500	3.60	1.38	1.31

LV91HF-4-SUB



Lanyard Valve LV91

Temperature Range: -40° to +200° F (-40° to +93.3° C)

PART NO.	PIPE THREAD	CABLE LENGTH INCHES
LV91-4-036	1/4	36
LV91-4-048	1/4	48
LV91-4-060	1/4	60
LV91HF-4-SUB	1/4	--

WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Industrial Flare Fittings

45° Flare Fittings

Parker Hannifin Corporation | Fluid System Connectors | Otsego, MI

Flare to Male NPT

48F
Male Connector
p. C9

145F
Branch Tee
p. C10

149F-249F
Male Elbow
p. C10

151F
Run Tee
p. C11

159F-259F
45° Male Elbow
p. C11

256F
Adapter Tee
p. C12

Flare to Straight Thread

485F
Male Connector
p. C9

1495F
Male Elbow
p. C11

1595F
45° Male Elbow
p. C12

Flare to Solder

US5
Flare Adapter
p. C7

43F
Connector
p. C8

Flare to Female NPT

46F
Female Connector
p. C9

150F
Female Elbow
p. C11

Flare to Flare

14FSV
Swivel Nut Connector
p. C7

42F
Union
p. C8

144F-244F
Union Tee
p. C10

155F
Union Elbow
p. C11

166FSV
Swivel Elbow
p. C12

660FHD
Union
p. C12

Flare to Metric Straight Thread

48F-X-MIX
Male Connector
p. C9

149F-X-MIX
Male Elbow
p. C11

159F-X-MIX
45° Male Elbow
p. C12

WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Adapter

1F
Refrigerant Drum
p. C7

661FHD
Reducer
p. C12

664FHD
Female Flare – Pipe
p. C12

Accessories

2GF
Flare Gasket
p. C7

3GF
Seal Bonnet
p. C7

14FL
Long Forged Nut
p. C7

14FS
Short Forged Nut
p. C7

14FSX
Short Forged Nut
p. C7

41FL
Long Nut
p. C8

41FS/41FX
Short Nut
p. C8

639F
Seal Plug
p. C12

640F
Cap Nut
p. C12

WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

45° Flare Fittings

Parker's Flare Fittings is an economical choice for a metal-to-metal seal that resists mechanical pullout. Meets functional requirements of SAE J512 and SAE J513.

Product Features:

- All brass construction
- Resists vibration with use of long nut
- UL listing
- Functional requirements of SAE J512 and J513

Markets:

- Refrigeration
- Heavy Duty Truck
- Mobile
- Industrial
- Heating
- Air Conditioning

Applications:

- Refrigerant Lines
- Propane
- Fuels
- Adapters
- Natural Gas

Compatible Tubing:

- Copper
- Brass
- Aluminum
- Welded Steel Hydraulic Tubing

Specifications:

Temperature Range: -65˚ to +250˚ F (-53.8° to 121.1° C)

Pressure Range:

TUBE SIZE	PSI	bar	TUBE SIZE	PSI	bar
1/8	2800	193.0	3/8	1000	68.9
3/16	1900	131.0	1/2	750	51.7
1/4	1400	96.5	5/8	650	44.8
5/16	1200	82.7	3/4	550	37.9

Assembly Instructions

1. Cut tubing squarely and clean tube end thoroughly to remove burrs.
2. Place nut onto tube. Place threaded end of nut toward end of tube.
3. Flare tube end with flaring tool to provide 45° flare.
4. Clamp tube flare between nut and nose of fitting body by screwing nut on finger-tight. Tighten with a wrench an additional 1/4 to 1/2 turn past finger-tight for a metal-to-metal seal.

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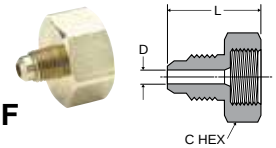
Refrigerant Drum Adapter 1F

Ref. SAE 010165



PART NO.	TUBE O.D.	PIPE THREAD	C HEX	L	FLOW DIA. D
1F-4-8	1/4	1/2	1-1/8	1.12	.189
1F-4-12*	1/4	3/4	1-1/4	1.12	.189
1F-6-12*	3/8	3/4	1-1/4	1.24	.282
1F-8-12*	1/2	3/4	1-1/4	1.37	.407

Gasket Furnished with each 1F adapter

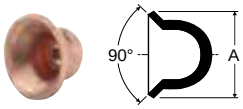
Copper Flare Gasket 2GF

REF. SAE 010113

PART NO.	TUBE SIZE	A
2GF-3	3/16	.32
2GF-4	1/4	.36
2GF-5	5/16	.43
2GF-6	3/8	.56
2GF-8	1/2	.67
2GF-10	5/8	.78
2GF-12	3/4	.97

Seal Bonnet 3GF

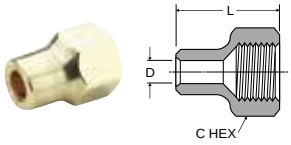
REF. SAE 010114



PART NO.	TUBE SIZE	A
3GF-3	3/16	.32
3GF-4	1/4	.37
3GF-5	5/16	.43
3GF-6	3/8	.56
3GF-8	1/2	.67
3GF-10	5/8	.78
3GF-12	3/4	.97

Long Forged Nut 14FL

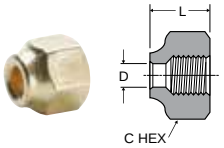
REF. SAE 010167



PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	D	L
14FL-4	1/4	7/16-20	5/8	.257	.94
14FL-6	3/8	5/8-18	13/16	.382	1.06
14FL-8	1/2	3/4-16	15/16	.507	1.19
14FL-10	5/8	7/8-14	1-1/16	.632	1.44

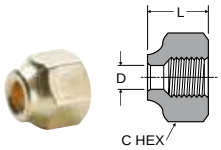
Short Forged Nut 14FSX

REF. SAE 010166



PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	D	L
14FSX-4	1/4	7/16-20	5/8	.257	.63
14FSX-5	5/16	1/2-20	11/16	.320	.67
14FSX-6	3/8	5/8-18	13/16	.382	.74
14FSX-8	1/2	3/4-16	15/16	.507	.86
14FSX-10	5/8	7/8-14	1-1/16	.632	.97
14FSX-12	3/4	1-1/16-14	1-5/16	.757	1.17

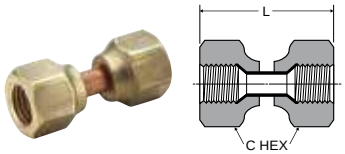
Short Forged Reducing Nuts 14FS



PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	D	L
14FS-6-4	3/8 TO 1/4	5/8-18	13/16	.257	.74
14FS-8-6	1/2 TO 3/8	3/4-16	15/16	.382	.86
14FS-10-8	5/8 TO 1/2	7/8-14	1-1/16	.507	.99

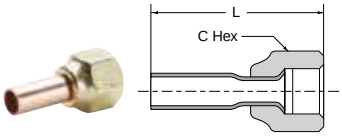
Swivel Nut Valve Connector 14FSV

REF. SAE 010108



PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	L MIN.
14FSV-4	1/4	7/16-20	5/8	1.31
14FSV-6	3/8	5/8-18	13/16	1.50
14FSV-8	1/2	3/4-16	15/16	1.75
14FSV-10	5/8	7/8-14	1-1/16	2.00

Flare Adapter US5



PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	L
US5-4	1/4	7/16-20	5/8	1.50
US5-6	3/8	5/8-18	13/16	1.58
US5-8	1/2	3/4-16	15/16	1.80

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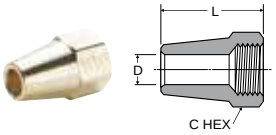
Click here for CADs, Product Specifications or to Configure Parts Online

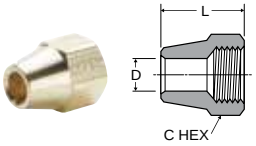
Long Nut 41FL



REF. SAE 010111

PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	D	L
41FL-2	1/8	5/16-24	3/8	.133	.75
41FL-3	3/16	3/8-24	7/16	.195	.81
41FL-4	1/4	7/16-20	9/16	.257	.94
41FL-5	5/16	1/2-20	5/8	.320	1.12
41FL-6	3/8	5/8-18	3/4	.382	1.31
41FL-8	1/2	3/4-16	7/8	.507	1.62
41FL-10	5/8	7/8-14	1-1/16	.632	1.88
41FL-12	3/4	1-1/16-14	1-1/4	.757	2.19

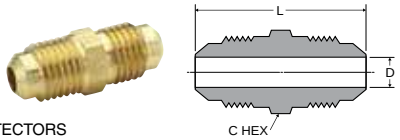
Short Nut 41FS / Shorter Nut 41FX



REF. SAE 010110

PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	D	L
41FS-2	1/8	5/16-24	3/8	.132	.50
41FS-3	3/16	3/8-24	7/16	.195	.62
41FS-4	1/4	7/16-20	9/16	.257	.75
41FS-5	5/16	1/2-20	5/8	.320	.88
41FS-6	3/8	5/8-18	3/4	.382	1.00
41FX-6	3/8	5/8-18	3/4	.382	.91
41FS-8	1/2	3/4-16	7/8	.507	1.12
41FX-8	1/2	3/4-16	7/8	.507	1.00
41FS-10	5/8	7/8-14	1-1/16	.632	1.31
41FX-10	5/8	7/8-14	1-1/16	.632	1.06
41FX-12	3/4	1-1/16-14	1-1/4	.757	1.17
41FS-12	3/4	1-1/16-14	1-1/4	.757	1.50
41FS-14	7/8	1-1/4-12	1-1/2	.882	1.62

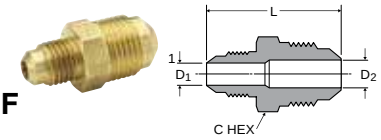
Union 42F



REF. SAE 010101 *THREAD PROTECTORS

PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	L	D
42F-2	1/8	5/16-24	5/16	.90	.079
42F-3	3/16	3/8-24	3/8	1.04	.125
42F-4	1/4	7/16-20	7/16	1.17	.189
42F-5	5/16	1/2-20	1/2	1.32	.220
42F-6	3/8	5/8-18	5/8	1.48	.282
42F-8	1/2	3/4-16	3/4	1.79	.407
42F-10	5/8	7/8-14	7/8	2.10	.501
42F-12*	3/4	1-1/16-14	1-1/16	2.42	.626
42F-14*	7/8	1-1/4-12	1-1/4	2.72	.751

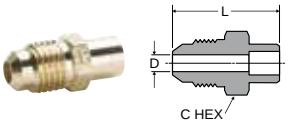
Union Reducers 42F



REF. SAE 010101

PART NO.	1 TUBE SIZE	2 TUBE SIZE	1 STRAIGHT THREAD	2 STRAIGHT THREAD	C HEX	L	FLOW DIA. D1	FLOW DIA. D2
42F-6-4	1/4	3/8	7/16-20	5/8-18	5/8	1.36	.189	.282
42F-6-5	5/16	3/8	1/2-20	5/8-18	5/8	1.42	.220	.282
42F-8-4	1/4	1/2	7/16-20	3/4-16	3/4	1.54	.189	.407
42F-8-6	3/8	1/2	5/8-18	3/4-16	3/4	1.67	.282	.407
42F-10-6	3/8	5/8	5/8-18	7/8-14	7/8	1.86	.282	.501
42F-10-8	1/2	5/8	3/4-16	7/8-14	7/8	1.98	.407	.501

Flare to Solder 43F



REF. SAE 010104

PART NO.	TUBE SIZE	SOLDER OD	STRAIGHT THREAD	C HEX	L	FLOW DIA. D
43F-4-4	1/4	1/4	7/16-20	7/16	.98	.189
43F-4-5	1/4	5/16	7/16-20	7/16	.98	.189
43F-4-6	1/4	3/8	7/16-20	1/2	.98	.189
43F-6-4	3/8	1/4	5/8-18	5/8	1.17	.189
43F-6-5	3/8	5/16	5/8-18	5/8	1.17	.252
43F-6-6	3/8	3/8	5/8-18	5/8	1.17	.282
43F-6-8	3/8	1/2	5/8-18	5/8	1.23	.282
43F-6-10	3/8	5/8	5/8-18	3/4	1.36	.282
43F-8-6	1/2	3/8	3/4-16	3/4	1.36	.314
43F-8-8	1/2	1/2	3/4-16	3/4	1.42	.407
43F-8-10	1/2	5/8	3/4-16	3/4	1.54	.407
43F-10-8	5/8	1/2	7/8-14	7/8	1.60	.440
43F-10-10	5/8	5/8	7/8-14	7/8	1.73	.501
43F-10-12*	5/8	3/4	7/8-14	7/8	1.86	.501
43F-12-12*	3/4	3/4	1-1/16-14	1-1/16	2.04	.626
43F-12-14*	3/4	7/8	1-1/16-14	1-1/16	2.17	.626

*Comes standard with thread protectors

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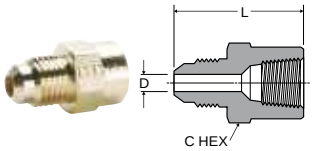
Click here for CADs, Product Specifications or to Configure Parts Online

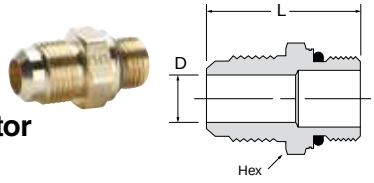
Female Connector 46F

REF. SAE 010103



PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	C HEX	L	FLOW DIA. D
46F-2-2	1/8	1/8	5/16-24	9/16	.91	.078
46F-3-2	3/16	1/8	3/8-24	9/16	.95	.125
46F-4-2	1/4	1/8	7/16-20	9/16	1.01	.189
46F-4-4	1/4	1/4	7/16-20	11/16	1.23	.189
46F-4-6	1/4	3/8	7/16-20	13/16	1.26	.189
46F-5-2	5/16	1/8	1/2-20	9/16	1.05	.220
46F-5-4	5/16	1/4	1/2-20	11/16	1.26	.220
46F-6-2	3/8	1/8	5/8-18	5/8	1.10	.282
46F-6-4	3/8	1/4	5/8-18	11/16	1.29	.282
46F-6-6	3/8	3/8	5/8-18	13/16	1.36	.282
46F-6-8	3/8	1/2	5/8-18	1	1.60	.282
46F-8-4	1/2	1/4	3/4-16	3/4	1.39	.407
46F-8-6	1/2	3/8	3/4-16	13/16	1.48	.407
46F-8-8	1/2	1/2	3/4-16	1	1.73	.407
46F-8-12*	1/2	3/4	3/4-16	1-1/4	1.79	.407
46F-10-6	5/8	3/8	7/8-14	7/8	1.57	.501
46F-10-8	5/8	1/2	7/8-14	1	1.80	.501
46F-10-12*	5/8	3/4	7/8-14	1-1/4	1.89	.501

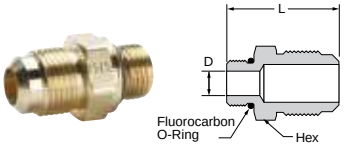
Flare to Metric Adaptor 48F-X-MIX



PART NUMBER	TUBE SIZE	METRIC THREAD	STRAIGHT THREAD TUBE	HEX	L	D
48F-8-MII6	1/2	M16 X 1.5	3/4-16	7/8	1.60	.35
48F-10-MI27	5/8	M27 X 2.0	7/8-14	1 1/4	1.87	.50
48F-12-MI27*	3/4	M27 X 2.0	1 1/16-14	1 1/4	1.99	.63

Note: Fluorocarbon o-ring is standard

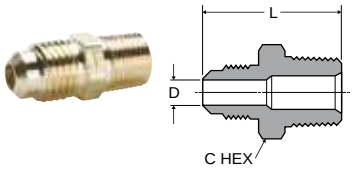
Flare to SAE Straight Thread 485F



PART NO.	TUBE SIZE	STRAIGHT THREAD	STRAIGHT THREAD TUBE	HEX	L	FLOW DIA. D
485F-12-8*	3/4	3/4-16	1 1/16-14	1 1/16	1.80	.397
485F-12-12*	3/4	1 1/16-12	1 1/16-14	1 1/4	2.03	.615

Male Connector 48F

REF. SAE 010102



PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	C HEX	L	FLOW DIA. D
48F-2-2	1/8	1/8	5/16-24	7/16	.91	.078
48F-3-2	3/16	1/8	3/8-24	7/16	.98	.125
48F-3-4	3/16	1/4	3/8-24	9/16	1.17	.125
48F-4-2	1/4	1/8	7/16-20	7/16	1.04	.189
48F-4-4	1/4	1/4	7/16-20	9/16	1.23	.189
48F-4-6	1/4	3/8	7/16-20	11/16	1.29	.189
48F-4-8	1/4	1/2	7/16-20	7/8	1.54	.189
48F-5-2	5/16	1/8	1/2-20	1/2	1.14	.220
48F-5-4	5/16	1/4	1/2-20	9/16	1.32	.220
48F-5-6	5/16	3/8	1/2-20	11/16	1.36	.220
48F-6-2	3/8	1/8	5/8-18	5/8	1.23	.220
48F-6-4	3/8	1/4	5/8-18	5/8	1.42	.282
48F-6-6	3/8	3/8	5/8-18	11/16	1.42	.282
48F-6-8	3/8	1/2	5/8-18	7/8	1.67	.282
48F-6-12*	3/8	3/4	5/8-18	1-1/16	1.79	.282
48F-8-4	1/2	1/4	3/4-16	3/4	1.60	.407
48F-8-6	1/2	3/8	3/4-16	3/4	1.60	.407
48F-8-8	1/2	1/2	3/4-16	7/8	1.79	.407
48F-8-12	1/2	3/4	3/4-16	1-1/16	1.92	.407
48F-10-4	5/8	1/4	7/8-14	7/8	1.79	.313
48F-10-6	5/8	3/8	7/8-14	7/8	1.79	.408
48F-10-8	5/8	1/2	7/8-14	7/8	1.98	.501
48F-10-12*	5/8	3/4	7/8-14	1-1/16	2.04	.501
48F-12-8*	3/4	1/2	1-1/16-14	1-1/16	2.17	.563
48F-12-12*	3/4	3/4	1-1/16-14	1-1/16	2.17	.626
48F-14-12*	7/8	3/4	1-1/4-12	1-1/4	2.35	.751

*Comes standard with thread protectors

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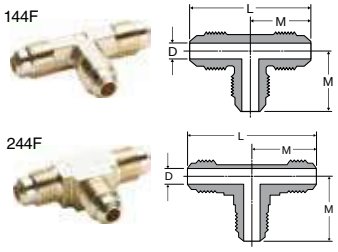
Click here for CADs, Product Specifications or to Configure Parts Online

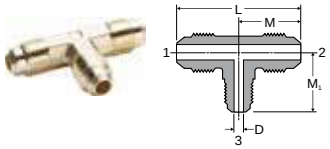
Union Tee 144F-244F

REF. SAE 010401



PART NO.	TUBE SIZE	STRAIGHT THREAD	L	M	FLOW DIA. D
144F-3	3/16	3/8-24	1.46	.73	.125
144F-4	1/4	7/16-20	1.72	.86	.189
244F-4	1/4	7/16-20	1.72	.86	.189
144F-5	5/16	1/2-20	1.82	.91	.220
144F-6	3/8	5/8-18	2.08	1.04	.282
144F-8	1/2	3/4-16	2.46	1.23	.407
144F-10	5/8	7/8-14	2.78	1.39	.501

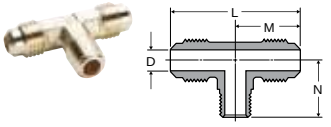
Union Tee 144F combination sizes



PART NO.	1 TUBE SIZE	2 TUBE SIZE	3 TUBE SIZE	L	M	M1	FLOW DIA. D
144F-6-6-4	3/8	3/8	1/4	2.08	1.04	.89	.189
144F-8-8-6	1/2	1/2	3/8	2.40	1.20	1.10	.282

Male Branch Tee 145F

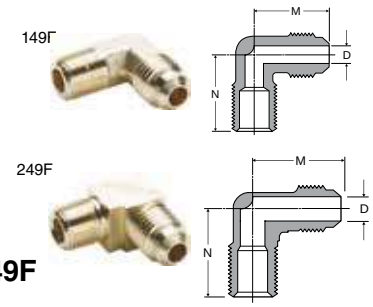
REF. SAE 010425



PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	L	M	N	FLOW DIA. D
145F-2-2	1/8	1/8	5/16-24	1.26	.63	.69	.079
145F-4-2	1/4	1/8	7/16-20	1.58	.79	.76	.189
145F-4-4	1/4	1/4	7/16-20	1.78	.89	.92	.189
145F-5-4	5/16	1/4	1/2-20	1.90	.95	.96	.220
145F-6-4	3/8	1/4	5/8-18	1.96	.98	1.05	.282
145F-6-6	3/8	3/8	5/8-18	2.00	1.00	.98	.282
145F-6-8	3/8	1/2	5/8-18	2.28	1.14	1.26	.282
145F-8-6	1/2	3/8	3/4-16	2.40	1.20	1.10	.407
145F-8-8	1/2	1/2	3/4-16	2.46	1.23	1.36	.407
145F-10-8	5/8	1/2	7/8-14	2.78	1.39	1.36	.501

Male Elbow 149F-249F

REF. SAE 010202



PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	M	N	FLOW DIA. D
149F-2-2	1/8	1/8	5/16-24	.63	.69	.079
149F-3-2	3/16	1/8	3/8-24	.75	.75	.125
249F-3-2	3/16	1/8	3/8-24	.73	.73	.125
149F-4-2	1/4	1/8	7/16-20	.79	.76	.189
249F-4-2	1/4	1/8	7/16-20	.79	.76	.189
149F-4-4	1/4	1/4	7/16-20	.89	.92	.189
249F-4-4	1/4	1/4	7/16-20	.89	.92	.189
149F-4-6	1/4	3/8	7/16-20	.92	1.01	.189
249F-4-6	1/4	3/8	7/16-20	.92	1.01	.189
149F-4-8	1/4	1/2	7/16-20	1.02	1.26	.189
149F-5-2	5/16	1/8	1/2-20	.90	.79	.220
249F-5-2	5/16	1/8	1/2-20	.89	.77	.220
149F-5-4	5/16	1/4	1/2-20	.95	.95	.220
249F-5-4	5/16	1/4	1/2-20	.95	.92	.220
149F-5-6	5/16	3/8	1/2-20	.98	1.01	.220
149F-6-2⁺	3/8	1/8	5/8-18	1.01	.90	.220
249F-6-2⁺	3/8	1/8	5/8-18	1.01	.89	.220
149F-6-4	3/8	1/4	5/8-18	1.01	1.05	.282
249F-6-4	3/8	1/4	5/8-18	.98	1.04	.282
149F-6-6	3/8	3/8	5/8-18	1.04	1.07	.282
249F-6-6	3/8	3/8	5/8-18	1.04	1.07	.282
149F-6-8	3/8	1/2	5/8-18	1.15	1.26	.282
249F-6-8	3/8	1/2	5/8-18	1.14	1.26	.282
149F-6-12*	3/8	3/4	5/8-18	1.25	1.38	.282
149F-8-4⁺	1/2	1/4	3/4-16	1.20	1.17	.314
149F-8-6	1/2	3/8	3/4-16	1.20	1.10	.407
249F-8-6	1/2	3/8	3/4-16	1.20	1.10	.407
149F-8-8	1/2	1/2	3/4-16	1.28	1.38	.407
249F-8-8	1/2	1/2	3/4-16	1.26	1.36	.407
149F-8-12*	1/2	3/4	3/4-16	1.38	1.38	.407
149F-10-4⁺	5/8	1/4	7/8-14	1.41	1.25	.314
149F-10-6⁺	5/8	3/8	7/8-14	1.41	1.25	.407
149F-10-8	5/8	1/2	7/8-14	1.40	1.39	.501
249F-10-8	5/8	1/2	7/8-14	1.39	1.36	.501
149F-10-12*	5/8	3/4	7/8-14	1.42	1.48	.501
149F-12-8*⁺	3/4	1/2	1-1/16-14	1.60	1.48	.563
149F-12-12*	3/4	3/4	1-1/16-14	1.60	1.62	.626

⁺ For these parts the pipe thread through hole is smaller than the through hole on the flare end.

*Comes standard with thread protectors

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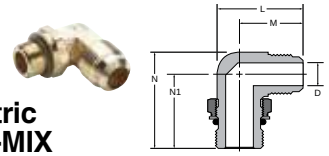
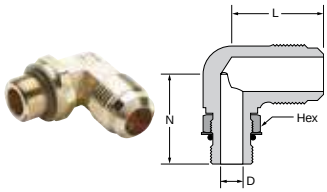


Flare Elbow to SAE Metric Straight Thread 149F-X-MIX

PART NUMBER	TUBE SIZE	METRIC THREAD	STRAIGHT THREAD TUBE	L	M	N	N1	D
149F-10-MI27	5/8	M27 X 2.0	7/8-14	1.95	1.46	2.12	1.63	.501

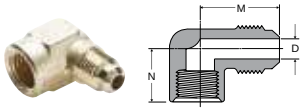
Note: Fluorocarbon o-ring is standard



Flare Elbow to SAE Straight Thread 1495F

PART NO.	TUBE SIZE	STRAIGHT THREAD	STRAIGHT THREAD TUBE	HEX	L	N	FLOW DIA. D
1495F-12-8*	3/4	3/4-16	1 1/16-14	7/8	1.60	1.60	.398
1495F-12-12*	3/4	1-1/16-12	1 1/16-14	1 1/4	1.59	2.12	.616

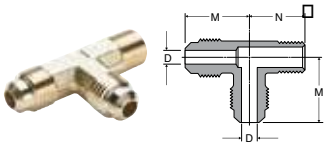
Note: Fluorocarbon o-ring is standard



Female Elbow 150F

REF. SAE 010203

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	M	N	FLOW DIA. D
150F-4-2	1/4	1/8	7/16-20	.86	.50	.189
150F-4-4	1/4	1/4	7/16-20	.95	.67	.189
150F-5-4	5/16	1/4	1/2-20	1.01	.67	.220
150F-6-2	3/8	1/8	5/8-18	1.08	.48	.282
150F-6-4	3/8	1/4	5/8-18	1.07	.67	.282
150F-6-6	3//8	3/8	5/8-18	1.14	.67	.282
150F-6-8	3/8	1/2	5/8-18	1.23	.86	.282
150F-8-6	1/2	3/8	3/4-16	1.25	.69	.407
150F-8-8	1/2	1/2	3/4-16	1.36	.92	.407
150F-8-12	1/2	3/4	3/4-16	1.51	.92	.407
150F-10-8*	5/8	1/2	7/8-14	1.48	.98	.501
150F-10-12*	5/8	3/4	7/8-14	1.64	.98	.501

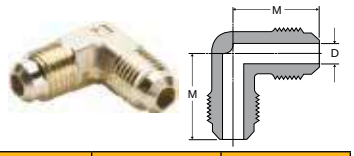


Male Run Tee 151F

REF. SAE 010424

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	M	N	FLOW DIA. D
151F-4-2	1/4	1/8	7/16-20	.86	.76	.189
151F-4-4	1/4	1/4	7/16-20	.89	.92	.189
151F-5-4	5/16	1/4	1/2-20	.95	.92	.220
151F-6-4	3/8	1/4	5/8-18	1.04	1.04	.282
151F-6-6	3/8	3/8	5/8-18	1.00	.98	.282
151F-6-8	3/8	1/2	5/8-18	1.16	1.26	.282
151F-8-6	1/2	3/8	3/4-16	1.20	1.10	.407
151F-8-8	1/2	1/2	3/4-16	1.23	1.36	.407
151F-10-8	5/8	1/2	7/8-14	1.39	1.36	.501

*Comes standard with thread protectors



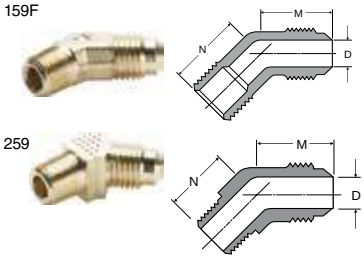
Union Elbow 155F

REF. SAE 010201

PART NO.	TUBE SIZE	STRAIGHT THREAD	M	FLOW DIA. D
155F-2	1/8	5/16-24	.64	.079
155F-3	3/16	3/8-24	.73	.125
155F-4	1/4	7/16-20	.86	.189
155F-5	5/16	1/2-20	.92	.220
155F-6	3/8	5/8-18	1.04	.282
155F-8	1/2	3/4-16	1.20	.407
155F-10	5/8	7/8-14	1.39	.501
155F-12*	3/4	1-1/16-14	1.64	.626

159F

259



45° Elbow 159F-259F

REF. SAE 010302

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	M	N	FLOW DIA. D
159F-4-2	1/4	1/8	7/16-20	.78	.56	.189
259F-4-2	1/4	1/8	7/16-20	.65	.62	.189
159F-4-4	1/4	1/4	7/16-20	.75	.84	.189
259F-4-4	1/4	1/4	7/16-20	.73	.84	.189
159F-5-2	5/16	1/8	1/2-20	.76	.65	.220
159F-5-4	5/16	1/4	1/2-20	.75	.81	.220
159F-6-2⁺	3/8	1/8	5/8-18	.89	.67	.220
159F-6-4	3/8	1/4	5/8-18	.89	.86	.282
259F-6-4	3/8	1/4	5/8-18	.91	.86	.282
159F-6-6	3/8	3/8	5/8-18	.91	.93	.282
259F-6-6	3/8	3/8	5/8-18	.91	.93	.282
159F-8-4⁺	1/2	1/4	3/4-16	1.06	.95	.314
159F-8-6	1/2	3/8	3/4-16	1.06	.95	.407
259F-8-6	1/2	3/8	3/4-16	1.04	.93	.407
159F-8-8	1/2	1/2	3/4-16	1.12	1.16	.407
159F-10-6⁺	5/8	3/8	7/8-14	1.13	.95	.407
159F-10-8	5/8	1/2	7/8-14	1.21	1.16	.501
159F-12-8*⁺	3/4	1/2	1-1/16-14	1.28	1.16	.560

⁺ For these parts the pipe thread through hole is smaller than the through hole on the flare end.

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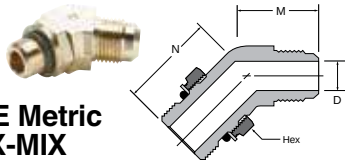
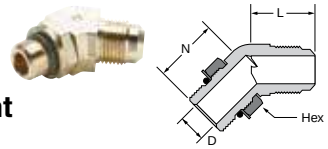


45° Flare Elbow to SAE Metric Straight Thread 159F-X-MIX

PART NUMBER	TUBE SIZE	METRIC THREAD	STRAIGHT THREAD TUBE	HEX	M	N	D
159F-8-MII6	1/2	M16 X 1.5	3/4-16	22MM	1.10	1.16	.36
159F-10-MI27	5/8	M27 X 2.0	7/8-14	1 1/4	1.21	1.50	.50

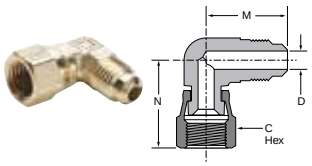
Note: Fluorocarbon o-ring is standard



45° Flare to SAE Straight Thread 1595F

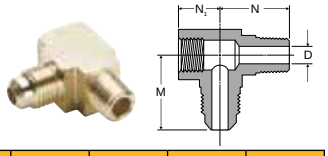
PART NO.	TUBE SIZE	STRAIGHT THREAD	STRAIGHT THREAD TUBE	HEX	L	N	FLOW DIA. D
1595F-8-8	1/2	3/4-16	3/4-16	7/8	1.00	1.16	.398
1595F-12-8*	3/4	3/4-16	1 1/16-14	7/8	1.41	1.30	.398
1595F-12-12*	3/4	1 1/16-12	1 1/16-14	1 1/4	1.41	1.45	.615

Note: Fluorocarbon o-ring is standard



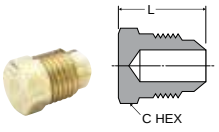
90° Swivel Elbow 166FSV

PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	M	N	FLOW DIA. D
166FSV-4-4	1/4	7/16-20	9/16	.86	.93	.189
166FSV-6-6	3/8	5/8-18	3/4	1.04	1.12	.282
166FSV-8-8	1/2	3/4-16	7/8	1.20	1.29	.407
166FSV-10-10	5/8	7/8-14	1	1.39	1.50	.501
166FSV-12-12*	3/4	1-1/16-14	1-1/4	1.60	1.83	.626



Adapter Tee 256F

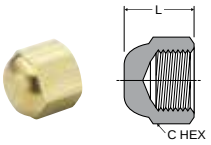
PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	M	N	N1	FLOW DIA. D
256F-4-2	1/4	1/8	7/16-20	.86	.77	.47	.220



Flared Seal Plug 639F

REF. SAE 010109

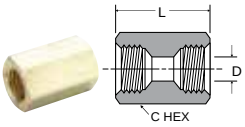
PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	L
639F-4	1/4	7/16-20	7/16	.69
639F-5	5/16	1/2-20	1/2	.78
639F-6	3/8	5/8-18	5/8	.88
639F-8	1/2	3/4-16	3/4	1.06
639F-10	5/8	7/8-14	7/8	1.19



Cap Nut 640F

REF. SAE 010112

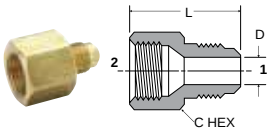
PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	L
640F-3†	3/16	3/8-24	1/2	.47
640F-4†	1/4	7/16-20	9/16	.53
640F-5†	5/16	1/2-20	5/8	.62
640F-6†	3/8	5/8-18	3/4	.69
640F-8†	1/2	3/4-16	7/8	.84
640F-10†	5/8	7/8-14	1-1/16	.97



Flared Union–Female Flare to Female Flare 660FHD

REF. SAE 010107

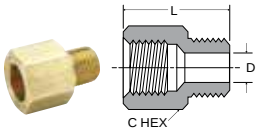
PART NO.	TUBE SIZE	STRAIGHT THREAD	C HEX	L	FLOW DIA. D
660FHD-4†	1/4	7/16-20	5/8	.98	.251
660FHD-6†	3/8	5/8-18	13/16	1.24	.376
660FHD-8†	1/2	3/4-16	15/16	1.43	.501
660FHD-10†	5/8	7/8-14	1-1/16	1.67	.626



Male Flare to Female Flare 661FHD

REF. SAE 010105

PART NO.	1 TUBE SIZE	2 TUBE SIZE	1 STRAIGHT THREAD	2 STRAIGHT THREAD	C HEX	L	FLOW DIA. D
661FHD-4-6†	1/4	3/8	7/16-20	5/8-18	13/16	1.20	.189
661FHD-4-8†	1/4	1/2	7/16-20	3/4-16	15/16	1.36	.189
661FHD-6-4†	3/8	1/4	5/8-18	7/16-20	5/8	1.10	.282
661FHD-6-8†	3/8	1/2	5/8-18	3/4-16	15/16	1.42	.282
661FHD-8-6†	1/2	3/8	3/4-16	5/8-18	13/16	1.39	.407
661FHD-8-10†	1/2	5/8	3/4-16	7/8-14	1-1/16	1.67	.407
661FHD-10-8†	5/8	1/2	7/8-14	3/4-16	15/16	1.60	.501
661FHD-10-12*†	5/8	3/4	7/8-14	1-1/16-14	1-5/16	1.95	.501
661FHD-12-10*†	3/4	5/8	1-1/16-14	7/8-14	1-1/16	1.86	.626



Female Flare to Male Pipe Thread 664FHD

REF. SAE 010106

PART NO.	TUBE SIZE	PIPE THREAD	STRAIGHT THREAD	C HEX	L	FLOW DIA. D
664FHD-4-2†	1/4	1/8	7/16-20	5/8	.91	.220
664FHD-4-4†	1/4	1/4	7/16-20	5/8	1.01	.252
664FHD-6-4†	3/8	1/4	5/8-18	13/16	1.28	.345
664FHD-8-6†	1/2	3/8	3/4-16	15/16	1.31	.407

*Comes standard with thread protectors
†Should be used with 2GF flare gasket

WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Industrial Barbed Fittings

Hose Barb Fittings

Parker Hannifin Corporation | Fluid System Connectors | Otsego, MI

Threaded Fittings

68HB
Male Connector
NPT
p. D6


685HB
Male Connector
p. D6


68HB-X-MIX
Male Connector
p. D6


125HB
Male Connector
NPT
p. D6


125HBL
Male Connector
NPT
p. D6


125HBLSV
Swivel Connector
NPT
p. D7


126HBL
Female Connector
NPT
p. D7


127HB
Ball-End Adapter
NPT
p. D7


129HB
Male Elbow
NPT
p. D7


1295HB
Male Elbow
p. D7


139HB
45° Male Elbow
NPT
p. D8


1695HB
Male Elbow
p. D8


169HB-X-MIX
Male Elbow
p. D8


1725HB
Tee
p. D8


171HB
Run Tee
NPT
p. D8


179HB
45° Male Elbow
NPT
p. D8


1795HB
45° Male Elbow
p. D8


179HB-X-MIX
45° Male Elbow
p. D9


269HB
Male Elbow
p. D9


279HB
45° Male Elbow
p. D9


0123
Male Connector
BSPT
p. D9


0136
Metric Hose
to BSPT
p. D10


0191
Metric Hose
to BSPP
p. D10


0931
Metric Hose
to BSPP
p. D10


Barb to Barb

122HBL
Union
p. D6


Swivel

128HBLSV
Female Ball-End
p. D7


146HBLFSV
45° Female Flare
p. D8


Accessories

97HC
Clamp
p. D6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Hose Barb Fittings

Parker's Hose Barb Fittings are an economical choice for general purpose fluid handling and pneumatics. Manufactured in both regular hose barb and beaded hose barb styles. Fittings are intended for use with 97HC hose clamps, similar type clamp or a crimped ferrule.

Product Features:

- All brass construction
- Fluorocarbon O-rings
- NPTF, SAE straight thread, metric thread ends
- Reusable
- Clamp required

Applications:

- Air Lines
- Water Line
- Cooling Lines

Compatible Tubing:

- Rubber Hose
- GPH Hose

Markets:

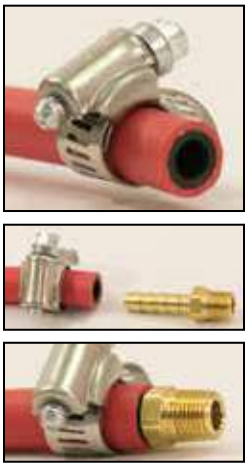
- Industrial
- Construction
- Heavy duty truck
- Mobile

Specifications:

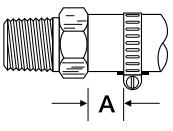
Pressure Range	Up to 150 PSI (10.3 bar)
Temperature Range	-40˚ to +160˚ F (-40° to +71.1° C)

Assembly Instructions

1. Cut hose cleanly and squarely to length.
2. Slide clamp on hose.
3. Lubricate hose. Push hose on fitting until bottomed against stop ring or hex.
4. Position hose clamp as shown and secure with a screwdriver or wrench. Maintain "A" dimension for proper clamp positioning.



HOSE SIZE	HOSE CLAMP	A
3/16	97 HC-3	1/4
1/4	97 HC-3	1/4
5/16	97 HC-6	1/4
3/8	97 HC-6	1/8
1/2	97 HC-8	1/8
5/8	97 HC-12	1/8
3/4	97 HC-12	1/8



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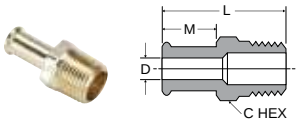
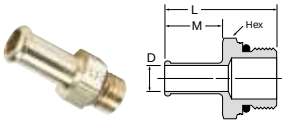
Click here for CADs, Product Specifications or to Configure Parts Online

Beaded Hose Barb to Male Pipe 68HB



PART NO.	I.D. HOSE SIZE	PIPE THREAD	C HEX	L	M	FLOW DIA.D
68HB-6-6	3/8	3/8	11/16	1.53	.78	.281
68HB-8-4	1/2	1/4	5/8	1.56	.78	.375
68HB-8-6	1/2	3/8	11/16	1.53	.78	.406
68HB-8-8	1/2	1/2	7/8	1.84	.78	.406
68HB-10-6	5/8	3/8	3/4	1.62	.88	.501
68HB-10-8	5/8	1/2	7/8	1.92	.88	.501
68HB-12-8	3/4	1/2	7/8	1.98	.88	.564
68HB-12-12	3/4	3/4	1 1/16	2.04	.97	.625
68HB-16-12	1	3/4	1 1/8	2.12	1.00	.750
68HB-16-16	1	1	1.38	2.31	1.00	.812

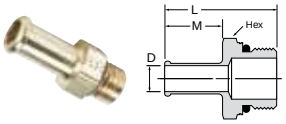
Beaded Hose Barb to SAE Straight Thread 685HB



PART NO.	I.D. HOSE SIZE	STRAIGHT THREAD	C HEX	L	M	FLOW DIA.D
685HB-4-4	1/4	7/16-20	9/16	1.40	.78	.18
685HB-6-4	3/8	7/16-20	9/16	1.39	.78	.18
685HB-8-8	1/2	3/4-16	7/8	1.48	.78	.40
685HB-10-8	5/8	3/4-16	7/8	1.56	.78	.40
685HB-12-8	3/4	3/4-16	7/8	1.75	.97	.40
685HB-12-12	3/4	1 1/16-12	1 1/4	1.82	.97	.62
685HB-16-8	1	3/4-16	1 1/8	1.79	.97	.40
685HB-16-12	1	1 1/16-12	1 1/4	1.99	.97	.62

Note: Fluorocarbon o-ring is standard

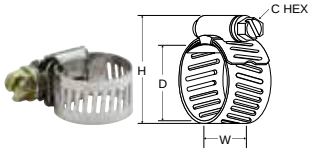
Hose Barb to Metric Adaptor 68HB-X-MIX



PART NUMBER	I.D. HOSE SIZE	METRIC THREAD	HEX	L	M	D
68HB-6-MI12	3/8	M12 X 1.5	11/16	1.50	.78	.24
68HB-6-MI14	3/8	M14 1.5	3/4	1.51	.78	.29
68HB-8-MI12	1/2	M12 X 1.5	11/16	1.50	.78	.24

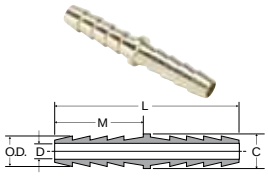
Note: Fluorocarbon o-ring is standard

Stainless Steel Worm Drive Clamp 97HC



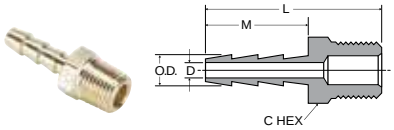
PART NO.	D MAX.	D MIN.	C HEX	H MAX.	W
97HC-3	.62	.25	.25	1.00	.31
97HC-6	.87	.38	.31	1.40	.50
97HC-8	1.00	.44	.31	1.53	.50
97HC-12	1.25	.50	.31	1.80	.50

Hose Mender 122HBL



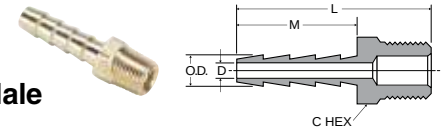
PART NO.	I.D. HOSE SIZE	C DIA.	L	M	O.D.	FLOW DIA. D
122HB-3	3/16	5/16	1.44	.69	.227	.125
122HBL-4	1/4	3/8	2.00	.97	.290	.187
122HBL-5	5/16	7/16	2.00	.97	.353	.250
122HBL-6	3/8	1/2	2.00	.97	.415	.281
122HBL-8	1/2	5/8	2.00	.97	.530	.375
122HBL-12	3/4	7/8	2.00	.97	.790	.562

Hose Barb to Male Pipe 125HB



PART NO.	I.D. HOSE SIZE	PIPE THREAD	C HEX	L	M	O.D.	FLOW DIA. D
125HB-2-2	1/8	1/8	7/16	1.07	.50	.185	.093
125HB-3-2	3/16	1/8	7/16	1.25	.69	.227	.125
125HB-3-4	3/16	1/4	9/16	1.44	.69	.227	.125

Hose Barb to Male Pipe 125HBL



PART NO.	I.D. HOSE SIZE	PIPE THREAD	C HEX	L	M	O.D.	FLOW DIA. D
125HBL-4-2	1/4	1/8	7/16	1.54	.97	.290	.187
125HBL-4-4	1/4	1/4	9/16	1.72	.97	.290	.187
125HBL-4-6	1/4	3/8	11/16	1.77	.97	.290	.187
125HBL-5-2	5/16	1/8	7/16	1.54	.97	.353	.250
125HBL-5-4	5/16	1/4	9/16	1.72	.97	.353	.250
125HBL-5-6	5/16	3/8	11/16	1.77	.97	.353	.250
125HBL-6-2	3/8	1/8	7/16	1.54	.97	.415	.281
125HBL-6-4	3/8	1/4	9/16	1.72	.97	.415	.281
125HBL-6-6	3/8	3/8	11/16	1.77	.97	.415	.281
125HBL-6-8	3/8	1/2	7/8	1.97	.97	.415	.281
125HBL-8-4	1/2	1/4	9/16	1.72	.97	.530	.375
125HBL-8-6	1/2	3/8	11/16	1.77	.97	.530	.375
125HBL-8-8	1/2	1/2	7/8	1.97	.97	.530	.375
125HBL-8-12	1/2	3/4	1-1/16	1.98	.97	.530	.375
125HBL-10-6	5/8	3/8	11/16	1.77	.97	.645	.468
125HBL-10-8	5/8	1/2	7/8	1.97	.97	.645	.468
125HBL-10-12	5/8	3/4	1-1/16	1.98	.97	.645	.468
125HBL-12-8	3/4	1/2	7/8	1.97	.97	.790	.562
125HBL-12-12	3/4	3/4	1-1/16	1.98	.97	.790	.562
125HBL-16-12	1	3/4	1-1/16	2.18	1.17	1.02	.750
125HBL-16-16	1	1	1-3/8	2.36	1.17	1.02	.875

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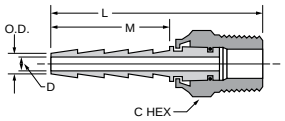
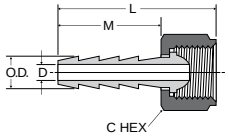
Click here for CADs, Product Specifications or to Configure Parts Online

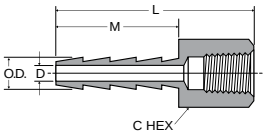
Male Swivel Hose Barb 125HBLSV

PART NO.	I.D. HOSE SIZE	PIPE THREAD	C HEX	L	M	O.D.	FLOW DIA. D
125HBLSV-4-4	1/4	1/4	11/16	2.14	.97	.290	.187
125HBLSV-6-4	3/8	1/4	11/16	2.14	.97	.415	.250
125HBLSV-6-6	3/8	3/8	11/16	2.14	.97	.415	.250
125HBLSV-8-8	1/2	1/2	7/8	2.48	.97	.530	.375

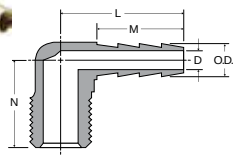
Hose Barb to Swivel Female Ball-End 128HBLSV

PART NO.	I.D. HOSE SIZE	FEMALE N.P.S.M. THREAD	C HEX	L	M	O.D.	FLOW DIA. D
128HBLSV-4-4	1/4	1/4	5/8	1.50	.97	.290	.187
128HBLSV-5-4	5/16	1/4	5/8	1.50	.97	.353	.250
128HBLSV-6-4	3/8	1/4	5/8	1.63	.97	.415	.250
128HBLSV-6-6	3/8	3/8	3/4	1.50	.97	.415	.281
128HBLSV-8-8	1/2	1/2	29/32	1.52	.97	.530	.375

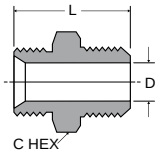
Hose Barb to Female Pipe 126HBL

PART NO.	I.D. HOSE SIZE	PIPE THREAD	C HEX	L	M	O.D.	FLOW DIA. D
126HBL-4-2	1/4	1/8	1/2	1.47	.97	.290	.187
126HBL-4-4	1/4	1/4	11/16	1.66	.97	.290	.187
126HBL-5-4	5/16	1/4	11/16	1.58	.97	.353	.250
126HBL-6-2	3/8	1/8	1/2	1.47	.97	.415	.281
126HBL-6-4	3/8	1/4	11/16	1.66	.97	.415	.281
126HBL-6-6	3/8	3/8	13/16	1.69	.97	.415	.281
126HBL-8-6	1/2	3/8	13/16	1.69	.97	.530	.375
126HBL-8-8	1/2	1/2	1	1.73	.97	.530	.375
126HBL-12-12	3/4	3/4	1-1/4	1.92	.97	.790	.562

Hose Barb 90° Elbow to Male Pipe 129HB

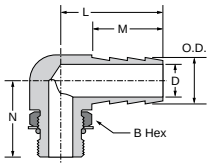
PART NO.	I.D. HOSE SIZE	PIPE THREAD	L	M	N	O.D.	FLOW DIA. D
129HB-3-2	3/16	1/8	.97	.69	.66	.227	.173
129HB-4-2	1/4	1/8	1.04	.76	.66	.290	.187
129HB-4-4	1/4	1/4	1.06	.76	.82	.290	.187
129HB-4-6	1/4	3/8	1.19	.76	.84	.290	.187
129HB-5-2	5/16	1/8	1.06	.76	.66	.353	.234
129HB-5-4	5/16	1/4	1.12	.76	.84	.353	.234
129HB-5-6	5/16	3/8	1.19	.76	.84	.353	.234
129HB-6-2	3/8	1/8	1.32	.97	.75	.415	.219
129HB-6-4	3/8	1/4	1.32	.97	.94	.415	.281
129HB-6-6	3/8	3/8	1.50	.97	1.06	.415	.281
129HB-6-8	3/8	1/2	1.52	.97	1.25	.415	.281
129HB-8-4	1/2	1/4	1.53	.97	1.06	.530	.375
129HB-8-6	1/2	3/8	1.53	.97	1.06	.530	.375
129HB-8-8	1/2	1/2	1.53	.97	1.25	.530	.375
129HB-12-12	3/4	3/4	1.33	.79	1.27	.790	.562

Ball-End Joint Adapter to Male Pipe 127HB

For use with 128HBLSV

PART NO.	MALE N.P.S.M. THREAD	MALE N.P.T. THREAD	C HEX	L	FLOW FLOW DIA. D
127HB-4-2	1/4	1/8	9/16	.91	.219
127HB-4-4	1/4	1/4	9/16	1.10	.281
127HB-6-4	3/8	1/4	11/16	1.10	.312
127HB-6-6	3/8	3/8	11/16	1.15	.406
127HB-8-6	1/2	3/8	7/8	1.25	.406
127HB-8-8	1/2	1/2	7/8	1.50	.531

Hose Barb Elbow to SAE Straight Thread 1295HB

PART NO.	I.D. HOSE SIZE	STRAIGHT THREAD	B HEX	L	M	N	O.D.	FLOW DIA. D
1295HB-6-6	3/8	9/16-18	11/16	1.10	.76	1.10	.42	.280

Note: Fluorocarbon o-ring is standard

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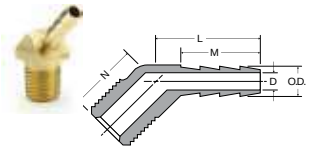
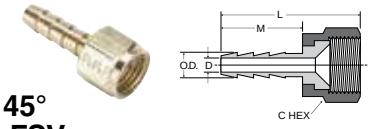
Click here for CADs, Product Specifications or to Configure Parts Online

Hose Barb 45° Elbow to Male Pipe 139HB



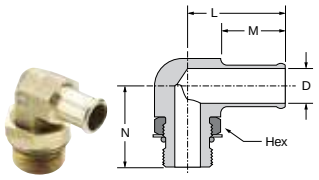
PART NO.	I.D. HOSE SIZE	PIPE THREAD	L	M	N	O.D.	FLOW DIA. D
139HB-4-2	1/4	1/8	.91	.76	.68	.290	.187
139HB-4-4	1/4	1/4	1.00	.76	.68	.290	.187
139HB-6-4	3/8	1/4	1.00	.76	.68	.415	.281

Hose Barb to Swivel 45° Female Flare 146HBLFSV



PART NO.	I.D. HOSE SIZE	STRAIGHT THREAD	C HEX	L	M	O.D.	FLOW DIA. D
146HBLFSV-4-4	1/4	7/16-20	9/16	1.55	.97	.290	.187
146HBLFSV-4-6	1/4	5/8-18	3/4	1.72	.97	.290	.187
146HBLFSV-6-6	3/8	5/8-18	3/4	1.72	.97	.415	.281

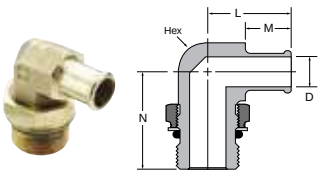
Beaded Hose Barb Elbow to SAE Straight Thread 1695HB



PART NUMBER	HOSE SIZE	STRAIGHT THREAD	HEX	L	M	N	D
1695HB-6-4	3/8	7/16-20	9/16	1.09	.78	1.10	.18
1695HB-8-6	1/2	9/16-18	9/16	1.10	.78	1.11	.30
1695HB-8-8	1/2	3/4-16	7/8	1.28	.78	1.42	.40
1695HB-10-8	5/8	3/4-16	7/8	1.47	.88	1.47	.40
1695HB-10-10	5/8	7/8-14	1	1.41	.88	1.60	.50
1695HB-12-8	3/4	3/4-16	7/8	1.47	.97	1.47	.40
1695HB-12-10	3/4	7/8-14	1	1.60	.97	1.62	.50
1695HB-12-12	3/4	1 1/16-12	1	1.60	.97	1.64	.62
1695HB-16-12	1	1 1/16-12	1 1/4	1.60	.97	1.75	.60

Note: Fluorocarbon o-ring is standard

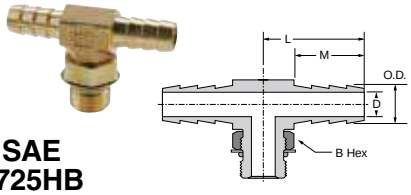
Beaded Elbow to Metric Adaptor 169HB-X-MIX



PART NUMBER	HOSE SIZE	METRIC THREAD	HEX	L	M	N	D
169HB-10-MI27	5/8	M27 X 2.0	7/8	1.41	.78	1.63	.50
169HB-16-MI27	1	M27 X 2.0	1	1.67	.97	1.68	.71
169HB-16-MI33	1	M33 X 2.0	1 5/16	1.75	.97	1.90	.84

Note: Fluorocarbon o-ring is standard

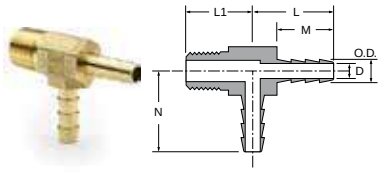
Hose Barb Tee to SAE Straight Thread 1725HB



PART NO.	I.D. HOSE SIZE	STRAIGHT THREAD	B HEX	L	M	O.D.	FLOW DIA. D
1725HB-6-6	3/8	9/16-18	11/16	1.10	.76	.420	.280

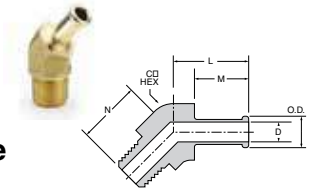
Note: Fluorocarbon o-ring is standard

Hose Barb Tee to Male Pipe 171HB



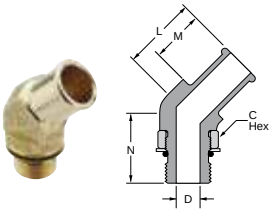
PART NO.	I.D. HOSE SIZE	PIPE THREAD	L	L1	M	N	O.D.	FLOW DIA. D
171HB-4-4	1/4	1/4	1.10	.85	.76	1.10	.290	.187

Beaded Hose Barb 45° Elbow Tube to Male Pipe 179HB



PART NO.	I.D. HOSE SIZE	NPTF THREAD	C HEX	L	M	N	O.D.	FLOW DIA. D
179HB-6-4	3/8	1/4-18	.75	1.09	.78	.93	.45	.28
179HB-6-6	3/8	3/8-18	.75	1.09	.78	.93	.45	.28
179HB-10-8	5/8	1/2-14	.81	1.19	.78	1.13	.70	.50
179HB-12-8	3/4	1/2-14	.81	1.19	.78	1.13	.83	.56

Beaded Hose Barb 45° Elbow Tube to Straight Thread 1795HB



PART NO.	I.D. HOSE SIZE	STRAIGHT THREAD	C HEX	L	M	N	FLOW DIA. D
1795HB-8-8	1/2	3/4-16	7/8	1.12	.78	1.16	.400
1795HB-10-8	5/8	3/4-16	7/8	1.22	.88	1.16	.398
1795HB-12-8	3/4	3/4-16	7/8	1.22	.88	1.16	.398
1795HB-12-12	3/4	1 1/16-12	1 1/4	1.35	.97	1.65	.620
1795HB-16-12	1	1 1/16-12	1 1/4	1.38	.97	1.47	.620

Note: Fluorocarbon o-ring is standard

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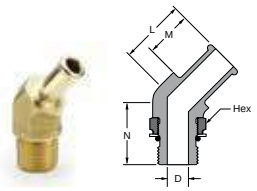
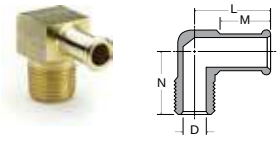
Beaded Hose Barb 45 Elbow to Metric Thread 179HB-X-MIX



PART NUMBER	HOSE SIZE	METRIC THREAD	HEX	L	M	N	D
179HB-12-MI18	3/4	M18 X 1.5	13/16	1.15	.78	1.16	.44
179HB-16-MI27	1	M27 X 2.0	1 1/16	1.51	.97	1.71	.71

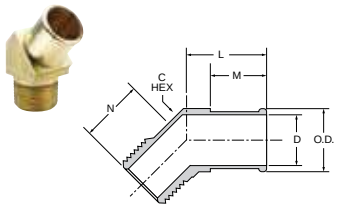
Note: Fluorocarbon o-ring is standard

Beaded Hose Barb 90° Elbow Tube to Male Pipe 269HB

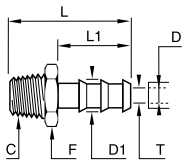


PART NO.	I.D. HOSE SIZE	PIPE THREAD	L	M	N	FLOW DIA. D
269HB-6-6	3/8	3/8	1.19	.78	.88	.281
269HB-8-4	1/2	1/4	1.16	.78	.99	.310
269HB-8-6	1/2	3/8	1.16	.78	1.08	.406
269HB-8-8	1/2	1/2	1.28	.78	1.25	.406
269HB-10-4	5/8	1/4	1.13	.78	.99	.312
269HB-10-6	5/8	3/8	1.16	.78	.99	.406
269HB-10-8	5/8	1/2	1.28	.78	1.25	.501
269HB-12-8	3/4	1/2	1.28	.78	1.25	.563
269HB-12-12	3/4	3/4	1.33	.78	1.27	.625

Beaded Hose Barb 45° Elbow Tube to Male Pipe 279HB



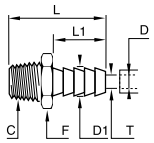
PART NO.	I.D. HOSE SIZE	NPTF THREAD	C HEX	L	M	N	O.D.	FLOW DIA. D
279HB-16-12	1	3/4-14	1.12	1.38	.97	1.13	1.06	.720



0123 Barbed Adapter for Rubber Hose BSPT

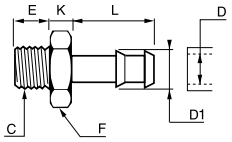
PART NO.	D MM	C BSPT	D1 MM	F MM	L MM	L1 MM	T MIN MM	WT. KG
0123 04 10	4	R1/8	6	10	34	22.5	3.3	.008
0123 06 10	6	R1/8	8	10	34	22.5	5	.009
0123 07 10	7	R1/8	9	10	34	22.5	5	.009
0123 07 13	7	R1/4	9	14	38.5	22.5	6	.018
0123 07 17	7	R3/8	9	17	39	22.5	6	.023
0123 10 10	10	R1/8	12.2	13	34	22.5	5	.014
0123 10 13	10	R1/4	12.2	14	38.5	22.5	7	.021
0123 10 17	10	R3/8	12.2	17	39	22.5	9.5	.023
0123 12 17	12	R3/8	14	17	46	29.5	11	.026
0123 13 13	13	R1/4	15	17	45.5	29.5	7	.027
0123 13 17	13	R3/8	15	17	46	29.5	11	.027
0123 13 21	13	R1/2	15	22	50.5	29.5	12	.047
0123 16 17	16	R3/8	18.5	19	54.5	38	11	.040
0123 16 21	16	R1/2	18.5	22	59	38	14	.056
0123 16 27	16	R3/4	18.5	27	62	38	15	.082
0123 19 17	19	R3/8	21.5	22	54.5	38	11	.046
0123 19 21	19	R1/2	21.5	22	59	38	14	.058
0123 19 27	19	R3/4	21.5	27	62	38	18	.083
0123 25 27	25	R3/4	26.7	27	62	38	18	.083
0123 25 34	25	R1	27	36	65	38	24	.124
0123 32 34	32	R1	34.5	36	70	43	24	.144

Click here for CADs, Product Specifications or to Configure Parts Online



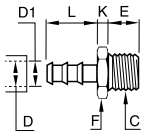
0136 Barbed Adapter for Nylon Tube BSPT

PART NO.	D MM	C BSPT	D1 MM	F MM	L MM	L1 MM	T MIN MM	WT. KG
0136 06 10	6	R1/8	6.4	10	26.5	15	4	.007
0136 06 13	6	R1/4	6.4	14	31	15	4	.015
0136 06 17	6	R3/8	6.4	17	31.5	15	4	.020
0136 08 13	8	R1/4	8.4	14	31	15	6	.016
0136 08 17	8	R3/8	8.4	17	31.5	15	6	.020
0136 08 21	8	R1/2	8.4	22	36	15	6	.039
0136 10 13	10	R1/4	10.7	14	36	20	7	.019
0136 10 17	10	R3/8	10.7	17	36.5	20	8	.023
0136 10 21	10	R1/2	10.7	22	41	20	8	.040
0136 12 13	12	R1/4	12.7	14	36	20	7	.019
0136 12 17	12	R3/8	12.7	17	36.5	20	10	.023
0136 12 21	12	R1/2	12.7	22	41	20	10	.042
0136 12 27	12	R3/4	12.7	27	44	20	10	.072
0136 13 17	13	R3/8	13.7	17	36.5	20	11	.023
0136 13 21	13	R1/2	13.7	22	41	20	11	.041
0136 13 27	13	R3/4	13.7	27	44	20	11	.071



0931 Nickel Plated Hose to Male BSPP

PART NO.	D MM	C BSPP	D1 MM	E MM	F MM	K MM	L MM	WT. KG
0931 06 10	6	G1/8	7	6	12	4	20	0.008
0931 06 13	6	G1/4	7	8	14	5	20	0.013
0931 07 10	7	G1/8	8	6	12	4	20	0.009
0931 07 13	7	G1/4	8	8	14	5	20	0.017
0931 07 17	7	G3/8	8	9	19	5	20	0.022
0931 08 10	8	G1/8	9	6	12	4	20	0.009
0931 08 13	8	G1/4	9	8	14	5	20	0.014
0931 08 17	8	G3/8	9	9	19	5	20	0.022
0931 10 13	10	G1/4	12	8	14	5	20	0.016
0931 10 17	10	G3/8	12	9	19	5	20	0.023
0931 10 21	10	G1/2	12	10	22	6	22	0.032
0931 15 17	15	G3/8	17	9	19	6	24	0.030
0931 15 21	15	G1/2	17	10	22	6	24	0.036
0931 18 21	18	G1/2	20	10	22	6	24	0.043



0191 Nickel Plated Hose to Male BSPP

PART NO.	D MM	C BSPP	D1 MM	E MM	F MM	K MM	L MM	WT. KG
0191 04 13	4	G1/4	6	9.5	17	5	22.5	.019
0191 07 13	7	G1/4	9	9.5	17	5	22.5	.021
0191 07 21	7	G1/2	9	11	27	7	29.5	.065
0191 10 13	10	G1/4	12.2	9.5	17	5	22.5	.021
0191 10 21	10	G1/2	12.2	11	27	7	29.5	.060
0191 13 13	13	G1/4	15.2	9.5	17	5	22.5	.023
0191 13 21	13	G1/2	15.2	11	27	7	29.5	.058
0191 16 21	16	G1/2	18.5	11	27	7	36.5	.069

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Industrial Adapters

Pipe Fittings

ISO Port Adapters

Male to Male

215PN
Close Nipple
Pipe to Pipe
p. E9

215PNL
Long Nipple
Pipe to Pipe
p. E9

216P
Hex Nipple
Pipe to Pipe
p. E10

1204P
Male Elbow
Pipe to Pipe
p. E11

Male to Female

209P
Bushing
Pipe to Pipe
p. E8

222P
Adapter
Pipe to Pipe
p. E10

1202P-2202P
Street Elbow
Pipe to Pipe
p. E11

2224P
Male Branch Tee
Pipe to Pipe
p. E11

2225P
Street Tee
Pipe to Pipe
p. E11

2214P
45° Street Elbow
Pipe to Pipe
p. E12

Female to Female

207ACBH
Anchor Coupling
Pipe to Pipe
p. E8

207ACBH-S
Sealed Bulkhead
p. E8

207P
Coupling
Pipe to Pipe
p. E8

208P
Reducer Coupling
Pipe to Pipe
p. E8

212P
Union
Pipe to Pipe
p. E9

1200P-2200P
Union Elbow
Pipe to Pipe
p. E10

1203P-2203P
Union Tee
Pipe to Pipe
p. E11

2200PDE
Drop-Ear Elbow
Pipe to Pipe
p. E12

1201-2201P
45° Female Elbow
Pipe to Pipe
p. E12

2205P
Cross
Pipe to Pipe
p. E12

Threaded Fittings (ISO Port Adapters)

222P-X-MIX
Adapter
p. E24

48F-X-MIX
Male Connector
p. E24

149F-X-MIX
Male Elbow
p. E24

159F-X-MIX
45° Male Elbow
p. E24

68HB-X-MIX
Male Connector
p. E24

169HB-X-MIX
Male Elbow
p. E24

68NTA-X-MIX
Male Connector
p. E24

179HB-X-MIX
45° Male Elbow
p. E24

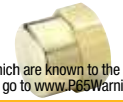
Accessories

207ACBH-WSHR
Sealing Washer Kit
p. E8

210P
Lock Nut
p. E9

211P
Square Head Plug
p. E9

213P
Cap
p. E9



218P
Hex Head Plug
p. E10

219P
Countersunk Plug
p. E10

220P
Slotted Head Plug
p. E10

Pipe Fittings

Parker's Pipe Fittings meet all functional requirements of SAE J530 and SAE J531. All threads on the pipe fittings are made to dryseal standards.

Product Features:

- All brass construction
- Meets functional requirements of SAE J530 and SAE J531
- Threads made to dryseal standards
- Both forgings and extrusions available

Markets:

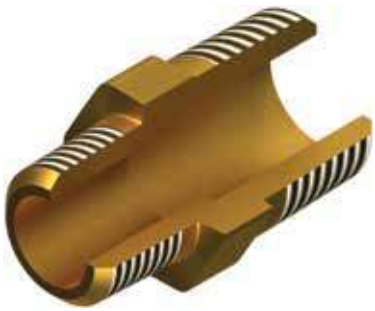
- Industrial
- Construction
- Heavy duty truck
- Mobile
- Factory/process automation

Applications:

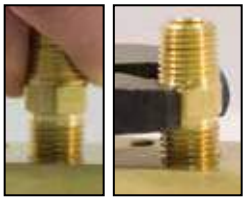
- Air Lines
- Water Line
- Cooling Lines

Specifications:

Pressure Range	Up to 1000 PSI (68.9 bar)
Temperature Range	-65˚ to +250˚ F (-53.9° to +121.1° C)



Assembly Instructions



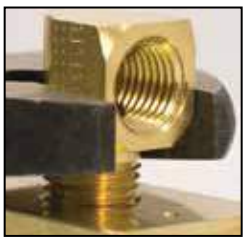
Straight Fittings

1. Hand tighten external thread into internal thread
2. Tighten an additional 2 turns with a wrench up to 1/2" male pipe thread.
3. Above 1/2" 1 1/2 to 2 1/2 turns.

Elbow or Tee Fittings

1. Hand tighten external thread into internal thread
2. Tighten an additional 1 to 1 1/2 turns with a wrench
3. Tighten fitting, clockwise to align with tubing. (Never counter clockwise)

Note: To minimize the possibility of a leaking threaded joint after assembling Male to female pipe threads, neither end should be backed out (loosened) Once the assembly has been made.



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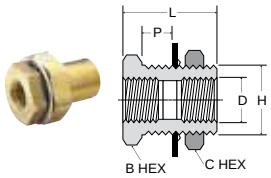
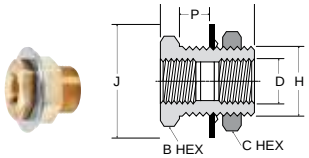
Click here for CADs, Product Specifications or to Configure Parts Online



Bulkhead 207ACBH

PART NO.	FEAMLE PIPE THREAD	STRAIGHT THREAD	MAX . BULK HEAD P	B HEX	C HEX	L	BLKHD HOLE DIA. H	FLOW DIA. D
207ACBH-2	1/8	5/8-18	.89	7/8	15/16	1.50	5/8	.339
207ACBHS-2	1/8	5/8-18	.35	7/8	15/16	.96	5/8	.339
207ACBH-4	1/4	3/4-16	.81	1	1-1/8	1.50	3/4	.441
207ACBHS-4	1/4	3/4-16	.26	1	1	.94	3/4	.441
207ACBH-6	3/8	1-14	.62	1-1/8	1-1/4	1.31	1	.571
207ACBH-8	1/2	1-1/8-14	.75	1-1/4	1-3/8	1.50	1-1/8	.703
207ACBH-12	3/4	1-5/16-12	.65	1-1/2	1-1/2	1.50	1-5/16	.906
207ACBH-16*	1	1-5/8-14	1.00	2	2	1.68	1-5/8	1.140

*Lock Washer not Available

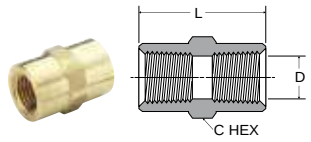


Sealed Bulkhead 207ACBH-S

PART NO.	FEAMLE PIPE THREAD	STRAIGHT THREAD	MAX. BULK HEAD P	B HEX	C HEX	J	L	BLKHD HOLE DIA. H	FLOW DIA. D
207ACBH-2-S	1/8	5/8-18	.84	7/8	15/16	1.19	1.50	.656	.339
207ACBHS-2-S	1/8	5/8-18	.30	7/8	15/16	1.19	.96	.656	.339
207ACBH-4-S	1/4	3/4-16	.75	1	1-1/8	1.31	1.50	.781	.441
207ACBHS-4-S	1/4	3/4-16	.20	1	1	1.31	.94	.781	.441
207ACBH-6-S	3/8	1-14	.56	1-1/8	1-1/4	1.75	1.31	1.031	.571

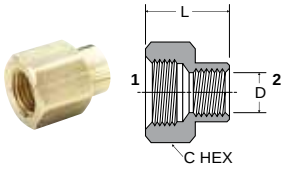
Sealing Washer Kit (10 pcs)

PART NO.	INNER DIA.	OUTER DIA.
207ACBH-WSHR-2	.625	1.19
207ACBH-WSHR-4	.75	1.31
207ACBH-WSHR-6	1.00	1.75



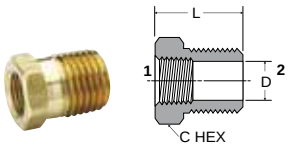
Coupling 207P

PART NO.	PIPE THREAD	C HEX	L	FLOW DIA. D
207P-2	1/8	9/16	.75	.339
207P-4	1/4	3/4	1.12	.441
207P-6	3/8	7/8	1.12	.571
207P-8	1/2	1-1/16	1.50	.703
207P-12	3/4	1-3/8	1.53	.906



Reducer Coupling 208P

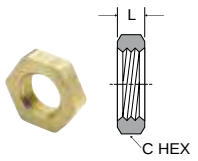
PART NO.	1 PIPE THREAD	2 PIPE THREAD	C HEX	L	FLOW FLOW DIA. D
208P-4-2	1/4	1/8	3/4	.97	.339
208P-6-4	3/8	1/4	7/8	1.16	.441
208P-8-4	1/2	1/4	1-1/16	1.28	.441
208P-8-6	1/2	3/8	1-1/16	1.38	.571
208P-12-6	3/4	3/8	1-3/8	1.32	.571
208P-12-8	3/4	1/2	1-3/8	1.50	.703



Bushing 209P

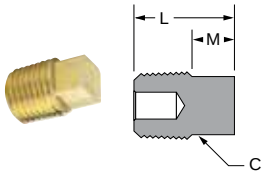
PART NO.	1 PIPE THREAD	2 PIPE THREAD	C HEX	L	FLOW FLOW DIA. D
209P-4-2	1/8	1/4	9/16	.75	.339
209P-6-2	1/8	3/8	11/16	.75	.339
209P-6-4	1/4	3/8	3/4	.75	.441
209P-8-2	1/8	1/2	7/8	1.00	.339
209P-8-4	1/4	1/2	7/8	1.00	.441
209P-8-6	3/8	1/2	7/8	1.00	.571
209P-12-2	1/8	3/4	1-1/8	1.00	.339
209P-12-4	1/4	3/4	1-1/8	1.00	.441
209P-12-6	3/8	3/4	1-1/8	1.00	.571
209P-12-8	1/2	3/4	1-1/8	1.00	.703
209P-16-8	1/2	1	1-3/8	1.31	.703
209P-16-12	3/4	1	1-3/8	1.31	.906

WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



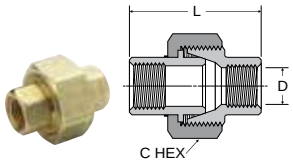
Lock Nut 210P

PART NO.	PIPE THREAD	C HEX	L
210P-2	1/8 NPSL	11/16	.19
210P-4	1/4 NPSL	7/8	.25
210P-6	3/8 NPSL	1	.25
210P-8	1/2 NPSL	1-1/8	.25



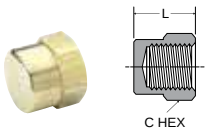
Square-Head Plug 211P

PART NO.	PIPE THREAD	C	L	M
211P-2	1/8	9/32	.59	.25
211P-4	1/4	3/8	.80	.29
211P-6	3/8	7/16	.83	.32
211P-8	1/2	9/16	1.07	.39
211P-12	3/4	5/8	1.14	.45



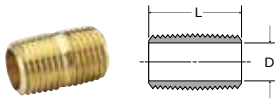
Union 212P

PART NO.	PIPE THREAD	C HEX	L	D
212P-4	1/4	1-3/16	1.54	.441
212P-6	3/8	1-1/4	1.76	.571



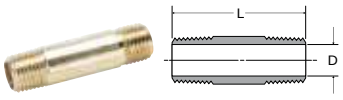
Cap 213P

PART NO.	PIPE THREAD	C HEX	L
213P-2	1/8	9/16	.50
213P-4	1/4	11/16	.63
213P-6	3/8	13/16	.63
213P-8	1/2	1-1/16	.87
213P-12	3/4	1-1/4	.89



Close Nipple 215PN

PART NO.	PIPE THREAD	L	FLOW DIA.D
215PN-2	1/8	.75	.281
215PN-4	1/4	.88	.375
215PN-6	3/8	1.00	.500
215PN-8	1/2	1.13	.625
215PN-12	3/4	1.31	.750



Long Nipple 215PNL

PART NO.	PIPE THREAD	L	FLOW DIA.D
215PNL-2-15	1/8	1-1/2	.250
215PNL-4-15	1/4	1-1/2	.375
215PNL-6-15	3/8	1-1/2	.500
215PNL-8-15	1/2	1-1/2	.625
215PNL-2-20	1/8	2	.250
215PNL-4-20	1/4	2	.375
215PNL-6-20	3/8	2	.500
215PNL-8-20	1/2	2	.625
215PNL-2-25	1/8	2-1/2	.250
215PNL-4-25	1/4	2-1/2	.375
215PNL-6-25	3/8	2-1/2	.500
215PNL-8-25	1/2	2-1/2	.625
215PNL-2-30	1/8	3	.250
215PNL-4-30	1/4	3	.375
215PNL-6-30	3/8	3	.500
215PNL-8-30	1/2	3	.625
215PNL-2-35	1/8	3-1/2	.250
215PNL-4-35	1/4	3-1/2	.375
215PNL-6-35	3/8	3-1/2	.500
215PNL-8-35	1/2	3-1/2	.625

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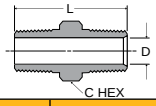
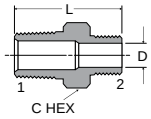
Click here for CADs, Product Specifications or to Configure Parts Online

Hex Nipple 216P

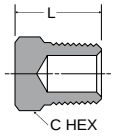
PART NO.	PIPE THREAD	C HEX	L	FLOW DIA.D
216P-2	1/8	7/16	.97	.220
216P-4	1/4	9/16	1.38	.314
216P-6	3/8	11/16	1.41	.440
216P-8	1/2	7/8	1.81	.564
216P-12	3/4	1-1/16	1.81	.752

Hex Nipple Reducers 216P

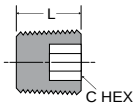
PART NO.	1 PIPE THREAD	2 PIPE THREAD	C HEX	L	FLOW DIA. D
216P-4-2	1/4	1/8	9/16	1.19	.220
216P-6-2	3/8	1/8	11/16	1.22	.220
216P-6-4	3/8	1/4	11/16	1.41	.314
216P-8-4	1/2	1/4	7/8	1.62	.314
216P-8-6	1/2	3/8	7/8	1.62	.440
216P-12-8	3/4	1/2	1-1/16	1.80	.564

Hex-Head Plug 218P

PART NO.	PIPE THREAD	C HEX	L
218P-2	1/8	7/16	.560
218P-4	1/4	9/16	.747
218P-6	3/8	11/16	.780
218P-8	1/2	7/8	.970
218P-12	3/4	1-1/16	1.054

Countersunk Hex-Head Plug 219P

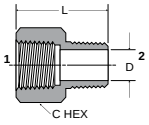



PART NO.	PIPE THREAD	C HEX	L
219P-2	1/8	3/16	.30
219P-4	1/4	1/4	.46
219P-6	3/8	5/16	.46
219P-8	1/2	3/8	.61
219P-12	3/4	9/16	.62

Slotted-Head Plug 220P


PART NO.	PIPE THREAD	L
220P-2	1/8	.31
220P-4	1/4	.42
220P-6	3/8	.43

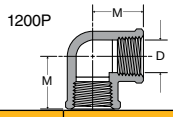
Adapter 222P

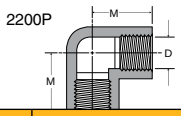



PART NO.	1 PIPE THREAD	2 PIPE THREAD	C HEX	L	FLOW DIA. D
222P-2-2	1/8	1/8	9/16	.88	.220
222P-4-2	1/4	1/8	3/4	1.06	.220
222P-4-4	1/4	1/4	3/4	1.25	.314
222P-6-2	3/8	1/8	7/8	1.10	.220
222P-6-4	3/8	1/4	7/8	1.25	.314
222P-6-6	3/8	3/8	7/8	1.25	.440
222P-8-4	1/2	1/4	1	1.47	.314
222P-8-6	1/2	3/8	1-1/16	1.47	.440
222P-8-8	1/2	1/2	1-1/16	1.66	.564
222P-12-6	3/4	3/8	1-3/8	1.50	.440
222P-12-8	3/4	1/2	1-3/8	1.69	.564
222P-12-12	3/4	3/4	1-3/8	1.69	.752

90° Union Elbow 1200P-2200P







PART NO.	PIPE THREAD	M	FLOW DIA. D
1200P-2-2	1/8	.56	.329
2200P-2-2	1/8	.55	.339
1200P-4-4	1/4	.81	.441
2200P-4-4	1/4	.78	.441
1200P-6-6	3/8	.84	.571
2200P-6-6	3/8	.84	.571
2200P-8-8	1/2	1.07	.703

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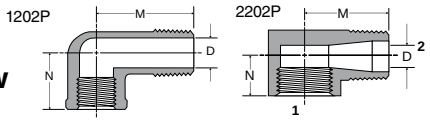
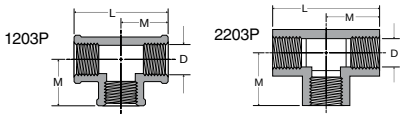


90° Street Elbow 1202P-2202P

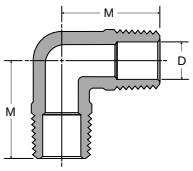
PART NO.	1 PIPE THREAD	2 PIPE THREAD	M	N	FLOW DIA. D
1202P-2-2	1/8	1/8	.81	.56	.22
2202P-2-2	1/8	1/8	.62	.48	.22
2202PA-2-2*	1/8	1/8	.66	.48	.22
2202P-4-2	1/4	1/8	.72	.45	.23
1202P-4-4	1/4	1/4	1.08	.69	.31
2202P-4-4	1/4	1/4	.91	.45	.34
2202PA-4-4*	1/4	1/4	.91	.72	.31
2202P-4-6	1/4	3/8	.97	.78	.43
1202P-6-4	3/8	1/4	1.25	.78	.31
1202P-6-6	3/8	3/8	1.25	.78	.42
2202P-6-6	3/8	3/8	.98	.54	.41
2202PA-6-6*	3/8	3/8	.97	.78	.43
1202P-6-8	3/8	1/2	1.53	1.01	.56
1202P-8-6	1/2	3/8	1.25	.97	.42
2202P-8-8	1/2	1/2	1.25	1.03	.56
2202P-12-8	3/4	1/2	1.39	1.10	.56
2202P-12-12	3/4	3/4	1.39	1.10	.75

*Meets SAE Dimensions



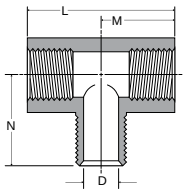
Union Tee 1203P-2203P

PART NO.	PIPE THREAD	L	M	FLOW DIA.D
1203P-2	1/8	1.12	.56	.339
2203P-2	1/8	1.06	.53	.339
1203P-4	1/4	1.38	.69	.441
2203P-4	1/4	1.52	.76	.441
2203P-6	3/8	1.68	.84	.571
1203P-8	1/2	2.14	1.07	.703
2203P-8	1/2	2.14	1.07	.703
2203P-12	3/4	2.28	1.14	.906



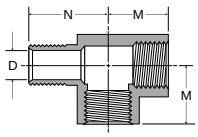
Male Elbow 1204P

PART NO.	PIPE THREAD	M	FLOW DIA.D
1204P-2	1/8	.71	.220
1204P-4	1/4	1.09	.312
1204P-6	3/8	1.09	.408
1204P-8	1/2	1.41	.502



Male Branch Tee 2224P

PART NO.	PIPE THREAD	L	M	N	FLOW DIA.D
2224P-2	1/8	1.06	.53	.66	.220
2224P-4	1/4	1.52	.76	.91	.314
2224P-6	3/8	1.68	.84	.97	.440
2224P-8	1/2	2.18	1.09	1.25	.564
2224P-12	3/4	2.32	1.16	1.38	.752



Street Tee 2225P

PART NO.	PIPE THREAD	M	N	DIA.D
2225P-2	1/8	.53	.66	.220
2225P-4	1/4	.76	.91	.314
2225P-6	3/8	.84	.98	.440
2225P-8	1/2	1.07	1.26	.564
2225P-12	3/4	1.14	1.38	.752

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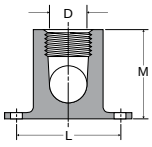
Click here for CADs, Product Specifications or to Configure Parts Online

Drop-ear 90° Elbow 2200PDE

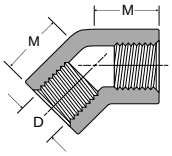


PART NO.	PIPE THREAD	L	M	FLOW DIA.D
2200PDE-2	1/8	1.38	1.00	.339

45° Female Elbow 1201P-2201P

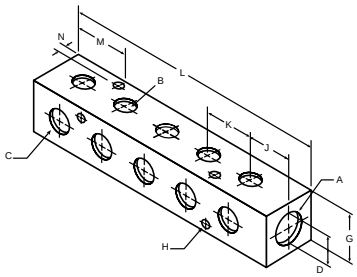
1201P

2201P



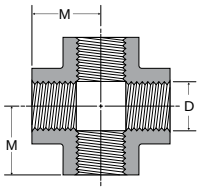
PART NO.	PIPE THREAD	M	FLOW DIA. D
2201P-2-2	1/8	.43	.339
1201P-8-8	1/2	.89	.703

Brass Manifold 255M



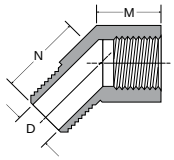
PART NO.	PIPE THREAD A	PIPE THREAD B	PIPE THREAD C	G	MOUNTING HOLE DIA. H	J	K	L	M	N	D
255MP-6-4-2	3/8	1/8	1/4	1.25	.22	.88	1.13	6.25	1.45	.25	.25

Cross 2205P



PART NO.	PIPE THREAD	M	FLOW DIA. D
2205P-2	1/8	.53	.339
2205P-4	1/4	.75	.441
2205P-6	3/8	.81	.571
2205P-8	1/2	1.07	.703
2205P-12	3/4	1.14	.906

45° Street Elbow 2214P



PART NO.	PIPE THREAD	M	N	FLOW DIA.D
2214P-2-2	1/8	.38	.50	.220
2214P-4-4	1/4	.54	.70	.314
2214P-6-6	3/8	.56	.78	.440
2214P-8-8	1/2	.73	1.00	.564
2214P-12-12	3/4	.75	1.35	.750

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ISO Port Adapters

Parker's ISO Port Adapters meet dimensional requirements of ISO 6149-3.

Product Features:

- All brass construction
- Fluorocarbon O-ring
- NPTF, flare, hose barb, NTA end configurations

Markets:

- Industrial
- Construction
- Mobile
- Factory/process automation

Applications:

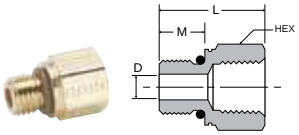
- Air Lines
- Water Line
- Cooling Lines

Specifications:

Pressure Range	Dependent on tubing or hose end connection
Temperature Range	Dependent on tubing or hose end connection

Click here for CADs, Product Specifications or to Configure Parts Online

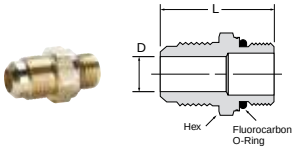
Pipe to Metric Adaptor 222P-X-MIX



PART NUMBER	NPTF	METRIC THREAD	HEX	L	M	D
222P-2-MI10	1/8-27	M10 X 1.0	9/16	.75	.34	.18
222P-2-MI14	1/8-27	M14 X 1.5	3/4	.91	.43	.30
222P-4-MI12	1/4-18	M12 X 1.5	11/16	1.09	.43	.24
222P-4-MI14	1/4-18	M14 X 1.5	3/4	1.09	.43	.30
222P-6-MI16	3/8-18	M16 X 1.5	7/8	1.16	.45	.35
222P-6-MI22	3/8-18	M22 X 1.5	1 1/16	1.05	.51	.47
222P-8-MI27	1/2-14	M27 X 2.0	1 1/4	1.32	.63	.60

Note: Fluorocarbon o-ring is standard
For working pressure and Temperature see Metric Adapters Section

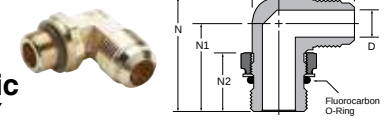
Flare to Metric Adaptor 48F-X-MIX



PART NUMBER	TUBE SIZE	METRIC THREAD	HEX	L	D
48F-8-MII6	1/2	M16 X 1.5	7/8	1.60	.35
48F-10-MI27	5/8	M27 X 2.0	1 1/4	1.87	.50
48F-12-MI27	3/4	M27 X 2.0	1 1/4	1.99	.63

Note: Fluorocarbon o-ring is standard
For working pressure and Temperature see SAE Flare Section

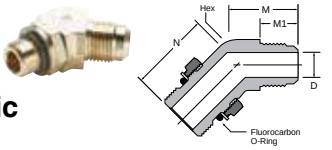
Flare Elbow to Metric Adaptor 149F-X-MIX



PART NUMBER	TUBE SIZE	METRIC THREAD	HEX	L	M	M1	N	N1	N2	D
149F-10-MI27	5/8	M27 X 2.0	7/8	1.95	1.46	.88	2.12	1.63	1.09	.50

Note: Fluorocarbon o-ring is standard
For working pressure and Temperature see SAE Flare Section

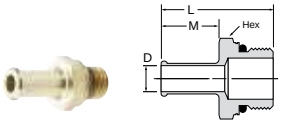
45° Flare Elbow to Metric Adaptor 159F-X-MIX



PART NUMBER	TUBE SIZE	METRIC THREAD	HEX	M	M1	N	D
159F-8-MII6	1/2	M16 X 1.5	13/16	1.10	.75	1.16	.36
159F-10-MI27	5/8	M27 X 2.0	1 1/8	1.21	.88	1.50	.50

Note: Fluorocarbon o-ring is standard
For working pressure and Temperature see SAE Flare Section

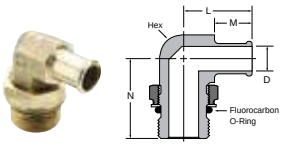
Hose Barb to Metric Adaptor 68HB-X-MIX



PART NUMBER	TUBE SIZE	METRIC THREAD	HEX	L	M	D
68HB-6-MI12	3/8	M12 X 1.5	11/16	1.50	.78	.24
68HB-6-MI14	3/8	M14 1.5	3/4	1.51	.78	.30
68HB-8-MI12	1/2	M12 X 1.5	11/16	1.50	.78	.24
68HB-10-MI27	5/8	M27 X 2.0	1 1/4	1.77	.78	.50

Note: Fluorocarbon o-ring is standard
For working pressure and Temperature see Hose Barb Section

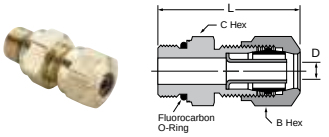
Beaded Elbow to Metric Adaptor 169HB-X-MIX



PART NUMBER	HOSE SIZE	METRIC THREAD	HEX	L	M	N	D
169HB-10-MI27	5/8	M27 X 2.0	7/8	1.41	.78	1.63	.50
169HB-16-MI27	1	M27 X 2.0	1	1.67	.97	1.68	.71

Note: Fluorocarbon o-ring is standard
For working pressure and Temperature see Hose Barb Section

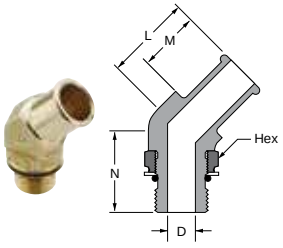
NTA to Metric Adaptor 68NTA-X-MIX



PART NUMBER	TUBE SIZE	METRIC THREAD	B HEX	C HEX	L	D
68NTA-4-MI10	1/4	M10 X 1.0	9/16	9/16	1.33	.140

Note: Fluorocarbon o-ring is standard
For working pressure and Temperature see Air Brake-NTA Section

Beaded Hose Barb 45° Elbow to Metric Thread 179HB-X-MIX



PART NUMBER	HOSE SIZE	METRIC THREAD	HEX	L	M	N	D
179HB-12-MI18	3/4	M18 X 1.5	13/16	1.15	.78	1.16	.44
179HB-16-MI27	1	M27 X 2.0	1 1/16	1.51	.97	1.71	.71

Note: Fluorocarbon o-ring is standard

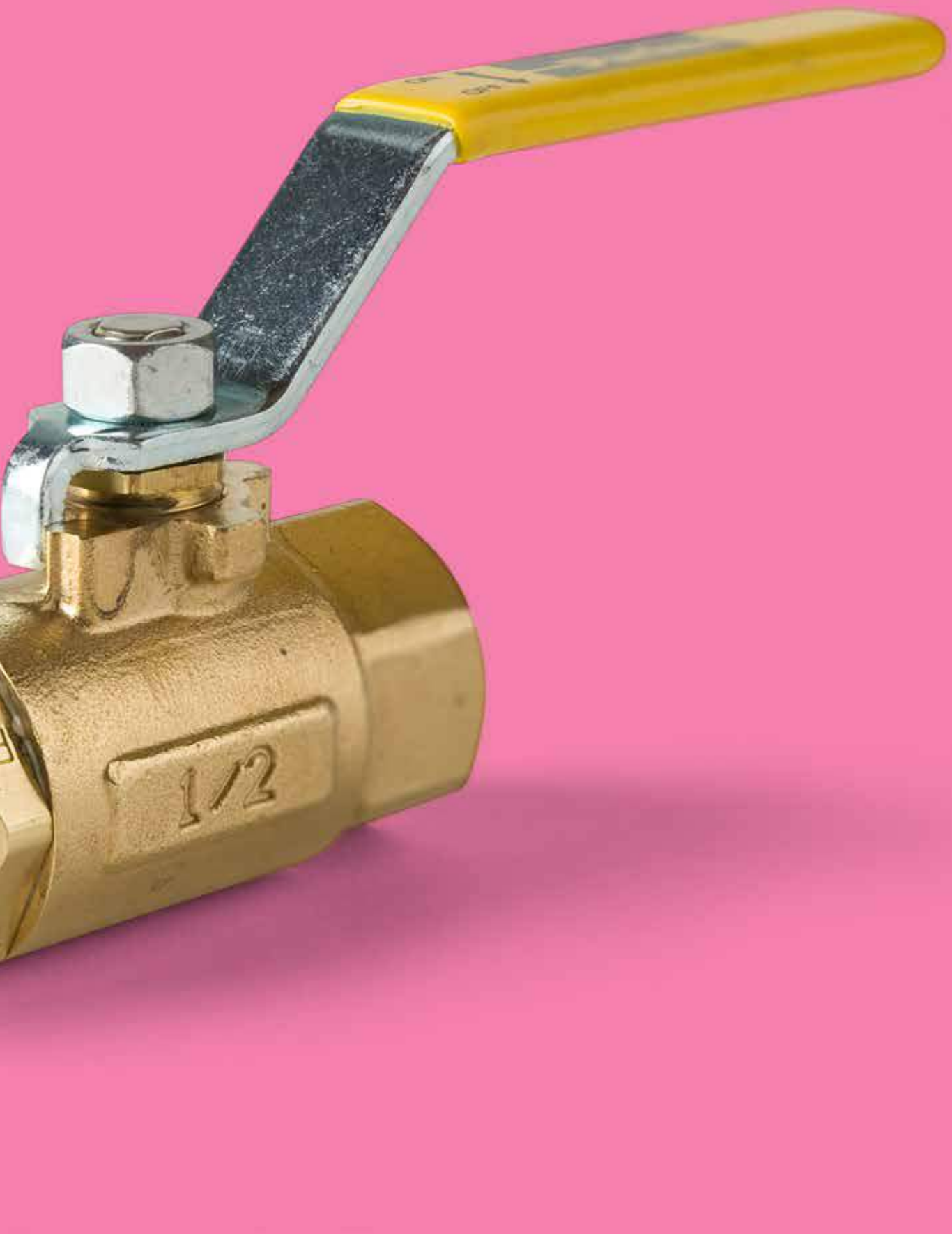
WARNING These products can expose you to chemicals including LEAD which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Industrial Valves

Standard Ball Valves

Needle Valves

Drain Cocks/
Ground Plug Shutoff


1/2

Female Ports

V500P
Female-Female
p. F8

V502P
Panel Mount
p. F14

V520P
Economy Series
p. F21

V525P
Female-Female
p. F22

V533P
3 Way Diversion
p. F23

V540P
4 Way
p. F23

Male-Female Ports

V501P
Male-Female
p. F11

V590P
90° Valve
p. F23

V590P-X-04
90° Valve
p. F23

Male – Female Compact High Pressure

XV501PCHP
p. F12

Padlocking

VP500P
Female Ports
p. F8

VP501P
Male - Female
p. F12

VP502P
Panel Mount
p. F14

VP510P
Straight Thread
p. F19

VP520P
p. F21

Solder Ports

V509P
Solder - Solder
p. F17

Tee Handle

V500P-X-04
Female Ports
p. F9

V501P-X-04
Male - Female
p. F12

V502P-X-04
Panel Mount
p. F14

V510P-X-04
Straight Thread
p. F19

Straight Thread Ports

V506P
Female - Female
p. F16

V510P
Male - Female
p. F19

Oval Handle

V500P-X-21
Female Ports
p. F9

V501P-X-21
Male - Female
p. F12

V502P-X-21
Panel Mount
p. F14

V510P-X-21
Straight Thread
p. F19

Male – Male Ports

V591P
90° Valve
p. F23

V591P-X-04
90° Valve
p. F23

Vented

VV500P
Female Ports
p. F8

VV501P
Male-Female
p. F12

VV502P
Panel Mount
p. F14

Vented – Padlocking

VVP500P
Female Ports
p. F8

VVP501P
Male-Female
p. F12

VVP502P
Panel Mount
p. F14

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Needle Valves

NV101F
Female - Male
p. F29


NV102F
Flare
p. F29


NV103F
Flare - Male Pipe
p. F29


HV104C
Humidifier Valve
p. F29


NV107P
Pipe
p. F30


NV108P
Female - Male
p. F30


NV109P
Female
p. F30


NV311P
Poly-Tite
p. F30


NV312P
Poly-Tite
p. F30


NV104C-NV104CA
Compression - Pipe
p. F29


NV105C-NV105CA
Compression
p. F29


NV106C-NV106CA
Compression - Pipe
p. F30


Shutoff Valves

V203F
Flare
p. F32


V204F
Flare - Pipe
p. F32


V401P
Pipe
p. F32


V402P
Female - Pipe
p. F32


V403P
Female
p. F32


V406P
3 Way
p. F32


V407P
4 Way
p. F32


V303C-V303CA
Compression
p. F32


V304C-V304CA
Compression - Pipe
p. F32


DC601
Pipe
p. F32


Drain Cocks

DCR601
Internal Seal
p. F33


DC602
Internal Seal
p. F33


DC603
Internal Seal
p. F33


DC604
External Seal
p. F33


DC606
External Seal
p. F33


DC607
Bib Drain
p. F33


Auxiliary

HV104C-KIT
Humidifier Valve Kit
p. F29


SPV104C-KIT
Self Piercing Kit
p. F29


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Ball Valves
Brass Series 500

Parker's industrial ball valves are intended for general purpose use. Ball valves are intended for use in the fully open or closed positions. Throttling of the valve may result in premature seal failure and/or inability to turn the valve handle.

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:
- V-Valve
- VP-Valve, padlocking handle
- VV-Valve, vented
- VVP-Valve, vented, padlocking handle

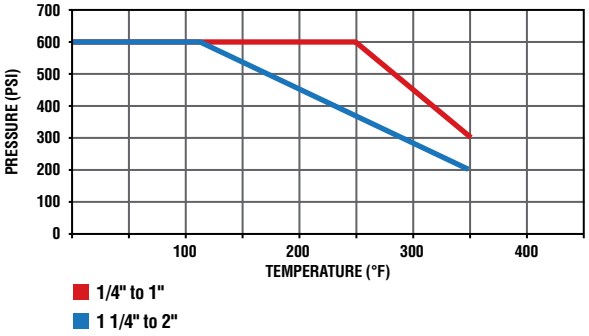
Type:
- 500-Female/Female PTF ports

Material:
- P-Brass
- PN-Nickel plated

Options:
- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

Specifications:
Pressure Range:
- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg
- Vented up to 250 PSI (17.2 bar)

Temperature Range
- 0˚ to +350˚ F (-17.7° to +176.6° C)



FLOW DATA	
VALVE SIZE	CV
1/4	4.0
3/8	5.8
1/2	12.0
3/4	25.0
1	35.0
1-1/4*	57.0
1-1/2*	92.0
2*	224.0

*For these part numbers only the * options are available.

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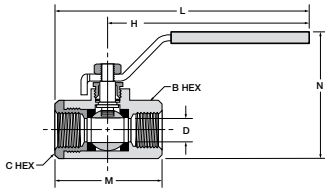
Click here for CADs, Product Specifications or to Configure Parts Online

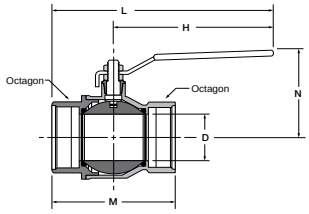
Female-Female Pipe Ends V500P

PART NO.	PIPE THREAD [PTF]	B HEX	C HEX	H	L	M	N	FLOW DIA.D
V500P-4	1/4	15/16	15/16	3.96	4.90	2.03	2.47	.375
V500P-6	3/8	15/16	15/16	3.96	4.90	2.03	2.47	.375
V500P-8	1/2*	1-1/16	1-1/16	3.96	5.00	2.20	2.58	.500
V500P-12	3/4**	1-1/4	1-5/16	3.96	5.25	2.42	2.81	.685
V500P-16	1**	1-1/2	1-9/16	3.96	5.34	2.75	3.08	.875



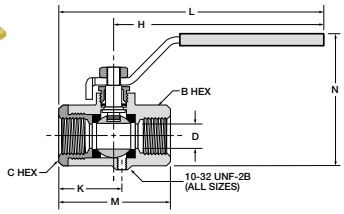
Female-Female Pipe Ends V500P-20, V500P-24, V500P-32

PART NO.	PIPE THREAD [NPT]	OCTAGON	H	L	M	N	FLOW DIA.D
V500P-20	1-1/4	1.93	6.22	8.05	3.66	3.01	1.18
V500P-24	1-1/2	2.13	6.22	8.23	4.02	3.25	1.50
V500P-32	2	2.69	6.22	8.58	4.76	3.52	1.89



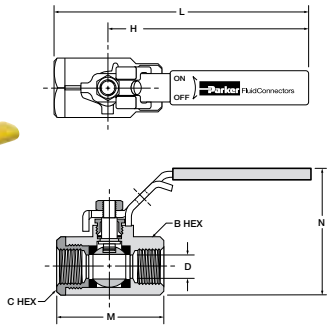
Vented, Female Pipe Ends VV500P

PART NO.	PIPE THREAD [PTF]	B HEX	C HEX	K	H	L	M	N	D FLOW Ø
VV500P-4	1/4	15/16	15/16	1.11	3.96	4.90	2.03	2.47	.375
VV500P-6	3/8	15/16	15/16	1.11	3.96	4.90	2.03	2.47	.375
VV500P-8	1/2*	1-1/16	1-1/16	1.23	3.96	5.00	2.20	2.58	.500
VV500P-12	3/4**	1-1/4	1-5/16	1.45	3.96	5.25	2.42	2.81	.685
VV500P-16	1**	1-1/2	1-9/16	1.58	3.96	5.34	2.75	3.08	.875



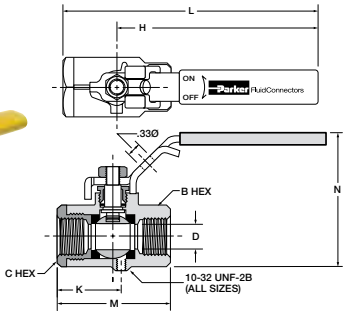
Locking Handle, Female Pipe Ends VP500P

PART NO.	PIPE THREAD [PTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
VP500P-4	1/4	15/16	15/16	3.96	4.90	2.03	2.47	.375
VP500P-6	3/8	15/16	15/16	3.96	4.90	2.03	2.47	.375
VP500P-8	1/2*	1-1/16	1-1/16	3.96	5.00	2.20	2.58	.500
VP500P-12	3/4**	1-1/4	1-5/16	3.96	5.25	2.42	2.81	.685
VP500P-16	1**	1-1/2	1-9/16	3.96	5.34	2.75	3.08	.875
FOR USE WITH 5/16" Ø SHANK LOCK; .33Ø								
VP500P-20	1-1/4	1-15/16	1-15/16	6.22	8.05	3.66	4.04	1.180
VP500P-24	1-1/2	2-1/8	2-1/8	6.22	8.23	4.02	4.52	1.500
VP500P-32	2	2-11/16	2-11/16	6.22	8.60	4.76	5.07	1.890
FOR USE WITH 9/32" Ø SHANK LOCK; .31Ø								



OSHA 29 CFR Part 1910 Vented, Locking Handle, Female Pipe Ends VVP500P

PART NO.	PIPE THD [PTF]	B HEX	C HEX	K	H	L	M	N	D FLOW Ø
VVP500P-4	1/4	15/16	15/16	1.11	3.96	4.90	2.03	2.47	.375
VVP500P-6	3/8	15/16	15/16	1.11	3.96	4.90	2.03	2.47	.375
VVP500P-8	1/2*	1-1/16	1-1/16	1.23	3.96	5.00	2.20	2.58	.500
VVP500P-12	3/4**	1-1/4	1-5/16	1.45	3.96	5.25	2.42	2.81	.685
VVP500P-16	1**	1-1/2	1-9/16	1.58	3.96	5.34	2.75	3.08	.875
FOR USE WITH 5/16" Ø SHANK LOCK									



*PTF Special Short. **PTF SPL Extra Short

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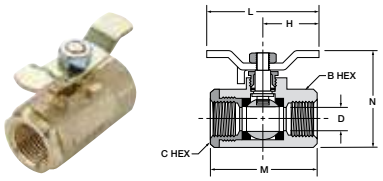
Click here for CADs, Product Specifications or to Configure Parts Online

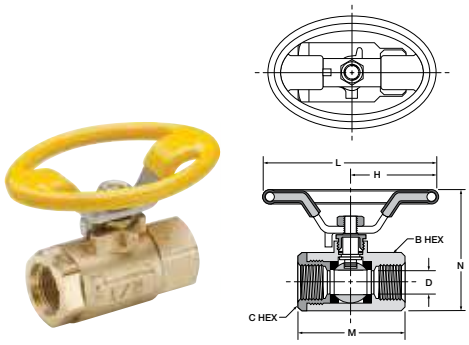
Tee Handle, Female Pipe Ends V500P-X-04

PART NO.	PIPE THREAD [PTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V500P-4-04	1/4	15/16	15/16	1.25	2.50	2.03	1.87	.375
V500P-6-04	3/8	15/16	15/16	1.25	2.50	2.03	1.87	.375
V500P-8-04	1/2*	1-1/16	1-1/16	1.25	2.50	2.20	1.98	.500
V500P-12-04	3/4**	1-1/4	1-5/16	1.25	2.50	2.42	2.20	.685
V500P-16-04	1**	1-1/2	1-9/16	1.25	2.50	2.75	2.48	.875



Oval Handle, Female Pipe Ends V500P-X-21

PART NO.	PIPE THREAD [PTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V500P-4-21	1/4	15/16	15/16	1.74	3.49	2.03	2.38	.375
V500P-6-21	3/8	15/16	15/16	1.74	3.49	2.03	2.38	.375
V500P-8-21	1/2*	1-1/16	1-1/16	1.74	3.49	2.20	2.49	.500
V500P-12-21	3/4**	1-1/4	1-5/16	1.74	3.48	2.42	2.71	.685
V500P-16-21	1**	1-1/2	1-9/16	1.74	3.48	2.75	2.99	.875



*PTF Special Short. **PTF SPL Extra Short

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Ball Valves
Brass Series 501

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:
- V-Valve
- VP-Valve, padlocking handle
- VV-Valve, vented
- VVP-Valve,vented, padlocking handle

Type:
- 501-Male/Female PTF ports

Material:
- P-Brass
- PN-Nickel plated

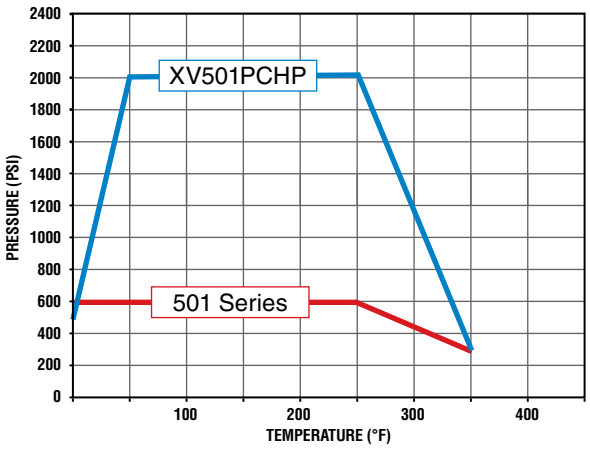
Options:
- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

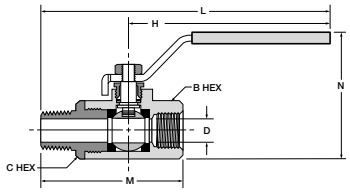
Pressure Range:
- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg
- Vented up to 250 PSI (17.2 bar)
- XV501PCHP up to 2000PSI (137.8 bar)

Temperature Range
- 0˚ to +350˚ F (-17.7° to +176.6° C)

Flow Data

VALVE SIZE	CV	VALVE SIZE	CV
1/4	6.3	3/4	25.0
3/8	5.7	1	35.0
1/2	10.0		





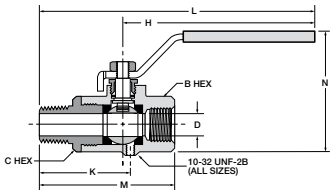
Male-Female Pipe Ends V501P

PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V501P-4	1/4	1/4	15/16	15/16	3.96	5.46	2.59	2.47	.344
V501P-6	3/8	3/8	15/16	15/16	3.96	5.46	2.59	2.47	.375
V501P-8	1/2*	1/2	1-1/16	1-1/16	3.96	5.75	2.94	2.58	.500
V501P-12	3/4**	3/4*	1-1/4	1-5/16	3.96	5.83	3.00	2.81	.685
V501P-16	1**	1*	1-1/2	1-9/16	3.96	6.19	3.60	3.08	.875

*PTF Special Short. **PTF SPL Extra Short

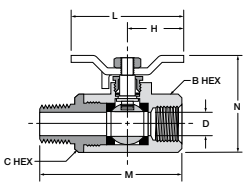
WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Click here for CADs, Product Specifications or to Configure Parts Online



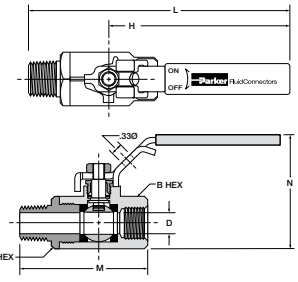
Vented, Male-Female Pipe Ends VV501P

PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	K	H	L	M	N	D FLOW Ø
VV501P-4	1/4	1/4	15/16	15/16	1.67	3.96	5.46	2.59	2.47	.344
VV501P-6	3/8	3/8	15/16	15/16	1.67	3.96	5.46	2.59	2.47	.375
VV501P-8	1/2*	1/2	1-1/16	1-1/16	1.98	3.96	5.75	2.95	2.58	.500
VV501P-12	3/4**	3/4*	1-1/4	1-5/16	2.03	3.96	5.83	3.00	2.81	.685
VV501P-16	1**	1*	1-1/2	1-9/16	2.43	3.96	6.19	3.60	3.08	.875



Tee Handle, Male-Female Pipe Ends V501P-X-04

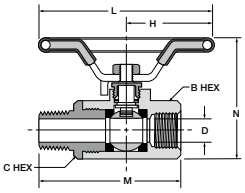
PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V501P-4-04	1/4	1/4	15/16	15/16	1.25	2.50	2.59	1.87	.344
V501P-6-04	3/8	3/8	15/16	15/16	1.25	2.50	2.59	1.87	.375
V501P-8-04	1/2*	1/2	1-1/16	1-1/16	1.25	2.50	2.95	1.98	.500
V501P-12-04	3/4**	3/4	1-1/4	1-5/16	1.25	2.50	3.00	2.20	.685
V501P-16-04	1**	1	1-1/2	1-9/16	1.25	2.50	3.60	2.48	.875



Locking Handle, Male-Female Pipe Ends VP501P

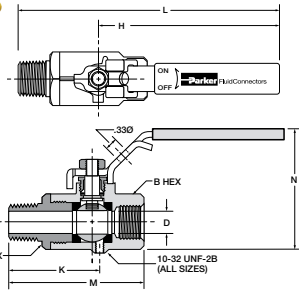
PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
VP501P-4	1/4	1/4	15/16	15/16	3.96	5.46	2.59	2.47	.344
VP501P-6	3/8	3/8	15/16	15/16	3.96	5.46	2.59	2.47	.375
VP501P-8	1/2*	1/2	1-1/16	1-1/16	3.96	5.75	2.95	2.58	.500
VP501P-12	3/4**	3/4*	1-1/4	1-5/16	3.96	5.83	3.00	2.81	.685
VP501P-16	1**	1*	1-1/2	1-9/16	3.96	6.19	3.60	3.08	.875

For use with 5/16" Ø shank lock



Oval Handle, Male-Female Pipe Ends V501P-X-21

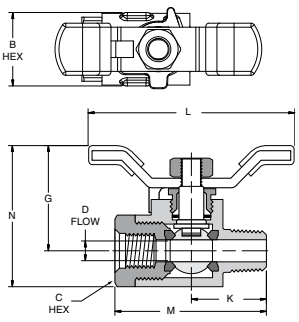
PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V501P-4-21	1/4	1/4	15/16	15/16	1.74	3.49	2.59	2.38	.344
V501P-6-21	3/8	3/8	15/16	15/16	1.74	3.49	2.59	2.38	.375
V501P-8-21	1/2*	1/2	1-1/16	1-1/16	1.74	3.49	2.95	2.49	.500
V501P-12-21	3/4**	3/4	1-1/4	1-5/16	1.74	3.48	3.00	2.71	.685
V501P-16-21	1**	1	1-1/2	1-9/16	1.74	3.48	3.60	2.99	.875



OSHA 29 CFR Part 1910 Vented, Locking Handle, Male-Female Pipe Ends VVP501P

PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	K	H	L	M	N	D FLOW Ø
VVP501P-4	1/4	1/4	15/16	15/16	1.67	3.96	5.46	2.59	2.47	.344
VVP501P-6	3/8	3/8	15/16	15/16	1.67	3.96	5.46	2.59	2.47	.375
VVP501P-8	1/2*	1/2	1-1/16	1-1/16	1.98	3.96	5.75	2.95	2.58	.500
VVP501P-12	3/4**	3/4	1-1/4	1-5/16	2.03	3.96	5.83	3.00	2.81	.685
VVP501P-16	1**	1	1-1/2	1-9/16	2.43	3.96	6.19	3.60	3.08	.875

For use with 5/16" Ø shank lock



Compact High Pressure XV501PCHP

PART NO.	FEMALE PIPE THRD [PTF]	MALE PIPE THRD [NPTF]	B HEX	C HEX	G	K	L	M	N	D FLOW Ø
XV501PCHP-4	1/4	1/4	15/16	13/16	1.33	.95	2.62	1.92	1.79	.25

*PTF Special Short. **PTF SPL Extra Short

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Ball Valves
Brass Series 502

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:
- V-Valve
- VP-Valve, padlocking handle
- VV-Valve, vented
- VVP-Valve, vented, padlocking handle

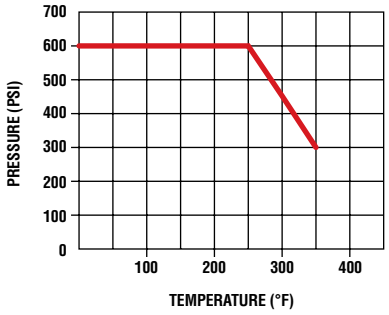
Type:
- 502-Female/Female PTF ports

Material:
- P-Brass
- PN-Nickel plated

Options:
- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

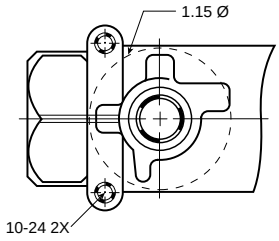
Specifications:
Pressure Range:
- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg
- Vented up to 250 PSI (17.2 bar)

Temperature Range
- 0˚ to +350˚ F (-17.7° to +176.6° C)



FLOW DATA	
VALVE SIZE	CV
1/4	4.0
3/8	5.8
1/2	12.0
3/4	25.0
1	35.0

Mounting detail for all sizes



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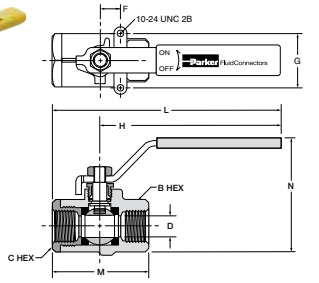
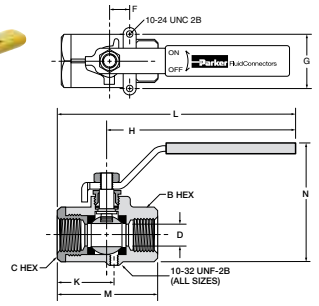
Click here for CADs, Product Specifications or to Configure Parts Online



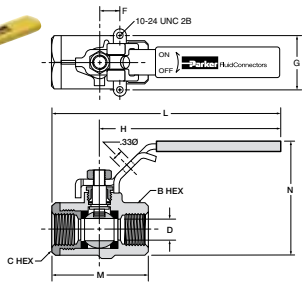
Female-Female Pipe Ends, Panel Mount V502P

PART NO.	PIPE THD. [PTF]	B HEX	C HEX	F	G	H	L	M	N	FLOW DIA. D
V502P-4	1/4	15/16	15/16	.50	1.12	3.96	4.90	2.03	2.47	.375
V502P-6	3/8	15/16	15/16	.50	1.12	3.96	4.90	2.03	2.47	.375
V502P-8	1/2*	1-1/16	1-1/16	.50	1.12	3.96	5.06	2.20	2.58	.500
V502P-12	3/4**	1-1/4	1-5/16	.87	1.37	3.96	5.25	2.42	2.81	.685
V502P-16	1**	1-1/2	1-9/16	.87	1.37	3.96	5.34	2.75	3.08	.875



Vented, Female-Female Pipe Ends, Panel Mount VV502P

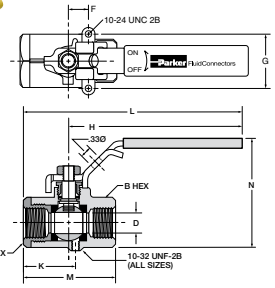
PART NO.	PIPE THD. [PTF]	B HEX	C HEX	F	G	K	H	L	M	N	D FLOW Ø
VV502P-4	1/4	15/16	15/16	.50	1.12	1.11	3.96	4.90	2.03	2.47	.375
VV502P-6	3/8	15/16	15/16	.50	1.12	1.11	3.96	4.90	2.03	2.47	.375
VV502P-8	1/2*	1-1/16	1-1/16	.50	1.12	1.23	3.96	5.06	2.20	2.58	.500
VV502P-12	3/4**	1-1/4	1-5/16	.87	1.37	1.45	3.96	5.25	2.42	2.81	.685
VV502P-16	1**	1-1/2	1-9/16	.87	1.37	1.58	3.96	5.34	2.75	3.08	.875



Locking Handle, Female Pipe Ends, PanelMount VP502P

PART NO.	PIPE THD. [PTF]	B HEX	C HEX	F	G	H	L	M	N	D FLOW Ø
VP502P-4	1/4	15/16	15/16	.50	1.12	3.96	4.90	2.03	2.47	.375
VP502P-6	3/8	15/16	15/16	.50	1.12	3.96	4.90	2.03	2.47	.375
VP502P-8	1/2*	1-1/16	1-1/16	.50	1.12	3.96	5.06	2.20	2.58	.500
VP502P-12	3/4**	1-1/4	1-5/16	.87	1.37	3.96	5.25	2.42	2.81	.685
VP502P-16	1**	1-1/2	1-9/16	.87	1.37	3.96	5.34	2.75	3.08	.875

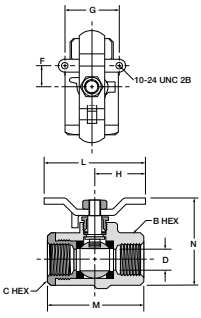
For use with 5/16" Ø shank lock



OSHA 29 CFR Part 1910 Vented, Locking Handle, Female Pipe Ends, Panel Mount VVP502P

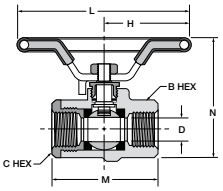
PART NO.	PIPE THD. [PTF]	B HEX	C HEX	F	G	K	H	L	M	N	D FLOW Ø
VVP502P-4	1/4	15/16	15/16	.50	1.12	1.11	3.96	4.90	2.03	2.47	.375
VVP502P-6	3/8	15/16	15/16	.50	1.12	1.11	3.96	4.90	2.03	2.47	.375
VVP502P-8	1/2*	1-1/16	1-1/16	.50	1.12	1.23	3.96	5.06	2.20	2.58	.500
VVP502P-12	3/4**	1-1/4	1-5/16	.87	1.37	1.45	3.96	5.25	2.42	2.81	.685
VVP502P-16	1**	1-1/2	1-9/16	.87	1.37	1.58	3.96	5.34	2.75	3.08	.875

For use with 5/16" Ø shank lock



Tee Handle, Female Pipe Ends, Panel Mount V502P-X-04

PART NO.	PIPE THD. [PTF]	B HEX	C HEX	F	G	H	L	M	N	D FLOW Ø
V502P-4-04	1/4	15/16	15/16	.50	1.12	1.25	2.50	2.03	1.87	.375
V502P-6-04	3/8	15/16	15/16	.50	1.12	1.25	2.50	2.03	1.87	.375
V502P-8-04	1/2*	1-1/16	1-1/16	.50	1.12	1.25	2.50	2.20	1.98	.500
V502P-12-04	3/4**	1-1/4	1-5/16	.87	1.37	1.25	2.50	2.42	2.20	.685
V502P-16-04	1**	1-1/2	1-9/16	.87	1.37	1.25	2.50	2.75	2.48	.875



Oval Handle, Female Pipe Ends, Panel Mount V502P-X-21

PART NO.	PIPE THD. [PTF]	B HEX	C HEX	H	L	M	N	D FLOW Ø
V502P-4-21	1/4	15/16	15/16	1.74	3.49	2.03	2.38	.375
V502P-6-21	3/8	15/16	15/16	1.74	3.49	2.03	2.38	.375
V502P-8-21	1/2*	1-1/16	1-1/16	1.74	3.49	2.20	2.49	.500
V502P-12-21	3/4**	1-1/4	1-5/16	1.74	3.48	2.42	2.71	.685
V502P-16-21	1**	1-1/2	1-9/16	1.74	3.48	2.75	2.99	.875

*PTF Special Short. **PTF SPL Extra Short

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Ball Valve
Brass Series 506

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:
- V-Valve
- VP-Valve, padlocking handle

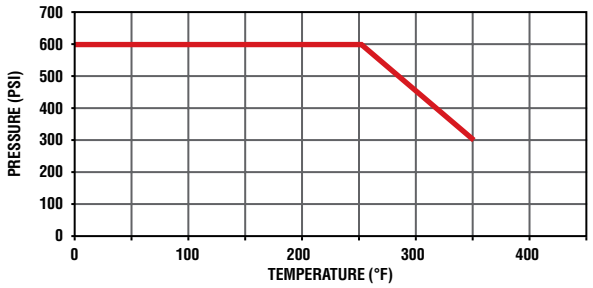
Type:
- 506-Female/Female SAE J1926-1 Ports

Material:
- P-Brass
- PN-Nickel plated

Options:
- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

Specifications:
Pressure Range:
- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

Temperature Range
- 0˚ to +350˚ F (-17.7° to +176.6° C)



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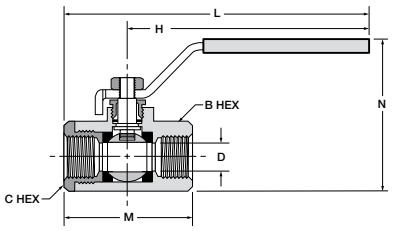
Click here for CADs, Product Specifications or to Configure Parts Online

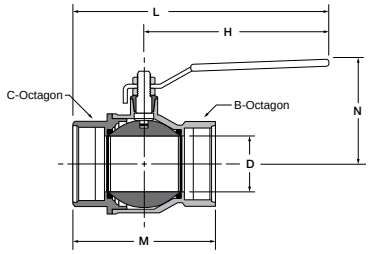
Female/Female, Straight Thread O-Ring Port V506P

PART NO.	STRT. THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V506P-4	7/16-20	15/16	15/16	3.96	5.01	2.20	2.47	.375
V506P-6	9/16-18	15/16	15/16	3.96	5.07	2.26	2.47	.375
V506P-8	3/4-16	1-1/16	1-1/16	3.96	5.18	2.42	2.60	.500
V506P-12	1-1/16-12	1-1/4	1-5/16	3.96	5.87	3.46	2.81	.685
V506P-16	1-5/16-12	1-1/2	1-9/16	3.96	5.96	3.68	3.08	.875



Female/Female, Straight Thread O-Ring Port V506P-20, V506P-24, V506P-32

PART NO.	STRT. THREAD	B OCT	C OCT	H	L	M	N	D FLOW Ø
V506P-20	1 5/8-12	1.93	1.93	6.22	8.05	3.66	3.01	1.18
V506P-24	1 7/8-12	2.13	2.13	6.22	8.23	4.02	3.25	1.50
V506P-32	2 1/2-12	2.85	2.85	6.22	8.60	4.76	3.52	1.89



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Click here for CADs, Product Specifications or to Configure Parts Online

Ball Valves
Brass Series 509

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:
- V-Valve

Type:
- 509-Solder Ends

Material:
- P-Brass

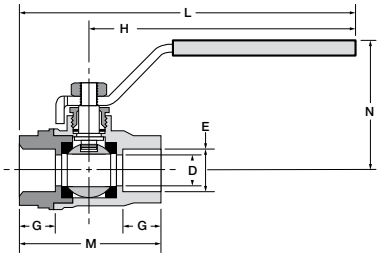
Specifications:
Pressure Range:
- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)

Temperature Range
- Nylon: 0˚ to +350˚ F (-17.7° to +176.6° C)
- Solder temperature not to exceed 470˚ F (243.3° C)

Solder Cup Ends V509P

PART NO.	TUBE SIZE	E	G	H	L	M	N	FLOW DIA. D
V509P-8	1/2	.630	.49	3.94	5.00	2.24	1.69	.55
V509P-12	3/4	.877	.75	4.72	6.10	2.85	1.97	.75
V509P-16	1	1.128	.90	4.72	6.40	3.35	2.13	.94
V509P-20	1 1/4	1.378	.96	6.22	8.13	3.82	3.01	1.18
V509P-24	1 1/2	1.628	1.10	6.22	8.46	4.49	3.25	1.50
V509P-32	2	2.128	1.34	6.22	8.94	5.43	3.52	1.89

FLOW DATA	
VALVE SIZE	CV
1/2"	26
3/4"	69
1"	91
1 1/4"	127
1 1/2"	299
2"	425



*For these part numbers only the * options are available.

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Ball Valves
Brass Series 510

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:
- V-Valve
- VP-Valve, padlocking handle

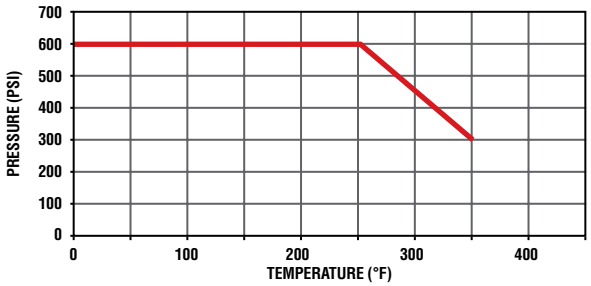
Type:
- 510-Male/Female Straight Thread O-ring SAE J1926

Material:
- P-Brass

Options:
- 01-Stainless Steel Ball & Stem
- 02-Stainless Steel Handle & Nut
- 03-Stainless Steel Ball, Stem, Handle & Nut
- 04-Tee Handle
- 08-Unmarked yellow vinyl handle cover
- 21-Oval Handle

Specifications:
Pressure Range:
- 600 WOG , Cold Non-shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg
- Vented up to 250 PSI (17.2 bar)

Temperature Range
- 0˚ to +350˚ F (-17.7° to +176.6° C)



FLOW DATA	
VALVE SIZE	CV
1/4	.8
3/8	2.1
1/2	5.3
5/8	7.6
3/4	13.0
1	33.0

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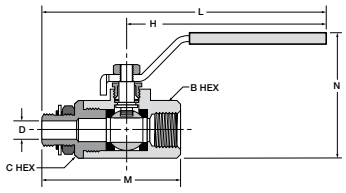
Male-Female, Straight Thread O-Ring Port V510P

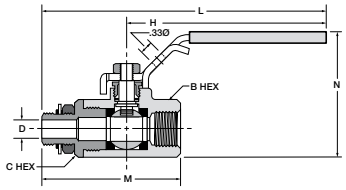
PART NO.	STRT. THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V510P-4	7/16-20	15/16	15/16	3.96	5.61	2.85	2.47	.188
V510P-6	9/16-18	15/16	15/16	3.96	5.68	2.92	2.47	.281
V510P-8	3/4-16	1-1/16	1-1/16	3.96	5.88	3.17	2.58	.422
V510P-10	7/8-14	1-1/4	1-5/16	3.96	6.31	3.90	2.81	.500
V510P-12	1-1/16-12	1-1/4	1-5/16	3.96	6.44	4.03	2.81	.656
V510P-16	1-5/16-12	1-1/2	1-9/16	3.96	6.56	4.28	3.08	.875



Locking Handle, Straight Thread O-Ring Port VP510P

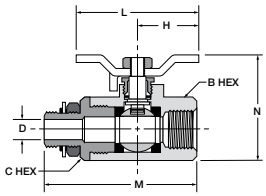
PART NO.	STRT. THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
VP510P-4	7/16-20	15/16	15/16	3.96	5.61	2.85	2.47	.188
VP510P-6	9/16-18	15/16	15/16	3.96	5.68	2.92	2.47	.281
VP510P-8	3/4-16	1-1/16	1-1/16	3.96	5.88	3.17	2.58	.422
VP510P-10	7/8-14	1-1/4	1-5/16	3.96	6.31	3.90	2.81	.500
VP510P-12	1-1/16-12	1-1/4	1-5/16	3.96	6.44	4.03	2.81	.656

For use with 5/16" Ø shank lock



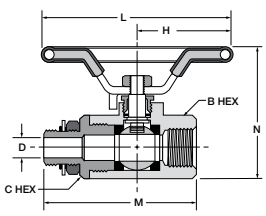
Tee Handle, Straight Thread O-Ring Port V510P-X-04

PART NO.	STRT. THREAD	B HEX	C HEX	H	L	M	N	D FLOW Ø
V510P-4-04	7/16-20	15/16	15/16	1.25	2.50	2.85	1.87	.188
V510P-6-04	9/16-18	15/16	15/16	1.25	2.50	2.92	1.87	.281
V510P-8-04	3/4-16	1-1/16	1-1/16	1.25	2.50	3.17	1.98	.422
V510P-10-04	7/8-14	1-1/4	1-5/16	1.25	2.50	3.90	2.20	.500
V510P-12-04	1-1/16-12	1-1/4	1-5/16	1.25	2.50	4.03	2.20	.656
V510P-16-04	1-5/16-12	1-1/2	1-9/16	1.25	2.50	4.28	2.48	.875



Oval Handle, Straight Thread O-Ring Port V510P-X-21

PART NO.	STRT. THREAD	B & C HEX	H	L	M	N	D FLOW Ø
V510P-4-21	7/16-20	15/16	1.74	3.49	2.85	2.38	.188
V510P-6-21	9/16-18	15/16	1.74	3.49	2.92	2.38	.281
V510P-8-21	3/4-16	1 1/16	1.74	3.49	3.17	2.49	.422
V510P-12-21	1-1/16-12	1-1/4 (B) 1-5/16 (C)	1.75	3.49	4.03	2.71	.656



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Ball Valves
Brass Series 520

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Fluorocarbon Stem O-rings
- Steel handle

Style:
- V-Valve
- VP-Valve, padlocking handle

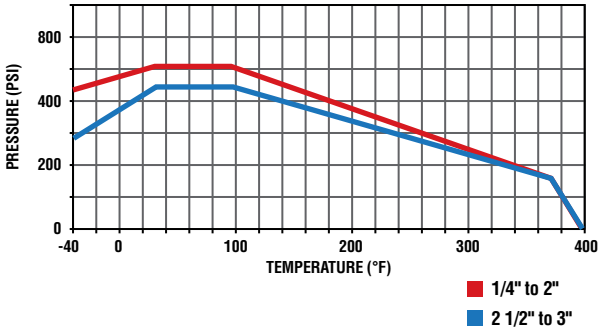
Type:
- 520-Female/Female NPT Ports

Material:
- P-Brass

Options:
- 04-Tee Handle

Specifications:
Pressure Range:
- 600 WOG Cold Non-shock 1/4" – 2"
- 450 WOG, Cold Non-shock 2 1/2" – 3"
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

Temperature Range
- -40˚ to +350˚ F (-40° to +176.6° C)



U.L. LISTED	
CATEGORY	
YSDT	LP-GAS SHUT-OFF VALVES
YRBX	FLAMMABLE LIQUID SHUT-OFF VALVES
YRPV	GAS SHUT-OFF VALVES
YQNZ	COMPRESSED GAS SHUT-OFF VALVES

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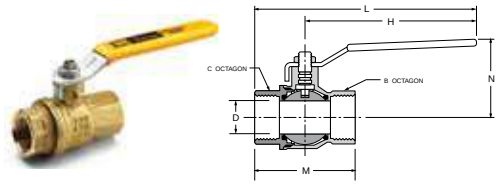
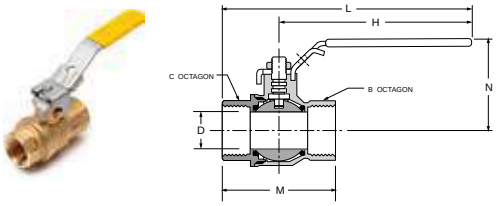
Female Pipe Ends V520P

PART NO.	PIPE THREAD [NPT]	B OCTAGON	C OCTAGON	H	L	M	N	D FLOW Ø
V520P-4	1/4-18	.79	.79	3.94	4.83	1.77	1.50	.310
V520P-6	3/8-18	.79	.79	3.94	4.83	1.77	1.50	.400
V520P-8	1/2-14	.98	.98	3.94	5.10	2.32	1.69	.600
V520P-12	3/4-14	1.22	1.22	4.72	5.98	2.52	1.97	.790
V520P-16	1-11.5	1.57	1.57	4.72	6.32	3.19	2.13	1.000
V520P-20	1-1/4	1.93	1.93	6.22	8.05	3.66	2.82	1.180
V520P-24	1-1/2	2.13	2.13	6.22	8.23	4.02	3.06	1.570
V520P-32	2	2.69	2.69	6.22	8.58	4.76	3.33	2.000
V520P-40	2-1/2	3.35	3.35	10.04	13.11	6.14	5.20	2.520
V520P-48	3	3.89	3.89	10.04	13.52	6.97	5.51	3.000



Locking Handle, Female Pipe Ends VP520P

PART NO.	PIPE THREAD [NPT]	B OCTAGON	C OCTAGON	H	L	M	N	D FLOW Ø
VP520P-4	1/4-18	.79	.79	3.94	4.83	1.77	1.50	.310
VP520P-6	3/8-18	.79	.79	3.94	4.83	1.77	1.50	.400
VP520P-8	1/2-14	.98	.98	3.94	5.10	2.32	1.69	.600
VP520P-12	3/4-14	1.22	1.22	4.72	5.98	2.52	1.97	.790
VP520P-16	1-11.5	1.57	1.57	4.72	6.32	3.19	2.13	1.000
VP520P-20	1-1/4	1.93	1.93	6.22	8.05	3.66	2.82	1.180
VP520P-24	1-1/2	2.13	2.13	6.22	8.23	4.02	3.06	1.570
VP520P-32	2	2.69	2.69	6.22	8.58	4.76	3.33	2.000
VP520P-40	2-1/2	3.35	3.35	10.04	13.11	6.14	5.20	2.520
VP520P-48	3	3.89	3.89	10.04	13.52	6.97	5.51	3.000



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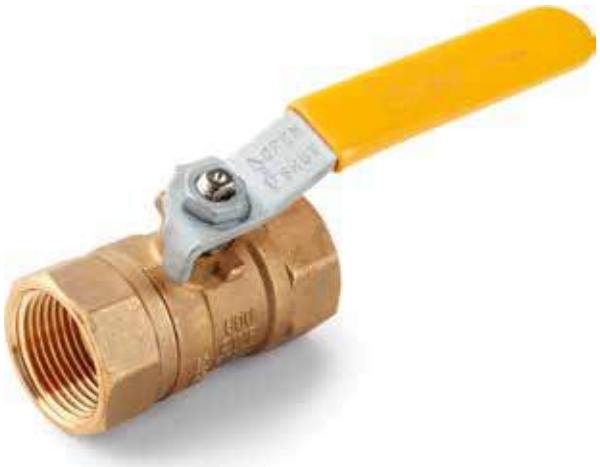


Ball Valves
Brass Series 525

Parker's industrial ball valves are intended for general purpose use. Ball valves are intended for use in the fully open or closed positions. Throttling of the valve may result in premature seal failure and/or inability to turn the valve handle.

Product Features:

- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle
- Standard Port
- Female/Female NPT Ports

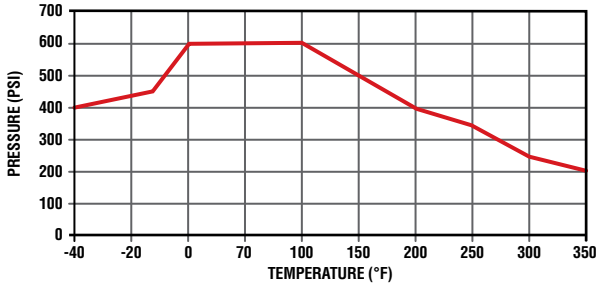
Specifications:

Pressure Range:

- 600 WOG Cold Non-shock 1/2" – 2"
- Vacuum Service to 29 Inches Hg

Temperature Range

- -40˚ to +350˚ F (-40° to +176.6° C)



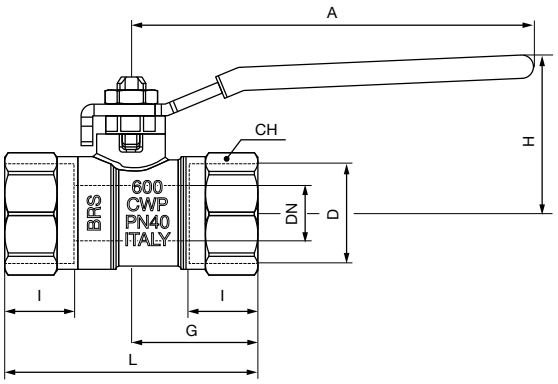
Flow Coefficient

VALUE SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
CV	8.4	16	22	38	52	78

Female Pipe Ends, V525P

PART NO.	D	DN	I	L	G	A	H	CH
V525P-8	1/2"	.453	.610	2.126	1.043	3.89	1.62	.984
V525P-12	3/4"	.590	.669	2.441	1.220	3.89	1.69	1.220
V525P-16	1"	.748	.827	2.835	1.417	4.72	1.98	1.496
V525P-20	1 1/4"	.945	.905	3.464	1.732	4.72	2.15	1.929
V525P-24	1 1/2"	1.181	.905	3.779	1.890	6.23	2.97	2.126
V525P-32	2"	1.496	1.043	4.409	2.205	6.23	3.24	2.677

Note: For larger sizes, please contact the division. Packing nut may need to be tightened depending on application temperature. Periodically check the packing nut and tighten as required



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Ball Valves Brass Series 533 3-Way Diversion / Series 540 4-Way

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:
- V-Valve
- VP-Valve, padlocking handle

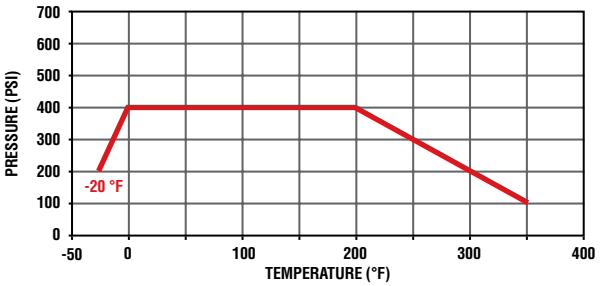
Type:
- 533 3-Way Diversion
- 540 4-Way

Material:
- P-Brass

Options:
- 02-Stainless Steel Handle & Nut
- 08-Unmarked yellow vinyl handle cover

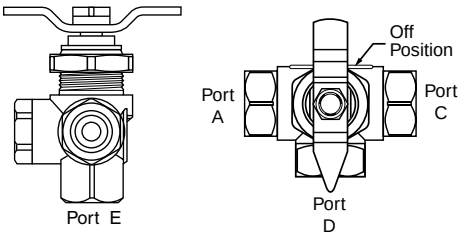
Specifications:
Pressure Range:
- 400 PSI (27.5 bar)
- Vacuum Service to 29 Inches Hg

Temperature Range
- -20˚ to +350˚ F (-6.6° to +176.6° C)

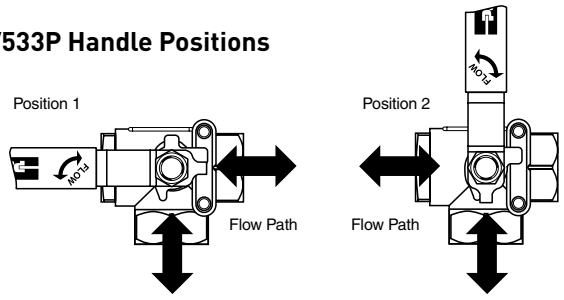


V540P FLOW INFORMATION	
POINTER OVER	FLOW PATH
A	A TO E
OFF	CLOSED
C	C TO E
D	D TO E

V540P Handle Positions



V533P Handle Positions



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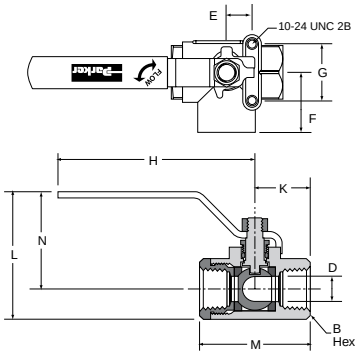
Click here for CADs, Product Specifications or to Configure Parts Online

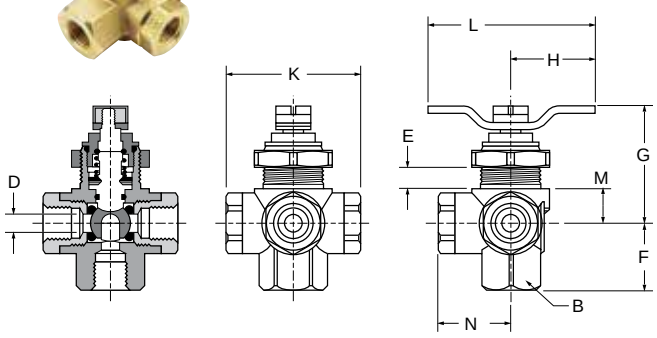
Female-Female-Female Pipe Ends V533P

PART NO.	PIPE THD (PTF)	B HEX	E	F	G	H	K	L	M	N	FLOW DIA. D
V533P-4	1/4	15/16	.50	1.08	1.12	3.96	1.03	2.47	2.03	1.94	.375
V533P-6	3/8	15/16	.50	1.08	1.12	3.96	1.03	2.47	2.03	1.94	.375
V533P-8	1/2	1-1/16	.50	1.18	1.12	3.96	1.11	2.58	2.20	1.98	.500
V533P-12	3/4	1-1/4	.87	1.43	1.37	3.96	1.42	2.90	2.83	2.17	.685
V533P-16	1	1-9/16	.87	1.62	1.37	3.96	1.58	3.21	3.16	2.32	.875



Female-Female-Female-Female Pipe Ends V540P

PART NO.	PIPE THD (PTF)	B HEX	E	F	G	H	K	L	M	N	FLOW DIA. D
V540P-4	1/4	7/8	.32	1.00	1.76	1.25	1.98	2.49	.52	1.07	.250



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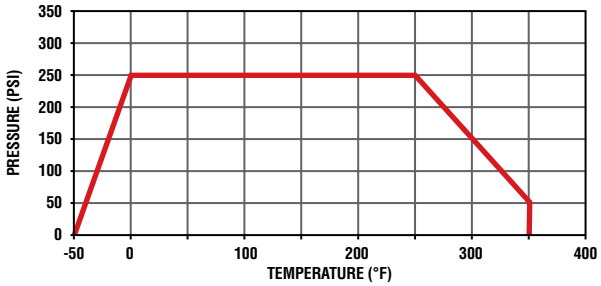
Ball Valves
Brass Series 590/591

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle



Style:
- V-Valve

Type:
- 590-Male/Female
- 591-Male/Female

Material:
- P-Brass

Options:
- 04-Lever Handle
- 08-Unmarked yellow vinyl handle cover

Specifications:
Pressure Range:
- 250 PSI (17.2 bar)
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

Temperature Range
- -50˚ to +350˚ F (-45.5° to +176.6° C)

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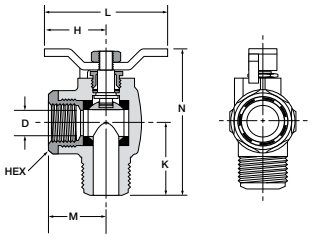
Click here for CADs, Product Specifications or to Configure Parts Online

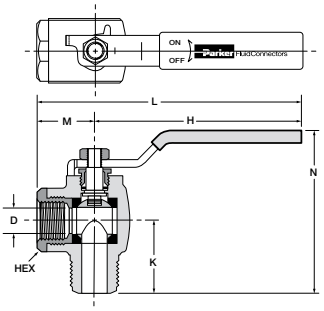
90° Flow, Male-Female Pipe Ends V590P

PART NO.	PIPE PTF THREAD	HEX	H	K	L	M	N	D FLOW Ø
V590P-4	1/4	15/16	1.25	1.08	2.50	1.00	2.42	.375
V590P-6	3/8	15/16	1.25	1.09	2.50	1.00	2.43	.375
V590P-8	1/2*	1-1/16	1.25	1.30	2.50	1.08	2.67	.500
V590P-16	1**	1-9/16"	1.30	1.90	2.60	1.38	3.62	.750



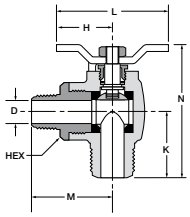
Lever Handle, 90° Flow, Male-Female Pipe Ends V590P-X-04

PART NO.	PIPE PTF THREAD	HEX	H	K	L	M	N	D FLOW Ø
V590P-4-04	1/4	15/16	3.96	1.08	4.96	1.00	3.02	.375
V590P-6-04	3/8	15/16	3.96	1.09	4.96	1.00	3.03	.375
V590P-8-04	1/2*	1-1/16	3.80	1.30	4.88	1.08	2.95	.500
V590P-16-04	1**	1-9/16"	3.96	1.90	5.34	1.38	4.17	.750



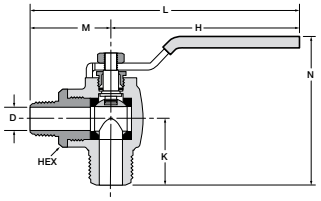
90° Flow, Male-Male Pipe Ends V591P

PART NO.	PIPE THREAD	HEX	H	K	L	M	N	D FLOW Ø
V591P-4	1/4	15/16	1.25	1.08	2.50	1.56	2.42	.375
V591P-6	3/8	15/16	1.25	1.09	2.50	1.56	2.43	.375
V591P-8	1/2	1-1/16	1.25	1.30	2.50	1.84	2.67	.500



Lever Handle, 90° Flow, Male-Male Pipe Ends V591P-X-04

PART NO.	PIPE THREAD	HEX	H	K	L	M	N	D FLOW Ø
V591P-4-04	1/4	15/16	3.96	1.08	5.52	1.56	3.02	.375
V591P-6-04	3/8	15/16	3.96	1.09	5.52	1.56	3.03	.375
V591P-8-04	1/2	1-1/16	3.80	1.30	5.64	1.84	2.95	.500



*PTF Special Short. **PTF SPL Extra Short

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Click here for CADs, Product Specifications or to Configure Parts Online

Ball Valves
Brass Series 500HB

Product Features:
- Forged brass body
- Chrome plated brass ball
- PTFE seats/seals
- Steel handle

Style:
- V-Valve

Type:
- 500HB-Female/Beaded Hose Barb

Material:
- P-Brass

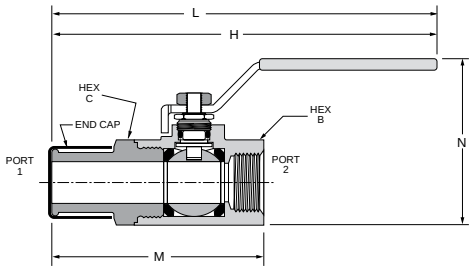
Specifications:
Pressure Range:
- 150 PSI (10.3 bar) WOG, Cold Non-Shock
- Saturated Steam up to 150 PSI (10.3 bar)
- Vacuum Service to 29 Inches Hg

Temperature Range
- 0˚ to +350˚ F (-17.7° to +176.6° C)

Brass Hose Barb Ball Valve V500P-HB

PART NO.	PORT 1	PORT 2 PTF	B HEX	C HEX	H	L	M	N	FLOW DIA. D
V500P-12-16HB	1	3/4*	1-1/4	1-5/16	3.96	6.25	3.41	2.81	.685

*PTF special extra short



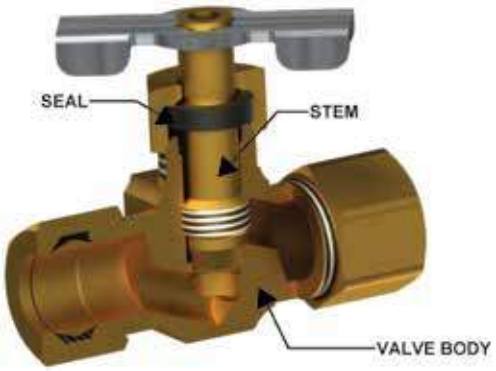
WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Needle Valves

Parker's all brass needle valves have metal-to-metal seats with fine thread screwdown. The specially formulated low temperature seal remains elastic to temperatures as low as -40˚F (-40° C).

Product Features:

- Extruded Brass Body & Stem
- Low Temperature Seal
- Metal-to-Metal Seal
- Pin Handle



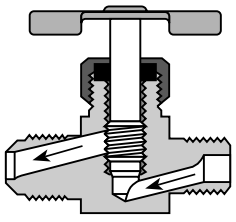
Specifications:

Pressure Range:

- Up to 150 PSI (10.3 bar)

Temperature Range

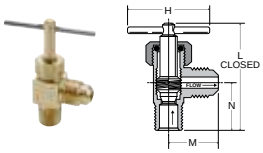
- -40˚ to +175˚ F (-20° to +79.4° C)
- Humidifier Valve Kit & Self Piercing Humidifier Kit: -30° to +250° F (-34.4° to +121.1° C)
- NV311P/NV312P: 0° to +150° F (-17.7° to +65.5° C)



Needle Valves Installation Instructions

Series NV valves should always be installed with the pressure against the seat. Refer to drawing to determine correct direction of flow.

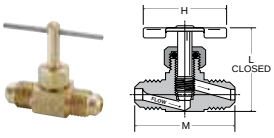
Angle Needle Valve NV101F



Flare to Male Pipe * Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

PART NO.	TUBE SIZE	PIPE THREAD	H	L	M	N
NV101F-4-2*	1/4	1/8	1.50	1.58	.75	.66
NV101F-6-4	3/8	1/4	1.38	1.86	.95	.90

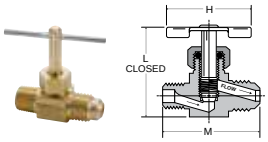
Needle Valve NV102F



Flare to Flare *Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

PART NO.	TUBE SIZE	H	L	M
NV102F-4*	1/4	1.50	1.34	1.50

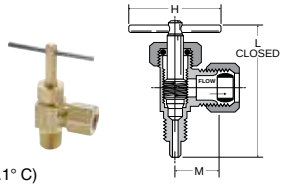
Needle Valve NV103F



Flare to Male Pipe *Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

PART NO.	TUBE SIZE	PIPE THREAD	H	L	M
NV103F-4-2*	1/4	1/8	1.50	1.33	1.35

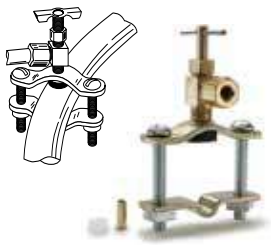
Humidifier Valve HV104C



Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

PART NO.	TUBE SIZE	PIPE THREAD	H	L	M
HV104C-4-2	1/4	1/8	1.50	1.89	.53

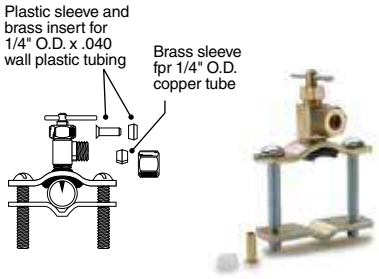
Humidifier Valve Clamp Kit HV104C-KIT



Temperature Range: -30° to +250° F (-34.4° to +121.1° C) Clamp fits 3/8" O.D. through 1.315" O.D. tube or pipe. Kit includes 60PT-4 and 63PT-4 for assembly with plastic or nylon tubing. For complete kit, specify entire part number as shown below:

PART NO.	TUBE SIZE	PIPE THREAD
HV104C-4-2 KIT	1/4	1/8

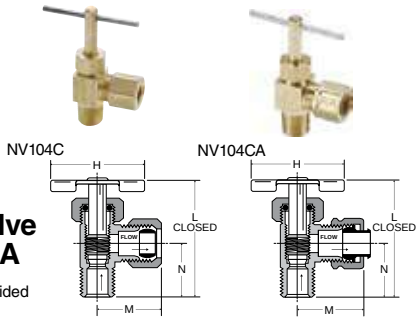
Self-Piercing Humidifier Valve Clamp Kit SPV104C-KIT



Temperature Range: -30° to +250° F (-34.4° to +121.1° C) Clamp fits 3/8" O.D. through 1.315" O.D. tube or pipe. Kit includes 60PT-4 and 63PT-4 for assembly with plastic or nylon tubing. For complete kit, specify entire part number as shown below:

PART NO.	TUBE SIZE	PIPE THREAD
SPV104C KIT	1/4	1/8

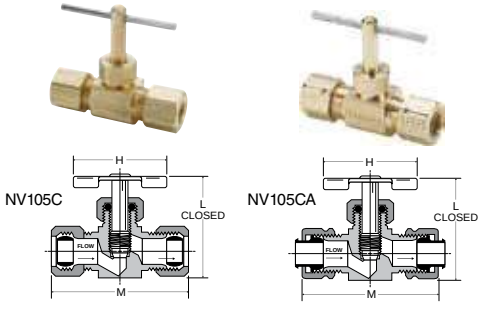
Angle Needle Valve NV104C-NV104CA



Compression to Male Pipe *Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

PART NO.	TUBE SIZE	PIPE THREAD	H	L	M	N
NV104C-4-2*	1/4	1/8	1.50	1.54	.88	.67
NV104CA-4-2*	1/4	1/8	1.50	1.49	.77	.66
NV104C-4-4	1/4	1/4	1.38	1.80	.93	.75
NV104C-5-2*	5/16	1/8	1.50	1.63	.88	.68
NV104C-6-4	3/8	1/4	1.38	1.76	.94	.81

Needle Valve NV105C-NV105CA



Compression to Compression
*Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)

PART NO.	TUBE SIZE	H	L	M
NV105C-4*	1/4	1.50	1.41	1.75
NV105C-5*	5/16	1.50	1.35	1.73
NV105C-6	3/8	1.38	1.55	1.93
NV105CA-4*	1/4	1.50	1.41	1.64
NV105CA-6	3/8	1.38	1.55	1.78

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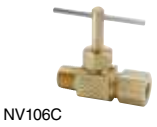
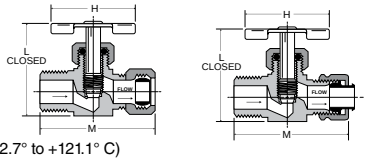


Needle Valve NV106C-NV106CA

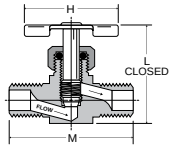
Compression to Male Pipe
*Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)



PART NO.	TUBE SIZE	PIPE THREAD	H	L	M
NV106C-4-2*	1/4	1/8	1.50	1.41	1.53
NV106C-4-4*	1/4	1/4	1.50	1.40	1.55
NV106C-5-2*	5/16	1/8	1.50	1.35	1.50
NV106C-6-4	3/8	1/4	1.38	1.56	1.75
NV106CA-4-2	1/4	1/8	1.50	1.41	1.47
NV106CA-4-4*	1/4	1/4	1.50	1.33	1.52
NV106CA-6-4	3/8	1/4	1.38	1.53	1.78

Needle Valve NV107P

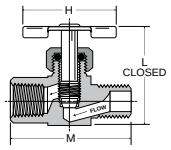
Male Pipe to Male Pipe
*Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)



PART NO.	PIPE THREAD	H	L	M
NV107P-2*	1/8	1.50	1.35	1.25
NV107P-4	1/4	1.38	1.54	1.65

Needle Valve NV108P

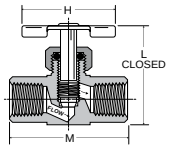
Female Pipe to Male Pipe
*Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)



PART NO.	PIPE THREAD	H	L	M
NV108P-2*	1/8	1.50	1.36	1.24
NV108P-4	1/4	1.38	1.56	1.61

Needle Valve NV109P

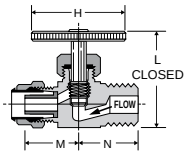
Female Pipe to Female Pipe
*Provided with Pin Handle
Temperature Range: -45° to +250° F (-42.7° to +121.1° C)



PART NO.	PIPE THREAD	H	L	M
NV109P-2*	1/8	1.50	1.35	1.25
NV109P-4	1/4	1.38	1.53	1.60

Needle Valve NV311P

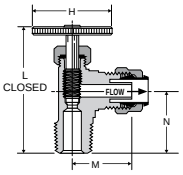
Poly-Tite to Male Pipe
Temperature Range: 0° to +150° F (0° to +65.5° C)



PART NO.	TUBE SIZE	PIPE THREAD	H	L	M	N
NV311P-4-2	1/4	1/8	1.07	1.17	.50	.63
NV311P-4-4	1/4	1/4	1.07	1.18	.50	.72
NV311P-6-4	3/8	1/4	1.07	1.19	.56	.72

Angle Needle Valve NV312P

Poly-Tite to Male Pipe
Temperature Range: 0° to +150° F (0° to +65.5° C)



PART NO.	TUBE SIZE	PIPE THREAD	H	L	M	N
NV312P-4-2	1/4	1/8	1.07	1.53	.48	.68
NV312P-4-4	1/4	1/4	1.07	1.72	.56	.86
NV312P-6-4	3/8	1/4	1.07	1.68	.64	.86

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Drain Cocks/ Ground Plug Shutoff

Parker's ground plug shutoffs are manufactured from castings or forged bodies for extra strength. Hand tightening provides a metal-to-metal seal. Drain cocks are manufactured in both external and internal seats.

Specifications:

Pressure Range:

- Ground Plug Shutoff: 30 PSI (2.0 bar)
- Drain Cocks: Up to 150 PSI (10.3 bar)

Temperature Range

- Ground Plug Shutoff: 32˚ to +125˚ F (0° to +51.6° C)
- V406P/V407P: -40° to +180° F (-40° to +82.2° C)
- Drain Cocks: -65° to +250° F (-53.8° to +121.1° C)
- DCR601: -30° to +250° F (-34.4° to +121.1° C)

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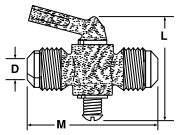
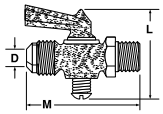
Ground Plug Shutoff V203F

Flare to Flare
T0emperature Range: +32° to +125° F (0° to +51.6° C)

PART NO.	TUBE SIZE	L	M	FLOW DIA. D
V203F-6-6	3/8	2.26	2.13	.220
V203F-8-8	1/2	2.26	2.50	.281

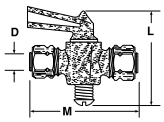
Ground Plug Shutoff V204F

Flare to Male Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)

PART NO.	TUBE SIZE	PIPE THREAD	L	M	FLOW DIA. D
V204F-4-2	1/4	1/8	1.85	2.00	.188
V204F-6-4	3/8	1/4	1.85	2.18	.218

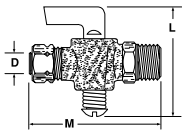
Ground Plug Shutoff V303C / V303CA

Compression to Compression
Temperature Range: +32° to +125° F (0° to +51.6° C)

PART NO.	TUBE SIZE	L	M	FLOW DIA. D
V303C-4-4	1/4	1.88	2.33	.188
V303CA-4-4	1/4	1.90	1.75	.188
V303C-6-6	3/8	2.26	2.45	.218
V303CA-6-6	3/8	1.76	1.60	.218

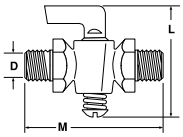
Ground Plug Shutoff V304C / V304CA

Compression to Male Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)

PART NO.	TUBE SIZE	PIPE THREAD	L	M	FLOW DIA. D
V304C-4-2	1/4	1/8	1.90	2.29	.188
V304CA-4-2	1/4	1/8	1.88	2.00	.188
V304C-4-4	1/4	1/4	1.90	2.15	.188
V304C-6-4	3/8	1/4	1.83	2.24	.218
V304CA-6-4	3/8	1/4	1.83	2.11	.218

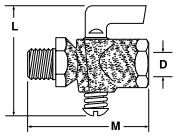
Ground Plug Shutoff V401P

Male Pipe to Male Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)

PART NO.	PIPE THREAD	L	M	FLOW DIA. D
V401P-2-2	1/8	1.90	2.25	.188
V401P-4-4	1/4	1.90	1.98	.188

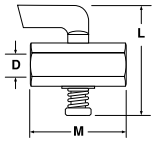
Ground Plug Shutoff V402P

Female Pipe to Male Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)

PART NO.	FEMALE PIPE THREAD	PIPE THREAD	L	M	FLOW DIA. D
V402P-2-2	1/8	1/8	1.85	1.78	.218
V402P-4-4	1/4	1/4	1.86	2.26	.218
V402P-6-6	3/8	3/8	2.34	2.21	.245

Ground Plug Shutoff V403P

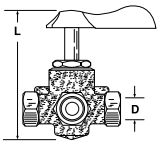



Female Pipe to Female Pipe
Temperature Range: +32° to +125° F (0° to +51.6° C)

PART NO.	FEMALE PIPE THREAD	L	M	FLOW DIA. D
V403P-2-2	1/8	1.90	1.51	.218
V403P-4-4	1/4	1.90	1.65	.188
V403P-6-6*	3/8	2.25	2.00	.250

*Made from extruded bar stock

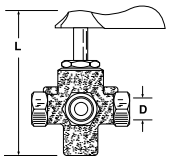
Three-Way Valve V406P

Female Pipe three ends
Temperature Range: -40° to +180° F (-40° to +82.2° C)

PART NO.	PIPE THREAD	L	FLOW DIA. D
V406P-4	1/4	3.10	.281

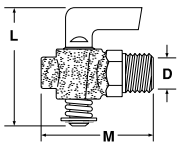
Four-Way Valve V407P

Female Pipe four ends
Temperature Range: -40° to +180° F (-40° to +82.2° C)

PART NO.	PIPE THREAD	L	FLOW DIA. D
V407P-4	1/4	3.30	.281

Ground Plug Shutoff DC601

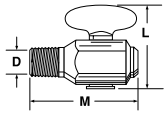



Temperature Range: +32° to +125° F (0° to +51.6° C)

PART NO.	PIPE THREAD	L	M	FLOW DIA. D
DC601-2	1/8	1.90	1.40	.170
DC601-4	1/4	1.90	1.52	.170
DC601-6	3/8	2.26	1.74	.281
DC601-8	1/2	2.29	1.82	.281

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

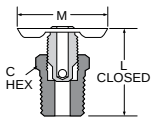
Drain Cock DCR601



Temperature Range: -30° to +250° F (-34.4° to +121.1° C)

PART NO.	PIPE THREAD	L	M	FLOW DIA. D
DCR601-4	1/4	1.41	1.73	.156

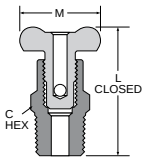
Internal Seal Drain Cock DC602



Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	PIPE THREAD	C HEX	L	M
DC602-2	1/8	13/32	.92	1.25
DC602-4	1/4	9/16	.94	1.25

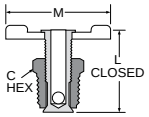
Drain Cock DC603



Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	PIPE THREAD	C HEX	L	M
DC603-2	1/8	5/8	1.41	1.00
DC603-4	1/4	5/8	1.54	1.16
DC603-6	3/8	11/16	1.63	1.16

External Seal Drain Cock DC604

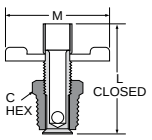


Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	PIPE THREAD	C HEX	L	M
DC604-2*	1/8	7/16	.85	1.25
DC604-4	1/4	9/16	1.00	1.38
DC604-6*	3/8	11/16	1.22	1.68

*When assembled handle wings are down facing

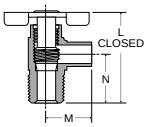
External Seal Drain Cock DC606



Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	PIPE THREAD	C HEX	L	M
DC606-4	1/4-18	9/16	1.50	1.38

Bib Drain Valve DC607



Temperature Range: -65° to +250° F (-53.8° to +121.1° C)

PART NO.	HOSE SIZE	PIPE THREAD	FLOW	L	M	N
DC607-4	3/8	1/4	.28	1.32	.67	.71

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

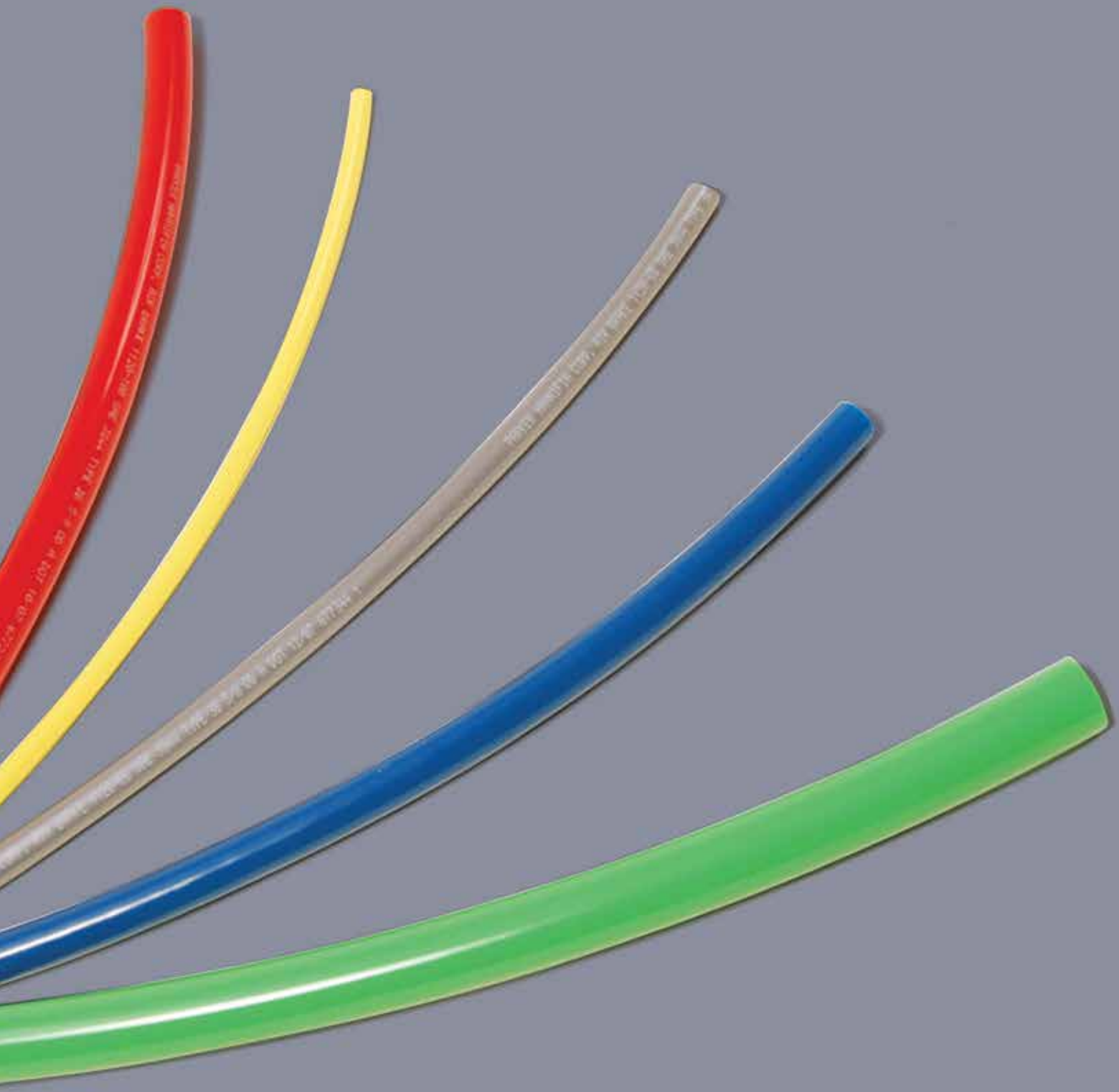
Hose & Tube

Fuel Line Hose

Coolant/Heater Hose

Air Brake Tubing

Diesel Fuel Tubing



Click here for CADs, Product Specifications or to Configure Parts Online

Fuel, Vapor and Coolant/Heater Hose

SUPER-FLEX® FL-7
Barrier Fuel Line Hose
CARB/SORE; EPA; SAE J30R7/30R14T2

Series 389

Tube: Black nitrile and translucent THV barrier

Reinforcement: Multiple aramid plies

Cover: Black CPE, smooth finish

Temp. Range: -40°F to + 257 °F (-40°C to +125°C)

Brand Method: White ink

Brand Example: PARKER SERIES 389 SUPER-FLEX® FL-7 (ID) SAE J30R7/R14T2 FUEL LINE (x) PKHPLINE389 EPA COMPLIANT 15 g/m2/day CARB Q-08-013 MAX WP 50 PSI USA (DATE CODE)
NOTE: (x) changes every year

Design Factor: 5:1

Industry Standards: CARB 2006 SORE, EPA, SAE J30R7, SAE J30R14T2

Applications:

- Low pressure fuel lines on blowers, grinders, mowers, off-road engines, pressure washers, saws
- Biodiesel (to B20 in dedicated and non-dedicated service), diesel, ethanol, gasoline
- Agricultural equipment, autos, buses, construction equipment, off-road equipment

Vacuum: 24" Hg (3/16" through 3/8" ID); 10" Hg (1/2" through 3/4" ID)

Packaging: Reels

PART NO.	INSIDE DIAMETER		REINF PLIES	OUTSIDE DIAMETER		APPROX WEIGHT		MIN BEND RAD		MAX REC WP		STD PACK QTY
(AVAILABLE FROM IHP*)	INCH	MM		INCH	MM	LBS/FT	KGS/FT	INCH	MM	PSI	BAR	FEET
38903	3/16	4.8	2	.406	10.3	.06	.03	1.3	33.0	50	3.4	250
38904	1/4	6.4	2	.500	12.7	.09	.04	1.5	38.1	50	3.4	250
38905	5/16	7.9	2	.562	14.3	.11	.05	2.0	50.8	50	3.4	250
38906	3/8	9.8	2	.625	15.8	.12	.05	2.5	63.5	50	3.4	250
38908	1/2	12.7	2	.781	19.8	.18	.08	4.0	101.6	50	3.4	250
38910	5/8	15.9	2	.938	23.9	.24	.11	5.0	127.0	35	2.4	250
38912	3/4	19.1	2	1.125	28.6	.35	.16	6.0	152.4	35	2.4	250

Fuel Line/Vapor Emission Hose

SAE J30R7
Series 395

Tube: Black nitrile
Reinforcement: Multiple textile plies
Cover: Black chloroprene; smooth finish
Temp. Range: -40°F to +257 °F (-40°C to +125°C)
Brand Method: White ink
Brand Example: (ID) FUEL/VAPOR LINE SAE J30R7 (DATE CODE)
Design Factor: 5:1
Industry Standards: SAE J30R7
Applications:
- Low pressure fuel lines, vapor emission service
- Biodiesel (to B20 in dedicated and non-dedicated service), diesel, ethanol, gasoline
- Agricultural equipment, autos, buses, construction equipment, off-road equipment

Vacuum: 24" Hg (3/16" ID through 3/8" ID); 10" Hg (1/2" ID)
Packaging: Coils

PART NO.	INSIDE DIAMETER		REINF PLIES	OUTSIDE DIAMETER		APPROX WEIGHT		MIN BEND RAD		MAX REC WP		STD PACK QTY
(AVAILABLE FROM IHP*)	INCH	MM		INCH	MM	LBS/FT	KGS/FT	INCH	MM	PSI	BAR	FEET
39553	3/16	4.8	2	.406	10.3	.07	.03	2.0	50.8	75	5.2	250
39550	1/4	6.4	2	.500	12.7	.10	.05	2.0	50.8	50	3.4	250
39551	5/16	7.9	2	.563	14.3	.11	.05	3.0	76.2	50	3.4	250
39552	3/8	9.5	2	.625	15.9	.14	.06	3.5	88.9	50	3.4	250
39554	1/2	12.7	2	.781	19.8	.17	.08	4.0	101.6	35	2.4	250

* IHP is the Parker Industrial Hose Products Division. See back cover for contact information.

Click here for CADs, Product Specifications or to Configure Parts Online

Coolant/Heater Hose

SAE 20R3EC Class D-2

Series 7181

Tube: Black EPDM

Reinforcement: Multiple textile plies

Cover: Black EPDM; smooth finish

Temp. Range: -40°F to +257°F (-40°C to +125°C)

Brand Method: White ink

Brand Example: PARKER SERIES 7181 HEATER HOSE SAE 20R3EC D-2 (ID) XX PSI MAX WP ELECTROCHEMICALLY RESISTANT MADE IN USA (DATE CODE)

Design Factor: 4:1

Industry Standards: SAE 20R3EC Class D2

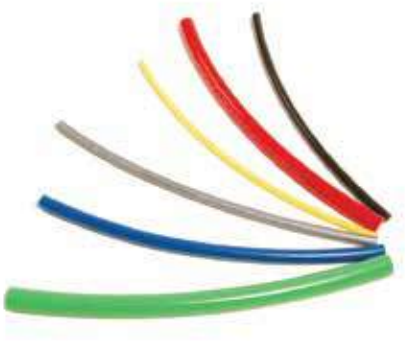
Applications:

- Coolant, hot water, mild chemicals
- Industrial and vehicle coolant systems; low pressure drain lines
- Agriculture, construction, general industrial, transportation

Vacuum: Not recommended

Packaging: Reels, cartons

PART NO.	INSIDE DIAMETER		REINF PLIES	OUTSIDE DIAMETER		APPROX WEIGHT		MIN BEND RAD		MAX REC WP		STD PACK QTY
(AVAILABLE FROM IHP*)	INCH	MM		INCH	MM	LBS/FT	KGS/FT	INCH	MM	PSI	BAR	FEET
7181-251	1/4	6.4	2	.526	13.4	.10	.05	2.5	63.5	65	4.5	700
7181-311	5/16	8.0	2	.589	15.0	.18	.05	3.5	88.9	65	4.5	700
7181-381	3/8	9.5	2	.690	17.5	.16	.07	5.0	127.0	65	4.5	600
7181-501	1/2	12.7	2	.815	20.7	.19	.09	6.0	152.4	65	4.5	500
7181-631	5/8	15.9	2	.940	23.9	.23	.10	8.0	203.2	65	4.5	500
7181-631050	5/8	15.9	2	.940	23.9	.23	.10	8.0	203.2	65	4.5	5 X 50
7181-751	3/4	19.1	2	1.065	27.1	.27	.12	9.0	228.6	50	3.4	500
7181-1001	1	25.4	2	1.339	34.0	.37	.17	12.0	304.8	45	3.1	300



Nylon Air Brake Tubing

Features

- 100% pressure tested
- Excellent UV stability
- Abrasion resistant
- Kink resistant

Certifications

- Meets SAE Specification J844
- Meets DOT FMVSS 49CFR 571.106
  *2A, 3A, and 5A are not DOT sizes

PART NO.	TUBE O.D.	OUTSIDE DIAMETER		INSIDE DIAMETER		NOMINAL WALL THICKNESS		BURST PRESSURE AT 73°F /23°C		MINIMUM BEND RADIUS		WEIGHT		STANDARD REEL		STANDARD PALLET	
	INCH	INCH	MM	INCH	MM	INCH	MM	PSI	BAR	INCH	MM	LBS./ 100 FT.	KG./ 31 MTR.	FEET	METER	FEET	METER
PFT-2A-XXX-1000*	1/8	.125	3.2	.079	2.0	.023	0.6	1000	69.0	.370	9.4	.340	.154	1000	305	24,000	7315
PFT-2.5-XXX-1000	5/32	.156	4.0	.092	2.3	.032	0.8	1200	82.7	.500	12.7	.570	.259	1000	305	24,000	7315
PFT-3A-XXX-1000*	3/16	.188	4.8	.118	3.0	.035	0.9	1200	82.7	.750	19.1	.770	.349	1000	305	24,000	7315
1120-4A-XXX-1000	1/4	.250	6.4	.170	4.3	.040	1.0	1200	82.7	1.00	25.4	1.21	.549	1000	305	24,000	7315
PFT-5A-BLK-500*	5/16	.313	7.9	.232	5.9	.040	1.0	1000	69.0	1.25	31.8	1.57	.712	500	152	12,000	3658
1120-6B-XXX-500	3/8	.375	9.5	.251	6.4	.062	1.6	1400	96.5	1.50	38.1	2.70	1.22	500	152	12,000	3658
1120-8B-XXX-500	1/2	.500	12.7	.376	9.6	.062	1.6	950	65.5	2.00	50.8	3.90	1.77	500	152	6,000	3658
1120-10B-XXX-250	5/8	.625	15.9	.441	11.2	.092	2.3	900	62.1	2.50	63.5	7.00	3.18	250	76	3,000	914
1120-12B-XXX-250	3/4	.750	19.1	.566	14.4	.092	2.3	800	55.2	3.00	76.2	8.60	3.90	250	76	3,000	914

NOTE: *2A, 3A, AND 5A ARE NOT DOT SIZES XXX REPRESENTS COLOR CODE

Construction

Material:
Type A – Single-wall extruded Nylon (polyamide)
Type B – Nylon (polyamide) core, fiber reinforcement,
Nylon (polyamide) cover/sheath

Operating Parameters

Temperature Range:
-40˚F (-40˚C) to +200˚F (93˚C)

Working Pressure:
150 psi (10.3 bar)

Fittings

Parker Fittings available from:
Fluid System Connectors Division
Otsego, MI
(269) 692-6555
(269) 694-4614 FAX

FSC Product Families:

- NTA
- Prestomatic
- PTC
- Air Brake
- PMT

Colors

COLOR CODE	
BLK	BLACK
BLU	BLUE
BRN	BROWN
GRN	GREEN
ORG	ORANGE
PUR	PURPLE
RED	RED
SIL	SILVER
TAN	TAN
YEL	YELLOW
WHT	WHITE

Click here for CADs, Product Specifications or to Configure Parts Online

Parflex Diesel Fuel Tubing

Features

- Nylon tubing designed for use in tractor, trailer and other mobile fuel systems
- Heat and light stabilized
- 100% quality controlled – 100% pressure tested
- Saves weight and labor in comparison with hose and hard-line tubing

Approvals

- Compatible with JP-5 (MIL-DTL-5624) and JP-8 (MIL-DTL-83133)
- Compatible with Biodiesel per Parflex PPB PL-18 hard-line tubing

PART NO.	NOMINAL TUBE O.D.		NOMINAL TUBE I.D.		MINIMUM BEND RADIUS		WEIGHT		STANDARD REEL	
	INCH	MM	INCH	MM	INCH	MM	LBS./FT.	KG./MTR.	FEET	METER
PFT-4A-BLU-1000-FL	1/4	6	.170	4	1	25	.012	.017	1000	305
PFT-6B-BLU-500-FL	3/8	10	.251	6	1-1/2	38	.027	.040	500	152
PFT-8B-BLU-500-FL	1/2	13	.376	10	2	51	.039	.058	500	152
PFT-10B-BLU-250-FL	5/8	16	.441	11	2-1/2	64	.070	.104	250	76
PFT-12B-BLU-250-FL	3/4	19	.566	14	3	76	.086	.128	250	76

Construction

Heat and light stabilized seamless extruded nylon core reinforced with fibrous reinforcement and bonded with a protective blue nylon cover sheath

Operating Parameters

Temperature Range:

-40˚F (-40˚C) to +200˚F (93˚C)

Maximum Working Pressure: 150 psi (10.3 bar)

Do not exceed temperature and pressure ranges

Color

● BLU

Fittings

Parker Fittings available from:

Fluid System Connectors Division
Otsego, MI
(269) 692-6555
(269) 694-4614 FAX

FSC Product Families:

- NTA
- DF (Diesel Fuel Only)

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

HTFL Diesel Fuel Line Tubing

(High-Temperature)

Features

- Heat and UV stabilized
- For use in high temperature applications
- 100% pressure tested
- Light weight
- Pre-formed tubes available

PART NUMBER	NOMINAL TUBE O.D.		NOMINAL TUBE I.D.		NOMINAL WALL THICKNESS		WORKING PRESSURE		MINIMUM BURST AT 73°F /23°C		MINIMUM BEND RADIUS		WEIGHT		STANDARD REEL	
	INCH	MM	INCH	MM	INCH	MM	PSI	BAR	PSI	BAR	INCH	MM	LBS./ FT.	KG./MTR	FEET	METER
HTFL-6B-BRN-500	3/8	10	.251	6	.062	1.6	175	12.1	1,400	96.5	1-1/2	38	.028	.041	500	152
HTFL-8B-BRN-500	1/2	13	.376	10	.062	1.6	155	10.7	950	65.5	2	51	.039	.058	500	152
HTFL-10B-BRN-250	5/8	16	.441	11	.092	2.3	140	9.7	900	62.1	2-7/8	73	.071	.106	250	76
HTFL-12B-BRN-250	3/4	19	.566	14	.092	2.3	150	10.3	800	55.1	3	76	.086	.128	250	76

Construction

Tube: High-temperature and chemical-resistant special polyamide

Reinforcement: High-strength yarn fiber

Cover: High-temperature and UV-resistant special polyamide

Operating Parameters

Temperature Range:

-50˚F (-46˚C) to +266˚F (130˚C)

Vacuum Rating: 28 inch Hg

Fittings

Parker Fittings available from:

Fluid System Connectors Division
Otsego, MI
(269) 692-6555
(269) 694-4614 FAX

FSC Product Families:

- NTA

Color

- BRN

Notes

Compatible with JP-5 (MIL-DTL-5624) and JP-8 (MIL-DTL-83133)

Compatible with Biodiesel per Parflex PPB PL-18

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Custom Harness, Bundles & Tubing

Order Information

Several different harnesses may be required on a single unit depending upon the model of the vehicle, wheel base and options available. To determine your harness application needs:

1. **Recognize the cost savings** available to you through the use of harnesses. How many dollars will be saved on tubing installation alone? On scrap reduction?
2. **Call Parker.** Have one of our application engineers study your application.
3. **Have Parker engineers design and build a prototype** harness for your approval.
4. **Approve the prototype** as our basis to engineer your production model harness.
5. **Implement the harness** into your Purchasing and Production systems – one harness, one part number instead of multiple part numbers you once had for each air brake line.

Features

- Preformed, pre-bundled tubing or hose custom designed to reduce installation time and improve throughput
- Your production line will run faster and be virtually free from tubing scrap
- Individual tubes are pre-cut and assembled into a single unit

Certifications

- Designed and engineered to meet the exacting requirements of each bus or truck manufacturer for each vehicle
- The air brake tubing used in a Parflex Harness conforms to SAE J844 type 3A and 3B (all sizes) and also D.O.T. FMVSS 49CFR 571, 106 (Except sizes 2A, 3A and 5A)
- Parflex Division is third party certified for ISO 14001 and TS 16949
- 6mm Nylon, 5.5mm EPDM, and 4mm EPDM are IP6X, IPX8, and IPX9K Certified

Tubing

Construction

Tube: Nylon Air Brake Tubing

Operating Parameters

Temperature Range:
-40˚F (-40˚C) to +200˚F (93˚C)
Working Pressure:
150 psi (10.3 bar)

Options

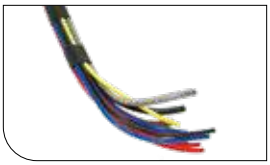
- Each tube can be color-coded and/or numbered
- Each harness may contain any number of tube sizes ranging from 1/8" O.D. to 3/4" O.D.
- The harness can be supplied with special clamps, brackets and fittings to meet any need required by the customer

Hose

Contact Parflex Customer Service for custom formed hoses and hose assemblies

Cut Tubes

Any tube offered by Parflex can be cut-to-length, with options for additional marking



Straight Harnesses

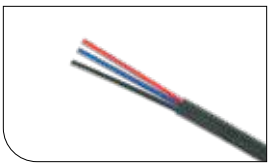
Combine multiple cut tubes into a harness built specifically for your application

Formed Tubes

Tubes can be formed into shapes for ease of installation

Formed Harnesses

Combine multiple formed tubes to create a repeatable tubing routing solution



Jacketed Bundles

Two or more tubes can be bundled together with an extruded thermoplastic jacket

Formed Assemblies

Most Parflex thezqrmoplastic hoses can be formed into application specific shapes

WARNING These products can expose you to chemicals including NICKEL or LEAD, which are known to the state of California to cause cancer, and LEAD which is known to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

General Technical

Tubing Compatibility Chart

Tubing Compatibility Chart

Manufacturing Techniques

Tube Line Fabrication Guide for Leak Free Systems

Thread Specifications

Flaring Instructions

Thread Designations and Standards for Threads Used in Fluid Connectors

Straight Thread Size Comparison Chart

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SAE Standards

U.L. Listed Fittings

Flow Curves

Flare and Thread Profiles

Pressure Conversions

English/Metric Conversions

Assembly Guides

Fluid Compatibility Guide


Parker
34
45°
72
25 SEAT
2X

Tubing Compatibility Chart

Nomenclature

- PS Plastic Sleeve & Tube Support Recommended
- TS Tube Support Is Recommended
- BS Brass Sleeve Recommended
- CL Clamp Required
- MG Metal Gripper Collet Recommended
- Tube/Fitting Combination Compatible
- Tube/Fitting Combination Not Compatible

		Soft Metal Tubing			Parflex Thermoplastic Tubing										
					Industrial Tubing Series (Outside Diameter Shown)										
	Product Sizes (inch)	Copper	Aluminum	Steel	Polyethylene E & EB Inch (4,5,6,8,10) Metric (6,8,10,12)	Polyethylene PEFR Inch (2.5,4,6,8)	Polyethylene HDPE Inch (4,6)	Nylon N Inch (2,2.5,3,4,5,6,8) Metric (4mm - 20mm)	Nylon PAT Inch (2,4,6,8,10,12)	Nylon NR Inch (2,3,4,5,6,8)	Nylon NTNA Inch (2,2.5,3,4,5,6,8)	Polypropylene PP & PPB Inch (2,3,4,5,6,8,10)	95U/95UM Series Inch (2,2.5,4,6,8,12) Metric (4,6,8,10,12)	Polyurethane HUFR (Weld Tubing) Inch (4,6,8)	Clear Vinyl Inch (1/8" - 2 1/2")
Compression & Flare	Compression Inch (2,3,4,5,6,7,8,10,12)	BS	BS		PS TS	PS TS	PS TS	PS TS	PS TS	PS TS		PS TS			
	Compress-Align Inch (2,3,4,5,6,8,10,12,14,16)				TS	TS	TS	TS	TS	TS		TS			
	Metric Compression Metric (4,5,6,8,10,12,14,16,18,20,22,25,28)				TS			TS		TS		TS	TS		
	Poly-Tite Inch (4,5,6,8)	BS						BS				BS			
	Hi-Duty Inch (2,3,4,5,6,8,10)				TS	TS	TS	TS	TS	TS		TS			
	45 degree flare Inch (2,3,4,5,6,8,10,12,14)														
	Inverted Flare Inch (2,3,4,5,6,8,10,12)														
	Fast & Tite Inch (4,5,6,8,10)												TS		TS
Push-to-Connect	Flow Controls Inch (2,2.5,4,5,6,8) Metric (4,6,8,10,12)												TS		
	Prestolok PLP Metal Inch (2,2.5,3,4,5,6,8)														
	Prestolok PLP Composite Inch (2,2.5,3,4,5,6,8,10) Metric (3,4,6,8,10,12,14,16)												TS		
	Prestolok PLM Metal Inch (2.5,4,5,6,8) Metric (4,6,8,10,12,14)														
	Prestolok PLS Stainless Steel Inch (2.5,3,4,5,6,8) Metric (4,6,8,10,12)														
	Liquifit Inch (2.5,4,6,8) Metric (4,6,8,10,12)														
	TrueSeal Inch (4,5,6,8)	MG								MG			TS		TS
Barb	Par-Barb Inch (2,3,4,5,6,8,10,12,16,20,24) Inside Diameter														CL
	Dubl-Barb Inch (2.5,4,6,8)														
	Hose Barb Inch (2,3,4,5,6,8,10,12,16) Inside Diameter														CL
	Garden Hose														CL
DOT Transportation	NTA Inch (3,4,6,8,10,12)														
	Transmission Fittings Inch (2,2.5)														
	Air Brake Inch (4,6,8,10,12,16)														
	Air Brake Hose Inch (6,8)														
	Vibra-Lok Inch (2,3,4,5,6,8,10,12)														
	Prestomatic Inch (4,6,8,10) Metric (6,8,10,12,16)														
	PTC Inch (2.5,3,4,6,8,10,12)														
	SAE Cartridges Inch (4,6,8,10)														

Tubing Compatibility Chart

Parflex Thermoplastic Tubing								IHP/HPD Hose			
Transportation Tubing				Fluoropolymer Tubing							
PFT Air Brake (SAE J844) Inch (2,2.5,3,4,5,6,8,10,12)	Air Brake DIN 74324 (Nylon 12) Metric (4,6,8,10,12,15,16,18)	PFT Diesel Fuel Sizes 4,6,8,10,12	HTFL Diesel Fuel Sizes 4,6,8,10,12	PFA Inch (3/32" - 1") Metric (4mm - 12mm)	FEP Inch (1/8" - 1") Metric (3mm - 12mm)	PTFE Inch (3/32" - 1.1") Metric (3mm - 16mm)	PVDF Inch (2,3,4,5,6,8,10,12,16)	GPH General Purpose Inch (3,4,6,8,12) Inside Diameter	Parker 271 hose (SAE J1402) Inch (6.8) Inside Diameter	Product Sizes (inch)	
				PS TS	PS TS	PS TS	PS TS			Compression Inch (2,3,4,5,6,7,8,10,12)	Compression & Flare
				TS	TS	TS	TS			Compress-Align Inch (2,3,4,5,6,8,10,12,14,16)	
				TS	TS	TS	TS			Metric Compression Metric (4,5,6,8,10,12,14,16,18,20,22,25,28)	
										Poly-Tite Inch (4,5,6,8)	
										Hi-Duty Inch (2,3,4,5,6,8,10)	
										45 degree flare Inch (2,3,4,5,6,8,10,12,14)	
										Inverted Flare Inch (2,3,4,5,6,8,10,12)	
										Fast & Tite Inch (4,5,6,8,10)	
										Flow Controls Inch (2,2.5,4,5,6,8) Metric (4,6,8,10,12)	Push-to-Connect
										Prestolok PLP Metal Inch (2,2.5,3,4,5,6,8)	
										Prestolok PLP Composite Inch (2,2.5,3,4,5,6,8,10) Metric (3,4,6,8,10,12,14,16)	
										Prestolok PLM Metal Inch (2.5,4,5,6,8) Metric (4,6,8,10,12,14)	
										Prestolok PLS Stainless Steel Inch (2.5,3,4,5,6,8) Metric (4,6,8,10,12)	
										Liquifit Inch (2.5,4,6,8) Metric (4,6,8,10,12)	
				MG	MG	MG	MG			TrueSeal Inch (4,5,6,8)	
								CL		Par-Barb Inch (2,3,4,5,6,8,10,12,16,20,24) Inside Diameter	Barb
										Dubl-Barb Inch (2.5,4,6,8)	
								CL		Hose Barb Inch (2,3,4,5,6,8,10,12,16) Inside Diameter	
								CL		Garden Hose	
										NTA Inch (3,4,6,8,10,12)	DOT Transportation
										Transmission Fittings Inch (2,2.5)	
										Air Brake Inch (4,6,8,10,12,16)	
										Air Brake Hose Inch (6,8)	
										Vibra-Lok Inch (2,3,4,5,6,8,10,12)	
										Prestomatic Inch (4,6,8,10) Metric (6,8,10,12,16)	
										PTC Inch (2.5,3,4,6,8,10,12)	
										SAE Cartridges Inch (4,6,8,10)	

Nomenclature

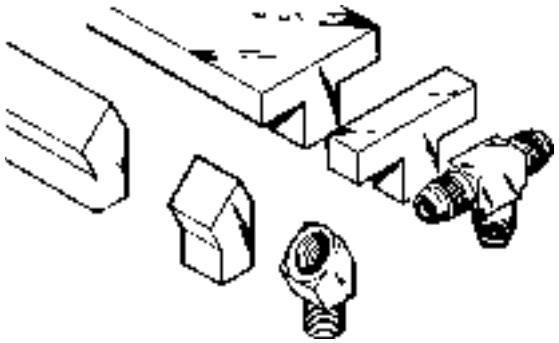
- PS Plastic Sleeve & Tube Support Recommended
- TS Tube Support Is Recommended
- BS Brass Sleeve Recommended
- CL Clamp Required
- MG Metal Gripper Collet Recommended
- Tube/Fitting Combination Compatible
- Tube/Fitting Combination Not Compatible

Manufacturing Techniques

Parker Extruded fittings

Hexagon, round and shaped bars are extruded in the configuration required, drawn to size, cut to length and straightened. First a solid round billet (8 to 12 inches in diameter) is heated to the pliable state and forced by pressure of approximately 80,000 pounds per square inch through a die. The resulting continuous length of bar is cooled and then drawn through dies to the desired external size. (The drawing process also controls the temper.) After straightening, the bar is ready for machining.

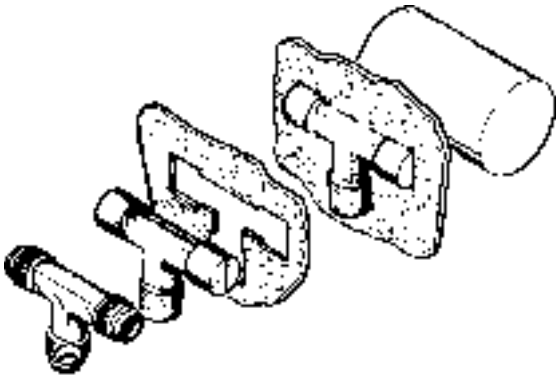
The process produces a dense, nonporous material somewhat stronger in the longitudinal direction due to an orientated flow of the grain.



Material used for Parker Brass Fittings

(Reference SAE J461)

Straight bodies:	barstock CA 360 or CA 345
Shape bodies:	extruded barstock CA 360
Shape bodies:	forged CA 377
Nuts:	barstock CA 360
Nuts:	forged CA 377



Parker Forged Fittings

Material for forgings is extruded in round bars, cut to length and straightened. (At this point in the process, forging rod differs from round extruded machinable bars only in temper and chemical properties.) After straightening, the bars are cut again into slugs (short lengths), reheated to the pliable state and pressed under a pressure of approximately 25,000 pounds per square inch between upper and lower die cavities. After cooling the flash is trimmed away and the forging blank is ready for machining.

This process of forming under extreme pressure produces a uniformly dense material of exceptional strength. Because grain flow follows the contour, the fitting has high impact strength and is more resistant to mechanical shock and vibration.

Of the major brass fittings producers, only Parker offers elbows and tees machined from both extruded and forged shapes.

Tube Line Fabrication Guide for Leak Free Systems

Every hydraulic, pneumatic and lubrication system requires some form of tube line fabrication and fitting installation for completion. Proper fabrication and installation are essential for the overall efficiency, leak free performance, and general appearance of any system.

Start by planning ahead. After sizing the tube lines and selecting the appropriate style of fitting, consider the following in the design of your system:

1. Accessibility of joints
2. Proper routing of lines
3. Adequate tube line supports
4. Available fabricating tools

Routing of Lines

Routing of lines is probably the most difficult yet most significant of these system design considerations. Proper routing involves getting a connecting line from one point to another through the most logical path.

Always try to leave fitting joints as accessible as possible. Hard to reach joints are hard to assemble and tighten properly. Inaccessible joints are also more difficult and time consuming to service.

The most logical path should have the following characteristics:

- **Avoid excessive strain on joint** — A strained joint will eventually leak. (See Figures A14 through A21.)
- **Allow for expansion and contraction** — Use a “U” bend or a hose in long lines to allow for expansion and contraction. (See Figure A22.)
- **Allow for motion under load** — Even some apparently rigid systems do move under load. (See Figure A23.)
- **Get around obstructions without using excessive amount of 90° bends** — Pressure drop due to one 90° bend is greater than that due to two 45° bends. (See Figures A24 and A25.)
- Keep tube lines away from components that require regular maintenance. (See Figures A26 and A27.)
- Have a neat appearance and allow for easy troubleshooting, maintenance and repair. (See Figures A28 and A29.)

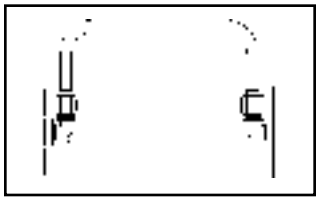


Fig. A14 — Correct Routing

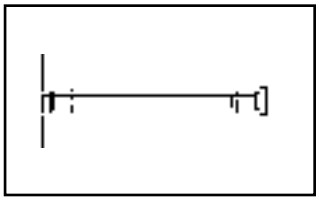


Fig. A15 — Incorrect Routing

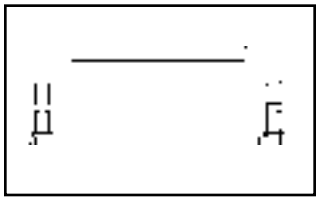


Fig. A18 — Correct Routing

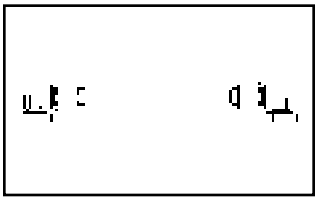


Fig. A19 — Incorrect Routing

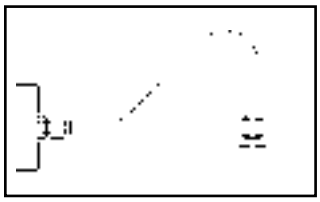


Fig. A16 — Correct Routing

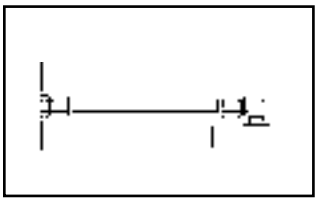


Fig. A17 — Incorrect Routing

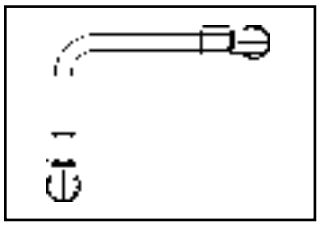


Fig. A20 — Correct Routing

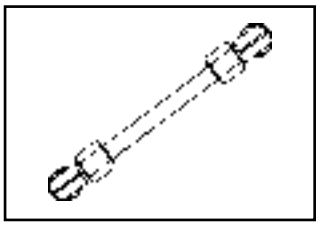


Fig. A21 — Incorrect Routing

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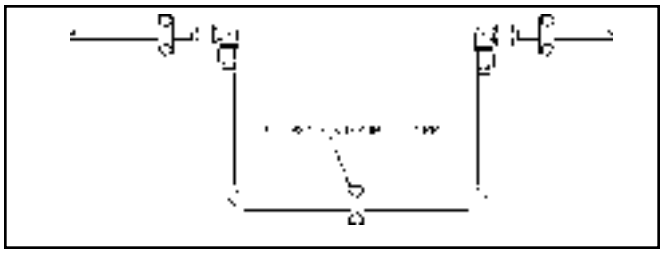


Fig. A22 — U-Bend Allowing Expansion and Contraction

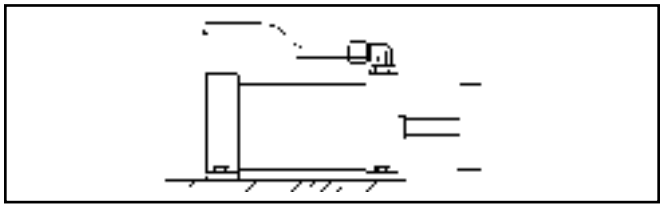


Fig. A23 — Bent Tube Allowing for Motion Under Load

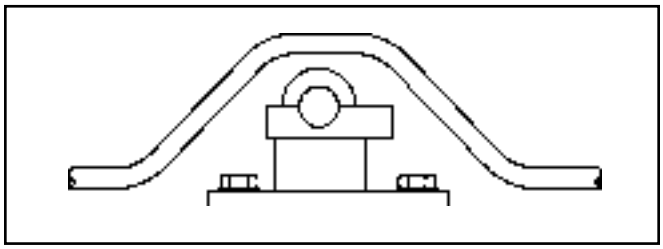


Fig. 24 — Correct

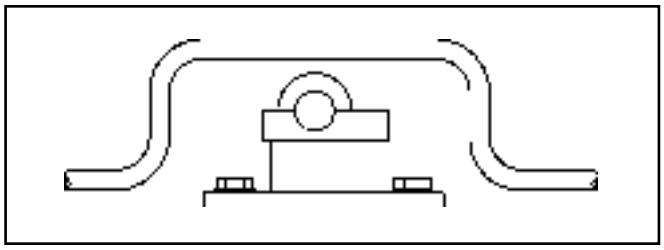


Fig. A25 — Incorrect

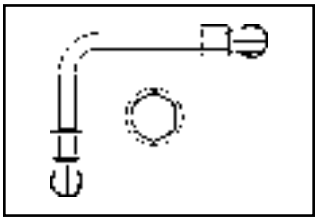


Fig. A26 — Correct

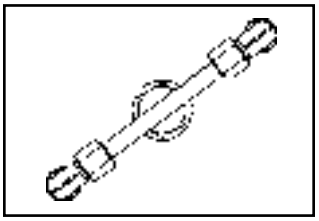


Fig. A27 — Incorrect

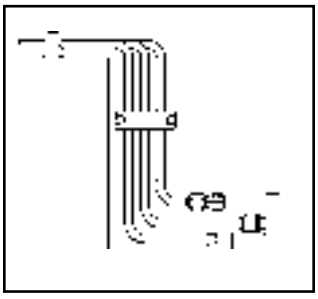


Fig. A28 — Correct

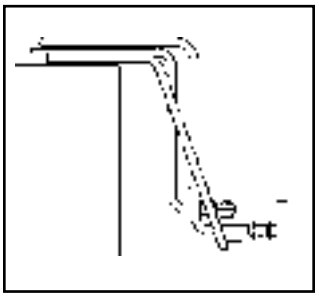


Fig. A29 — Incorrect

Thread Specifications

Dryseal Pipe Threads
All dryseal pipe threads are manufactured in accordance with the American National Standards Institute (ANSI) B1.20.3 specification and designed to seal pressure tight joints. The threads may incorporate the NPTF (National Standard Pipe Taper Fuel and Oil), PTF-SAE Short, PTF-SPL Short or PTF-SPL Extra Short form. Dryseal threads are used on brass products found within this catalog. Use of a thread sealant is recommended.

Non-Dryseal Pipe Threads
All non-dryseal pipe threads are manufactured in accordance with the American National Standards Institute (ANSI) B1.20.1 specification. These tapered pipe threads are used on our carbon and stainless steel products. Use of a thread sealant is recommended.

Nickel Plating
Nickel Plating is optional on standard product. Specifications for plating are not considered when standard product is manufactured. Since plating will alter thread pitch diameters, all plated threads should be qualified by functional fit with mating parts and not by standard thread gauging. Consult factory on plated product that will be qualified by standard thread gauging. These should be ordered as non-standards so product can be machined to pre-plated specifications.

Nickel plating provides a corrosion resistant coating which is desirable in many applications. Electrolytic nickel plating is the standard plating supplied unless otherwise specified. This will provide a uniform coverage of external surfaces; however, internal surfaces may be uncoated.

Unified Threads
All threads in the columns headed “Straight Thread” found within this catalog are manufactured in accordance with the American National Standards Institute (ANSI) B1.1 specification.

British Standard Pipe Threads BSPT and BSPP

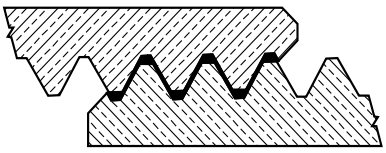
Pressure Tight
The British pipe threaded products found within this catalog intended for use where pressure tight joints are made on the threads are manufactured in accordance with British Standard (BS) 21 and International Standards Organization (ISO) 7-1. The threads are designated as follows:

Rp: Internal parallel
Rc: Internal taper
Rs: Special external parallel
R: External taper

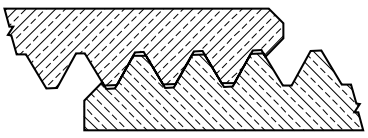
Use of a thread sealant is recommended with the R series thread. An elastomeric peripheral seal should be used with the Rs thread.

Non-Pressure Tight
All British Standard parallel pipe threads manufactured in this catalog according to BS2779 and ISO 228-1 are intended for use where pressure tight joints are not made on the threads. An elastomeric peripheral seal should be used. These threads are designated as follows:

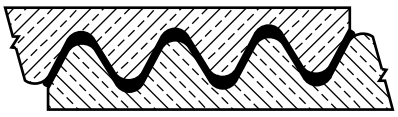
G: Internal Thread
GA, External thread, tight tolerance classification
GB, External thread, general purpose and assumed if no classification designation is given



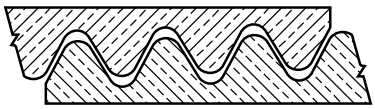
Dryseal Pipe Thread
Metal to metal contact. Crests of thread are crushed by the roots when wrench-tightened to form seal.



Non-Dryseal Pipe Thread
Flanks are in contact with possible clearance between the roots and crests. Will not prevent spiral leakage



BS21 British Standard Pipe Thread for Pressure Tight Joints
Metal to metal contact provides seal as tapered thread is wrench-tightened.



BS2779 British Standard Pipe Thread for Non-Pressure Tight Joints
Thread tolerances allow for possible clearance between threads. Will not prevent leakage paths.

Pipe Thread Assembly

The two British Standard pipe thread forms used for Parker's standard product are manufactured in a tighter tolerance range than required by the standards in order to facilitate the assembly and mating of fittings produced by the two different standards. In general, BS21 threads do not necessarily mate with BS2779 threads at tolerance overlap conditions, but fittings located within this catalog can be assembled as follows:

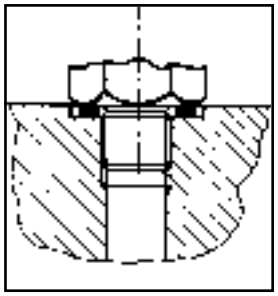
External Thread	Mating Internal Thread
G-BS2779 (parallel)	G-BS2779 (parallel) Rp-BS21* (parallel)
Rs-BS21 (parallel)	Rp-BS21 (parallel) G-BS2779 (parallel)
R-BS21 (taper)	Rp-BS21 (parallel) Rc-BS21 (taper) G-BS2779 (parallel)

*This thread must be manufactured within a reduced tolerance range to always assemble with the G series external thread.

British Standard ISO Metric Screw Threads

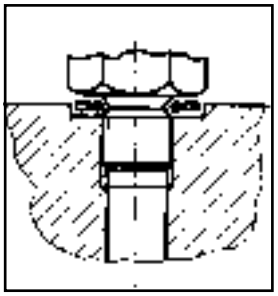
They are commonly used in miniature pneumatic applications because of the availability of small thread diameters and are also used extensively in the automotive industry. There are two forms of sealing on metric screw threads.

- O-ring sealing into a profiled port in accordance with ISO 6149.
- Peripheral sealing with a copper or bonded washer in accordance with ISO 261 and 262.



Peripheral sealing of parallel threads

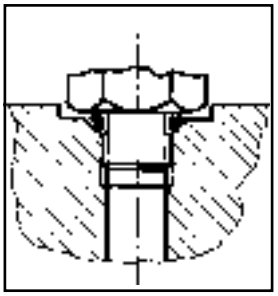
Pressure-tight joints of screwed connections with parallel threads are achieved by placing a seal between the two machined faces



Flat seals

Washers and rings are manufactured in many different materials including copper, aluminium, fiber, plastics, etc.

The tightening torque at assembly must be carefully selected so as to avoid compressing the seal to the point of extrusion. As a general rule, the fitting should be tightened with an additional 1/4 wrench turn from the fingertight position.



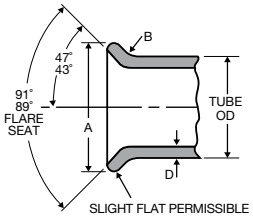
O-rings

Depending upon the configuration of the female port or male thread, O-Ring seals are fitted with or without back-up washers, and can be fully retained in a captive seal.

Flaring Instructions

In order to properly flare copping tubing for use with Parker 45° Flared Fittings and Inverted Flared Fittings, the following procedures and specifications should be met in preparation and make-up of flares.

1. **Cut tube with tube cutter:** To minimize the burr and workhardening, use a light feed on the cutting wheel and make several revolutions.
2. **Ream the tubing:** Cutting with a tube cutter will always create a burr. The burr must be removed to obtain maximum sealing surface. Remove only the burr, do not remove material from the original wall thickness. Also clean the tube end thoroughly to remove burrs.
3. **Flare tubing:** Flare with a compression or generating type flaring tool. Follow tool manufacturer's instructions for: (a) positioning the tube in tool and (b) for the correct number of turns on the feed handle.
4. **Inspect tubing:** The flare cone should be checked for a smooth surface on the i.D. Of the cone and measure with micrometer over largest o.D. For proper size. (See dimensions below for flare size for each tubing size.)



NOMINAL TUBE	A SINGLE FLARE DIAMETER		B SINGLE FLARE RADIUS	D SINGLE FLARE WALL THICKNESS
IN	MAX. IN	MIN. IN	+/- 0.01 IN	MAX. IN
1/8	.181	.171	.02	.035
3/16	.249	.239	.02	.035
1/4	.325	.315	.02	.049
5/16	.404	.388	.02	.049
3/8	.487	.471	.02	.065
7/16	.561	.545	.02	.065
1/2	.623	.607	.02	.083
9/16	.676	.660	.02	.083
5/8	.748	.732	.02	.095
3/4	.916	.900	.02	.109
7/8	1.041	1.025	.02	.109
1	1.157	1.141	.02	.120

Thread Designations and Standards for Threads Used in Fluid Connectors

	ABBREVIATION	DESCRIPTION	APPLICABLE STD.
STRAIGHT PIPE	NPSC	AMERICAN STANDARD STRAIGHT PIPE THREADS IN PIPE COUPLINGS	ANSI B1.20.1 FED-STD-H28/7
	NPSF	DRYSEAL AMERICAN STANDARD FUEL INTERNAL STRAIGHT PIPE THREADS (GENERALLY SED IN SOFT OR DUCTILE MATERIALS TO MATE WITH NPTF EXTERNAL TAPER THREADS)	SAEJ476 ANSI B1.20.3 FED-STD-H28/8
	NPSI	DRYSEAL AMERICAN INTERMEDIATE INTERNAL STRAIGHT PIPE THREADS (FOR BRITTLE OR HARD MATERIALS; INTENDED TO MATE WITH PTF-SAE SHORT EXTERNAL TAPER THREADS)	SAE J476 ANSI B1.20.3 FED-STD-H28/8
	NPSM	AMERICAN STANDARD STRAIGHT PIPE THREADS FOR FREE-FITTING MECHANICAL JOINTS FOR FIXTURES (THESE THREADS FIT FREELY OVER NPTF THREADS. THEY ARE USED IN SWIVEL NUTS OF 07 ADAPTERS)	ANSI B1.20.1 FED-STD-H28/7
TAPER PIPE	ANPT	AERONAUTICAL NATIONAL TAPER PIPE THREADS (SIMILAR TO NPT WITH VARIOUS ADDITIONAL REQUIREMENTS IN GAGING)	MIL-P-7105
	NPT	AMERICAN STANDARD TAPER PIPE THREADS FOR GENERAL USE	ANSI B1.20.1 FED-STD-H28/7
	NPTF	DRYSEAL AMERICAN STANDARD TAPER PIPE THREADS (USED IN ALL OF OUR STEEL AND BRASS FITTINGS)	SAE J476 ANSI B1.20.3 FED-STD-H28/8
	PTF - SAE SHORT	DRYSEAL SAE SHORT TAPER PIPE THREADS (MAINLY USED IN LOW PRESSURE PNEUMATIC AND FUEL APPLICATIONS)	SAE J476 ANSI B1.20.3 FED-STD-H28/8
	PTF - SPL SHORT[1]	DRYSEAL SPECIAL SHORT TAPER PIPE THREADS	ANSI B1.20.3
	PTF - SPL EXTRA SHORT[1]	DRYSEAL SPECIAL EXTRA SHORT TAPER PIPE THREADS	ANSI B1.20.3

Continued next page

	ABBREVIATION	DESCRIPTION	APPLICABLE STD.
UNIFIED THREADS	UN	UNIFIED CONSTANT PITCH THREADS (STANDARD SERIES: 4, 6, 8, 12, 16, 20, 28, 32)	ANSI B1.1 ED-STD-H28/2
	UNC	UNIFIED COARSE THREADS	ANSI B1.1 FED-STD-H28/2
	UNEF	UNIFED EXTRA FINE THREADS	ANSI B1.1 FED-STD-H28/2
	UNF	UNIFIED FINE THREADS	ANSI B1.1 FED-STD-H28/2
	UNS	UNIFIED SPECIAL PITCH THREADS	ANSI B1.1 FED-STD-H28/3
	UNJ	UNIFIED CONTROLLED ROOT RADIUS THREADS	ANSI B1.15 FED-STD-H28/4
METRIC THREADS	M	METRIC SCREW THREADS — M PROFILE	ISO 261 ANSI B1.13M FED-STD-H28/21
	M — KEG	METRIC TAPER THREADS (MAINLY USED IN GERMANY)	DIN 158
BRITISH STANDARD	R (BSPT)	BRITISH STANDARD TAPER PIPE THREADS, EXTERNAL	BS 21 ISO 7/1
	RC (BSPT)	BRITISH STANDARD TAPER PIPE THREADS, INTERNAL	BS 21 ISO 7/1
	RP OR G (BSPP)	BRITISH STANDARD PIPE (PARALLEL) THREADS	BS 2779 ISO 228/1
JAPANESE STANDARD	PF[2]	JIS PARALLEL PIPE THREADS	JIS B202 ISO 228/1
	PT[2]	JIS TAPER PIPE THREADS	JIS B203 ISO 7/1
	PS	JIS PARALLEL INTERNAL PIPE THREADS (TO MATE WITH PT THREADS)	JIS B203

Table A48 — Thread Designations and Standards for Threads Used in Fluid Connectors

1. Used in some pneumatic components where shortened thread depth is required because of lack of enough material due to component size limitations.
2. PF and PT threads are functionally interchangeable with BSPP and BSPT threads, respectively.
   These are old designations. They are being replaced with G (for PF) and R and Rc (for PT) as documents are revised.

Straight Thread Size Comparison Chart

	TUBE O.D.										
	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
SAE 45°FLARED	5/16 -24	3/8 -24	7/16 -20	1/2 -20	5/8 -18	11/16 -16	3/4 -16	7/8 -14	1-1/16 -14	1-1/4 -12	-
INVERTED FLARED	5/16 -28	3/8 -24	7/16 -24	1/2 -20	5/8 -18	11/16 -18	3/4 -18	7/8 -18	1-1/16 -16	1-3/16 -16	-
AIR BRAKE/NTA	-	-	7/16 -24	-	17/32 -24	-	11/16 -20	13/16 -18	1 -18	-	1-1/4 -16
STANDARD. COMPRESSION / COMPRESS-ALIGN	5/16 -24	3/8 -24	7/16 -24	1/2 -24	9/16 -24	5/8 -24	11/16 -20	13/16 -18	1 -18	1-1/8 -18	1-1/4 -18
POLY-TITE			3/8 -24	7/16 -24	1/2 -24	-	11/16 -20	-	-	-	-
VIBRA-LOK	3/8 -24	-	1/2 -24	9/16 -24	5/8 -24	-	13/16 -18	1 -18	1-1/8 -18	-	-
V510 BALL VALVES	-	-	7/16 -20	-	9/16 -18	-	3/4 -16	7/8 -14	1-1/16 -12	-	1-5/16 -12
HI-DUTY FLARELESS TUBE FITTINGS	5/16 -24	3/8 -24	7/16 -20	1/2 -20	9/16 -20	-	11/16 -16	7/8 -18	-	-	-

S.A.E. Part Index

SAE Standards

(Current)

J246: Spherical and Flanged Sleeve (Compression) Tube Fittings
Tubing: Copper and J844 Nylon
Fittings: NTA and Air Brake

J476: Dryseal Pipe Threads

J512: Automotive Tube Fittings
Tubing: Copper and Nylon
Fittings: 45° Flare, Inverted Flare, Compression

J513: Refrigeration Tube Fittings
Tubing: Annealed Copper
Fittings: 45° Flare

J530: Automotive Pipe Fittings
Fittings: Pipe

J531: Automotive Pipe, Filler and Drain Plugs
Fittings: Pipe Plugs

J844: Nonmetallic Air Brake System Tubing
Tubing: Non-reinforced Type A, reinforced Type B

J1131: Performance Requirements for SAE J844 Nonmetallic Tubing and Fitting Assemblies Used in Automotive Air Brake Systems
Tubing: J844 Nylon
Fittings: NTA and Prestomatic

J1615: Thread Sealants

J2494: Brass Body Push-to-Connect Fittings
Tubing: J844 Nylon
Fittings: Prestomatic

U.L. Listed Fittings

Many of the Fluid System Connectors Division's fittings have been listed by the Underwriter's Laboratory. The listings fall under 1 of 3 categories, depending upon application. Underwriter's requires that the smallest unit package carry the U.L. symbol and each carton be printed in accordance with the specification of each category.

List of U.L. Fittings

FITTINGS, FLAMMABLE LIQUID

1F	62C	168CA	252IFHD
2GF	62CA	169C	256IF
3GF	62CABH	169CA	259IFHD
14FL	62CBH	170C	264C
14FSV	66C	170CA	264CA
14FSX	66CA	171C	265C
41FL	68C	171CA	265CA
41FS	68CA	172C	269C
41FX	144F	172CA	269CA
41IF	145F	176C	270C
41IFS	147F	176CA	270CA
42F	149F	177C	639C
42IFHD	150F	177CA	639CA
46F	151F	244F	639F
46IFHD	155F	244IFHD	640F
48F	159F	245IFHD	660FHD
48IFHD	164C	249F	661FHD
60C	164CA	249IF	664FHD
61C	165C	249IFHD	
61CA	165CA	250IFHD	
61CL	168C	251IFHD	

FITTINGS, FUEL EQUIPMENT, MARINE

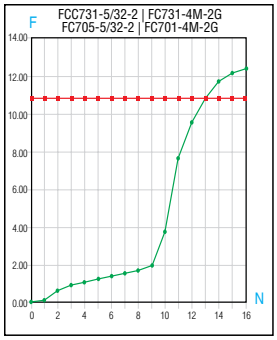
2GF	144F	155F	664FHD
3GF	145F	159F	
14FL	147F	639F	
42F	149F	640F	
46F	150F	660FHD	
48F	151F	661FHD	

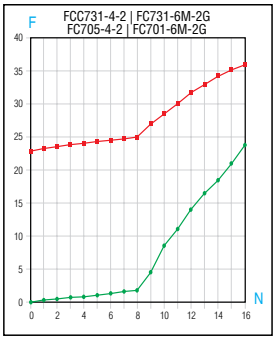
SHUT-OFF VALVES, FLAMMABLE LIQUIDS, LP GAS AND COMPRESS GAS

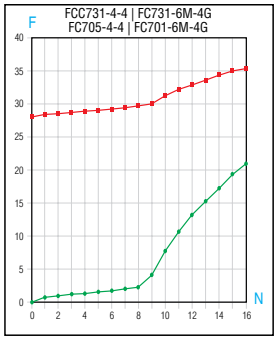
XV520P-4	XV520P-20	XV500P-20
XV520P-6	XV520P-24	XV500P-24
XV520P-8	XV520P-32	XV500P-32
XV520P-12	XV520P-40	
XV520P-16	XV520P-48	

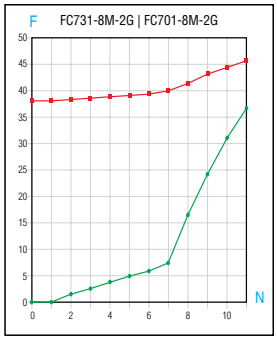
Flow Curves

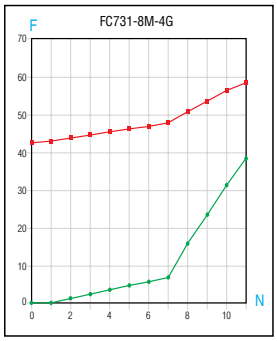
87 PSI (5.9 bar) | Return Direction | Controlled Direction | N = Number of Turns | F = Flow in SCFM

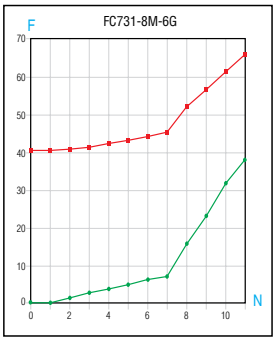


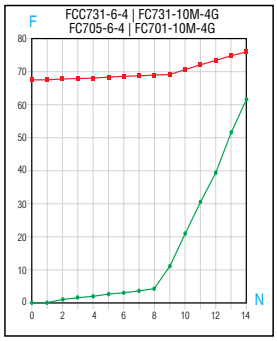


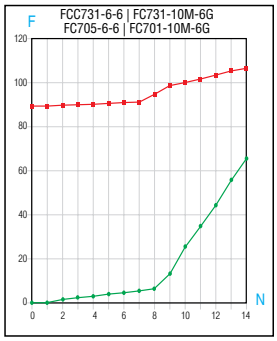


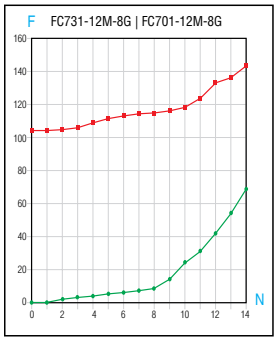


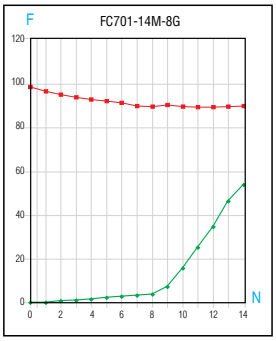


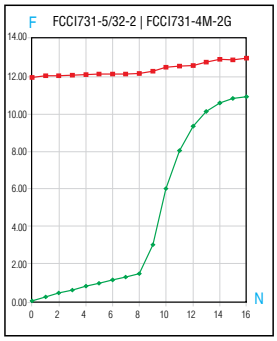


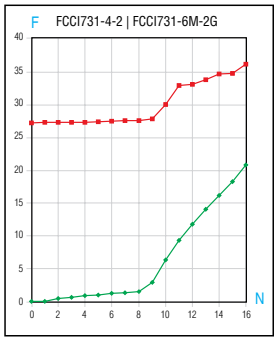


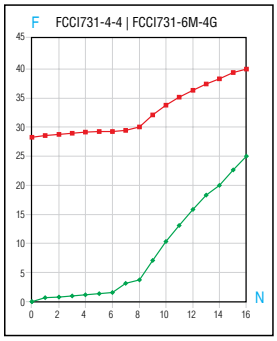


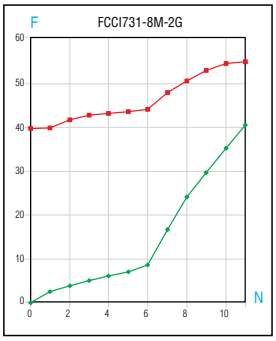


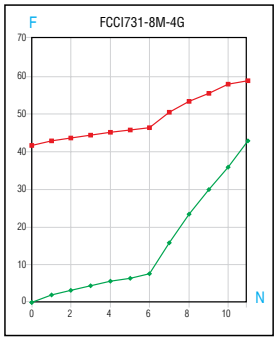


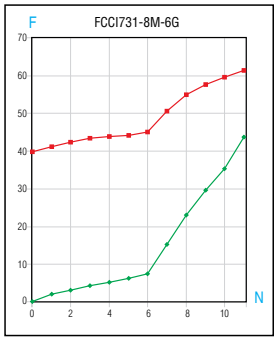












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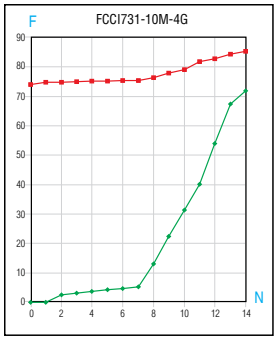

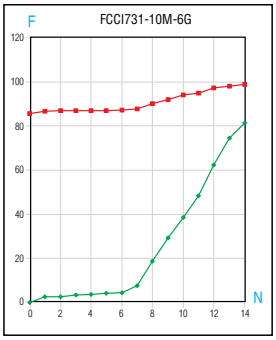

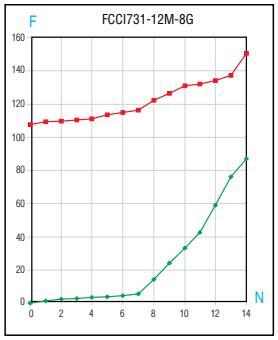

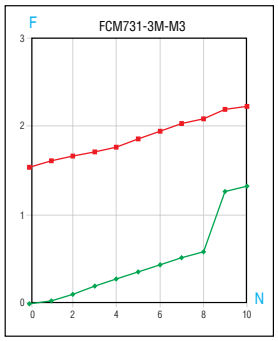

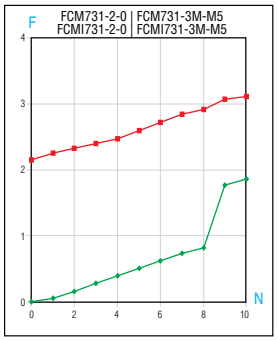

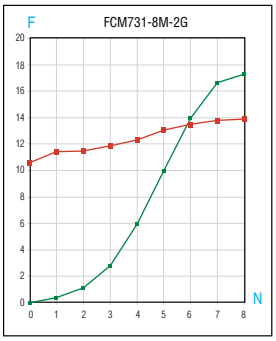

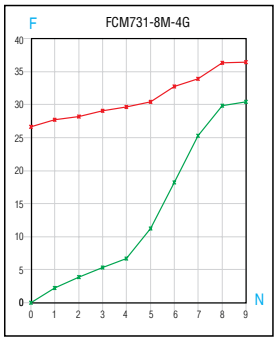

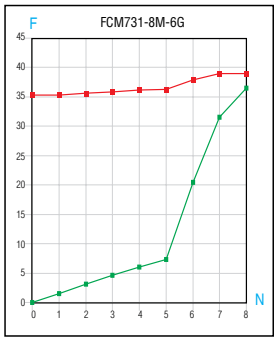

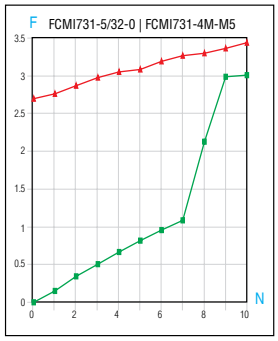

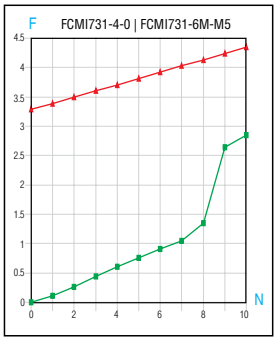

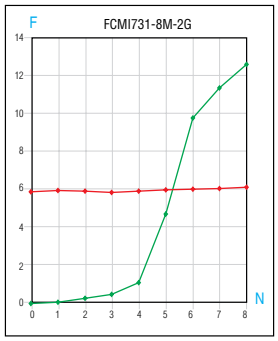

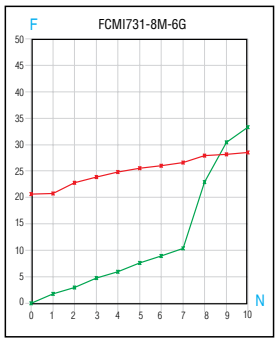

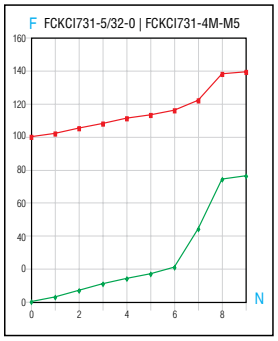

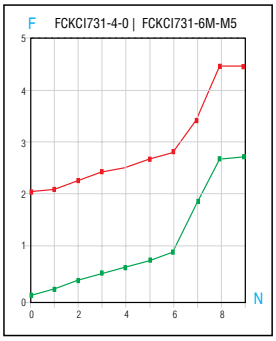

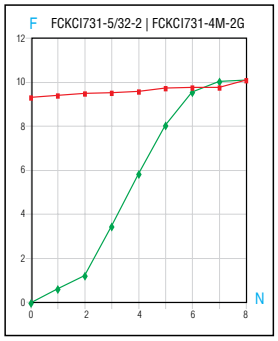

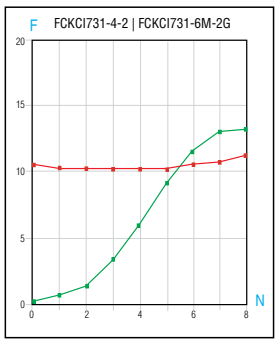

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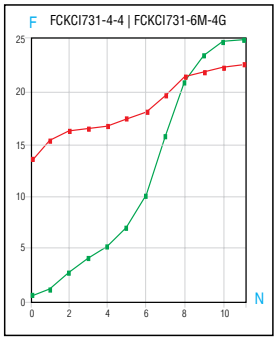
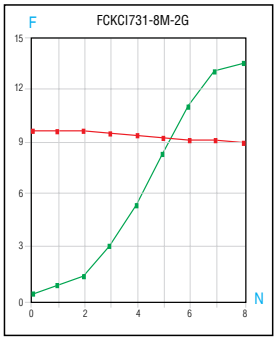
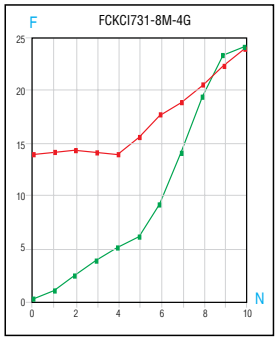
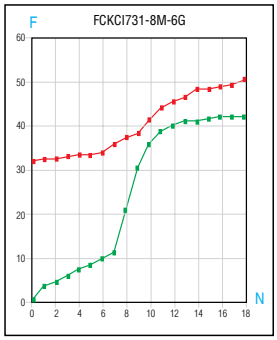
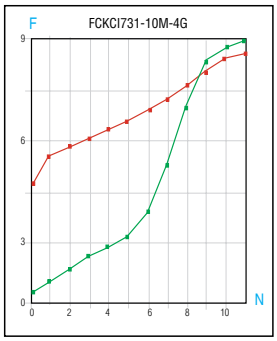
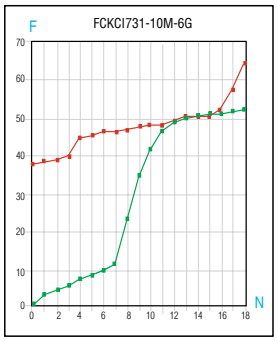


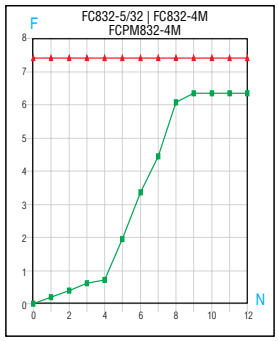


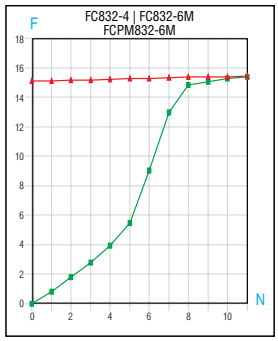


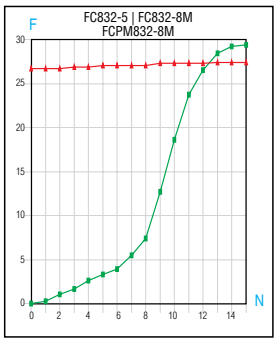


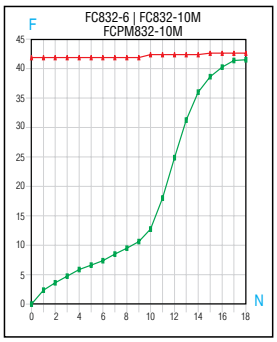


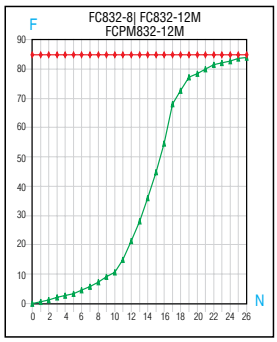




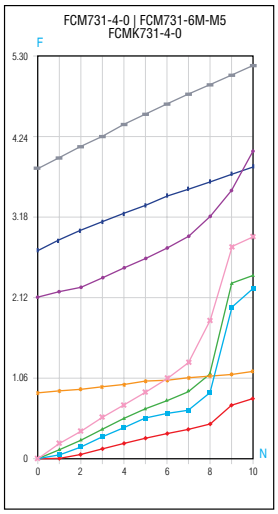


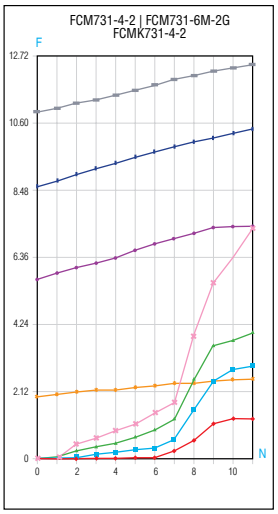


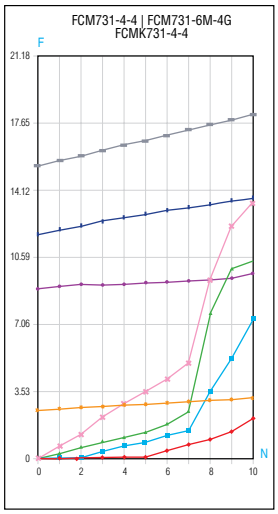


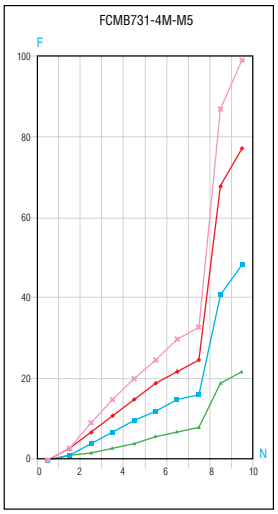


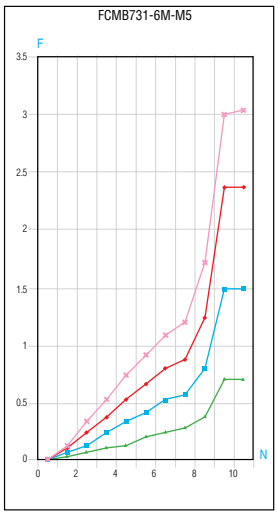
87 PSI (5.9 bar) | Return Direction | Controlled Direction | N = Number of Turns | F = Flow in SCFM

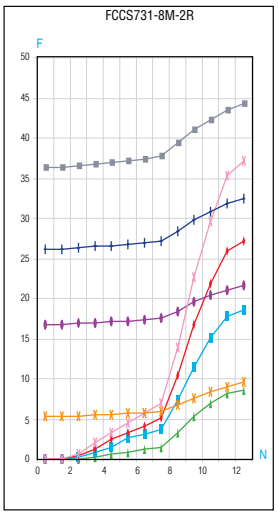


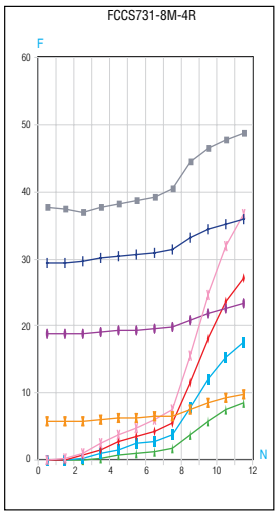


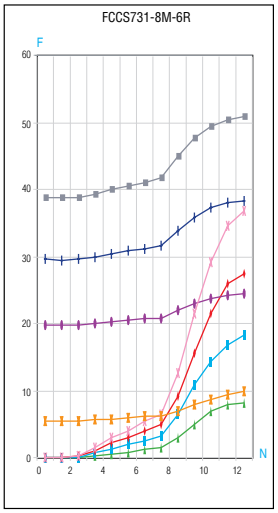


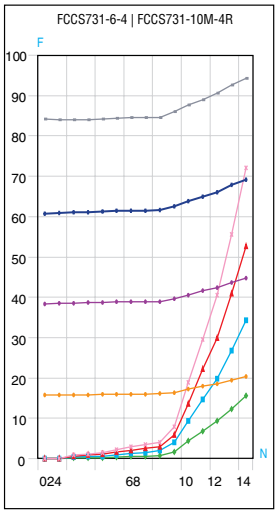


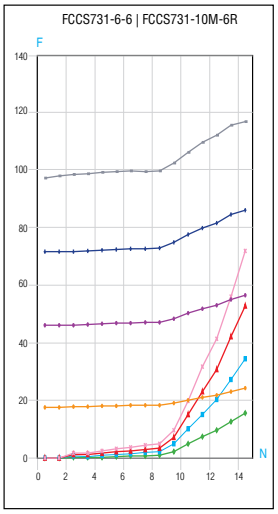


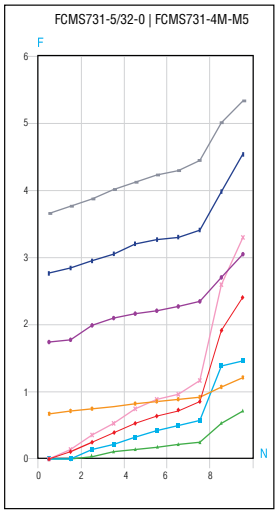


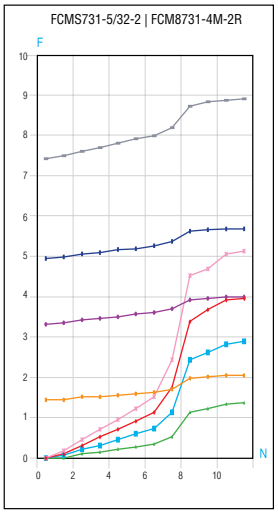






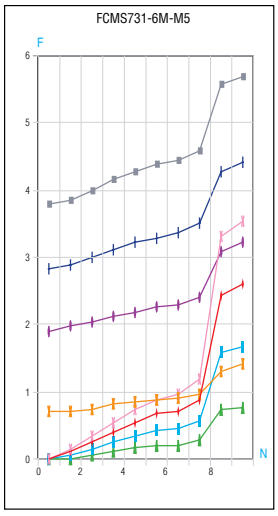


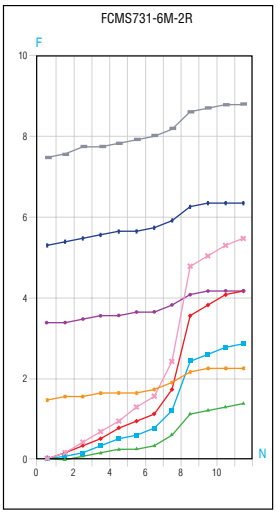


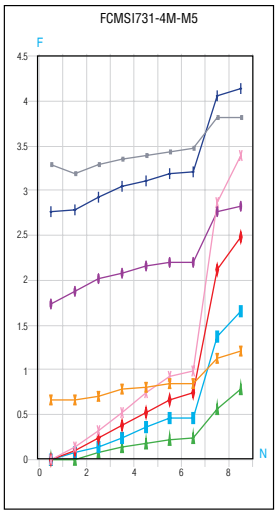


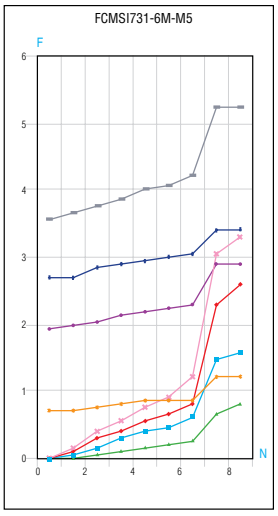
- Controlled Direction – 14.5 PSI (0.9 bar)
- Controlled Direction – 72.5 PSI (4.9 bar)
- Return Direction – 14.5 PSI (0.9 bar)
- Return Direction – 72.5 PSI (4.9 bar)
- Controlled Direction – 43.5 PSI (2.9 bar)
- Controlled Direction – 101.5 PSI (6.9 bar)
- Return Direction – 43.5 PSI (2.9 bar)
- Return Direction – 101.5 PSI (6.9 bar)

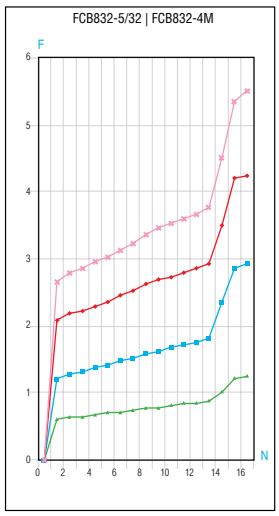
87 PSI (5.9 bar) | Return Direction | Controlled Direction | N = Number of Turns | F = Flow in SCFM

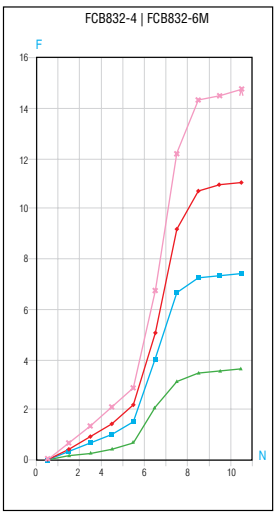


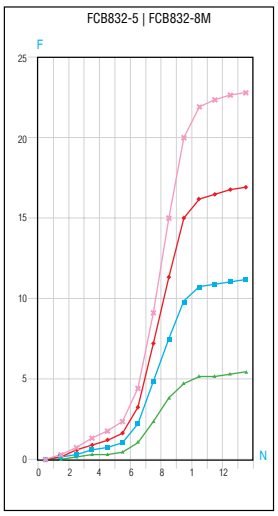












- Controlled Direction – 14.5 PSI (0.9 bar)
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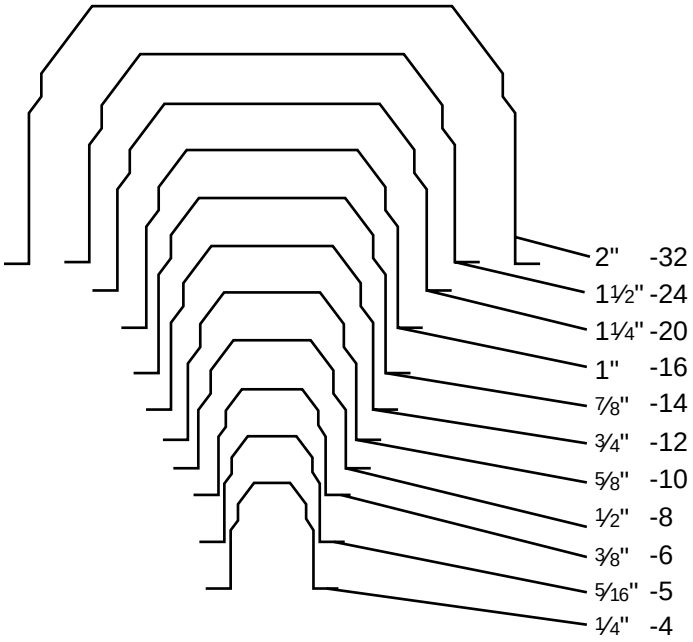
- Return Direction – 14.5 PSI (0.9 bar)
- Return Direction – 72.5 PSI (4.9 bar)
- Controlled Direction – 43.5 PSI (2.9 bar)
- Controlled Direction – 101.5 PSI (6.9 bar)
- Return Direction – 43.5 PSI (2.9 bar)
- Return Direction – 101.5 PSI (6.9 bar)

Flare and Thread Profiles

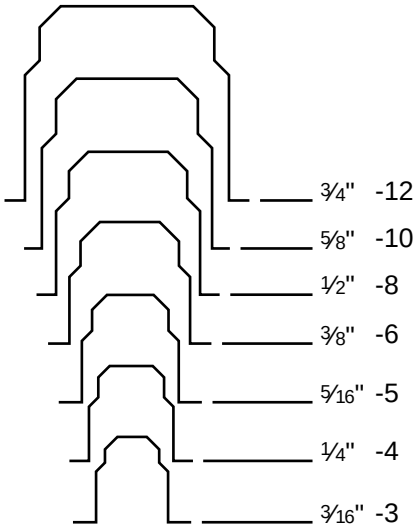
SAE (JIC) 37° Flare Nose Sizes

Actual Size

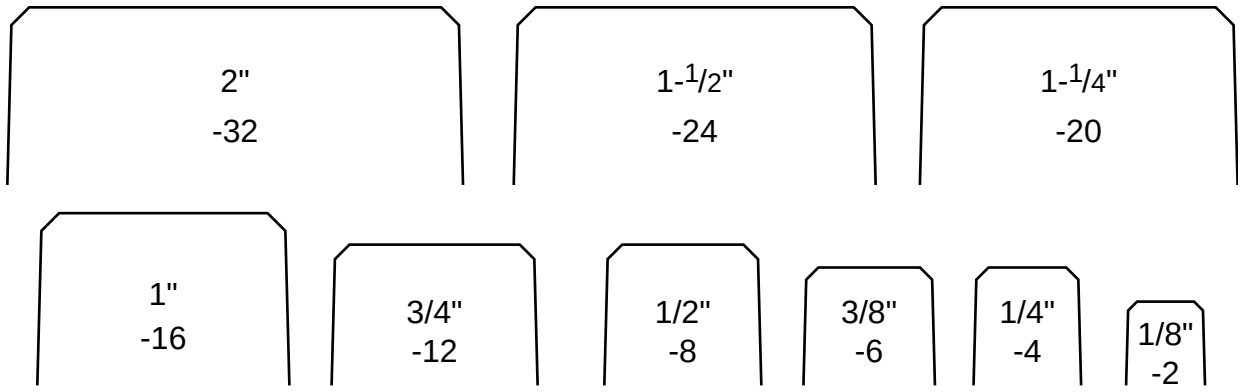


SAE 45° Flare Nose Sizes

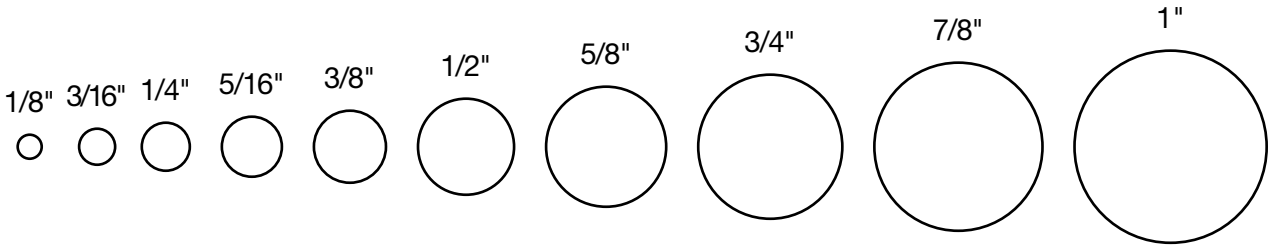
Actual Size



Male Pipe Thread Sizes



Actual Outside Diameters of Tubing



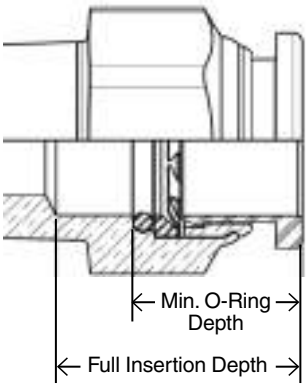
Pressure Conversions

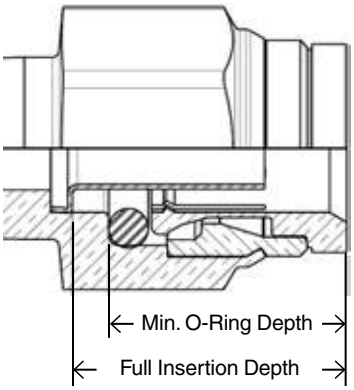
KILOPASCALS (KPA)	MEGAPASCALS (MPA)	BAR (bar)	KILOGRAMS PER SQUARE CENTIMETER (KGF/CM2)	POUNDS PER SQUARE INCH(PSI)
100	1.0	1	1.02	14.50
200	.2	2	2.04	29.00
300	.3	3	3.06	43.50
400	.4	4	4.08	58.00
500	.5	5	5.10	72.50
600	.6	6	6.12	87.00
700	.7	7	7.14	101.50
800	.8	8	8.16	116.00
900	.9	9	9.18	130.50
1000	1.0	10	10.20	145.00
2000	2.0	20	20.40	290.10
3000	3.0	30	30.60	435.10
4000	4.0	40	40.80	580.20
5000	5.0	50	51.00	725.20
6000	6.0	60	61.20	870.20
7000	7.0	70	71.40	1015.30
8000	8.0	80	81.60	1160.30
9000	9.0	90	91.80	1305.30
10000	10.0	100	102.00	1450.00
20000	20.0	200	204.00	2901.00
30000	30.0	300	306.00	4351.00
40000	40.0	400	408.00	5802.00
50000	50.0	500	510.00	7252.00
60000	60.0	600	612.00	8702.00
70000	70.0	700	714.00	10153.00
80000	80.0	800	816.00	11603.00
90000	90.0	900	918.00	13053.00
100000	100.0	1000	1020.00	14504.00
200000	100.0	2000	2040.00	29008.00
300000	300.0	3000	3060.00	43511.00

POUNDS PER SQUARE INCH(PSI)	KILOPASCALS (KPA)	MEGAPASCALS (MPA)	BAR (bar)	KILOGRAMS PER SQUARE CENTIMETER (KGF/CM2)
10	68.90	.07	.70	.70
20	137.90	.14	1.41	1.41
30	206.80	.21	2.10	2.11
40	275.80	.28	2.80	2.81
50	344.70	.34	3.40	3.52
60	413.70	.41	4.10	4.22
70	482.60	.48	4.80	4.92
80	551.60	.55	5.50	5.63
90	620.50	.62	6.20	6.33
100	689.00	.70	6.90	7.00
200	1379.00	1.40	13.80	14.10
300	2068.00	2.10	20.70	21.10
400	2758.00	2.80	27.60	28.10
500	3447.00	3.40	34.50	35.20
600	4137.00	4.10	41.40	42.20
700	4826.00	4.80	48.30	49.20
800	5516.00	5.50	55.20	56.30
900	6205.00	6.20	62.10	63.30
1000	6895.00	6.90	68.90	70.30
2000	13790.00	13.80	137.90	140.70
3000	20684.00	20.70	206.80	211.00
4000	27579.00	27.60	275.80	281.30
5000	34474.00	34.50	344.70	351.60
6000	41369.00	41.40	413.70	421.90
7000	48263.00	48.30	482.60	492.30
8000	55158.00	55.20	551.60	562.60
9000	62053.00	62.10	620.50	632.90
10000	68948.00	68.90	689.00	703.00
20000	137895.00	137.90	1379.00	1406.00
30000	206843.00	206.80	2068.00	2110.00
40000	275790.00	275.80	2758.00	2813.00

Tube Insertion Depths

This engineering standard covers the tube insertion depths and minimum depths to pass thru the o-ring. The depths are used for conveying information to customers and are meant to be used only as a guideline.





Brass Prestolok Plus (PLP)

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/8”	.64	.48
5/32”	.64	.48
3/16”	.67	.48
1/4"	.67	.49
5/16”	.77	.51
3/8”	.78	.51
1/2"	.85	.58

LF3600 (PLM)

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/4"	.66	.55
3/8”	.88	.73
1/2"	.89	.74
4MM	.57	.49
6MM	.68	.57
8MM	.71	.62
10MM	.90	.75
12MM	.96	.78
14MM	1.00	.82

LF3000 (Composite PLP) & LIQUIfit

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/8”	.46	.38
3/16”	.65	.56
1/4"	.58	.44
3/8”	.81	.62
1/2"	1.09	.84
4MM	.51	.39
6MM	.58	.45
8MM	.73	.55
10MM	.81	.62
12MM	.97	.73
14MM	1.08	.83
16MM	1.15	.89

Carstick

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/8”	.46	.38
1/4"	.75	.55
3/8”	.86	.68
1/2"	1.16	.92
4MM	.49	.41
6MM	.58	.49
8MM	.71	.60
10MM	.85	.67
12MM	1.00	.79

Composite PTC

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/4"	.58	.47
3/8"	.70	.53
1/2"	.80	.61
5/8"	.99	.72
3/4"	1.04	.83

PMTCE

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/4"	.65	.54
3/8"	.81	.72
1/2"	.94	.72
5/8"	1.00	.75
3/4"	1.00	.75

Brass PTC

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
5/32"	.64	.44
3/16"	.62	.44
1/4"	.59	.49
3/8"	.78	.56
1/2"	.85	.63
5/8"	1.02	.80
3/4"	1.03	.82

TrueSeal – Acetal & Kynar

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/4"	.71	.52
5/16"	.80	.55
3/8"	.80	.55
1/2"	.90	.63

TrueSeal - PolyPropylene

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/4"	.74	.55
3/8"	.83	.59
1/2"	.93	.66

Metric Prestomatic

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
6MM	.78	
8MM	.80	
10MM	.91	
12MM	.91	
16MM	.89	

LF3800 (PLS)

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/4"	.69	.58
3/16"	.57	.49
3/8"	.90	.75
1/2"	.93	.78
4MM	.57	.49
6MM	.67	.56
8MM	.74	.65
10MM	.91	.76
12MM	.96	.79

Prestomatic

TUBE SIZE	FULL INSERTION DEPTH (IN.)	MINIMUM O-RING DEPTH (IN.)
1/4"	.63	.54
3/8"	.81	.72
1/2"	.94	.72
5/8"	1.12	.75
3/4"	1.12	.92

English/Metric Conversions

Inches x 25.4 = Millimeters (mm)
Inches x 2.54 = Centimeters (cm)
Inches x .254 = Decimeters (dm)
Feet x .3048 = Meters (m)
Yards x .9144 = Meters (m)
PSI x .0689 = Bars (bar)
Bars x 100 = Kilopascals (kPa)
PSI x .0069 = Megapascals (MPa)
Pound Inches x .113 = Newton Meters (N•m)
Pound Feet x 1.356 = Newton Meters (N•m)
Millimeters x .0394 = Inches
Centimeters x .3937 = Inches
Meters x 3.281 = Feet
Meters x 1.0936 = Yards
Bars x 14.5 = PSI Megapascals x 145 = PSI
Newton Meters x 8.85 = Pound Inches
Newton Meters x .737 = Pound Feet

Millimeters to Fractions to Decimals

MM	INCHES	
	FRACTION	DECIMAL
.3969	1/64	.0156
.7938	1/32	.0312
1.1906	3/64	.0468
1.5875	1/16	.0625
1.9844	5/64	.0781
2.3812	3/32	.0937
2.7781	7/64	.1093
3.1750	1/8	.1250
3.5719	9/64	.1406
3.9688	5/32	.1562
4.3656	11/64	.1718
4.7625	3/16	.1875
5.1594	13/64	.2031
5.5562	7/32	.2187
5.9531	15/64	.2343
6.3500	1/4	.2500

MM	INCHES	
	FRACTION	DECIMAL
6.7469	17/64	.2656
7.1438	9/32	.2812
7.5406	19/64	.2968
7.9375	5/16	.3125
8.3344	21/64	.3281
8.7312	11/32	.3437
9.1281	23/64	.3593
9.5250	3/8	.3750
9.9219	25/64	.3906
10.3188	13/32	.4062
10.7156	27/64	.4218
11.1125	7/16	.4375
11.5094	29/64	.4531
11.9062	15/32	.4687
12.3031	31/64	.4843
12.7000	1/2	.5000

MM	INCH	
	FRACTION	DECIMAL
13.0969	33/64	.5156
13.4938	17/32	.5312
13.8906	35/61	.5468
14.2875	9/16	.5625
14.6844	37/64	.5781
15.0812	19/32	.5937
14.4781	39/64	.6093
15.8750	5/8	.6250
16.2719	41/64	.6406
16.6688	21/32	.6562
17.0656	43/64	.6718
17.4625	11/16	.6875
17.8594	45/64	.7031
18.2562	23/32	.7187
18.6531	47/64	.7343
19.0500	3/4	.7500

MM	INCH	
	FRACTION	DECIMAL
19.4469	49/64	.7656
19.8438	25/32	.7812
20.2406	51/64	.7968
20.2375	13/16	.8125
21.0344	53/64	.8281
21.4312	27/32	.8437
21.8281	55/64	.8593
22.2250	7/8	.8750
22.6219	57/64	.8906
23.0188	29/32	.9062
23.4156	59/64	.9218
23.8125	15/16	.9375
24.2094	61/64	.9531
24.6062	31/32	.9687
25.0031	63/64	.9843
25.4000	1	1.0000

Assembly Guides

Push-to-Connect Fittings

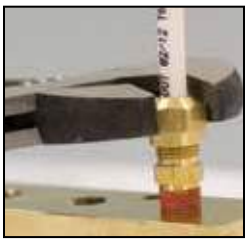
- Prestolok PLP Metal
- Prestolok PLP Composite
- Prestolok PLM
- Prestolok PLS
- Oscillating Elbows
- LIQUIFit
- TrueSeal
- Flow Controls
- Prestomatic
- PTC
- Metric Prestomatic
- PMH
- Polypropylene Ball Valves

1. Cut tubing squarely – maximum of 15˚ angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Mark tubing to appropriate tube insertion length. (see Tube Insertion Chart on page N22)
4. Insert tubing until it bottoms
5. Pull on tubing to verify it is fully inserted
6. To disassemble, simply press release button, hold against body and pull tubing out of fitting.

Transportation Compression Style NTA

1. Cut tubing squarely – maximum of 15˚ angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Insert tubing until it bottoms on seat.
4. Tighten nut with wrench until one thread remains visible on the fitting body; (this will allow for a number of remakes) or, the nut should be screwed down finger tight, then wrench-tightened as indicated in the following table.

TUBE SIZE	ADDITIONAL NUMBER OF TURNS FROM HAND-TIGHT
3/16	2-1/2
1/4	3
3/8 &1/2	4
5/8 &3/4	3-1/2



Air Brake – AB Fittings

1. Cut tubing squarely and remove burrs
2. Slide nut and sleeve onto tubing.
3. Insert tubing into fitting until bottomed on seat. The nut should be screwed down finger tight, then wrench tightened as indicated in the chart

TUBE SIZE	TURNS REQUIRED TO SEAL FROM HAND-TIGHT
1/4, 3/8, 1/2	2
5/8, 3/4	3

Transmission Fittings

1. Cut tubing squarely and remove burrs
2. Insert tubing into fitting until bottomed
3. Tighten nut 1 1/2 turns from finger tight

Air Brake Hose Ends

1. Slide nut onto hose
2. Slide sleeve onto hose with tapered edge toward fitting body
3. Bottom hose into fitting
4. Tighten nut until it contacts body hex

Note: When reassembling fitting, body and nut should be inspected. Only reuse if parts are in proper condition. Sleeves should never be Reused.

Vibra-Lok

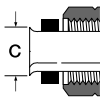
1. Cut the tubing squarely removing burrs
2. Slip nut and sleeve over tube
3. Bottom tubing into fitting and tighten nut until stop is reached. The elastic sleeve ordinarily will extrude slightly around the tube at the end of the nut. This extrusion further aids in isolating the tube from the nut.

For Higher Pressure applications

4. Consult pressure chart to determine if tubing should be belled
5. Slip nut and sleeve over tube. The sleeve should be positioned near end of tubing just behind the surface to be belled
6. Bell tubing with standard 45˚ flaring tool or 90˚ punch. The size of bell should be approximately that shown.

Recommended Size of Bell

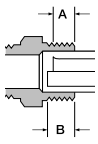
TUBE O.D.	BELL DIA. C
1/8	.190-.160
3/16	.255-.225
1/4	.318-.288
5/16	.381-.351
3/8	.444-.414
1/2	.569-.539
5/8	.694-.664
3/4	.819-.789
7/8	.944-.914



Tube Length Calculator

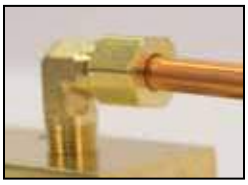
This table shows distance tube extends beyond face of Vibra-Lok fitting body on installation with bell on tubing and without bell on tubing.

O.D. OF TUBE	A WITH BELL	B WITHOUT BELL
1/8	3/16	3/16
3/16	3/16	7/32
1/4	3/16	1/4
5/16	3/16	1/4
3/8	3/16	1/4
1/2	3/16	11/32
5/8	3/16	TUBING SHOULD BE BELLED
3/4	3/16	
7/8	1/4	



Compression

1. Slide nut then sleeve onto tubing. The thread end of the nut must face out.
2. Insert tube and bottom on the fitting shoulder
3. Assemble nut to body and tighten “hand tight”. Then wrench tighten the number of turns indicated in the table.



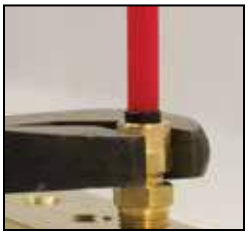
FITTING SIZE	TUBE SIZE	TURNS REQUIRED TO SEAL FROM HAND-TIGHT	
		60C WITH SOFT METAL TUBING	60PT WITH THERMOPLASTIC TUBING
2	1/8	1-1/4	—
3	3/16	1-1/4	—
4	1/4	1-1/4	2
5	5/16	1-1/4	2
6	3/8	2-1/4	2
8	1/2	2-1/4	2
10	5/8	2-1/4	2
12	3/4	2-1/4	2
14	7/8	2-1/4	—

Compress-Align

With nut finger tight on fitting body, insert tubing until it bottoms in the Fitting. Complete the seal with one wrench turn for all sizes.

Poly-Tite

1. Cut tubing squarely – maximum of 15° angle allowable.
2. Check that port or mating part is clean and free of debris.
3. Insert tube end until it bottoms in the Poly-Tite fitting and tighten knurl/hex nut finger-tight, plus one wrench turn.



Hi-Duty

1. Cut tube squarely and cleanly removing all burrs.
2. Grasp fitting. Do not remove nut.
3. Insert tube in fitting through nut until tube seats firmly against tube shoulder in body.
4. Grip tube firmly to prevent turning and tighten nut to finger-tight. Continue to tighten for one and three-quarter additional turns (one and one-half turns for 1/2” size fittings) for a positive, leak proof seal. During tightening a slight “give” will be felt. This “give” indicates the sleeve has been sheared from the nut. It is not necessary to tighten the nut all the way down.

45° Flare Fittings

1. Cut tubing squarely and clean tube end thoroughly to remove burrs.
2. Place nut onto tube. Place threaded end of nut toward end of tube.
3. Flare tube end with flaring tool to provide 45° flare.
4. Clamp tube flare between nut and nose of fitting body by screwing nut on finger-tight. Tighten with a wrench an additional 1/4 to 1/2 turn past finger-tight for a metal-to-metal seal.

Inverted Flare

1. Cut tubing squarely and clean to remove burrs
2. Place nut onto tube. Place threaded end of nut toward end of tube.
3. Flare tube end with flaring tool to provide 45˚ flare
4. On thin wall copper, welded or brazed tubing, use double flare to prevent pinch-off or cracked flares
5. Clamp tube flare between nut and nose of fitting body by screwing nut on finger tight. Tighten nut with a wrench an additional 1/4 to 1/2 turn past finger tight for a metal-to-metal seal.

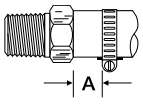
Dubl-Barb

Cut tube squarely and simply push tube over the two barbs

Hose Barbs

1. Cut hose cleanly and squarely to length.
2. Slide clamp on hose.
3. Lubricate hose. Push hose on fitting until bottomed against stop ring or hex.
4. Position hose clamp as shown and secure with a screwdriver or wrench. Maintain “A” dimension for proper clamp positioning.

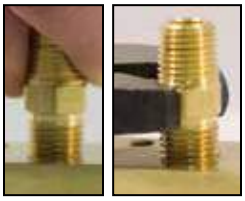
HOSE SIZE	HOSE CLAMP	A
3/16	97 HC-3	1/4
1/4	97 HC-3	1/4
5/16	97 HC-6	1/4
3/8	97 HC-6	1/8
1/2	97 HC-8	1/8
5/8	97 HC-12	1/8
3/4	97 HC-12	1/8



Pipe Fittings

Straight Fittings

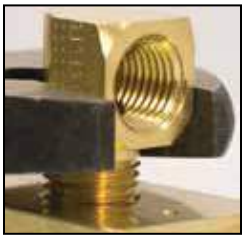
1. Hand tighten external thread into internal thread
2. Tighten an additional 2 turns with a wrench up to 1/2" male pipe thread.
3. Above 1/2" 1 1/2 to 2 1/2 turns.



Elbow or Tee Fittings

1. Hand tighten external thread into internal thread
2. Tighten an additional 1 to 1 1/2 turns with a wrench
3. Tighten fitting, clockwise to align with tubing. (Never counter clockwise)

Note: To minimize the possibility of a leaking threaded joint after assembling Male to female pipe threads, neither end should be backed out (loosened) Once the assembly has been made.

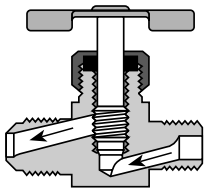


Plug Valves

To assure sealability and reliable performance, the valve must be installed So that the flow media travels in the direction of the arrow on the valve handle.

Needle Valves

Needle valves should always be installed with the pressure against the seat.



NEMA Rated Bulkhead

1. Drill panel to required diameter
2. Install sealing washer onto brass body.
3. Install fitting body through panel and secure with lock washer and jam nut.
4. Using a wrench to hold the fitting body torque the jam nut to spec per below table.

Note: For sealing bulkheads the sealing washer must be installed between the body hex and panel. To ensure a leak tight connection the panel surface must be kept flat and deburred after the drilling operation. It must be free from dirt, debris, and other contamination.

THREAD SIZE	MIN. TORQUE FT-LBS	MAX. TORQUE FT-LBS
5/8-18	15	20
3/4-16	15	25
1-14	40	50

Fluid Compatibility Guide

The following pages list general recommendations for the selection of valve materials. For specific cases, and for those not included in the Fluid Compatibility Chart, it is advisable to check with your Parker representative.

There are many specific environmental factors which might affect corrosion rate such as temperature, solution, concentration and presence of impurities. Therefore, we suggest that the information be used as a rough guide to material selection. If any questions exist regarding the expected performance of a material in a given application, actual tests should be performed to determine the suitability of the materials in question.

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
ACETALDEHYDE	P	G	E	P	G	G	P	E	U	
ACETAMINE	G	G	G	E	G			E		
ACETATE SOLVENTS	E	E	E	P			U	E	U	
ACETIC ACID VAPORS	U		U	U				E		
ACETIC ACID (10%)	P	P	E	U	P	G	U	E	U	U
ACETIC ACID (80%)	P	P	E	U	U	P	U	E	U	U
ACETIC ACID (AERATED)	P	P	E	G	G		P	E	U	
ACETIC ACID (AIR FREE)	P	P	E	G	G		U	E	U	
ACETIC ACID (CRUDE)	P	P	E	U	U		U	E	U	
ACETIC ACID (GLACIAL)			U	U	P	G	P	E		U
ACETIC ACID (PURE)	P	U	E	U	U		U	E	U	
ACETIC ANHYDRIDE	U	U	G	U	P	P	U	E	U	U
ACETONE	E	E	E	U	U	E	U	E	E	E
ACETOPHENONE	G	G	G	U	U	E	U			
ACETYL CHLORIDE	E	G	P	U	U	U	U	E		
ACETYLENE	G	E	E	G	P	E	E	E	E	
ACID FUMES	U	U	G	P	G			E		
ACRYLONITE	E	E	E	U	U	U	P	E		
AIR	E	E	E	E	E	E	E	E	E	
ALCOHOL, AMYL	G	G	E	P	P	E	G	E	E	
ALCOHOL, BUTYL	G	G	E	G	G	P	E	E	E	
ALCOHOL, DIACETONE	E	E	E	U	P	G	U	E		
ALCOHOL, ETHYL	G	G	G	E	G	E	E	E	E	
ALCOHOL, ISOPROPYL	G	G	G	P	G	E	E	E	E	
ALCOHOL, METHYL	E	G	E	G	E	E	P	E		E
ALCOHOL, PROPYL	E	G	E	G	G	E	E	E		
ALCOHOLS, FATTY	G	G	E	G	G			E		
ALUM	U		G	G	G		G	E		
ALUMINA	U		E	E	E	E		E		
ALUMINUM ACETATE	G		E	U	U	E	U	E		
ALUMINUM BROMIDE				E	E	E	E			
ALUMINUM CHLORIDE DRY	U	P	P	G	G	E	E	E	E	
ALUMINUM CHLORIDE SOLUTION			U	G	G		E	E		U
ALUMINUM FLUORIDE	U	U	P	E	E	E	E	E		U
ALUMINUM HYDROXIDE	E	U	E	E	E	E	E	E		
ALUMINUM NITRATE	U	U	P	G	G	G	U	E		
ALUMINUM OXALATE			U					E		
ALUMINUM SALTS				E	E	E	E			
ALUMINUM SULFATE	P	U	G	E	E	E	E	E	E	P
AMINES	G	G	E	U	U	P	U	E	E	
AMLY CHLORIDE	G		E	U	P	U	U	E		
AMMOMIUM BICARBONATE	G	P	G	G	E	E	E	E	E	
AMMONIA, ALUM			E	G	G			E		
AMMONIA, ANHYDROUS LIQUID	U	E	E	G	P	G	U	E		
AMMONIA, AQUEOUS	U	E	E	G	G		E	E		
AMMONIA, GAS, HOT	U	G	E	P	E	E	U	E		
AMMONIA LIQUOR			E					E		
AMMONIA SOLUTIONS	U	G	E	G	G	G	U	E		
AMMONIUM ACETATE	U		G	G	G	E	U	E		
AMMONIUM BROMIDE 5%			G					E		

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
AMMONIUM CARBONATE	G	G	G	P	E	E	G	E	E	
AMMONIUM CHLORIDE	U	U	P	G	E	E	E	E	E	U
AMMONIUM HYDROXIDE 28%	U	P	G	G	E	G	E	E		
AMMONIUM HYDROXIDE CONC.	U	P	G	P	E	E	E	E	E	
AMMONIUM MONOSULFATE			E					E		
AMMONIUM NITRATE	U	U	E	E	E	E	E	E	E	U
AMMONIUM OXALATE 5%			E					E		
AMMONIUM PERSULFATE	P	U	E	U	P	G	G	E		U
AMMONIUM PHOSPHATE	U	U	G	E	E	E	E	E	G	P
AMMONIUM PHOSPHATE DI-BASIC	P	U	G	E	E		E	E	E	
AMMONIUM PHOSPHATE TRI-BASIC	P	U	G	E	E		E	E	E	
AMMONIUM SULFATE	P	P	G	E	E	E	G	E	E	U
AMMONIUM SULFIDE	U	U	G	E	G	E	U	E		
AMMONIUM SULFITE	P	P	E	G	E	G	E	E	E	
AMYL ACETATE	G	P	G	U	U	G	U	E	G	P
AMYL BORATE				E	E	U	E			
AMYL CHLORONAPHTHALENE				U	U	U	E			
AMYL NAPTHHALENE				U	U	U	E			
ANILINE	U	P	G	U	U	P	P	E	E	P
ANILINE DYES	P	P	E	P	P	P	G	E	E	
ANIMAL OIL	G	G	G	E	G	G	E			
ANTIMONY TRICHLORIDE	U	U	U	P			G	E		
APPLE JUICE	P	U	G	E	E	G	E	E		
AQUA REGIA (STRONG ACID)	U	U	G	U	U	U	U	E		U
AROCLOR 1248	G	U	U	U	U	G	E			
AROCLOR 1254	G	U	U	U	U	G	E			
AROCLOR 1260	G	U	U	E	E		E			
AROMATIC SOLVENTS	E	P	E	U	U	U		E		
ARSENIC ACID	U	U	G	E	E	G	E	E	E	U
ASPHALT EMULSION	E	G	E	U	P	U	E	E	E	
ASPHALT LIQUID	E	G	E	P	P	U	E	E	E	
ASTM OIL, NO. 1	E	E	E	E	E	U	E			
ASTM OIL, NO. 2	E	E	E	E	G	U	E			
ASTM OIL, NO. 3	E	E	E	E	U	U	E			
ASTM OIL, NO. 4	E	E	E	G	U	U	E			
ASTM REFERENCE FUEL A	U	G	E	E	G	U	E			
ASTM REFERENCE FUEL B	U	G	E	E	U	U	E			
ASTM REFERENCE FUEL C	U	G	E	G	U	U	E			
BARIUM CARBONATE	G	G	G	G	E	E	E	E	E	
BARIUM CHLORIDE	G	P	G	E	E	E	E	E	E	E
BARIUM CYANIDE	P		G	G	G	G	G	E		
BARIUM HYDRATE	U		E					E		
BARIUM HYDROXIDE	P	P	G	E	E	G	E	E	E	
BARIUM NITRARE			E		G			E		
BARIUM SALTS				E	E	E	E			
BARIUM SULFATE	P	P	E	E	E	G	E	E	E	E
BARIUM SULFIDE	U	P	G	E	G	E	E	E	E	
BEER	G	U	E	G	G	G	E	E	E	U
BEET SUGAR LIQUORS	E	G	E	E	E	G	E	E	E	
BENZALDEHYDE	E	E	E	U	U	E	U	E	E	E
BENZENE	G	G	G	U	U	U	G	E		E
BENZENESULFONIC ACID, 10%	U	U	U	U	G	U	E			
BENZLY CHLORIDE	U	U	G	U	U	U	E			
BENZOIC ACID	G	U	G	P	P	U	G	E		P
BENZYL ALCOHOL		U	E	U	G	G	E			
BERRYLLIUM	G		G	G	G	G	G	E		
BLEACH LIQUOR				U	G	E	E			
BLEACHING POWDER WET	G		P	U	E	G	G	E		
BLOOD	G		E	G	G	G	G	E		
BORAX	U	P	E	G	U	E	E	E	E	E
BORAX LIQUORS	E	P	G		P	E	E	E	E	
BORDEAUX MIXTURE			E					E		
BORIC ACID	P	U	G	G	G	G	E	E	E	G
BRAKE FLUID	G		G	U	P	G	U	E		
BRINES, SATURATED	G	U	G	E	G	E	E	E	E	
BROMINE, DRY	G	U	U	U	U	U	G	E		
BROMINE, WET	U	U	U	U	U		G	E		

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
BUNKER OILS (FUEL)	G	G	E	G	G		E	E	E	
BUTADIENE	P	G	E	P	P	P	G	U		
BUTANE	E	G	E	G	G	U	E	E	E	
BUTTER	G	U	E	G	G			E		
BUTTERMILK	U	U	E	E	E	G	E	E	E	
BUTYL ACETATE	G		G	U	U	U	U	E		E
BUTYL ALCOHOL	E	P	E	G	G		G	E		
BUTYL AMINE	G	G	E	U	U		U	E		
BUTYL BUTYRATE				U	U	E	E			
BUTYL CARBITOL	E	P	E	U	U		U	E		
BUTYL CELLOSOLVE	E	P	E	U	U		G	E		
BUTYL STEARATE				G	U	U	E			
BUTYLENE	E	E	E	U	U	U	U	E		
BUTYRIC ACID	P	U	G	P	P	P	P	E	E	U
CALCINE LIQUORS				E		E	E			
CALCIUM ACETATE				G	G	E	U			
CALCIUM BISULFITE	P	U	G	E	E	U	E	E	E	
CALCIUM CARBONATE	P	U	G	E	E	G	E	E	E	
CALCIUM CHLORATE	U		G	G	G	G	G	E		
CALCIUM CHLORIDE	G	P	G	E	E	G	E	E	E	U
CALCIUM HYDROXIDE	P	P	G	E	G	E	E	E	E	
CALCIUM HYPOCHLORITE	U	U	P	P	P		E	E		U
CALCIUM NITRATE			G	G	G	G		E		
CALCIUM PHOSPHATE	P		G	G	G	G	G	E		
CALCIUM SALTS				E	E	E	E			
CALCIUM SILICATE	P		G	G	G	G	G	E		
CALCIUM SULFATE	P	P	G	E	E	G	E	E	E	U
CALCIUM SULFIDE	U	U	G	E	E	E	E			
CALICHE LIQUOR		G	E	G	G			E		
CAMPHOR	P		G	G	G	G	G	E		
CANE SUGAR LIQUORS	G	G	E	G	G	G	G	E		
CARBOLIC ACID	U	U	G	G	G	G	E	E	U	
CARBON BISULFIDE	P	G	G	U	U	U	E	E	E	
CARBON DIOXIDE, DRY	E	E	E	P	G	G	G	E		
CARBON DISULFIDE	U	P	E	U	U		E	E		
CARBON MONOXIDE	E	E	E	G	U	G	G	E		
CARBON TETRACHLORIDE, DRY	P	G	E	U	U	U	G	E	E	
CARBON TETRACHLORIDE, WET	U	U	G	U	U	U	G	E	E	
CARBONATED BEVERAGE	G	U	G	G	G	G	G	G		E
CARBONATED WATER	G	G	E	E	E	E	E	E	E	
CASEIN	P			G	G	G	G	G	E	
CASTER OIL	E	G	E	E	G	G	E	E	E	
CAUSTIC POTASH			E	G	G			E		
CAUSTIC SODA		G	E	P		G	G	E		
CELLULOSE ACETATE	G		G	U	U	G	U	E		
CELLULUBE	E	P	E	U	U		U	E		
CHINA WOOD OIL	P	P	E	E	G	U	E	E	E	
CHLORACETIC ACID	P	U	U	U	P		P	E		U
CHLORINATED SOLVENTS	P	P	E	U	U	U	P	E	E	
CHLORINATED WATER	U	P	G	E		E	E	E	U	U
CHLORINE, WET	U	U	U	U	U			E		
CHLORINE GAS	P	G	G	P	U	U	G	E	E	
CHLORO BROMO METHANE	G	U	G	U	U		G	E		
CHLOROBENZENE, DRY	G	G	E	U	U	U	E	E	E	E
CHLOROBUTADIENE				U	U	U	E			
CHLOROFORM, DRY	G	G	E	U	U	U	G	E	E	U
CHLOROPHYLL, DRY	G		G	G	G	G	G	E		
CHLOROSULFONIC ACID, DRY	P	G	G	U	U	U	U	E		U
CHLOROSULFONIC ACID, WET	U	U	U	U	U		P	E		
CHLORPHENOL				U	U	U	E			
CHROME ALUM	P	G	E	G	G	G	G	E		
CHROMIC ACID <50%	U	U	P	U	U	P	P	E	U	U
CHROMIC ACID >50%	U	U	P	U	U	P	P	E	U	
CHROMIUM SULFATE	P		G	G	G	G	G	E		
CIDER			E					E		
CITRIC ACID	P	U	G	G	E	G	E	E		P
CITRUS JUICES	G	U	G	E	E		E	E	E	

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
COCA-COLA SYRUP			E	G	G		G	E		
COCONUT OIL	G	P	G	E	P	E	E	E	E	
COFFEE	E		E	E	E	E	E	G		
COFFEE EXTRACTS, HOT	G	P	E					E		
COKE OVEN GAS	P	G	E	P	U	U	G	E		
COOKING OIL	G	G	E	E	G	U	E	E	E	
COPPER ACETATE	U	U	E	P	P	G	U	E		
COPPER CARBONATE			E					E		
COPPER CHLORIDE	U	U	P	G	G		E	E		U
COPPER CYANIDE	U		E	E	E	G	G	E		E
COPPER NITRATE	U	U	G	E	E	G	E	E	E	U
COPPER SALTS					E	E	E	E		
COPPER SULFATE	U	U	G	E	E	E	E	E	E	P
CORN OIL	G	P	G	E	P	P	E	E	E	
COTTONSEED OIL	G	P	G	E	G	P	G	E	E	
CREOSOTE OIL	G	G	G	P	U	U	E	E		U
CREOSOLS	U	G	G	U	U	U	U	E		
CRESYLIC ACID	P	P	G	U	U	U	G	E	U	U
CRUDE OIL, SOUR	P	G	E	E	G	U	E	E		
CRUDE OIL, SWEET	G	G	E	E	G		E	E		
CUPRIC NITRATE			E					E		
CUTTING OILS, WATER EMULSIONS	E	G	E	E	G		E	E		E
CYANIDE PLATING SOLUTION	U		G	G	G	G	G	E		
CYCLOHEXANE	E	E	E	P	U	U	E	E	E	
CYCLOHEXANONE	G		E	U	U			E		
DECANE				E	U	U	E			
DENATURED ALCOHOL				E	E	E	E			
DETERGENTS, SYNTHETIC	G	U	G	G	G	G	E	E		
DEXTRIN	G		G	G	G	G	G	E		
DIACETONE ALCOHOL	E	E	E	U	P			E		
DICHLOROETHANE			P	U	U	U		E		
DICHLOROETHYL ETHER	G		G	U	U	U	U	E		
DIESEL OIL FUELS	E	E	E	E	P	U	E	E		
DIETHYL BENZENE			G	U	U	U		E		
DIETHYL SULFATE	G		G	P	P	P	G	E		
DIETHYLAMINE	G	E	E	G	P	P	U	E		
DIETHYLENE GLYCOL	G	E	E	E	E	E	G	E		
DIMETHLY FORMAMIDE	G		E	G	U	U	U	E		
DIMETHYL PHTHALATE			U	G	G		U	E		
DIOCTYL PHTHALATE	E		E	P	U		P	E		
DIOXANE	G		G	U	U	P	U	E		
DIPENTANE	E		E	G	U	U	G	E		
DISODIUM PHOSPHATE			G	G	G		G	E		
DOW CHEMICAL HD50-4					G	E	U			
DOW CORNING 200, 510, 550				G	E	E	E			
DOWTHERM	E	G	E	U	U	U	E	E	E	
DRILLING MUD	G	G	E	E	P	E	E	E	E	
DRY CLEANING FLUIDS	P	G	E	U	U		G	E	E	
DRYING OIL	P	P	G	E	G			E	E	
ENAMEL	E		E	G	G	U		E		
EPSOM SALTS	G	P	G	E	E		E	E	E	
ETHANE	G	P	G	E	G	U	E	E	E	
ETHANOL	E	U	U	U	E	E	U			
ETHANOLAMINE	U	G	E	G	P		U	E		
ETHERS	G	E	E	U	U	P	P	E	P	
ETHYL ACETATE	P	G	G	U	U	P	U	E	E	E
ETHYL ACRYLATE	G	P	E	U	U	P	U	E		
ETHYL ALCOHOL	G	G	G	E	E		E	E		
ETHYL BENZENE			G	P	U	U		E	E	
ETHYL BROMIDE	E		G	G	G	G	G	E		
ETHYL CHLORIDE, DRY	G	G	E	P	P	P	G	G	E	E
ETHYL CHLORIDE, WET	P	U	G	P	P	G	G	E		
ETHYL ETHER	G		E	U	U	U	U	E		
ETHYL HEXANOL				E	E	E	E			
ETHYL SILICATE	G		G	G	P	G	G	E		
ETHYL SULFATE			G	G	G	P	E	E	E	

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
ETHYLENE CHLORIDE			E	U	E		U	E		
ETHYLENE DICHLORIDE	U	U	G	U	U	U	U	E		
ETHYLENE GLYCOL	G	G	G	E	G	E	E	E		
ETHYLENE OXIDE	P	G	G	U	U	U	U	E		
FATTY ACIDS	P	U	E	G	G	U	E	E	E	U
FERRIC CHLORIDE	U	U	U	E	U		E	E		U
FERRIC HYDROXIDE			E	G				E		
FERRIC NITRATE	U	U	P	E	E	E	E	E	E	U
FERRIC SULFATE	U	U	G	E	E	E	E	E	E	U
FERROUS AMMONIUM CITRATE			G					E		
FERROUS CHLORIDE	G	U	U	E	E	E	E	E	E	U
FERROUS SULFATE	G	U	G	E	E	E	E	E	E	U
FERROUS SULFATE, SATURATED	P	P	E	P	P	G	G	E		
FERTILIZER SOLUTIONS	P	G	G	G	G			E	G	
FISH OILS	G	G	E	E	G	U	E	E	G	
FLUE GASES	G		E	P	P	U	P	E	P	
FLUOBORIC ACID			G	E	G			E		U
FLUORINE, DRY	U		U	U					E	
FLUOROSILICIC ACID	G	U	G	P	P	P	P	E		U
FOOD FLUIDS & PASTES	G	P	E	G	E			E		
FORMALDEHYDE, COLD	E	E	E	G	P	G	U	E	E	U
FORMALDEHYDE, HOT	G	U	P	G	G			E	E	U
FORMIC ACID, COLD	G	U	G	U	G		G	E	U	E
FORMIC ACID, HOT	G	U	G	U	E		E	E	U	
FRUIT JUICES	G	U	E	E	E	E	E	E	E	
FUEL OIL	G	G	E	E	P	U	E	E	E	
FUMARIC ACID				G	G			E		
FURFURAL	E	E	E	U	P	P	U	E	E	E
GALIC ACID 5%	P	U	G	G	G	P	E	E	E	
GAS, NATURAL	G	G	E	E	E	U	E	E	E	
GAS, ODORIZERS	E	G	G	G	G		E	E	E	
GAS MFG.	G	G	G	E			E	E	E	
GASOLINE, AVIATION	E	E	E	P	U		E	E		E
GASOLINE, LEADED	E	E	E	P	U		E	E	E	
GASOLINE, MOTOR	E	E	E	P	U	U	E	E	E	
GASOLINE, REFINED	G	G	E	P	P	U	E	E		
GASOLINE, SOUR	G	G	E	P	U	U	E	E	E	
GASOLINE, UNLEADED	E	E	E	P	U		E	E	E	E
GELATIN	E	U	E	E	E	E	E	E	E	
GLUCOSE	E	G	E	E	E	E	E	E	E	
GLUG	E	G	E	E	G	E	E			
GLYCERINE	G	P	E	P	U	E	G	E	P	E
GLYCOL	G	P	G	G	E	E	E	E	P	
GLYCOL AMINE	U		G	E		U	U			
GRAPHITE	G		G	G	G	G	G	E		
GREASE	P	E	E	E	G	U	E	E		
GULF-FR FLUID, EMULSION				E	G	U	E			
GULF-FR FLUID G				E	E	E	E			
GULF-FR FLUID P				U	U	G	G			
HELIUM GAS	G	E	E	G	G	G	G	E		
HEPTANE	E	G	E	E	G	U	E	E	E	
HEXANE	G	G	E	E	P	U	E	E	E	E
HEXANOL, TERTIARY	E	E	E	E	P	U	G	E		
HEXYL ALCOHOL	E	P	E	U	P		E	E		
HYDRAULIC OIL, PETROLEUM BASE	G	E	E	E	G	U	E	E	E	
HYDRAZINE	U	U	G	P	P	G	U	E		
HYDRIGEN SULFIDE, DRY	P	G	E	P	E	E	E	E		
HYDROCHLORIC ACID, AIR FREE	U	U	U	G	P		E	E		U
HYDROCYANIC ACID	U	U	E	G	G	G	E	E	U	
HYDROFLUORIC ACID	U	U	U		G					U
HYDROFLUOSILICIC ACID	E	U	P	G	G	G	E	E		U
HYDROGEN GAS, COLD	G	G	E	G	G	G	E	E		
HYDROGEN GAS, HOT	G	G	G	G	G		E			
HYDROGEN PEROXIDE, CONCENTRATED	U	U	G	U	U	G	G	E		U
HYDROGEN PEROXIDE, DILUTE	P	U	G	E	G	G	E	E	G	U
HYDROGEN SULFIDE, WET	U	P	G	P	G	G	E	E	E	

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
HYDROLUBE				E	G	E	E			
HYPO (SODIUM THIOSULFATE)	P	U	G	E	E	E	E	E	E	
HYPOCHLORITES, SODIUM	U	U	P	P			E	E		
ILLUMINATING GAS	E	E	E	P	P	U	E	E		
INK, NEWSPRINT	P	U	E	E	G	G	E	E	E	
IODINE, WET	U	U	U	G			E	E		
IODOFORM	P	G	E				E	E	E	
ISOPROPYL ACETATE			G	U	U	U		E		
ISOPROPYL ALCOHOL	G	G	G	P	G		E	E		
ISOPROPYL ETHER	E	E	E	P	P	U	U	E		
ISO-BUTANE			G	G	U	U		E		
ISO-OCTANE	E	E	E	E	P	U	E	E		E
J P-4 FUEL	E	E	E	E	P		E	E	E	
J P-5 FUEL	E	E	E	G	P		E	E	E	
J P-6 FUEL	E	E	E	E	P		E	E	E	
KEROSENE	E	G	E	E	P	U	E	E	E	
KETCHUP	U	U	E	E	E		E	E	E	
KETONES	E	E	E	U	U	U	U	E	E	
LACTIC ACID, CONC. COLD	U	U	E	G	E	G	E	E	U	U
LACTIC ACID, CONC. HOT	U	U	G	P	P	G	G	E	U	U
LACTIC ACID, DILUTE COLD	U	U	E	G	E	G	E	E	U	U
LACTIC ACID, DILUTE HOT	U	U	E	P	U		U	E	U	U
LACTOSE	G		G	G	P	G	G	E		
LAQUER	E	P	E	U	U	U	U	E	E	E
LARD	G	E	E	G	P	P		E		
LARD OIL	G	P	G	E	G	G	E	E	E	
LEAD ACETATE	P	U	G	E	G	G	G	E	E	E
LEAD SULFATE	P		G	G	G	G	G	E		
LECITHIN	P		G	U	U	U	G	E		
LINOLEIC ACID	G	G	E	G	G	U	G	E	E	
LINSEED OIL	G	E	E	E	P	U	E	E	E	
LITHIUM CHLORIDE	G		G	G	G	G	G	E		
LPG	E	G	G	E	G	U	E	E	E	
LUBRICATING OIL	G	E	E	E	G	U	E	E	E	
LUDOX	U		G	G	G	G	G	E		
MAGNESIUM BISULFATE	G	G	E	G	G	G	G	E		
MAGNESIUM BISULFIDE	U		G	G	G	G	G	E		
MAGNESIUM CARBONATE	G		E	G	G	G	G	E		
MAGNESIUM CHLORIDE	G	P	G	E	E	E	E	E	E	E
MAGNESIUM HYDROXIDE	G	G	E	E	E	E	E	E	E	
MAGNESIUM HYDROXIDE HOT	U	G	E	G	G		E	E	E	
MAGNESIUM NITRATE			E	G	E		G	E		E
MAGNESIUM SALTS				E	E	E	E			
MAGNESIUM SULFATE	G	G	E	E	E	E	E	E	E	E
MALEIC ACID	G	G	G	G	G	U	E	E	E	
MALEIC ANHYDRIDE	G		G	U	U	U	G	E		
MALIC ACID	G	U	G	E	G		E	E	E	
MALT BEVERAGES			E	E	E	G	E	E		
MANGANESE CARBONATE			G	G				E		
MANGANESE SULFATE	G		E	G	G	G	G	E		
MAYONNAISE	U	U	E	E	E		E	E	E	
MEAT JUICES	U		E	G	G			E		
MELAMINE RESINS			P	G	G			E		
MERCURIC CHLORIDE	U	U	G	E	G	E	E	E		
MERCURIC CYANIDE	U	U	E	E	G	E	E	E		
MERCUROUS NITRATE	U		E				G	E		
MERCURY	U	E	E	E	E	E	E	E		E
METHANE	E	G	E	E	G		E	E	E	
METHANOL	E	E		E	E	E	U			
METHANOL	G		E	G	G	U	G	E		
METHYL ACETATE	E	G	E	U	U	G	U	E		
METHYL ACETONE	E	E	E	U	U	E	U	E		
METHYL ALCOHOL	G	G	G	E	G		P	E		E
METHYL BROMIDE 100%	P	G	G	G	U	U	G	E		
METHYL CELLOSOLVE	E	G	E	P	U	G	U	E		
METHYL CELLULOSE			E	U	U			E		
METHYL CHLORIDE	G	G	E	U	U	U	G	E	E	

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
METHYL ETHER				E	U	U	E			
METHYL ETHYL KETONE	E	E	E	U	U	G	U	E	E	E
METHYL FORMATE	E	P	G	U	G	G	U	E		
METHYL ISOBUTYLE KETONE			E	U	U			E		
METHYLAMINE	U	G	E	U	U	G	U	E		
METHYLENE CHLORIDE	E	G	E	U	U	U	P	E		U
MILK & MILK PRODUCTS	G	U	E	E	E	E	E	E	E	
MIL-F-81912, JP-9	E	E	E	U	U	U	E			
MIL-H-5606	E	E	E	E	G	U	E			
MIL-H-6083	E	E	E	E	E	U	E			
MIL-H-7083	E	E	E	E	G	E	G			
MIL-H-8446	G	E	E	G	E	U	E			
MIL-L-2104 &2104B	E	E	E	E	G	U	E			
MIL-L-7808	U	G	E	G	U	U	E			
MINE WATERS, ACID	P	U	P	E			E	E		
MINERAL OILS	G	G	E	E	G	U	E	E	E	
MINERAL SPIRITS	G	G	G	E	P		E	E	E	
MIXED ACIDS, COLD	U	P	G	U	U	U	G	E	U	
MLO-7277 & MLO-7557	G	E	E	U	U	U	E			
MOBILE HF	E	E	E	E	G	U	E			
MOLASSES, CRUDE	E	E	E	E	E		E	E	E	
MOLASSES, EDIBLE	E	P	E	E	E		E	E	E	
MOLYBDIC ACID			E					E		
MONOCHLORO BENZENE DRY			G	U	U			E		
MONOMETHYL HYDRAZINE				G	G	E				
MORPHOLINE	G		E	U	U	G	U	E		
MURIATIC ACID	U	U	U	G			E	E		
MUSTARD	E	G	E	E	E		E	E	E	
NAPHTHENIC ACID	G	E	G	G	U	U	E			
NAPTHA	G	G	G	G	P	U	E	E	E	
NAPTHALENE	G	G	G	U	U	U	E	E	E	
NATURAL GAS, SOUR	G	G	E	E	E	U	E	E		
NEATSFOOT OIL				E	U	G	E			
NICKEL ACETATE	U	G	E	G	G	E	U			
NICKEL AMMONIUM SULFATE	U	U	E	E	G	G	U	E		
NICKEL CHLORIDE	U	U	G	E	E	G	E	E	E	E
NICKEL NITRATE	U	U	G	E	E	E	E	E	E	
NICKEL SALTS				E	G	E	E			
NICKEL SULFATE	U	U	G	E	E	G	E	E	E	E
NITRIC ACID 100%	U	U	E	U	U	U	G	E	U	U
NITRIC ACID 10%	U	U	E	P	G		E	E	U	U
NITRIC ACID 30%	U	U	E	P	P	G	E	E	U	U
NITRIC ACID 80%	U	U	P	U	U	U	G	E	U	U
NITRIC ACID ANHYDROUS	U	U	E	U	U	U	E	E		
NITROBENZENE	U	G	E	U	U	P	P	E		E
NITROGEN	E	E	E	E	E	G	E	E	E	
NITROUS ACID 10%	U	U	G	P	E		E	E		
NITROUS GASES	U	G	E					E		
NITROUS OXIDE	G	G	G	G	G		E	E		
NOCOTINIC ACID	E	G	E	U	U	U	G	E		
OCTYL ALCOHOL	E	E	E	G	G	U	E			
OILS, ANIMAL	E	E	E	E	G	G	G	E		
OILS, PETROLEUM REFINED	G	E	E	E	G	U	E	E	E	
OILS, PETROLEUM SOUR	P	G	E	G	G	U	E	E		
OILS, WATER MIXTURE	E	G	E	E	G		E	E	E	
OILS & FATS			E	G		U		E		
OLAIC ACID			G	U	U		P	E		
OLEIC ACID	G	P	G	G	P	U	E	E	E	
OLEUM	P	G	G	U	U	U	P	E	U	
OLEUM SPIRITS	U		G	P	U	U	E	E		
OLIVE OIL	P	G	E	E	G	G	E	E	E	
ORTHO-DICHLOROBENZENE	G	G	G	U	U	U	E			
OTHER KETONES	E	E	E	U	U	U	U	E		
OXALIC ACID	G	U	G	P	G	G	E	E	P	U
OXYGEN	E	G	E	G	G	E	E	E	U	
OZONE, DRY	E	E	E	U	U	E	G	E		
OZONE, WET	G	P	E	U	U	G	G	E		

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
PAINTS & SOLVENTS	E	E	E	U	U	U	G	E		
PALM OIL	G	P	G	G	G	U	E	E	E	
PALMITIC ACID	G	P	G	G	G	G	E	E	E	
PAPER PULP	G		E	G	G	G	G	E		
PARAFFIN	E	G	E	E	P	U	E	E	E	
PARAFORMALDEHYDE	G	G	G	G	G	U		E	E	
PARALDEHYDE			G	G	G	U		E		
PARA-DICHLOROBENZENE	G	E	E	U	U	U			E	
PARKER O LUBE	E	E	E	E	E	U	E			
PEANUT OIL	G	E	E	E	U	U	E			
PENTANE	E	G	E	E	G	U	E	E	E	
PERCHLORETHYLENE, DRY	P	G	E	U	U	U	E	E		
PERCHLORIC ACID-2N	U	U	G	U	G	G			E	
PETROLATUM (PETROLEUM JELLY)	G	P	G	E	G		E	E	E	
PHENOL	G	U	E	U	U	U	G	E	U	E
PHOSPHATE ESTER	U	E	E	U		E		E		
PHOSPHORIC ACID 10%	U	U	U	G	E	G	E	E	U	U
PHOSPHORIC ACID 50% COLD	U	U	G	G	G	G	E	E	U	U
PHOSPHORIC ACID 50% HOT	U	U	U	G	G	G	E	E	U	U
PHOSPHORIC ACID 85% COLD	G	G	E	P	P		G	E	U	U
PHOSPHORIC ACID 85% HOT	P	P	G	P	P			E	U	U
PHOSPHORIC ANHYDRIDE			E	U	U		G	E	G	
PHOSPHOROUS TRICHLORIDE	U	G	E	U	U	G	G	E		
PHTHALIC ACID	G	P	G	P	P		E	E	E	
PHTHALIC ANHYDRIDE	G	P	G	P	P		E	E	E	
PICRIC ACID	P	U	G	P	E	G	G	E		
PINE OIL	G	G	E	E	U	U	E	E	E	
PINEAPPLE JUICE	P	P	E	E	E		E	E	E	
PITCH			E	P	P	U		E		
PLATING SOLUTIONS, CHROME	E	U	E		U	E	E			
PLATING SOLUTIONS, OTHER		E	E	E	U	E	E			
PNEUMATIC SERVICE	E	E	E	E	E	E	E	E		
POLYSULFIDE LIQUOR	U		G	G	G	G	G	E		
POLYVINYL ACETATE	G		G		P	G		E		
POLYVINYL CHLORIDE	G		G		P	G		E		
POTASSIUM ACETATE	G	E	G	G	G	E	U			
POTASSIUM BICARBONATE			E	G				E		E
POTASSIUM BICHROMATE			E	G	G		G	E	G	
POTASSIUM BISULFATE			E	G	G		E	E		
POTASSIUM BISULFITE	P	U	G	E	E	G	E	E	E	
POTASSIUM BROMIDE	P	U	E	E	E	G	E	E	E	P
POTASSIUM CARBONATE	G	G	G	E	E	G	E	E	E	E
POTASSIUM CHLORATE	G	G	G	E	E	G	E	E	E	P
POTASSIUM CHLORIDE	P	P	G	E	E	E	E	E	E	P
POTASSIUM CHROMATE	G		G	G	E	G	G	E		
POTASSIUM CYANIDE	U	G	G	E	E	E	E	E	E	E
POTASSIUM DICHROMATE	U	P	G	E	E	G	E	E	E	U
POTASSIUM DIPHOSPHATE	G	E	E	E			E	E		
POTASSIUM FERRICYANIDE	U	P	E	E	E	G	E	E	E	
POTASSIUM FERROCYANIDE	G	P	G	E	E		E	E	E	
POTASSIUM HYDROXIDEDILUTE COLD	U	E	G	E	G		U	E		E
POTASSIUM HYDROXIDE DILUTE HOT	U	G	G	G	G			E		
POTASSIUM HYDROXIDE TO 70% COLD										
POTASSIUM HYDROXIDE TO 70% HOT	U	E	G	P	G	E			E	
POTASSIUM HYDROXIDE TO 70% HOT	U	E	G	P	G	E		E		
POTASSIUM IODIDE	U	P	G	E	E	G	E	E	E	
POTASSIUM NITRATE	G	G	G	E	E	G	E	E	E	P
POTASSIUM OXALATE			E					E		
POTASSIUM PERMANGANATE	G	G	G	E	E	G	E	E	E	U
POTASSIUM PHOSOHATE	P		G	E	E	E	E	E		
POTASSIUM PHOSPHATE DI-BASIC	G	E	E	E	E	G	E	E	E	
POTASSIUM PHOSPHATE TRI-BASIC		E	G	G	G	G		E		
POTASSIUM SALTS				E	E	E	E			
POTASSIUM SULFATE	G	G	E	E	E	E	E	E	E	P
POTASSIUM SULFIDE	G	G	E	E	G	G	G	E		
POTASSIUM SULFITE	G	G	E	G	G	E	G	E		
PRODUCER GAS	G	G	G	E	G	U	E	E	E	

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
PROPANE GAS	E	G	G	E	G	U	E	E	E	
PROPYL ACETATE	U	E	E	U	U	G	U			
PROPYL ALCOHOL	E	G	G	E	E		E	E		
PROPYL BROMIDE	G		G	G	G	G	G	E		
PROPYLENE	E	E	E	U	U	U	E			
PROPYLENE GLYCOL	G	G	G	E	E	G	E	E	P	
PYDRAUL	E	P	E	U	U		G	E		
PYRIDINE			G	U	U		U	E		
PYROGARD 42, 43, 53, 55				U	U	E	E			
PYROGARD D				E	G	E	E			
PYROLGALIC ACID	G	G	G	E	E		E	E	E	
QUENCH OIL	G	G	E	E	G		E	E	E	
QUININE, SULFATE, DRY			E					E		
R P-1 FUEL	E	E	E	G	P		E	E	E	
RESINS & ROSINS	E	P	E	P	P		E	E		
RESORCINOL			G					E		
ROAD TAR	E	E	E	G	P	U	E	E	E	
ROOF PITCH	E	E	E	G	P		E	E	E	
ROSIN EMULSION	G	P	E	U	P		G	E		
RUBBER LATEX EMULSIONS	E	G	E				E	E	E	
RUBBER SOLVENTS	E	E	E	U	P		U	E	P	
SALAD OIL	G	P	G	E	E	G	E	E	E	
SALICYLIC ACID	P	U	E	E	E	G	E	E	E	
SALT	G	P	G	E	E		E	E	E	
SALT BRINE	G		G	E	U	G	G	E		
SAUERKRAUT ARINE			G					E		
SEA WATER	P	U	G	E	E	E	E	E	E	
SEWAGE	P	P	G	E	P	G	G	E		
SHELL IRUS 905				E	G	U	E			
SHELLAC	E	E	E	E	E			E		
SILICONE FLUIDS	G		G	G	G		G	E		
SILVER BROMIDE										
SILVER CYANIDE	U		E	G	G		G	E		
SILVER NITRATE	U	U	E	P	P	E	E	E	E	
SILVER PLATING SOL.			E		G			E		
SKYDROL 500	E	G	E	U	U		U	E		
SKYDROL 7000, TYPE 2	U	E	E	U	U	E	G			
SOAP SOLUTIONS	E	E	E	E	G	E	E	E		
SODIUM ACETATE	G	P	G	G	G	G	E	E	E	E
SODIUM ALUMINATE	G	P	E	E	E	G	E	E	E	
SODIUM BENZOATE			G					E		
SODIUM BICARBONATE	G	P	G	E	E	E	E	E	E	E
SODIUM BICHROMATE			G	U				E		
SODIUM BISULFATE 10%	G	U	E	E	E	G	E	E	E	P
SODIUM BISULFITE 10%	G	U	E	E	E	G	E	E	E	P
SODIUM BORATE	G	P	G	E	E	G	E	E	E	
SODIUM BROMIDE 10%	G	P	G	E	E	G	E	E	E	
SODIUM CARBONATE	G	G	E	E	E	G	E	E	E	E
SODIUM CHLORATE	G	P	G	E	E	G	E	E	E	P
SODIUM CHLORIDE	G	P	G	E	E	G	E	E	E	E
SODIUM CHROMATE	P	G	E	E	E	G	E	E	E	
SODIUM CITRATE			G					E		
SODIUM CYANIDE	U	G	E	E	E	G	E	E	E	E
SODIUM FERRICYANIDE			E					E		
SODIUM FLUORIDE	P	U	G	E	E	G	E	E	E	
SODIUM HYDROXIDE 20% COLD	E	E	E	E	E	G	G	E		E
SODIUM HYDROXIDE 20% HOT	E	G	E	G	G	G	P	E		
SODIUM HYDROXIDE 50% COLD	E	E	E	E	E	G	P	E		E
SODIUM HYDROXIDE 50% HOT	E	G	E	G	G		P	E		
SODIUM HYDROXIDE 70% COLD	E	E	E	G	P	G	P	E		
SODIUM HYDROXIDE 70% HOT	G	G	E	U	U	G	P	E		
SODIUM HYPOCHLORITE (BLEACH)	U	U	U				E	E		U
SODIUM HYPOSULFITE			G					E		
SODIUM LACTATE			E					E		
SODIUM METAPHOSPHATE	P	G	G	E	E	G		E		
SODIUM METASILICATE COLD	G	P	E	G	E		G	E		
SODIUM METASILICATE HOT	G	U	E					E		

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
SODIUM NITRATE	G	G	E	P	G	G	E	E	E	E
SODIUM NITRITE			G	P	U	E	G	E	G	
SODIUM PERBORATE	G	G	G	P	G	E	E	E	E	
SODIUM PEROXIDE	U	P	G	P	G	E	E	E	E	
SODIUM PHOSPHATE	P	P	G	G	P	E	E	E	G	
SODIUM PHOSPHATE DI-BASIC	P	P	G	E	E	E	E	E	E	
SODIUM PHOSPHATE TRI-BASIC	P	P	G	G	G	E	E	E	E	
SODIUM POLYPHOSPHATE			G	G	G	E		E		
SODIUM SALICYLATE			E					E		
SODIUM SALTS										
SODIUM SILICATE	G	G	G	E	E	G	E	E	E	E
SODIUM SILICATE, HOT	P	P	G			G		E		
SODIUM SULFATE	G	G	E	E	E	E	E	E		E
SODIUM SULFIDE	U	G	G	E	E	G	E	E	E	E
SODIUM SULFITE	P		E	E	E	G	G	E		
SODIUM TETRABORATE			E	E	E	G		E		
SODIUM THIOSULFATE	P	G	G	E	E	E	E	E	E	
SOYBEAN	G	P	E	E	G	G	E	E	E	
STANNIC CHLORIDE	P	U	U	E	E		E	E		
STARCH	G	P	G	E	E	P	E	E	E	
STEAM (212 F)	E	E	E	U	U	G	P	E	U	
STEARIC ACID	P	P	G	E	P	G	E	E	E	
STODDARD SOLVENT	G	E	E	E	G	U	E			
STYRENE	E	E	E	U	U	U	G	E		
SUCROSE SOLUTIONS	E	E	E	E	G	E	E			
SUGAR, SYRUPS & JAM	G		E		G			E		
SUGAR LIQUIDS	E	G	E	E	E	G	E	E	E	
SULFATE, BLACK LIQUOR	P	P	G	P	G	G	P	E	E	
SULFATE, GREEN LIQUOR	P	P	G	P	G		P	E	E	
SULFATE, WHITE LIQUOR	P	P	G	P	G		P	E	E	
SULFUR	U	P	G	U	P	G	G	E	E	
SULFUR, MOLTEN	U	P	G	U	P	G	G	E		
SULFUR CHLORIDES	G	U	U	U	U	P	E	E	E	
SULFUR DIOXIDE, DRY	G	G	E	U	U	E	E	E	E	
SULFUR DIOXIDE, WET	U		E	U	U	G		E		
SULFUR HEXAFLUORIDE	G		E		G			E		
SULFUR TRIOXIDE	G	G	G	U	U		G	E		
SULFUR TRIOXIDE, DRY	G	G	G	U	U	G	E	E		
SULFURIC ACID 0 TO 77%	P	U	P	G	G		E	E	P	U
SULFURIC ACID 100%	P	P	E	U	U	P	G	E	U	U
SULFUROUS ACID	U	U	G	P	P	P	E	E	P	
SUNSAFE	U	E	E	E	G	U	E			
TALL OIL	G	G	G	G	G	U	E	E		
TANNIC ACID	G	P	G	G	G	G	E	E	E	U
TANNING LIQUORS			G	G	U			E		
TAR & TAR OILS	E	E	E	P	U	U	E	E		
TARTARIC ACID	G	U	E	P	G	G	E	E	E	
TERPINEOL				G	U	U	E			
TERTIARY BUTYL ALCOHOL	E	E	E	G	G	G	E			
TETRACHLOROETHANE		G	E	U	U	U	E			
TETRACHLOROETHYLENE	U	G	U	U	U	E				
TETRAETHYL LEAD	G	P	G					E	E	
TITANIUM TETRACHLORIDE	G	E	G	G	U	U	E			
TOLUOL (TOLUENE)	E	E	E	U	U	U	G	E	E	E
TOMATO JUICE	P	P	E	E	E		E	E		E
TRANSFORMER OIL	G	E	E	E	G		E	E	E	
TRANSMISSION FLUID, TYPE A	E	E	E	E	G	U	E			
TRIBUTYL PHOSPHATE	E	E	E	U	U	G	U	E		
TRICHLORETHYLENE	G	G	G	U	U	U	G	E	E	U
TRICHLOROACETIC ACID	G		U	P	U		U	E		
TRICHLOROETHANE		G	E	U	U	U	E			
TRICRESYL PHOSPHATE		E	G	U	U	E	G			
TRIETHANOLAMINE			G	P	G	G		E		
TRIETHYLAMINE	G		G	G	G			E		
TRISODIUM PHOSPHATE			G	E	E	G	G	E		
TUNG OIL	G	G	E	E	G	U	E	E	E	
TURBINE OIL #15		G	E	G	U	U	E			

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

FLUID	BRASS	CARBON STEEL	316 S.S.	BUNA N (NILTRILE)	NEOPRENE	EPR	FLUORO-CARBON	PTFE	ACETAL	NYLON
TURPENTINE	G	G	G	G	U	U	E	E	E	E
UREA	U	P	G	P	G	G	U	E	E	
URIC ACID			E					E		
VARNISH	E	P	E	P	G	U	G	E	E	
VEGETABLE OILS	G	G	E	E	G	U	E	E	E	
VINEGAR	G	U	E	U	U	E	U	E		E
VINYL ACETATE	G		G		G	E		E		
WATER, ACID MINE	U	U	G	G	E	E	U	E		
WATER, DISTILLED	U	U	E	P	G	G	E	E	E	
WATER, FRESH	P	P	E	P	G	G	E	E	E	
WAXES	E	E	E	E	G	P	E	E	E	
WHISKEY & WINES	G	U	E	G	G	E	E	E	E	
XYLENE (XYLOL), DRY	E	G	E	U	U	U	G	E	E	E
ZINC BROMIDE	G		G	G	G	G	G	E		
ZINC CHLORIDE	U	U	U	G	G		E	E		U
ZINC HYDROSULFITE	P	E	E	E	E	E	E	E	E	
ZINC SULFATE	G	U	G	E	E	E	E	E	E	P

E-EXCELLENT **G-GOOD** **P-POOR** **U-UNSATISFACTORY**

Parker Safety Guide for Selecting and Using Hose, Tubing, Fittings, Connectors, Conductors, Valves and Related Accessories

Parker Publication No. 4400-B.1

WARNING: Failure or improper selection or improper use of hose, tubing, fittings, assemblies, valves, connectors, conductors or related accessories ("Products") can cause death, personal injury and property damage. Possible consequences of failure or improper selection or improper use of these Products include but are not limited to:

- Fittings thrown off at high speed.
- High velocity fluid discharge.
- Explosion or burning of the conveyed fluid.
- Electrocution from high voltage electric powerlines.
- Contact with suddenly moving or falling objects that are controlled by the conveyed fluid.
- Injections by high-pressure fluid discharge.
- Dangerously whipping Hose.
- Tube or pipe burst.
- Weld joint fracture.
- Contact with conveyed fluids that may be hot, cold, toxic or otherwise injurious.
- Sparking or explosion caused by static electricity buildup or other sources of electricity.
- Sparking or explosion while spraying paint or flammable liquids.
- Injuries resulting from inhalation, ingestion or exposure to fluids.

Before selecting or using any of these Products, it is important that you read and follow the instructions below. No product from any division in Fluid Connector Group is approved for in-flight aerospace applications. For hoses and fittings used in in-flight aerospace applications, please contact Parker Aerospace Group

GENERAL INSTRUCTIONS

1.0 Scope: This safety guide provides instructions for selecting and using (including assembling, installing, and maintaining) these Products. For convenience, all rubber and/or thermoplastic products commonly called "hose" or "tubing" are called "Hose" in this safety guide. Metallic tube or pipe are called "tube". All assemblies made with Hose are called "Hose Assemblies". All assemblies made with Tube are called "Tube Assemblies". All products commonly called "fittings", "couplings" or "adapters" are called "Fittings". Valves are fluid system components that control the passage of fluid. Related accessories are ancillary devices that enhance or monitor performance including crimping, flaring, flanging, presetting, bending, cutting, deburring, swaging machines, sensors, tags, lockout handles, spring guards and associated tooling. This safety guide is a supplement to and is to be used with the specific Parker publications for the specific Hose, Fittings and Related Accessories that are being considered for use. Parker publications are available at www.parker.com. SAE J1273 (www.sae.org) and ISO 17165-2 (www.ansi.org) also provide recommended practices for hydraulic Hose Assemblies, and should be followed.

1.1 Fail-Safe: Hose, Hose Assemblies, Tube, Tube Assemblies and Fittings can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of the Hose, Hose Assembly, Tube, Tube Assembly or Fitting will not endanger persons or property.

1.2 Distribution: Provide a copy of this safety guide to each person responsible for selecting or using Hose, Tube and Fitting products. Do not select or use Parker Hose, Tube or Fittings without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the Products.

1.3 User Responsibility: Due to the wide variety of operating conditions and applications for Hose, Tube and Fittings. Parker does not represent or warrant that any particular Hose, Tube or Fitting is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- **Making the final selection of the Products.**
- **Assuring that the user's requirements are met and that the application presents no health or safety hazards.**
- **Following the safety guide for Related Accessories and being trained to operate Related Accessories.**
- **Providing all appropriate health and safety warnings on the equipment on which the Products are used.**
- **Assuring compliance with all applicable government and industry standards.**

1.4 Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the Products being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2.0 HOSE, TUBE AND FITTINGS SELECTION INSTRUCTIONS

2.1 Electrical Conductivity: Certain applications require that the Hose be nonconductive to prevent electrical current flow. Other applications require the Hose and the Fittings and the Hose/Fitting interface to be sufficiently conductive to drain off static electricity. Extreme care must be exercised when selecting Hose, Tube and Fittings for these or any other applications in which electrical conductivity or nonconductivity is a factor.

The electrical conductivity or nonconductivity of Hose, Tube and Fittings is dependent upon many factors and may be susceptible to change. These factors include but are not limited to the various materials used to make the Hose and the Fittings, Fitting finish (some Fitting finishes are electrically conductive while others are nonconductive), manufacturing methods (including moisture control), how the Fittings contact the Hose, age and amount of deterioration or damage or other changes, moisture content of the Hose at any particular time, and other factors.

The following are considerations for electrically nonconductive and conductive Hose. For other applications consult the individual catalog pages and the appropriate industry or regulatory standards for proper selection.

2.1.1 Electrically Nonconductive Hose: Certain applications require that the Hose be nonconductive to prevent electrical current flow or to maintain electrical isolation. For applications that require Hose to be electrically nonconductive, including but not limited to applications near high voltage electric lines, only special nonconductive Hose can be used. The manufacturer of the equipment in which the nonconductive Hose is to be used must be consulted to be certain that the Hose, Tube and Fittings that are selected are proper for the application. Do not use any Parker Hose or Fittings for any such application requiring nonconductive Hose, including but not limited to applications near high voltage electric lines or dense magnetic fields, unless (i) the application is expressly approved in the Parker technical publication for the product, (ii) the Hose is marked "nonconductive", and (iii) the manufacturer of the equipment on which the Hose is to be used specifically approves the particular Parker Hose, Tube and Fittings for such use.

2.1.2 Electrically Conductive Hose: Parker manufactures special Hose for certain applications that require electrically conductive Hose. Parker manufactures special Hose for conveying paint in airless paint spraying applications. This Hose is labeled "Electrically Conductive Airless Paint Spray Hose" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in all airless paint spraying applications. Do not use any other Hose for airless paint spraying, even if electrically conductive. Use of any other Hose or failure to properly connect the Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. All hoses that convey fuels must be grounded. Parker manufactures a special Hose for certain compressed natural gas ("CNG") applications where static electricity buildup may occur. Parker CNG Hose assemblies comply with the requirements of ANSI/IAS NGV 4.2; CSA 12.52, "Hoses for Natural Gas Vehicles and Dispensing Systems" (www.ansi.org). This Hose is labeled "Electrically Conductive for CNG Use" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in, for example, high velocity CNG dispensing or transfer. Do not use any other Hose for CNG applications where static charge buildup may occur, even if electrically conductive. Use of other Hoses in CNG applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. Care must also be taken to protect against CNG permeation through the Hose wall. See section 2.6, Permeation, for more information. Parker CNG Hose is intended for dispenser and vehicle use within the specified temperature range. Parker CNG Hose should not be used in confined spaces or unventilated areas or areas exceeding the specified temperature range. Final assemblies must be tested for leaks. CNG Hose Assemblies should be tested on a monthly basis for conductivity per ANSI/IAS NGV 4.2; CSA 12.52. Parker manufactures special Hose for aerospace in-flight applications. Aerospace in-flight applications employing Hose to transmit fuel, lubricating fluids and hydraulic fluids require a special Hose with a conductive inner tube. This Hose for in-flight applications is available only from Parker's Stratoflex Products Division. Do not use any other Parker Hose for in-flight applications, even if electrically conductive. Use of other Hoses for in-flight applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury and property damage. These Hose assemblies for in-flight applications must meet all applicable aerospace industry, aircraft engine and aircraft requirements.

2.2 Pressure: Hose, Tube and Fitting selection must be made so that the published maximum working pressure of the Hose, Tube and Fittings are equal to or greater than the maximum system pressure. The maximum working pressure of a Hose, or Tube Assembly is the lower of the respective published maximum working pressures of the Hose, Tube and the Fittings used. Surge pressures or peak transient pressures in the system must be below the published maximum working pressure for the Hose, Tube and Fitting. Surge pressures and peak pressures can usually only be determined by sensitive electrical instrumentation that measures and indicates pressures at millisecond intervals. Mechanical pressure gauges indicate only average pressures and cannot be used to determine surge pressures or peak transient pressures. Published burst pressure ratings for Hose is for manufacturing test purposes only and is no indication that the Product can be used in applications at the burst pressure or otherwise above the published maximum recommended working pressure.

2.3 Suction: Hoses used for suction applications must be selected to insure that the Hose will withstand the vacuum and pressure of the system. Improperly selected Hose may collapse in suction application.

2.4 Temperature: Be certain that fluid and ambient temperatures, both steady and transient, do not exceed the limitations of the Hose, Tube, Fitting and Seals. Temperatures below and above the recommended limit can degrade Hose, Tube, Fittings and Seals to a point where a failure may occur and release fluid. Tube and Fittings performances are normally degraded at elevated temperature. Material compatibility can also change at temperatures outside of the rated range. Properly insulate and protect the Hose Assembly when routing near hot objects (e.g. manifolds). Do not use any Hose in any application where failure of the Hose could result in the conveyed fluids (or vapors or mist from the conveyed fluids) contacting any open flame, molten metal, or other potential fire ignition source that could cause burning or explosion of the conveyed fluids or vapors.

2.5 Fluid Compatibility: Hose, and Tube Assembly selection must assure compatibility of the Hose tube, cover, reinforcement, Tube, Plating and Seals with the fluid media used. See the fluid compatibility chart in the Parker publication for the product being considered or used. This information is offered only as a guide. Actual service life can only be determined by the end user by testing under all extreme conditions and other analysis. Hose, and Tube that is chemically compatible with a particular fluid must be assembled using Fittings and adapters containing likewise compatible seals. Flange or flare processes can change Tube material properties that may not be compatible with certain requirements such as NACE

2.6 Permeation: Permeation (that is, seepage through the Hose or Seal) will occur from inside the Hose or Fitting to outside when Hose or Fitting is used with gases, liquid and gas fuels, and refrigerants (including but not limited to such materials as helium, diesel fuel, gasoline, natural gas, or LPG). This permeation may result in high concentrations of vapors which are potentially flammable, explosive, or toxic, and in loss of fluid. Dangerous explosions, fires, and other hazards can result when using the wrong Hose for such applications. The system designer must take into account the fact that this permeation will take place and must not use Hose or Fitting if this permeation could be hazardous. The system designer must take into account all legal, government, insurance, or any other special regulations which govern the use of fuels and refrigerants. Never use a Hose or Fitting even though the fluid compatibility is acceptable without considering the potential hazardous effects that can result from permeation through the Hose or Tube Assembly. Permeation of moisture from outside the Hose or Fitting to inside the Hose or Fitting will also occur in Hose or Tube assemblies, regardless of internal pressure. If this moisture permeation would have detrimental effects (particularly, but not limited to refrigeration and air conditioning systems), incorporation of sufficient drying capacity in the system or other appropriate system safeguards should be selected and used. The sudden pressure release of highly pressurized gas could also result in Explosive Decompression failure of permeated Seals and Hoses.

2.7 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 due to heat generation or excessive fluid velocity.

2.8 Routing: Attention must be given to optimum routing to minimize inherent problems (kinking or flow restriction due to Hose collapse, twisting of the Hose, proximity to hot objects or heat sources). For additional routing recommendations see SAE J1273 and ISO 17165-2. Hose Assemblies have a finite life and should be installed in a manner that allows for ease of inspection and future replacement. Hose because of its relative short life, should not be used in residential and commercial buildings inside of inaccessible walls or floors, unless specifically allowed in the product literature. Always review all product literature for proper installation and routing instructions.

2.9 Environment: Care must be taken to insure that the Hose, Tube and Fittings are either compatible with or protected from the environment (that is, surrounding conditions) to which they are exposed. Environmental conditions including but not limited to ultraviolet radiation, sunlight, heat, ozone, moisture, water, salt water, chemicals and air pollutants can cause degradation and premature failure.

2.10 Mechanical Loads: External forces can significantly reduce Hose, Tube and Fitting life or cause failure. 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. Use of proper Hose or Tube clamps may also be required to reduce external mechanical loads. Unusual applications may require special testing prior to Hose selection.

2.11 Physical Damage: Care must be taken to protect Hose from wear, snagging, kinking, bending smaller that minimum bend radius and cutting, any of which can cause premature Hose failure. Any Hose that has been kinked or bent to a radius smaller than the minimum bend radius, and any Hose that has been cut or is cracked or is otherwise damaged should be removed and discarded. Fittings with damages such as scratches on sealing surfaces and deformation should be replaced.

2.12 Proper End Fitting: See instructions 3.2 through 3.5. These recommendations may be substantiated by testing to industry standards such as SAE J517 for hydraulic applications, or MIL-A-5070, AS1339, or AS3517 for Hoses from Parker's Stratoflex Products Division for aerospace applications.

2.13 Length: When determining the proper Hose or Tube length of an assembly, be aware of Hose length change due to pressure, Tube length change due to thermal expansion or contraction, and Hose or Tube and machine tolerances and movement must be considered. When routing short hose assemblies, it is recommended that the minimum free hose length is always used. Consult the hose manufacturer for their minimum free hose length recommendations. Hose assemblies should be installed in such a way that any motion or flexing occurs within the same plane.

2.14 Specifications and Standards: When selecting Hose, Tube and Fittings, government, industry, and Parker specifications and recommendations must be reviewed and followed as applicable.

2.15 Hose Cleanliness: Hose and Tube components may vary in cleanliness levels. Care must be taken to insure that the Hose and Tube Assembly selected has an adequate level of cleanliness for the application.

2.16 Fire Resistant Fluids: Some fire resistant fluids that are to be conveyed by Hose or Tube require use of the same type of Hose or Tube as used with petroleum base fluids. Some such fluids require a special Hose, Tube, Fitting and Seal, while a few fluids will not work with any Hose at all. See instructions 2.5 and 1.5. The wrong Hose, Tube, Fitting or Seal may fail after a very short service. In addition, all liquids but pure water may burn fiercely under certain conditions, and even pure water leakage may be hazardous.

2.17 Radiant Heat: Hose and Seals can be heated to destruction without contact by such nearby items as hot manifolds or molten metal. The same heat source may then initiate a fire. This can occur despite the presence of cool air around the Hose or Seal. Performance of Tube and Fitting subjected to the heat could be degraded.

2.18 Welding or Brazing: When using a torch or arc welder in close proximity to hydraulic lines, the hydraulic lines should be removed or shielded with appropriate fire resistant materials. Flame or weld spatter could burn through the Hose or Seal and possibly ignite escaping fluid resulting in a catastrophic failure. Heating of plated parts, including Hose Fittings and adapters, above 450°F (232°C) such as during welding, brazing or soldering may emit deadly gases. Any elastomer seal on fittings shall be removed prior to welding or brazing, any metallic surfaces shall be protected after brazing or welding when necessary. Welding and brazing filler material shall be compatible with the Tube and Fitting that are joined.

2.19 Atomic Radiation: Atomic radiation affects all materials used in Hose and Tube assemblies. Since the long-term effects may be unknown, do not expose Hose or Tube assemblies to atomic radiation. Nuclear applications may require special Tube and Fittings.

2.20 Aerospace Applications: The only Hose, Tube and Fittings that may be used for in-flight aerospace applications are those available from Parker's Stratoflex Products Division. Do not use any other Hose or Fittings for in-flight applications. Do not use any Hose or Fittings from Parker's Stratoflex Products Division with any other Hose or Fittings, unless expressly approved in writing by the engineering manager or chief engineer of Stratoflex Products Division and verified by the user's own testing and inspection to aerospace industry standards.

2.21 Unlocking Couplings: Ball locking couplings or other Fittings with quick disconnect ability can unintentionally disconnect if they are dragged over obstructions, or if the sleeve or other disconnect member, is bumped or moved enough to cause disconnect. Threaded Fittings should be considered where there is a potential for accidental uncoupling.

3.0 HOSE AND FITTINGS ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1 Component Inspection: Prior to assembly, a careful examination of the Hose and Fittings must be performed. All components must be checked for correct style, size, catalog number, and length. The Hose must be examined for cleanliness, obstructions, blisters, cover looseness, kinks, cracks, cuts or any other visible defects. Inspect the Fitting and sealing surfaces for burrs, nicks, corrosion or other imperfections. Do NOT use any component that displays any signs of nonconformance.

3.2 Hose and Fitting Assembly: Do not assemble a Parker Fitting on a Parker Hose that is not specifically listed by Parker for that Fitting, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division. Do not assemble a Parker Fitting on another manufacturer's Hose or a Parker Hose on another manufacturer's Fitting unless (i) the engineering manager or chief engineer of the appropriate Parker division approves the Assembly in writing or that combination is expressly approved in the appropriate Parker literature for the specific Parker product, and (ii) the user verifies the Assembly and the application through analysis and testing. For Parker Hose that does not specify a Parker Fitting, the user is solely responsible for the selection of the proper Fitting and Hose Assembly procedures. See instruction 1.4. To prevent the possibility of problems such as leakage at the Fitting or system contamination, it is important to completely remove all debris from the cutting operation before installation of the Fittings. The Parker published instructions must be followed for assembling the Fittings on the Hose. These instructions are provided in the Parker Fitting catalog for the specific Parker Fitting being used, or by calling 1-800-CPARKER, or at www.parker.com.

3.3 Related Accessories: Do not crimp or swage any Parker Hose or Fitting with anything but the listed swage or crimp machine and dies in accordance with Parker published instructions. Do not crimp or swage another manufacturer's Fitting with a Parker crimp or swage die unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.

3.4 Parts: Do not use any Parker Fitting part (including but not limited to socket, shell, nipple, or insert) except with the correct Parker mating parts, in accordance with Parker published instructions, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.

3.5 Field Attachable/Permanent: Do not reuse any field attachable Hose Fitting that has blown or pulled off a Hose. Do not reuse a Parker permanent Hose Fitting (crimped or swaged) or any part thereof. Complete Hose Assemblies may only be reused after proper inspection under section 4.0. Do not assemble Fittings to any previously used hydraulic Hose that was in service, for use in a fluid power application.

3.6 Pre-Installation Inspection: Prior to installation, a careful examination of the Hose Assembly must be performed. Inspect the Hose Assembly for any damage or defects. DO NOT use any Hose Assembly that displays any signs of nonconformance.

3.7 Minimum Bend Radius: Installation of a Hose at less than the minimum listed bend radius may significantly reduce the Hose life. Particular attention must be given to preclude sharp bending at the Hose to Fitting juncture. Any bending during installation at less than the minimum bend radius must be avoided. If any Hose is kinked during installation, the Hose must be discarded.

3.8 Twist Angle and Orientation: Hose Assembly installation must be such that relative motion of machine components does not produce twisting.

3.9 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.

3.10 Proper Connection of Ports: Proper physical installation of the Hose Assembly

requires a correctly installed port connection insuring that no twist or torque is transferred to the Hose when the Fittings are being tightened or otherwise during use.

3.11 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. See instruction 2.10.

3.12 System Checkout: All air entrapment must be eliminated and the system pressurized to the maximum system pressure (at or below the Hose maximum working pressure) and checked for proper function and freedom from leaks. Personnel must stay out of potential hazardous areas while testing and using.

3.13 Routing: The Hose Assembly should be routed in such a manner so if a failure does occur, the escaping media will not cause personal injury or property damage. In addition, if fluid media comes in contact with hot surfaces, open flame or sparks, a fire or explosion may occur. See section 2.4.

3.14 Ground Fault Equipment Protection Devices (GFEPDs): WARNING! Fire and Shock Hazard. To minimize the danger of fire if the heating cable of a Multitube bundle is damaged or improperly installed, use a Ground Fault Equipment Protection Device. Electrical fault currents may be insufficient to trip a conventional circuit breaker. For ground fault protection, the IEEE 515: (www.ansi.org) standard for heating cables recommends the use of GFEPDs with a nominal 30 milliampere trip level for "piping systems in classified areas, those areas requiring a high degree of maintenance, or which may be exposed to physical abuse or corrosive atmospheres".

4.0 TUBE AND FITTINGS ASSEMBLY AND INSTALLATION INSTRUCTIONS

4.1 Component Inspection: Prior to assembly, a careful examination of the Tube and Fittings must be performed. All components must be checked for correct style, size, material, seal, and length. Inspect the Fitting and sealing surfaces for burrs, nicks, corrosion, missing seal or other imperfections. Do NOT use any component that displays any signs of nonconformance.

4.2 Tube and Fitting Assembly: Do not assemble a Parker Fitting with a Tube that is not specifically listed by Parker for that Fitting, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division. The Tube must meet the requirements specified to the Fitting. The Parker published instructions must be followed for assembling the Fittings to a Tube. These instructions are provided in the Parker Fitting catalog for the specific Parker Fitting being used, or by calling 1-800-CPARKER, or at www.parker.com.

4.3 Related Accessories: Do not preset or flange Parker Fitting components using another manufacturer's equipment or procedures unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division. Tube, Fitting component and tooling must be check for correct style, size and material. Operation and maintenance of Related Accessories must be in accordance with the operation manual for the designated Accessory.

4.4 Securement: In many applications, it may be necessary to restrain, protect, or guide the Tube to protect it from damage by unnecessary flexing, pressure surges, vibration, and contact with other mechanical components. Care must be taken to insure such restraints do not introduce additional stress or wear points.

4.5 Proper Connection of Ports: Proper physical installation of the Tube Assembly requires a correctly installed port connection insuring that no torque is transferred to the Tube when the Fittings are being tightened or otherwise during use.

4.6 External Damage: Proper installation is not complete without insuring that tensile loads, side loads, flattening, potential abrasion, thread damage or damage to sealing surfaces are corrected or eliminated. See instruction 2.10.

4.7 System Checkout: All air entrapment must be eliminated and the system pressurized to the maximum system pressure (at or below the Tube Assembly maximum working pressure) and checked for proper function and freedom from leaks. Personnel must stay out of potential hazardous areas while testing and using.

4.8 Routing: The Tube Assembly should be routed in such a manner so if a failure does occur, the escaping media will not cause personal injury or property damage. In addition, if fluid media comes in contact with hot surfaces, open flame or sparks, a fire or explosion may occur. See section 2.4.

5.0 HOSE AND FITTING MAINTENANCE AND REPLACEMENT INSTRUCTIONS

5.1 Even with proper selection and installation, Hose life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a possible Hose failure, and experience with any Hose failures in the application or in similar applications should determine the frequency of the inspection and the replacement for the Products so that Products are replaced before any failure occurs. Certain products require maintenance and inspection per industry requirements. Failure to adhere to these requirements may lead to premature failure. A maintenance program must be established and followed by the user and, at minimum, must include instructions 5.2 through 5.7

5.2 Visual Inspection Hose/Fitting: Any of the following conditions require immediate shut down and replacement of the Hose Assembly:
- Fitting slippage on Hose;
- Damaged, cracked, cut or abraded cover (any reinforcement exposed);
- Hard, stiff, heat cracked, or charred Hose;
- Cracked, damaged, or badly corroded Fittings;
- Leaks at Fitting or in Hose;
- Kinked, crushed, flattened or twisted Hose; and
- Blistered, soft, degraded, or loose cover.

5.3 Visual Inspection All Other: The following items must be tightened, repaired, corrected or replaced as required:
- Leaking port conditions;
- Excess dirt buildup;
- Worn clamps, guards or shields; and
- System fluid level, fluid type, and any air entrapment.

5.4 Functional Test: Operate the system at maximum operating pressure and check for possible malfunctions and leaks. Personnel must avoid potential hazardous areas while testing and using the system. See section 2.2.

5.5 Replacement Intervals: Hose assemblies and elastomeric seals used on Hose Fittings and adapters will eventually age, harden, wear and deteriorate under thermal cycling and compression set. Hose Assemblies and elastomeric seals should be inspected and replaced at specific replacement intervals, based on previous service life, government or industry recommendations, or when failures could result in unacceptable downtime, damage, or injury risk. See section 1.2. Hose and Fittings may be subjected to internal mechanical and/or chemical wear from the conveying fluid and may fail without warning. The user must determine the product life under such circumstances by testing. Also see section 2.5.

5.6 Hose Inspection and Failure: Hydraulic power is accomplished by utilizing high pressure fluids to transfer energy and do work. Hoses, Fittings and Hose Assemblies all contribute to this by transmitting fluids at high pressures. Fluids under pressure can be dangerous and potentially lethal and, therefore, extreme caution must be exercised when working with fluids under pressure and handling the Hoses transporting the fluids. From time to time, Hose Assemblies will fail if they are not replaced at proper time intervals. Usually these failures are the result of some form of misapplication, abuse, wear or failure to perform proper maintenance. When Hoses fail, generally the high pressure fluids inside escape in a stream which may or may not be visible to the user. Under no circumstances should the user attempt to locate the leak by "feeling" with their hands or any other part of their body. High pressure fluids can and will penetrate the skin and cause severe tissue damage and possibly loss of limb. Even seemingly minor hydraulic fluid injection injuries must be treated immediately by a physician with knowledge of the tissue damaging properties of hydraulic fluid. If a Hose failure occurs, immediately shut down the equipment and leave the area until pressure has been completely released from the Hose Assembly. Simply shutting down the hydraulic pump may or may not eliminate the pressure in the Hose Assembly. Many times check valves, etc., are employed in a system and can cause pressure to remain in a Hose Assembly even when pumps or equipment are not operating. Tiny holes in the Hose, commonly known as pinholes, can eject small, dangerously powerful but hard to see streams of hydraulic fluid. It may take several minutes or even hours for the pressure to be relieved so that the Hose Assembly may be examined safely. Once the pressure has been reduced to zero, the Hose Assembly may be taken off the equipment and examined. It must always be replaced if a failure has occurred. Never attempt to patch or repair a Hose Assembly that has failed. Consult the nearest Parker distributor or the appropriate Parker division for Hose Assembly replacement information. Never touch or examine a failed Hose Assembly unless it is obvious that the Hose no longer contains fluid under pressure. The high pressure fluid is extremely dangerous and can cause serious and potentially fatal injury.

5.7 Elastomeric seals: Elastomeric seals will eventually age, harden, wear and deteriorate under thermal cycling and compression set. Elastomeric seals should be inspected and replaced.

5.8 Refrigerant gases: Special care should be taken when working with refrigeration systems. Sudden escape of refrigerant gases can cause blindness if the escaping gases contact the eye and can cause freezing or other severe injuries if it contacts any other portion of the body.

5.9 Compressed natural gas (CNG): Parker CNG Hose Assemblies should be tested after installation and before use, and at least on a monthly basis per instructions provided on the Hose Assembly tag. The recommended procedure is to pressurize the Hose and check for leaks and to visually inspect the Hose for damage and to perform an electrical resistance test. Caution: Matches, candles, open flame or other sources of ignition shall not be used for Hose inspection. Leak check solutions should be rinsed off after use.

6.0 HOSE STORAGE

6.1 Age Control: Hose and Hose Assemblies must be stored in a manner that facilitates age control and first-in and first-out usage based on manufacturing date of the Hose and Hose Assemblies. Unless otherwise specified by the manufacturer or defined by local laws and regulations:

6.1.1 The shelf life of rubber hose in bulk form or hose made from two or more materials is 28 quarters (7 years) from the date of manufacture, with an extension of 12 quarters (3 years), if stored in accordance with ISO 2230;

6.1.2 The shelf life of thermoplastic and polytetrafluoroethylene hose is considered to be unlimited;

6.1.3 Hose assemblies that pass visual inspection and proof test shall not be stored for longer than 2 years.

6.1.4 Storage: Stored Hose and Hose Assemblies must not be subjected to damage that could reduce their expected service life and must be placed in a cool, dark and dry area with the ends capped. Stored Hose and Hose Assemblies must not be exposed to temperature extremes, ozone, oils, corrosive liquids or fumes, solvents, high humidity, rodents, insects, ultraviolet light, electromagnetic fields or radioactive materials.

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PARKER-HANNIFIN CORPORATION
OFFER OF SALE

1. **Definitions.** As used herein, the following terms have the meanings indicated.

Buyer: means any customer receiving a Quote for Products.

Goods: means any tangible part, system or component to be supplied by Seller.

Products: means the Goods, Services and/or Software as described in a Quote.

Quote: means the offer or proposal made by Seller to Buyer for the supply of Products.

Seller: means Parker-Hannifin Corporation, including all divisions and businesses thereof.

Services: means any services to be provided by Seller.

Software: means any software related to the Goods, whether embedded or separately downloaded.

Terms: means the terms and conditions of this Offer of Sale.

2. **Terms.** All sales of Products by Seller are expressly conditioned upon, and will be governed by the acceptance of, these Terms. These Terms are incorporated into any Quote provided by Seller to Buyer. Buyer's order for any Products whether communicated to Seller verbally, in writing, by electronic data interface or other electronic commerce, shall constitute acceptance of these Terms. Seller objects to any contrary or additional terms or conditions of Buyer. Reference in Seller's order acknowledgement to Buyer's purchase order or purchase order number shall in no way constitute an acceptance of any of Buyer's terms or conditions of purchase. No modification to these Terms will be binding on Seller unless agreed to in writing and signed by an authorized representative of Seller.

3. **Price; Payment.** The Products set forth in the Quote are offered for sale at the prices indicated in the Quote. Unless otherwise specifically stated in the Quote, prices are valid for thirty (30) days and do not include any sales, use, or other taxes or duties. Seller reserves the right to modify prices at any time to adjust for any raw material price fluctuations. Unless otherwise specified by Seller, all prices are F.C.A. Seller's facility (INCOTERMS 2020). All sales are contingent upon credit approval and full payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified in the Quote). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

4. **Shipment; Delivery; Title and Risk of Loss.** All delivery dates are approximate, and Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title and risk of loss or damage pass to Buyer, upon placement of the Products with the carrier at Seller's facility. Unless otherwise agreed prior to shipment and for domestic delivery locations only, Seller will select and arrange, at Buyer's sole expense, the carrier and means of delivery. When Seller selects and arranges the carrier and means of delivery, freight and insurance costs for shipment to the designated delivery location will be prepaid by Seller and added as a separate line item to the invoice. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer's acts or omissions. Buyer shall not return or repackage any Products without the prior written authorization from Seller, and any return shall be at the sole cost and expense of Buyer.

5. **Warranty.** The warranty for the Products is as follows: (i) Goods are warranted against defects in material or workmanship for a period of twelve (12) months from the date of delivery or 2,000 hours of use, whichever occurs first; (ii) Services shall be performed in accordance with generally accepted practices and using the degree of care and skill that is ordinarily exercised and customary in the field to which the Services pertain and are warranted for a period of six (6) months from the date of completion of the Services; and (iii) Software is only warranted to perform in accordance with applicable specifications provided by Seller to Buyer for ninety (90) days from the date of delivery or, when downloaded by a Buyer or end-user, from the date of the initial download. All prices are based upon the exclusive limited warranty stated above, and upon the following disclaimer: **EXEMPTION CLAUSE; DISCLAIMER OF WARRANTY, CONDITIONS, REPRESENTATIONS: THIS WARRANTY IS THE SOLE AND ENTIRE WARRANTY, CONDITION, AND REPRESENTATION, PERTAINING TO PRODUCTS. SELLER DISCLAIMS ALL OTHER WARRANTIES, CONDITIONS, AND REPRESENTATIONS, WHETHER STATUTORY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE RELATING TO DESIGN, NONINFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR FAULT-TOLERANT, OR THAT BUYER'S USE THEREOF WILL BE SECURE OR UNINTERRUPTED. UNLESS OTHERWISE AUTHORIZED IN WRITING BY SELLER, THE SOFTWARE SHALL NOT BE USED IN CONNECTION WITH HAZARDOUS OR HIGH RISK ACTIVITIES OR ENVIRONMENTS. EXCEPT AS EXPRESSLY STATED HEREIN, ALL PRODUCTS ARE PROVIDED "AS IS".**

6. **Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to Seller within ten (10) days of delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the non-conformance is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or any other theory, including tort, negligence, or otherwise must be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

7. **LIMITATION OF LIABILITY.** IN THE EVENT OF A BREACH OF WARRANTY, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE THE NON-CONFORMING PRODUCT, RE-PERFORM THE SERVICES, OR REFUND THE PURCHASE PRICE PAID WITHIN A REASONABLE PERIOD OF TIME. **IN NO EVENT IS SELLER LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING ANY LOSS OF REVENUE OR PROFITS, WHETHER BASED IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCTS.**

8. **Confidential Information.** Buyer acknowledges and agrees that any technical, commercial, or other confidential information of Seller, including, without limitation, pricing, technical drawings or prints and/or part lists, which has been or will be disclosed, delivered or made available, whether directly or indirectly, to Buyer ("Confidential Information"), has been and will be received in confidence and will remain the property of Seller. Buyer further agrees that it will not use Seller's Confidential Information for any purpose other than for the benefit of Seller.

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9. **Loss to Buyer's Property.** Any tools, patterns, materials, equipment or information furnished by Buyer or which are or become Buyer's property ("Buyer's Property"), will be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer ordering the Products manufactured using Buyer's Property. Furthermore, Seller shall not be responsible for any loss or damage to Buyer's Property while it is in Seller's possession or control.

10. **Special Tooling.** "Special Tooling" includes but is not limited to tools, jigs, fixtures and associated manufacturing equipment acquired or necessary to manufacture Goods. Seller may impose a tooling charge for any Special Tooling. Such Special Tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in the Special Tooling, even if such Special Tooling has been specially converted or adapted for manufacture of Goods for Buyer and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller has the right to alter, discard or otherwise dispose of any Special Tooling or other property owned by Seller in its sole discretion at any time.

11. **Security Interest.** To secure payment of all sums due from Buyer, Seller retains a security interest in all Products delivered to Buyer and, Buyer's acceptance of these Terms is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer's behalf all documents Seller deems necessary to perfect Seller's security interest.

12. **User Responsibility.** Buyer, through its own analysis and testing, is solely responsible for making the final selection of the Products and assuring that all performance, endurance, maintenance, safety and warning requirements of the application of the Products are met. Buyer must analyze all aspects of the application and follow applicable industry standards, specifications, and any technical information provided with the Quote or the Products, such as Seller's instructions, guides and specifications. If Seller provides options of or for Products based upon data or specifications provided by Buyer, Buyer is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products. In the event Buyer is not the end-user of the Products, Buyer will ensure such end-user complies with this paragraph.

13. **Use of Products, Indemnity by Buyer.** Buyer shall comply with all instructions, guides and specifications provided by Seller with the Quote or the Products. **Unauthorized Uses.** If Buyer uses or resells the Products in any way prohibited by Seller's instructions, guides or specifications, or Buyer otherwise fails to comply with Seller's instructions, guides and specifications, Buyer acknowledges that any such use, resale, or non-compliance is at Buyer's sole risk. Further, Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, intellectual property infringement or any other claim, arising out of or in connection with: (a) improper selection, design, specification, application, or any misuse of Products; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, tools, equipment, plans, drawings, designs, specifications or other information or things furnished by Buyer; (d) damage to the Products from an external cause, repair or attempted repair by anyone other than Seller, failure to follow instructions, guides and specifications provided by Seller, use with goods not provided by Seller, or opening, modifying, deconstructing, tampering with or repackaging the Products; or (e) Buyer's failure to comply with these Terms. Seller shall not indemnify Buyer under any circumstance except as otherwise provided in these Terms.

14. **Cancellations and Changes.** Buyer may not cancel or modify, including but not limited to movement of delivery dates for the Products, any order for any reason except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage and any additional expense. Seller, at any time, may change features, specifications, designs and availability of Products.

15. **Limitation on Assignment.** Buyer may not assign its rights or obligations without the prior written consent of Seller.

16. **Force Majeure.** Seller is not liable for delay or failure to perform any of its obligations by reason of events or circumstances beyond its reasonable control. Such circumstances include without limitation: accidents, labor disputes or stoppages, government acts or orders, acts of nature, pandemics, epidemics, other widespread illness, or public health emergency, delays or failures in delivery from carriers or suppliers, shortages of materials, war (whether declared or not) or the serious threat of same, riots, rebellions, acts of terrorism, fire or any reason whether similar to the foregoing or otherwise. Seller will resume performance as soon as practicable after the event of force majeure has been removed. All delivery dates affected by force majeure shall be tolled for the duration of such force majeure and rescheduled for mutually agreed dates as soon as practicable after the force majeure condition ceases to exist. Force majeure shall not include financial distress, insolvency, bankruptcy, or other similar conditions affecting one of the parties, affiliates and/or sub- contractors.

17. **Waiver and Severability.** Failure to enforce any provision of these Terms will not invalidate that provision; nor will any such failure prejudice either party's right to enforce that provision in the future. Invalidation of any provision of these Terms shall not invalidate any other provision herein and, the remaining provisions will remain in full force and effect.

18. **Termination.** Seller may terminate any agreement governed by or arising from these Terms for any reason and at any time by giving Buyer thirty (30) days prior written notice. Seller may immediately terminate, in writing, if Buyer: (a) breaches any provision of these Terms, (b) becomes or is deemed insolvent, (c) appoints or has appointed a trustee, receiver or custodian for all or any part of Buyer's property, (d) files a petition for relief in bankruptcy on its own behalf, or one is filed against Buyer by a third party, (e) makes an assignment for the benefit of creditors; or (f) dissolves its business or liquidates all or a majority of its assets.

19. **Ownership of Software.** Seller retains ownership of all Software supplied to Buyer hereunder. In no event shall Buyer obtain any greater right in and to the Software than a right in the nature of a license limited to the use thereof and subject to compliance with any other terms provided with the Software.

20. **Indemnity for Infringement of Intellectual Property Rights.** Seller is not liable for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights ("Intellectual Property Rights") except as provided in this Section. Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on a third party claim that one or more of the Products sold hereunder infringes the Intellectual Property Rights of a third party in the country of delivery of the Products by Seller to Buyer. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of any such claim, and Seller having sole control over the defense of the claim including all negotiations for settlement or compromise. If one or more Products sold hereunder is subject to such a claim, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Products, replace or modify the Products so as to render them non-infringing, or offer to accept return of the Products and refund the purchase price less

a reasonable allowance for depreciation. Seller has no obligation or liability for any claim of infringement: (i) arising from information provided by Buyer; or (ii) directed to any Products provided hereunder for which the designs are specified in whole or part by Buyer; or (iii) resulting from the modification, combination or use in a system of any Products provided hereunder. The foregoing provisions of this Section constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for claims of infringement of Intellectual Property Rights.

21. **Governing Law.** These Terms and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to the sale and delivery of the Products.

22. **Entire Agreement.** These Terms, along with the terms set forth in the main body of any Quote, forms the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale and purchase. In the event of a conflict between any term set forth in the main body of a Quote and these Terms, the terms set forth in the main body of the Quote shall prevail. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter shall have no effect. These Terms may not be modified unless in writing and signed by an authorized representative of Seller.

23. **Compliance with Laws.** Buyer agrees to comply with all applicable laws, regulations, and industry and professional standards, including those of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U.S. Foreign Corrupt Practices Act ("FCPA"), the U.S. Anti-Kickback Act ("Anti- Kickback Act"), U.S. and E.U. export control and sanctions laws ("Export Laws"), the U.S. Food Drug and Cosmetic Act ("FDCA"), and the rules and regulations promulgated by the U.S. Food and Drug Administration ("FDA"), each as currently amended. Buyer agrees to indemnify, defend, and hold harmless Seller from the consequences of any violation of such laws, regulations and standards by Buyer, its employees or agents. Buyer acknowledges that it is familiar with all applicable provisions of the FCPA, the Anti-Kickback Act, Export Laws, the FDCA and the FDA and certifies that Buyer will adhere to the requirements thereof and not take any action that would make Seller violate such requirements. Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly, to any governmental official, foreign political party or official thereof, candidate for foreign political office, or commercial entity or person, for any improper purpose, including the purpose of influencing such person to purchase Products or otherwise benefit the business of Seller. Buyer further represents and agrees that it will not receive, use, service, transfer or ship any Products from Seller in a manner or for a purpose that violates Export Laws or would cause Seller to be in violation of Export Laws. Buyer agrees to promptly and reliably provide Seller all requested information or documents, including end-user statements and other written assurances, concerning Buyer's ongoing compliance with Export Laws.

Parker's Motion & Control Product Groups

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 1 800 C-Parker (1 800 272 7537).

Aerospace

Key Markets

Aftermarket services
Commercial transports
Engines
General & business aviation
Helicopters
Launch vehicles
Military aircraft
Missiles
Power generation
Regional transports
Unmanned aerial vehicles

Key Products

Control systems & actuation products
Engine systems & components
Fluid conveyance systems & components
Fluid metering, delivery & atomization devices
Fuel systems & components
Fuel tank inerting systems
Hydraulic systems & components
Thermal management
Wheels & brakes

Automation

Key Markets

Alternative energy
Conveyor & material handling
Factory automation
Food & beverage
Life sciences & medical
Machine tools
Packaging machinery
Paper machinery
Plastics machinery
Primary metals
Safety & security
Semiconductor & electronics
Transportation & automotive

Key Products

AC/DC drives & systems
Air preparation
Electric actuators, gantry robots & slides
Human machine interfaces
Inverters
Manifolds
Miniature fluidics
Pneumatic actuators & grippers
Pneumatic valves & controls
Rotary actuators
Stepper motors, servo motors, drives & controls
Structural extrusions
Vacuum generators, cups & sensors

Climate & Industrial Controls

Key Markets

Agriculture
Air conditioning
Construction Machinery
Food & beverage
Industrial machinery
Life sciences
Oil & gas
Precision cooling
Process
Refrigeration
Transportation

Key Products

Accumulators
Advanced actuators
CO_2 controls
Electronic controllers
Filter driers
Hand shut-off valves
Heat exchangers
Hose & fittings
Pressure regulating valves
Refrigerant distributors
Safety relief valves
Smart pumps
Solenoid valves
Thermostatic expansion valves

Filtration

Key Markets

Aerospace
Food & beverage
Industrial plant & equipment
Life sciences
Marine
Mobile equipment
Oil & gas
Power generation & renewable energy
Process
Transportation
Water Purification

Key Products

Analytical gas generators
Compressed air filters & dryers
Engine air, coolant, fuel & oil filtration systems
Fluid condition monitoring systems
Hydraulic & lubrication filters
Hydrogen, nitrogen & zero air generators
Instrumentation filters
Membrane & fiber filters
Microfiltration
Sterile air filtration
Water desalination & purification filters & systems

Fluid Connectors

Key Markets

Aerial lift
Agriculture
Bulk chemical handling
Construction machinery
Food & beverage
Fuel & gas delivery
Industrial machinery
Life sciences
Marine
Mining
Mobile
Oil & gas
Renewable energy
Transportation

Key Products

Check valves
Connectors for low pressure fluid conveyance
Deep sea umbilicals
Diagnostic equipment
Hose couplings
Industrial hose
Mooring systems & power cables
PTFE hose & tubing
Quick couplings
Rubber & thermoplastic hose
Tube fittings & adapters
Tubing & plastic fittings

Hydraulics

Key Markets

Aerial lift
Agriculture
Alternative energy
Construction machinery
Forestry
Industrial machinery
Machine tools
Marine
Material handling
Mining
Oil & gas
Power generation
Refuse vehicles
Renewable energy
Truck hydraulics
Turf equipment

Key Products

Accumulators
Cartridge valves
Electrohydraulic actuators
Human machine interfaces
Hybrid drives
Hydraulic cylinders
Hydraulic motors & pumps
Hydraulic systems
Hydraulic valves & controls
Hydrostatic steering
Integrated hydraulic circuits
Power take-offs
Power units
Rotary actuators
Sensors

Instrumentation

Key Markets

Alternative fuels
Biopharmaceuticals
Chemical & refining
Food & beverage
Marine & shipbuilding
Medical & dental
Microelectronics
Nuclear Power
Offshore oil exploration
Oil & gas
Pharmaceuticals
Power generation
Pulp & paper
Steel
Water/wastewater

Key Products

Analytical Instruments
Analytical sample conditioning products & systems
Chemical injection fittings & valves
Fluoropolymer chemical delivery fittings, valves & pumps
High purity gas delivery fittings, valves, regulators & digital flow controllers
Industrial mass flow meters/controllers
Permanent no-weld tube fittings
Precision industrial regulators & flow controllers
Process control double block & bleeds
Process control fittings, valves, regulators & manifold valves

Seal

Key Markets

Aerospace
Chemical processing
Consumer
Fluid power
General industrial
Information technology
Life sciences
Microelectronics
Military
Oil & gas
Power generation
Renewable energy
Telecommunications
Transportation

Key Products

Dynamic seals
Elastomeric o-rings
Electro-medical instrument design & assembly
EMI shielding
Extruded & precision-cut, fabricated elastomeric seals
High temperature metal seals
Homogeneous & inserted elastomeric shapes
Medical device fabrication & assembly
Metal & plastic retained composite seals
Shielded optical windows
Silicone tubing & extrusions
Thermal management
Vibration dampening

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