



# ***Durco T4E Lined Plug Valves***

*Fluoropolymer Lined Valves*



*Experience In Motion*

## ***History***

*Flowserve Durco T4E valves have been designed and developed with the latest technology and are the most preferred fluoropolymer lined valves in the global chemical industries.*

*Durco T4E valves provide maximum corrosion resistance and the elimination of product contamination at a reasonable cost.*

### ***Available in a Broad Size Range and***

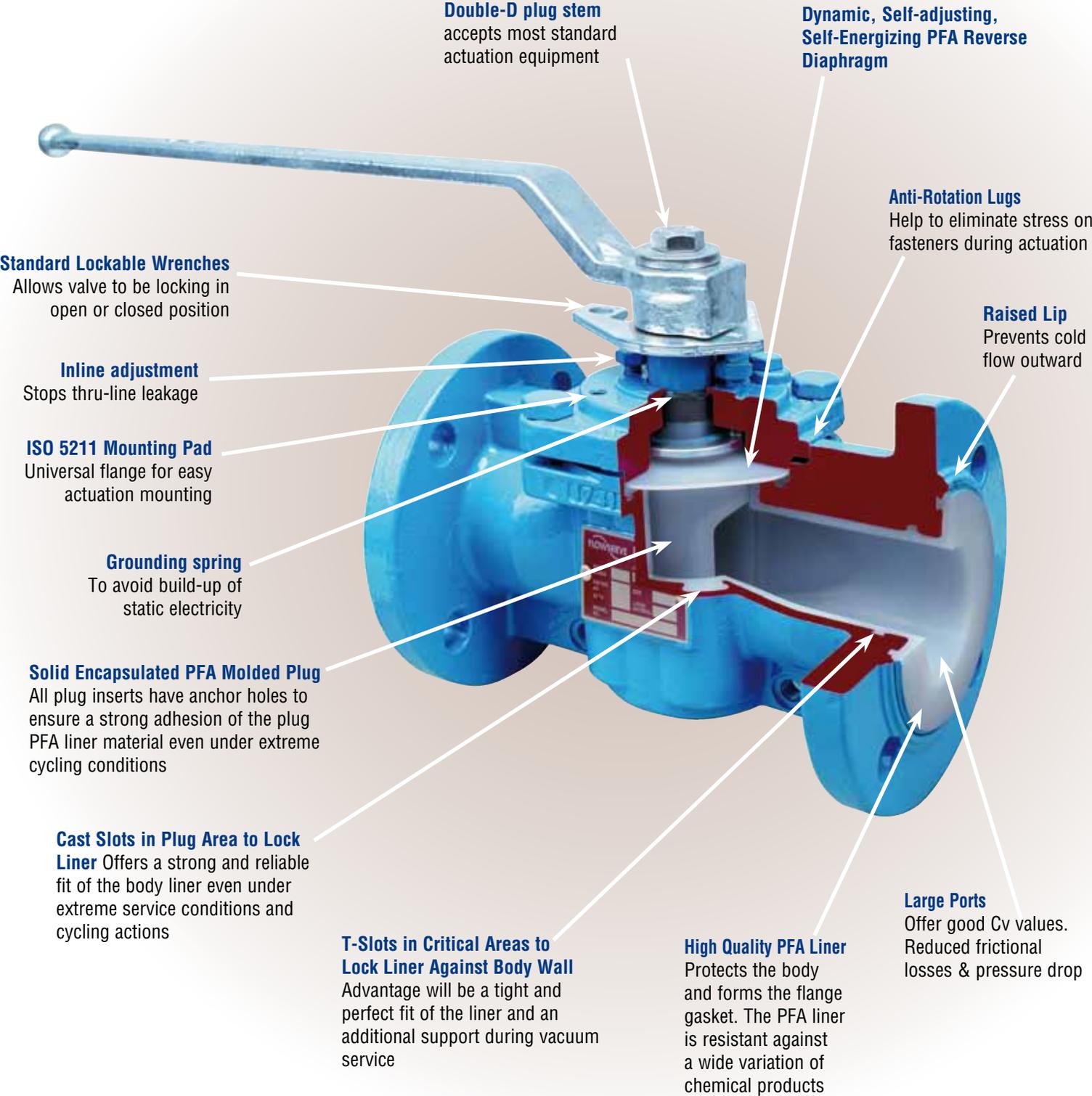
- *T4E1 ASME Class 150 is available in sizes ½" through 12"*
- *T4E3 ASME Class 300 is available in sizes ½" through 10"*

### ***Extended Pressure Classes***

- *T4E1 rated 180 psi @ 400 °F, 250 psi @ 100 °F*
- *T4E3 rated 320 psi @ 400 °F, 740 psi @ 100 °F*

*Available with pneumatic or electric actuators for On-Off or modulating control applications. All T4E valve series are rated to 30 inches Hg vacuum at ambient temperature.*

# Features

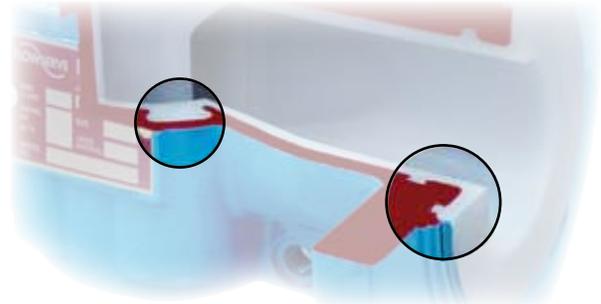


## Additional Benefits

*Benefits that give you the extra security which you will appreciate when using the T4E1 and T4E3 valves*

### Body Liner

- A perfectly fixed PFA body liner is well anchored to the body by means of machined and cast T-slots. The plug substrate has anchor holes to ensure that the PFA liner material is securely attached to the plug.
- Due to the selected mode to lock the liner to the valve body and plug, the T4E valve series is very suitable for extreme service conditions including vacuum applications at elevated temperatures.
- The PFA body liner covers all wetted surfaces in the body.
- Due to its large sealing surface a tight shut-off is assured.
- In addition to the large seating area the valve is fully bi-directional and the seal is totally independent of line pressure.

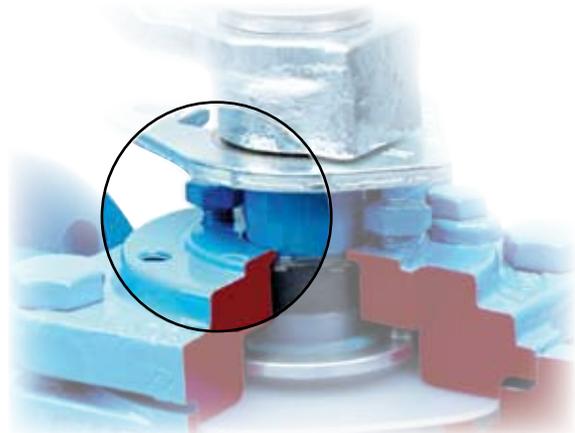


### In-Line Adjustment

- No disassembly required to restore seating; plug can be reseated with a quick and easy in-line adjustment.
- An open end wrench and a few seconds are the extent of your maintenance requirements.

There are:

- No seats to replace
- No lengthy production disruption
- No piping disconnection
- No complicated, time-consuming maintenance procedures
- No hazards to personnel

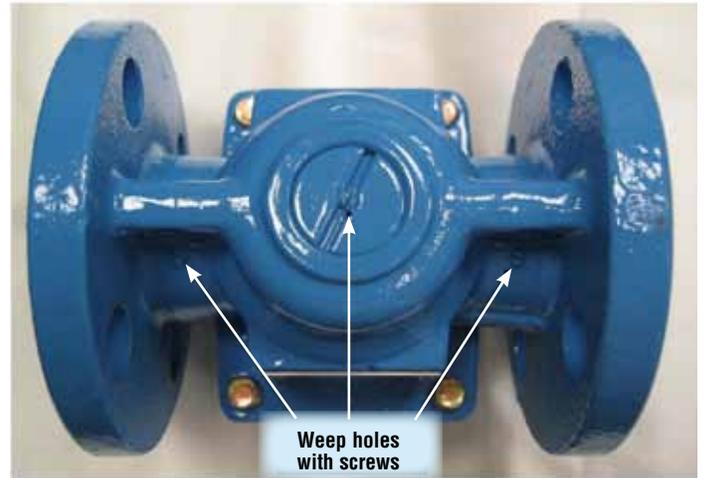
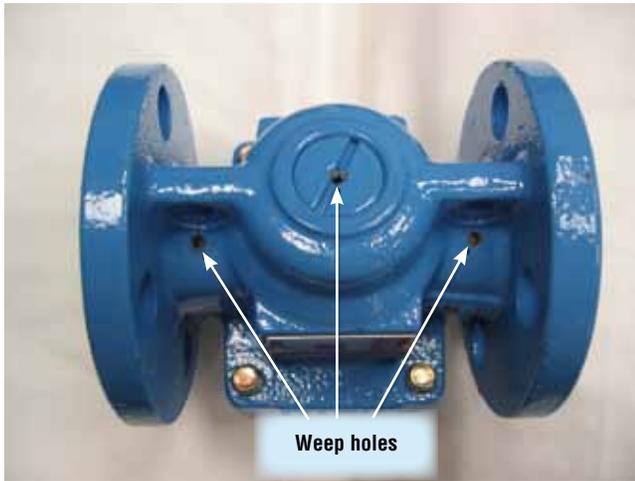


### Secure Sealing

- A dynamic self-adjusting, self energized reverse lip PFA diaphragm seal prevents stem leakage.
- If line pressure forces liquid to the stem seal area, the self-energizing reverse lip PFA diaphragm will be forced against the stem to prevent external leakage.
- A sealing surface as much as 10x greater than other lined valves assures drop tight shut-off.
- In addition to the large sealing area, sealing is both upstream and downstream and is totally independent of line pressure.



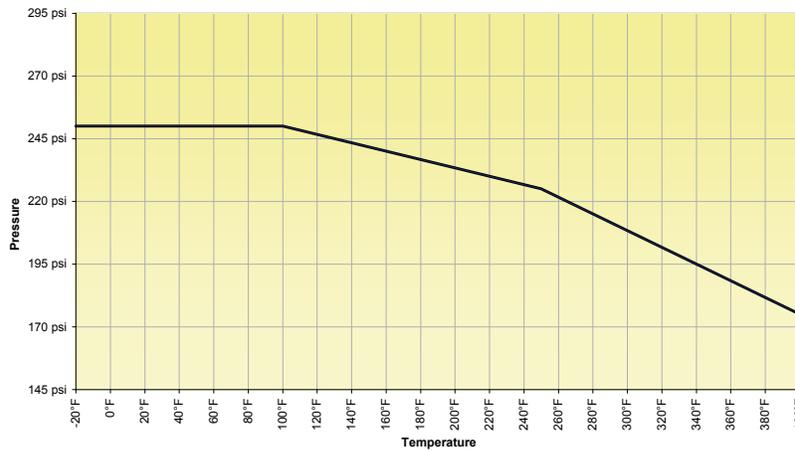
## Weepholes



### Weepholes for early leakage detection

Durco T4E valves are supplied with three weepholes that are plugged with screws. The customer has the option to remove the screws. In so doing he is able to detect any leakage of process fluid through the liner and to take appropriate action.

### Pressure-Temperature-Diagram - T4E1 (psi - °F)



### Pressure-Temperature-Diagram - T4E3 (psi - °F)



## Durco T4E Automated Valves



Choose from a complete line of Flowserve Automax Automation Equipment for precise proportioning and On-Off control....or we'll build a control package to your specification.

Durco T4E valves are readily adaptable for automatic operation because the torque is relatively constant and lubrication is not required.

Flowserve Automax, a specialist in complete automation systems, produces a broad line of rack and pinion, heavy-duty, electric and linear actuators. In addition, a comprehensive line of engineered special control circuits, solenoid valves, limit switches, positioners and actuator mounting kits is offered.

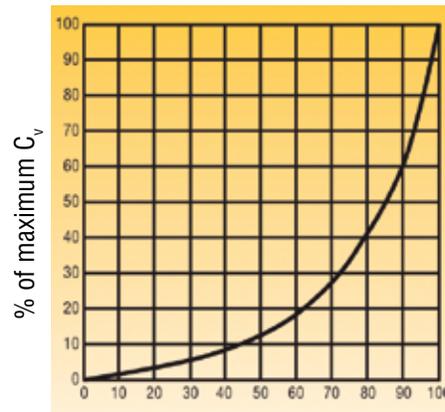
### Software Capability

Flowserve offers a state-of-the-art range of software to help in sizing valves and actuation and creating drawings.

### Modulating Control

V-port T4E valves are available in 1" through 4" sizes with Cv values of 1 through 187.

Standard port T4E valves are available in ½" through 12" sizes with Cv values from 15 through 3200.



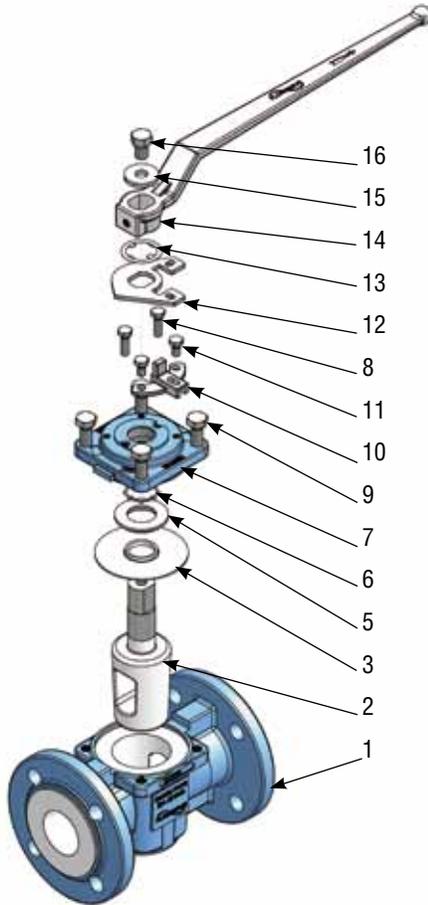
% of Valve Opening

### Control Plugs

Size	CV	Plug Type
1"	1	slotted plug
1"	3	slotted plug
1"	8	V-port
1"	13	V-port
1½"	30	V-port
2"	54	V-port
3"	89	V-port
4"	187	V-port

## Material Specification

### T4E1 and T4E3 (½" - 6")



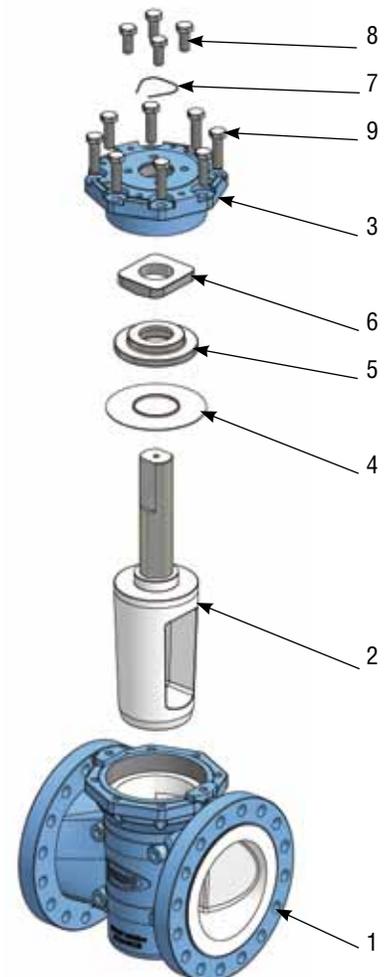
No.	Designation	Material
1	Body T4E1	Ductile cast iron - EN-JS1049/ASTM A395, PFA lined
	Body T4E3	Carbon steel ASTM A216 grade WCB, PFA lined
2	Plug	Ductile cast iron - EN-JS1049/ASTM A395, PFA lined
3	Diaphragm	PFA
4*	Metal diaphragm	Stainless steel - 302
5	Thrust gland	Machining steel - 1.0718
6	Grounding spring	Stainless steel - 302
7	Top cap T4E1	Ductile cast iron - EN-JS1049/ASTM A395
	Top cap T4E3	Carbon steel ASTM A995 Gr CD4MCuN
8	Adjuster bolt	ASTM A193 grade B7YC
9	Top cap bolt	ASTM A193 grade B7YC
10	Stop	Stainless steel ASTM A351/A744 grade CF-8M (316 SS)
11	Stop fastener	Stainless steel 1.4301
12	Stop collar	Carbon steel, protective plated
13	Stop collar retainer	Stainless steel - 302
14	Wrench	Ductile cast iron - EN-JS1082/ASTM A536
15	Washer	Stainless steel - 1.4301
16	Hexagon bolt	Stainless steel - 1.4301

\*Optional

### T4E1 (8" - 12") T4E3 (8" - 10")

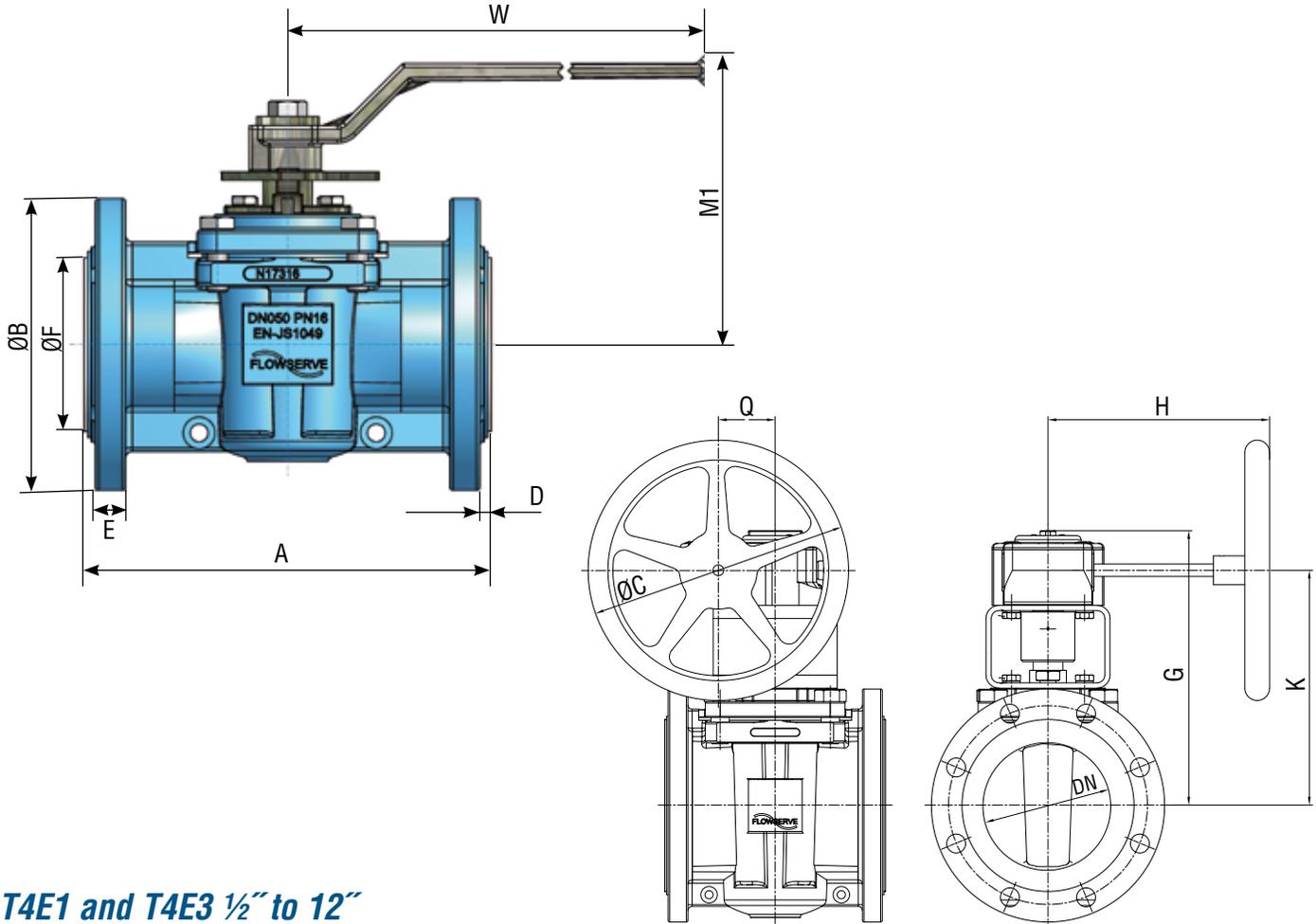
No.	Designation	Material
1	Body T4E1	Ductile cast iron - EN-JS1049/ASTM A395*, PFA lined
	Body T4E3	Carbon steel ASTM A216 grade WCB, PFA lined
2	Plug	Ductile cast iron - EN-JS1049/ASTM A395
3	Top cap T4E1	Ductile cast iron - EN-JS1049/ASTM A395
	Top cap T4E3	Carbon steel ASTM A995 grade CD4MCuN
4	Diaphragm	PFA
5	Thrust gland	Duplex stainless steel ASTM A995 Gr CD4MCuN
6	Adjuster	Duplex stainless steel ASTM A995 Gr CD4MCuN
7	Grounding spring	Stainless steel - 302
8	Adjuster bolt	88YC
9	Hexagon bolt	88YC

\* Other materials upon request



# Dimensions

## Valve Dimensions



### T4E1 and T4E3 ½" to 12"

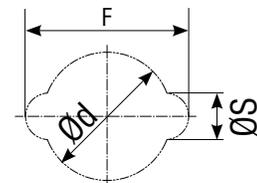
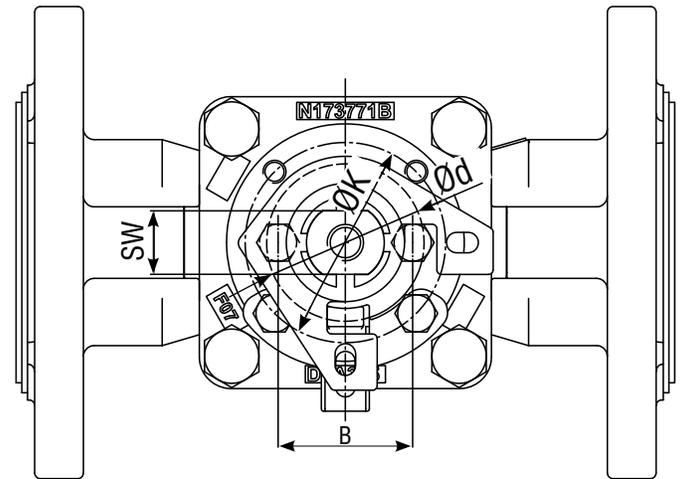
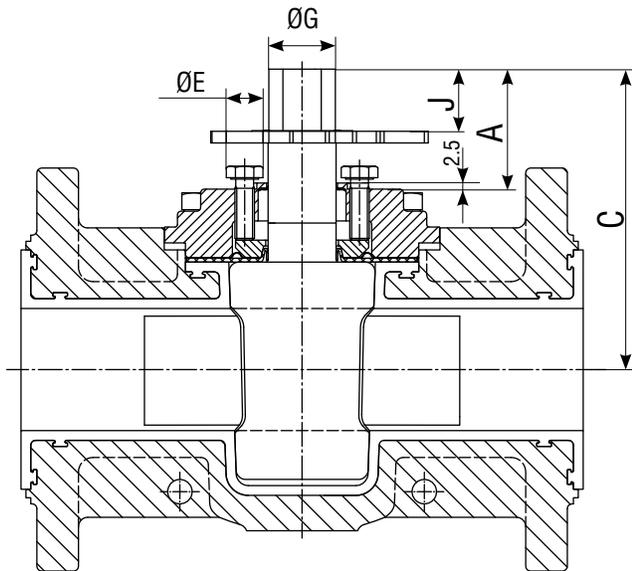
Dimensions are in inches

SIZE	A		Ø B		D		E		Ø F		W	M1	Ø C	H	G	K	Q	Wt (lb)	
	150	300	150	300	150	300	150	300	150	300								150	300
½	4.3	5.5	3.5	3.7	0.12	0.16	0.43	0.51	1.4	1.4	10.2	5.5						8.2	9.9
¾	4.6	6.0	3.9	4.6	0.12	0.24	0.49	0.61	1.7	1.7	10.2	5.5						9.0	12.3
1	5.0	6.5	4.2	4.9	0.12	0.26	0.49	0.63	2.0	2.0	10.2	5.5						10.8	14.3
1 ½	6.5	7.5	5.0	6.1	0.16	0.26	0.63	0.74	2.9	2.9	10.2	5.7						16.3	22.3
2	7.0	8.5	6.0	6.5	0.14	0.26	0.69	0.86	3.6	3.6	16.1	6.5						24.9	30.9
3	8.0	11.1	7.5	8.2	0.12	0.28	0.88	1.06	5.0	5.0	16.1	7.0						38.6	52.2
4 WO	9.0	12.0	9.0	10.0	0.16	0.28	0.88	1.18	6.2	6.2	26.5	8.7						68.5	93.4
4 GO	9.0	12.0	9.0	10.0	0.16	0.28	0.88	1.18	6.2	6.2			7.9	8.0	11.1	9.5	2.1	88	147
6	10.5	15.9	11.1	12.5	0.16	0.28	0.94	1.37	8.2	8.2			12.4	10.6	13.1	11.2	2.7	128	187
8	11.5	16.5	13.5	15.0	0.16	0.16	0.92	1.53	10.3	10.3			15.7	15.9	20.2	17.3	5.4	352	450
10	13.0	18.0	16.0	17.5	0.16	0.16	1.30	1.81	12.4	12.4			15.7	15.9	23.9	21.1	5.4	522	590
12	14.0		19.0		0.16		1.41		15.0				15.7	15.9	24.8	21.9	5.4	595	

**Note:**

All dimensions are approximate and for illustration purposes only. For exact dimensions consult certified dimensional prints  
 Valve 8"-12" are shown with double D stems which are standard. However spline shafts are also available for these sizes as an option.  
 All weights include either wrench or gear operator  
 Face-to-face dimensions comply to ANSI B16.10 and flange connections comply to ANSI B16.5

## Actuator Mounting Dimensions



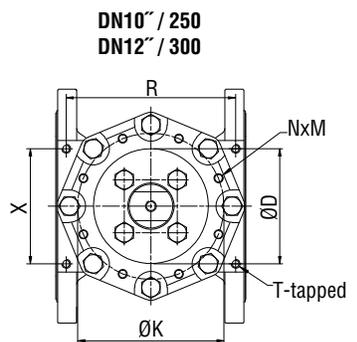
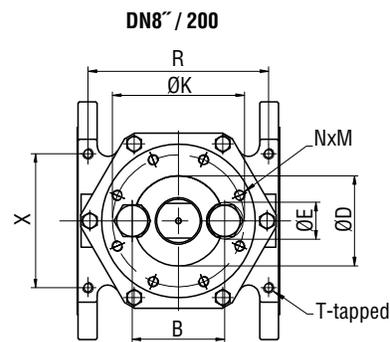
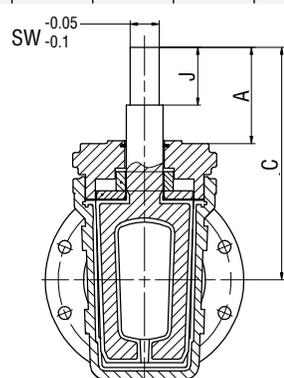
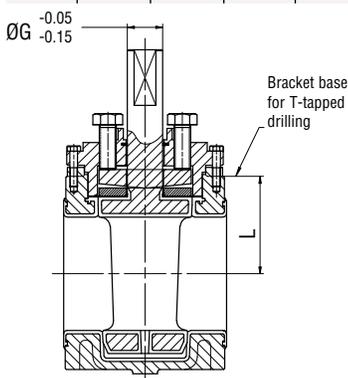
**Note:** All dimensions are approximate and for illustration purposes only. For exact dimensions consult certified dimensional prints.

Bracket cut for adjusting screws

### T4E1 and T4E3 1/2" to 6"

Dimensions are in inches

SIZE	A	B	C	Adj C	ØE	SW MAX	ØG MAX	J	ISO 5211				Bracket cut			Cv values
									ød	ØK	nxM	DIN 3337	F	ød	ØS	
1/2	1.52	1.50	3.64	+/-0.01	0.51	0.66	0.79	0.63	1.38	1.97	4xM6	F05	2.17	1.38	0.59	14.6
3/4	1.52	1.50	3.64	+/-0.01	0.51	0.66	0.79	0.63	1.38	1.97	4xM6	F05	2.17	1.38	0.59	17.8
1	1.54	1.50	3.64	+/-0.01	0.51	0.66	0.79	0.63	1.38	1.97	4xM6	F05	2.17	1.38	0.59	30.3
1 1/2	1.50	1.50	4.02	+/-0.01	0.51	0.66	0.79	0.75	1.38	1.97	4xM6	F05	2.17	1.38	0.59	78.0
2	1.93	1.85	4.84	+/-0.01	0.59	0.87	1.07	0.98	2.17	2.76	4xM8	F07	2.76	2.17	0.79	181.3
3	1.99	2.13	5.39	+/-0.01	0.75	0.87	1.07	0.98	2.17	2.76	4xM8	F07	3.15	2.17	0.98	273.1
4	2.76	2.87	6.97	+/-0.01	0.87	1.42	1.69	1.59	2.76	4.02	4xM10	F10	3.94	2.76	0.98	469.6
6	2.66	3.39	8.23	+/-0.01	1.30	1.42	1.69	1.59	3.35	4.92	4xM10	F12	4.92	3.35	1.38	775.3



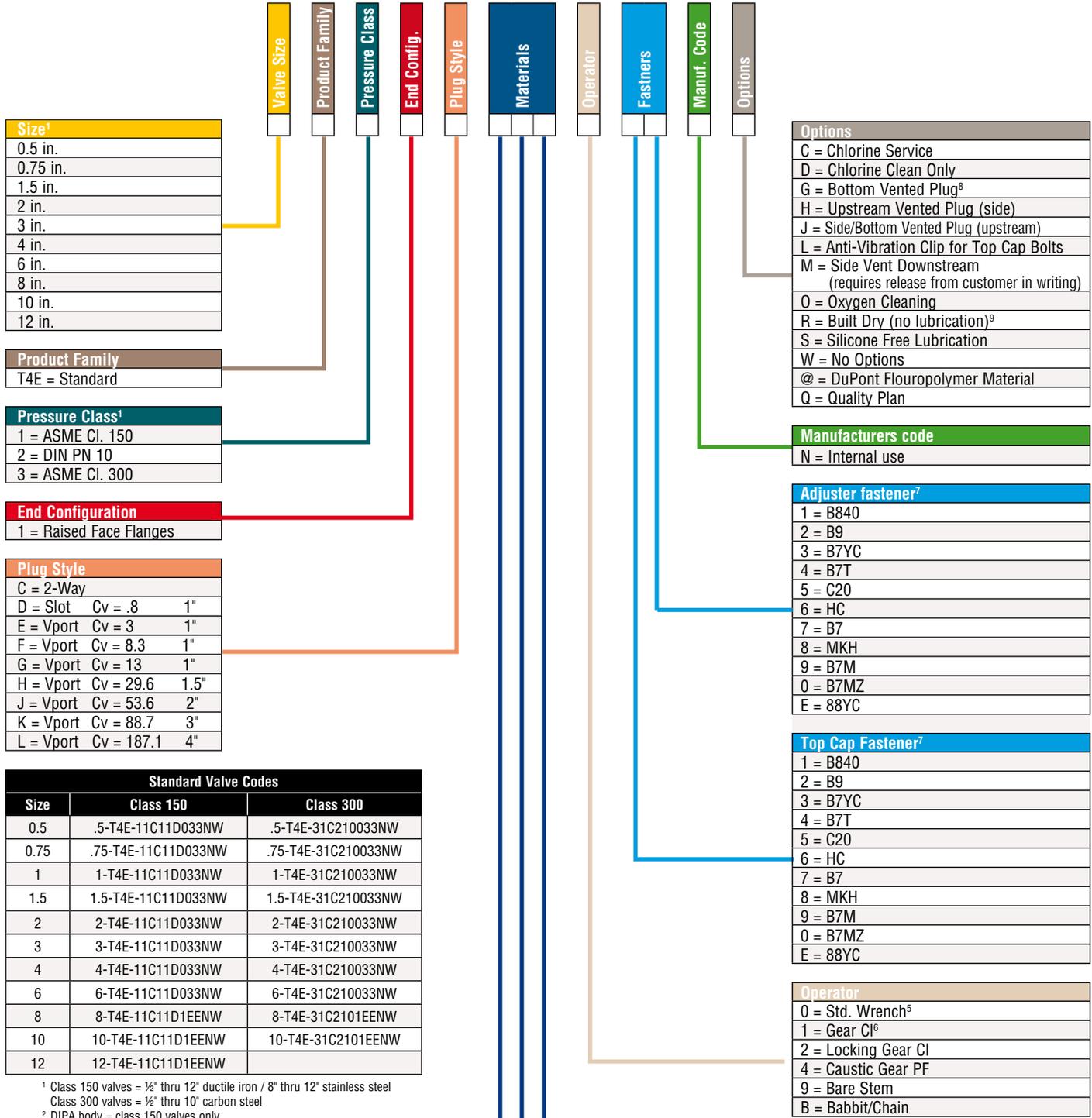
### T4E1 and T4E3 8" to 12"

Dimensions are in inches

SIZE	A	B	C	ØD	ØE	ØG	J	ØK	L	NxM	R		SW	T	X		Cv values
											CI 150	CI 300			CI 150	CI 300	
8	6.56	5.25	15.83	5.12	2.13	2.50	3.94	7.50	6.87	8x M16 1.0 deep	10.25	14.80	1.97	M16 1.6 deep	7.69	7.62	1818
10	8.44		19.50	7.87		3.00	4.92	10.00	8.50	8x M22 1.0 deep	11.57		2.36	M20 1.6 deep	7.87		2159*
12	8.48		20.35	7.87		3.00	4.92	10.00	9.19	8x M22 1.0 deep	12.28		2.36	M20 1.6 deep	7.87		3200*

\* Estimated value

# How to Specify T4E Valves



<sup>1</sup> Class 150 valves = ½" thru 12" ductile iron / 8" thru 12" stainless steel  
 Class 300 valves = ½" thru 10" carbon steel

<sup>2</sup> DIPA body = class 150 valves only  
 D4PA body = 8", 10" 12" class 150 valves only  
 DSPA body = class 300 valves only

<sup>3</sup> DIPA plug = ½" thru 12"

CDPA plug = 8", 10" and 12" only

<sup>4</sup> DCI top cap = DIPA valve bodies  
 CD4M top cap = D4PA and DSPA valve bodies

<sup>5</sup> Locking wrench standard thru 4"

<sup>6</sup> Gear standard 6" and above (also available on smaller sizes)

<sup>7</sup> B7YC = standard for ½" thru 6"

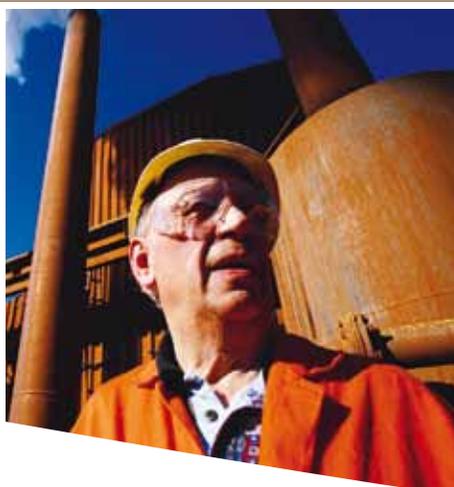
88YC = standard for 8", 10", 12" (Gr. 8.8 yellow chromated)

<sup>8</sup> 8" and larger plugs have bottom vent as standard

<sup>9</sup> No lubrication for valves up to 4"

Built with Krytox for valves 6" and above

Body liner <sup>2</sup>	Plug Alloy <sup>3</sup>	Top Cap Alloy <sup>4</sup>
1 = DIPA	1 = DIPA	D = DCI
2 = DSPA	2 = D4PA	0 = CD4M
3 = D4PA	3 = CDPA	



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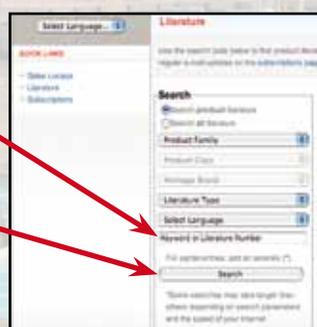
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## Other Useful Information

In addition to lined plug valves, lined butterfly valves (Document number DVENTB0020) and lined ball valves, check valves and sight glasses (Document number ATENTB0010) are also available.

Finally, a wide variety of metallic and lined rotary valves and actuation equipment is summarized in the Document number DVENBR0001.

To obtain any of these brochures, follow the simple steps on the left of this page and enter the Document number in Step 3.

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