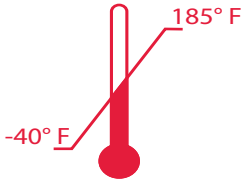
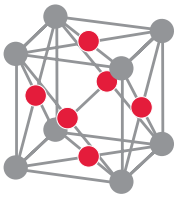
Products for Hydrogen Applications from Maximator GmbH & Maxpro Technologies



Temperature range

- Selection of seal materials for a temperature range of -40° F to +185° F
- Temperature range according to ISO19880-3 and ANSI/SAE HGV 4.7



Choice of material

- Predominant use of austenitic stainless steel for suitability in high pressure hydrogen applications
- Use of 1.4404 (SST 316L) as body material with minimized risk of hydrogen embrittlement for high durability
- Material 1.4980 (A286) and 1.4542 (17-4PH) for valves stems where compression stresses prevail

Leakage

- Internal leakage of seat/stem as well as external leakage over seal are bubble tight
- Leak testing of valves with helium for internal and external leakage for air operated valves
- Valves are in the qualification process for meeting ISO 19880-3 requirements.

Seals

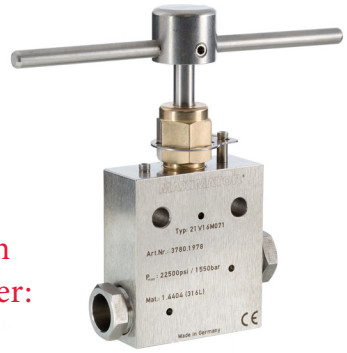
- Special seal designs are used for air operated valves instead of conventional packings in order to maintain their initial tension
- Lifetime related to opening and closing cycles is much higher compared to conventional packing designs

Lubrication

- Lubricant for valves has been selected especially for hydrogen applications

Cleaning

- To avoid fuel cell contamination, a special cleaning process to reduce hydrocarbons and particles is used.



Ordering Information
Typical catalog number:
21V16MO71

Medium Pressure Valves

Maximator Medium Pressure Valves with metal to metal seats have a high level of safety and reliability under adverse operating conditions. These valves may be used both with gases and liquids.

Traceability is ensured through extensively documented data (batch number, maximum pressure, material number, type designation). All medium pressure valves include glands and collars.

» Materials:
Valve body: 1.4404 (SST 316L)
Valve stem: 1.4542 (17-4PH)

21 V Valve Series	4M O.D. Tube Size	07 Stem Type	1 Body Pattern	Options
21 V	**4M** – 1/4”	**07** – VEE stem	**1** – two-way straight	Extended
	6M – 3/8”	**87** – VEE stem with replaceable seat	**2** – two-way angle	temperature
	9M – 9/16”			option, see
	12M – 3/4”			information
	16M – 1”			below.

Options for Medium pressure valves

Special Designs for Extreme Temperatures
Standard valves are supplied with Teflon / Carbon packing and may be operated to 450°F **(230°C)**. High temperature packing and / or extended stuffing box are available for service from -423°F to 1200°F **(-252°C to 650°C)** by adding the following suffixes to catalog order number.

- **B** – standard valve with cryogenic trim materials and Teflon packing to -100°F **(-73°C)**.
- **LT** – extended stuffing box valve with teflon packing and cryogenic trim materials to -423°F **(-252°C)**.

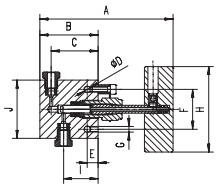
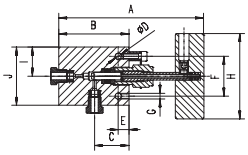
For further available options and more detailed information please refer to our VFT catalogue.

O.D. Size in. (mm)	Connec-tion Type	Orifice Size in. (mm)	Rated Cv**	Pressure Rating @ R.T. psi (bar)***
1/4 **(6.35)**	4MF	0.106 **(2.7)**	0.31	22,500 **(1,550)**
3/8 **(9.53)**	6MF	0.201 **(5.1)**	0.75	22,500 **(1,550)**
9/16 **(14.29)**	9MF	0.307 **(7.8)**	1.30	22,500 **(1,550)**
3/4 **(19.05)**	12MF	0.438 **(11.1)**	2.50	22,500 **(1,550)**
1 **(25.4)**	16MF	0.562 **(14.3)**	4.40	22,500 **(1,550)**

Consult your MAXPRO representative for **repair kits** and valve bodies. Refer to the Tools and Installation section for proper maintenance procedures.

** Cv values shown are for 2-way straight pattern vee stem valves. For 2-way angle patterns, increase the Cv value by 50%. For Flow coefficient reference curves, please refer to Technical Information.

*** See page 2 in the Technical Section of our VFT catalog for Pressure/Temperature Rating Chart.

Valve Pattern	Catalog Number	Stem Type	O.D. Tube in.	Orifice in. (mm)	Dimensions in. (mm) A	B	C	D	E	F	H	I	J	K	Valve Panel Hole	Block Thick-ness
2-Way Straight																
	21V4M071	Vee	1/4	0.106 **(2.7)**	4.61 **(117)**	2.01 **(51)**	1.62 **(41.1)**	0.22 **(5.6)**	0.37 **(9.5)**	1.24 **(31.5)**	2.95 **(75)**	1.19 **(30.2)**	2.01 **(51)**		0.75 **(19.1)**	0.79 **(20.1)**
	21V6M071	Vee	3/8	0.201 **(5.1)**	4.61 **(117)**	2.01 **(51)**	1.62 **(41.1)**	0.22 **(5.6)**	0.37 **(9.5)**	1.24 **(31.5)**	2.95 **(75)**	1.19 **(30.2)**	2.01 **(51)**		0.75 **(19.1)**	0.79 **(20.1)**
	21V9M071	Vee	9/16	0.307 **(7.8)**	5.87 **(149)**	2.88 **(73.2)**	2.38 **(60.5)**	0.37 **(9.5)**	0.45 **(11.5)**	1.38 **(35)**	3.94 **(100)**	1.75 **(44.5)**	2.50 **(63.5)**		1.00 **(25.4)**	1.02 **(25.9)**
	21V12M071	Vee	3/4	0.438 **(11.1)**	7.05 **(179)**	3.74 **(95)**	3.00 **(76)**	0.43 **(11)**	0.63 **(16)**	1.76 **(44.7)**	10.31 **(262)**	2.25 **(57.2)**	3.00 **(76)**		1.25 **(31.8)**	1.38 **(35)**
	21V16M071	Vee	1	0.562 **(14.3)**	8.98 **(228)**	4.65 **(118)**	3.75 **(95.3)**	0.53 **(13.5)**	1.13 **(28.7)**	2.50 **(63.5)**	10.31 **(262)**	2.81 **(71.4)**	4.13 **(105)**		1.62 **(41.1)**	1.77 **(45)**
2-Way Angle																
	21V4M072	Vee	1/4	0.106 **(2.7)**	5.00 **(127)**	2.43 **(61.7)**	1.19 **(30.2)**	0.22 **(5.6)**	0.37 **(9.5)**	1.24 **(31.5)**	2.95 **(75)**	1.00 **(25.4)**	2.01 **(51)**		0.75 **(19.1)**	0.79 **(20.1)**
	21V6M072	Vee	3/8	0.201 **(5.1)**	5.00 **(127)**	2.43 **(61.7)**	1.19 **(30.2)**	0.22 **(5.6)**	0.37 **(9.5)**	1.24 **(31.5)**	2.95 **(75)**	1.00 **(25.4)**	2.01 **(51)**		0.75 **(19.1)**	0.79 **(20.1)**
	21V9M072	Vee	9/16	0.307 **(7.8)**	6.36 **(161.5)**	3.38 **(85.9)**	1.75 **(44.5)**	0.37 **(9.5)**	0.45 **(11.5)**	1.38 **(35)**	3.94 **(100)**	1.25 **(31.8)**	2.50 **(63.5)**		1.00 **(25.4)**	1.02 **(25.9)**
	21V12M072	Vee	3/4	0.438 **(11.1)**	7.56 **(192)**	4.25 **(108)**	2.25 **(57.2)**	0.43 **(11)**	0.63 **(16)**	1.76 **(44.7)**	10.31 **(262)**	1.50 **(38)**	3.00 **(76)**		1.25 **(31.8)**	1.38 **(35)**
	21V16M072	Vee	1	0.562 **(14.3)**	9.45 **(240)**	5.12 **(130)**	2.81 **(71.4)**	0.53 **(13.5)**	1.13 **(28.7)**	2.50 **(63.5)**	10.31 **(262)**	2.07 **(52.5)**	4.13 **(105)**		1.62 **(41.1)**	1.77 **(45)**

G - Panel mounting screw thread size 10-24 UNC (screw included). All dimensions are for reference only and are subject to change.

Air Actuated Compact H_2 Valves

- Slow fill processes for compact filling stations
- Hydrogen filling of two-wheelers
- Pressure release of dispenser filling hoses

Ordering Information
Typical catalog number:
15V4MO71-H2-3MNC

15 V Valve Series	4M O.D. Tube Size	07 Stem Type	1 Body Pattern	Configuration
15 V	**4M** – 1/4”	**07** – VEE stem	**1** – two-way straight	3MNC = Compact air-drive
15,200 psi				normally closed
(1,050 bar)				3MNO = Compact air-drive
				normally open

Technical Data and Dimensions

Technical Data

Operating temperature:	-40° F / 185° F
Drive pressure:	58 psi-116 psi (4-8 bar)
Operating pressure:	15,200 psi (1,050 bar)

Materials

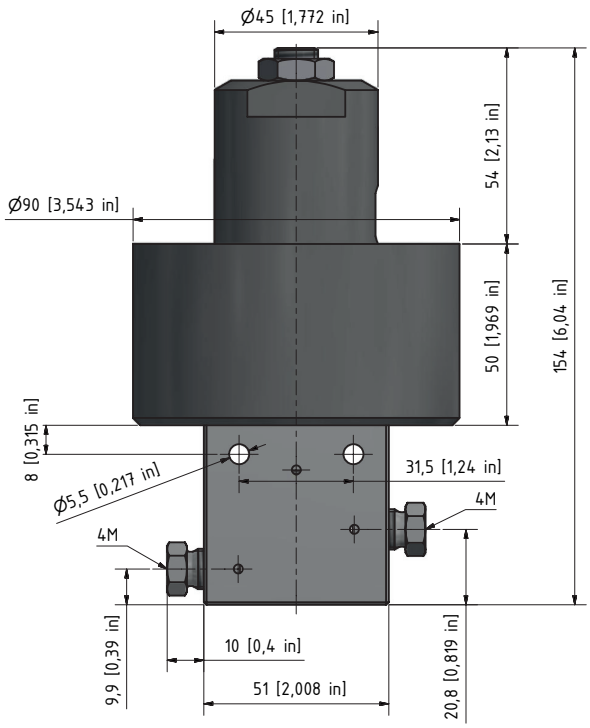
Valve body:	1.4404 (SST 316L)
Valve stem:	1.4980 (A-286)
Seal:	UHMWPE

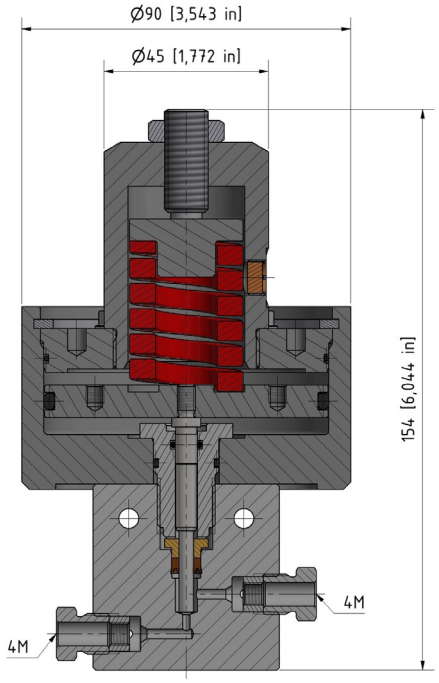
Dimensions

Height:	Normally closed:	6.04 in. (154 mm)
	Normally open:	3.917 in. (99.5 mm)
Diameter:	3.543 in. (90 mm)	
Orifice:	0.78 in. (2.0 mm)	

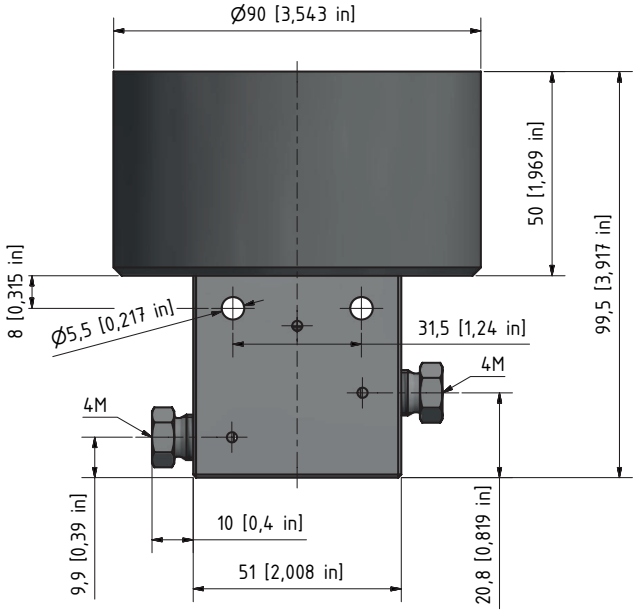
The valves are marked with an EX sign and are in conformity to Group II Category 2G Explosion group IIC constructive safety.

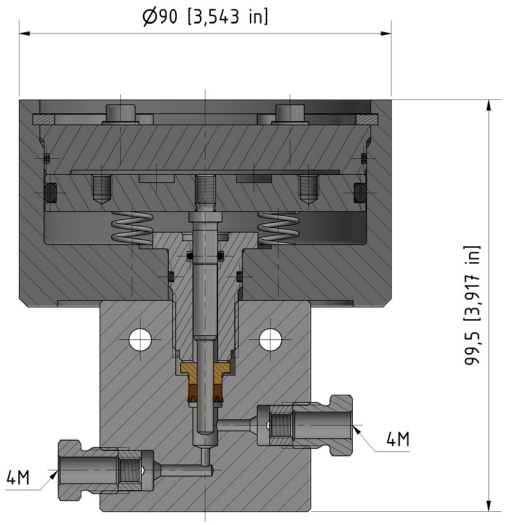
15V4M071-H2-3MNC



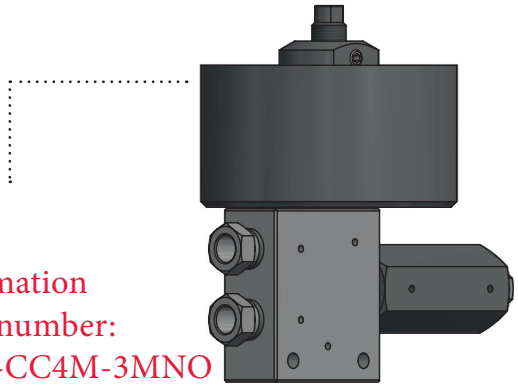


15V4M071-H2-3MNO





4-Way Air Actuated H_2 Valves for Dispenser includes Adjustable Stroke and Check Valve



Air Actuated H_2 Valve Manifolds

- Pressure release of dispenser filling hoses
- Adjustable orifice to limit noise emissions
- Compact design with multiple functions integrated

Ordering Information
Typical catalog number:
15V6M-H2-AS-CC4M-3MNO

15 V Valve Series	6M O.D. Tube Size	AS Stem Type	Body Pattern	Configuration
15 V	**6M** – 3/8”	**AS** – Vee Stem with adjustable stroke	4-way valve	3MNO = Compact air-drive normally open

Characterictics

- Compact integrated design for high leak integrity
- Flow through function to dispenser filling hose
- Double porting on left hand side eliminates need for Tee type fitting
- Normally open valve for pressure release after filling
- Bottom port for optional pressure relief valve or rupture disc
- Adjustable orifice to limit noise emissions during pressure release
- Cone check valve at outlet to avoid contamination from vent line
- Low wear because of optimal choice of materials of construction

Technical Data and Dimensions

Technical Data

Operating temperature:	-40° F / 185° F
Drive pressure:	58 psi-116 psi (4-8 bar)
Operating pressure:	15,200 psi (1,050 bar)

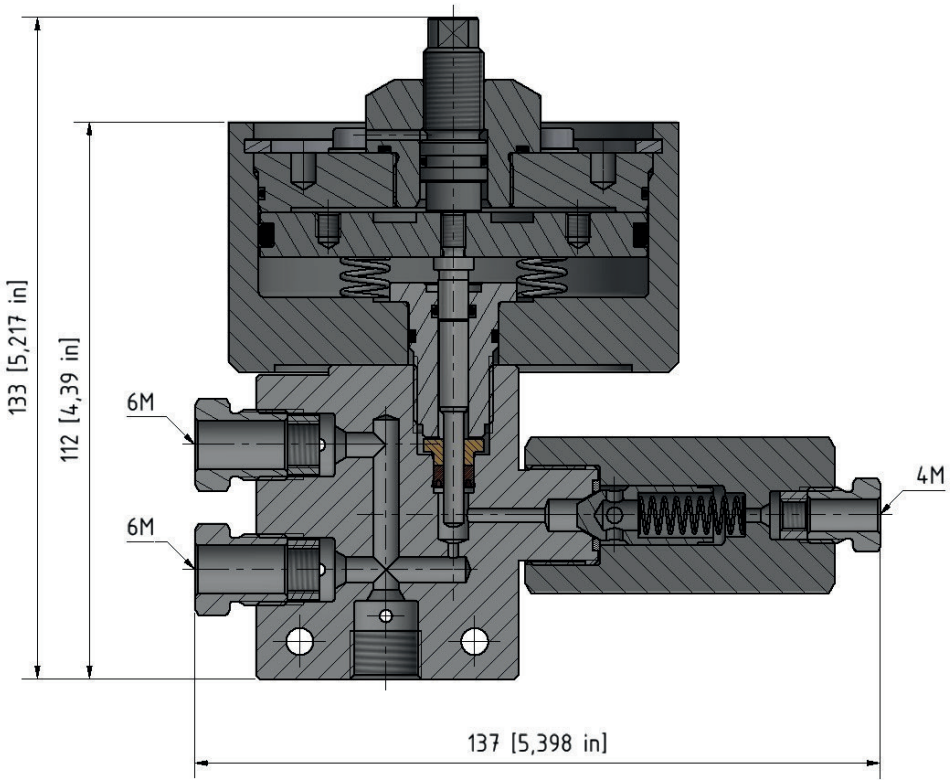
Materials

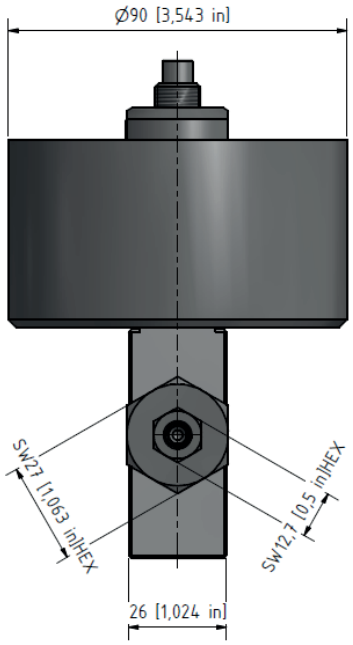
Valve body:	1.4404 (SST 316L)
Valve stem:	1.4980
Seal needle valve:	UHMWPE
Seal check valve:	PEEK

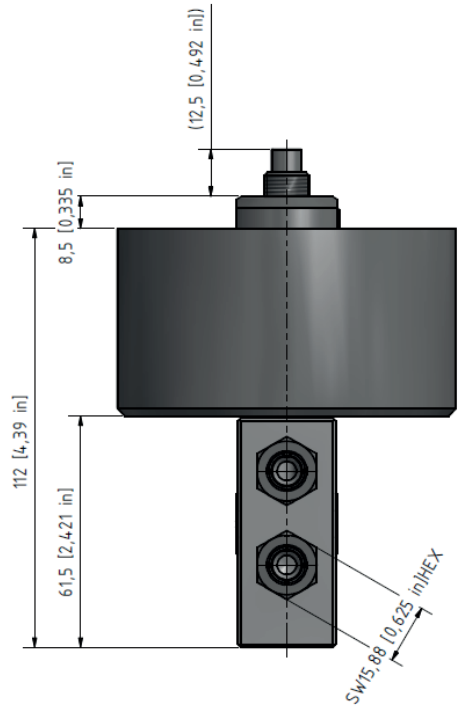
Dimensions

Height:	5. 217 in. (133 mm)
Net weight:	2.9 kg (6.39 lbs)
Diameter:	3.543 in. (90 mm)
Orifice:	0.787 in (2.0 mm)
Actuator:	3MNO

The valves are marked with an EX sign and are in conformity to Group II Category 2G Explosion group IIC constructive safety.







Air Actuated H_2 Valves

- Standard type for hydrogen refilling stations for passenger cars
- Use for shut-off at compressor, distribution at gas storage banks
- Shut-off function for dispenser filling hose

Ordering Information
Typical catalog number:
15V4MO71-H2-5MNC

15 V Valve Series	4M O.D. Tube Size	07 Stem Type	1 Body Pattern	Configuration
15 V	**4M** – 1/4”	**07** – VEE stem	**1** – two-way straight	5MNC = Air-drive normally closed
	6M – 3/8”		**2** – two-way angle	5MNO = Air-drive normally open
				B = Packing for cold applications (-73°)

Technical Data and Dimensions

Technical Data

Operating temperature:	-40° F / 185° F (-99.4° F / 185° F *)
Drive pressure:	73 psi-145 psi (5-10 bar)
Operating pressure:	15,200 psi (1,050 bar)

Materials

Valve body:	1.4404 (SST 316L)
Valve stem:	1.4980 (A-286)
Seal:	UHMWPE

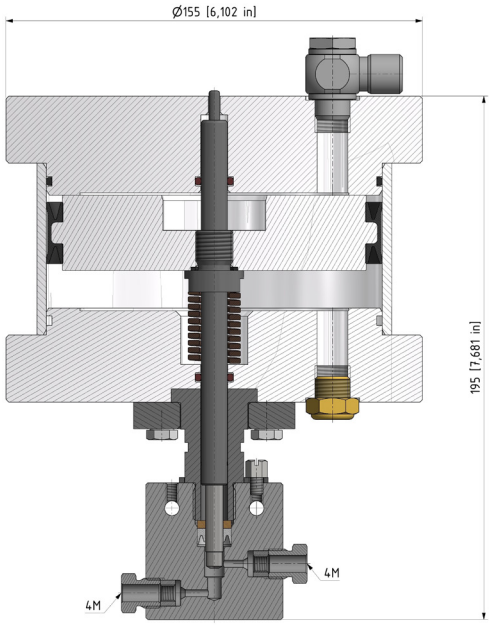
Dimensions

Height:	195 mm (7.67 in) & 245 mm (9.64 in*)
Net weight:	5.6 kg (12.34 lbs)
Diameter:	155 mm (6.1 in)
Orifice:	4M: 2.7 mm (0.106in) 6M: 5.1 mm (0.200 in)

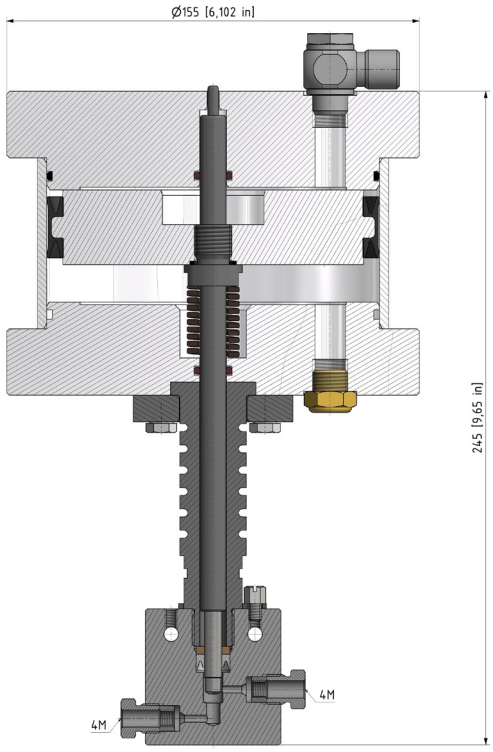
* B-Type with extended connection for low temperature applications

The valves are marked with an EX sign and are in conformity to Group II Category 2G Explosion group IIC constructive safety.

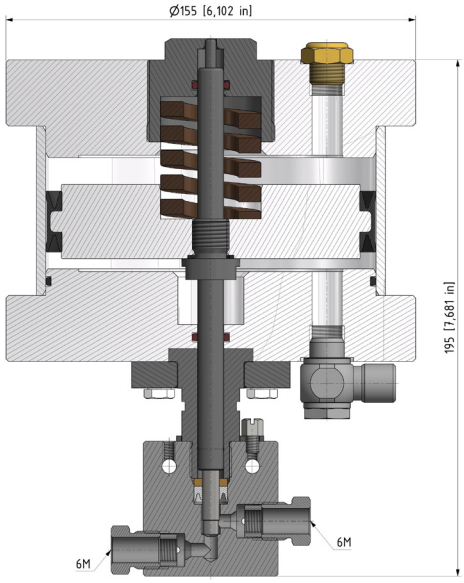
15V4M071-H2-5MNO



15V4M071-B-H2-5MNO



15V6M071-H2-5MNC



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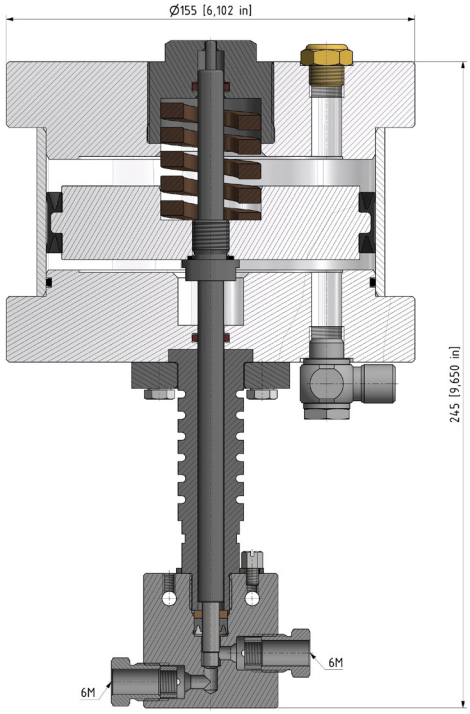


Air Actuated H_2 Valves

Air Actuated High Flow Valves

- Standard type for hydrogen refilling stations for buses, trucks and trains
- Use for shut-off at compressor, distribution at gas storage banks
- Shut-off function for dispenser filling hose

Ordering Information
Typical catalog number:
15V9MO71-H2-8MNC

15 V Valve Series	9M O.D. Tube Size	07 Stem Type	1 Body Pattern	Configuration
15 V	**9M** – 9/16”	**07** – VEE stem	**1** – two-way straight	8MNC = Air-drive normally closed
			2 – two-way angle	

Technical Data and Dimensions

Technical Data

Operating temperature:	-40° F / 185° F
Drive pressure:	73 psi-145 psi (5-10 bar)
Operating pressure:	15,200 psi (1,050 bar)

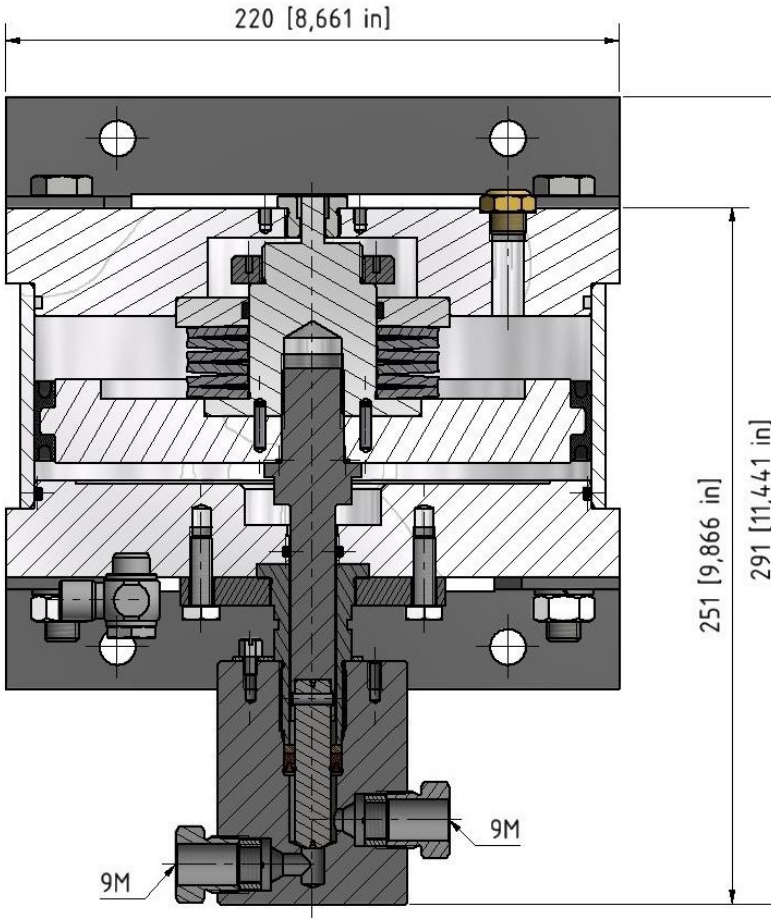
Materials

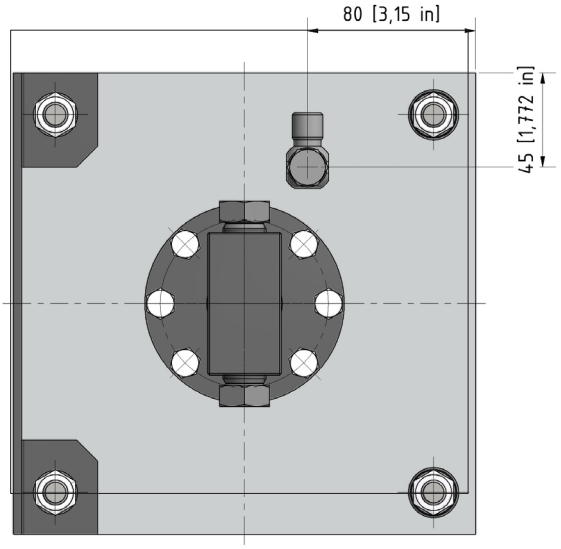
Valve body:	1.4404 (SST 316L)
Valve stem:	1.4980 (A-286)
Seal:	UHMWPE

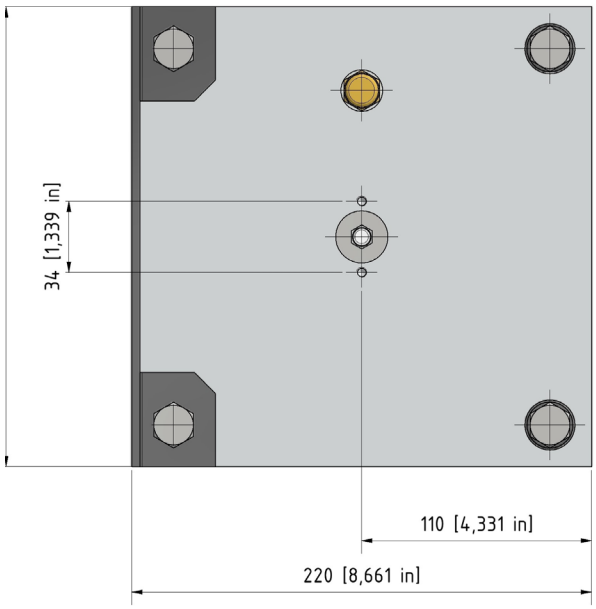
Dimensions

Height:	291 mm (11.45 in)
Net weight:	16.8 kg (37 lbs)
Width:	220 mm x 220 mm (8.66 in x 8.66 in)
Orifice:	7.8 mm (0.307 in)
Actuator:	8MNC

The valves are marked with an EX sign and are in conformity to Group II Category 2G Explosion group IIC constructive safety.







Air Actuated H_2 Valves

Air Actuated High Flow Valves

- Standard type for hydrogen refilling stations for buses, trucks and trains
- Use for shut-off at compressor, distribution at gas storage banks
- Shut-off function for dispenser filling hose

Ordering Information
Typical catalog number:
15V12MO71-H2-8MNC

15 V Valve Series	12M O.D. Tube Size	07 Stem Type	1 Body Pattern	Configuration
15 V	**12M** – 3/4”	**07** – VEE stem	**1** – two-way straight	8MNC = Air-drive normally closed
			2 – two-way angle	

Technical Data and Dimensions

Technical Data

Operating temperature:	-40° F / 185° F
Drive pressure:	102 psi-145 psi (7-10 bar)
Operating pressure:	15,200 psi (1,050 bar)

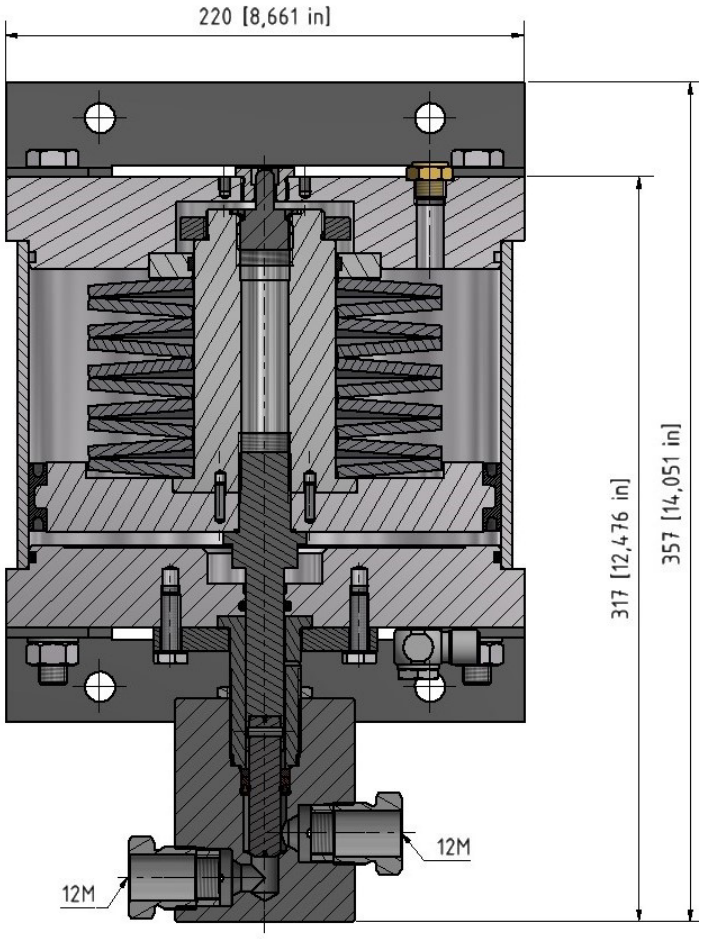
Materials

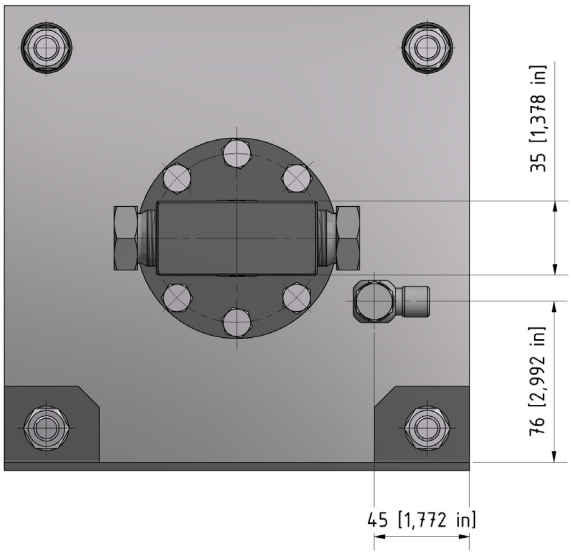
Valve body:	1.4404 (SST 316L)
Valve stem:	1.4980 (A-286)
Seal:	UHMWPE

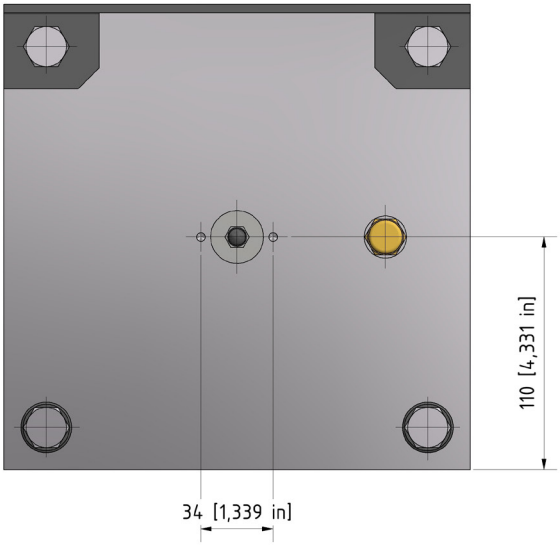
Dimensions

Height:	357 mm (14 in)
Net weight:	24.4 kg (53.79 lbs)
Width:	220 mm x 220 mm (8.66 in x 8.66 in)
Orifice:	11.1 mm (0.43 in)
Actuator:	8MNC

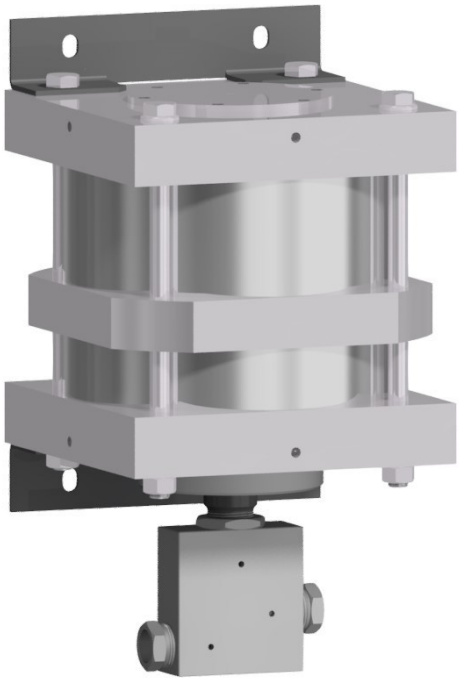
The valves are marked with an EX sign and are in conformity to Group II Category 2G Explosion group IIC constructive safety.







Air Actuated H_2 Valves



Air Actuated High Flow Valves

- Standard type for hydrogen refilling stations for buses, trucks and trains
- Use for shut-off at compressor, distribution at gas storage banks
- Shut-off function for dispenser filling hose

Ordering Information
Typical catalog number:
15V16M071-H2-10HNC

15 V Valve Series	12M O.D. Tube Size	07 Stem Type	1 Body Pattern	Configuration
15 V	**16M** – 1”	**07** – VEE stem	**1** – two-way straight	10HNC = Air drive normally closed
			2 – two-way angle	

Technical Data and Dimensions

Technical Data

Operating temperature:	-40°F / 185°F
Drive pressure:	73 psi-116 psi (5 bar-8 bar)
Operating pressure:	15200 psi (1050 bar)

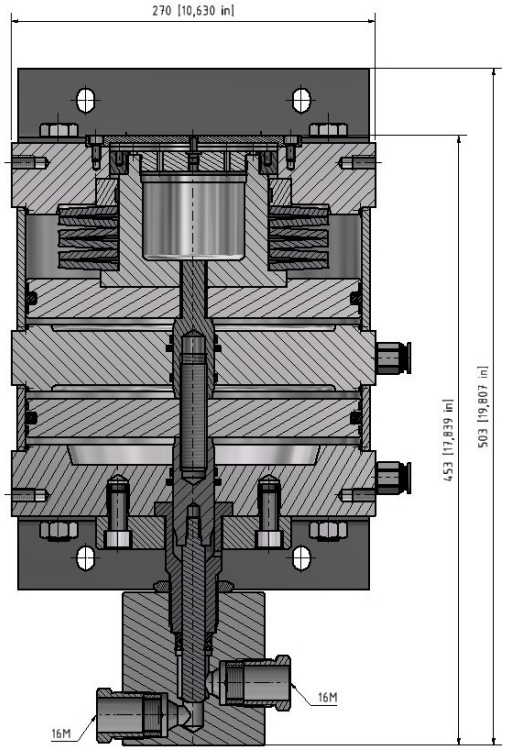
Materials

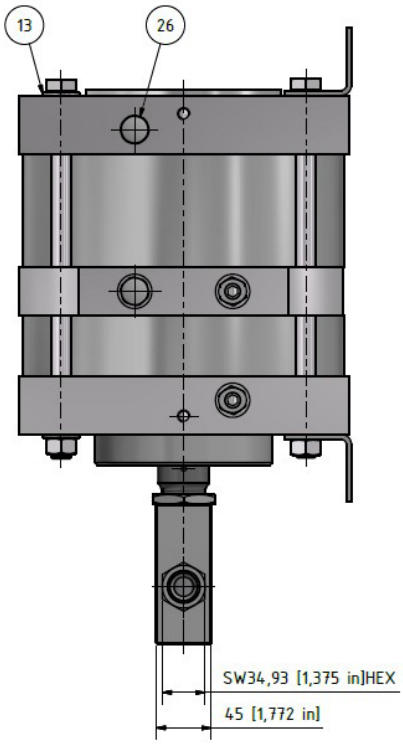
Valve body:	1.4404 (SST 316L)
Valve stem:	1.4980 (A-286)
Seal:	UHMWPE

Dimensions

Height:	503 mm (19.80 in)
Net weight:	57.9 kg (127.64 lbs)
Width:	270 mm x 270 mm (10.62 in x 10.62 in)
Orifice:	14.3 mm (0.56 in)
Actuator:	10HNC

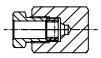
The valves are marked with an EX sign and are in conformity to Group II Category 2G Explosion group IIC constructive safety.


270 [10,630 in]
453 [17,839 in]
503 [19,807 in]
16M
16M


13
26
SW34,93 [1,375 in]HEX
45 [1,772 in]

Medium Pressure Fittings

Maximator medium pressure fittings are designed for use with 15V series hydrogen valves, 21V series medium pressure valves and medium pressure tubing. All medium pressure fittings have coned and threaded type connections. Mounting holes are standard on all elbows, tees and crosses.

Tubing Size in. (mm)				
				
1/4 **(6.35)**	21G4M	21C4M	21P4M	21TC4M
3/8 **(9.53)**	21G6M	21C6M	21P6M	21TC6M
9/16 **(14.29)**	21G9M	21C9M	21P9M	21TC9M
3/4 **(19.05)**	21G12M	21C12M	21P12M	21TC12M
1 **(25.4)**	21G16M	21C16M	21P16M	21TC16M

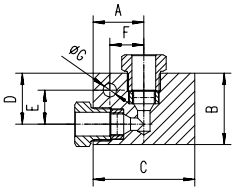
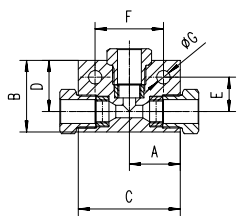
Connection Components

All medium pressure fittings are supplied with glands and collars. Refer to the adjacent chart for ordering any of the connection components individually. When using the plug, the collar is not needed.

» Materials:

Fitting body: 1.4404 (SST 316L)

Gland, collar: : 1.4404 (SST 316L)

Fitting Pattern	Catalog Number	Connection Type	O.D. Tube Size in.	Orifice in. (mm)	Dimensions in. (mm) A	B	C	D	E	F	G	Block Thick-ness
Elbow												
	21L4M	4MF	1/4	0.106 **(2.7)**	0.75 **(19.1)**	1.10 **(28)**	1.54 **(39.1)**	0.75 **(19.1)**	0.49 **(12.5)**	0.49 **(12.5)**	0.22 **(5.6)**	0.63 **(16)**
	21L6M	6MF	3/8	0.201 **(5.1)**	1.00 **(25.4)**	1.38 **(35)**	2.00 **(50.8)**	1.00 **(25.4)**	0.63 **(16)**	0.63 **(16)**	0.26 **(6.6)**	0.79 **(20.1)**
	21L9M	9MF	9/16	0.307 **(7.8)**	1.25 **(31.8)**	1.75 **(44.5)**	2.50 **(63.5)**	1.25 **(31.8)**	0.84 **(21.3)**	0.84 **(21.3)**	0.33 **(8.4)**	1.02 **(25.9)**
	21L12M	12MF	3/4	0.438 **(11.1)**	1.50 **(38.1)**	2.25 **(57.2)**	3.00 **(76)**	1.50 **(38.1)**	1.00 **(25.4)**	1.00 **(25.4)**	0.35 **(8.9)**	1.38 **(35)**
	21L16M	16MF	1	0.562 **(14.3)**	2.06 **(52.3)**	3.00 **(76)**	4.13 **(105)**	2.06 **(52.3)**	1.38 **(35)**	1.38 **(35)**	0.53 **(13.5)**	1.77 **(45)**
Tee												
	21T4M	4MF	1/4	0.106 **(2.7)**	0.75 **(19.1)**	1.10 **(28)**	1.54 **(39.1)**	0.75 **(19.1)**	0.49 **(12.5)**	0.98 **(25)**	0.22 **(5.6)**	0.63 **(16)**
	21T6M	6MF	3/8	0.201 **(5.1)**	1.00 **(25.4)**	1.38 **(35)**	2.00 **(50.8)**	1.00 **(25.4)**	0.63 **(16)**	1.26 **(32)**	0.26 **(6.6)**	0.79 **(20.1)**
	21T9M	9MF	9/16	0.307 **(7.8)**	1.25 **(31.8)**	1.75 **(44.5)**	2.50 **(63.5)**	1.25 **(31.8)**	0.84 **(21.3)**	1.67 **(42.6)**	0.33 **(8.4)**	1.02 **(25.9)**
	21T12M	12MF	3/4	0.438 **(11.1)**	1.50 **(38.1)**	2.25 **(57.2)**	3.00 **(76)**	1.50 **(38.1)**	1.00 **(25.4)**	2.00 **(50.8)**	0.35 **(8.9)**	1.38 **(35)**
	21T16M	16MF	1	0.562 **(14.3)**	2.06 **(52.3)**	3.00 **(76)**	4.13 **(105)**	2.06 **(52.3)**	1.38 **(35)**	2.76 **(70)**	0.53 **(13.5)**	1.77 **(45)**

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

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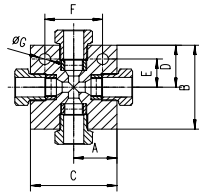
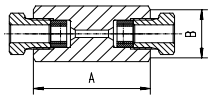
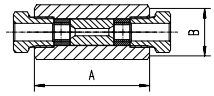
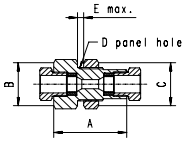
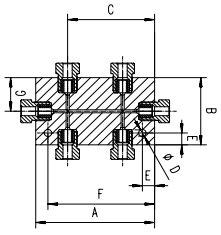
Fitting Pattern	Catalog Number	Connection Type	O.D. Tube Size in.	Orifice in. (mm)	Dimensions in. (mm) A	B	C	D	E	F	G	Block Thickness
Cross												
	21X4M	4MF	1/4	0.106 **(2.7)**	0.77 **(19.5)**	1.54 **(39.1)**	1.54 **(39.1)**	0.77 **(19.5)**	0.49 **(12.5)**	0.98 **(25)**	0.22 **(5.6)**	0.63 **(16)**
	21X6M	6MF	3/8	0.201 **(5.1)**	1.00 **(25.4)**	2.00 **(50.8)**	2.00 **(50.8)**	1.00 **(25.4)**	0.63 **(16)**	1.26 **(32)**	0.26 **(6.6)**	0.79 **(20.1)**
	21X9M	9MF	9/16	0.307 **(7.8)**	1.25 **(31.8)**	2.50 **(63.5)**	2.50 **(63.5)**	1.25 **(31.8)**	0.84 **(21.3)**	1.67 **(42.6)**	0.33 **(8.4)**	1.02 **(25.9)**
	21X12M	12MF	3/4	0.438 **(11.1)**	1.50 **(38.1)**	3.00 **(76)**	3.00 **(76)**	1.50 **(38.1)**	1.00 **(25.4)**	2.00 **(50.8)**	0.35 **(8.9)**	1.38 **(35)**
	21X16M	16MF	1	0.562 **(14.3)**	2.06 **(52.3)**	4.13 **(105)**	4.13 **(105)**	2.06 **(52.3)**	1.38 **(35)**	2.76 **(70)**	0.53 **(13.5)**	1.77 **(45)**
Straight Coupling / Union Coupling												
 Straight Coupling	21F4M	4MF	1/4	0.106 **(2.7)**	1.62 **(41.1)**	0.69 **(17.5)**	Straight Coupling					
	21UF4M						Union Coupling					
	21F6M	6MF	3/8	0.201 **(5.1)**	1.75 **(44.5)**	0.88 **(22.3)**	Straight Coupling					
	21UF6M						Union Coupling					
	21F9M	9MF	9/16	0.307 **(7.8)**	2.12 **(53.8)**	1.06 **(27)**	Straight Coupling					
	21UF9M						Union Coupling					
 Union Coupling	21F12M	12MF	3/4	0.438 **(11.1)**	2.50 **(63.5)**	1.44 **(36.5)**	Straight Coupling					
	21UF12M						Union Coupling					
	21F16M	16MF	1	0.562 **(14.3)**	3.50 **(88.9)**	2.00 **(50.8)**	Straight Coupling					
	21UF16M						Union Coupling					
Bulkhead Coupling												
	21BF4M	4MF	1/4	0.106 **(2.7)**	1.88 **(47.8)**	1.06 **(27)**	1.06 **(27)**	0.94 **(23.9)**	0.67 **(17)**			
	21BF6M	6MF	3/8	0.201 **(5.1)**	2.01 **(51)**	1.06 **(27)**	1.06 **(27)**	0.94 **(23.9)**	0.39 **(9.9)**			
	21BF9M	9MF	9/16	0.307 **(7.8)**	2.38 **(60.5)**	1.44 **(36.5)**	1.44 **(36.5)**	1.12 **(28.5)**	0.39 **(9.9)**			
	21BF12M	12MF	3/4	0.438 **(11.1)**	2.81 **(71.4)**	1.62 **(41.3)**	1.62 **(41.3)**	1.37 **(34.8)**	0.47 **(11.9)**			
	21BF16M	16MF	1	0.562 **(14.3)**	3.54 **(89.9)**	2.00 **(50.8)**	2.00 **(50.8)**	1.68 **(42.6)**	0.51 **(13)**			
Manifold Block												
	21MB64M	4MF	1/4	0.106 **(2.7)**	3.39 **(86)**	1.54 **(39.1)**	2.6 **(66)**	0.22 **(5.5)**	0.28 **(7)**	3.11 **(79)**	0.77 **(19.5)**	0.63 **(16)**
	21MB66M	6MF	3/8	0.201 **(5.1)**	3.39 **(86)**	2.00 **(50,8)**	2.38 **(60.5)**	0.26 **(6.5)**	0.37 **(9.5)**	3.01 **(76.5)**	1.00 **(25.5)**	0.79 **(20.1)**
	21MB69M	9MF	9/16	0.307 **(7.8)**	5.12 **(130)**	2.50 **(63.5)**	3.86 **(98)**	0.33 **(8.5)**	0.41 **(10.5)**	4.7 **(119.5)**	1.25 **(31.75)**	1.02 **(25.9)**
	21MB612M	12MF	3/4	0.438 **(11.1)**	6.50 **(165)**	3.00 **(76)**	5.00 **(127)**	0.35 **(9)**	0.49 **(12.5)**	6.00 **(152.5)**	1.5 **(38)**	1.38 **(35)**
	21MB616M	16MF	1	0.562 **(14.3)**	7.25 **(191)**	4.13 **(105)**	5.45 **(138,5)**	0.53 **(13.5)**	0.69 **(17.5)**	6.83 **(173.5)**	2.07 **(52.5)**	1.77 **(45)**

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

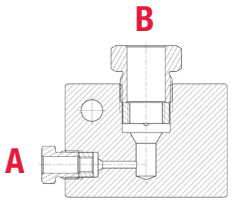
All technical and dimensional information subject to change. All general Terms and Conditions of sale, including limitations of our liability, apply to all products and services sold.

Medium Pressure Fittings with Variable Connections

Maximator also offers medium pressure elbow, tee and cross fittings with variable connections. The dimensions depend on the largest connection type. All medium pressure fittings have coned and threaded type connections. Mounting holes are standard on all elbows, tees and crosses.

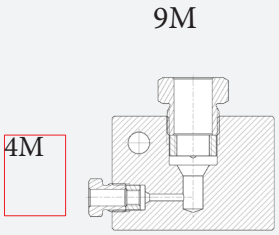
Elbow

Body structure



Catalog Number **21L A B**

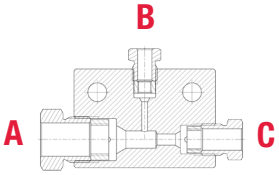
Example:



Catalog Number
21L 4M 9M
A B
Largest connection type*

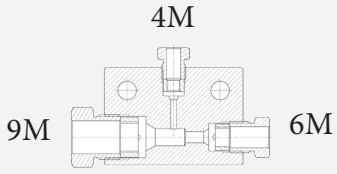
Tee

Body structure



Catalog Number **21T A B C**

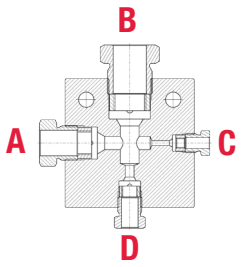
Example:



Catalog Number
21T 9M 4M 6M
A B C
Largest connection type*

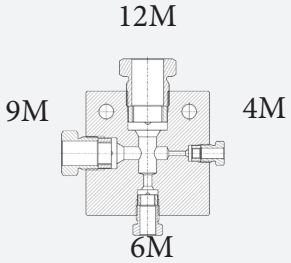
Cross

Body structure



Catalog Number **21X A B C D**

Example:



Catalog Number
21X 9M 12M 4M 6M
A B C D
Largest connection type*

* All dimensions can be found on the previous pages.

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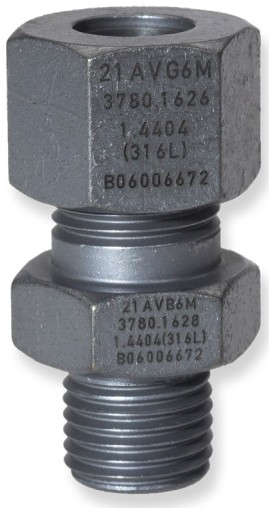
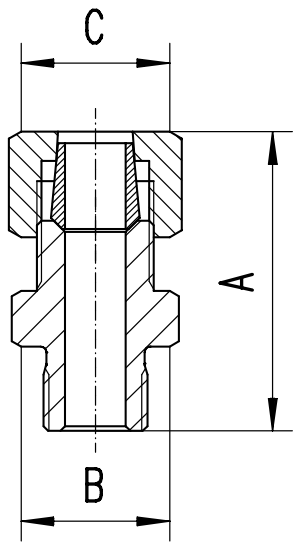
Anti-Vibration Collet Gland Assemblies

Maximator anti-vibration collet gland assemblies are for use in applications where there could be extreme external mechanical vibrations or shock in tubing lines. These collet gland assemblies are interchangeable with the standard medium pressure coned and threaded tube connections.

In a normal coned and threaded tube connection, any external mechanical loading on the tubing lines, valves or fittings would be concentrated on the first thread of the tube. This can cause failure of the tube at this thinner cross-section. The anti-vibration collet gland assembly grips the tube behind the connection, supporting the tube at the full cross-section and straight area, moving the loading away from the threaded area.

The back part of the assembly has a gland nut that, when tightened properly, compresses a split collet on the tube, providing the beneficial gripping action. All anti-vibration collet gland assemblies come with a Molybdenum Disulfide Coating to guard against galling of the stainless components.



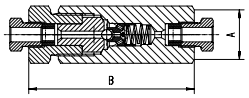
Gland Pattern	Catalog Number	Part	O.D. Tubing Size in.	Dimensions in. (mm)		
				A	B (Hex.)	C (Hex.)
	21AVA4M	Complete Assembly	1/4	1.27 **(32.2)**	0.50 **(12,7)**	0.62 **(15.7)**
	21AVB4M	Collet Body				
	21AVC4M	Slotted Collet				
	21AVG4M	Gland Nut				
	21AVA6M	Complete Assembly	3/8	1.54 **(39.1)**	0.62 **(15.7)**	0.81 **(20.6)**
	21AVB6M	Collet Body				
	21AVC6M	Slotted Collet				
	21AVG6M	Gland Nut				
	21AVA9M	Complete Assembly	9/16	1.82 **(46.2)**	0.94 **(23.9)**	0.94 **(23.9)**
	21AVB9M	Collet Body				
	21AVC9M	Slotted Collet				
	21AVG9M	Gland Nut				
	21AVA12M	Complete Assembly	3/4	2.01 **(51)**	1.19 **(30.2)**	1.25 **(31.8)**
	21AVB12M	Collet Body				
	21AVC12M	Slotted Collet				
	21AVG12M	Gland Nut				
	21AVA16M	Complete Assembly	1	2.44 **(62)**	1.38 **(35)**	1.50 **(38.1)**
	21AVB16M	Collet Body				
	21AVC16M	Slotted Collet				
	21AVG16M	Gland Nut				

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

Ball Check Valves

Ball Check Valves prevent reverse flow where bubble tight shut-off is not mandatory. These check valves are designed with a ball cradled floating poppet to assure positive inline seating. This poppet design allows full flow around the ball to minimize pressure drop. Check valves are rated to 660°F **(350°C)**. All check valves are supplied with glands and collars. These check valves are not to be used as a relief device. The opening pressure of the Ball Check Valves is approx. 20 psi (1.5 bar).

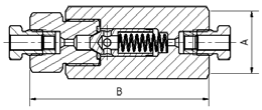
» **Materials:** Body, cover, poppet, cover gland: 1.4404 (SST 316L)
Ball: SST 400 series Spring: SST 300 series

Valve Pattern	Catalog Number	Connection Type	Pressure Rating psi (bar)	Orifice in. (mm)	Rated (Cv)	Dimensions in. (mm) A (Hex.)	B
Ball Check Valves							
	21BC4M	4MF	22,500 **(1,550)**	0.106 **(2.7)**	0.28	0.88 **(22.3)**	2.91 **(73.9)**
	21BC6M	6MF	22,500 **(1,550)**	0.201 **(5.1)**	0.84	1.06 **(27)**	3.31 **(84.1)**
	21BC9M	9MF	22,500 **(1,550)**	0.307 **(7.8)**	2.30	1.44 **(36.5)**	4.29 **(109)**
	21BC12M	12MF	22,500 **(1,550)**	0.438 **(11.1)**	4.70	2.00 **(50.8)**	5.46 **(138.7)**
	21BC16M	16MF	22,500 **(1,550)**	0.562 **(14.3)**	7.40	2.00 **(50.8)**	6.57 **(166.9)**

» **Materials:** Body, sealing cone: 1.4404 (SST 316L) Seal: PEEK

Cone Check Valves

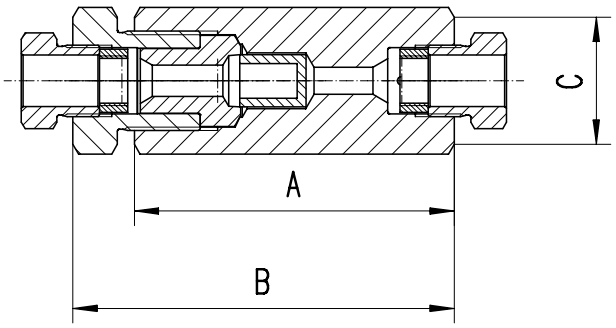
Especially for hydrogen applications, where best of class sealing ability is required, Maximator developed this cone check valve series design with a highly media compatible soft sealing system and improved spring guide. This series is available for Medium Pressure applications up to 22,500 psi (1.550 bar) with 4M to 16M connection.

Valve Pattern	Catalog Number	Connection Type	Pressure Rating psi (bar)	Orifice in. (mm)	Rated (Cv)	Dimensions in. (mm) A (Hex.)	B
Cone Check Valves							
	21CC4M-H2	4MF	22,500 **(1,550)**	0.106 **(2.7)**	0.28	0.88 **(22.3)**	2.91 **(73.9)**
	21CC6M-H2	6MF	22,500 **(1,550)**	0.201 **(5.1)**	0.84	1.06 **(27)**	3.31 **(84.1)**
	21CC9M-H2	9MF	22,500 **(1,550)**	0.307 **(7.8)**	2.30	1.44 **(36.5)**	4.29 **(109)**
	21CC12M-H2	12MF	22,500 **(1,550)**	0.438 **(11.1)**	4.70	2.00 **(50.8)**	5.35 **(136)**
	21CC16M-H2	16MF	22,500 **(1,550)**	0.562 **(14.3)**	7.40	2.00 **(50.8)**	6.88 **(175)**

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

Cup-Type Line Filters

Maximator Cup-Type Line Filters are used when maximum filtration surface area and a single micron size element is preferred. This design increases the filter area as much as 6 times the area of the disc type filter, and will permit higher flow rates with a lower pressure drop, and longer intervals between element changes. Filter elements come standard in 5, 30, or 56 micron sizes and are easily replaced. Filters are rated for temperatures -423°F to 660°F **(-252°C to 350°C).** All line filters come with glands and collars.



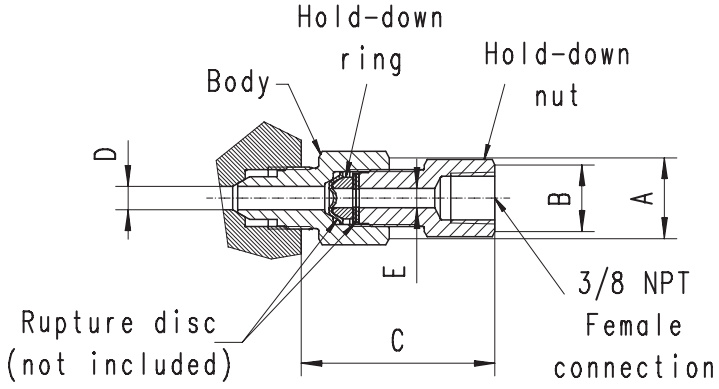
» Materials:
Body, cover, cover gland: 1.4404 (SST 316L)
Element: 1.4404 (SST 316L)

Catalog Number	Pressure Rating psi (bar)	Orifice in. (mm)	Micron Size	Connection Type	Filter Element Area in.² (mm)²	Dimensions in. (mm) A	B	C (Hex.)
Cup-Type Line Filters								
21CF4M-5	22,500 **(1,550)**	0.106 **(2.7)**	5	4MF	0.82 **(530)**	2.38 **(60.5)**	2.87 **(72.9)**	0.88 **(22.3)**
21CF4M-30			30					
21CF4M-56			56					
21CF6M-5	22,500 **(1,550)**	0.201 **(5.1)**	5	6MF	0.82 **(530)**	2.83 **(71.8)**	3.35 **(85.1)**	1.06 **(27)**
21CF6M-30			30					
21CF6M-56			56					
21CF9M-5	22,500 **(1,550)**	0.307 **(7.8)**	5	9MF	1.55 **(1,000)**	3.63 **(92.2)**	4.33 **(110)**	1.44 **(36.5)**
21CF9M-30			30					
21CF9M-56			56					
21CF12M-5	22,500 **(1,550)**	0.438 **(11.1)**	5	12MF	6.14 **(3,960)**	5.75 **(146)**	6.57 **(166.9)**	2.00 **(50.8)**
21CF12M-30			30					
21CF12M-56			56					
21CF16M-5	22,500 **(1,550)**	0.562 **(14.3)**	5	16MF	6.14 **(3,960)**	5.75 **(146)**	6.57 **(166.9)**	2.00 **(50.8)**
21CF16M-30			30					
21CF16M-56			56					

It is recommended that all fluids entering a high pressure system be thoroughly cleaned.
Maximator filters are designed to remove small amounts of process particles. Pressure differential should not exceed 1000 psi across the filter elements.
All dimensions for reference only and are subject to change.

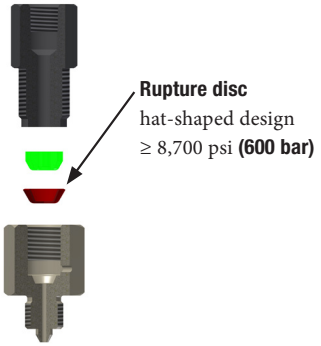
Safety Head Assemblies

Maximator safety head assemblies are used to provide over-pressure protection to high pressure systems. These safety head assemblies are to be used with the appropriate 1/4" angular rupture disc listed on the next page.



Safety Head Assembly Catalog Number without Disc	Fits Connection Type	Pressure Rating psi (bar)	Body Torque ft - lbs. (Nm)	Dimensions in. (mm) A (Hex.)	B (Hex.)	C (LG.)	D (I.D.)	E (I.D.)
21SH4M	4MF	22,500 **(1,550)**	20 **(30)**	1,06 **(27)**	0.88 **(22.3)**	2.48 **(63)**	0.109 **(2.8)**	0.250 **(6.3)**
21SH6M	6MF	22,500 **(1,550)**	30 **(40)**	1,06 **(27)**	0.88 **(22.3)**	2.72 **(69.1)**	0.203 **(5.1)**	0.250 **(6.3)**
21SH9M	9MF	22,500 **(1,550)**	55 **(75)**	1,06 **(27)**	0.88 **(22.3)**	2.51 **(63.7)**	0.255 **(6.5)**	0.250 **(6.3)**
21SH12M	12MF	22,500 **(1,550)**	90 **(120)**	1,19 **(30.2)**	0.88 **(22.3)**	2.72 **(69.1)**	0.307 **(7.8)**	0.250 **(6.3)**
21SH16M	16MF	22,500 **(1,550)**	150 **(200)**	1.44 **(36.6)**	0.88 **(22.3)**	2.72 **(69.1)**	0.307 **(7.8)**	0.250 **(6.3)**

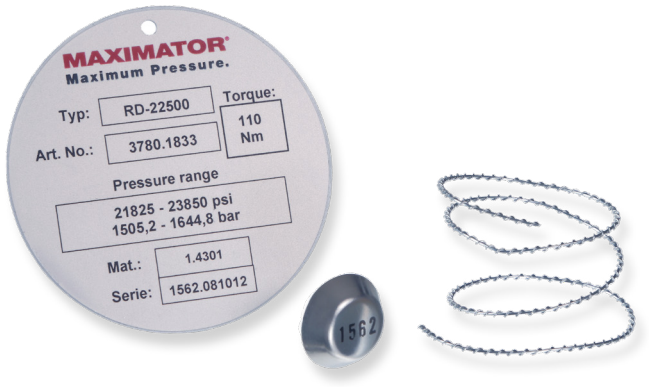
All dimensions for reference only and are subject of change



1/4“ Rupture Discs

1/4“ angular rupture discs are designed to be used with MAXIMATOR safety head assemblies. Minimum rupture disc pressure ratings should be at least 110% of system operating pressure. The standard material is 1.4404 (SST 316L). The pressure ranges indicated in the table below are at room temperature (22°C/72°F).

Other materials and pressure ranges are available upon request.



Catalog Number	Pressure range psi (bar)
RD-1000-H2	970 - 1,060 **(66.9 - 73.1)**
RD-1200-H2	1,164 - 1,272 **(80.3 - 87.7)**
RD-1500-H2	1,455 - 1,590 **(99.7 - 109.7)**
RD-1750-H2	1,697 - 1,855 **(117 - 127.9)**
RD-2000-H2	1,940 - 2,120 **(133.8 - 146.2)**
RD-2500-H2	2,425 - 2,650 **(167.2 - 182.8)**
RD-3000-H2	2,910 - 3,180 **(200.7 - 219.3)**
RD-3500-H2	3,395 - 3,710 **(234.1 - 255.9)**
RD-4000-H2	3,880 - 4,240 **(267.6 - 292.4)**
RD-4500-H2	4,365 - 4,770 **(301 - 329)**
RD-5000-H2	4,850 - 5,300 **(334.5 - 365.5)**

Catalog Number	Pressure range psi (bar)
RD-5500-H2	5,335 - 5,830 **(367.9 - 402.1)**
RD-6000-H2	5,820 - 6,360 **(401.4 - 438.6)**
RD-6500-H2	6,305 - 6,890 **(434.8 - 475.2)**
RD-7000-H2	6,790 - 7,420 **(468.3 - 511.7)**
RD-7500-H2	7,275 - 7,950 **(501.7 - 548.3)**
RD-8000-H2	7,760 - 8,480 **(535.2 - 584.8)**
RD-8500-H2	8,245 - 9,010 **(568.6 - 621.4)**
RD-9000-H2	8,730 - 9,540 **(602.1 - 657.9)**
RD-9500-H2	9,215 - 10,070 **(635.5 - 694.5)**
RD-10000-H2	9,700 - 10,600 **(669 - 731)**
RD-11000-H2	10,670 -11,660 **(735.9 - 804.1)**

Catalog Number	Pressure range psi (bar)
RD-12000-H2	11,640 - 12,720 **(802.8 - 877.2)**
RD-13000-H2	12,610 - 13,780 **(869.7 - 950.3)**
RD-14000-H2	13,580 - 14,840 **(936.6 - 1023.4)**
RD-15000-H2	14,550 - 15,900 **(1,003.4 - 1,096.6)**
RD-16000-H2	15,520 - 16,960 **(1,070.3 - 1,169.7)**
RD-17000-H2	16,490 - 18,020 **(1,137.2 - 1,242.8)**
RD-18000-H2	17,460 - 19,080 **(1,204.1 - 1,315.9)**
RD-19000-H2	18,430 - 20,140 **(1,271 - 1,389)**
RD-20000-H2	19,400 - 21,200 **(1,337.9 - 1,462.1)**
RD-21000-H2	20,370 - 22,260 **(1,404.8 - 1,535.2)**
RD-22000-H2	21,340 - 23,320 **(1,471.7 - 1,608.3)**

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

Medium Pressure Tubing

MAXPRO offers a line of cold drawn thick wall tubing, with flow areas to compliment the large orifce medium pressure valves and fittings. This tubing is made under strict manufacturing and quality control standards and inspections, with dimensional tolerances to match the requirements of the medium pressure coned and threaded connections.

The standard material is 1.4404 (SST 316L). Other materials may be provided on special request, depending on the specific material, diameters and lengths.

Tubing Tolerances

Normal Tubing Size in. (mm)	Tolerance O.D in. (mm)
1/4	0.248 / 0.243 **(6.299 / 6.172)**
3/8	0.370 / 0.365 **(9.398 / 9.271)**
9/16	0.557 / 0.552 **(14.147 / 14.021)**
3/4	0.745 / 0.740 **(18.923 / 18.796)**
1	0.995 / 0.990 **(25.273 / 25.174)**

Catalog Number	Tube Material	Fits Connection Type	Tube Size in. (mm)		Working Pressure psi (bar)				
			O.D.	I.D.	-325°F to 100°F (-198°C to 37°C)	200°F (93°C)	400°F (204°C)	600°F (315°C)	800°F (426°C)
21TU4M-316	1.4404 SST 316L	4MF	1/4	0.109 **(2.77)**	22,500 **(1,550)**	18,900 **(1,300)**	17,430 **(1,200)**	15,960 **(1,100)**	15,120 **(1,040)**
21TU6M-316		6MF	3/8	0.203 **(5.17)**	22,500 **(1,550)**	18,900 **(1,300)**	17,430 **(1,200)**	15,960 **(1,100)**	15,120 **(1,040)**
21TU9M-316		9MF	9/16	0.312 **(7.93)**	22,500 **(1,550)**	18,900 **(1,300)**	17,430 **(1,200)**	15,960 **(1,100)**	15,120 **(1,040)**
15TU9M-316		9MF	9/16	0.359 **(9.12)**	15,200 **(1,050)**	13,680 **(940)**	12,616 **(870)**	11,552 **(790)**	10,944 **(750)**
21TU12M-316		12M	3/4	0.438 **(11.13)**	22,500 **(1,550)**	18,900 **(1,300)**	17,430 **(1,200)**	15,960 **(1,100)**	15,120 **(1,040)**
15TU12M-316				0.516 **(13.11)**	15,200 **(1,050)**	13,680 **(940)**	12,616 **(870)**	11,552 **(790)**	10,944 **(750)**
21TU16M-316		16MF	1	0.562 **(14.27)**	22,500 **(1,550)**	18,900 **(1,300)**	17,430 **(1,200)**	15,960 **(1,100)**	15,120 **(1,040)**
15TU16M-316				0.688 **(17.48)**	15,200 **(1,050)**	13,680 **(940)**	12,616 **(870)**	11,552 **(790)**	10,944 **(750)**

All dimensions for reference only and are subject of change
All technical and dimensional information subject to change. All general Terms and Conditions of sale, including limitations of our liability, apply to all products and services sold.

Coned and Threaded Nipples

MAXPRO offers a line of coned and threaded medium pressure tube nipples in a variety of lengths for all standard tube sizes. The coned and threaded medium pressure tube nipples are available in 1.4404 (SST 316L).

They are also available in the 15,200 psi (1,050 bar) or 22,500 psi 1,550 bar) versions for the 9/16", 3/4" and 1" OD tube sizes. See chart below for ordering information.

Special length coned and threaded nipples are available upon request. Consult MAXPRO for availability and price

Catalog Numbers are 1.4404 (SST 316L) material							Fits Connection Type	Tube Size in. (mm)		Working Pressure at 100°F psi (bar)
2.75" (69.85) Length	3" (76.2) Length	4" (101.6) Length	6" (152.4) Length	8" (203.2) Length	10" (254) Length	12" (304.8) Length		O.D.	I.D.	
21N4M-2.75-316	21N4M-3-316	21N4M-4-316	21N4M-6-316	21N4M-8-316	21N4M-10-316	21N4M-12-316	4MF	1/4	0.109 **(2.77)**	22,500 **(1,550)**
	21N6M-3-316	21N6M-4-316	21N6M-6-316	21N6M-8-316	21N6M-10-316	21N6M-12-316	6MF	3/8	0.203 **(5.17)**	22,500 **(1,550)**
		21N9M-4-316	21N9M-6-316	21N9M-8-316	21N9M-10-316	21N9M-12-316	9MF	9/16	0.312 **(7.93)**	22,500 **(1,550)**
		15N9M-4-316	15N9M-6-316	15N9M-8-316	15N9M-10-316	15N9M-12-316	9MF	9/16	0.359 **(9.12)**	15,200 **(1,050)**
			21N12M-6-316	21N12M-8-316	21N12M-10-316	21N12M-12-316	12MF	3/4	0.438 **(11.13)**	22,500 **(1,550)**
			15N12M-6-316	15N12M-8-316	15N12M-10-316	15N12M-12-316	12MF	3/4	0.516 **(13.11)**	15,200 **(1,050)**
			21N16M-6-316	21N16M-8-316	21N16M-10-316	21N16M-12-316	16MF	1	0.562 **(14.27)**	22,500 **(1,550)**
			15N16M-6-316	15N16M-8-316	15N16M-10-316	15N16M-12-316	16MF	1	0.688 **(17.48)**	15,200 **(1,050)**

Standard nipples are not supplied with glands and collars.
For further available options and more detailed information please refer to our VFT catalogue.

All dimensions are for reference only and subject to change.

The Coning & Threading Tool Kits:

Maxpro offers a complete line of coning and threading tool kits for manually coning and threading 1/4" O.D. to 9/16" O.D. tubing. There are three different tool kit versions, Medium Pressure, High Pressure, and the Complete Kit that contains both the Medium and the High Pressure tools. All items are conveniently packaged in a sturdy hand carry tool case with removable top tray. The unique coning and threading tool design allows for interchangeability between components, eliminating multiple tool inventories.

The Coning &Threading Tool Kit contains:

- Coning Tool Assembly
- 1/4, 3/8, 9/16 Collets
- Collet Wrench
- 1/4, 3/8, 9/16 Cutting Blades
- Threading Tool Assembly
- 1/4, 3/8, 9/16 Guide Bushing
- 1/4, 3/8, 9/16 Threading Dies
- Allen Wrenches
- Complete Deburring Tool
- Suflo Cutting Oil
- Laminated Instruction Manual

MAXPRO CONING & THREADING MACHINES

Model #MTCAT – Quickly cones and threads 1/4", 3/8", 9/16", 3/4" and 1" Medium Pressure and 1/4", 3/8", and 9/16" High Pressure Tubing. US Patent #9,015,915, CE Mark

Model #MTCAT-1.5 – The only Coning & Threading Machine on the market that quickly cones and threads all MTCAT tubing sizes plus 1-1/2" Medium Pressure Tubing, Patent Pending, CE Mark Pending –

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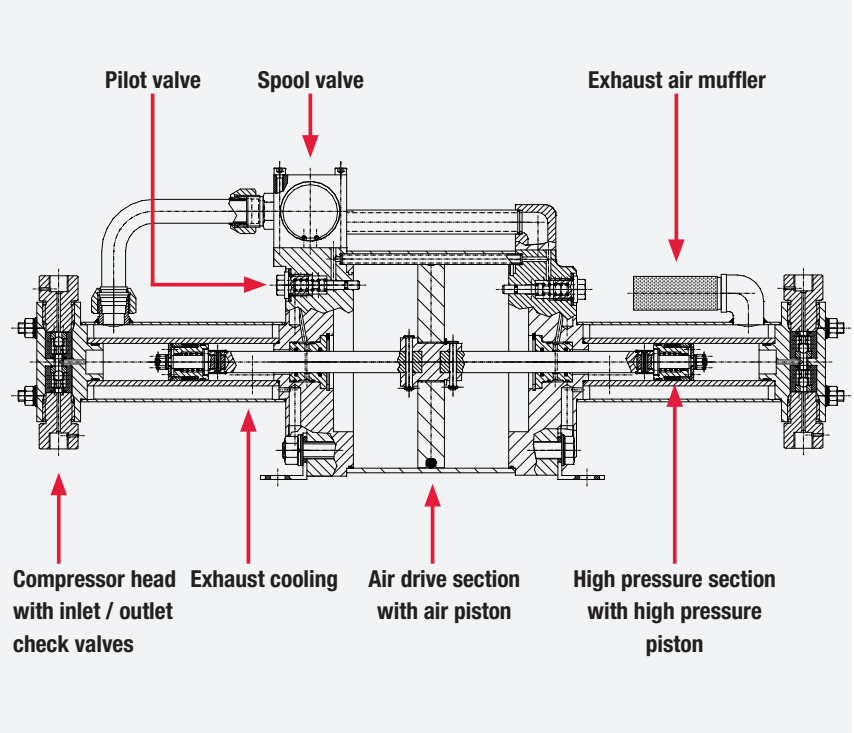
High pressure gas boosters – the Maximator concept

The Maximator high pressure gas boosters are suitable for the oil free compression of gases and air. Industrial gases like argon, helium, nitrogen and hydrogen can be compressed to operating pressures of 2,400 bar (36,000 psi) and oxygen up to 350 bar (5,075 psi), depending on the application. Air driven gas boosters are an efficient alternative instead of electrically driven products and can be used in explosion-proof areas (according to 2014/34/EU)

The Gas boosters in detail

Features at a glance

- Pressure regulation via manual pressure regulator or pneumatically actuated valve
- Operation with compressed air allows use in explosion-proof areas
- Gas booster automatically stops operating upon reaching pre-selected final pressure
- Gas booster restarts automatically to compensate leaks
- No power consumption during long pressure holding periods
- No heat generation during pressure holding period
- Easy installation and trouble-free handling of gas boosters
- Low maintenance thanks to reliable, easy-to-install devices
- Effective cooling of the high pressure cylinders through integrated exhaust air cooling



Function & Operation

The Maximator gas boosters' operating principle is similar to a pressure intensifier. A large air piston is charged with low pressure (air piston) and works on a small area with high pressure (high pressure piston).

The continuous operation is achieved by a pilot operated 4/2 way valve (spool valve). The spool valve applies the drive air alternately to the upper and bottom surface of the air piston.

The spool is piloted through two 2/2 way valves (pilot valves) which are mechanically actuated through the air piston in its end positions. The pilot valves charge and discharge the spool chamber.

The high pressure piston supported by the check valves (inlet check valve and outlet check valve) delivers the flow.

The outlet pressure is directly related to the set air drive pressure. According to the formulas indicated in the technical features table for the gas boosters, the static end pressure can be calculated.

At this pressure a force balance between drive section and gas section is achieved. The booster stalls when this end pressure is reached, and does not consume any further air.

A pressure drop at the high pressure side or a pressure increase at the drive side starts the booster automatically until the force balance is achieved again.

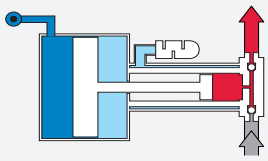
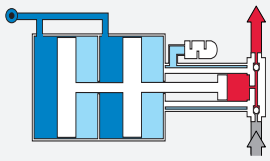
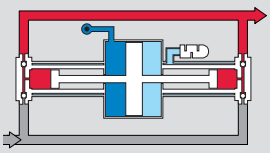
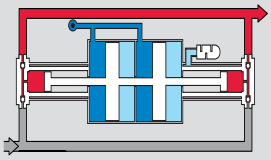
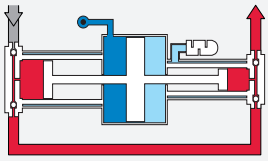
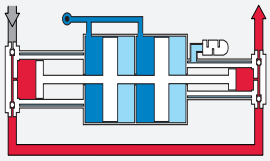
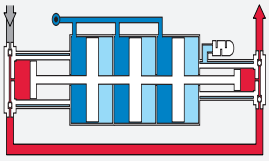
Additionally the Maximator boosters can be switched on and off automatically through Maximator air pilot switches, contact gauges or external control devices.

Notice:
Purging plans for compression of combustible gases using Maximator gas boosters are explained in detail in the operators manual available on our website www.maximator.de.

The series and its functions:

Maximator gas boosters offer the right solution for every application. As a result of the wide range of models it is possible to select the optimum booster for each application. Single stage or two stage boosters, single acting, double acting, quadruple acting or a combination of these models can be used to achieve different operating pressures and flow capacities. They are suitable for different or stepped flow rates as well as for different maximum allowable operating pressures. In addition to gas boosters with a Ø 160 mm drive (DLE series), Maximator also offers various models with a Ø 200 mm drive (8DLE series) for high volume flows.

160 mm - Drive (Standard DLE-Series):

One Air Drive Section		Two Air Drive Sections	
Pattern	**Design** **Pressure ratio** **max. working pressure** **Type**	**Pattern**	**Design** **Pressure ratio** **max. working pressure** **Type**
	Single stage - single acting from 1:2 up to 1:75 max. 750 bar		Single stage - single acting from 1:4 up to 1:150 max. 1,500 bar
	Single stage - double acting from 1:2 up to 1:75 max. 1,500 bar		Single stage - double acting from 1:4 up to 1:150 max. 1,500 bar
	Two stage from 1:2 / 1:5 up to 1:30 / 1:75 max. 1,500 bar		Two stage - double acting from 1:4/1:10 up to 1:60/1:150 max. 2,100 bar
Three Air Drive Sections			
	Two stage - double acting 1:30 / 1:75 max. 2,400 bar		

For further available options and more detailed information please refer to our Gas Booster catalogue.

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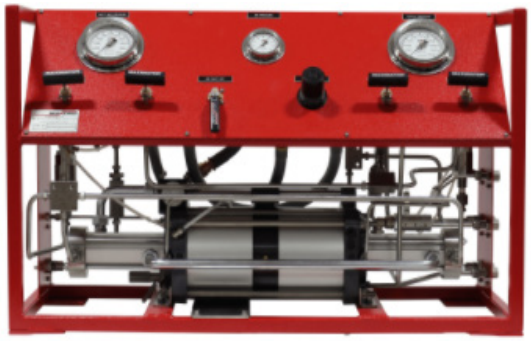
Gas Booster Systems

MAXPRO gas booster systems provide a compact, portable source for increasing gas pressures. These air driven booster systems are shipped assembled and fully tested, ready for turn-key installation. As with standard boosters, the gas booster systems require no electrical power, providing safe and economical operation.

Gas booster systems are capable of compressing most gases including nitrogen, argon, helium and hydrogen up to 36,000 psi. Systems feature special seals and cleaning can pressurize oxygen to 5,000 psi. All MAXPRO systems for use with hazardous gases are modified to ensure vent ports are piped to a common vent connection.



SYSTEM CATALOG NUMBER			GAS BOOSTER TYPE	SYSTEM RATING (PSI)	MINIMUM SUCTION PRESSURE	DIMENSIONS DP X HG X LG	WEIGHT
INERT GAS	HAZARDOUS GAS	OXYGEN GAS					
MTIG3-30	MTHG3-30	MTO2-3-30	DLE30	3,000	220	16" X 23" X 28"	120
MTIG3-5-30	MTHG3-5-30	MTO2-3-5-30	DLE5-30	3,000	30	16" X 23" X 28"	120
MTIG5-75	MTHG5-75	MTO2-5-75	DLE75	5,000	500	16" X 23" X 28"	120
MTIG5-15-75	MTHG5-15-75	MTO2-5-15-75	DLE15-75	5,000	100	16" X 23" X 28"	120
MTIG10-75-2	MTHG10-75-2	N/A	DLE75-2	10,000	650	16" X 23" X 38"	150
MTIG10-30-75-2	MTHG10-30-75-2	N/A	DLE30-75-2	10,000	220	16" X 23" X 38"	150
MTIG15-30-75-2	N/A	N/A	DLE30-75-2	15,000	220	16" X 23" X 38"	150

NOTE:
1. Various other gas booster models can be used to best fit your specific application.
2. Schematic shown is the standard system. Other options may be added or removed as required.
3. The hazardous gas systems have all vent ports plumbed to a common discharge port. This port must be plumbed to a safe vent area.
4. The oxygen systems have all components cleaned for oxygen service.
5. For higher flow rates and/or multiple stages, more than one booster may be used in the system.
6. Compression ratios and the control of heat generated are especially important on pure oxygen systems. Consult Maxpro for safety considerations.

Applications

- **Leak testing of pressure components**
- **Low pressure gas reclaim from storage bottles**
- **Gas charging accumulators**
- **Pressurizing gas cylinders and shock absorbers**
- **Breathing air systems for scuba and fire department SCBA tanks**
- **Boosting gas pressures from nitrogen and oxygen generators**
- **Gas assist injection molding**
- **Boosting gas pressures from vaporized liquid source**

STYLE	CATALOG NUMBER	PRESSURE RATIO	COMPRESSION RATIO	SUPPLY PRESSURE (PSI)		
				MIN.*	MIN.**	MAX.
SINGLE ACTING SINGLE STAGE	DLE2-1-NN	2:1	10:1	0	30	290
	DLE5-1-NN	5:1	15:1	30	50	725
	DLE15-1-NN	15:1	20:1	100	110	2,175
	DLE30-1-NN	30:1	20:1	220	220	4,350
	DLE75-1-GG	75:1	20:1	500	550	10,875
DOUBLE ACTING SINGLE STAGE	DLE2-NN	2:1	10:1	0	290	580
	DLE5-NN	5:1	15:1	30	725	1,450
	DLE15-NN	15:1	20:1	100	2,175	4,350
	DLE30-NN	30:1	20:1	220	4,350	8,700
	DLE75-UU	75:1	20:1	500	10,875	21,750
DOUBLE ACTING SINGLE STAGE DOUBLE AIR HEAD	DLE2-2-NN	4:1	10:1	0	60	580
	DLE5-2-NN	10:1	15:1	30	100	1,450
	DLE15-2-NN	30:1	20:1	145	220	4,350
	DLE30-2-NN	60:1	20:1	290	440	8,700
	DLE75-2-UU	150:1	20:1	650	1,100	21,750
DOUBLE ACTING TWO STAGE	DLE2-5-NN	5:1	25:1	0	116	0.8xPa
	DLE5-15-NN	15:1	45:1	30	232	1.6xPa
	DLE5-30-NN	30:1	90:1	30	75	0.5xPa
	DLE15-30-NN	30:1	40:1	100	1,088	7.5xPa
	DLE15-75-NU	75:1	100:1	100	363	2.5xPa
	DLE30-75-NU	75:1	50:1	220	1,740	12.0xPa
DOUBLE ACTING TWO STAGE DOUBLE AIR HEAD	DLE2-5-2-NN	10:1	25:1	0	232	1.6xPa
	DLE5-15-2-NN	30:1	45:1	30	100	3.2xPa
	DLE5-30-2-NN	60:1	90:1	30	100	1.0xPa
	DLE15-30-2-NN	60:1	40:1	100	220	15xPa
	DLE15-75-2-NU	150:1	100:1	100	220	5.0xPa
	DLE30-75-2-NU	150:1	50:1	220	440	24.0xPa

Many of these boosters can be suitable for use with H2, Please consult Maxpro for evaluation

- *=Minimum required for basic operation
- **= Minimum required to achieve maximum outlet pressure with 145 psi drive air
- Pa=Drive air pressure, 145 psi maximum, 15 psi minimum Ps=Gas supply (suction) pressure
- The 9/16“-18 is a 1/4“ O.D. tubing, high pressure coned and threaded connection
- Stall pressure must not be allowed to exceed outlet pressure rating.

	OUTLET PRESSURE (PSI) MAX.	STALL PRESSURE	CONNECTIONS		MAX. FREG. STROKES/ MIN.	DISPLPER DOUBLE STROKE (IN.3)	MAX. TEMP. F	WEIGHT (LBS.)
			INLET	OUTLET				
	290	2Pa	1	3/4	100	56.2	140	34
	725	5Pa	3/8	3/8	110	22.7	140	
	2,175	15Pa	1/4	1/4	130	7.4	210	29
	4,350	30Pa	1/4	1/4	130	3.6	210	
	10,875	75Pa	9/16"-18	9/16"-18	130	1.5	210	
	580	2Pa+Ps	1	3/4	90	112.5	140	45
	1,450	5Pa+Ps	3/8	3/8	110	45.5	140	
	4,350	15Pa+Ps	1/4	1/4	120	14.8	210	40
	8,700	30Pa+Ps	1/4	1<4	120	7.3	210	
	21,750	75Pa+Ps	9/16"-18	9/16"-18	120	3.0	210	
	580	4Pa+Ps	1	3/4	90	112.5	140	55
	1,450	10Pa+Ps	3/8	3/8	100	45.5	140	
	4,350	30Pa+Ps	1/4	1/4	100	14.8	210	51
	8,700	60Pa+Ps	1/4	1/4	100	7.3	210	
	21,750	150Pa+Ps	9/16"-18	9/16"-18	100	3.0	210	
	1,015	5Pa+2.5Ps	1	3/8	100	56.2	140	45
	2,871	15Pa+3Ps	3/8	1/4	110	22.7	210	42
	4,785	30Pa+6Ps	3/8	1/4	110	22.7	210	
	6,525	30Pa+2Ps	1/4	1/4	120	7.4	210	
	12,687	75Pa+5Ps	1/4	9/16"-18	120	7.4	210	
	15,225	75Pa+2.5Ps	1/4	9/16"-18	120	3.6	210	
	1,450	10Pa+2.5Ps	1	3/8	90	56.2	140	55
	4,350	30Pa+3Ps	3/8	1/4	100	22.7	210	53
	8,700	60Pa+6Ps	3/8	1/4	100	22.7	210	
	8,700	60Pa+2Ps	1/4	1/4	100	7.4	210	
	21750	150Pa+5Ps	1/4	9/16"-18	100	7.4	210	
	21,750	150Pa+2.5Ps	1/4	9/16"-18	100	3.6	210	

- Compression ratio is the minimum required ratio of outlet pressure/supply pressure.
- Compression ratios and the control of heat generated are especially important on pure oxygen systems. Consult Maxprotor safety considerations,
- Adapter (15A4H4P) is available to convert the 9/16“-8 connection to 1/4“FNPT. Order separately, Maximum working pressure: 15,000 psi
- Contact Maxpro for arrangement and installation drawings.

About Us

MAXPRO® Technologies Inc. was founded in December of 1995 to serve as the exclusive North American distributor for quality Maximator® products. High-pressure air driven liquid pumps, gas boosters and air amplifiers along with high-pressure valves, fittings, and tubing make up our core product line. Our mission is to provide competitively priced, high-quality products backed by excellent customer service.

Our employees are our greatest asset. With more than 250 years of collective experience in high pressure, our employees are passionate about finding the best solution for your high-pressure requirements.

We stock a full range of standard high-pressure air driven liquid pumps, air amplifiers, gas boosters, and valves, fittings, and tubing for quick shipment. If we do not have a standard product or system to meet your requirements, our talented engineers will gladly design a custom solution. We have extensive experience taking your ideas and making them reality utilizing quality pressure products from Maximator® GmbH.

To better serve our customers, we recently completed an extensive addition to our Fairview, PA location. Our MAXPRO® South locations in Humble, TX, and Lafayette, LA stand ready to serve customers in Texas and Louisiana.

Please contact us today to discuss your high pressure requirements.

In April 2022, Maximator Test joined the Maxpro Companies family of high pressure experts. Please contact them for your high pressure testing requirements.

CONTACT US

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R9 August 2023