



PSC

Precision System Components



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PSC - Precision System Components Valves, Fittings and Tubing

PSC from KMT Waterjet Systems represents a whole new standard in valves, fittings and tubing required for durable, reliable UHP production from 66,000psi to 100,000psi.

With over 30 years of experience manufacturing waterjet pumps, components and parts, KMT Waterjet Systems is committed to providing the highest value and finest genuine quality precision waterjet valves, fittings and tubing ranging from 66,000psi to 100,000psi. This includes the best parts inventory, the most responsive global technical services team, and the most extensive product information available in the waterjet industry.

With PSC genuine products from KMT Waterjet Systems, you are assured to receive exceptional valves, fittings and tubing as well as extraordinary customer service. At KMT, manufacturing genuine quality waterjet products and parts is our strength.

It is critical to choose PSC parts from KMT Waterjet to guarantee that the KMT pump performs at the most optimal efficiency.

Why Genuine PSC Parts from KMT Waterjet Systems:

- Non-Genuine valves, fittings and tubing do not meet KMT specifications, voiding warranty.
- The slightest variation of imitation knock off brands can cause poor performance and damage to the pump from shavings from the VFT.
- Genuine KMT Parts - Highest-quality genuine parts TESTED for Ultra High Pressure Waterjet Pumps for immediate shipment.
- Global network of KMT sales, support personnel and OEM network with extensive service expertise for troubleshooting support.
- Reduce the risk of downtime and cut maintenance and repair costs with KMT Genuine PSC parts.
- 24/7 Customer Service Support - When every hour counts.
- Ideal for use with the KMT Streamline PRO® 90,000psi, 125hp and 60hp UHP pumps.
- KMT PSC parts have a 6 month limited warranty.
- Quick Ship of stock items for same day emergency delivery or in one business day.
- www.kmtstore.com listing PSC parts for convenience of ordering online.



The waterjet spare parts product lines within Precision System Components (PSC) were developed on the basis of customer input and KMT's experience with extreme pressure systems. Key attributes identified as top needs before development began were durability, reliability and availability.

DURABILITY – PSC waterjet parts are designed with features that make them durable and reliable even in harsh environments. For example, the high-pressure valves were made with heavy-duty metal handles, machined with finger grips and given higher grade stainless steel valve stems.

IN STOCK – The waterjet spare parts are stocked in large quantities to allow quick delivery by KMT Waterjet Systems and a growing network of leading distributors (OEM). We know that these are critical waterjet components for continuous manufacturing with minimal downtime.

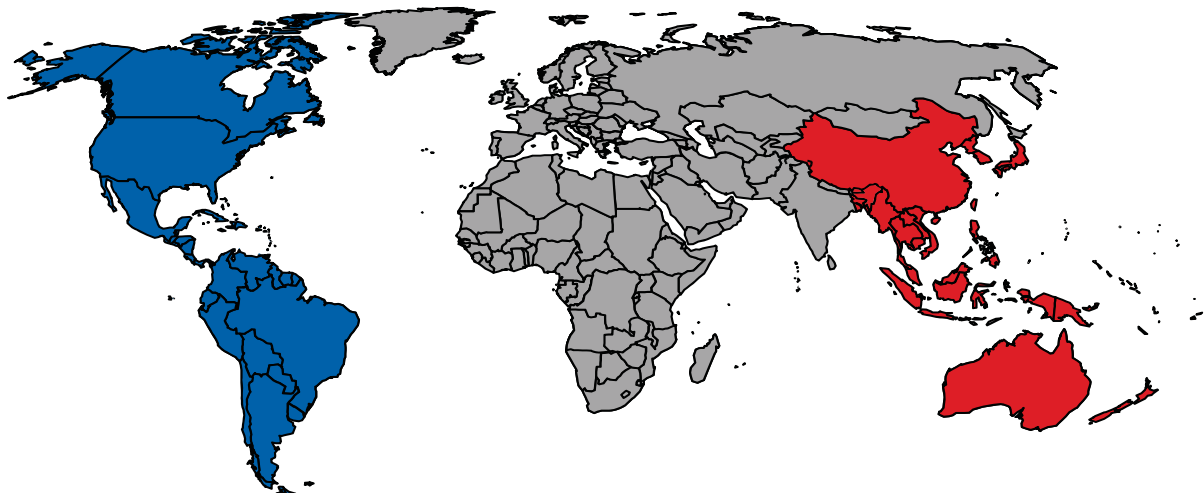
BACKED BY KMT – KMT Waterjet Systems has a strong reputation for responsiveness, service and reliable waterjet equipment. These attributes were carried over to the PSC line, where the new valves were deep cycle tested for performance.

The net result is a new line of 66,000psi to 100,000psi waterjet valves, fittings and tubing that are made using precision production machines, better materials and new designs. Even in the toughest environments, PSC parts offer performance that is unmatched by other waterjet manufacturers.



KMT is committed to ISO 9001 quality assurance standards and has implemented ongoing quality improvement programs to continuously cycle test and enhance our products to provide customers with the best performing product available.

KMT has completed a deep cycle test study conducted on several KMT products compared to similar competitor's products. The results; KMT's valves and fittings out performed competitive products by up to 14% longer life of the parts.



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Fax Ordering Form - KMT PSC Parts *(USA ONLY)*

Photocopy this form, fill in your order and fax to 620-856-2242

Company Name:_____

Shipping Address:_____

City/State/ZipCode:_____

Person Placing Order:_____

E-mail: _____

Phone Number where you can be reached:_____

(You will be contacted by a KMT representative with your pricing)

[illegible]☐ **CHECK BOX FOR QUICK SHIP PROGRAM.**
NEXT DAY DELIVERY CHARGES WILL APPLY.

Total number of pages faxed: _____



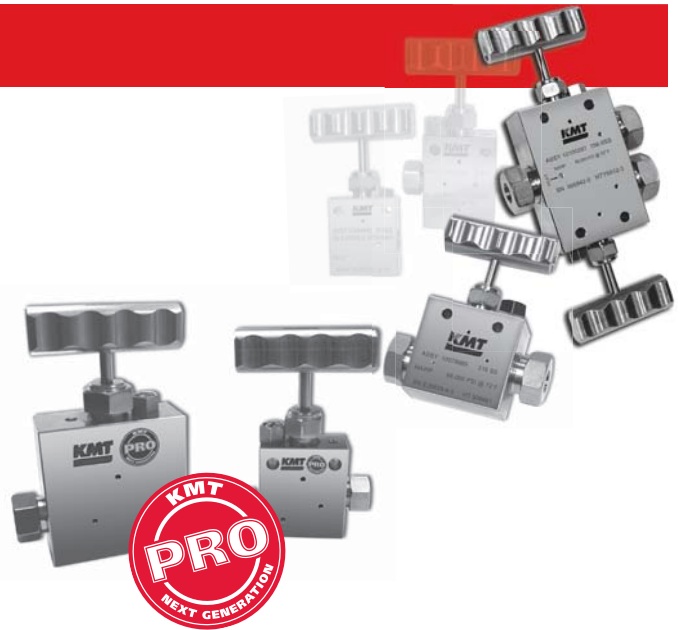
MANUAL NEEDLE VALVES

KMT PSC High Pressure, 66,000 PSI/4550 bar Valves are made from a high grade of cold worked 316 stainless steel construction for durability under extreme pressure applications.

KMT PSC PRO Line of 100,000 PSI/6895 bar Valves are engineered for Ultra-High pressure applications up to 100,000 PSI and feature heat treated 15-5 PH stainless steel construction and premium chevron style packing.

All KMT PSC Valves are deep cycle tested for performance under extreme conditions and are available in all industry-standard sizes and body patterns.

PSC Valves are available for quick delivery and designed for safe, reliable operation in even harsh environments. PSC Valves can be configured in a large number of ways for flexibility required in multiple applications (see options, page NV-2).



- **Tube Sizes from 1/4" (6.35 mm) to 3/4" (19.05 mm).**
- **Coned & threaded connections provide dependable performance in gas or liquid service.**
- **Operating temperatures from -423° F (-252° C) to 1200° F (649° C).**
- **Non-rotating stem to prevent galling and scoring.**
- **Metal to metal seating.**
- **Six different body patterns, with choice of several stem styles.**
- **Safety weep holes for all pressure connections and stem packing area.**

Description Index

- **Part Numbers for Needle Valve Options.....NV-2**
- **Needle Valve Stem Options.....NV-3**
- **High/Ultra-High Pressure Valves - Tube Sizes.....NV-4**
- **High Pressure Needle Valves - Up To 66,000 PSI/4550 bar.....NV-5 to NV-7**
- **PRO Ultra-High Pressure Needle Valves - 100,000 PSI/6895 bar.....NV-8**
- **Needle Valve Actuators.....NV-9 to NV-10**

Part Numbers for Needle Valve Options

In addition to standard, base catalog parts, parts can be configured to fit almost any need.

CATALOG NUMBER FORMAT

Needle Valve Catalog Number → 1 2 3 4 5 6 7 8 - 1 2 3 4 5 6 7

NEEDLE VALVE OPTIONS:

CONNECTION FITTING

- 0 Standard Connection Fittings
- 1 Anti-Vibration Collet Gland

PACKING

- 0 Standard Valve Packing - Glass Filled - Service to 600° F (315° C)
Tivar (UHMW PE)/Ampco45 Chevron Packing for UHP - Service to 275° F (135° C)
- 1 Grafoil Packing; Service to 800° F (426° C) N/A for UHP
- 2 Teflon Packing; Service to 450°F (232° C) N/A for UHP
- 3 Premium Chevron Packing on 1/4" (6.35 mm), 3/8" (9.25 mm) & 9/16" (14.27 mm)
66,000 PSI Needle Valves (Standard on PRO 100,000 PSI Valves)

STEM

- 0 Standard-Vee Valve Stem
- 1 Regulating Stem
- 2 Metering Stem
- 3 (For Future Use)
- 4 Stellite Stem
- 5 (For Future Use)
- 6 316SS Wetted Parts (N/A for PRO 100,000 PSI)

ACTUATOR (For Actuator Application Information, See Pg.'s NV-9 to NV-10)

- 0 Standard Hand Valve
- 1 Air to Close 5"/127 mm
- 2 Air to Open 5"/127 mm
- 3 Air to Close 8"/203 mm
- 4 Air to Open 8"/203 mm

APPLICATION

- 0 Standard Valve
- 1 Cryogenic
- 2 High Temperature

MATERIAL

- 0 HP (66k) Valve 316SS CW - PRO Valves are 15-5 PH SST as a Standard
- 1 Hastelloy™ "C"
- 2 Monel 400™
- 3 Inconel 600
- 4 Inconel 625
- 5 Duplex 2205
- 6 Super Duplex 2507
- 7 Titanium
- 8 15-5 PH SST (Option for 66,000 PSI/4136 bar Valves)

MOUNTING AND HANDLES

- 0 Standard Valve
- 1 Panel Mounted Packing Gland
- 2 Handle Locking Device (Prevents unauthorized open/closing valves)
- 3 Stem Locking Device (Prevents stem from turning due to vibration)



EXAMPLE NUMBER

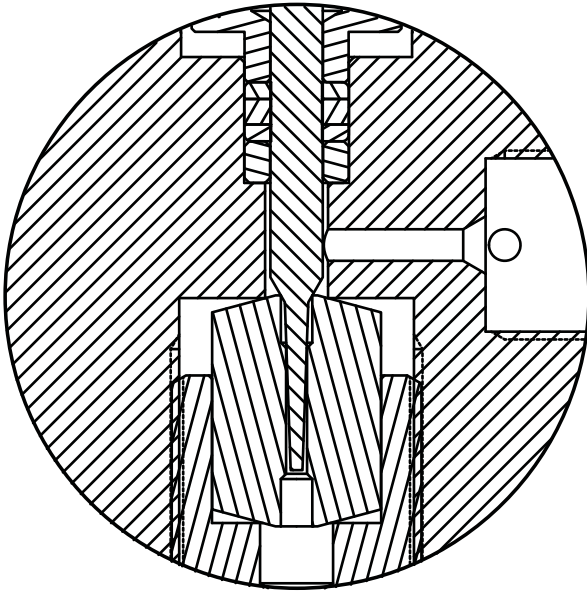
1 0 0 7 8 8 8 9 - 0 1 1 0 0 0 1 *

**10078889-0110001 = 66,000 PSI/4136 bar Valve, 9/16"/14.27mm
Straight - Standard Connection Fittings, Grafoil Packing,
Regulating Stem, No Actuator, No Special Service, Standard
316SS Material and Panel Mounted Packing Gland**

***Repair Kit - Add letters "RK" at the end of complete catalog number.**

Needle Valve Stem Options

KMT offers three different stem geometries for needle valves.

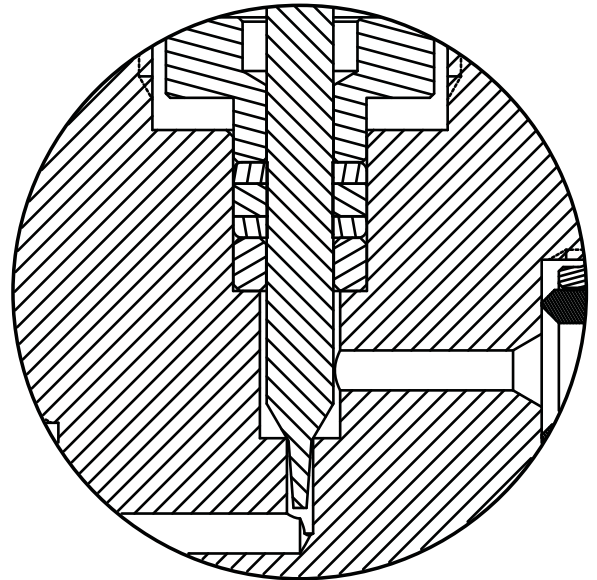


METERING STEM

For precise control of small flows.

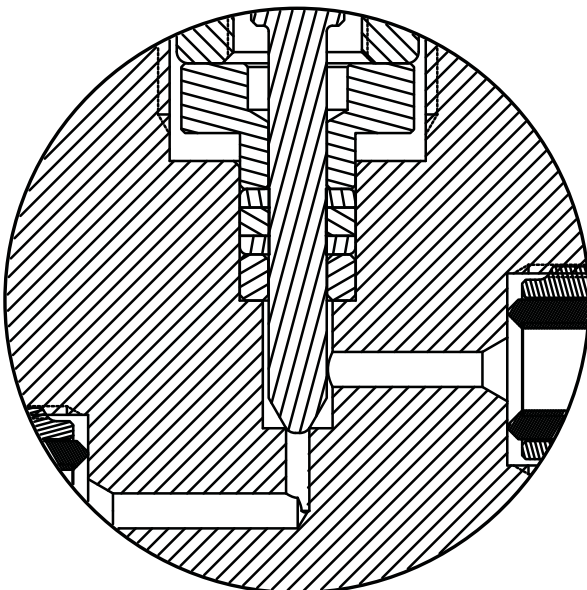
REGULATING STEM

For more precise control of flow than that of the Vee Stem, the KMT non-rotating, dual profile regulating stem for control and shut-off. The Regulating Stem has a 4° taper at the tip with a standard 60° section for shut-off.



VEE STEM

For direct on/off and metal to metal shut-off with quick opening flow characteristics.

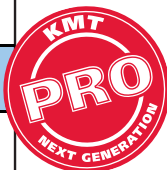


High/Ultra-High Pressure Valves

• Tube Sizes: 1/4"/6.35 mm through 3/4"/ 19.05 mm • Pressures to 100,000 PSI/6895 bar

HIGH/ULTRA-HIGH PRESSURE VALVES

Tube OD (inches/mm)	Connection (inches/mm)	Orifice (inches/mm)	Cv*	MAWP+
1/4 (6.35)	1/4 HP (6.35 HP)	0.062 (1.6)	0.08	66,000 PSI 4550 bar
3/8 (9.65)	3/8 HP (9.65 HP)	0.062 (1.6)	0.09	66,000 PSI 4550 bar
9/16 (14.27)	9/16 HP (14.27 HP)	0.078 (2.0)	0.14	66,000 PSI 4550 bar
3/4 (19.05)	3/4 HP (19.05 HP)	0.156 (4.0)	0.50	66,000 PSI 4550 bar
1/4 (6.35)	1/4 HP (6.35 HP)	0.062 (1.6)	0.08	100,000 PSI 6895 bar
3/8 (9.65)	3/8 HP (9.65 HP)	0.062 (1.6)	0.09	100,000 PSI 6895 bar
9/16 (14.27)	9/16 HP (14.27 HP)	0.078 (2.0)	0.14	100,000 PSI 6895 bar



• KMT High Pressure (66,000 PSI/4550 bar) & Ultra-High Pressure (PRO 100,000 PSI/6895 bar) Valves are available in a variety of body styles and operate at temperatures ranging from -100° F (-73° C) up to 600° F (315° C).

• Packing Options and Extended Stuffing Boxes provide additional temperature ranges from -423° F (-253° C) up to 1200° F (648° C).

• *Cv values listed are for 2-way straight pattern valves excluding metering valves.

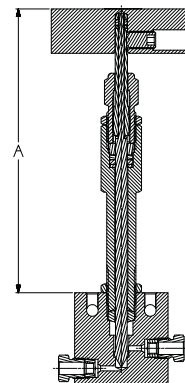
• For 2-way angle pattern valves, increase Cv value by 50%.

• For metering valves: Cv = .004, Port size = 0.062"/1.57 mm

• +Maximum Allowable Working Pressure at 72° F (22° C)

CYLINDRICAL BONNET

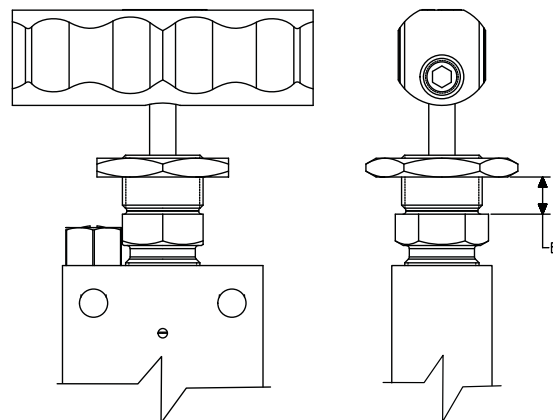
-HT OR -LT OPTIONS



• See page NV-2 for ordering catalog number

Valve/Size (inches/mm)	A (inches/mm)
66,000 PSI/4550 bar 1/4 - 9/16 (6.35 - 14.27)	5.88 (149.4)

PANEL MOUNT

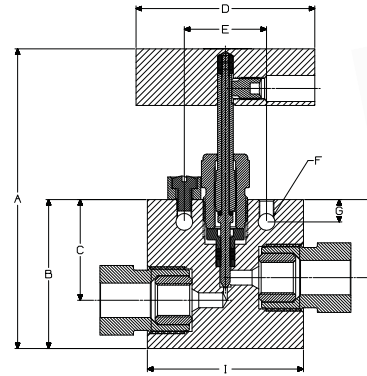


Valve Size (inches/mm)	Panel Hole Size (in./mm)	Max. Panel Thickness (in./mm)	B (inches/mm)
66,000 PSI/4550 bar 1/4 - 9/16 (6.35 - 14.27)	0.84 (21.3)	0.37 (9.4)	0.48 (12.2)

• Panel mount packing gland

High Pressure Needle Valves

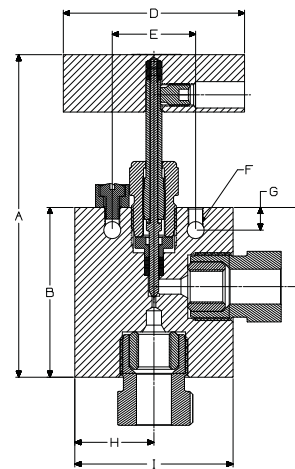
66,000 PSI/4550 bar



66,000 PSI/4550 bar

2-WAY STRAIGHT

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)									Block Thickness In. (mm)
			A	B	C	D	E	F	G	H	I	
10079259	1/4 (6.35)	0.06 (1.6)	4.65 (118.1)	2.12 (53.8)	1.69 (42.9)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.31 (33.3)	2.00 (50.8)	1.00 (25.4)
10078863	3/8 (9.65)	0.06 (1.6)	4.78 (121.4)	2.25 (57.2)	1.69 (42.9)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.31 (33.3)	2.00 (50.8)	1.00 (25.4)
10078889	9/16 (14.27)	0.08 (2.0)	5.03 (127.8)	2.50 (63.5)	1.69 (42.9)	3.00 (76.2)	1.38 (35)	.28 (7.1)	.38 (9.7)	1.31 (33.3)	2.62 (66.5)	1.50 (38.1)
49832926	3/4 (19.05)	0.16 (4.0)	7.72 (196.1)	3.38 (85.8)	2.44 (62.0)	6.00 (152.4)	1.76 (44.7)	.44 (11.2)	.62 (15.75)	1.94 (49.3)	3.62 (91.9)	1.75 (44.4)



66,000 PSI/4550 bar

2-WAY ANGLE

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)									Block Thickness In. (mm)
			A	B	C	D	E	F	G	H	I	
10079002	1/4 (6.35)	0.06 (1.6)	4.91 (124.7)	2.38 (60.5)	1.31 (33.3)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.00 (25.4)	2.00 (50.8)	1.00 (25.4)
10078749	3/8 (9.65)	0.06 (1.6)	5.15 (130.8)	2.62 (66.5)	1.31 (33.3)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.00 (25.4)	2.00 (50.8)	1.00 (25.4)
10079275	9/16 (14.27)	0.08 (2.0)	5.34 (135.6)	2.81 (71.4)	1.31 (33.3)	3.00 (76.2)	1.38 (35)	.28 (7.1)	.38 (9.7)	1.31 (33.3)	2.62 (66.5)	1.50 (38.1)
20447516	3/4 (19.05)	0.16 (4.0)	8.34 (211.8)	4.00 (101.6)	1.94 (49.3)	6.00 (152.4)	1.76 (44.7)	0.438 (11.12)	0.62 (15.75)	1.81 (46.0)	3.62 (91.95)	1.75 (44.4)

*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)

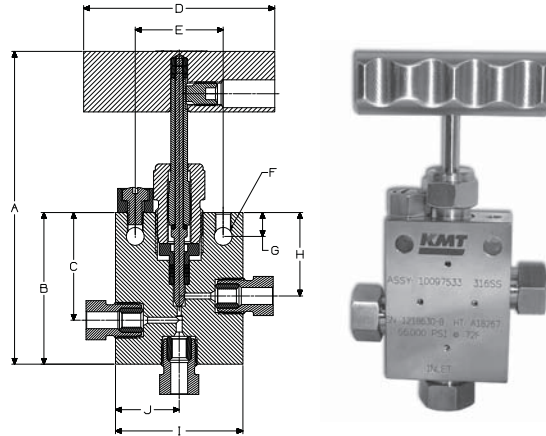
Note: The "A" dimension is with stem in closed position. See Page NV-2 for Needle Valve Options.



All dimensions are for reference only. All dimensions are subject to change.

High Pressure Needle Valves

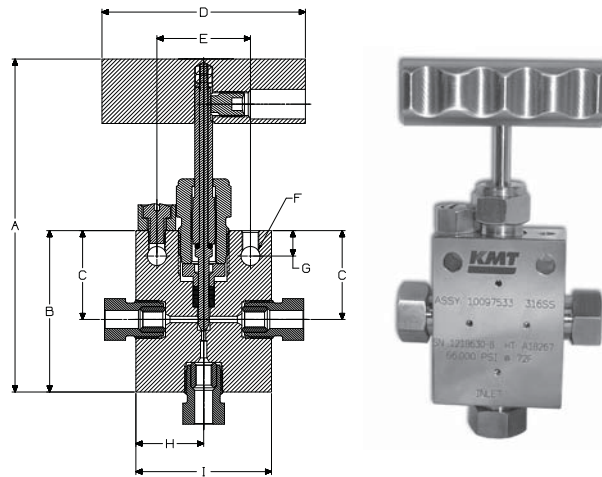
66,000 PSI/4550 bar



66,000 PSI/4550 bar

3-WAY TWO ON PRESSURE

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)										Block Thickness In. (mm)
			A	B	C	D	E	F	G	H	I	J	
20447534	1/4 (6.35)	0.06 (1.6)	4.91 (124.71)	2.38 (60.5)	1.69 (42.9)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.31 (33.3)	2.00 (50.8)	1.00 (25.4)	1.00 (25.4)
05137724	3/8 (9.65)	0.06 (1.6)	5.28 (134.11)	2.75 (69.9)	1.69 (42.9)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.31 (33.3)	2.00 (50.8)	1.00 (25.4)	1.00 (25.4)
10153500	9/16 (14.27)	0.08 (2.0)	5.56 (141.22)	3.03 (77.0)	1.75 (44.5)	3.00 (76.2)	1.38 (35)	.28 (7.1)	.38 (9.7)	1.31 (33.3)	2.62 (66.5)	1.31 (33.3)	1.50 (38.1)
20447542	3/4 (19.05)	0.16 (4.0)	8.84 (224.53)	4.50 (114.3)	2.63 (66.8)	6.00 (152.4)	1.76 (44.7)	0.438 (11.12)	0.62 (15.74)	1.94 (49.28)	3.62 (91.94)	1.81 (45.97)	1.75 (44.45)



66,000 PSI/4550 bar

3-WAY ONE ON PRESSURE

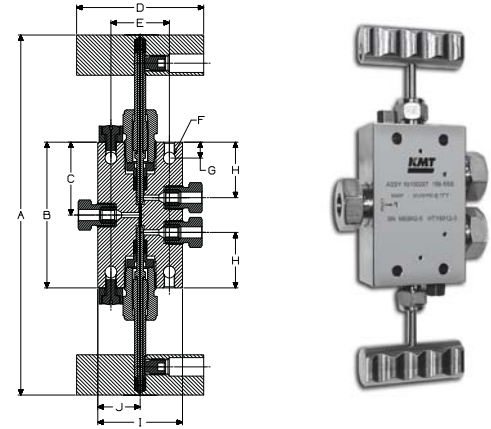
Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)									Block Thickness In. (mm)
			A	B	C	D	E	F	G	H	I	
20447550	1/4 (6.35)	0.06 (1.6)	4.91 (124.7)	2.38 (60.5)	1.31 (33.3)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.00 (25.4)	2.00 (50.8)	1.00 (25.4)
10097533	3/8 (9.65)	0.06 (1.6)	5.15 (130.81)	2.62 (66.5)	1.31 (33.3)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.00 (25.4)	2.00 (50.8)	1.00 (25.4)
10097541	9/16 (14.27)	0.08 (2.0)	5.34 (135.63)	2.81 (71.4)	1.31 (33.3)	3.00 (76.2)	1.38 (35)	.28 (7.1)	.38 (9.7)	1.31 (33.3)	2.62 (66.5)	1.50 (38.1)
20447558	3/4 (19.05)	0.16 (4.0)	8.34 (211.83)	4.00 (101.6)	1.94 (116.33)	6.00 (154.2)	1.76 (44.7)	0.438 (11.12)	0.62 (15.75)	1.81 (45.97)	3.62 (91.94)	1.75 (44.45)

*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)

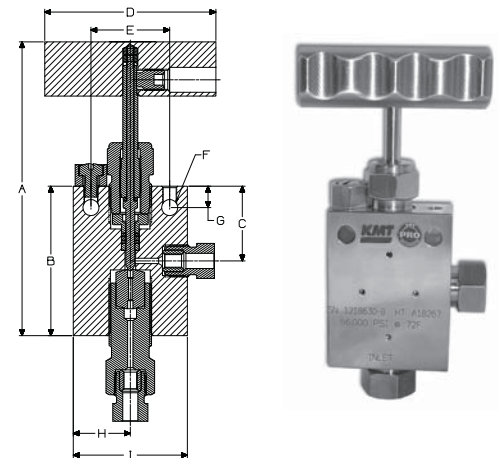
Note: The "A" dimension is with stem in closed position. See Page NV-2 for Needle Valve Options.

High Pressure Needle Valves

66,000 PSI/4550 bar



66,000 PSI/4550 bar													2-STEM MANIFOLD
Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)										Block Thickness In. (mm)
			A	B	C	D	E	F	G	H	I	J	
80077712	1/4 (6.35)	0.06 (1.6)	8.50 (215.9)	3.44 (87.4)	1.72 (43.7)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.31 (33.3)	2.00 (50.8)	1.00 (25.4)	1.00 (25.4)
10119030	3/8 (9.65)	0.06 (1.6)	8.81 (223.77)	3.75 (95.3)	1.88 (47.8)	3.00 (76.2)	1.38 (35)	.25 (6.4)	.38 (9.7)	1.31 (33.3)	2.00 (50.8)	1.00 (25.4)	1.00 (25.4)
10100287	9/16 (14.27)	0.08 (2.0)	9.06 (230.12)	4.12 (104.6)	2.06 (52.3)	3.00 (76.2)	1.38 (35)	.28 (7.1)	.38 (9.7)	1.31 (33.3)	2.62 (66.5)	1.31 (33.3)	1.50 (38.1)
20447599	3/4 (19.05)	0.16 (4.0)	15.40 (391.16)	6.72 (170.70)	3.36 (85.34)	6.00 (152.4)	1.76 (44.7)	.44 (11.2)	.62 (15.75)	1.94 (49.3)	3.62 (91.9)	1.81 (46.0)	1.75 (44.4)



66,000 PSI/4550 bar													2-WAY ANGLE REPLACEABLE SEAT												
Catalog Number	O.D. Tube Size In.	Orifice In. (mm)	Dimensions in. (mm)										Block Thickness In. (mm)												
			A	B	C	D	E	F	G	H	I														
20447607	1/4	0.06 (1.6)	5.15 (130.8)	2.62 (66.5)	1.31 (33.3)	3.00 (76.2)	1.38 (35.0)	.28 (7.1)	.38 (9.7)	1.00 (25.4)	2.00 (50.8)	1.00 (25.4)													
20447615	3/8	0.09 (2.3)	5.12 (130.0)	2.62 (66.5)	1.31 (33.3)	3.00 (76.2)	1.38 (35.0)	.28 (7.1)	.38 (9.7)	1.00 (25.4)	2.00 (50.8)	1.00 (25.4)													
20447633	9/16	0.09 (2.3)	5.12 (130.0)	2.62 (66.5)	1.31 (33.3)	3.00 (76.2)	1.38 (35)	.28 (7.1)	.38 (9.7)	1.31 (33.3)	2.62 (66.5)	1.50 (38.1)													
20447641	3/4	0.16 (4.0)	8.25 (209.6)	4.00 (101.6)	1.94 (49.3)	6.00 (152.4)	1.76 (44.7)	.44 (11.2)	.62 (15.75)	1.81 (46.0)	3.62 (91.9)	1.75 (44.4)													

*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)
 Note: The "A" dimension is with stem in closed position. See Page NV-2 for Needle Valve Options.

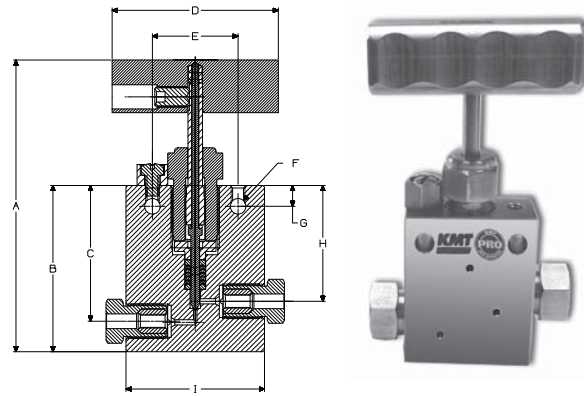


All dimensions are for reference only. All dimensions are subject to change.

NV-7

Ultra-High Pressure Needle Valves

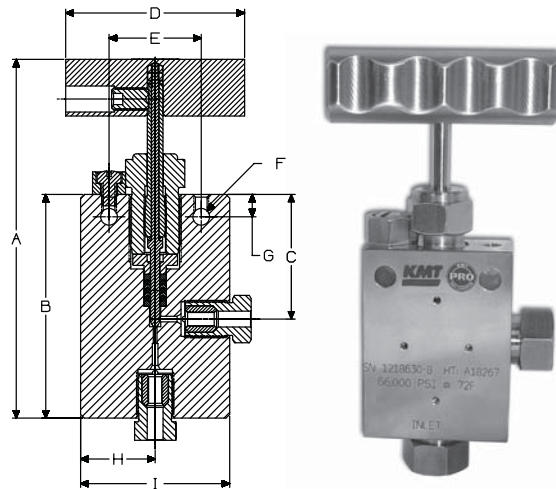
100,000 PSI/6895 bar



PRO 100,000 PSI/6895 bar

2-WAY STRAIGHT

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)									Block Thickness In. (mm)
			A	B	C	D	E	F	G	H	I	
20467981	1/4 (6.35)	0.06 (1.6)	5.26 (133.6)	3.00 (76.2)	2.45 (62.2)	3.00 (76.2)	1.54 (39.11)	0.281 (7.14)	0.375 (9.5)	2.09 (53.1)	2.50 (63.5)	1.25 (31.75)
20468568	3/8 (9.65)	0.06 (1.6)	5.26 (133.6)	3.00 (76.2)	2.35 (59.7)	3.00 (76.2)	1.54 (39.11)	0.281 (7.14)	0.375 (9.5)	2.04 (51.8)	3.00 (76.2)	1.25 (31.75)
20468014	9/16 (14.27)	0.08 (2.0)	5.77 (146.5)	3.50 (88.9)	2.50 (63.5)	3.00 (76.2)	1.54 (39.11)	0.281 (7.14)	0.375 (9.5)	2.04 (51.8)	4.00 (101.6)	1.75 (44.4)



PRO 100,000 PSI/6895 bar

2-WAY ANGLE

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)									Block Thickness In. (mm)
			A	B	C	D	E	F	G	H	I	
20468610	1/4 (6.35)	0.06 (1.6)	6.01 (152.6)	3.75 (95.25)	2.09 (53.08)	3.00 (76.2)	1.54 (39.11)	0.281 (7.14)	.375 (9.52)	1.25 (31.75)	2.50 (63.5)	1.25 (31.75)
20468593	3/8 (9.65)	0.06 (1.6)	6.26 (159.0)	4.00 (101.6)	2.04 (51.81)	3.00 (76.2)	1.54 (39.11)	0.281 (7.14)	.375 (9.52)	1.50 (38.1)	3.00 (76.2)	1.25 (31.75)
20477836	9/16 (14.27)	0.08 (2.0)	7.69 (195.32)	4.41 (112.01)	2.04 (51.81)	3.00 (76.2)	1.54 (39.11)	0.281 (7.14)	.375 (9.52)	2.00 (50.8)	4.00 (101.6)	1.75 (44.4)

*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)

Note: The "A" dimension is with stem in closed position. See Page NV-2 for Needle Valve Options.

Needle Valve Actuators

Pneumatic Actuators for Remote Valve Operation

PSC Needle Valve Actuators enable remote operation of manual valves and are typically used on valves located in harsh environments or limited access areas. The actuators were developed specifically for durability and reliable performance.

Single-Action Actuators have built in safety mechanisms which automatically close or open upon a loss in air pressure.

Normally Closed – Air is required to open the valve; any loss in air pressure automatically closes the valve.

Normally Open – Air is required to close the valve; any loss in air pressure automatically opens the valve.

KMT Offers Four Types of Pneumatic Needle Valve Actuators:

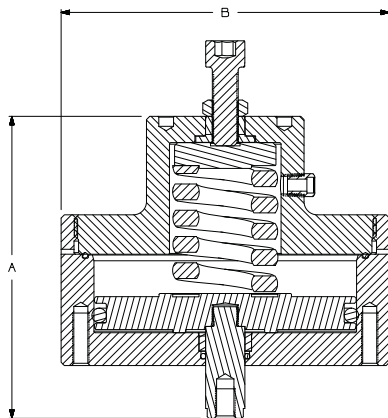
- Standard Duty, Air-to-Open (Normally Closed)
- Standard Duty, Air-to-Close (Normally Open)
- Heavy Duty, Air-to-Open (Normally Closed)
- Heavy Duty, Air-to-Close (Normally Open)

Needle Valve Actuator Selection Process:

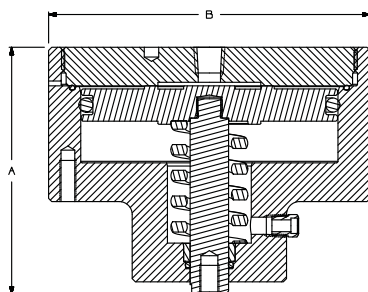
- Step 1 - Choose the best manual valve for the application from the Manual Needle Valve section.
- Step 2 – Choose Operation Mode for Actuator: Air-to-Open or Air-to-Close
- Step 3 – Review Actuator Air Pressure charts (see following page) to identify unit that best meets intended system operating pressure & actuator air pressure requirements.
- Step 4 – Add suffix for selected actuator to the 8-digit valve number:

PART NUMBER EXAMPLE

1 0 0 7 8 8 9 - 0 0 2 = 9/16"/14.27 mm, STANDARD, STRAIGHT NEEDLE VALVE WITH 5"/127 mm AIR-TO-OPEN ACTUATOR



Normally Closed Actuator



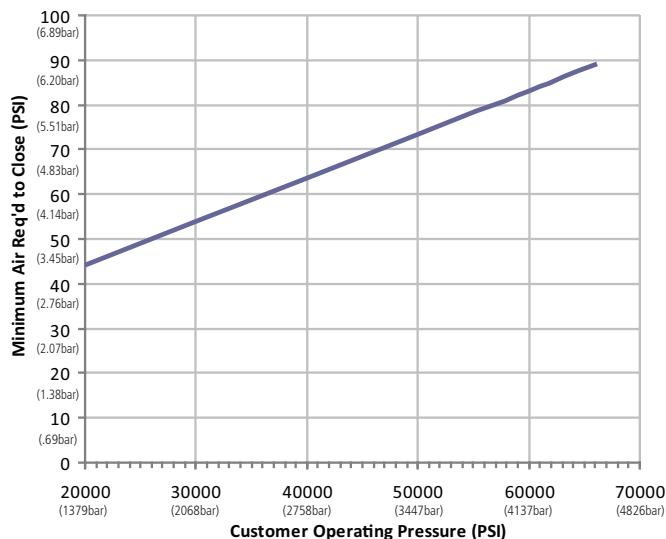
Normally Open Actuator

Duty Rating	Type	Ordering Suffix	Dim's. (Inches/mm)	
			A	B
Standard	Air-to-Close	-0001	4.80/122	6.25/159
	Air-to-Open	-0002	5.75/146	6.25/159
Heavy	Air-to-Close	-0003	4.80/122	9.25/235
	Air-to-Open	-0004	5.75/146	9.25/235

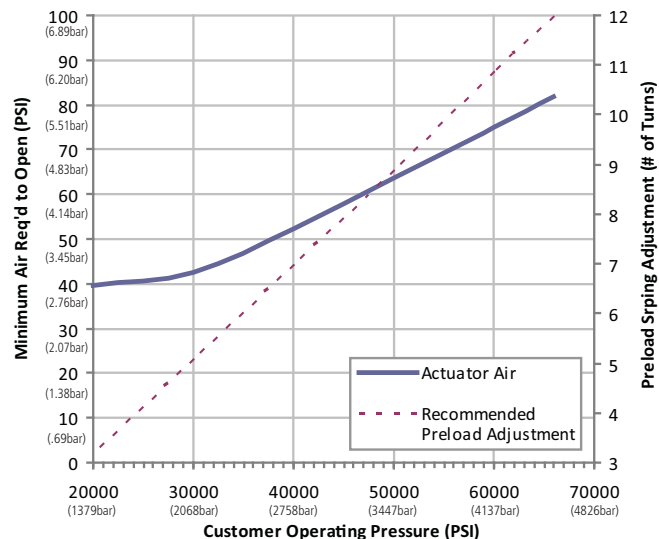


Needle Valve Actuators Air Pressure Charts*

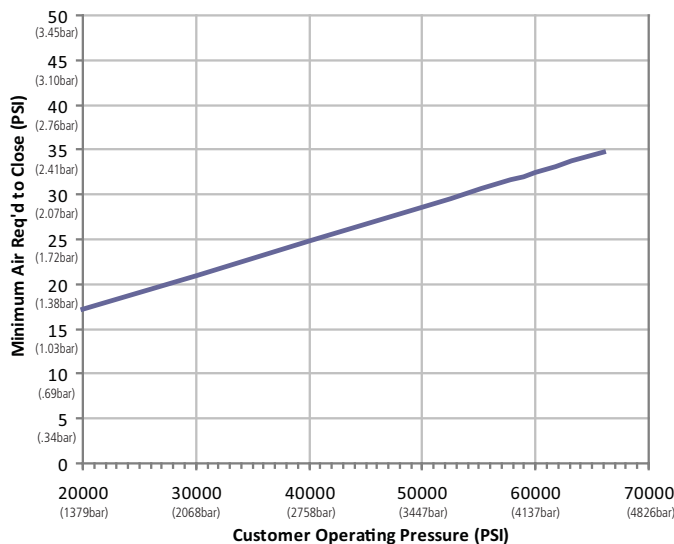
-0001 Air to Close Actuator



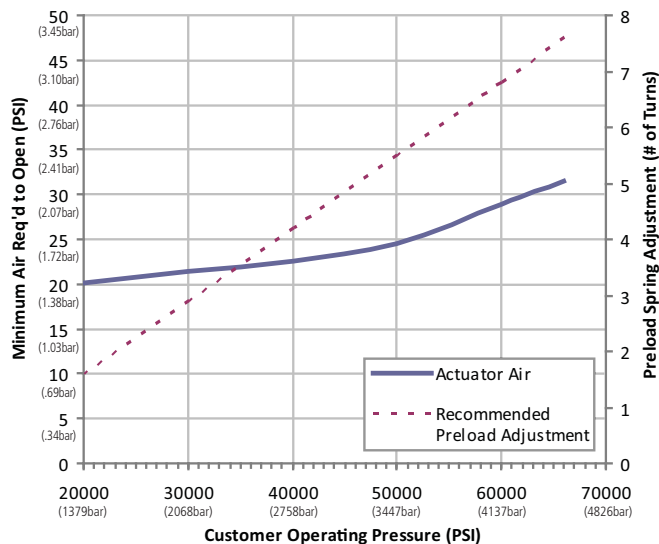
-0002 Air-to-Open Actuator **



-0003 Air to Close Actuator



-0004 Air-to-Open Actuator **



* This data is based on application of actuators to 66,000 PSI (4550 bar), 1/4" to 9/16" (6.35mm-14.27mm) needle valve assemblies. Contact KMT engineering about applications for other valve assemblies.

** Air to open valve/actuator assemblies are built and tested with preload adjustment calibrated for 66,000 PSI (4550 bar). For operating pressures less than 66,000 PSI (4550 bar), the preload spring adjustment should be reset to the recommended value shown in the chart.

CHECK VALVES/FILTERS/ACCESSORIES

KMT Poppet Check Valves will prevent reverse flow where leak-tight shut-off is not mandatory. When differential drops below cracking pressure*, valves will close. KMT manufactures all metal component poppet check valves with enabling them to be safely used up to 1200° F (649° C). These valves are not to be used as a relief valve. *Standard cracking pressure: 15 PSI (1.03 bar).

KMT O-Ring Check Valves provide high reliability in unidirectional flow with a tight shut-off for liquids and gas. When differential drops below cracking pressure*, valves will shut-off. These valves are not to be used as a relief valve. *Standard cracking pressure: 15 PSI (1.03 bar).

KMT Line Filters are utilized in numerous applications. With dual disc design, large particles are trapped by the upstream filter element before they can reach and clog the smaller micron downstream element. Filter elements can be replaced easily. Downstream/Upstream micron size 40/20 is standard.

KMT Cup Filters are recommended in high pressure systems requiring both high flow rates and maximum filter surface area with minimum pressure drop. The cup design offers as much as 6X the effective filter area as compared to disc-type units.



Micron rating of filter must be specified. To order, complete the catalog number with the desired micron rating, upstream first:

20444831040020 = Line Filter with 1/4" (6.35 mm) M/P Connections, 40 Micron Filter Upstream, 20 Micron Downstream.

Micron rating of filter must be specified. To order, complete the catalog number with the desired micron rating:

204448800020 = Cup Filter with 1/4" (6.35 mm) M/P Connections, 20 Micron Filter

KMT Safety Heads and Rupture Discs offer an economical and dependable relief port to guard against system over-pressure.

- High-Pressure coned-and-threaded tube connection, maximum rupture pressure to 110,000 PSI (7584 bar).
- The 1/4A style features a 1/4" (6.35 mm) blow-out diameter and an angular seat which can be ordered in pressures from 9,000 to 60,000 PSI (620 to 4137 bar).
- Non-rotating double-cone plug design avoids galling and scoring of safety head or connection during installation. Reduces likelihood of leakage.
- Interchangeable hold-down rings permit use of several different sizes and types of rupture discs in a single safety head. Accommodates discs with rupture pressures as low as 9000 PSI (620 bar) and ranging to 60,000 PSI (4136 bar) and above.
- Install in any standard KMT coupling, elbow, cross, tee or directly into pressure vessel.
- Cold-worked Type 316 SS body hold down gland and plug, all series.
- Hold down rings are hardened tool steel.

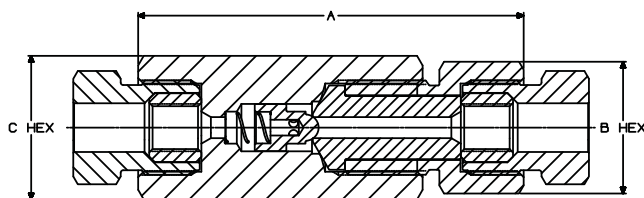
Description Index

• Poppet Check Valves.....	CV-2
• Line Filters.....	CV-3
• Cup Filters.....	CV-4
• Safety Heads.....	CV-5
• Rupture Discs.....	CV-6



All general Terms and Conditions of sale, including limitations of our liability, apply to all products and services sold.

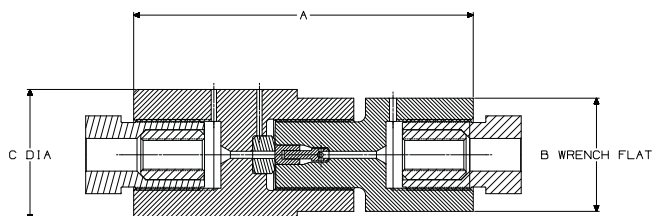
Poppet Check Valves 66,000 PSI/4550 bar



66,000 PSI/4550 bar POPPET CHECK VALVE

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)		
			A	B	C
80073885	1/4 (6.35)	0.09 (2.3)	3.31 (84.1)	0.88 (22.2)	1.12 (28.4)
05075999	3/8 (9.65)	0.13 (3.3)	3.75 (95.3)	1.12 (28.4)	1.38 (35.1)
10096139	9/16 (14.27)	0.19 (4.8)	4.57 (116.1)	1.38 (35.1)	1.50 (38.1)

Poppet Check Valves PRO 100,000 PSI/6895 bar

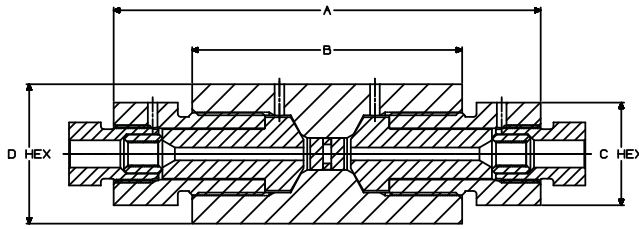


PRO 100,000 PSI/6895 bar POPPET CHECK VALVE

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)		
			A	B	C
20487876	1/4 (6.35)	0.09 (2.3)	4.39 (117.8)	1.44 (36.6)	1.66 (42.2)
20477619	3/8 (9.65)	0.13 (3.3)	4.64 (117.8)	1.44 (36.6)	1.66 (42.2)
20455911	9/16 (14.27)	0.19 (4.8)	6.00 (152.4)	2.00 (50.8)	2.31 (58.7)

Line Filters

66,000 PSI/4550 bar

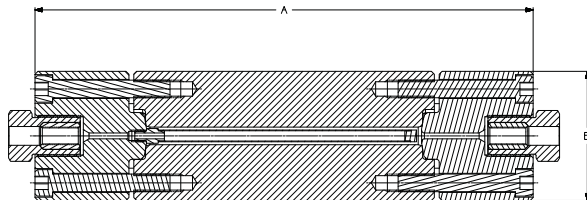


66,000 PSI/4550 bar LINE FILTER

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)			
			A	B	C	D
20445096	1/4 (6.35)	0.09 (2.3)	4.06 (103.1)	2.62 (66.5)	0.88 (22.4)	1.38 (35.1)
20445104	3/8 (9.65)	0.13 (3.3)	4.56 (115.8)	2.62 (66.5)	1.00 (25.4)	1.38 (35.1)
20445112	9/16 (14.27)	0.19 (4.8)	6.00 (152.4)	3.62 (91.9)	1.38 (35.1)	1.50 (38.1)

Line Filters

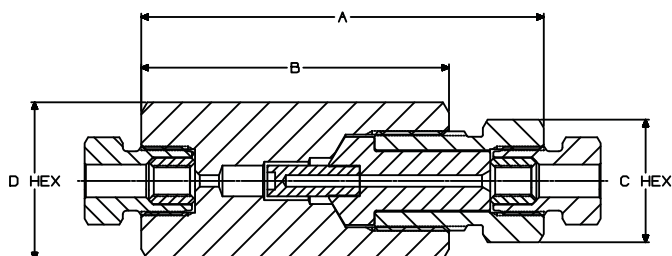
PRO 100,000 PSI/6895 bar



PRO 100,000 PSI/6895 bar LINE FILTER

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)	
			A	B
20475944	9/16 (14.27)	0.19 (4.8)	10.61 (269.5)	2.75 (69.8)
20475916	3/8 (9.65)	0.19 (4.8)	10.61 (269.5)	2.75 (69.8)

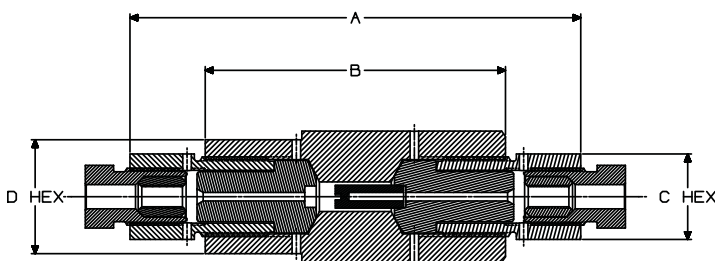
Cup Filters 66,000 PSI/4550 bar



66,000 PSI/4550 bar CUP FILTER

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)			
			A	B	C	D
20445138	1/4 (6.35)	0.09 (2.3)	3.32 (84.3)	2.50 (63.5)	0.88 (22.4)	1.12 (28.4)
20445145	3/8 (9.65)	0.13 (3.3)	3.75 (95.3)	3.00 (76.2)	1.12 (28.4)	1.38 (35.1)
20445153	9/16 (14.27)	0.19 (4.8)	4.70 (119.4)	3.37 (85.6)	1.38 (35.1)	1.50 (38.1)

Cup Filters 100,000 PSI/6895 bar

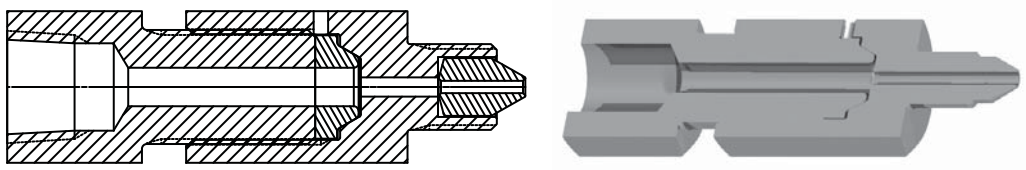


100,000 PSI/6895 bar CUP FILTER

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)			
			A	B	C	D
20481026	1/4 (6.35)	0.09 (2.3)	4.95 (125.7)	3.30 (83.8)	0.94 (23.9)	1.25 (31.8)
20480940	3/8 (9.65)	0.13 (3.3)	6.63 (168.4)	3.00 (101.6)	1.12 (34.9)	1.38 (35.1)

Safety Heads

66,000 PSI/4550 bar



1/4" Angle Safety Head

MAWP	Connection Size - In. (mm)	1/4" (6.35 mm) Angle Safety Head
66,000 PSI 4550 bar	1/4" HP (6.35)	05018767
	3/8" HP (9.53)	10078186
	9/16" HP (14.27)	10078574
	3/4" HP (19.05)	20446996

Rupture Discs

1/4" (6.35 mm) Angular Rupture Discs

KMT 1/4" (6.35 mm) rupture discs are designed to be used with the safety head assemblies shown on previous page (CV-4). Minimum rupture disc pressure ratings should be at least 110% of system operating pressure. The standard material is Inconel. The pressure ranges indicated in the following tables are at room temperature, 72° F (22° C). Other materials and pressure ranges are available upon request.



PRESSURE IN PSI

Catalog Number	Pressure Range (psi)
20455989	9,215 - 10,070
05075569	9,700 - 10,600
20455992	10,185 - 11,130
20455995	10,670 - 11,660
20455998	11,155 - 12,190
20456001	11,640 - 12,720
20456004	12,125 - 13,250
20456007	12,610 - 13,780
20456010	13,095 - 14,310
20456013	13,580 - 14,840
20456016	14,550 - 15,900
20456019	15,035 - 16,430
20456022	15,520 - 16,960
20456025	16,005 - 17,490
20456028	16,490 - 18,020
20456031	16,975 - 18,550
20456034	17,460 - 19,080

Catalog Number	Pressure Range (psi)
20456037	17,945 - 19,610
20456040	18,915 - 20,670
20456043	19,400 - 21,200
20456046	19,885 - 21,730
20456049	21,000 - 22,000
20456052	21,825 - 23,850
20456055	24,250 - 26,500
20456058	25,220 - 27,560
20456061	26,190 - 28,620
20456064	27,160 - 29,680
20456067	29,100 - 31,800
20456070	30,070 - 32,860
20456073	31,525 - 34,450
20456076	33,950 - 37,100
20456079	36,375 - 39,750
20456082	38,880 - 42,400
20456085	41,255 - 45,050

Catalog Number	Pressure Range (psi)
20456088	43,650 - 47,700
20456091	48,500 - 53,000
20456094	53,350 - 58,300
20456097	58,200 - 63,600
20456100	62,155 - 66,000
20456103	65,960 - 72,080
20456106	68,870 - 75,260

PRESSURE IN BAR

Catalog Number	Pressure Range (bar)
20455989	635 - 694
05075569	669 - 731
20455992	702 - 767
20455995	736 - 804
20455998	769 - 840
20456001	803 - 877
20456004	836 - 914
20456007	869 - 950
20456010	903 - 987
20456013	936 - 1023
20456016	1003 - 1096
20456019	1037 - 1133
20456022	1070 - 1169
20456025	1104 - 1206
20456028	1137 - 1242
20456031	1170 - 1279
20456034	1204 - 1316

Catalog Number	Pressure Range (bar)
20456037	1237 - 1352
20456040	1304 - 1425
20456043	1338 - 1462
20456046	1371 - 1498
20456049	1448 - 1517
20456052	1505 - 1664
20456055	1672 - 1827
20456058	1739 - 1900
20456061	1806 - 1973
20456064	1873 - 2046
20456067	2006 - 2193
20456070	2073 - 2266
20456073	2174 - 2375
20456076	2341 - 2558
20456079	2508 - 2741
20456082	2681 - 2923
20456085	2844 - 3106

Catalog Number	Pressure Range (bar)
20456088	3010 - 3289
20456091	3344 - 3654
20456094	3678 - 4020
20456097	4013 - 4385
20456100	4285 - 4550
20456103	4548 - 4970
20456106	4748 - 5189

FITTINGS

KMT offers a complete line of standard adapters and couplings as well as special designs and materials rated to 100,000 PSI (6895 bar), known as the KMT PRO Line.



Description Index

- Adapters/Couplings.....FI-2 to FI-4
- Bulkheads.....FI-5
- Elbows/Tees/Crosses.....FI-6 to 8
- Glands/Collars/Plugs/Anti-Vibration.....FI-9
- Caps.....FI-10

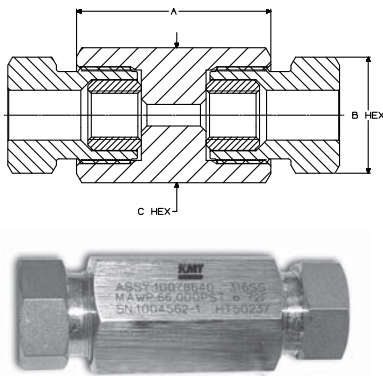
Adapters/Couplings

66,000 PSI/4550 bar MAWP

KMT designs and manufactures a wide variety of adapters and couplings in an array of styles and sizes.

The following Charts (or Tables) offer some of the different tube connection adapters and couplings. Other connection styles and sizes are available upon request.

- All adapters and couplings are 316 cold worked stainless steel material. (Other materials available).
- Adapters are available in one or two piece male end design.



	FEMALE END					
MALE END	MAWP*: 66,000 PSI/4550 bar Tube OD					
	MAWP*	Tube In. (mm)	1/4" (6.35)	3/8" (9.65)	9/16" (14.27)	3/4" (19.05)
	NPT	1/4" (6.35)	20460774	20460777	20460780	20462331
		3/8" (9.65)	20460783	05042817	20460789	20462334
		1/2" (12.7)	20460792	20460795	20460798	20462346
		3/4" (19.05)	20462337	10126746	20461278	20462349
		1" (25.4)	20462352	20462355	20462343	20462358
	20,000 PSI 1379 bar	1/4" (6.35)	20446153	20446202	20446252	20446311
		3/8" (9.65)	20446171	20446220	20446270	20446319
		9/16" (14.27)	20446179	20446228	20446277	20446327
		3/4" (19.05)	20446186	20446236	20446285	20446335
		1" (25.4)	20446194	20446244	49889306	20446343
	66,000 PSI 4550 bar	1/4" (6.35)	49830151	10079473	10079424	20446650
		3/8" (9.65)	10079432	20446600	10079655	20446657
		9/16" (14.27)	10079580	10079457	20446616	49832801
		3/4" (19.05)	20446592	80072549	49837206	20446673

		MALE END					
MALE END	MAWP*: 66,000 PSI/4550 bar Tube OD						
	MAWP*	Tube In. (mm)	1/4" (6.35)	3/8" (9.65)	9/16" (14.27)	3/4" (19.05)	
	NPT	1/4" (6.35)	20460945	20460519	20460528	20462409	
		3/8" (9.65)	20460513	20460522	20460531	20462412	
		1/2" (12.7)	20460516	20460525	20460534	20462415	
		3/4" (19.05)	20462418	20462421	20462424	20462427	
		1" (25.4)	20462430	20462433	20462436	20462439	
	20,000 PSI 1379 bar	1/4" (6.35)	20460645	20460654	20460663	20462442	
		3/8" (9.65)	20460648	20460657	20460666	20462445	
		9/16" (14.27)	20460651	20460660	20460669	20462448	
		3/4" (19.05)	20462451	20462454	20462457	20462460	
		1" (25.4)	20462463	20462466	20462469	20462472	
	66,000 PSI 4550 bar	1/4" (6.35)	20460459	20460552	20460558	20460618	
		3/8" (9.65)	20460552	20460555	20460561	20460621	
		9/16" (14.27)	20460558	20460561	20460564	20460624	
		3/4" (19.05)	20460618	20460621	20460624	20460627	

	FEMALE END					
FEMALE END	MAWP*: 66,000 PSI/4550 bar Tube OD					
	MAWP*	Tube In. (mm)	1/4" (6.35)	3/8" (9.65)	9/16" (14.27)	3/4" (19.05)
	NPT	1/4" (6.35)	20460828	20460837	20460846	20462523
		3/8" (9.65)	20460831	20460840	20460849	20462526
		1/2" (12.7)	20460834	20460843	20460852	20462529
		3/4" (19.05)	20462532	20462535	20462538	20462541
		1" (25.4)	20462544	20462547	20462550	20462553
	20,000 PSI 1379 bar	1/4" (6.35)	20445749	20445781	20445799	20445806
		3/8" (9.65)	20446574	20445757	20445814	20445822
		9/16" (14.27)	20446046	20446293	20445765	20445840
		3/4" (19.05)	20446608	20446665	20457108	20445773
		1" (25.4)	20445848	20445856	20445864	20445872
	66,000 PSI 4550 bar	1/4" (6.35)	10079028	10079614	10078145	20445890
		3/8" (9.65)	10079614	10078905	10079531	20445898
		9/16" (14.27)	10078145	10079531	10078640	20445920
		3/4" (19.05)	20445890	20445898	20455920	49832835

*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)

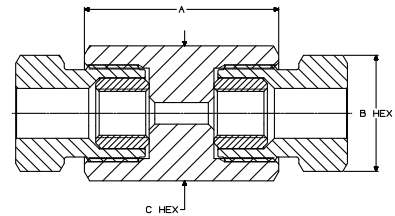
Note: Maximum Pressure Rating of an adapter/coupling is based on the lowest rating of the two connections. Actual working pressure may be determined by the tubing.

Adapters/Couplings

100,000 PSI/6895 bar MAWP



	FEMALE END			
MALE END	MAWP*: 100,000 PSI (6895 bar) Tube OD			
	Tube OD - In. (mm)	1/4" (6.35)	3/8" (9.65)	9/16" (14.27)
	1/4" (6.35)		20453160	20453178
	3/8" (9.65)	20453154		20453184
	9/16" (14.27)	20453166	20453172	



	FEMALE END			
FEMALE END	MAWP*: 100,000 PSI (6895 bar) Tube OD			
	Tube OD - In. (mm)	1/4" (6.35)	3/8" (9.65)	9/16" (14.27)
	1/4" (6.35)	20477023	20477738	20477730
	3/8" (9.65)	20477738	20477660	20477709
	9/16" (14.27)	20477730	20477709	20477685



		Female End 100,00 PSI/6895 bar		
	Tube OD - In. (mm)	1/4" (6.35)	3/8" (9.65)	9/16" (14.27)
Male End 100,000 PSI 6895 bar	1/4" (6.35)		20453160	20453178
	3/8" (9.65)	20453154		20453184
	9/16" (14.27)	20453166	20453172	

		Male End 100,00 PSI/6895 bar		
	Tube OD - In. (mm)	1/4" (6.35)	3/8" (9.65)	9/16" (14.27)
Male End 100,000 PSI 6895 bar	1/4" (6.35)	20488438	20488446	20488454
	3/8" (9.65)	20488446	20488472	20488480
	9/16" (14.27)	20488454	20488480	20488488

		Female End 100,00 PSI/6895 bar		
	Tube OD - In. (mm)	1/4" (6.35)	3/8" (9.65)	9/16" (14.27)
Female End 100,000 PSI 6895 bar	1/4" (6.35)	20477023	20477738	20477730
	3/8" (9.65)	20477738	20477660	20477709
	9/16" (14.27)	20477730	20477709	20477685

*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)

Note: Maximum Pressure Rating of an adapter/coupling is based on the lowest rating of the two connections. Actual working pressure may be determined by the tubing.

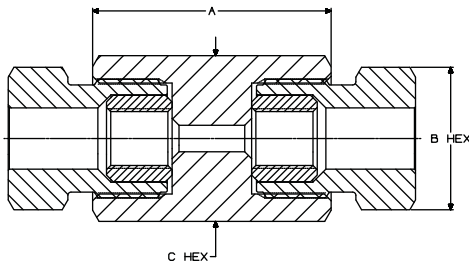


All dimensions are for reference only. All dimensions are subject to change.

FI-3

Couplings

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



66,000 PSI/4550 bar COUPLING

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)		
			A	B	C
10079028	1/4 (6.35)	0.09 (2.3)	1.38 (35.1)	0.62 (15.7)	0.75 (19.1)
10078905	3/8 (9.65)	0.13 (3.3)	1.88 (47.7)	0.81 (20.6)	1.00 (25.4)
10078640	9/16 (14.27)	0.19 (4.8)	2.25 (57.2)	1.19 (30.2)	1.37 (34.8)
49832835	3/4 (19.05)	0.25 (6.4)	3.00 (76.2)	1.50 (38.1)	2.12 (53.8)

PRO 100,000 PSI/6895 bar COUPLING

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)		
			A	B	C
20477023	1/4 (6.35)	0.09 (2.3)	2.25 (57.2)	0.69 (17.5)	0.88 (22.4)
20477660	3/8 (9.65)	0.13 (3.3)	2.69 (68.3)	0.94 (23.9)	1.12 (28.4)
20477685	9/16 (14.27)	0.19 (4.8)	4.22 (107.2)	1.38 (35.1)	1.75 (44.5)



Bulkhead Couplings

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



66,000 PSI/4550 bar BULKHEAD

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)				
			A	B	C	D	E
05089966	1/4 (6.35)	0.09 (2.3)	2.00 (50.8)	0.81 (20.6)	1.00 (25.4)	0.50 (12.7)	1.00 (25.4)
10078160	3/8 (9.65)	0.13 (3.3)	2.38 (60.5)	1.12 (28.4)	1.38 (35.1)	0.50 (12.7)	1.38 (35.1)
10079705	9/16 (14.27)	0.19 (4.8)	2.75 (69.9)	1.75 (44.5)	1.88 (47.8)	0.62 (15.7)	1.88 (47.8)
20424785	3/4 (19.05)	0.25 (6.4)	3.50 (88.9)	1.875 (47.6)	2.19 (55.6)	0.38 (9.7)	2.19 (55.6)

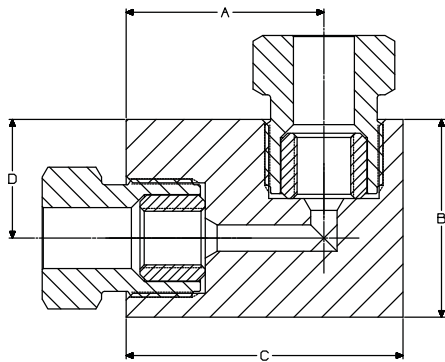
PRO 100,000 PSI/6895 bar BULKHEAD

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)				
			A	B	C	D	E
20482548	1/4 (6.35)	0.09 (2.3)	2.80 (71.2)	1.8 (45.7)	2.13 (54.1)	0.62 (15.7)	2.00 (50.8)
20464737	3/8 (9.65)	0.13 (3.3)	3.25 (82.6)	1.8 (45.7)	2.13 (54.1)	0.62 (15.7)	2.00 (50.8)
20455413	9/16 (14.27)	0.19 (4.8)	4.34 (110.2)	1.8 (45.7)	2.13 (54.1)	0.62 (15.7)	2.00 (50.8)



Elbows

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



66,000 PSI/4550 bar ELBOW

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)				Block Thickness
			A	B	C	D	
10079051	1/4 (6.35)	0.09 (2.3)	0.88 (22.4)	1.00 (25.4)	1.50 (38.1)	0.63 (16)	0.75 (19.1)
10078780	3/8 (9.65)	0.13 (3.3)	1.25 (31.8)	1.50 (38.1)	2.00 (51)	1.00 (25.4)	1.00 (25.4)
10078525	9/16 (14.27)	0.19 (4.8)	1.88 (47.8)	1.88 (47.8)	2.62 (66.5)	1.13 (28.7)	1.50 (38.1)
49832645	3/4 (19.05)	0.25 (6.4)	2.06 (52.3)	3.00 (76.2)	3.00 (76.2)	2.06 (52.3)	1.75 (44.5)

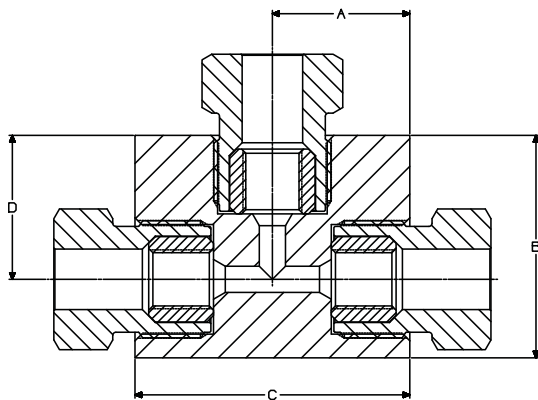
PRO 100,000 PSI/6895 bar ELBOW

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)				Block Thickness
			A	B	C	D	
20455821	1/4 (6.35)	0.09 (2.3)	1.25 (31.8)	1.78 (45.2)	1.78 (45.2)	1.25 (31.8)	1.06 (26.9)
20455809	3/8 (9.65)	0.13 (3.3)	1.62 (41.2)	2.37 (60.2)	2.37 (60.2)	1.62 (41.2)	1.50 (38.1)
20455377	9/16 (14.27)	0.19 (4.8)	2.38 (60.5)	3.38 (85.9)	3.38 (85.9)	2.38 (60.5)	2.00 (50.8)



Tees

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



66,000 PSI/4550 bar TEE

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)				Block Thickness
			A	B	C	D	
10079481	1/4 (6.35)	0.09 (2.3)	1.00 (25.4)	1.25 (31.8)	2.00 (50.8)	1.00 (25.4)	1.00 (25.4)
10078590	3/8 (9.65)	0.13 (3.3)	1.00 (25.4)	1.56 (39.6)	2.00 (50.8)	1.06 (26.9)	1.00 (25.4)
10079465	9/16 (14.27)	0.19 (4.8)	1.31 (33.3)	2.12 (53.8)	2.62 (66.5)	1.38 (35.1)	1.50 (38.1)
49832660	3/4 (19.05)	0.25 (6.4)	2.06 (52.3)	3.00 (76.2)	4.12 (104.6)	2.06 (52.3)	1.75 (44.5)

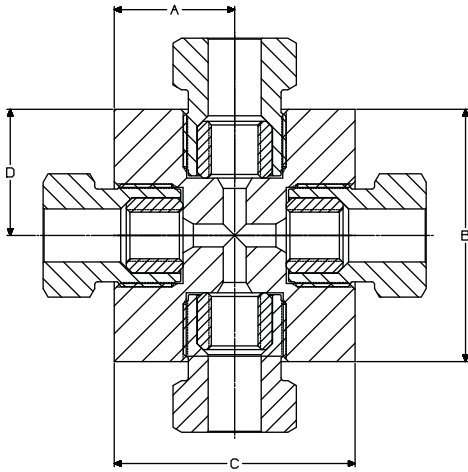
PRO 100,000 PSI/6895 bar TEE

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)				Block Thickness
			A	B	C	D	
20455824	1/4 (6.35)	0.09 (2.3)	1.25 (31.8)	1.78 (45.2)	2.50 (63.5)	1.25 (31.8)	1.06 (26.9)
20455812	3/8 (9.65)	0.13 (3.3)	1.62 (41.2)	2.37 (60.2)	3.25 (82.6)	1.62 (41.2)	1.50 (38.1)
20455374	9/16 (14.27)	0.19 (4.8)	2.38 (60.5)	3.38 (85.9)	4.76 (120.9)	2.38 (60.5)	2.00 (50.8)



Cross

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



66,000 PSI/4550 bar CROSS

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)				Block Thickness
			A	B	C	D	
10097228	1/4 (6.35)	0.09 (2.3)	1.00 (25.4)	1.25 (31.8)	2.00 (50.8)	1.00 (25.4)	1.00 (25.4)
10078038	3/8 (9.65)	0.13 (3.3)	1.00 (25.4)	1.56 (39.6)	2.00 (50.8)	1.06 (26.9)	1.00 (25.4)
10079168	9/16 (14.27)	0.19 (4.8)	1.31 (33.3)	2.12 (53.8)	2.62 (66.5)	1.38 (35.1)	1.50 (38.1)
49832652	3/4 (19.05)	0.25 (6.4)	2.06 (52.3)	3.00 (76.2)	4.12 (104.6)	2.06 (52.3)	1.75 (44.5)

PRO 100,000 PSI/6895 bar CROSS

Catalog Number	O.D. Tube Size In. (mm)	Orifice In. (mm)	Dimensions In. (mm)				Block Thickness
			A	B	C	D	
20452971	1/4 (6.35)	0.09 (2.3)	1.25 (31.8)	1.78 (45.2)	2.50 (63.5)	1.25 (31.8)	1.06 (26.9)
20452968	3/8 (9.65)	0.13 (3.3)	1.62 (41.2)	2.37 (60.2)	3.25 (82.6)	1.62 (41.2)	1.50 (38.1)
20453115	9/16 (14.27)	0.19 (4.8)	2.38 (60.5)	3.38 (85.9)	4.76 (120.9)	2.38 (60.5)	2.00 (50.8)



Glands/Collars/Plugs

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



MAWP*	Tube OD In. (mm)	Gland	Collar	Plug	Anti-Vibration Collet Gland
20,000 PSI 1379 bar	1/4 (6.35)	20441700	20441716	80089568	20443030
	3/8 (9.65)	20441708	20441724	20446699	20443038
	9/16 (14.27)	49879216	20441914	20446707	20443046
	3/4 (19.05)	49880024	49880032	20446715	20446741
	1 (25.4)	49879786	49879794	80085921	20446748
30,000 PSI 2068 bar	1 (25.4)	20442312	20442319	20446847	20446748
40,000 PSI 2758 bar	9/16 (14.27)	10078608	10079119	20446905	10093573
66,000 PSI 4550 bar	1/4 (6.35)	10078459	10078426	10078244	10078699
	3/8 (9.65)	10078129	10078715	10079523	10078913
	9/16 (14.27)	10078608	10079119	10078772	10093573
	3/4 (19.05)	49832678	49832686	49832694	20455914
PRO 100,000 PSI 6895 bar	1/4 (6.35)	20452962	20452959	20453130	N/A
	3/8 (9.65)	20452956	20452965	20453136	N/A
	9/16 (14.27)	20453121	20453124	20453127	N/A



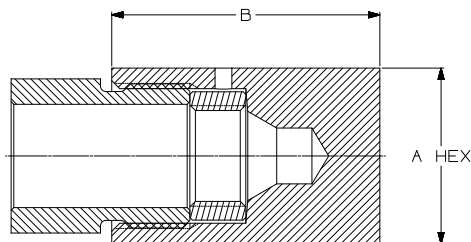
*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)



All dimensions are for reference only. All dimensions are subject to change.

Caps

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



66,000 PSI/4550 bar CAP

Catalog Number	O.D. Tube Size In. (mm)	Dimensions In. (mm)	
		A	B
20446954	1/4 (6.35)	0.75 (19.1)	1.25 (31.8)
20446972	3/8 (9.65)	1.00 (25.4)	1.5 (38.1)
20446980	9/16 (14.27)	1.37 (34.8)	1.75 (44.4)
20446988	3/4 (19.05)	1.875 (47.6)	2.25 (57.1)

PRO 100,000 PSI/6895 bar CAP

Catalog Number	O.D. Tube Size In. (mm)	Dimensions In. (mm)	
		A	B
20483342	1/4 (6.35)	0.88 (22.4)	1.78 (45.2)
20483350	3/8 (9.65)	1.12 (28.4)	2.37 (60.2)
20483366	9/16 (14.27)	1.75 (44.5)	3.38 (85.8)



TUBING & NIPPLES

KMT offers a complete line of austenitic seamless cold-drawn stainless steel tubing for use in high pressure applications where both high strength and corrosion resistance are required. KMT tubing comes in standard 20' - 24' (6-7 m) lengths and longer, cut to order lengths are always available by request.

KMT manufactures pre-cut, coned-and-threaded nipples in various sizes and lengths up to 12" (305 mm). In addition to the standard sizes listed on the following pages, special lengths are available by request.



Description Index

- **Tubing - 66,000 PSI/4550 bar to 100,000 PSI/6895 bar.....TN-2**
- **Nipples - 66,000 PSI/4550 bar to 100,000 PSI/6895 bar.....TN-3**

Tubing

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



66,000 PSI/4550 bar 316SS TUBING

Catalog Number	Connection In. (mm)	O.D. Tube In. (mm)	I.D. Tube In. (mm)
10064376	1/4" HP (6.35)	0.250 (6.4)	0.083 (2.1)
10064665	3/8" HP (9.65)	0.375 (9.5)	0.125 (3.2)
10061190	9/16" HP (14.27)	0.562 (14.3)	0.188 (4.8)
49832884	3/4" HP (19.05)	0.750 (19.1)	0.250 (6.4)

66,000 PSI/4550 bar 304SS TUBING

Catalog Number	Connection In. (mm)	O.D. Tube In. (mm)	I.D. Tube In. (mm)
80074420	1/4" HP (6.35)	0.250 (6.4)	0.083 (2.1)
05056478	3/8" HP (9.65)	0.375 (9.5)	0.125 (3.2)
05143474	9/16" HP (14.27)	0.562 (14.3)	0.188 (4.8)
20447896	3/4" HP (19.05)	0.750 (19.1)	0.250 (6.4)

100,000 PSI/6895 bar HP160 TUBING

Catalog Number	Connection In. (mm)	O.D. Tube In. (mm)	I.D. Tube In. (mm)
20455338	1/4" UHP (6.35)	0.250 (6.4)	0.083 (2.1)
20455341	3/8" UHP (9.65)	0.375 (9.5)	0.125 (3.2)
20455344	9/16" UHP (14.27)	0.562 (14.3)	0.188 (4.8)



Nipples

66,000 PSI/4550 bar - 100,000 PSI/6895 bar



66,000 PSI/4550 bar 316SS NIPPLES			LENGTH						
Connection	O.D. Tube In. (mm)	I.D. Tube In. (mm)	2.75" (69.85)	3.00" (76.2)	4.00" (101.6)	6.00" (152.4)	8.00" (203.2)	10.00" (254)	12.00" (304.8)
1/4" HP	0.250 (6.4)	0.083 (2.1)	10066520	10093359	10105880	10103018	80070519	10057636	10092153
3/8" HP	0.375 (9.5)	0.125 (3.2)	05050554	10094704	10105443	10094217	10103067	05147707	10106508
9/16" HP	0.562 (14.3)	0.188 (4.8)	-	05010822	10069326	10090272	10069524	05067780	05134457
3/4" HP	0.750 (19.1)	0.250 (6.4)	-	-	20448401	20448409	20448417	20448435	20448442



100,000 PSI/6895 bar HP160 NIPPLES			LENGTH						
Connection	O.D. Tube In. (mm)	I.D. Tube In. (mm)	2.75" (69.85)	3.00" (76.2)	4.00" (101.6)	6.00" (152.4)	8.00" (203.2)	10.00" (254)	12.00" (304.8)
1/4" UHP	0.250 (6.4)	0.083 (2.1)	20487960	20487967	20487975	20487983	20488001	20488009	20488017
3/8" UHP	0.375 (9.5)	0.125 (3.2)	20478642	20478646	20478649	20488025	20478666	20488033	20488051
9/16" UHP	0.562 (14.3)	0.188 (4.8)	20488058	20488066	20485274	20481092	20488074	20488092	20488100




TOOLING



Manual and Power Tools and Installation

KMT offers manual and power coning and threading tools designed to prepare accurate tubing ends to accept the medium and high pressure cone and threaded connections.

Coning and Threading Tools

Manual and power tool attachments are both available for coning and threading different materials. Additional replacement blades, dies and bushings are available.

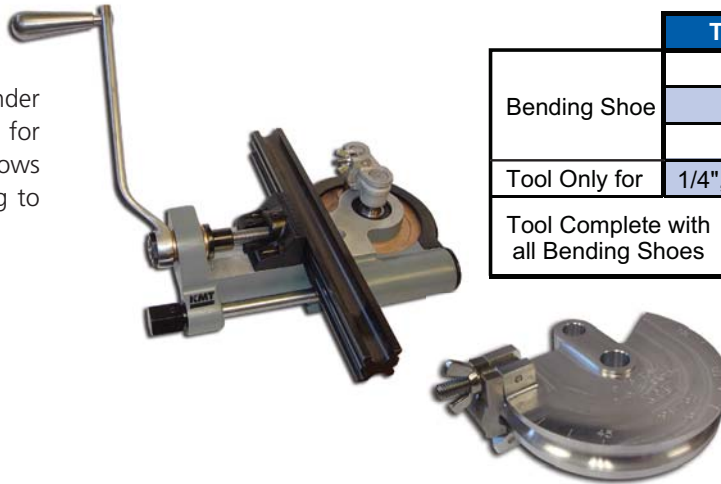
					
		POWER TOOLS		Thread Dies	Coning Blades
Series	Tube OD In. (mm)	Coning Tool	Threading Tool		
66,000 PSI 4550 bar	1/4 (6.35)	05109897	05122742	05108899	05108808
	3/8 (9.52)	05109889	05120258	05108915	05108824
	9/16 (14.27)	05109871	05122759	10078301	05108816
	3/4 (19.05)	49832892	49832843	49838311	49838337

					
		MANUAL TOOLS		Thread Dies	Coning Blades
Series	Tube OD In. (mm)	Coning Tool	Threading Tool		
66,000 PSI 4550 bar	1/4 (6.35)	20480005	20479988	20486770	05108808
	3/8 (9.52)	20480008	20479992	20486778	05108824
	9/16 (14.27)	20480012	20479996	10078301	05108816

Tooling

Heavy Duty Tube Bender

The heavy duty, manual tube bender is light, precise, and portable for bending tubes onsite. This allows for quick and easy tube bending to the exact angle needed.



	Tube OD	Catalog Number
Bending Shoe	1/4"	20417734
	3/8"	20417701
	9/16"	20417708
Tool Only for	1/4", 3/8", 9/16"	20455404
Tool Complete with all Bending Shoes		20417726

Medium Duty Tube Bender

The medium duty, manual tube bender provides precise bending of 1/4" and 3/8" tubing at an economical price.



Tube OD (mm)	Catalog Number
1/4" (6.35) Tool	20480064
3/8" (9.53) Tool	20480068
Both 1/4" (6.35) & 3/8" (9.53) Bending Shoes Tool	20491239

Tube Vises

The easiest, most portable way to hold tubing while coning and threading the ends. Tube vises are designed to clamp the tube while keeping the surface intact for maximum strength.



Tube OD (mm)	Catalog Number
1/4" (6.35)	05108782
3/8" (9.53)	05108790
9/16" (14.27)	05108774
3/4" (19.05)	49832876
1" (25.4)	20440071

Description Index

- High Pressure Connections.....TI-2
- Minimum Bend Radius.....TI-3
- Pressure Vs. Temperature.....TI-4
- Conversion Tables.....TI-5

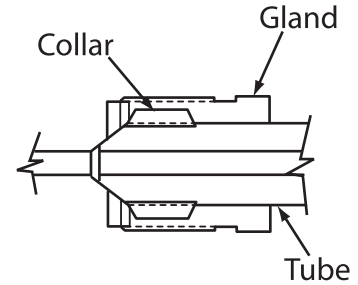


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High Pressure Connections

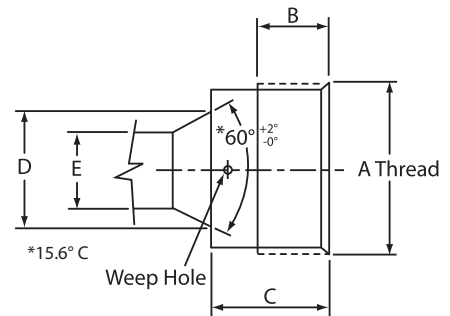
Assembly Procedure:

1. Slip gland nut onto tubing or nipple.
2. Screw collar onto threaded end of tubing or nipple. Allow one or two threads to be exposed on tubing or nipple between collar and coned tubing.
3. Lubricate male threads of gland nut with a non-hardening lubricant suitable for use on stainless steel. Lubricant chosen should also be compatible with working temperature requirements.
4. A small amount of process tolerable lubricant, such as silicone grease, on the cone tip will help with the sealing process.
5. Insert tubing into female connection of valve or fitting. Screw gland into connection until finger-tight.
6. Tighten gland nut to torque value shown at right which corresponds to connection size being assembled.

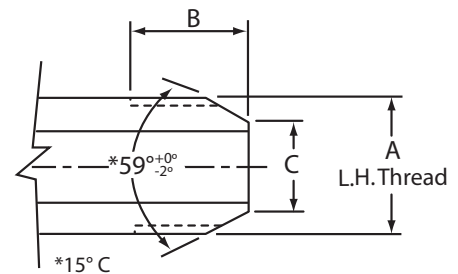


Tube Size In. (mm)	Engagement Allowance	Required Torque
1/4" (6.35)	0.49" (12.4)	25 lb-ft 34 Nm
3/8" (9.53)	0.68" (17.3)	50 lb-ft 68 Nm
9/16" (14.27)	0.86" (21.8)	75 lb-ft 102 Nm
1" (25.4)	1.60" (40.6)	150 lb-ft 203 Nm

Connection	A Thread	B	C	D	E
1/4" (6.35) HP	9/16"-18	0.38" (9.7)	0.44" (11.2)	0.17" (4.3)	0.093 (2.4)
3/8" (9.53) HP	3/4"-16	0.53" (13.5)	0.62" (15.7)	0.26" (6.6)	0.125" (3.2)
9/16" (14.27) HP 66,000 PSI	1-1/8"-12	0.62" (15.7)	0.75" (19.1)	0.38" (9.7)	0.188" (4.8)
3/4" (19.05) HP 40,000 PSI	1-1/8"-12	0.62" (15.7)	0.75" (19.1)	0.45" (11.4)	0.250" (6.4)
1" (25.4) HP	1-3/8"-12	0.81" (20.6)	1.31" (33.3)	0.88" (22.2)	0.438" (11.1)



Connection	A Thread	B	C
1/4" (6.35) HP	1/4"-28	0.56" (14.2)	0.125" (3.2)
3/8" (9.53) HP	3/8"-24	0.75" (19.1)	0.219" (5.6)
9/16" (14.27) HP 66,000 PSI	9/16"-18	0.94" (23.9)	0.281" (7.1)
3/4" (19.05) HP 40,000 PSI	9/16"-18	0.94" (23.9)	0.353" (9.0)
1" (25.4) HP	1"-14	0.92" (23.2)	0.562" (14.3)

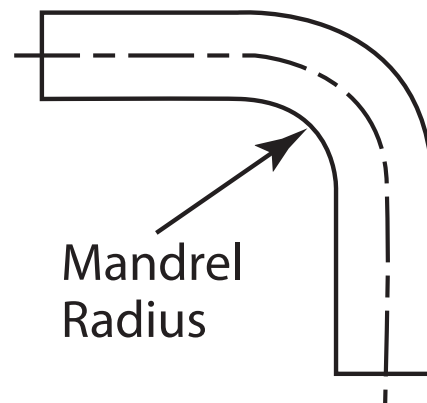


*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)

Minimum Bend Radius for 316SS and 304SS Tubing

66,000 PSI Tubing

O.D. In. (mm)	I.D. In. (mm)	Minimum Radius
1/4" (6.35) HP	.083" (.21)	1.25" (3.18)
3/8" (9.53) HP	.125" (.32)	1.75" (4.45)
9/16" (14.27) HP	.188" (.48)	2.625" (6.67)



*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)



All dimensions are for reference only. All dimensions are subject to change.

TI-3

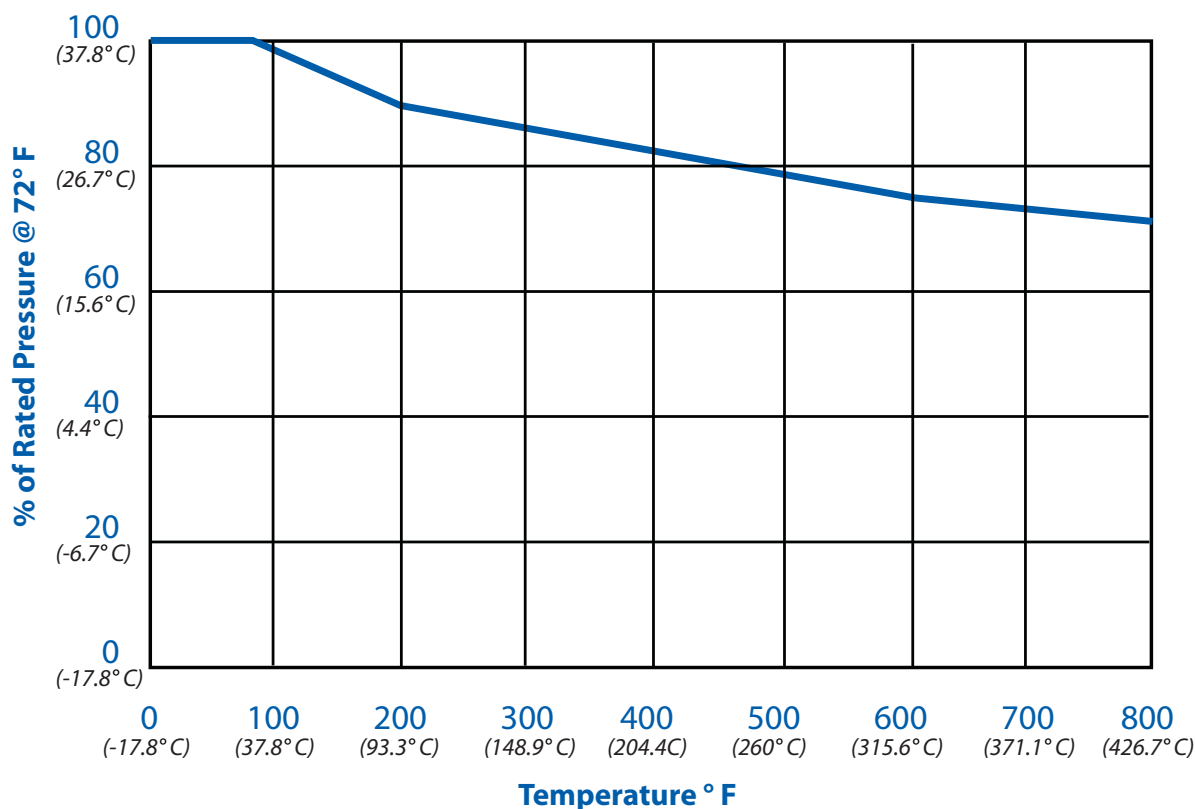
Pressure Vs. Temperature

This information is only for use as general data for the selection of valves, fittings and tubing for elevated pressure and/or temperature applications in liquid or gas plumbing systems. Coned and threaded type tube fittings, standard on all valves and fittings can be used for most liquids and gases including lighter gases like Helium and Hydrogen.

This reference chart shows the effects of pressure versus temperature of cold worked 316 stainless steel material. When operating temperatures are above 800° F (426.7° C), a phenomenon called intergranular corrosion can occur - a condition which can permanently change the material properties of cold worked stainless steel. Once this condition occurs, the material is considered permanently altered, thereby a lower allowable pressure applies.

Other factors including creep resistance, packing design and materials, corrosion resistance, cyclic conditions and other process variables may affect the use of components at elevated temperatures. Consult factory when operating above 800° F (426.7° C).

Pressure vs. Temperature for Cold Worked 316 SS



*MAWP = Maximum Allowable Working Pressure at 72° F (22° C)

Conversion Tables

PRESSURE		
To convert...	into...	multiply by...
atm	bar	1.01325
	kg/cm ²	1.0332
	PSI	14.696
	MPa	0.101325
	Pa	101,325
bar	atm	0.98692
	kg/cm ²	1.01971
	PSI	14.504
	MPa	0.1
kg/cm ²	atm	0.96784
	bar	0.98067
	PSI	14.223
	MPa	0.98067
	Pa	98066.5
MPa	atm	9.8692
	bar	10
	kg/cm ²	10.1971
	PSI	145.04
	Pa	1,000,000
Pa	atm	0.000098692
	bar	0.00001
	kg/cm ²	0.0000101971
	PSI	0.00014504
	MPa	0.000001
PSI	atm	0.068046
	bar	0.068947
	kg/cm ²	0.070307
	MPa	0.0068948
	Pa	6,894.757

FLOW		
To convert...	into...	multiply by...
cc/min.	ft ³ /min	0.0000353145
	gal/min	0.0002642
	in ³ /min	0.061
	lit/min	0.001
ft ³ /min	cc/min	28,320
	gal/min	7.48
	in ³ /min	28.8
	lit/min	28.32
gal/min	cc/min	3,784.80
	ft ³ /min	0.1337
	in ³ /min	231
	lit/min	3.7843
in ³ /min	cc/min	16.39
	ft ³ /min	0.035
	liter/min	0.016
	gal/min	0.004
lit/min	cc/min	1000
	ft ³ /min	0.03531
	in ³ /min	61.02
	gal/min	0.26418

LINEAR		
To convert...	into...	multiply by...
cm	ft	0.032808
	in	0.3937
	meters	0.01
	microns	10,000
	mm	10
ft	cm	30.48006
	in	12
	meters	0.3048
	microns	304,800
in	cm	2.540005
	ft	0.08333
	meters	0.0254
	microns	25,400
	mm	25.40005
meters	cm	0.0001
	ft	3.28083
	in	39.37
	microns	1,000,000
	mm	1,000
microns	cm	0.0001
	ft	0
	in	0.00003937
	meters	0.00014504
	mm	0.000001
mm	cm	0.1
	ft	0.003281
	in	0.03937
	meters	0.001
	microns	1,000

AREA		
To convert...	into...	multiply by...
cm ²	ft ²	0.0010764
	in ²	0.155
	m ²	0.0001
	mm ²	100
	mm ²	100
ft ²	cm ²	929.0341
	in ²	144.00
	m ²	0.092903
	mm ²	9,290
in ²	cm ²	6.4516258
	ft ²	0.006944
	m ²	0.0006451
	mm ²	645.16258
m ²	cm ²	10,000
	ft ²	10.76387
	in ²	1,550
	mm ²	1,000,000
mm ²	cm ²	0.01
	ft ²	0.000010764
	in ²	0.00155
	m ²	0.000001

VOLUME		
To convert...	into...	multiply by...
cc	ft ³	0.00003531
	in ³	0.06102
	liter	0.001
	M ³	0.000001
	quart	0.0010568
	U.S. Gallon	0.0002642
ft ³	cc	28,317
	in ³	1,728
	liter	28.317
	M ³	0.028317
	quart	29.92
	U.S. Gallon	7.4805
in ³	cc	16.387
	ft ³	0.0005787
	liter	0.016387
	M ³	0.05787
	quart	0.01732
	U.S. Gallon	0.004329
liter	cc	1000.028
	ft ³	0.03531
	in ³	61.023
	M ³	0.001
	quart	1.057
	U.S. Gallon	0.2642
M ³	cc	1000000
	ft ³	35.31
	in ³	61,023
	liter	1000
	quart	1056.8
	U.S. Gallon	264.2
quart	cc	946.25
	ft ³	0.03342
	in ³	57.75
	liter	0.9463
	M ³	0.0009463
	U.S. Gallon	0.25
U.S. Gallon	cc	3785
	ft ³	0.1337
	in ³	231
	liter	3.785
	M ³	0.003785
	quart	4

TEMPERATURE

$$\text{Deg F} = (\text{Deg C} \times 1.8) + 32$$

$$\text{Deg C} = (\text{Deg F} - 32) / 1.8$$