



Durco PlugSeal™ Valve

***ASME Class 600 Plug Valves
Serving the Worldwide Desalination Industry***



Experience In Motion



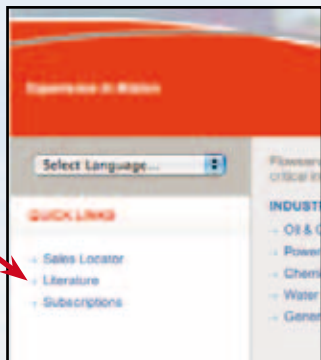
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Other useful information

In addition to the PlugSeal™ valves, information on other valves relevant to the desalination industry is available:

Lined ball valves, check valves and
 sight glasses (document no. ATENTB0010)
 High performance butterfly valves . (document no. DVENTB0039)
 Worcester ball valves (document no. WCABR1050)
 Durco plug valves (document no. DVABR0024)

Finally, a wide variety of metallic and lined rotary valves and actuation equipment is summerized in the document no. DVENBR0001.

To obtain any of these documents, follow the simple steps on the left of this page and enter the document no. in step 3.



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History

For 70 years, Flowserve Durco has been a leader in developing and producing non-lubricated plug valves for a wide range of industrial applications.

We are proud to introduce the PlugSeal™ plug valves which leverage our expertise in plug valves and adapt them for usage in the expanding seawater reverse osmosis desalination industry.

Design Parameters

PlugSeal™ valves have been designed with following parameters to suit the SWRO desalination industry:

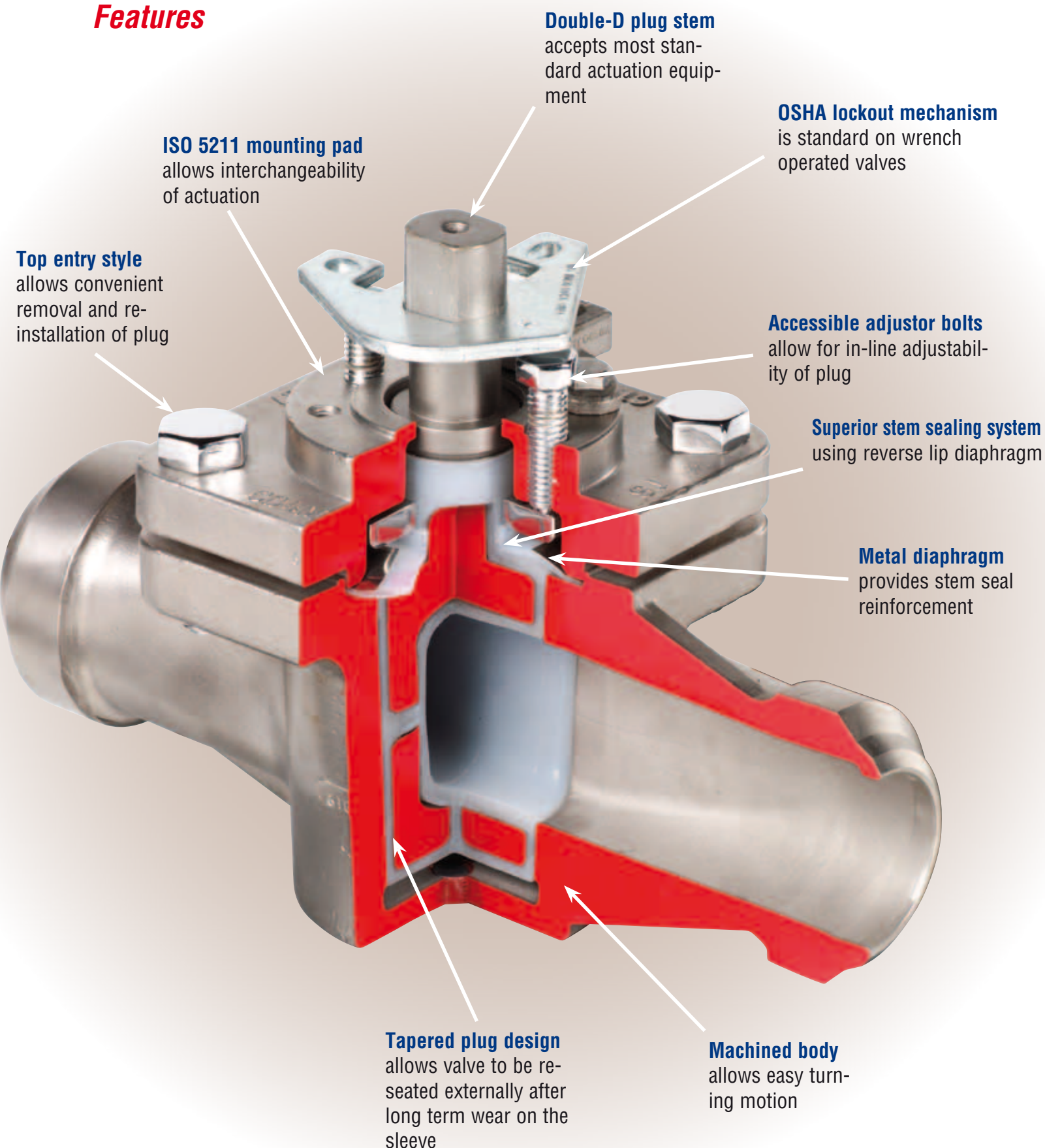
- *Positive Shutoff*
- *Full Rated ASME Cl. 600*
- *Butt Weld or flanged*
- *904L SS or Super Duplex SS (other materials available)*
- *Size capability to 16"*
- *In-line repairability*

Materials

Standard materials include the following:

- *Super Duplex Stainless Steel ASTM A995 Gr. 5A*
- *904L stainless steel UNS N08904*
- *254SMO ASTM A351/A744 Gr. CK3MCuN*
- *CD4MCuN ASTM A995 Gr 1B*

Features

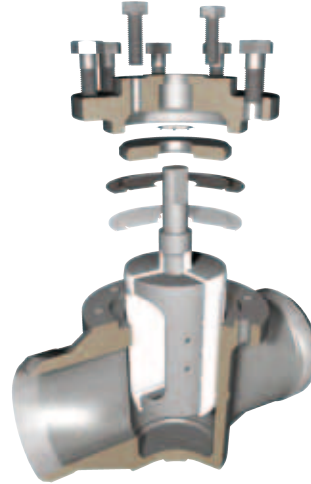


Lined Plug



- PFA-lined plug exploits Durco's 60 years of experience in designing plastic-lined products.
- Usage of a lined plug eliminates the requirement for a sleeve which is often difficult and expensive to replace.
- After plug is worn it can be economically replaced.
- Plug is standard with substrate of ductile iron with option in CD4M or other materials.

In-Line Repair



- The efficient, simple design of the PlugSeal™ allows for quick, understandable repair without removal of the valve from the process line.
- PlugSeal™ design facilitates butt-weld welding process by allowing the internal parts to be removed before valve body is welded into pipeline. After welding, valve can be easily re-assembled. It is understood that the re-assembled valve should be re-tested along with the rest of the system prior to start-up.

Secure Stem 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.

Automated Systems

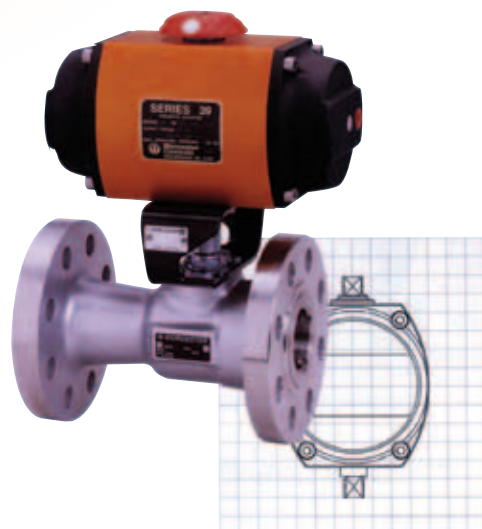
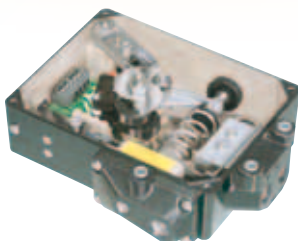
FLOWERVE offers Automax, Norbro and Worcester Actuators and Instrumentation allowing us to supply complete automated on-off or modulating packages to meet exacting technical requirements.

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

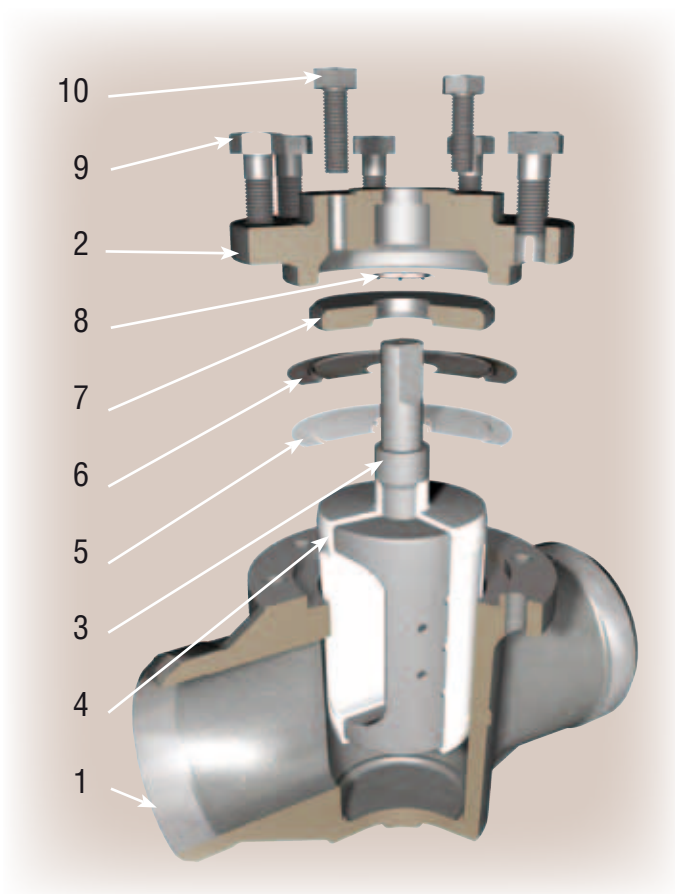
Flowserve, a specialist in complete automation systems, produces a broad line of rack and pinion, heavy duty, electric and linear actuators. In addition, a comprehensive line of engineered special control circuits, solenoid valves, limit switches positioners and actuator mounting kits is offered.

Our wide range of electrical and pneumatic instrumentation incorporates:

- Digital network communication
- Superior diagnostics
- Intelligent valve controllers
- Comprehensive user-friendly software
- On-line accessible automated drawing system
- Control sizing software
- Actuator sizing software



Parts List



Item	Designation	Material
1	Body	See Material list below
2	Top cap	ASTM A 351/995 Grade CD4MCuN (CD4M)
3	Plug insert	ASTM A395 Grade 60-40-18 (DCI)
4	Plug coating	Perfluoroalkoxy (PFA)
5	Primary diaphragm	Perfluoroalkoxy (PFA)
6	Secondary diaphragm	ASTM A666 Type 302 SS (B)
7	Thrust collar	ASTM A666 Type 304 SS (E)
8	Grounding spring	ASTM A666 Type 302 SS (B)
9	Top cap bolting	ASTM A193 Gr. B7 Yellow Zinc Dichromate Plated (B7YC)
10	Thrust collar bolting	ASTM Grade 193 B7 Yellow Zinc Dichromate Plated (B7YC)

Applicable Valve Standards

Specification	Title
ASME B16.34	Steel valves, flanged and butt weld
ASME B16.9	Factory-made wrought butt weld fittings
ASME B16.10	Face-to-face dimensions
ASME B16.25	Butt weld ends
ISO 5211	Actuator attachment
API 598	Valve Inspection and Test
MSS SP-61	Hydrostatic testing

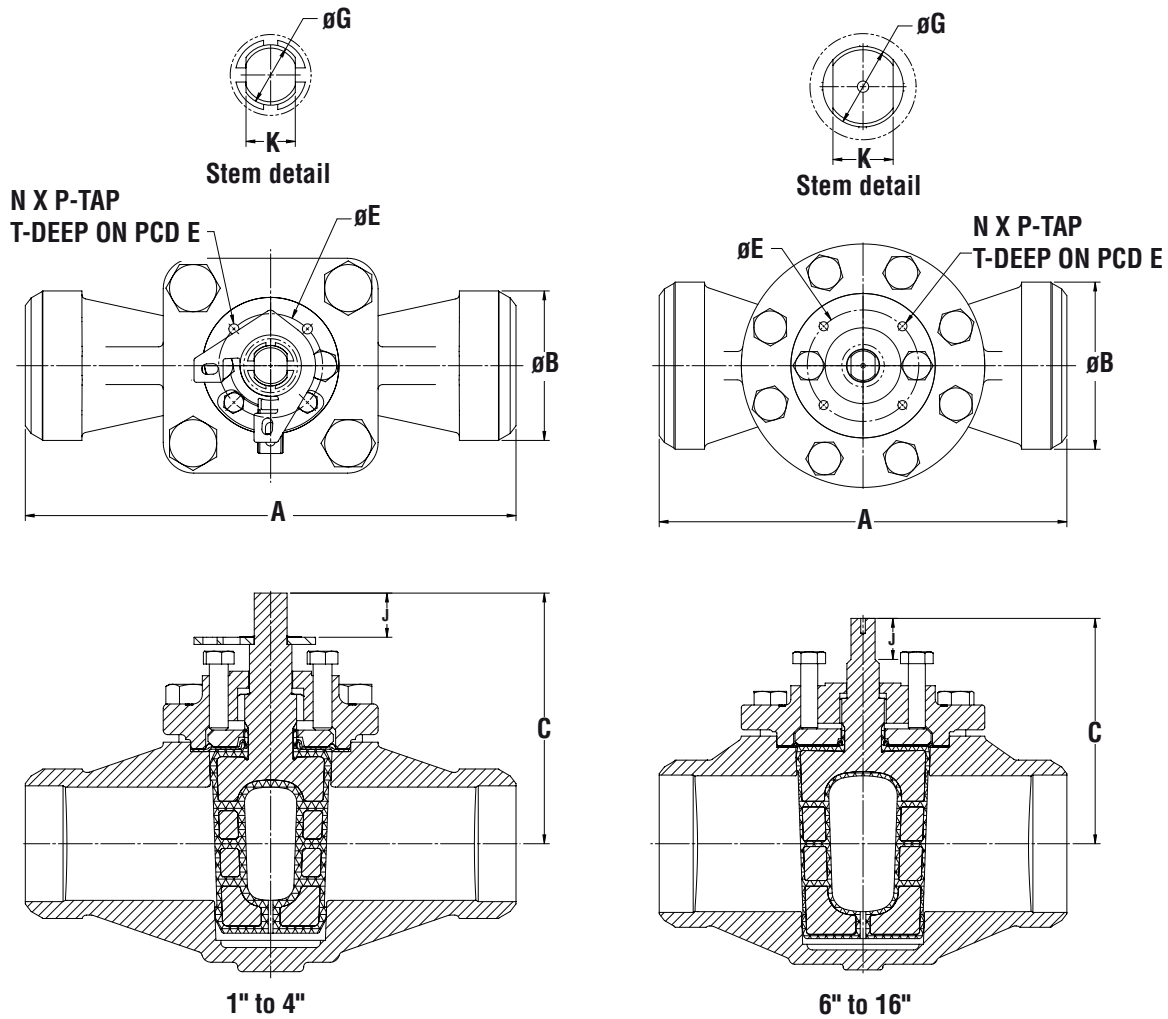
Material Selection Chart*

Super Duplex Stainless Steel ASTM A995 Gr. 5A
904L stainless steel UNS N08904
254SMO ASTM A351/A744 Gr. CK3MCuN
CD4MCuN ASTM A995 Gr 1B**
304 stainless steel ASTM A351/A744 Gr. CF8M
316 stainless steel ASTM A351/A744 CF8
Durimet 20 ASTM A351/A744 Gr.CN-7M**
Monel 400 ASTM A494 Gr.M35-2 and M35-1
Chlorimet 2 ASTM A494 Gr.N-7M**
Chlorimet 3 ASTM A494 Gr. CW-6M**
Inconel 600 ASTM A494 Gr. CY-40

* This list indicates several of our common materials; however any of the wide range of Flowserve materials can be used. Please contact your Flowserve representative for specialized material requirements.

** To facilitate welding and post-weld heat treatment of these materials, pipe stubs are required.

Dimensions inch (mm)



Valve Size in. (mm)	A	ØB	C	ØE	J	ØG	K	Drilling		Depth	Weight	
								No.	Size		lbs.	kg
1	8,50	1,56	4,28	1,65	0,81	0,78	0,66	4	M5X0.8	0,39	12	6
25	215,9	39,6	108,7	42,0	20,6	19,9	16,7			10,0		
										11,4		
2	11,50	2,96	5,70	2,76	1,17	1,07	0,87	4	M8X1.25	0,45	27	12
50	292,1	75,2	144,8	70,0	29,7	27,2	22,1			16,0		
										20,0		
3	13,00	3,96	6,64	2,76	1,17	1,07	0,87	4	M8X1.25	0,63	43	20
80	330,2	100,6	168,7	70,0	29,7	27,2	22,1			16,0		
										20,0		
4	14,00	5,00	7,66	4,02	1,17	1,07	0,87	4	M10X1	0,79	75	34
100	355,6	127,0	194,6	102,1	29,7	27,2	22,1			20,0		
										20,0		
6	18,00	7,38	9,95	4,92	1,81	1,43	1,06	4	M12X1.75	0,95	183	83
150	457,2	187,5	252,7	125,0	36,2	36,2	27,0			24,0		
										24,0		
8	20,50	9,60	11,94	4,92	1,81	1,43	1,06	4	M12X1.75	0,95	310	141
200	520,7	243,8	303,3	125,0	36,2	36,2	27,0			24,0		
										24,0		
10	22,00	11,57	13,83	5,51	2,13	1,90	1,42	4	M16X2	1,00	481	218
250	558,8	293,8	351,3	140,0	54,0	48,2	36,0			25,4		
										25,4		
12	25,00	14,13	15,11	6,50	2,13	2,37	1,81	4	M20X1.5	1,13	739	335
300	635,0	358,9	383,8	165,0	54,0	60,2	46,0			28,6		
										28,6		
14	30,00	15,46	15,63	10,00	2,50	2,84	2,17	8	M16X2	1,00	1074	487
350	762,0	392,7	397,0	254,0	63,5	72,2	55,0			25,1		
										25,1		
16	33,00	17,38	19,55	10,00	2,50	2,84	2,17	8	M16X2	1,26	1548	702
400	838,2	441,5	496,6	254,0	63,5	72,2	55,0			32,0		
										32,0		

Notes: 1. All top cap fasteners must have a min. yield strength of 40,000 psi
2. Stop collar to be replaced with special pointer when mounting actuator
Dimensions shown are nominal dimensions. For toleranced dimensions, consult the factory. Certain valve features may not be shown pictorially.
Consult the factory if design of attachment is considered.
All weights include lever or gear.

FLOWSERVE offers a wide variety of valves suited to the desalination industry:

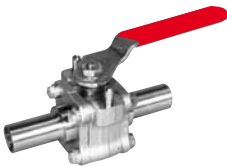
- Atomac lined products**
 are perfect for use on the wide variety of chemicals applications used in the desalination process.



- Durco Butterfly Valves**
 are ideal for handling large volume flows of seawater. These valves are available in a great variety of metallic and non-metallic materials including several alloys that are resistant to chloride attack.



- Worcester Valves**
 are the world's most respected ball valves. They can be used for a wide variety of general purpose applications in a desalination plant.

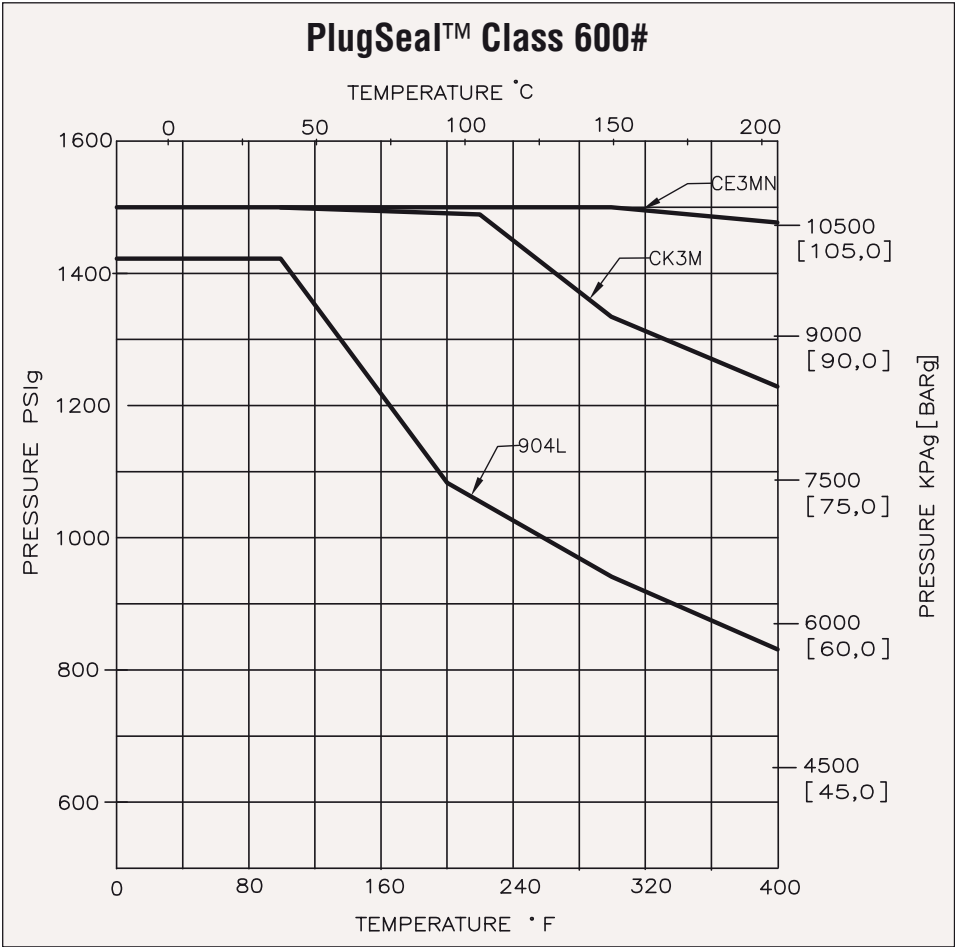


- Durco Plug Valves**
 are rated up to ASME Cl. 600 for high pressure applications in membrane area. Available in Super Duplex SS, 904L SS, 254SMO. In-line repairable styles are perfect for applications where valves are butt welded into line.

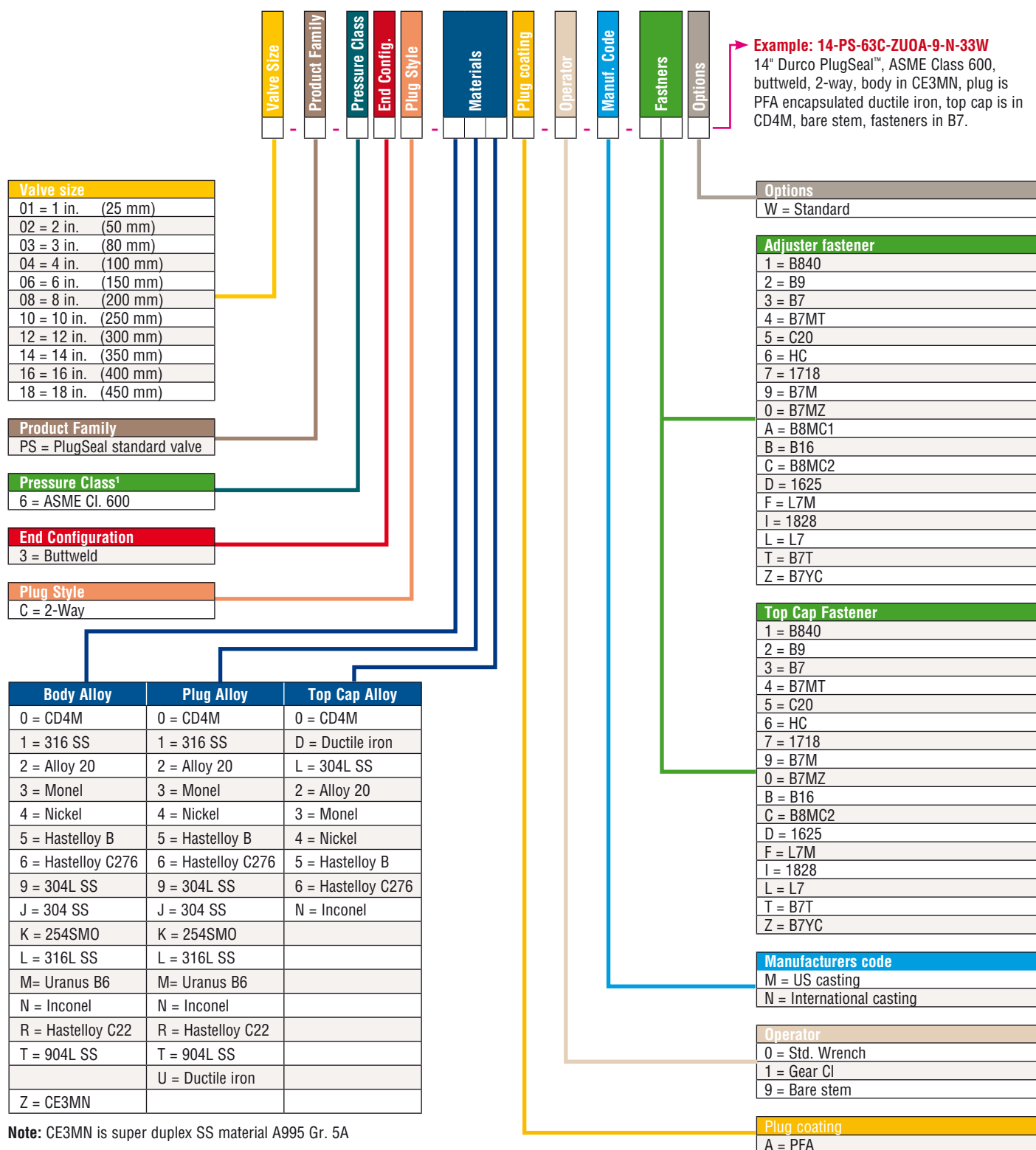


Pressure - Temperature Ratings

Values given are in accordance with ASME B16.34. For materials of other construction than those shown consult the factory.



How to Specify PlugSeal™ Valves





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