

Type 33 Multiport Ball Valves



SERIES: Type 33

SIZES: 3/8" to 2"

ENDS: Socket, Threaded, Flanged or Butt¹

SEATS: PTFE

SEALS: EPDM or FPM (Viton®)



The Chemline Type 33 Multiport is a full featured industrial ball valve with a horizontal third port. It eliminates the need for two standard ball valves and a tee in many cases. The standard T-Port offers flow diversion as well as unobstructed straight through flow. For electric or pneumatic actuation, the optional L-Port ball diverts flow with 90° operation².

Features

Fully Supported Ball

- Four PTFE seats for smooth reliable operation

Safety Lock Handle

- Locks valve in each 90° position
- Lockable with a padlock
- Handle turns only when trigger is squeezed

Easy to Actuate²

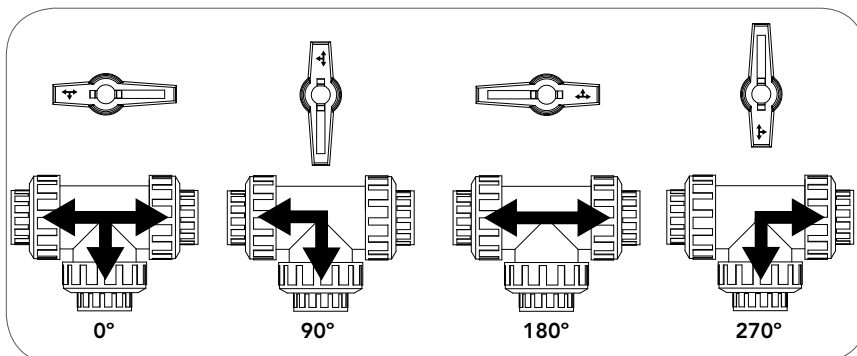
- Mounting kits are available

230 psi Working Pressure

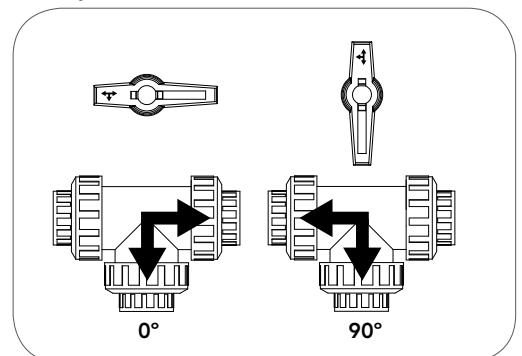
Fully Blocking

- Union nuts on closed ports may be safely disassembled under pressure

T-Port Ball (standard) – Four Positions



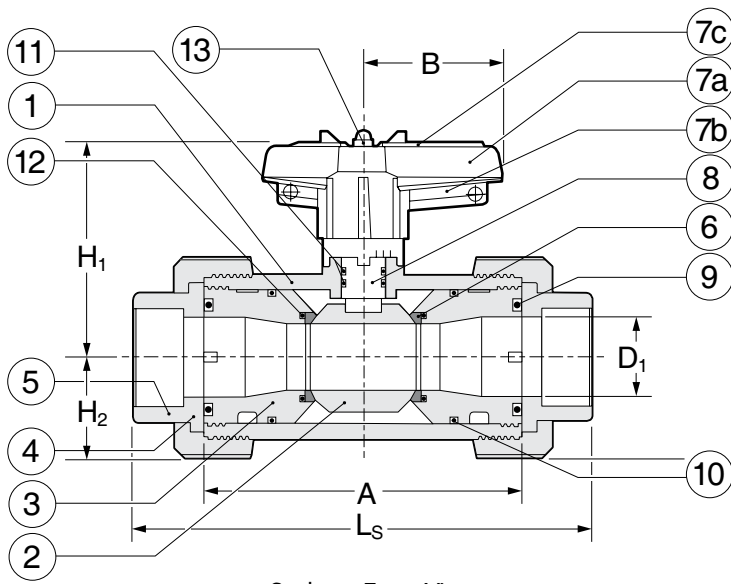
L-Port Ball (optional) – Two Positions, 90° Operation for Actuation



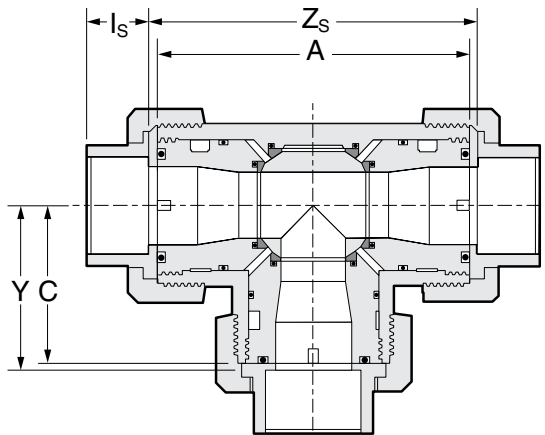
¹ Butt ends in PP, PVDF or ECTFE (Halar®) fuse to Chemline metric piping systems

² For operation with actuators, the L Port 90° operating ball is recommended

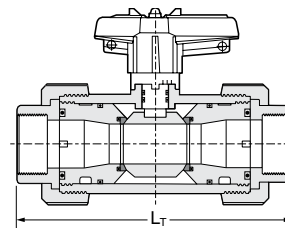
Type 33 Multiport Ball Valve



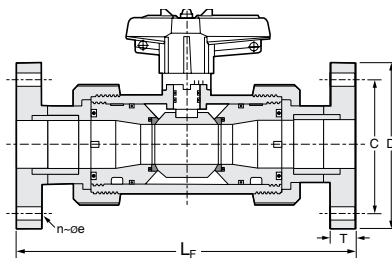
Socket - Front View



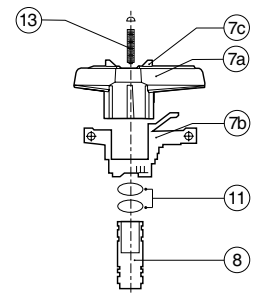
Socket - Top View



Threaded



Flanged



Safety Lock Handle and Stem

PARTS

▲ Recommended Spare Parts

No.	Part ¹	Pcs.	Materials
1	Body	1	PVC, PP, PVDF
2	Ball	1	PVC, PP, PVDF
3	Carrier	3	PVC, PP, PVDF
4	End Connector	3	PVC, PP, PVDF
5	Union Nut	3	PVC, PP, PVDF
6▲	Ball Seat	4	PTFE
7a	Handle	1	ABS
7b	Spring Loaded Handle Lock	1	ABS
7c	Handle Insert	1	ABS
8	Stem	1	PVC, PP, PVDF
9▲	Face O-Ring	3	EPDM, FKM (Viton®)
10▲	Carrier O-Ring	3	EPDM, FKM (Viton®)
11▲	Stem O-Ring	2	EPDM, FKM (Viton®)
12▲	Seat Cushion	4	EPDM, FKM (Viton®)
13	Stem Screw	1	A2 Steel

¹ PVC and PP valves are fitted with EPDM seals (Parts 9 to 12) as standard, PVDF valves with FKM (Viton®)

DIMENSIONS INCHES

Size	End Connections																							
	Socket/Threaded/Flanged												Butt/Threaded/Flanged											
	PVC												PP/PVDF				PP				PVDF			
	B	H ₁	H ₂	A	C	D ₁	L _S	L _T	L _F ¹	Y	Z	C	D	L _B	Y	A	L _T	L _F ¹	Z	A	L _T	L _F ¹	Z	
3/8"	1.60	2.80	1.04	3.90	2.00	0.39	5.40	5.40	-	2.10	4.20	1.90	2.10	5.90	2.20	3.90	5.40	⁻²	4.30	3.90	5.40	⁻²	4.30	
1/2"	1.60	2.80	1.04	3.90	2.10	0.59	5.40	5.40	7.50	2.10	4.20	1.90	2.10	6.30	2.10	3.90	5.40	10.20	4.20	3.90	5.40	10.00	4.20	
3/4"	2.00	3.20	1.38	4.70	2.40	0.79	6.50	6.50	8.90	2.50	5.00	2.30	2.80	7.50	2.60	4.60	6.40	11.30	5.20	4.60	⁻²	11.20	5.10	
1"	2.00	3.20	1.38	4.70	2.40	0.98	6.80	6.80	9.40	2.50	5.00	2.30	2.80	7.70	2.60	4.60	6.60	11.40	5.20	4.60	6.60	11.40	5.20	
1-1/4" ³	2.90	4.20	1.99	6.40	3.20	1.26	8.80	8.80	11.60	3.30	6.70	3.10	3.90	9.70	3.50	6.30	8.70	13.60	7.00	6.20	⁻²	13.40	7.00	
1-1/2"	2.90	4.20	1.99	6.40	3.20	1.57	9.20	9.20	12.50	3.40	6.70	3.10	3.90	10.10	3.60	6.30	9.00	14.00	7.20	6.20	9.00	13.80	7.10	
2"	3.30	4.60	2.45	7.10	3.30	1.97	10.60	10.60	14.00	3.80	7.60	3.50	4.70	11.40	4.10	7.00	10.40	15.10	8.20	6.90	10.30	15.10	8.10	

¹ Solvent welded flanges. Dimensions may vary. Consult Chemline before ordering.

² Consult Chemline.

³ 1-1/2" reduced to 1-1/4".

Type 33 Multiport Ball Valve

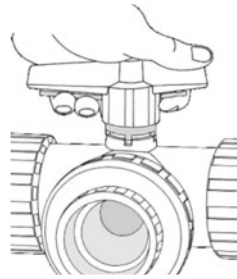


NET WEIGHT LBS.

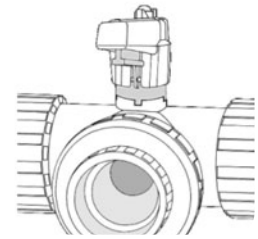
C_v VALUES

Size	End Connections			USGPM Flow at 1 psi ΔP	
	Socket			T Port	L Port
	PVC	PP	PVDF	(Standard)	(Optional)
3/8"	1.3	0.5	1.0	12	5
1/2"	1.3	0.5	1.0	14	6
3/4"	1.5	1.0	1.8	25	15
1"	1.5	1.1	1.9	36	18
1-1/4"	3.9	2.7	4.7	78	39
1-1/2"	4.0	2.8	4.8	88	42
2"	5.6	4.1	7.5	135	65

SAFETY LOCK HANDLE SYSTEM



- Squeeze trigger to move handle
- Handle cannot be moved accidentally



- Handle locks valve in each 90° position
- Padlockable

VACUUM RATING • 29.9 inches mercury

WORKING PRESSURES PSI

Size	PVC			PP				PVDF					
	0 to 25°C 32 to 77°F	40°C 104°F	60°C 140°F	0 to 30°C 32 to 86°F	50°C 122°F	60°C 140°F	80°C 176°F	0 to 35°C 32 to 95°F	40°C 104°F	60°C 140°F	80°C 176°F	100°C 212°F	120°C 248°F
3/8" to 2"	230	150	40	150	75	60	35	230	200	140	100	75	50

Temperature Ranges: PVC 0 to 60°C (32 to 140°F), PP -20 to 80°C (-4 to 176°F), PVDF -40 to 120°C (-40 to 248°F)

SAMPLE SPECIFICATION

1. All PVC ball valves 1/2" to 2" will be Chemline Type 33 True Union or equal.
2. PVC valves with EPDM or FKM (Viton®) seals will be 230 psi rated, suitable for temperatures up to 60°C/140°F.¹
3. Polypropylene valves with EPDM or FKM (Viton®) seals will be 150 psi rated, suitable for temperatures up to 80°C/176°F.¹
4. PVDF valves with FKM (Viton®) seals will be 230 psi rated, suitable for temperatures up to 120°C/228°F.¹
5. Manual valves will have horizontal third port design, allowing the option of straight through flow through the left and right ports using the standard T-Port ball.
6. Actuated valves will have the optional L-Port ball for 90 degree operation.
7. All ports will have threaded-in seat carriers, three-way blocking design.
8. Valves will have blowout-proof stems with double o-rings for safety.
9. Ball seats will be PTFE with elastomer cushions for and better sealing at low pressures and longer life.
10. Handle will be *Safety Lock* type, holding the valve in each 90 degree position requiring manual squeezing of trigger to move the handle.
11. Handle will be lockable with padlock in any valve position.
12. Handle will have a built-in spanner wrench for adjustment or removal of the seat carrier.
13. PVC Socket ends shall be Schedule 80 and conform to ASTM D-2467.
14. Threaded ends shall be Schedule 80 and conform to ASTM D-2464.
15. PP or PVDF Butt or Socket fusion ends in will be compatible with Chemline PP or PVDF metric piping systems.
16. Flanged ends shall be ANSI Class 150.
17. Every valve will undergo a factory hydrostatic pressure test to assure quality.

¹ At maximum temperatures, pressure ratings are lower than the maximums stated. Refer to the Chemline data sheet.

ORDERING EXAMPLE

Chemline Type 33 Multiport Ball Valves	33	A	015	E	S
Body Material	A – PVC	B – PP	K – PVDF		
Size	003 – 3/8"	005 – 1/2"	007 – 3/4"	010 – 1"	012 – 1-1/4"
	015 – 1-1/2"	020 – 2"			
Seals	E – EPDM	V – FPM (Viton®)			
Ends	S – Socket	T – Threaded	F – Flanged	B – Butt ²	
Ball Type	Blank – T-Port	L – L-Port			

OPTIONS & ACCESSORIES

- **L-Port Ball** – For actuation with 90° operation
- **Electrically or Pneumatically Actuated**

Example: Chemline Type 33 Multiport Ball Valve, standard T-Port, PVC, 1-1/2", with EPDM seals, socket ends. ²PP, PVDF and ECTFE (Halar®) metric butt fusion ends connect to Chemline PP, PVDF and ECTFE (Halar®) piping systems.

Type 33.DS.09.15.23

Type 33 Multiport Ball Valve



Electric Actuation

Refer to actuator data page for detailed information

All electric actuators have these STANDARD FEATURES:

- Polyamide plastic housings or covers – corrosion resistant and light weight
- NEMA 4X/IP65 water resistance enclosure rating
- CSA Approved or Special Inspection labelled
- Reversible operation
- Multi-voltage operation
- Standard ISO 5211 mounting dimensions
- Irreversible gearing – backlash is impossible



ER Series



VS Series



Local Remote Control Switch Box

- Adjustable travel through the full range
- No maintenance is required
- Heater/thermostats for humid locations and cold weather operation
- Two extra switches for valve position feedback

Electric Actuator Selection

Model	ERS Series	ER Series	ERF Series	V Series
FEATURES	STANDARD	FULL FEATURE	FAST ACTING	HIGHER TORQUE
Type 33 valve sizes	3/8" to 2"	3/8" to 2"	3/8" to 2"	3/8" to 2"
Voltage	120/240 VAC	120/240 VAC 12/24 VDC 24 VAC	12 VAC/VDC 24 VAC/VDC	120/240 VAC 12/24 VDC 24 VAC
Cycle Time sec/90°	12	12	6 3.5	30
Duty Cycle	50%	80%	30%	80%
CSA	Special Inspection Label	Approved	Special Inspection Label	Approved
ON/OFF Control	3-Wire/2-Wire	3-Wire/2-Wire	3-Wire/2-Wire	3-Wire/2-Wire
Gear Train	Spur Gears	Spur Gears	Spur Gears	Epicyclic
Mechanical Travel Stops	Fixed	Fixed	Fixed	Adjustable
DIN Plug Wiring Connectors	✓	✓	✓	✗
Two Position Feedback Switches	✓	✓	✓	✓
Valve Position Indicator	Knob	Knob	Knob	Dome
Manual Override	Declutching	Declutching	Declutching	Without Declutching
Override Device	Knob	Knob	Knob	Hand Wheel
Operating Temperature Range	-10 to 60C (15 to 140°F)	-10 to 60C (15 to 140°F)	-10 to 60C (15 to 140°F)	-20 to 70C (-4 to 158°F)
Onboard Electronic Torque Limiter	✗	✓	✗	✓
Onboard General Fault Relay	✗	✓	✗	✓
Onboard Diagnostics	✗	✓	✗	✓
ENCLOSURE OPTIONS				
Metal Cover for IP68 Rating	✗	✗	✗	✓
Low Temperature Option	✗	✗	✗	-50 to 70C (-58 to 158°F)
POSITION FEEDBACK OPTIONS				
Position Feedback Potentiometer	✓	✓	✓	✓
Transmitter	✓	✓	✓	✓
Extra Limit Switches ¹	✓	✓	✓	✓
CONTROL OPTIONS				
Digital Positioner	✗	✓	✗	✓
Failsafe Internal Battery Pack	✗	✓	✗	✓
Local/Remote Control Switch Box	✓	✓	✓	✓
MODBUS Module	✗	✓	✗	✓
Bluetooth Control	✗	✓	✗	✓

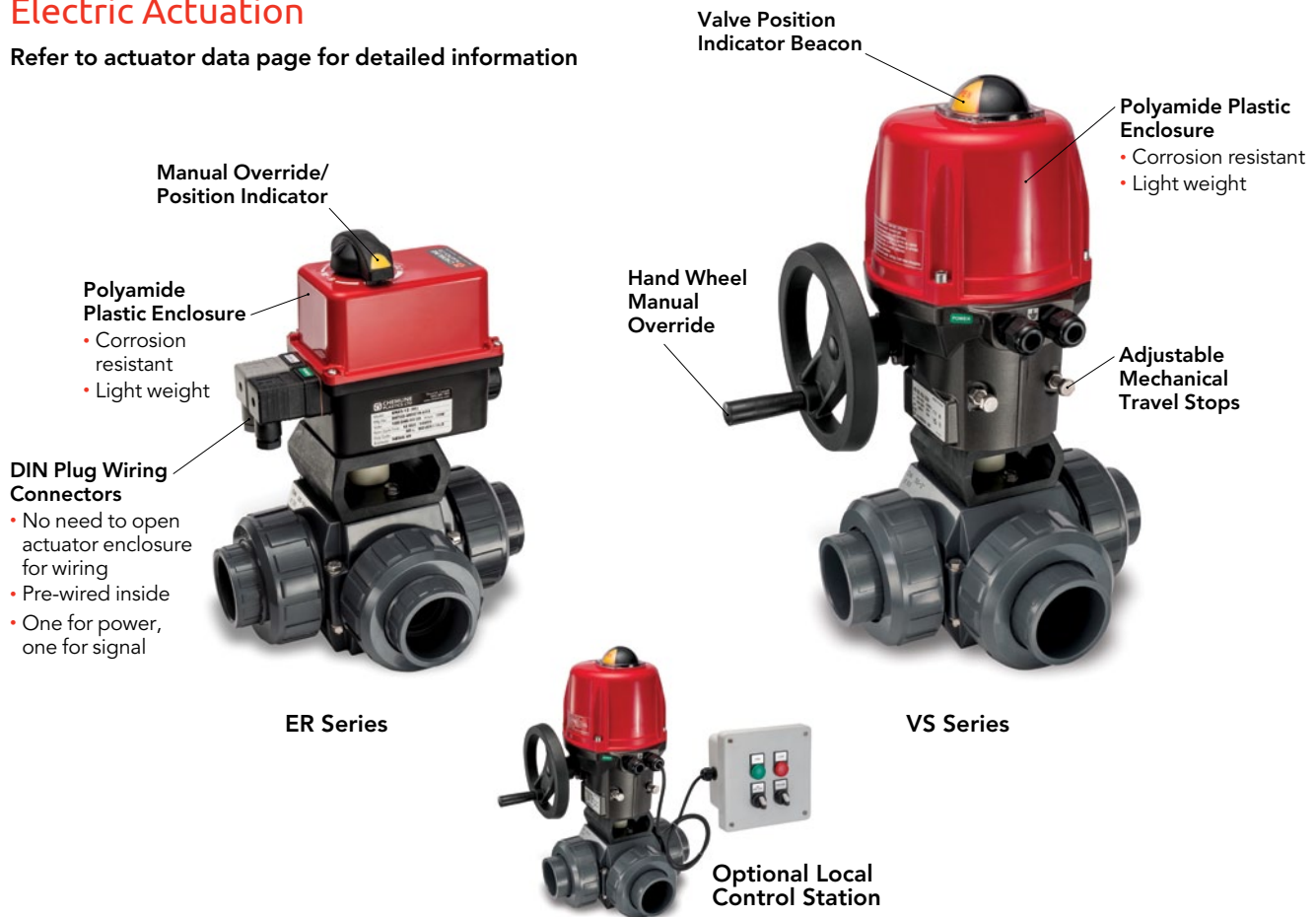
¹ 2 feedback switches are already supplied as standard

Type 33 Multiport Ball Valve



Electric Actuation

Refer to actuator data page for detailed information



Electric Actuation Item Numbers

Item numbers are for actuators including mounting to valve and bench testing

Model	ERS Series				ERF Series			
	Max. Line Pressure (psi)	Cycle Time/90°	120/240 VAC (50/60 Hz) Item No.	12/24 VDC & 24 VAC (50/60 Hz) Item No.	Max. Line Pressure (psi)	Cycle Time/90°	12 VAC/VDC (50/60 Hz) Item No.	24 VAC/VDC (50/60 Hz) Item No.
3/8"	230	12 sec	33003-ERS20.12	33003-ERS20.346	150	30 sec	33003-ERF20.35	33003-ERF20.46
1/2"	230	12 sec	33005-ERS20.12	33005-ERS20.346	150	30 sec	33005-ERF20.35	33005-ERF20.46
3/4"	230	12 sec	33007-ERS20.12	33007-ERS20.346	150	30 sec	33007-ERF20.35	33007-ERF20.46
1"	230	12 sec	33010-ERS20.12	33010-ERS20.346	150	30 sec	33010-ERF20.35	33010-ERF20.46
1-1/4"	230	12 sec	33012-ERS20.12	33012-ERS20.346	150	30 sec	33012-ERF20.35	33012-ERF20.46
1-1/2"	230	12 sec	33015-ERS20.12	33015-ERS20.346	150	30 sec	33015-ERF20.35	33015-ERF20.46
2"	230	12 sec	33020-ERS20.12	33020-ERS20.346	150	30 sec	33020-ERF20.35	33020-ERF20.46

Model	ER Series				V Series			
	Max. Line Pressure (psi)	Cycle Time/90°	120/240 VAC (50/60 Hz) Item No.	12/24 VDC & 24 VAC (50/60 Hz) Item No.	Max. Line Pressure (psi)	Cycle Time/90°	120/240 VAC (50/60 Hz) Item No.	12/24 VDC & 24 VAC (50/60 Hz) Item No.
3/8"	230	12 sec	33003-ER20.12	33003-ER20.346	150	30 sec	33003-VS150.12	33003-VS150.346
1/2"	230	12 sec	33005-ER20.12	33005-ER20.346	150	30 sec	33005-VS150.12	33005-VS150.346
3/4"	230	12 sec	33007-ER20.12	33007-ER20.346	150	30 sec	33007-VS150.12	33007-VS150.346
1"	230	12 sec	33010-ER20.12	33010-ER20.346	150	30 sec	33010-VS150.12	33010-VS150.346
1-1/4"	230	12 sec	33012-ER20.12	33012-ER20.346	150	30 sec	33012-VS150.12	33012-VS150.346
1-1/2"	230	12 sec	33015-ER20.12	33015-ER20.346	150	30 sec	33015-VS150.12	33015-VS150.346
2"	230	12 sec	33020-ER20.12	33020-ER20.346	150	30 sec	33020-VS150.12	33020-VS150.346

Type 33 Multiport Ball Valve



Electric Actuation

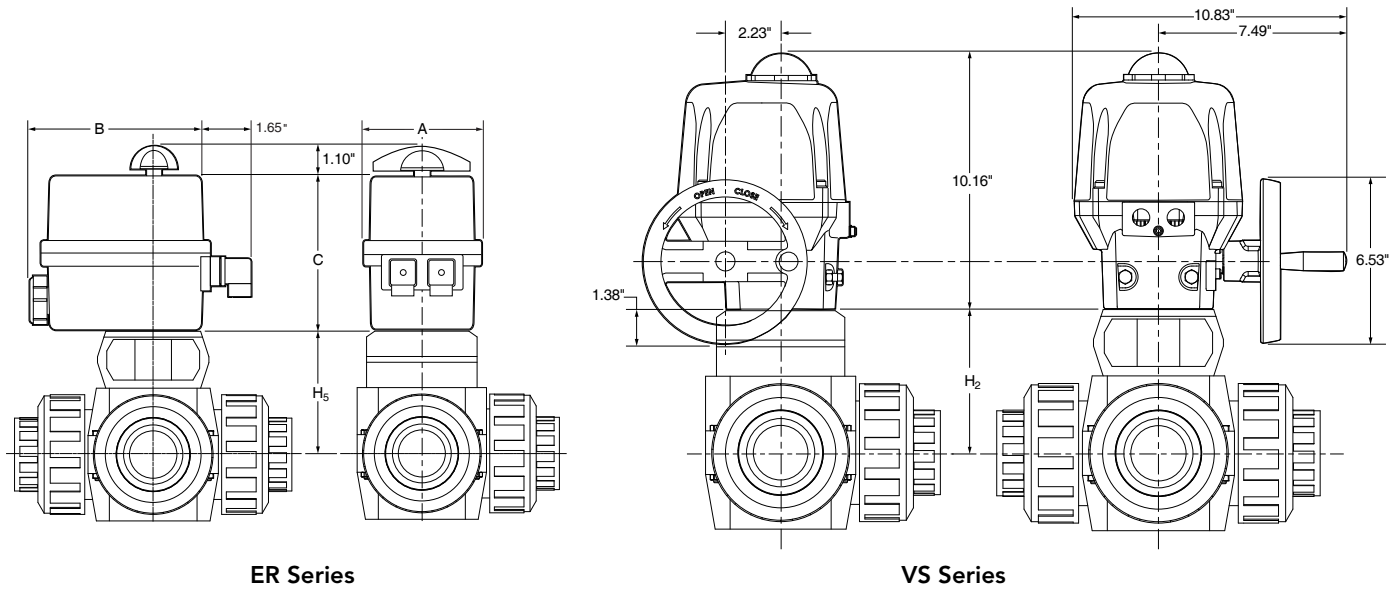
Refer to actuator data page for detailed information



ER Series



VS Series

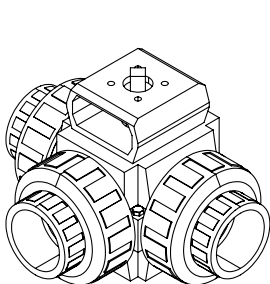


ER Series

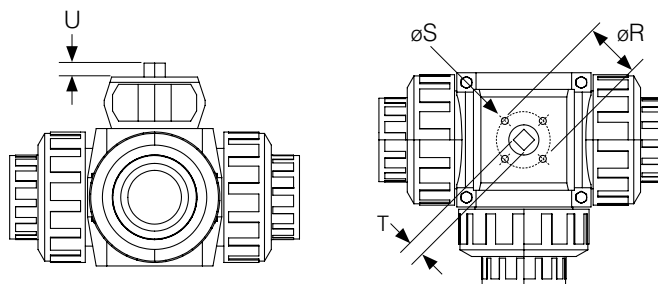
VS Series

DIMENSIONS INCHES

Size	A	B	C	H ₂	ISO 5211 Topworks					
					R			S	T	U
					inches	mm	ISO			
3/8"	3.62	5.34	4.88	2.80	1.65	42	F04	0.217	0.433	0.433
1/2"	3.62	5.34	4.88	2.80	1.65	42	F04	0.217	0.433	0.433
3/4"	3.62	5.34	4.88	3.31	1.65	42	F04	0.217	0.433	0.433
1"	3.62	5.34	4.88	3.19	1.65	42	F04	0.217	0.433	0.433
1-1/4"	3.62	5.34	4.88	4.29	1.97	50	F05	0.256	0.551	0.511
1-1/2"	3.62	5.34	4.88	4.09	1.97	50	F05	0.256	0.551	0.511
2"	3.62	5.34	4.88	4.41	1.97	50	F05	0.256	0.551	0.511



Actuator Mounting Kit



Top Mounting Dimensions

Type 33 Multiport Ball Valve



Pneumatic Actuation

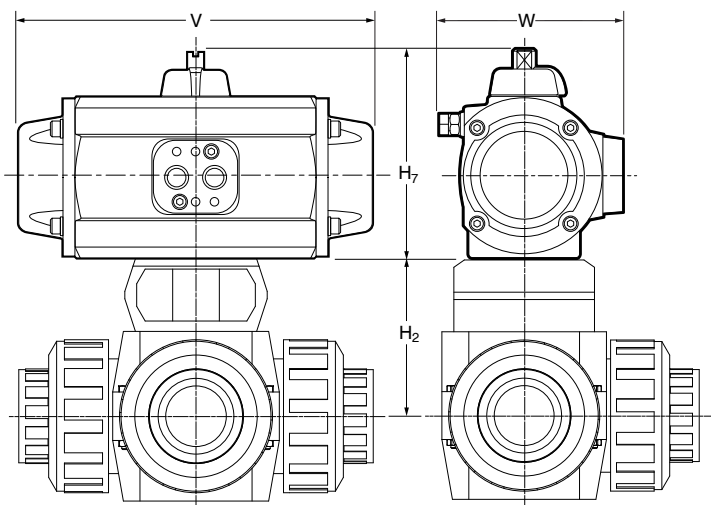
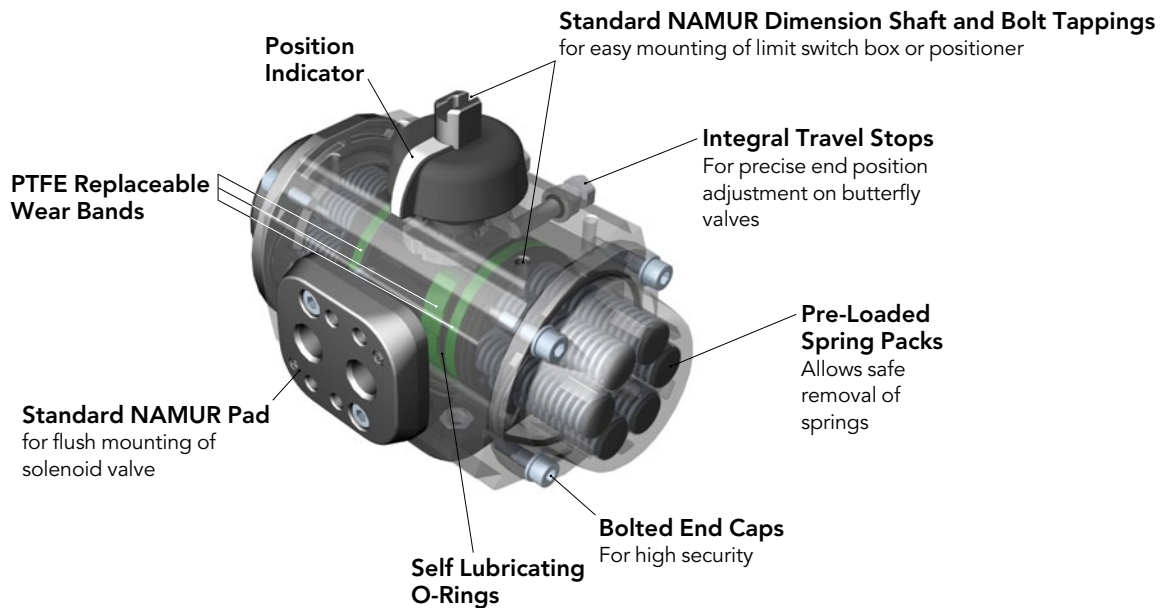
Refer to actuator data page for detailed information

All pneumatic actuators have these STANDARD FEATURES:

- Aluminum rack and pinion type
- Coating is two-part epoxy/Rilsan polyamide, applied inside and out. Epoxy offers high chemical resistance and Rilsan offers coating durability.
- Rated for over one million cycles
- ISO standard valve mounting dimensions allow for direct mounting of most valves
- Mechanical travel stops are standard. They allow up to 5 degrees of piston travel adjustment
- Standardized accessories (solenoid valves, limit switch boxes, positioners) may be direct mounted



PA Series



DIMENSIONS INCHES

Size	H ₂	Double Acting			Spring Return		
		H ₁	V	W	H ₁	V	W
3/8"	2.80	3.52	5.52	3.00	3.52	5.52	3.00
1/2"	2.80	3.52	5.52	3.00	3.52	5.52	3.00
3/4"	3.31	3.52	5.52	3.00	3.52	5.52	3.00
1"	3.19	3.52	5.52	3.00	3.52	5.52	3.00
1-1/4"	4.29	3.52	5.52	3.00	4.38	6.00	3.31
1-1/2"	4.09	3.52	5.52	3.00	4.38	6.00	3.31
2"	4.41	3.52	5.52	3.00	5.05	7.91	4.00

For actuator sizes based on normal 80 psi available air supply

Type 33 Multiport Ball Valve



Pneumatic Actuation

Refer to actuator data page for detailed information.

Pneumatic Actuation Item Numbers

Item numbers are for actuators including mounting to valve and bench testing. Actuators are sized for "normal" service. For gas, vapour or severe chemical service, consult Chemline.



PA Series

Double Acting

Valve Size	Max. Line Pressure (psi)	Air Supply Pressure (psi)		
		60	80	100
		Item No.	Item No.	Item No.
3/8"	230	33003-PADW	33003-PADW	33003-PADW
1/2"	230	33004-PADW	33004-PADW	33004-PADW
3/4"	230	33007-PADW	33007-PADW	33007-PADW
1"	230	33010-PADW	33010-PADW	33010-PADW
1-1/4"	230	33012-PADW	33012-PADW	33012-PADW
1-1/2"	230	33015-PADW	33015-PADW	33015-PADW
2"	230	33020-PADW	33020-PADW	33020-PAD00

Spring Return

Valve Size	Max. Line Pressure (psi)	Air Supply Pressure (psi)		
		60	80	100
		Item No.	Item No.	Item No.
3/8"	230	33003-PASW	33003-PASW	33003-PASW
1/2"	230	33004-PASW	33004-PASW	33004-PASW
3/4"	230	33007-PAS05	33007-PASW	33007-PASW
1"	230	33010-PAS05	33010-PASW	33010-PASW
1-1/4"	230	33012-PAS05	33012-PAS00	33012-PAS00
1-1/2"	230	33015-PAS05	33015-PAS00	33015-PAS00
2"	230	33020-PAS05	33020-PAS05	33020-PAS00

Accessories



Solenoid Valves

- Solenoid valves are electrically actuated. They control air supply in and out of the actuators to open or close the valve. They bolt flush onto the actuator.



Positioners

- Positioners control actuator-valve position responding to a control signal. They are either 3-15 psi pneumatic, 4-20 mA electro-pneumatic or 4-20 mA Smart (fully digital with intelligent functions).



Limit Switches

- Limit switches are for ON and/or OFF valve position feedback. They feature a valve position indicator dome with high visibility. The standard NEMA 4X/IP65 version has mechanical switches. Explosion proof versions are available.



End Cap Travel Stops

- These are to adjust the full length of piston travel but for only one direction of travel - either open for a normally closed valve or closed position for a normally open valve



Travel Stop Plate

- This is required to reduce end of travel by more than 5 degrees. It allows independent adjustment of the full length of piston travel for both opening and closing strokes.



Declutchable Gear Override

- This allows manual operation of the actuated valve in case the supply air pressure fails. It is normally disengaged. To engage, press the lever bar down.

Type 33.DS.09.15.23