

Type 21 True Union Ball Valves



SERIES: Type 21

SIZES: 3/8" to 4"

ENDS: Socket, Threaded, Flanged, Butt¹ or ChemFlare™

SEATS: PTFE

SEALS: EPDM or FKM (Viton®)



The Chemline **Type 21** True Union Ball valve is a full port, blocking valve pressure rated at 16 bar (230 psi)². Double stem o-rings provide for a high degree of safety on hazardous fluid applications. All sizes have an ISO standard actuator mounting platform for mounting of pneumatic or electric actuators.

Features

Pressure rated to 230 psi²

- Provides a high factor of safety

Integral Actuator Mounting Platform

- Actuation is easy. Electric or pneumatic actuators may be mounted in the field.

Full Port

- High capacity and low pressure drops

Fully Blocking

- Downstream union nut may be safely disassembled for piping maintenance while valve is closed off under full system pressure

Built-In Spanner Wrench

- Top of the handle is designed to be used as a tool for accessing internal parts

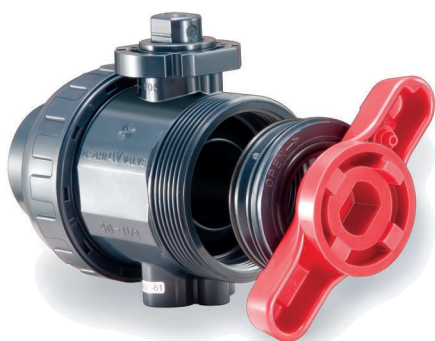
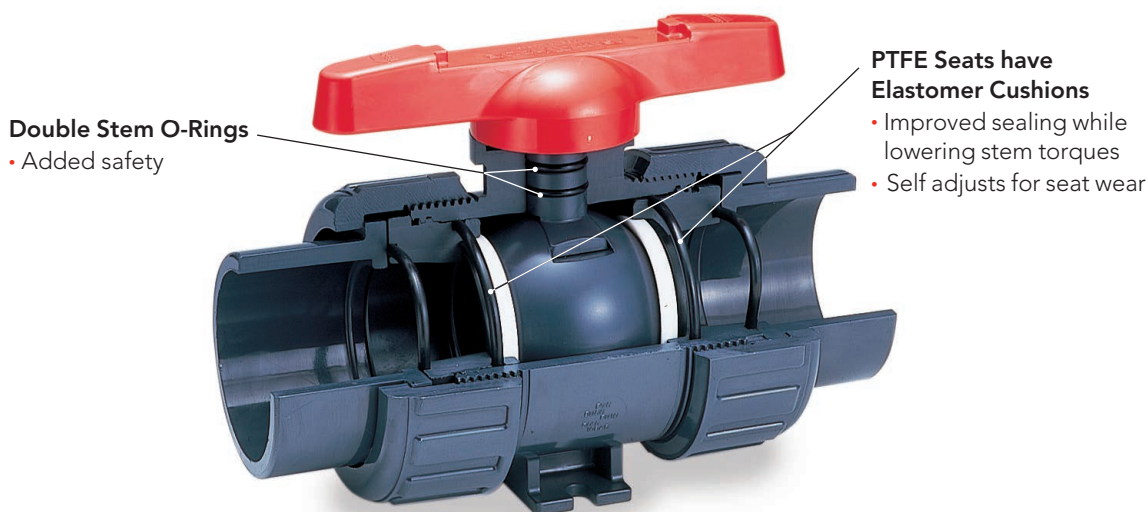
¹Butt ends for fusion to Chemline metric PP, PVDF or ECTFE (Halar®) piping

²PVC, CPVC and PVDF 1/2" to 2" are rated at 230 psi; 2-1/2" to 4" and all size PP valves are rated at 150 psi at 20°C

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Features



Built in Spanner Wrench

- For removing or tightening the seat carrier
- All parts are replaceable



Integral Actuator Mounting Platform

- Actuation is easy. Electric or pneumatic actuators may be mounted in the field.



Fully Blocking

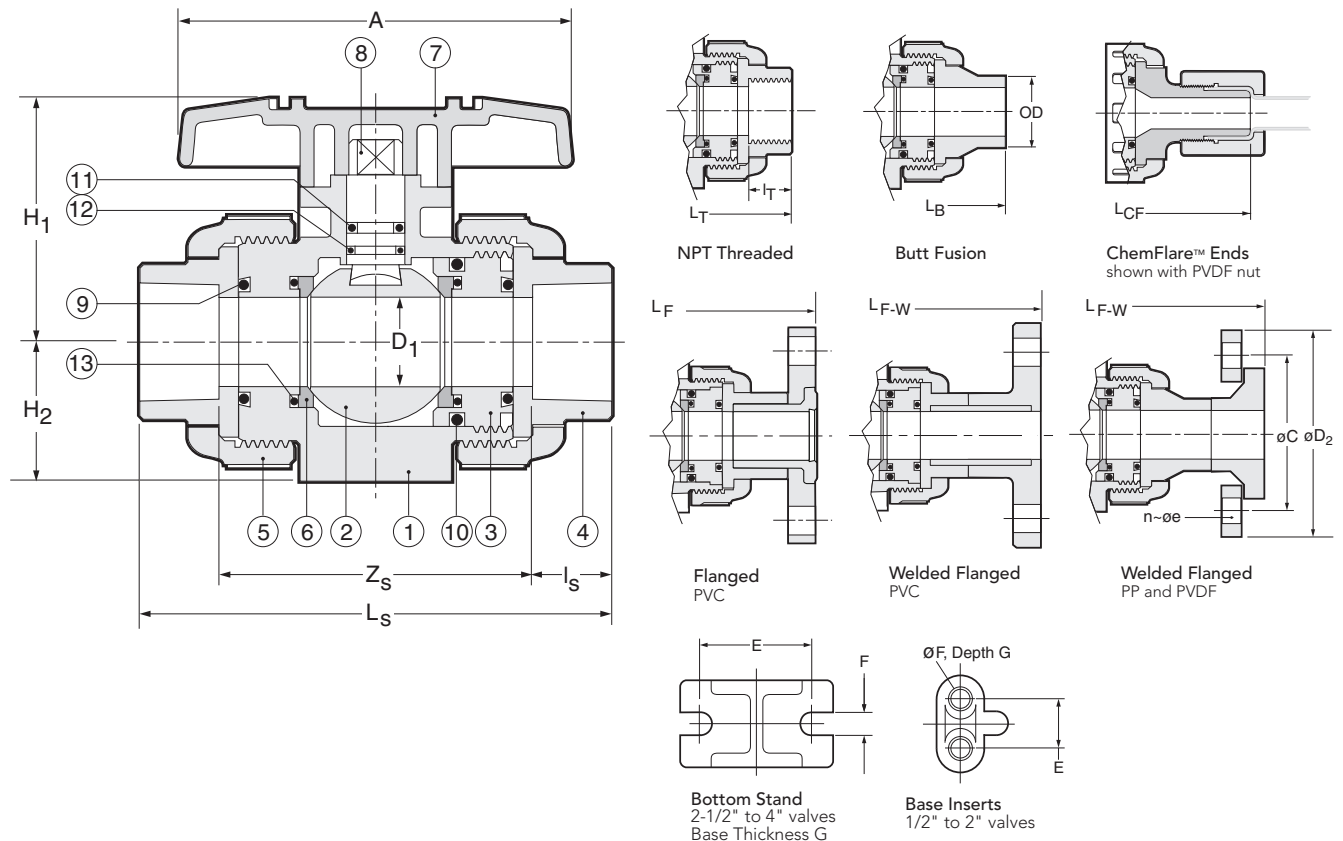
- Downstream pipe may be removed while upstream side is still pressurized. This may be done with valve installed in either direction.



Base Mounting Pad

- Optional threaded inserts allow valves to be securely anchored
- Supplied standard with actuated valves

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PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	Carrier ¹	1/2	PVC, CPVC, PP, PVDF
4	End Connector	2	PVC, CPVC, PP, PVDF
5	Union Nut	2	PVC, CPVC, PP, PVDF
6▲	Ball Seat	2	PTFE
7	Handle	1	ABS

¹ 1 carrier for sizes 1/2" to 2", 2 carriers for sizes 2-1/2" to 4"

² EPDM seals standard with PVC, CPVC, PP; FKM (Viton®) with PVDF valves

PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials
8	Stem	1	PVC, CPVC, PP, PVDF
9▲	Face O-Ring ²	2	EPDM, FKM (Viton®)
10▲	Carrier O-Ring ¹	2	EPDM, FKM (Viton®)
11▲	Upper Stem O-Ring ²	1	EPDM, FKM (Viton®)
12▲	Lower Stem O-Ring ²	1	EPDM, FKM (Viton®)
13	Seat Cushion ²	2	EPDM, FKM (Viton®)

DIMENSIONS INCHES

					End Connections																	Valve Base				
					Socket					Threaded					Flanged				Butt						ChemFlare™	
															Welded											
															PVC	PVC/CPVC	PP ⁴	PVDF ⁴								
Size	Bore	A	H ₁	H ₂	L _S	Z _S	I _S	I _T	L _T	L _F	L _{F-W} ⁵	L _{F-W}	L _{F-W}	D ₂	C	n	e	L _B	OD	L _{CF}	Tube	E	F ⁶	G		
1/2"	.59	3.6	2.03	1.14	4.45	2.70	.875	.64	4.02	5.5	6.57	8.66	8.51	3.50	2.38	4	.62	4.88	.79	6.12	1/2"	.75	.29	.43		
3/4"	.79	3.9	2.34	1.38	5.08	3.08	1.00	.65	4.72	6.2	7.46	9.45	9.30	3.88	2.75	4	.62	5.67	.98	6.52	3/4"	.75	.29	.43		
1"	.98	4.3	2.68	1.54	5.75	3.50	1.13	.81	5.16	7.0	8.38	9.69	9.69	4.25	3.12	4	.62	6.06	1.26	7.26	1"	.75	.29	.43		
1-1/4"	1.22	4.8	3.17	1.85	6.46	5.21	1.25	.85	5.91	—	9.27	10.63	10.48	4.62	3.50	4	.62	6.85	1.57	—	—	1.18	.35	.59		
1-1/2"	1.57	5.2	3.50	2.17	7.24	4.49	1.38	.85	6.42	8.8	10.55	11.50	11.27	5.00	3.88	4	.62	7.64	1.97	—	—	1.18	.35	.59		
2"	2.01	6.3	4.02	2.60	8.23	5.23	1.50	1.90	7.76	9.9	11.67	12.45	12.45	6.00	4.75	4	.75	8.82	2.48	—	—	1.18	.35	.59		
2-1/2"	2.28	7.87	4.96	2.83	9.45	5.95	1.75	1.21	8.46	—	13.95	13.39	13.35	7.00	5.49	4	.75	9.72	2.95	—	—	1.89	.35	.23		
3"	2.70	9.45	5.51	3.35	11.10	7.35	1.88	1.30	10.39	13.1	15.73	17.76	17.60	7.50	6.00	4	.75	11.61	3.54	—	—	2.17	.43	.28		
4"	3.54	11.81	7.01	4.33	13.88	9.87	2.00	1.38	14.17	16.2	18.82	20.91	20.75	9.00	7.50	8	.75	14.76	4.33	—	—	2.56	.43	.32		

⁴ PVDF and PP butt welded flanged valves have stub ends and PP backing rings. Dimensional tolerance is +/- 0.08".

⁵ PVC and CPVC flanged valves are solvent cemented. "L" dimension may vary. Consult Chemline at time of ordering.

⁶ Optional threaded inserts: 1/2" to 1" valves – UNC 1/4"-20; 1-1/4" to 2" valves – UNC 5/16"-18

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WORKING PRESSURES PSI, Water, Non-Shock

VACUUM RATING • 29.9 inches mercury

Size	PVC			CPVC						PP			PVDF				
	20°C 68°F	40°C 104°F	50°C 122°F	20°C 68°F	40°C 104°F	50°C 122°F	60°C 140°F	80°C 176°F	90°C 194°F	20°C 68°F	60°C 140°F	80°C 176°F	20°C 68°F	40°C 104°F	60°C 140°F	80°C 176°F	100°C 212°F
1/2" – 2"	230	165	150	230	165	150	120	75	55	150	85	55	230	185	150	110	85
2-1/2" – 4"	150	150	150	150	150	150	120	75	55	150	70	40	150	150	150	110	85

Temperature Ranges: **PVC** 0 to 50°C (32 to 122°F), **CPVC** 0 to 90°C (32 to 194°F), **PP** –20 to 80°C (–4 to 176°F), **PVDF** –20 to 100°C (–20 to 212°F)

WEIGHTS LB. THREADED or SOCKET

WEIGHTS LB. FLANGED

Cv VALUES VS. BALL ANGLE

Size	PVC	CPVC	PP	PVDF	PVC	CPVC	PP	PVDF
1/2"	0.4	0.4	0.4	0.4	0.9	0.9	0.7	1.1
3/4"	0.7	0.7	0.7	0.9	1.3	1.5	1.1	1.5
1"	0.9	1.1	0.9	1.1	1.8	2.0	1.5	2.2
1-1/4"	1.5	1.5	1.3	1.8	2.6	2.9	2.0	3.3
1-1/2"	2.4	2.6	1.5	2.9	3.7	4.0	2.6	4.4
2"	4.0	4.4	2.6	4.9	5.5	6.0	4.0	8.2
2-1/2"	5.1	5.5	3.7	6.2	7.3	7.7	5.3	8.8
3"	8.2	8.8	5.5	9.9	10.1	11.0	7.5	12.6
4"	19.4	21.8	13.2	24.9	21.6	23.4	15.4	26.7

Size	0%	25%	50%	75%	100%
1/2"	0	0.35	1.3	5.5	14.
3/4"	0	0.73	2.8	11.5	29.
1"	0	1.2	4.5	18.6	47.
1-1/4"	0	1.8	6.8	28.4	72.
1-1/2"	0	3.9	14.7	61.2	155.
2"	0	4.8	18.0	75.0	190.
2-1/2"	0	9.1	34.7	144.0	365.
3"	0	10.2	39.0	162.0	410.
4"	0	17.0	64.6	269.0	680.

ORDERING EXAMPLE

Chemline Type 21 True Union Ball Valves		21	A	005	E	S
Body Material	A – PVC B – PP	C – CPVC K – PVDF				
Size ¹	005 – 1/2" 007 – 3/4" 010 – 1" 012 – 1-1/4" 015 – 1-1/2" 020 – 2" 025 – 2-1/2" 030 – 3" 040 – 4"					
Seals	E – EPDM V – FKM (Viton®)					
Ends	S – Socket T – Threaded F – Flanged F-W – Welded Flanged B – Butt ¹					

Example: Chemline Type 21 True Union Ball Valve, PVC, 1/2", with EPDM seals, socket ends.

¹ PP, PVDF and ECTFE (Halar®) metric butt fusion ends (1/2" to 4") connect to Chemline PP, PVDF and ECTFE (Halar®) piping systems

Type 21.DS.08.15.25