

Product Range Brochure



GEMÜ Valves, Inc.
3800 Camp Creek Parkway
Building 2600, Suite 110
Atlanta, GA 30331

Phone: 404-344-8970
Fax: 404-344-9350
E-mail: gemuvalves@mindspring.com
URL: <http://www.gemu.com>

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CERTIFICATE

**The TÜV CERT Certification Body
of TÜV Rheinland
Anlagentechnik GmbH**

Hereby certifies in accordance with
TÜV CERT procedures that

**GEMÜ Valves, Inc.
3800 Camp Creek Parkway, Building 2600, Suite 110
Atlanta, GA 30331, USA**

has established and applies a quality system for
Valves, Actuators and Control Systems

An audit was performed,
Report No. **5420**

Proof has been furnished that the requirements according to
DIN EN ISO 9001:1994
are fulfilled.

The certificate is valid until **September 2001**
Certificate Registration No. **09 100 5420**

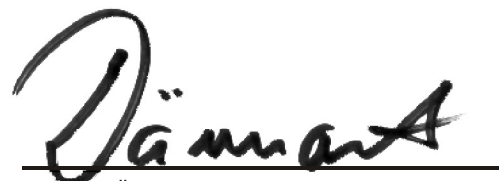


Cologne, 29.09.1998

Certified since 1995

**TÜV Rheinland/
Berlin-Brandenburg**




TÜV CERT Certification Body
of TÜV Rheinland
Anlagentechnik GmbH

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Modular Design

GEMÜ can provide the correct valve, measurement, and control system for all corrosive or inert media. All our products are state-of-the-art.

GEMÜ features electrically, pneumatically, and manually operated valves, ranging in pipe sizes 1/8"-12". Measurement and control equipment is available for these valves.

GEMÜ valves are designed to reliably operate under the most demanding conditions.

Our products are recognized the world over for their outstanding design and performance.

Advantages

- Modular design- Easy conversion from manual to actuated.
- Heavy duty drive assemblies.
- High performance materials.
- Positive sealing prevents media from entering the actuator.
- Valves and actuators are maintenance free and easily serviced.
- Wide range of accessories are available.
- All products are compact and well designed.



Selection of products of plastic construction.



Selection of products of metal construction.



Type 601/602 Manually Operated

Configurations available: Tank bottom, Zero Static T-Valve, U-Bend, Sample Bottle and Multiported
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F

Nominal Bore (ID)		Pressure Range	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
4	-	0-150	-	-	Butt-weld:	Stainless steel	EPDM
6	-	0-150	-	-	DIN	AL-6XN®	TFM
8	1/4"	0-150	2.93	1.05	ISO	Hastelloy®	Silicon
10	3/8"	0-150	-	1.99	O.D. Tubing	Titanium®	
15	1/2"	0-150	-	2.93	Extended O.D. Tubing		
Tri-Clamp®							
Tri-Clamp® x Butt-weld							
Hose barb							
Swagelock®							
Cajon VCR®							
Ingold®							

[†] Others available upon request

^{††} FDA Compliant



Type 611 Manually Operated

Configurations available: 2/2-way
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 194°F

Nominal Bore (ID)		Pressure Range	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
10	3/8"	0-90	5.65	3.50	Butt-weld:	Stainless steel	EPDM
15	1/2"	0-90	7.00	4.10	DIN	AL-6XN®	TFM
20	3/4"	0-90	-	5.60	ISO	Hastelloy®	Silicon
O.D. Tubing						Titanium®	
Extended O.D. Tubing							
Tri-Clamp®							
Tri-Clamp® x Butt-weld							
Hose barb							
Swagelock®							
Cajon VCR®							
Ingold®							

[†] Others available upon request

^{††} FDA Compliant



Type 612 Manually Operated

Configurations available: Tank bottom, Zero Static T-Valve, U-Bend, Sample Bottle and Multiported
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F

Nominal Bore (ID)		Pressure Range	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
12	3/8"	0-150	5.62	3.51	Butt-weld:	Stainless steel	EPDM
15	1/2"	0-150	7.02	4.10	DIN	AL-6XN®	TFM
20	3/4"	0-150	-	5.60	ISO	Hastelloy®	Silicon
O.D. Tubing						Titanium®	
Extended O.D. Tubing							
Tri-Clamp®							
Tri-Clamp® x Butt-weld							
Hose barb							
Swagelock®							
Cajon VCR®							
Ingold®							

[†] Others available upon request

^{††} FDA Compliant



Type 671 Manually Operated

Configurations available: 2/2 Way
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 176°F

Nominal Bore (ID)		Pressure Range	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
15	1/2"	0-150	12.3	5.9	Butt-weld: DIN ISO O.D. Tubing Extended O.D. Tubing Tri-Clamp® Tri-Clamp® x Butt-weld Hose barb Swagelock® Cajon VCR® Ingold®	Stainless steel	EPDM
20	3/4"	0-150	15.2	12.3		AL-6XN®	TFM
25	1"	0-150	31.6	13.5		Hastelloy®	Silicon
32	1-1/4"	0-150	50.3	29.3		Titanium®	
40	1-1/2"	0-150	58.5	46.8			
50	2"	0-150	74.9	67.9			
65	2-1/2"	0-150	111.2	99.5			
80	3"	0-150	148.6	128.7			
100	4"	0-150	239.9	216.5			

[†] Others available upon request

^{††} FDA Compliant



Type 672 Manually operated

Configurations available: Tank bottom, Zero Static T-Valve, U-Bend and Multiported
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F

Nominal Bore (ID)		Pressure Range	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
15	1/2"	0-150	12.3	5.9	Butt-weld: DIN ISO O.D. Tubing Extended O.D. Tubing Tri-Clamp® Tri-Clamp® x Butt-weld Hose barb Swagelock® Cajon VCR® Ingold®	Stainless steel	EPDM
20	3/4"	0-150	15.2	12.3		AL-6XN®	TFM
25	1"	0-150	31.6	13.5		Hastelloy®	Silicon
32	1-1/4"	0-150	50.3	29.3		Titanium®	
40	1-1/2"	0-150	58.5	46.8			
50	2"	0-150	74.9	67.9			
65	2-1/2"	0-150	111.2	99.5			
80	3"	0-150	148.6	128.7			
100	4"	0-150	239.9	216.5			

[†] Others available upon request

^{††} FDA Compliant



Type 673 Manually operated

Configurations available: Tank bottom, Zero Static T-Valve, U-Bend and Multiported
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F

Nominal Bore (ID)		Pressure Range	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
15	1/2"	0-150	12.3	5.9	Butt-weld: DIN ISO O.D. Tubing Extended O.D. Tubing Tri-Clamp® Tri-Clamp® x Butt-weld Hose barb Swagelock® Cajon VCR® Ingold®	Stainless steel	EPDM
20	3/4"	0-150	15.2	12.3		AL-6XN®	TFM
25	1"	0-150	31.6	13.5		Hastelloy®	Silicon
32	1-1/4"	0-150	50.3	29.3		Titanium®	
40	1-1/2"	0-150	58.5	46.8			
50	2"	0-150	74.9	67.6			

[†] Others available upon request

^{††} FDA Compliant



Type 605 Pneumatically Operated

Configurations available: Tank bottom, Zero Static T-valve, U-bend and Multiported
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F
Control functions: Normally open, normally closed, double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
4	-	0-90	60-105	-	-	Butt-weld:	Stainless steel	EPDM
6	-	0-90	60-105	-	-	DIN	AL-6XN®	TFM
8	1/4"	0-90	60-105	2.93	1.05	ISO	Hastelloy®	Silicon
10	3/8"	0-90	60-105	-	1.99	O.D. Tubing	Titanium®	
15	1/2"	0-90	60-105	-	2.93	Extended O.D. Tubing		
Tri-Clamp®								
Tri-Clamp® x Butt-weld								
Hose barb								
Swagelock®								
Cajon VCR®								
Ingold®								

[†] Others available upon request

^{††} FDA Compliant

*Pressure ranges shown are for elastomer diaphragm/normally closed valves

*Pressure range will vary depending on seal material and/or control function



Type 615 Pneumatically Operated

Configurations available: 2/2-way
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 194°F
Control functions: Normally open, normally closed, double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
10	3/8"	0-90	75-105	5.62	3.51	Butt-weld:	Stainless steel	EPDM
15	1/2"	0-90	75-105	7.02	4.10	DIN	AL-6XN®	TFM
20	3/4"	0-90	75-105	-	5.60	ISO	Hastelloy®	Silicon
O.D. Tubing							Titanium®	
Extended O.D. Tubing								
Tri-Clamp®								
Tri-Clamp® x Butt-weld								
Hose barb								
Swagelock®								
Cajon VCR®								
Ingold®								

[†] Others available upon request

^{††} FDA Compliant

*Pressure ranges shown are for elastomer diaphragm/normally closed valves

*Pressure range will vary depending on seal material and/or control function



Type 625 Pneumatically Operated

Configurations available: Tank bottom, Zero Static T-valve, U-bend and Multiported
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F
Control functions: Normally open, normally closed, double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
10	3/8"	0-90	60-105	5.62	3.51	Butt-weld:	Stainless steel	EPDM
15	1/2"	0-90	60-105	7.02	4.10	DIN	AL-6XN®	TFM
20	3/4"	0-90	60-105	-	5.60	ISO	Hastelloy®	Silicon
O.D. Tubing							Titanium®	
Extended O.D. Tubing								
Tri-Clamp®								
Tri-Clamp® x Butt-weld								
Hose barb								
Swagelock®								
Cajon VCR®								
Ingold®								

[†] Others available upon request

^{††} FDA Compliant

*Pressure ranges shown are for elastomer diaphragm/normally closed valves

*Pressure range will vary depending on seal material and/or control function



Type 640 Pneumatically Operated

Configurations available: Tank bottom, Zero Static T-valve and U-bend
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F
Control functions: Normally open, normally closed, double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values (gpm)			End	Body	Seal
mm	Inch	psi	psi	ISO	OD Tubing	Connections [†]		Material [†]	Material ^{††}
4	-	0-90	60-90	-	-	-	Butt-weld:	Stainless steel	EPDM
6	-	0-90	60-90	-	-	-	DIN	AL-6XN®	TFM
8	1/4"	0-90	60-90	2.93	-	1.05	ISO	Hastelloy®	Silicon
10	3/8"	0-112.5	60-90	-	5.62	-	O.D. Tubing	Titanium®	
15	1/2"	0-150	60-90	-	7.02	12.30	Extended O.D. Tubing		
20	3/4"	0-150	60-90	-	-	15.20	Tri-Clamp®		
25	1"	0-150	60-90	-	-	31.60	Tri-Clamp® x Butt-weld		
32	1-1/4"	0-150	60-90	-	-	50.30	Hose barb		
40	1-1/2"	0-150	60-90	-	-	58.50	Swagelock®		
50	2"	0-120	67.5-90	-	-	74.90	Cajon VCR®		
							Ingold®		

[†] Others available upon request

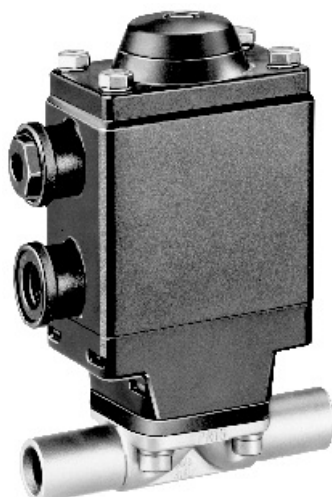
^{††} FDA Compliant

*Pressure range will vary depending on seal material and/or control function

*4-8mm with actuator 00; 10-12mm with actuator 0; 15-25mm with actuator 1; 32-50mm with actuator 5

**Actuators 0, 1, and 5 only available in Normally Closed and Normally Open

*Actuator type



Type 641 Pneumatically Operated

Configurations available: 2/2-way
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 176°F
Control functions: Normally open, normally closed, double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	Cv Values (gpm)		End	Body	Seal
mm	Inch	psi	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
4	-	0-90	68-90	-	-	Butt-weld: DIN ISO O.D. Tubing Extended O.D. Tubing	Stainless steel	EPDM
6	-	0-90	68-90	-	-		AL-6XN®	TFM
8	1/4"	0-90	68-90	2.93	1.05		Hastelloy®	Silicon
10	3/8"	0-90	68-90	-	1.99		Titanium®	
15	1/2"	0-90	68-90	-	2.93			
						Tri-Clamp®		
						Tri-Clamp® x Butt-weld		
						Hose barb		
						Swagelock®		
						Cajon VCR®		
						Ingold®		
							[†] Others available upon request	

[†] Others available upon request

^{††} FDA Compliant

*Pressure range will vary depending on seal material and/or control function

*Pressure ranges shown are for elastomer diaphragm/normally closed valves



Type 687 Pneumatically Operated

Configurations available: Tank bottom, Zero Static T-valve and U-bend
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F
Control functions: Normally open, normally closed, double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
15	1/2"	0-150	45-90	12.3	5.9	Butt-weld:	Stainless steel	EPDM
20	3/4"	0-150	45-90	15.2	12.3	DIN	AL-6XN®	TFM
25	1"	0-150	45-90	31.6	13.5	ISO	Hastelloy®	Silicon
32	1-1/4"	0-150	45-90	50.3	29.3	O.D. Tubing	Titanium®	
40	1-1/2"	0-150	45-90	58.5	46.8	Extended O.D. Tubing		
50	2"	0-120	45-90	74.9	67.9	Tri-Clamp®		
65	2-1/2"	0-120	82.5-105	111.2	99.5	Tri-Clamp® x Butt-weld		
80	3"	0-120	82.5-105	148.6	128.7	Hose barb		
100	4"	0-90	82.5-105	239.9	216.5	Swagelock®		
						Cajon VCR®		
						Ingold®		

[†] Others available upon request

^{††} FDA Compliant

*Pressure ranges shown are for elastomer diaphragm/normally closed valves

*Pressure range will vary depending on seal material and/or control function

**Some materials not available in all sizes



Type 688 Pneumatically Operated (2 Stage Actuator)

Configurations available: Tank bottom, Zero Static T-Valve and U-bend
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 302°F
Control functions: Normally closed

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Value (gpm)**		End	Body	Seal
mm	Inch	psi	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
15	1/2"	0-150	45-90	12.3	5.9	Butt-weld: DIN ISO O.D. Tubing Extended O.D. Tubing	Stainless steel	EPDM
20	3/4"	0-150	45-90	15.2	12.3		AL-6XN®	TFM
25	1"	0-150	45-90	31.6	13.5		Hastelloy®	Silicon
32	1-1/4"	0-150	45-90	50.3	29.3		Titanium®	
40	1-1/2"	0-150	45-90	58.5	46.8			
50	2"	0-120	45-90	74.9	67.9	Tri-Clamp® Tri-Clamp® x Butt-weld Hose barb Swagelock® Cajon VCR® Ingold®		

[†] Others available upon request

^{††} FDA Compliant

*Pressure ranges shown are for elastomer diaphragm/normally closed valves

*Pressure range will vary depending on seal material and/or control function

**Values apply to straight through valves only



Type 695 Pneumatically Operated

Configurations available: 2/2-way
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 176°F
Control functions: Normally open, normally closed, double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
15	1/2"	0-150	45-90	12.3	5.9	Butt-weld: DIN ISO O.D. Tubing Extended O.D. Tubing	Stainless steel	EPDM
20	3/4"	0-150	45-90	15.2	12.3		AL-6XN®	TFM
25	1"	0-150	45-90	31.6	13.5		Hastelloy®	Silicon
32	1-1/4"	0-150	45-90	50.3	29.3		Titanium®	
40	1-1/2"	0-150	45-90	58.5	46.8			
50	2"	0-120	45-90	74.9	67.9	Tri-Clamp® Tri-Clamp® x Butt-weld Hose barb Swagelock® Cajon VCR® Ingold®		

[†] Others available upon request

^{††} FDA Compliant

*Pressure ranges shown are for elastomer diaphragm/normally closed valves

*Pressure range will vary depending on seal material and/or control function



Type 618 Motorized*

Configurations available: Tank bottom, Zero Static T-valve, U-Bend, Sample Bottle and Multiported
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 140°F (266° option)
Power supply: 24, 115, 230V 50/60Hz

Nominal Bore (ID)		Pressure Range	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
4	-	0-90	-	-	Butt-weld: DIN ISO O.D. Tubing Extended O.D. Tubing	Stainless steel	EPDM
6	-	0-90	-	-		AL-6XN®	TFM
8	1/4"	0-90	2.93	1.05		Hastelloy®	Silicon
10	3/8"	0-90	-	1.99		Titanium®	
15	1/2"	0-90	-	2.93			
					Tri-Clamp® Tri-Clamp® x Butt-weld Hose barb Swagelock® Cajon VCR® Ingold®		

[†] Others available upon request

^{††} FDA Compliant

*Direct application of 4-20mA control signals by means of additional module.



Type 698 Motorized*

Configurations available: Tank bottom, Zero Static T-valve and U-bend
Surface finishes: 150 grit (35 µin) - 320EP (11 µin)[†]
Maximum temperature: 266°F
Power supply: 24, 115, 230V 50Hz

Nominal Bore (ID)		Pressure Range	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	ISO	OD Tubing	Connections [†]	Material [†]	Material ^{††}
15	1/2"	0-150	12.29	5.85	Butt-weld:	Stainless steel	EPDM
20	3/4"	0-150	15.21	12.29	DIN	AL-6XN®	TFM
25	1"	0-150	31.59	13.46	ISO	Hastelloy®	Silicon
32	1-1/4"	0-90	50.31	29.25	O.D. Tubing	Titanium®	
40	1-1/2"	0-90	58.50	46.80	Extended O.D. Tubing		
50	2"	0-90	74.88	67.86	Tri-Clamp®		
					Tri-Clamp® x Butt-weld		
					Hose barb		
					Swagelock®		
					Cajon VCR®		
					Ingold®		

[†] Others available upon request

^{††} FDA Compliant

*Direct application of 4-20mA control signals by means of additional module.

^{††} FDA Compliance

GEMÜ FDA Compliant diaphragms are manufactured from materials which comply with the requirements of the American Food and Drug Administration (FDA), code of Federal Regulations (Food and Drugs), paragraph 177.2600 of section 21.

These GEMÜ diaphragms are made of a special formulated compound developed to specifically comply with the above FDA regulations.

- *Vulcanizing agent max. concentration equals 2.4% by weight*
- *Accelerators: total not to exceed 1.5% by weight of rubber product*
- *Retarders: total not to exceed 10% by weight of rubber product*
- *Activators: total not to exceed 5% by weight of rubber product*
- *Antioxidants: total not to exceed 5% by weight of rubber product*
- *Plasticers: total not to exceed 30% by weight of rubber product*
- *Fillers: Multiple. Carbon black component total not to exceed 50% by weight of rubber product*
- *Lubricants: total not to exceed 2% by weight of rubber product*
- *Misc.: total not to exceed 5% by weight of rubber product*

Note: Refer to 21 CFR section 177.2600 for full description and qualification



Type 607 Manually Operated

Nominal Bore (ID)		Pressure Range	C _v	End	Body	Seal
mm	Inch	psi	(gal/min)	Connections	Material	Material
6	1/4"	0-90	-	Spigot for solvent and fusion welding	PVC	EPDM
10	3/8"	0-90	2.22	NPT threaded sockets.	PP	FPM
					PVDF	TFM
					[†] PVDF-HP	
					[†] PFA-HP	

[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.



Type 617 Manually Operated

Nominal Bore (ID)		Pressure Range	C _v	End	Body	Seal
mm	Inch	psi	(gal/min)	Connections	Material	Material
12	3/8"	0-90	3.27	True union design,	PVC	EPDM
15	1/2"	0-90	4.09	Plain socket for solvent and fusion welding,	PP	FPM
				Threaded or socket,	PVDF	TFM
				Flare Connections(HP),	[†] PVDF-HP	
				BCF(HP).	[†] PFA-HP	

[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.



Type 677 Manually Operated

Nominal Bore (ID)		Pressure Range	C _v	End	Body	Seal
mm	Inch	psi	(gal/min)	Connections*	Material	Material
15	1/2"	0-150	6.55	True union design,	PVC	EPDM
20	3/4"	0-150	9.59	Spigot for solvent and fusion welding	PP	FPM
25	1"	0-150	12.28	in both IPS and metric sizes,	PVDF	TFM
32	1-1/4"	0-150	21.06	IPS threaded or socket,	NPP	CSM
40	1-1/2"	0-150	29.25	Flanges ANSI	CPVC	NBR
50	2"	0-150	53.82		[†] PVDF-HP	
65	2-1/2"	0-150	91.26		[†] PFA-HP	
80	3"	0-150	140.40			
100	4"	0-150	221.13			

*True Union 1/2"-2" PVC only

* 2 1/2" - 4" available only in flanged or spigot

[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.



Type 604 Pneumatically Operated

Control Functions: Normally open, Normally closed, Double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	End	Body	Seal
mm	Inch	psi	psi	Connections		
6	1/4"	0-90	75-105	True Union,	PVC	EPDM
10	3/8"	0-90	75-105	Spigot for solvent and fusion welding, Threaded sockets.	PP PVDF [†] PFA-HP [†]	FPM TFM

*Pressure ranges shown are for elastomer diaphragm/normally closed valves.

*Pressure range will vary depending on seal material and/or control function
[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.



Type 610 Pneumatically Operated

Control Functions: Normally open, Normally closed, Double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v	End	Body	Seal
mm	Inch	psi	psi	(gal/min)	Connections		
12	3/8"	0-90	60-105	3.27	True Union,	PVC	EPDM
15	1/2"	0-90	60-105	4.09	Spigot for solvent and fusion welding, Threaded or socket, Flare Connections(HP), BCF(HP).	PP PVDF [†] PFA-HP [†]	FPM TFM

*Pressure ranges shown are for elastomer diaphragm/normally closed valves.

*Pressure range will vary depending on seal material and/or control function

[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.



Type 667 Pneumatically Operated

Control Function: Normally open

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v	End	Body	Seal
mm	Inch	psi	psi	(gal/min)	Connections		
15	1/2"	0-150	30-90	6.55	True Union,	PVC	EPDM
20	3/4"	0-150	30-90	9.59	Spigot for solvent for	PP	FPM
25	1"	0-150	30-90	12.28	fusion welding,	NPP	TFM
32	1-1/4"	0-150	30-90	21.06	IPS threaded or socket.	CPVC	CSM
40	1-1/2"	0-150	30-90	29.25	Flanges ANSI	PVDF	NBR
50	2"	0-150	30-90	53.82			
65	2-1/2"	7.5-150	30-90	91.26			
80	3"	7.5-150	30-90	140.40			

*Pressure ranges shown are for elastomer diaphragm/normally closed valves.

*Pressure range will vary depending on seal material and/or control function

[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.



Type 690 Pneumatically Operated

Control Functions: Normally open, Normally closed, Double acting

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v	End	Body	Seal
mm	Inch	psi	psi	(gal/min)	Connections	Material	Material
15	1/2"	0-150	45-90	6.55	True Union,	PVC	EPDM
20	3/4"	0-150	45-90	9.59	Spigot for solvent for	PP	FPM
25	1"	0-150	45-90	12.28	fusion welding,	PVDF	TFM
32	1-1/4"	0-150	45-90	21.06	IPS threaded or socket,	[†] PVDF-HP	CSM
40	1-1/2"	0-150	45-90	29.25	**Flanges ANSI.	[†] PFA-HP	NBR
50	2"	0-150	45-90	53.82			
65	2-1/2"	0-90	45-90	91.26			
80	3"	0-90	45-90	140.40			
100	4"	0-90	45-90	221.13			

*Pressure ranges shown are for elastomer diaphragm/normally closed valves

*Pressure range will vary depending on seal material and/or control function

**Not available for 1/2"

[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.



Type 600 Pneumatically Operated (Piston Actuator)

Control Functions: Normally open, Normally closed, Double acting

Special Features: Manual Override

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v	End	Body	Seal
mm	Inch	psi	psi	(gal/min)	Connections	Material	Material
15	1/2"	0-150	45-90	6.55	True Union,	PVC	EPDM
20	3/4"	0-150	45-90	9.59	Spigot for solvent for	PP	FPM
25	1"	0-150	45-90	12.28	fusion welding,	PVDF	TFM
32	1-1/4"	0-150	45-90	21.06	Threaded or socket.	NPP	CSM
40	1-1/2"	0-150	45-90	29.25	Flanges ANSI	CPVC	NBR
50	2"	0-150	45-90	53.82		[†] PVDF-HP	
						[†] PFA-HP	

*Pressure ranges shown are for elastomer diaphragm/normally closed valves.

*Pressure range will vary depending on seal material and/or control function

[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.



Type 613 Motorized*

Nominal Bore (ID)		Pressure Range	C _v	Power	End	Body	Seal
mm	Inch	psi	(gal/min)	Supply	Connections	Material	Material
12	3/8"	0-90	3.27	24,115,230,	True union design,	PVC	EPDM
15	1/2"	0-90	4.09	240 V, 50/60Hz	Spigot for solvent or fusion welding,	PP	FPM
					IPS threaded or socket.	PVDF	TFM
						[†] PVDF-HP	
						[†] PFA-HP	

[†] HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.

*Direct application of 4-20mA control signals by means of additional module.



Type 693 Motorized*

Nominal Bore (ID)		Pressure Range	Power	C _v	End	Body	Seal
mm	Inch	psi	Supply	(gal/min)	Connections	Material	Material
15	1/2"	0-150	24,115,230V/50Hz	6.55	True union design,	CPVC	EPDM
20	3/4"	0-150		9.59	Spigot for solvent or	PVC	FPM
25	1"	0-150		12.28	fusion welding,	PP	TFM
32	1-1/4"	0-90		21.06	IPS threaded or socket,	PVDF	CSM
40	1-1/2"	0-90		29.25	Flanges ANSI.	†PVDF-HP	NBR
50	2"	0-90		53.82		†PFA-HP	

† HP-Packaged and assembled in a Class 100 Clean Room Environment. All end connections are capped.

*Direct application of 4-20mA control signals by means of additional module.

Silver-Line



Type 200 Actuated Angle Seat Valve

Control Function: Normally closed

Nominal Bore (ID)		Pressure Range	Control Pressure	C _v	End	Body	*Fitting	Seat
mm	Inch	psi	psi	(gal/min)	Connections	Material	Material	Material
15	1/2"	0-120	67.5-90	5.85	Union threaded or	PP-GR	PVC	NBR
25	1"	0-120	67.5-90	17.55	socket ends	PP-FV	CPVC	PTFE
50	2"	0-90	67.5-90	58.50		PP-GF	PP	
							PVDF	

*Others available upon request



Type 300 Actuated Diaphragm Valve

Control Function: Normally closed

Nominal Bore (ID)		Pressure Range	Control Pressure	C _v	End	Body	*Fitting	*Seal
mm	Inch	psi	psi	(gal/min)	Connections	Material	Material	Material
15	1/2"	0-120	67.5-90	7.60	Union threaded or	PP-GR	PVC	EPDM
25	1"	0-120	67.5-90	17.55	socket ends	PP-FV	CPVC	
50	2"	0-90	67.5-90	58.50		PP-GF	PP	
							PVDF	

*Others available upon request



Type 400 Manual Diaphragm Valve

Control Function: Normally closed

Nominal Bore (ID)		Pressure Range	C _v	End	Body	*Fitting	*Seal
mm	Inch	psi	(gal/min)	Connections	Material	Material	Material
15	1/2"	0-120	7.60	Union threaded or	PP-GR	PVC	EPDM
25	1"	0-120	17.55	socket ends	PP-FV	CPVC	
50	2"	0-90	58.50		PP-GF	PP	
						PVDF	

*Others available upon request



Type 611 Manually Operated

Max. Working Medium Temperature: 194°F

End connections: Threaded sockets, butt-weld spigots

Nominal Bore (ID) Pressure Range			C _v	Body	Seal
mm	Inch	psi	(gal/min)	Material	Material
10	3/8"	0-90	2.80	Brass	EPDM
15	1/2"	0-90	4.68	Stainless Steel	TFM
20	3/4"	0-90	9.47		FPM
					Silicon

[†] Others available upon request



Type 671 Manually Operated

Max. Working Medium Temperature: 176°F

End connections: Threaded sockets, butt-weld spigots

Nominal Bore (ID) Pressure Range			C _v	Body	Seal
mm	Inch	psi	(gal/min)	Material	Material
15	1/2"	0-150	8.19	Cast Iron	EPDM
20	3/4"	0-150	16.38	Stainless Steel	TFM
25	1"	0-150	23.40	Ductile Iron:	FPM
32	1-1/4"	0-150	42.12	with PFA lining	CSM
40	1-1/2"	0-150	46.80	with PP lining	NBR
50	2"	0-150	93.60	with Glass lining	
80	3"	0-150	187.20	with PVDF lining	
100	4"	0-150	278.46	with Soft rubber lining	
				with Hard rubber lining	
				with Hypalon® lining	
				with Neoprene® lining	



Type 672/673 Manually operated

Max. Working Medium Temperature: 302°F

End connections: Flanges DIN DN15-100, flanges ANSI DN15-100

Nominal Bore (ID) Pressure Range			C _v	Body	Seal
mm	Inch	psi	(gal/min)	Material	Material
15	1/2"	0-150	8.19	Cast Iron	EPDM
20	3/4"	0-150	16.38	Stainless Steel	TFM
25	1"	0-150	23.40	Ductile Iron:	FPM
32	1-1/4"	0-150	42.12	with PFA lining	CSM
40	1-1/2"	0-150	46.80	with PP lining	NBR
50	2"	0-150	93.60	with Glass lining	
80	3"	0-150	187.20	with PVDF lining	
100	4"	0-150	278.46	with Soft rubber lining	
				with Hard rubber lining	
				with Hypalon® lining	
				with Neoprene® lining	

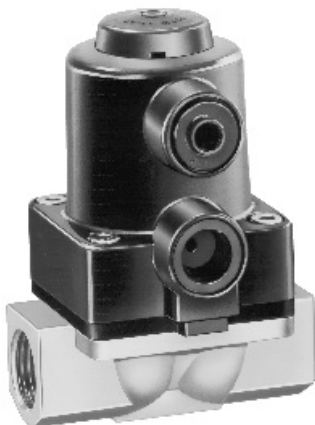


Type 675 Manually operated

Max. Working Medium Temperature: 302°F

End connections: Flanges DIN/ANSI, NPT Threaded sockets

Nominal Bore (ID)			Pressure Range	C _v	Body	Seal
mm	Inch	psi		(gal/min)	Material	Material
15	1/2"	0-150		8.19	Cast Iron	EPDM
20	3/4"	0-150		16.38	Stainless Steel	TFM
25	1"	0-150		23.40	Ductile Iron:	FPM
32	1-1/4"	0-150		42.12	with PFA lining	CSM
40	1-1/2"	0-150		46.80	with PP lining	NBR
50	2"	0-150		93.60	with Glass lining	
65	2-1/2"	0-150		140.40	with PVDF lining	
80	3"	0-150		187.20	with Soft rubber lining	
100	4"	0-150		278.46	with Hard rubber lining	
125	5"	0-150		439.92	with Hypalon® lining	
150	6"	0-150		580.32	with Neoprene® lining	
200	8"	0-150		1064.70		
250	10"	0-150		1690.65		
300	12"	0-150		2983.50		



Type 615 Manually operated

Max. Working Medium Temperature: 194°F

End connections: Threaded sockets, Butt-weld spigots

Nominal Bore (ID)			*Pressure Range	Control Pressure	C _v	Control	Body	Seal
mm	Inch	psi		psi	(gal/min)	Function	Material	Material
10	3/8"	0-90		60-105	2.80	Normally open	Brass	TFM
12	-	0-90		60-105	3.27	Normally closed	Stainless Steel	EPDM
15	1/2"	0-90		60-105	4.68	Double acting		FPM
								NBR

[†] Others available upon request

*Pressure ranges shown are for elastomer diaphragm/normally closed valves.

*Pressure range will vary depending on seal material and/or control function



Type 620 Pneumatically Operated

Max. Working Medium Temperature: 302°F

End connections: Flanges DIN/ANSI, Threaded sockets

Nominal Bore (ID)			*Pressure Range	Control Pressure	C _v	Control	Body	Seal
mm	Inch	psi		psi	(gal/min)	Function	Material	Material**
65	2-1/2"	0-150		15-105	117.00	Normally open	Cast Iron	EPDM
80	3"	depending on		depending on	187.20	Normally closed	Stainless Steel	TFM
100	4"	actuator size		actuator size	278.46	Double acting	Ductile Iron:	FPM
125	5"				439.92		with PFA lining	CSM
150	6"				580.32		with PP lining	NBR
							with Glass lining	
							with PVDF lining	
							with Soft rubber lining	
							with Hard rubber lining	
							with Hypalon® lining	
							with Neoprene® lining	

*Pressure ranges shown are for elastomer diaphragm/normally closed valves.

*Pressure range will vary depending on seal material and/or control function

**Some materials not available in all sizes



Type 625 Pneumatically Operated

Max. Working Medium Temperature: 302°F

End connections: Threaded sockets, butt-weld spigots

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v	Control	Body	Seal
mm	Inch	psi	psi	(gal/min)	Function	Material	Material
12	3/8"	0-90	60-105	2.80	Normally open	Brass	EPDM
15	1/2"	0-90	60-105	4.67	Normally closed	Stainless steel	Silicon
20	3/4"	0-90	60-105	9.47	Double acting		TFM FPM

[†] Others available upon request

*Pressure ranges shown are for elastomer diaphragm/normally closed valves.

*Pressure range will vary depending on seal material and/or control function



Type 640 Pneumatically Operated

Max. Working Medium Temperature: 302°F

End connections: Flanges DIN/ANSI, Threaded sockets

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values (gpm)						Body	Seal
mm	Inch	psi	psi	ISO						Material [†]	Material
				a00	a0	a1	a00	a0	a1		
4	-	0-90	60-90	-	-	-	-	-	-	Cast Iron	EPDM
6	-	0-90	60-90	-	-	-	-	-	-	Stainless Steel	TFM
8	1/4"	0-90	60-90	2.93	-	-	1.05	-	-	Ductile Iron:	FPM
10	3/8"	0-112.5	60-90	-	5.62	-	-	3.51	-	with PFA lining	CSM
15	1/2"	0-150	60-90	-	7.02	12.30	-	4.10	5.90	with PP lining	NBR
20	3/4"	0-150	60-90	-	-	15.20	-	5.60	12.30	with Glass lining	
25	1"	0-150	60-90	-	-	31.60	-	-	13.50	with PVDF lining	
32	1-1/4"	0-150	60-90	-	-	50.30	-	-	29.30	with Soft rubber lining	
40	1-1/2"	0-150	60-90	-	-	58.50	-	-	46.80	with Hard rubber lining	
50	2"	0-120	67.5-90	-	-	74.90	-	-	67.90	with Hypalon® lining	
										with Neoprene® lining	

[†] Others available upon request

*Pressure range will vary depending on seal material and/or control function

*4-8mm with actuator 00; 10-12mm with actuator 0; 15-25mm with actuator 1; 32-50mm with actuator 5

**Actuators 0, 1, and 5 only available in Normally Closed and Normally Open

^aActuator type



Type 687 Pneumatically Operated

Max. Working Medium Temperature: 302°F

End connections: Flanges, Threaded sockets

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v	Control	Body	Seal
mm	Inch	psi	psi	(gal/min)	Function	Material	Material**
15	1/2"	0-150	45-90	8.19	Normally open	Cast Iron	EPDM
20	3/4"	0-150	45-90	16.38	Normally closed	Stainless Steel	TFM
25	1"	0-150	45-90	23.40	Double acting	Ductile Iron:	FPM
32	1-1/4"	0-150	45-90	42.12		with PFA lining	CSM
40	1-1/2"	0-150	45-90	46.80		with PP lining	NBR
50	2"	0-120	45-90	93.60		with Glass lining	
65	2-1/2"	0-120	82.5-105	140.40		with PVDF lining	
80	3"	0-120	82.5-105	187.20		with Soft rubber lining	
100	4"	0-90	82.5-105	278.46		with Hard rubber lining	
						with Hypalon® lining	
						with Neoprene® lining	

*Pressure ranges shown are for elastomer diaphragm/normally closed valves.

*Pressure range will vary depending on seal material and/or control function

**Some materials not available in all sizes



Type 695 Pneumatically Operated

Max. Working Medium Temperature: 176°F

End connections: Flanges DIN/ANSI, Threaded sockets

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v	Control	Body	Seal
mm	Inch	psi	psi	(gal/min)	Function	Material	Material**
15	1/2"	0-150	45-90	8.19	Normally open	Cast Iron	EPDM
20	3/4"	0-150	45-90	16.38	Normally closed	Stainless Steel	TFM
25	1"	0-150	45-90	23.40	Double acting	Ductile Iron:	CSM
32	1-1/4"	0-150	45-90	42.12		with PFA lining	NBR
40	1-1/2"	0-150	45-90	46.80		with PP lining	
50	2"	0-150	45-90	93.60		with Glass lining	
						with PVDF lining	
						with Soft rubber lining	
						with Hard rubber lining	
						with Hypalon® lining	
						with Neoprene® lining	

[†] Others available upon request

*Pressure ranges shown are for elastomer diaphragm/normally dosed valves.

*Pressure range will vary depending on seal material and/or control function

**Some materials not available in all sizes



Type 618 Motorized^{††}

Max. Working Medium Temperature: 140°F

End connections: Threaded sockets, butt-weld spigots

Nominal Bore (ID)		Pressure Range	Power	C _v	Body	Seal
mm	Inch	psi	Supply	(gal/min)	Material	Material
10	3/8"	0-90	24,110,220,	3.28	Brass	EPDM
15	1/2"	0-90	240 V, 50 Hz	4.68	Stainless Steel	FPM
						TFM
						NBR

[†] Others available upon request

^{††} Direct application of 4-20mA control signals by means of additional module.



Type 698 Motorized^{††}

Max. Working Medium Temperature: 266°F

End connections: Flanges DIN/ANSI, Threaded sockets

Nominal Bore (ID)		Pressure Range	Power	C _v	Body	Seal
mm	Inch	psi	Supply	(gal/min)	Material	Material
15	1/2"	0-150	24,110,220,	7.02	Cast Iron	EPDM
20	3/4"	0-150	240 V, 50 Hz	14.04	Stainless Steel	FPM
25	1"	0-150		21.06	Ductile Iron:	TFM
32	1-1/4"	0-90		35.1	with PFA lining	CSM
40	1-1/2"	0-90		40.95	with PP lining	NBR
50	2"	0-90		70.2	with Glass lining	
					with PVDF lining	
					with Soft rubber lining	
					with Hard rubber lining	
					with Hypalon® lining	
					with Neoprene® lining	

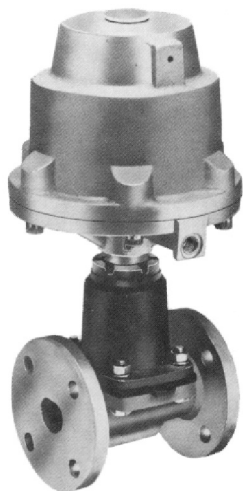
^{††} Direct application of 4-20mA control signals by means of additional module.



Type 655 Manually Operated

End Connections: Flanged DIN/ANSI
Max. Working Medium Temperature: 212°F

Nominal Bore (ID)		Pressure Range	C _v	Body	Seal
mm	Inch	psi	(gal/min)	Material	Material
15	1/2"	0-105	9.59	Cast Iron:	EPDM
20	3/4"	0-105	10.29	soft rubber lined	FPM
25	1"	0-105	40.95	hard rubber lined	CSM
32	1-1/4"	0-105	44.46	PVDF lined	NBR
40	1-1/2"	0-105	126.36	glass lined	IIR
50	2"	0-105	133.38	Halar coated	CR
80	3"	0-105	332.28	Hypalon lined	
100	4"	0-105	348.66	Neoprene lined	
125	5"	0-60	760.5	Butyl Lined	
150	6"	0-60	795.6	Cast Iron/GG-C	
200	8"	0-60	1667.25	Cast Stainless Steel	
250	10"	0-45	2761.2		
300	12"	0-45	3837.6		
350	14"	0-45	4036.5		



Type 656 Pneumatically Operated

End Connections: Flanged DIN/ANSI
Max. Working Medium Temperature: 212°F

Nominal Bore (ID)		Pressure Range	Control Pressure	Control	C _v	Body	Seal
mm	Inch	psi	psi	Function	(gal/min)	Material	Material
15	1/2"	0-105	45-105	Normally open	9.59	Cast Iron:	EPDM
20	3/4"	0-105	45-105	Normally closed	10.29	soft rubber lined	FPM
25	1"	0-105	45-105	Double acting	40.95	hard rubber lined	CSM
32	1-1/4"	0-105	45-105		44.46	PVDF lined	NBR
40	1-1/2"	0-105	45-105		126.36	glass lined	IIR
50	2"	0-105	45-105		133.38	Halar coated	CR
80	3"	0-105	45-105		332.28	Hypalon lined	
100	4"	0-105	45-105		348.66	Neoprene lined	
						Butyl Lined	
						Cast Iron/GG-C	
						Stainless Steel	



Type 312 Pneumatically Operated

Control functions available: Normally open, normally closed, air to air
Maximum temperature: 356°F

Nominal Bore (ID)		Pressure Range*	Control Pressure	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	psi	P to A	A to R	Connections	Material	Material
15	1/2"	0-525	60-105	7.02	4.91	Flanges DIN/ANSI	Cast Iron	Teflon®
20	3/4"	0-360	60-105	13.92	8.31			
25	1"	0-150	60-105	22.11	14.86			
32	1-1/4"	0-420	60-105	30.42	17.55			
40	1-1/2"	0-210	60-105	46.80	31.59			
50	2"	0-120	60-105	74.88	50.31			
65	2-1/2"	0-105	60-105	121.68	79.56			
80	3"	0-60	60-105	173.16	112.32			
100	4"	0-30	60-105	259.74	168.48			

*1/2"-1" with Actuator 1; 1-1/4"-4" with Actuator 2

*Pressure range will vary according to flow direction and control function
 Special designs for higher temperatures are available upon request



Type 314 Pneumatically Operated

Control functions available: Normally open, normally closed, air to air
Maximum temperature: 356°F

Nominal Bore (ID)		Pressure Range*	Control Pressure	C _v Values (gpm)		End	Body	Seal
mm	Inch	psi	psi	P to A	A to R	Connections	Material	Material
15	1/2"	0-525	60-105	7.02	4.91	Threaded socket BSP	Bronze	Teflon®
20	3/4"	0-360	60-105	13.92	8.31			
25	1"	0-150	60-105	22.11	14.86			
32	1-1/4"	0-420	60-105	30.42	17.55			
40	1-1/2"	0-210	60-105	46.80	31.59			
50	2"	0-120	60-105	74.88	50.31			
65	2-1/2"	0-105	60-105	121.68	79.56			
80	3"	0-60	60-105	173.16	112.32			
100	4"	0-30	60-105	259.74	168.48			

*1/2"-1" with Actuator 1; 1-1/4"-4" with Actuator 2

*Pressure range will vary according to flow direction and control function
 Special designs for higher temperatures are available upon request



Type 512 Pneumatically Operated

Control functions available: Normally open, normally closed, air to air
Maximum temperature: 356°F

Nominal Bore (ID)		Pressure Range*	Control Pressure	C _v Values	End	Body	Seal
mm	Inch	psi	psi	(gpm)	Connections	Material	Material
15	1/2"	0-235	60-150	4.21	Flanges	Cast Iron	Teflon®
20	3/4"	0-235	60-150	7.02			
25	1"	0-150	60-150	11.23	DIN/ANSI	Cast Steel	Stainless steel
32	1-1/4"	0-150	60-150	17.55			
40	1-1/2"	0-150	60-150	26.91			
50	2"	0-150	60-150	42.12			
65	2-1/2"	0-103	60-150	70.20			
80	3"	0-60	60-150	104.13			
100	4"	0-38	60-150	157.95			

*1/2"-1" with Actuator 1; 1-1/4"-4" with Actuator 2

*Pressure range will vary according to flow direction and control function
 Special designs for higher temperatures are available upon request



Type 520 Pneumatically Operated

Control functions available: Normally open, normally closed, air to air
Maximum temperature: 356°F

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values	End	Body	Seal
mm	Inch	psi	psi	(gpm)	Connections	Material	Material
65	2-1/2"	0-240	15-105	87.75	Flange PN16	Cast Iron	Teflon®
80	3"	0-240	15-105	132.21	Flange PN25	Cast Steel	Stainless Steel
100	4"	0-157.5	15-105	204.75	Flange PN40		
125	5"	0-120	15-105	321.75			
150	6"	0-67.5	15-105	468.00			

*Depending on size of valve and actuator

*Ranges given are for Flange PN40 connection

Special designs for higher temperatures are available upon request



Type 514 Pneumatically Operated

Control functions available: Normally open, normally closed
Maximum temperature: 356°F

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values	End	Body	Seal
mm	Inch	psi	psi	(gpm)	Connections	Material	Material
15	1/2"	0-515	60-150	6.32	Threaded sockets BSP, NPT	Cast Bronze	Teflon®
20	3/4"	0-516	60-150	11.70	Male threads**	Stainless Steel	
25	1"	0-440	60-150	17.78	Butt-weld O.D. Tubing		
32	1-1/4"	0-150	60-150	26.91	ISO		
40	1-1/2"	0-150	60-150	47.97	DIN		
50	2"	0-150	60-150	83.07	SMS		
65	2-1/2"	0-105	60-150	126.36			
80	3"	0-75	60-150	187.20			

*Depending on size of valve and actuator

*1/2" with actuator 0; 3/4"-3" with actuator 2

**Only available in cast bronze

Special designs for higher temperatures are available upon request



Type 554 Pneumatically Operated

Control functions available: Normally open, normally closed
Maximum temperature: 140°F

Nominal Bore (ID)		*Pressure Range	Control Pressure	C _v Values	End	Body	Seal
mm	Inch	psi	psi	(gpm)	Connections	Material	Material
15	1/2"	0-150	60-120	6.32	Threaded sockets BSP, NPT	Cast Bronze	Teflon®
20	3/4"	0-150	60-120	10.53	Male threads**	Stainless Steel	
25	1"	0-150	60-120	17.78	Butt-weld O.D. Tubing		
32	1-1/4"	0-150	60-120	26.91	ISO		
40	1-1/2"	0-150	60-120	47.97	DIN		
50	2"	0-150	60-120	83.07	SMS		

*Depending on size of valve and actuator

**Only in Cast Bronze

Special designs for higher temperatures are available upon request



Type 563 Motorized* (Control Valve) *plastic design*

Maximum temperature: 140°F
Control Functions: Normally open, normally closed
Regulating Cones: Different regulating cones are available upon request

Nominal Bore (ID)		Pressure Range	Power	End	Body	Seal
mm	Inch	psi	Supply	Connections	Material	Material
3	3/8"	0-90	24,115, 230V	Threaded socket	PVC	Viton
6	3/8"	0-90	50-60Hz	Solvent cement socket	PVDF	EPDM
10	3/8"	0-90				
15	1/2"	0-90				

**Direct application of 4-20mA control signals by means of additional module.*



Type 568 Motorized* (Control Valve) *metal design*

Maximum temperature: 266°F
Control Functions: Normally open, normally closed
Regulating Cones: Different regulating cones are available upon request

Nominal Bore (ID)		Pressure Range	Power	End	Body	Seal
mm	Inch	psi	Supply	Connections	Material	Material
3	3/8"	0-90	24,115, 230V	Threaded socket	PVC	Viton
6	3/8"	0-90	50-60Hz	Solvent cement socket	PVDF	EPDM
10	3/8"	0-90				
15	1/2"	0-90				

**Direct application of 4-20mA control signals by means of additional module.*



Type 411 Manually Operated

Max. Working Medium Temperature: 212°F

End connections: Threaded sockets, Welded spigots, Tri-Clamp®

Nominal Bore (ID)		Pressure Range	Cv	Body	Seal
mm	Inch	psi	(gal/min)	Material	Material
15	1/2"	0-150	8.19	Brass	EPDM
20	3/4"	0-150	15.21	Stainless steel	FPM
25	1"	0-150	19.89		Silicone
32	1-1/4"	0-150	39.78		
40	1-1/2"	0-150	59.67		
50	2"	0-150	105.30		



Type 415 Pneumatically Operated

Max. Working Medium Temperature: 212°F

End connections: Threaded sockets, Welded spigots, Tri-Clamp®

Nominal Bore (ID)		Pressure Range	*Control Pressure	Cv	Control	Body	Seal
mm	Inch	psi	psi	(gal/min)	Function	Material	Material
15	1/2"	0-150	30-90	11.70	Normally open	Brass	EPDM
20	3/4"	0-150	30-90	18.72	Normally closed	Stainless steel	FPM
25	1"	0-150	30-90	21.06	Double acting		Silicone
32	1-1/4"	0-150	30-90	40.95			
40	1-1/2"	0-150	30-90	70.20			
50	2"	0-150	30-90	120.51			

*Control Pressure will vary depending on control function



Type 418 Motorized*

Max. Working Medium Temperature: 212°F

End connections: Threaded sockets, Welded spigots, Tri-Clamp®

Nominal Bore (ID)		Pressure Range	Power	Cv	Body	Seal
mm	Inch	psi	Supply	(gal/min)	Material	Material
15	1/2"	0-150	24,115,230V/50Hz	8.19	Brass	EPDM
20	3/4"	0-150		15.21	Stainless steel	FPM
25	1"	0-150		19.89		Silicone

*Direct application of 4-20mA control signals by means of additional module.



Type 428 Motorized*

Max. Working Medium Temperature: 212°F

'End connections: Threaded sockets, Welded spigots, Tri-Clamp®

Nominal Bore (ID) Pressure Range			Power	C _v	Body	Seal
mm	Inch	psi	Supply	(gal/min)	Material	Material
15	1/2"	0-150	Standard Voltage	8.19	Brass	EPDM
20	3/4"	0-150	12,24V DC	15.21	Stainless steel	FPM
25	1"	0-150	Special Voltages	19.89		Silicon
32	1-1/4"	0-150	12,24V 50/60Hz AC	39.78		
40	1-1/2"	0-150	100-250V 50/60 Hz AC	59.67		
50	2"	0-150		105.30		

**Direct application of 4-20mA control signals by means of additional module.*



Type 417 Manually Operated

Nominal Bore (ID)		Pressure Range	C _v	End	Body	Seal
mm	Inch	psi	(gal/min)	Connections	Material	Material
15	1/2"	0-90	8.19	Metric & IPS, Plain sockets for solvent welding, True Union.	PVC	EPDM FPM
20	3/4"	0-90	15.21			
25	1"	0-90	19.89			
32	1-1/4"	0-90	39.78			
40	1-1/2"	0-90	59.67			
50	2"	0-90	105.30			



Type 457 Manually Operated

Nominal Bore (ID)		Pressure Range	End	Body	Seal
mm	Inch	psi	Connections	Material	Material
65	2-1/2"	0-90	Wafer type flange; PN 10	GFK	EPDM
80	3"	0-90		PES	NBR
100	4"	0-90			
125	5"	0-90			
150	6"	0-90			
200	8"	0-90			
250	10"	0-90			



Type 410 Pneumatically Operated

Control Functions: Normally open, Normally closed, Double acting

Nominal Bore (ID)		Pressure Range	*Control Pressure	C _v	End	Body	Seal
mm	Inch	psi	psi	(gal/min)	Connections	Material	Material
15	1/2"	0-90	30-90	8.19	Metric & IPS, Plain sockets for solvent welding, True Union.	PVC	EPDM FPM
20	3/4"	0-90	30-90	15.21			
25	1"	0-90	30-90	19.89			
32	1-1/4"	0-90	30-90	39.78			
40	1-1/2"	0-90	30-90	59.67			
50	2"	0-90	30-90	105.30			

*Control Pressure will vary depending on actuator size and/or control function



Type 450 Pneumatically Operated

Nominal Bore (ID)		Pressure Range	*Control Pressure	**Control Function	End Connections	Body Material	Seal Material
mm	Inch	psi	psi				
65	2-1/2"	0-90	30-90	Normally closed	Wafer type flange; PN 10	PES	EPDM
80	3"	0-90	30-90	Double acting			

*Control Pressure will vary depending on actuator size and/or control function

**By rotating the actuator 90°, it is possible to achieve Normally Open



Type 451 Pneumatically Operated

Nominal Bore (ID)		Pressure Range	*Control Pressure	**Control Function	End Connections	Body Material	Disc Material	Seal Material
mm	Inch	psi	psi					
65	2-1/2"	0-90	45-90	Normally closed	Wafer type flange; PN 10	PES	PVDF	EPDM
80	3"	0-90	45-90	Double acting		GFK	PP	NBR
100	4"	0-90	45-90					
125	5"	0-90	45-90					
150	6"	0-90	45-90					
200	8"	0-90	45-90					
250	10"	0-90	45-90					

*Control Pressure will vary depending on actuator size and/or control function

**By rotating the actuator 90°, it is possible to achieve Normally Open



Type 413 Motorized

Nominal Bore (ID)		Pressure Range	Power Supply	C _v (gal/min)	End Connections	Disc Material	Body Material	Seal Material
mm	Inch	psi						
15	1/2"	0-90	24, 115,	8.19	Metric & IPS, Plain sockets for solvent welding, True Union.	PVDF	PVC	EPDM
20	3/4"	0-90	230V/50-60Hz	15.21		PP		FPM
25	1"	0-90		19.89				

*Direct application of 4-20mA control signals by means of additional module.



Type 423 Motorized

Nominal Bore (ID)		Pressure Range	Power	C _v	End	Body	Seal
mm	Inch	psi	Supply	(gal/min)	Connections	Material	Material
15	1/2"	0-90	Standard Voltage	8.19	Plain sockets for solvent welding; Threaded spigots.	PVC	EPDM FPM
20	3/4"	0-90	12,24V DC	15.21			
25	1"	0-90	Special Voltages	19.89			
32	1-1/4"	0-90	12,24V 50/60Hz AC	39.78			
40	1-1/2"	0-90	100-250V 50/60 Hz AC	59.67			
50	2"	0-90		105.30			



Type 453 Motorized

Nominal Bore (ID)		Pressure Range	Power	End	Body	Disc	Seal
mm	Inch	psi	Supply	Connections	Material	Material	Material
65	2-1/2"	0-90	115V 50Hz,	Wafer type flange; PN 10	GFK	PVDF	EPDM
80	3"	0-90	230V, 50/60Hz		PES	PP	NBR
100	4"	0-90	24V d.c.				
125	5"	0-90					
150	6"	0-90					
200	8"	0-90					
250	10"	0-90					



Specifications for all valve types

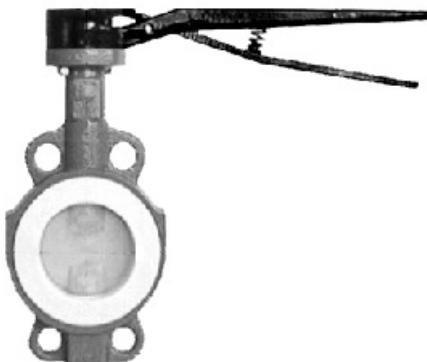
Nominal Bore (ID)* Pressure Range			Cv	Disc-Shaft, one piece
mm	Inch	psi	(gal/min)	
32/40	1-1/2"	0-240	-	Stainless Steel AISI 316L,
50	2"	0-240	421.20	Stainless Steel AISI 316L polished,
65	2-1/2"	0-240	596.70	Disc 1.4435, PFA coated
80	3"	0-240	1006.20	Shaft 1.4435, AISI 316L,
100	4"	0-240	1579.50	Disc 1.4435, PVDF coated
125	5"	0-240	2761.20	Shaft 1.4435, AISI 316L,
150	6"	0-240	4188.60	Disc 1.4435, PP coated
200	8"	0-150	6165.90	Shaft 1.4435, AISI 316L,
250	10"	0-150	4188.60	Uranus 1.4539,
300	12"	0-150	6165.90	Hastelloy® C22 2.4602,
350	14"	0-150	-	Titan 3.7035.
400	16"	0-150	-	

Gearbox Material:
Aluminum, Polyurethan coated



Disc-Shaft, one piece	Liner/ Backup	Body Type	Body Material
Stainless Steel AISI 316L,	PTFE/Silicon,	Wafer	Ductile Iron
Stainless Steel AISI 316L polished,	PTFE/EPDM,	LUG Body	Stainless steel
Disc 1.4435, PFA coated	PTFE/Hypalon,		
Shaft 1.4435, AISI 316L,	PTFE/Viton,		
Disc 1.4435, PVDF coated	PTFE for Vacuum or		
Shaft 1.4435, AISI 316L,	Chlorine applications,		
Disc 1.4435, PP coated	Hostaflon TFM 1700.		
Shaft 1.4435, AISI 316L,			
Uranus 1.4539,			
Hastelloy® C22 2.4602,			
Titan 3.7035.			

Pneumatic Actuators:
Air Supply 90 psi



Handlever Material:
GGG40, Epoxy coated

Specifications for all valves



Handlever[†] Material:
Aluminum, Epoxy coated
Polyamide PA 6, 30% glass fibers reinforced



Pneumatic[†] Actuators:
Air Supply 90 psi



Gearbox[†] Material:
Aluminum, Polyurethan coated
Cast Iron, Polyurethan coated

Nominal Bore (ID)*		Pressure Range	Cv	Shaft
mm	Inch	psi	(gal/min)	
40	1-1/2"	0-240	-	Stainless Steel 1.4028, AISI420
50	2"	0-240	421.20	Stainless Steel 1.4404, AISI316
65	2-1/2"	0-240	596.70	
80	3"	0-240	1006.20	
100	4"	0-240	1579.50	
125	5"	0-240	2761.20	
150	6"	0-240	4188.60	
200	8"	0-240	6165.90	
250	10"	0-240	4188.60	
300	12"	0-240	6165.90	
350	14"	0-240	-	
400	16"	0-240	-	
450	18"	0-240	-	
500	20"	0-240	-	
600	24"	0-240	-	
700	28"	0-150	-	
800	32"	0-150	-	
900	36"	0-150	-	
1000	40"	0-150	-	
1100	44"	0-150	-	
1200	48"	0-150	-	

Disc	Liner*	Body Type	Body Material
Ductile Iron GGG40	EPDM	Wafer	Ductile Iron
Relson coated,	EPDM HT	LUG Body	Stainless steel
Ductile Iron GGG40	Nitrile	Flange Body	
Epoxy coated,	Nitrile carboxylit		
Cast Iron	Natural rubber		
Relson coated,	Butyl		
Cast Iron	Hypalon		
Epoxy coated.	Silicon		
	Viton		

*White liners on request

[†] Others styles available



Type 800 series

Measuring range for liquids* (measured with H ₂ O, 68°F)	0.07 - 80.0 gpm
Measuring range for gases* (measured with H ₂ O, 68°F)	.15 - 30 Ft ³ /min.
Nominal size	3/4" - 2-1/2"
Operat. Pressure (meas. at 68°F)	PN 240 psi
Operating temperature max. (dependent upon material and medium)	212°F
Medium	Neutral, aggressive, liquid and gaseous media (Note: Graduated tubes for gasses and liquids have different code numbers.)
Viscosity range	max. 1000 m Pa x S/L
Body material	Trogamid, Polysulphone, PVC
Seals	EPDM, FPM
Type of connections	Union ends of PVC, ABS, PP, PVDF, malleable cast iron, stainless steel
Special feature Float	Float can be of different material to match the operating medium and is available with or without magnet.



Type 850 series

Measuring range for liquids* (measured with H ₂ O, 68°F)	0.008 - 7.1gpm
Measuring range for gases* (measured with H ₂ O, 68°F)	.71 Ft ³ /hr - 11.76 Ft ³ /min.
Nominal size	3/8" - 1"
Operat. Pressure (meas. at 68°F)	PN 240 psi
Operating temperature max. (dependent upon material and medium)	212°F
Medium	Neutral, aggressive, liquid and gaseous media (Note: Graduated tubes for gasses and liquids have different code numbers.)
Viscosity range	max. 1000 m Pa x S/L
Body material	Trogamid, Polysulphone, PVC
Seals	EPDM, FPM
Type of connections	Union ends of PVC, ABS, PP, PVDF, malleable cast iron, stainless steel
Special feature Float	Float can be of different material to match the operating medium and is available with or without magnet.



Type 840 series

Measuring range for liquids* (measured with H ₂ O, 68°F)	13.33 - 222.22 gpm
Measuring range for gases* (measured with H ₂ O, 68°F)	-
Nominal size	2-1/2"
Operat. Pressure (meas. at 68°F)	PN 150 psi
Operating temperature max. (dependent upon material and medium)	140°F
Medium	Water
Viscosity range	max. 1000 m Pa x S/L
Body material	PVC
Seals	EPDM
Type of connections	PVC solvent-cement spigot malleable cast iron, stainless steel
Special feature Float	Float can be of different material to match the operating medium and is available with or without magnet.

*High Purity Flowmeters are available with a PVDF float and tube, Viton o-rings and choice of end connections. Flowmeters are packaged and assembled in a class 100 cleanroom.



Type 52 Directly Operated

End Connections:	BSP & NPT Threaded sockets
Control Function:	Normally Closed
Voltage:	AC:24,42,48,110,230V/50Hz; DC:12,24,48,110V
Body Material:	PVC, PVDF
Max Working Medium Temperature:	PVC:140°F; PVDF:212°F
Seal Material:	FPM, Teflon®, EPDM
Ambient Temperature Range:	32°-104°F
Coil:	Continuous duty Class A

Pipe Size	Orifice Size	Cv Flow Factor	Operating Pressure*		Watt Rating		Weight (lbs.)
			Min	Max	AC	DC	
1/4"	5/64"	0.17	0	85	7.45	7.75	0.46
1/4"	5/32"	0.35	0	42.5	7.45	7.75	0.46
1/4"	1/4"	0.7	0	21	7.45	7.75	0.46

*Requires 15 psi minimum operating pressure differential to ensure proper closing in a closed loop system.

Solenoid Enclosure: IP 65

**Angle Body available upon request



Type 102 Directly Operated

End Connections:	NPT Threaded sockets; Adhesive sockets
Control Function:	Normally Closed
Voltage:	AC: 24,42,48,110,230,240V/50Hz, 24,110,230V/60Hz; DC: 12,24,48,110V
Body Material:	PVC, PVDF
Max Working Medium Temperature:	PVC:140°F; PVDF:212°F
Seal Material:	FPM, Teflon®, EPDM
Ambient Temperature Range:	32°-104°F
Coil:	Continuous duty Class A

Pipe Size	Orifice Size	Cv Flow Factor	Operating Pressure*		Watt Rating		Weight (lbs.)
			Min	Max	AC	DC	
1/4"	1/4"	0.8775	0	27	8.45	8.45	1.06
1/4"	5/16"	1.053	0	28	8.45	8.45	1.06
3/8"	3/8"	1.287	0	21	8.45	8.45	1.06

*Requires 15 psi minimum operating pressure differential to ensure proper closing in a closed loop system.

Solenoid Enclosure: IP 65

**Angle Body available upon request



Type 105 Directly Operated

End Connections:	NPT Threaded sockets; Adhesive sockets
Control Function:	Normally Closed
Voltage:	AC: 24,110,120,210,230/240/50Hz
Body Material:	PVC, PVDF
Max Working Medium Temperature:	PVC:140°F; PVDF:212°F
Seal Material:	FPM, Teflon®, EPDM
Ambient Temperature Range:	32°-104°F
Coil:	Continuous duty Class A

Pipe Size	Orifice Size	Cv Flow Factor	Operating Pressure		Watt Rating		Weight (lbs.)
			Min	Max	AC	DC	
1/4"	1/4"	1.05	0	85	8.25	-	0.77
3/8"	3/8"	2.28	0	21	8.25	-	0.77

† Other voltages and frequencies on request

Solenoid Enclosure: IP 65



Type 202 Directly Operated

End Connections:	NPT Threaded sockets
Control Function:	Normally Closed
Voltage:	AC:24,42,48,115,230V/50Hz; 24,110,230V/60Hz; DC:12,24,48,110V
Body Material:	PVC, PVDF
Max Working Medium Temperature:	PVC:140°F; PVDF:212°F
Seal Material:	FPM, Teflon®, EPDM
Ambient Temperature Range:	32°-104°F
Coil:	Continuous duty Class A

Pipe Size	Orifice Size	C _v Flowfactor	Operating Pressure*(psi)		Watt Rating		Weight (lbs.)
			Min	Max	AC	DC	
3/8"	3/8"	1.989	0	28	15.25	15.25	2.64
1/2"	1/2"	2.691	0	14	15.25	15.25	2.64

*Requires 15 psi minimum operating pressure differential to ensure proper closing in a closed loop system.

Solenoid Enclosure: IP 65

**Angle Body available upon request



Type 205 Directly Operated

End Connections:	NPT Threaded sockets
Control Function:	Normally Closed
Voltage:	AC:24,42,48,115,230V/50Hz; DC:12,24,48,110V
Body Material:	PVC, PVDF
Max Working Medium Temperature:	PVC:140°F; PVDF:212°F
Seal Material:	FPM, Teflon®, EPDM
Ambient Temperature Range:	32°-104°F
Coil:	Continuous duty Class A

Pipe Size	Orifice Size	C _v Flowfactor	Operating Pressure (psi)		Watt Rating		Weight (lbs.)
			Min	Max	AC	DC	
3/8"	3/8"	2.8	0	85	9.85	11.05	1.87
1/2"	1/2"	4.09	0	28	9.85	11.05	1.98
3/4"	3/4"	5.26	0	14	9.85	11.05	1.98
1"	1"	11.7	0	14	30.95	23.05	6.17
1-1/4"	1-1/4"	17.55	0	14	30.95	23.05	6.17
1-1/2"	1-1/2"	22.23	0	2.8	30.95	23.05	7.93
2"	2"	29.25	0	2.8	30.95	23.05	7.93

Solenoid Enclosure: IP 65



Type 225 Servo-Operated

End Connections:	IPS Spigots
Control Function:	Normally Closed
Voltage:	AC:24,42,48,110,230,240V/50Hz; DC:12,24,48,110V
Body Material:	PVC, PVDF
Max Working Medium Temperature:	PVC:140°F; PVDF:212°F
Seal Material:	FPM, Teflon®, EPDM
Ambient Temperature Range:	32°-104°F
Coil:	Continuous duty Class A

Pipe Size	Orifice Size	C _v Flowfactor	Operating Pressure (psi)		Watt Rating		Weight (lbs.)
			Min	Max	AC	DC	
1/2"	1/2"	4.09	7.5	85	11.05	11.05	1.98
3/4"	3/4"	5.26	7.5	85	11.05	11.05	1.98
1"	1"	11.7	0	85	23.05	23.05	6.17
1-1/4"	1-1/4"	17.55	0	85	23.05	23.05	6.17
1-1/2"	1-1/2"	22.23	0	85	23.05	23.05	7.94
2"	2"	29.25	0	85	23.05	23.05	7.94

Solenoid Enclosure: IP 65



Type 320

Type 320/322/324 Directly Controlled

End Connections: Threaded sockets
Control Function: Normally Closed; Normally Open
Max. Ambient Temperature: 122°F
Max. Working Medium Temperature: 122°F

Nominal Diameter (mm)	*Pressure Range psi	Voltages AC and DC	Power Consumption	C _v (gal/min)	Body Material	Seal Material
2	0-150	AC: 24, 42, 48, 110, 220, 240V/50Hz; 24, 110, 220V/60Hz DC: 12, 24, 48, 110V	Pull in: 18VA Hold in: 8VA	N/O: 1.95 N/C: 2.34	PBTP	FPM

*Pressure range applies for free outlet



Type 322

Type 320:

Connections: threaded sockets 1/4" BSP.
 Straight through configuration.
 Suitable for single valve applications.

Type 322:

Connections: threaded sockets 1/8" & 1/4" BSP.
 Inlet and outlet arranged at 90° angle.
 Suitable for battery mounting.
 May also be used as a single valve.



Type 334

Type 324:

Connections: threaded sockets 1/8" BSP.
 Inlet and outlet arranged at 90° angle.
 Suitable for direct mounting on process valve
 by hollow screw with 1/4" or 1/8" BSP thread.



Type 332

Type 332/334/336 Directly Controlled

End Connections: Threaded sockets
Control Function: Normally Closed
Max. Ambient Temperature: 122°F
Max. Working Medium Temperature: 122°F

Nominal Diameter (mm)	*Pressure Range psi	Voltages AC and DC	Power Consumption	C _v (gal/min)	Body Material	Seal Material
1	0-150	AC: 24, 120, 230V 50/60Hz DC: 24V	4.8W	0.0585	PBTP	FPM

*Pressure range applies for free outlet

Type 332:

Variable battery mounting system by means of mounting clips and O-rings.



Type 334

Type 334:

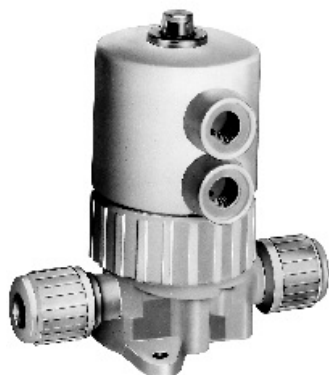
Single valve, can be directly mounted to the valve actuator by means of a hollow bolt.

Type 336:

Compact battery system with aluminum rail.



Type 336



Cleanstar® C60 HPW Pneumatically Operated[†]

Nominal Size Inch	Pressure Range psi	Control Pressure ^{††} psi	Control Function	End Connections	Body Material	Seal Material
1/4"	0-90	60-100	Normally open	Flare with PVDF nut	PFA;	TFM™PTFE
3/8"	0-90	60-100	Normally closed	Flare with PFA nut	Exterior actuator	
1/2"	0-90	60-100	Double acting	IPS welded spigot*	parts in PVDF.	
3/4"	0-90	60-100		Spacesaver*		
1"	0-90	60-100		True Union and spigot ends**		
1/2"	0-90	60-100		IR Fusion spigot	PVDF	TFM™PTFE

*Available for 1/4" and 3/8" upon request

**Only for PVDF valve body

[†] 1/2"-1" Also available in T-Body

^{††} Varies with control function



Cleanstar® C67 HPW Manually Operated[†]

Nominal Size Inch	Pressure Range psi	End Connections	Body Material	Seal Material
1/4"	0-90	Flare with PVDF nut	PFA;	TFM™PTFE
3/8"	0-90	Flare with PFA nut	Exterior actuator	
1/2"	0-90	IPS welded spigot*	parts in PVDF.	
3/4"	0-90	Spacesaver*		
1"	0-90	True Union and spigot ends**		
1/2"	0-90	IR Fusion spigot	PVDF	TFM™PTFE

*Available for 1/4" and 3/8" upon request

**Only for PVDF valve body

[†] 1/2"-1" Also available in T-Body

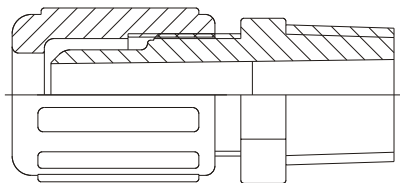


Cleanstar® C67/C60 HPW Zero Static T-Valves Sizes[†]

Flare x Flare-Tube Size		*Welded Spigots-Pipe Size	
Main	Branch	Main	Branch
1/2"	1/2"	1/2"	1/2"
3/4"	1/2"		
1"	1/2"		
3/4"	3/4"		
1"	3/4"		
Flare x Spacesaver-Tube Size		*Welded Spigots-Pipe Size x Flare Tube Size	
Main	Branch	Main	Branch
1/2"	1/2"	1/2"	1/2"
3/4"	1/2"	1/2"	3/4"
3/4"	3/4"		

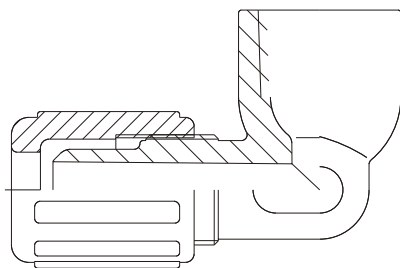
*Available on request only

[†] Specialty sizes available upon request



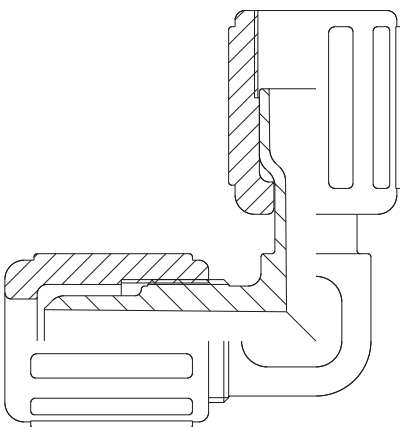
PFA Male Connector

Fitting Type	Tube Size	Male NPT Size
FMC 75 4-2 HP	1/4"	1/8"
FMC 75 6-4 HP	3/8"	1/4"
FMC 75 6-6 HP	3/8"	3/8"
FMC 75 6-8 HP*	3/8"	1/2"
FMC 75 8-4 HP	1/2"	1/4"
FMC 75 8-6 HP	1/2"	3/8"
FMC 75 8-8 HP	1/2"	1/2"
FMC 75 12-8 HP	3/4"	1/2"
FMC 75 12-12 HP	3/4"	3/4"
FMC 75 16-16 HP	1"	1"



PFA Female Elbow *Upon Request

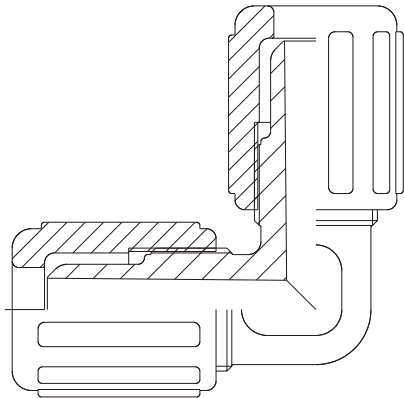
Fitting Type	Tube Size	Female NPT Size
FFE 75 8-8 HP	1/2"	1/2"



PFA Space saver Union Elbow

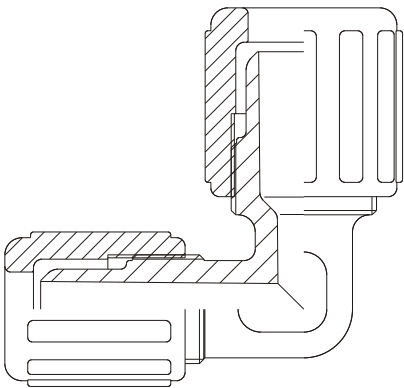
Fitting Type	Tube Size	Male NPT Size
FUSE 75 Z 6 HP	3/8"	3/8"S
FUSE 75 Z 8 HP	1/2"	1/2"S
FUSE 75 Z 12 HP	3/4"	3/4"S
FUSE 75 Z 16 HP*	1"	1/"S

*Upon Request



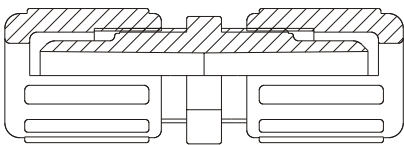
PFA Union Elbow

Fitting Type	Tube Size
FUE 75 4 HP	1/4"
FUS 75 6 HP	3/8"
FUS 75 8 HP	1/2"
FUS 75 12 HP	3/4"
FUS 75 16 HP	1"



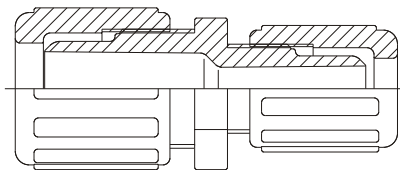
PFA Reducer Elbow

Fitting Type	Tube Size
FRE 75 6-4 HP	3/8" x 1/4"
FRE 75 8-6 HP	1/2" x 3/8"
FRE 75 12-6 HP	3/4" x 3/8"
FRE 75 12-8 HP	3/4" x 1/2"
FRE 75 16-12 HP	1" x 3/4"



PFA Straight Union

Fitting Type	Tube Size
FSU 75 4 HP	1/4"
FSU 75 6 HP	3/8"
FSU 75 8 HP	1/2"
FSU 75 12 HP	3/4"
FSU 75 16 HP	1"

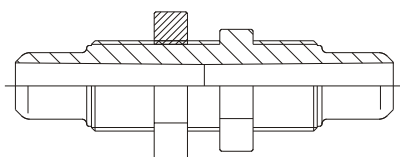


PFA Straight Reducer Union

Fitting Type	Tube Size
FSR 75 6-4 HP	3/8" x 1/4"
FSR 75 8-4 HP*	1/2" x 1/4"
FSR 75 8-6 HP	1/2" x 3/8"
FSR 75 12-4 HP*	3/4" x 1/4"
FSR 75 12-6 HP*	3/4" x 3/8"
FSR 75 12-8 HP	3/4" x 1/2"
FSR 75 16-12 HP	1/2" x 3/4"

*Upon Request

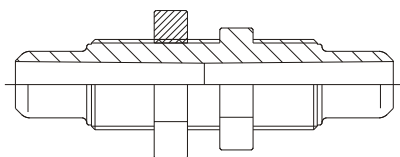
PFA Panel Mount Union



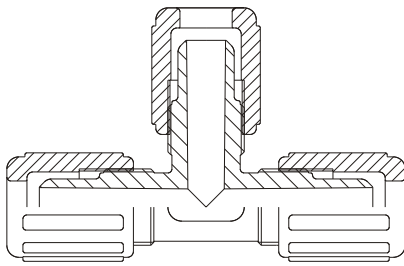
Fitting Type	Tube Size
FPM 75 4 HP	1/4"
FPM 75 6 HP	3/8"
FPM 75 8 HP	1/2"
FPM 75 12 HP*	3/4"
FPM 75 16 HP	1"

*Upon Request

PFA Panel Mount Reducer

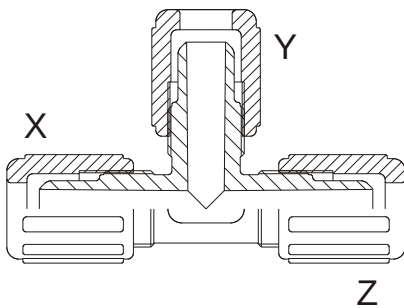


Fitting Type	Tube Size
FPMR 75 6-4 HP	-
FPMR 75 8-4 HP	Delivery
FPMR 75 8-6 HP	on
FPMR 75 12-8 HP	Request
FPMR 75 16-12 HP	-



PFA Union Tee

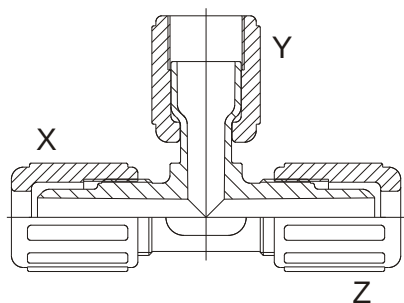
Fitting Type	Tube Size
FUT 75 4 HP	1/4"
FUT 75 6 HP	3/8"
FUT 75 8 HP	1/2"
FUT 75 12 HP	3/4"
FUT 75 16 HP	1"



PFA Union Reducer Tee

Fitting Type	X	Y	Z
FRT 75 4-6-6	1/4"	3/8"	3/8"
FRT 75 6-4-6*	3/8"	1/4"	3/8"
FRT 75 6-12-6*	3/8"	3/4"	3/8"
FRT 75 8-4-4*	1/2"	1/4"	1/4"
FRT 75 8-8-4*	1/2"	1/2"	1/4"
FRT 75 8-4-8	1/2"	1/4"	1/2"
FRT 75 8-6-6*	1/2"	3/8"	3/8"
FRT 75 8-6-8	1/2"	3/8"	1/2"
FRT 75 12-4-12	3-4"	1/4"	3/4"
FRT 75 12-8-4*	3/4"	1/2"	1/4"
FRT 75 12-8-8*	3/4"	1/2"	1/2"
FRT 75 12-12-8	3-4"	3/4"	1/2"
FRT 75 12-8-12	3-4"	1/2"	3/4"
FRT 75 16-8-16*	1"	1/2"	1"
FRT 75 16-12-16	1"	3/4"	1"

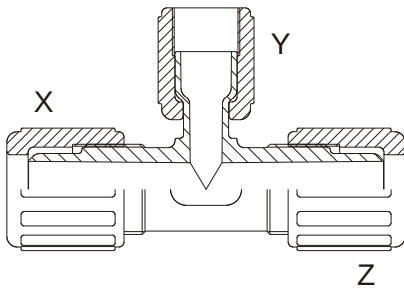
*Upon Request



PFA Union Space saver Tee

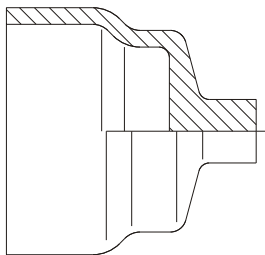
Fitting Type	X	Y	Z
FUST 75 6-6-Z6 HP*	3/8"	3/8"	3/8"S
FUST 75 8-8-Z8 HP*	1/2"	1/2"	1/2"S
FUST 75 12-12-Z12 HP	3/4"	3/4"	3/4"S
FUST 75 16-16-Z16 HP*	1"	1"	1"S
FUST 75 X8-8-Z8 HP*	1/2"S	1/2"	1/2"S
FUST 75 X12-12-Z12 HP	3/4"S	3/4"	3/4"S
FUST 75 X16-16-Z16 HP*	1"S	1"	1"S
FUST 75 8-Y8-8 HP	1/2"	1/2"S	1/2"
FUST 75 12-Y12-12 HP	3/4"	3/4"S	3/4"

*Upon Request



PFA Union Space saver Reducer Tee

Fitting Type	Tube Size		
	X	Y	Z
FRST 75 12-Y8-12 HP	3/4"	1/2"S	3/4"



Cap

Fitting Type	Tube Size
FLC 4 HP*	1/4"
FLC 6 HP	3/8"
FCL 8 HP	1/2"
FLC 12 HP	3/4"
FLC 16 HP*	1"

*Upon Request



Nut

PVDF			PFA		
Fitting Type	Tube Size	Nominal Bore	Fitting Type	Tube Size	Nominal Bore
CF 75 4Z 20 HP	1/4"	4	CF 75 4Z 30 HP	1/4"	4
CF 75 6Z 20 HP	3/8"	6	CF 75 6Z 30 HP	3/8"	6
CF 75 8Z 20 HP	1/2"	10	CF 75 8Z 30 HP	1/2"	10
CF 75 12Z 20 HP	3/4"	15	CF 75 12Z 30 HP	3/4"	15
CF 75 16Z 20 HP	1"	20	CF 75 16Z 30 HP	1"	20



Hose Clamp Fitting

Fitting Type	Tube Size	Nominal Bore
1098 4 Z 01	1/4"	4
1098 6 Z 01	3/8"	6
1098 10 Z 01	1/2"	10
1098 15 Z 01	3/4"	15
1098 20 Z 01	1"	20

Type 1201 Electrical Position Indicator Contact Ratings



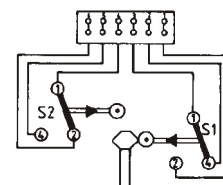
For valve types:

312, 314, 512,
514, 554, 600,
620, 667, 687,
690, 695

With micro switches

Voltage Volts	Resistance Amps.	Glow Lamp Duty Amps.	Inductive Duty Amps.
125 ~	10	1	10
250 ~	10	1	10
380 ~	6	-	6
15 =	15	1.5	15
30 =	8	1.5	7.5
50 =	3	0.8	2.5
75 =	1	0.6	0.5
125 =	0.5	0.5	0.07
250 =	0.25	0.25	0.03

Wiring Diagram



Switches S1 and S2
Connected with terminal block

Type 1205 Electrical Position Indicator Switching performance



For valve types:

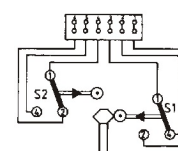
312, 314, 512,
514, 554, 600,
620, 667, 687,
690, 695

Explosion-proof design

Voltage	Resistive load - amps
250 V a.c.	5 A
250 V d.c.	0.2 A
60 V d.c.	1 A
30 V d.c.	2 A

PTB Certificate No.. Ex-84/1119

Circuit diagram



Switches S1 and S2
connected to terminal block
acc. to circuit diagram

Type 1211 Electrical Position Indicator Wiring recommendation



For valve types:

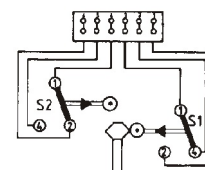
312, 314, 512,
514, 554, 600,
620, 667, 687,
690, 695

With proximity switches
according to NAMUR

Power supply for the control circuit

Open-circuit voltage	U.	7-9 V
Recommended voltage		8.2 V
Short circuit current	J _K	7-16 mA
Recommended current		8.2 mA

Circuit diagram



Switches S1 and S2 connected
to terminal block acc. to circuit
diagram

Type 1214 Electrical Position Indicator



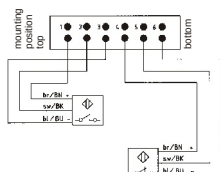
For valve types:

312, 314, 512, 514, 554, 600,
620, 667, 687, 690, 695

With proximity switches and
integral amplifier

Inductive proximity switch (BALLUFF)

Inductive proximity switch (BALLUFF)	Standard types
Rated voltage	10 - 30 VDC
Tolerance range of rated operating distance	± 10%
Residual ripple	max. 15%
No-load current	10 - 20 mA
Output resistance R _a and diode	4.7 kW
Output resistance R _a and diode in BES with integrated LED	2.2 kW
Residual voltage with a load impedance of 10 kW	≤ 0.8 V
Voltage drop	0.8 V - 1.8 V
Hysteresis	≤ 15%
Edge steepness ¹⁾	≥ 1 V/μs
Output loading capability load impedance	60 mA - 400 mA
Duty cycle	100%
Ambient temperature	-13° F up to +158° F



Type 1215

Electrical Position Indicator

Suitable for use at ambient temperatures of 5° F to +131° F.



For valve types:

312, 314, 512, 514, 554,
600, 603, 604, 605, 610,
615, 625, 667, 671, 677,
687, 690

With micro switches

Protection class: IP 65 (when mounted)

Contact ratings:

AC ratings

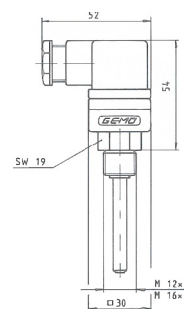
Voltage 250 V a.c.

Resistance 4 A

DC ratings Voltage 24 V d.c

Resistance 4 A

Inductive duty 0.6 A



When ordering, please give the complete valve type key.
e.g. Type 1215 to be fitted to a valve type 690/20 D 0114-1

Type 1310

Electrical Position Indicator



For valve types:

687, 690, 695, 415

control function 1

Manually operated

for proximity switch adaption
(M 18 x 1)

Types 1100/1101/1103/1104 Stroke limiter



control function 1
Manually operated

Types 1110/1111 Stroke limiter



control function 2
Pneumatically operated

Type 1114 Stroke limiter



With optical position indicator and emergency manual operation facility

Type 1300 Optical position indicator



Type 1151/1153/1154 Stroke limiter



With optical position indicator
Control function 1

Type 1301 Transparent cap (sight glass)



For the type 1104
Stroke limiter

Type 1161/1165 Stroke limiter



With optical position indicator
Control function 2

Types 1410/1411/1413 Pneumatic positioner



For valve types:
312, 314, 512, 514,
520, 620, 687, 690,
695

Input Range

3-15 psi, 0.2-1 bar

Up to 4 wa split ranging (3 psi input) is possible

Output Range

0 to 100% of supply pressure

Supply Pressure

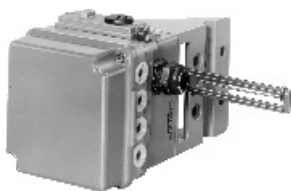
20 to 150 psi¹ (1.4 to 10 bars)

Approximate Mass

Single-acting: 1.4 lb (0.65 kg)

Double-acting: 1.7 lb (0.75 kg)

Types 1420/1423 Electro-pneumatic positioner



For valve types:
312, 314, 512, 514,
520, 620, 625, 640,
687, 690, 695

Input Range

0 to 20 mA (up to 4-way split range is possible)

4 to 20 mA (up to 3-way split range is possible)

Output Range

0 - 100% of supply pressure

Supply Pressure

20 to 150 psi (1.4 to 10 bars)¹

Input Resistance

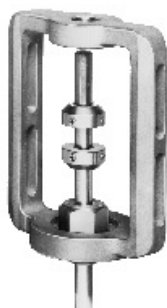
< 200 Ω at 68°F (20°C)

Approximate Mass

Single-acting: 3.3 lb (1.5 kg)

Double-acting: 4 lb (1.8 kg)

Type 1450 Mounting bracket complying with NAMUR



For valve types:
312, 314, 512, 514,
520, 620, 625, 640,
687, 690, 695

Type 1002 Handwheel / Manual Override



For valve types:
312, 314, 512,
514, 625, 640, 687,
690, 695

Types 1281/1284 3-point controller



For valve types:
413, 418, 613, 618,
693, 698

*For panel mounting or
direct attachment*

Voltages:	24, 220 V/50 Hz
Permissible voltage variation:	-10% +15%
Power consumption:	4 VA
Switching voltage:	max. 250 V
Switching current:	max. 5 A
Switch rating:	max. 300 VA
Actual valve input:	0-10 k Ω (special version 0-20 mA possible)
Transducer supply:	15 V
Current input:	0 to 20 mA, 4 to 20 mA (according to the terminal arrangement)
Current output:	0 to 20 mA, 4 to 20 mA; Burden: 750 ohm as supply voltage
Relay output:	
Apparatus terminals:	see connection diagram
Cable gland:	PG 13.5
Mass:	Type 1281: 460g; Type 1284: 510 g
Protection class:	IP 40

Types 1286/1289 3-point controller



For valve types:
413, 418, 613, 618, 693, 698

Euro-card for 19" or 24" racks
with 31 pole terminal strip
complying with DIN 41617

Voltages:	24, 220 V/50 Hz
Permissible voltage variation:	-10% +15%
Power consumption:	4 VA
Switching voltage:	max. 250 V
Switching current:	max. 5 A
Switch rating:	max. 300 VA
Actual valve input:	0-10 k Ω (special version 0-20 mA possible)
Transducer supply:	(Actual valve input 10 V)
Current input:	0 to 20 mA, 4 to 20 mA (according to the terminal arrangement)
Current output:	0 to 20 mA, 4 to 20 mA; Burden: 750 ohm potential-free
Relay output:	
Apparatus terminals:	see connection diagram

Types 1520/1521 Isolating Switch Amplifiers



For accessory types:
1251, 1252, 1256, 1257

Voltages:	110, 220 V/50-60 Hz; others on request
Permissible voltage variation:	$\pm 10\%$
Power consumption:	approx. 3 VA
Contact arrangement:	Change-over contacts
Connections:	either PNP or NPN (can be changed on site)
Switching voltage:	380 V a.c./220 V d.c.
Switching current:	3.5 A a.c./0.5 A d.c.
Switch rating:	1000 VA/100 W
Control circuit:	SELV (safety extra low voltage) (VDE 0100) 25 V d.c., 20 mA
Opt. indication by LED:	Min. contact - a LED indicates that the value is below the set value Max. contact - a LED indicates that the value has exceeded the set value
Housing:	Plastic [Type 1520] 19"/24" rack Eurocard, 4 TE, 3 HE [Type 1521]
Connection terminals:	for wires up to 1.5 ² [Type 1520]; 31 pole terminal block to DIN 41617 [Type 1521]
Permissible ambient temperature:	14°F to 122°F
Mechanical Protection:	IP 40 [Type 1520]; IP 00 [Type 1521]
Mass:	approx. 480g [Type 1520] approx. 280g [Type 1521]
Input leads:	any length; Min. 0.5mm ² , Max. 1.5 mm ²

Type 1570 Emergency Power Supply Unit



For valve types:
423, 428

*For panel mounting or
direct attachment*

Voltage: 24 V d.c.
Permissible voltage variation: $\pm 10\%$
Power consumption: 2 W
N.B.: A charging period of at least 16 hrs is required before putting the unit into service
Max. input/output loading: 24 V d.c., 4 A
Output voltage: $U_o 16.5$ V d.c.
Capacity: 110 mA/h
Internal fuse: M 4 /250 V
Weight: .90 lbs
Cable gland: PG 13.5

Type 1572 Voltage Transformer



For valve types:
423, 428

*For panel mounting or
direct attachment*

Voltage: 110, 220 V/50-60 Hz
Permissible voltage deviation: $\pm 10\%$
Power consumption: 35 VA
Output voltage: 20 V d.c. unsmoothed
Output current: 1.4 A
Input fusing: M 1.6/250 V
Weight: 2.14 lbs
Cable gland: PG 13.5

Type 1275 Digital Display Unit



For accessory types:
901, 1270, - 1273, 3020,
3120, 3220

For panel mounting (DIN)

Type 1279 Digital Display Unit for % indication



For accessory types:
901, 1270/127, 3020, 3120, 3220

Euro-card for 19" or 24" racks
with 31 pole terminal strip
complying with DIN 41617

Type 3000 Accumulated flow counter with and without batch controller



For accessory types:
901, 1270, - 1273, 3020, 3120, 3220

For panel mounting (DIN)

Type 1040 Mounting Plate



For valve types:
105, 205, 225

*Complete with fixing
screws*

Type 1034 Flange



For valve types:
677, 690, 693

Type 1050 Mounting Plate



For valve types:
320, 322

Type 1035 Screwed Union



For valve types:
667, 677, 690, 693

Type 1041 Mounting and Compensating Plates



For valve types:
600, 610, 613, 617,
667, 677, 690, 693

Type 1700/1701/1702 Mounting Bracket



For valve type:
202

complete with fixing screws

Types 1251/1256 Max. Limit Switch Types 1252/1257 Min. Limit Switch



For flowmeter types:
815, 817, 835

Housing material: Plastic
Electrical connection: Standard connector, supplied with switch
Contacts: Bistable reed switches
Switching function: Min. or max as described
Degree of protection: IP 65
Max. voltage: 250 V
Max. peak value of marking current: 0.5 A
Max. steady current: 0.2 A
Max. switching duty: 10 VA
Specification: 1251/1252 for types 800 and 850 DN 25; cable gland PG 11
1256/1257 for type 850 DN 10, 15, 20; cable gland PG 9

Types 1270 - 1273 Continuous Sensor



For flowmeter types:
815, 817, 835, 865, 867

1270/1271, 0 - 10
1272/1273, 4 - 20 mA

Housing material: Ultradur
Tube material: Stainless steel W. No. 1.4571
Electrical connection: Standard connector, supplied with instrument sensor
Sensing system: Series of reed switches connected to a chain of resistors (7.5 mm pitch)
Degree of protection: IP 65
Specification: 1270 for type 800; cable gland PG 11
1271.010 for type 850 DN 10, 15, 20; cable gland 8
1271.025 for type 850 DN 25; cable gland PG 11

Types 3020 Flow Transmitter



For types:
1274/1279/3000

Flow transmitter, as a sensor for further processing units. With or without display.
Sizes 1/2" - 2" (DN 15 - 50)

0 - 10 V
4 - 20 mA
0 - 20 mA

Types 3120 Pressure Transmitter



For pressure range 0 - 150 psi
Optional display 0 - 20 mA
alt. 4 - 20 mA or 0 - 10 V

Types 3220 Temperature Transmitter



For temperature range 0 - 150° F
Optional display 0 - 20 mA
alt. 4 - 20 mA or 0 - 10 V

Terms and Conditions of Sales

This document constitutes an offer to sell the goods and services specified on the reverse hereof. This offer is expressly limited to the acceptance of the terms contained herein and constitutes notice of objection to any additional or different terms in the acceptance so as to preclude the inclusion of any different or additional terms in any resulting contract.

1. PRICE AND PAYMENT TERMS

- 1.1 All prices set forth herein are FOB GEMÜ shipping point and are payable at 2% 15 days, net 30 days after invoice date. Shipments will be invoiced as of date of shipment, and all accounts not paid within thirty (30) days of invoice date will bear interest at the rate of two percent (2%) per month from invoice Date. In the event of failure of timely payment by Buyer, Buyer shall pay to GEMÜ all costs of collection including fifteen percent (15%) of the amount due hereunder as attorney's fees if collected by or through an attorney-at-law.
- 1.2 Prices on the goods are exclusive of all city, state, and federal excise taxes, including, without limitation, taxes on manufacture, sales, receipts, gross income, occupation, use and similar taxes. Wherever applicable, any tax or taxes will be added to the invoice as a separate charge to be paid by the Buyer.
- 1.3 In addition to the purchase price for the goods Buyer shall pay and be liable for all of Buyer's expenses incurred by GEMÜ for insurance, freight, cartage, warehousing, and all other charges in connection with loading and shipping the goods to the Buyer.
- 1.4 Buyer shall pay all amounts payable to GEMÜ hereunder when due, time being of the essence.
- 1.5 Payment for the goods shall, if GEMÜ so requires, be made in full prior to delivery and GEMÜ shall be entitled to withhold delivery until such payment has been made and any check or other negotiable instrument given in payment has cleared. GEMÜ shall have the additional right at any time to limit or cancel any credit extended or to be extended hereunder. Upon failure by Buyer to make payment to GEMÜ within thirty (30) days after notice from GEMÜ limiting or canceling any credit extended or requiring Buyer to make payment before delivery, GEMÜ shall have the option to cancel this and other contracts between GEMÜ and Buyer. In such an event, in addition to its other remedies, GEMÜ may resell all or any part of the goods undelivered under contract without notice at public or private sale and Buyer shall be liable to GEMÜ for the difference between the resale price and the price at which Buyer agreed to buy the goods together with incidental damages.

2. TITLE TO AND RESERVATION OF SECURITY INTEREST IN THE GOODS

- 2.1 Until Buyer has completed payment for the goods, title and ownership to said goods shall remain with GEMÜ and its assigns, and GEMÜ hereby reserves and Buyer hereby grants to GEMÜ a purchase money security interest in the goods. The goods shall at all times be located at the place to which delivery is to be made as indicated on the reverse hereof unless written approval is obtained from GEMÜ for removal to some other place. Said goods shall not become a part of the realty.
- 2.2 If the Buyer defaults in the payment of any part of the purchase price as herein provided at any maturity date as to any payment or fails to comply with or defaults in any of the material provisions of this Agreement, or in the event that a petition for a receiver or in reorganization or in bankruptcy is filed by or against Buyer, or whenever GEMÜ or its assigns shall deem themselves insecure, then in any such event the full amount of the purchase price remaining unpaid shall become immediately due and payable at the option of GEMÜ or its assigns, and the Buyer agrees to return said goods on demand, and GEMÜ or its assigns may without notice of demand and without any legal process enter into any premises where the goods are located to take immediate possession thereof and to make such disposition deemed by GEMÜ or its assigns as desirable. All payments made shall be retained as liquidated damages for the use of the goods and not as a penalty. The goods may be sold with or without notice at public or private sale, with the right in GEMÜ or its assigns to bid in such sale, and the proceeds thereof less expenses shall be credited to the amount unpaid. The Buyer agrees to pay the balance forthwith as liquidated damages for the breach of this Agreement.
- 2.3 Until payment for the goods has been completed, Buyer may not sell, transfer, convey, pledge, hypothecate or otherwise use the goods as security for any borrowing or for any other purposes.

3. INSURANCE

Buyer shall specifically insure the goods against "all risks," subject to normal exclusions, from the time that the risk of loss passes to Buyer, during transit, during unloading, and continuously thereafter until all amounts payable by Buyer are paid in full to GEMÜ for no less than the total amount owing to GEMÜ, with loss first payable to GEMÜ, as its interests may appear. Evidence of such insurance satisfactory to GEMÜ shall be submitted by Buyer prior to shipment or GEMÜ may procure such insurance at Buyer's expense.

4. WARRANTIES

- 4.1 GEMÜ warrants the goods to be free from defects in workmanship and/or materials for a period of one (1) year from the date of shipment to Buyer. This warranty does not extend to parts or components not manufactured or processed by GEMÜ, although GEMÜ will to the extent possible pass to Buyer the benefit of any guarantee or warranty given to GEMÜ in respect of such parts or components. No goods may be returned without the express prior written approval of GEMÜ after a determination by GEMÜ that such goods are defective because of poor workmanship or defective materials. GEMÜ shall credit or make adjustment to the purchase price of the goods or replace or repair, at its sole option and expense, any defective goods or portions thereof. In the event that GEMÜ determines in its sole discretion that the defect is attributable to any cause other than poor workmanship or defective materials (including, but not limited to, misuse or abusive operation of the goods), then GEMÜ shall have no obligation whatsoever with respect to repair or replacement of the defective goods and the warranty described herein shall be void and of no force and effect.
- 4.2 Except as noted in paragraph 4.1, the parties agree that there is no warranty of merchantability or of fitness for a particular purpose or any other warranties by seller,

either expressed or implied, or any affirmation of fact or representation which extends beyond the description of the face hereof.

- 4.3 The maximum damages recoverable in the event of breach of any warranty by GEMÜ, expressed or implied, or of this Agreement shall be limited to the purchase price of the goods. Buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, or any other incidental or consequential loss) shall be available to it under any circumstances.
- 4.4 WARNING - GEMÜ products are designed and manufactured with experienced and quality workmanship, using quality materials; GEMÜ products meet all applicable standards. These products are available with components of various materials and they should be used only in services recommended in the GEMÜ catalog or by a GEMÜ engineer. Misapplication of the product(s) may result in injuries or property damage. A selection of valve components of the proper material consistent with the particular performance requirement is important for proper application. Examples of a misapplication or misuse of a GEMÜ diaphragm valve includes using it in an application in which the pressure/ temperature rating exceeds or fails to maintain the valves as recommended.

5. DELAY OR NONPERFORMANCE

GEMÜ shall not be liable for delay in shipment for any cause beyond its reasonable control, nor shall such delay entitle Buyer to cancel any order or refuse to accept delivery. GEMÜ shall not be liable for failure or delay in shipment or other performance hereunder if such failure is due in whole or in part to strikes, fires, accidents, wars, rebellions, civil commotion or public strike, acts of any government, whether legal or otherwise, acts of public enemies, force majeure, inability to secure or obtain or delay in securing or obtaining transportation, machinery, materials, or sufficient qualified labor, or any other causes beyond GEMÜ's reasonable control.

6. RISK OF LOSS

Unless otherwise specifically agreed in writing, risk of loss of the goods shall pass from GEMÜ to Buyer when the goods or any portion thereof, properly packed and secured in such a manner as to reach their destination in good condition under normal conditions of transport, are placed in the possession of the carrier, FOB GEMÜ shipping point for shipment to Buyer. GEMÜ may choose any reasonable carrier for delivery. Tender of delivery shall be deemed made at GEMÜ shipping point even when freight is prepaid to point of destination or GEMÜ is required to deliver the goods to a particular destination.

7. MODIFICATIONS

This Agreement constitutes the entire agreement of the parties with respect to the terms and conditions of sale of the goods specified herein. No modification of this Agreement shall be binding upon the parties unless in writing and signed by the party to be bound. Any terms and provisions contained in any document of the Buyer which are inconsistent with the terms and provisions hereof shall not be binding on GEMÜ and shall not be considered applicable to the sale or shipment of the goods. No agent, employee or representative of GEMÜ other than its officers has any authority to bind GEMÜ to any affirmation, representation or warranty concerning the goods sold under this Agreement and unless an affirmation, representation or warranty made by an agent, employee, or representative is specifically included within this Agreement, it has not formed a part of the basis of this bargain and shall not in any way be enforceable.

8. WAIVER

Waiver by GEMÜ of a breach by Buyer of any provision of this Agreement shall not be deemed a waiver of future compliance with the provision of the Agreement breached.

9. ASSIGNMENT

No right or interest in this Agreement shall be assigned by Buyer without the written consent of GEMÜ, and no delegation of any obligation by Buyer shall be made without the written permission of GEMÜ. Any attempted assignment or delegation shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph.

10. CONTROLLING LAW

The validity and interpretation of this Agreement shall be governed by the laws of the State of Georgia.

11. JURISDICTION

Buyer, to the extent it may lawfully do so, hereby submits to the jurisdiction of any state or federal court located in Fulton County, Georgia, as well as to the jurisdiction of all courts from which an appeal may be taken from the aforesaid courts for the purpose of any suit, action or other proceeding arising out of any of the Buyer's obligation under or with respect to this Agreement, and the Buyer expressly waives any and all objections that Buyer may have as to jurisdiction and/or venue in any of such courts. The Buyer further agrees that it may be validly served with any legal process in connection with the foregoing by the mailing of a copy thereof by registered or certified mail at its address shown on the reverse hereof.