



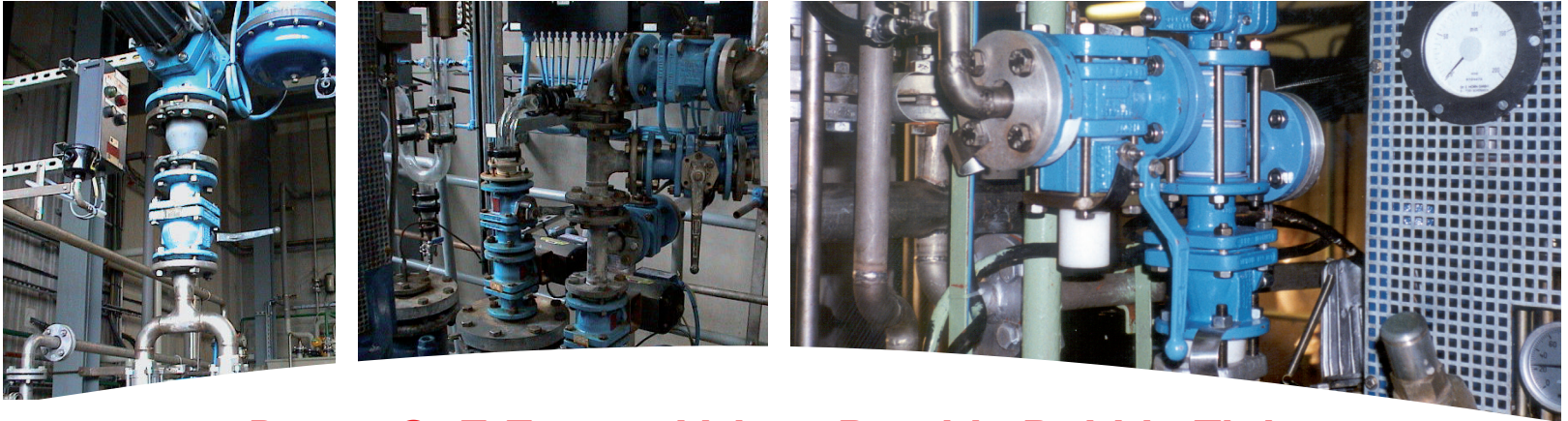
# G4E EUROPA™ SleeveLine

Chemical Service Valve  
The Standard For Performance



*Experience In Motion*



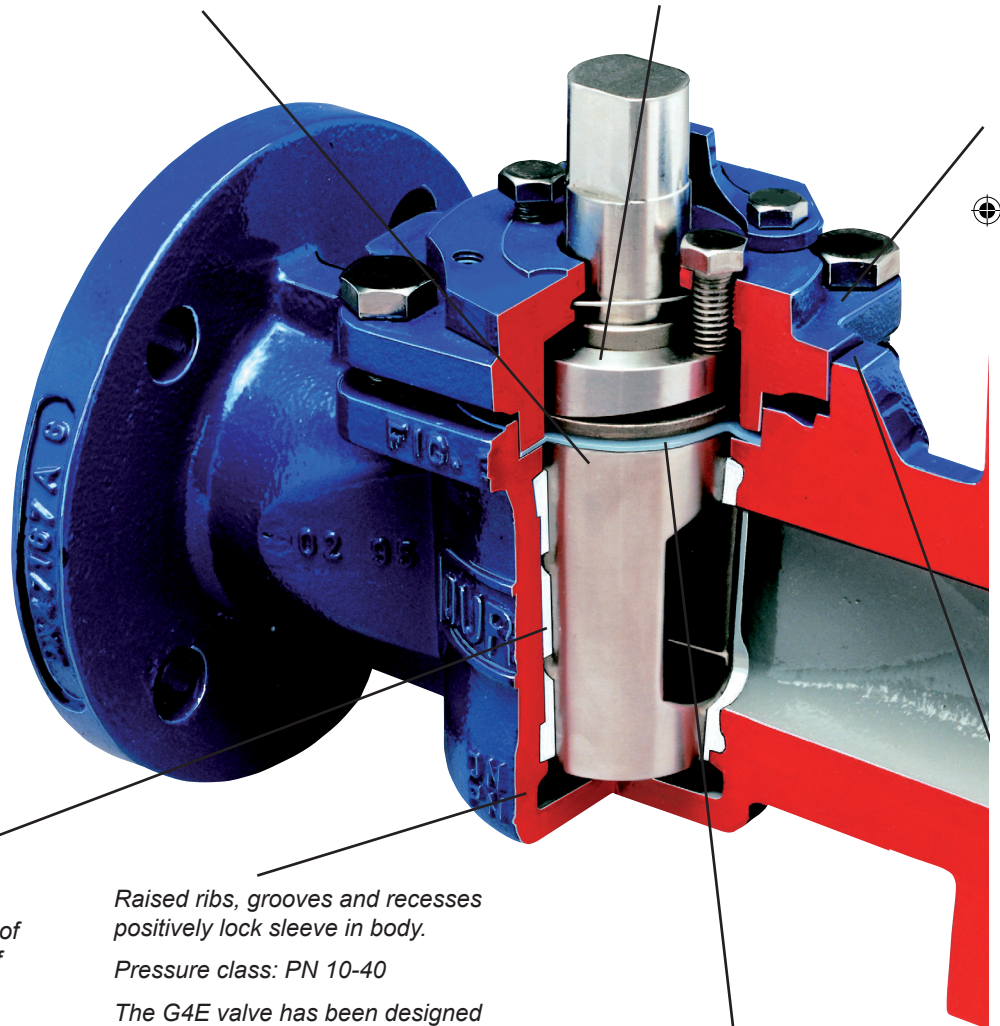


**Durco G4E Europa Valves Provide Bubble Tight Shutoff and ISO Mounting**

Europa SleeveLine valves offer tighter shutoff than other rotary design valves and emissions containment equal to or better than specially designed severe service valves. They are a best choice for difficult chemical applications and for isolation of pumps, tanks, reactors and other critical equipment.

*Unique tapered plug design assures reduced turning torque and in-line seal adjustment for wear.  $\pm 5$  mm (3/16 in) adjustment; plug cannot bottom out.*

*Rocker arm adjustment ensures positive sealing with the valve in-line.*



*Large seal area of the PTFE sleeve (as much as 10x greater than valves of other design) delivers positive shutoff and extended service life. Sealing is bi-directional.*

*Available sizes: DN 15, 20, 25, 32, 40, 50, 65, 80, 100, 125 and 150.*

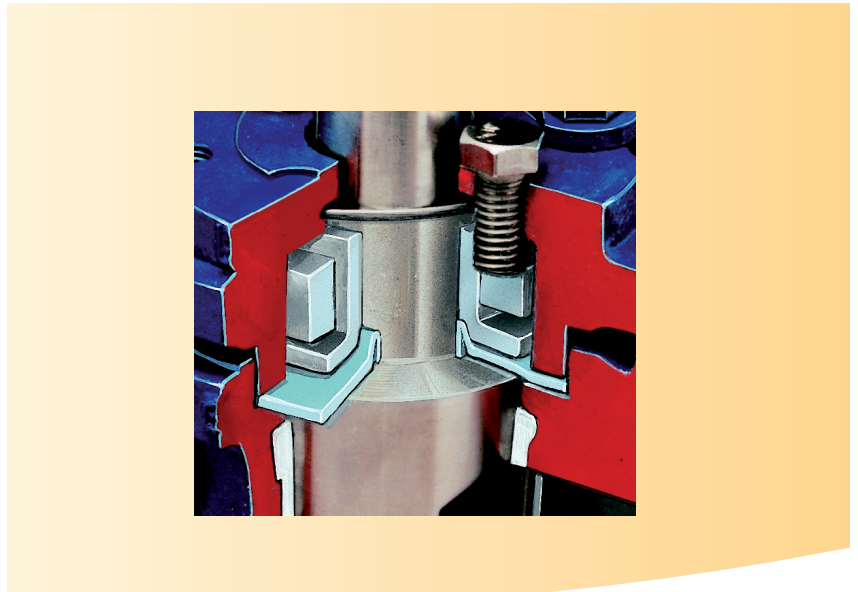
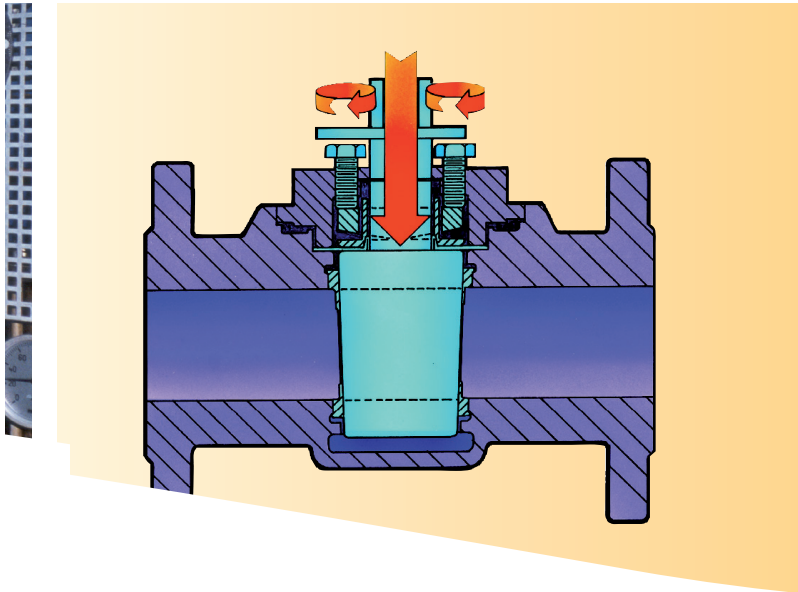
*Raised ribs, grooves and recesses positively lock sleeve in body.*

*Pressure class: PN 10-40*

*The G4E valve has been designed according to the criteria of TRB801 No. 45 (AD-A4, DIN EN 12516-2 (calculation)).*

*Face-to-face flange dimensions conform to EN 558-1, row 1 (ISO 5752).*

*Reverse lip design of the PFA diaphragm provides static and self-adjusting dynamic stem seal design. Backup stainless steel diaphragm is optional.*



## In-Line And Thru-Line Seal Adjustability

### Positive in-line plug adjustment

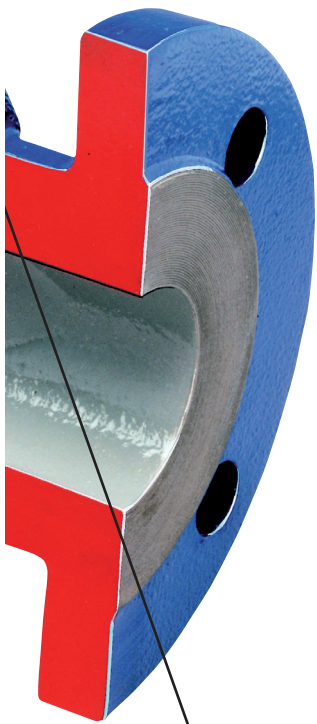
DIN/ISO 5211 mounting pad facilitates actuation.

The unique design of the tapered plug allows a bubble tight, adjustable seal. The plug can be pushed deeper into the sleeve by two adjuster fasteners. The rocker arm gives one plane contact and resultant force down the centerline of the plug. Uniform adjustment of the two fasteners is not necessary.

### Line sealing

The interference fit of the tapered plug with the PTFE sleeve serves as the sealing surface. The sleeve totally surrounds plug ports and seals the circumference of the plug, top and bottom. There are no cavities to fill up with product, and the seal area is larger than in ball valves. Sealing is both upstream and downstream.

- Seal is totally independent of line pressure.
- There is no metal to metal contact.
- Valve remains free-turning throughout its life and never requires lubrication.
- Seal is adjustable.
- Wiping action between sleeve and plug provides for good slurry handling.



Rugged, heavy-duty body may be specified in corrosion resistant stainless steels, nickel base and light reactive alloys.

### Static Seal

PFA diaphragm wedges against stem with an interference fit to seal against leakage to atmosphere or air leakage into valve on vacuum service.

### Dynamic Seal

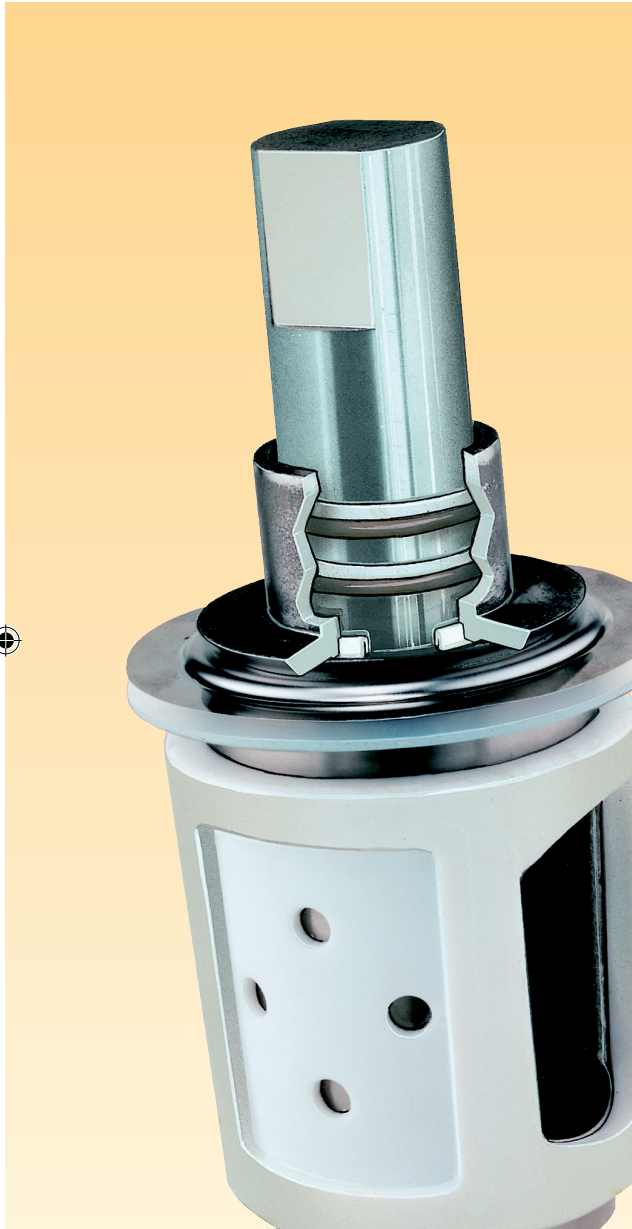
Reverse lip diaphragm provides self-energizing dynamic stem seal where pressure activates the reverse lip to seal against the stem.

### Positive stem seal

A PFA diaphragm with reverse lip design provides both static and self-adjusting dynamic stem sealing. This serves as a secondary atmospheric seal to the primary plug/sleeve seal. The stem seal is not normally exposed to full line pressure.



## **G4EB Marathon™ Valves Deliver High Cycle, Positive Stem Sealing Durability**



### **Unique stem-sealing design**

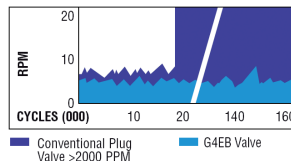
The Marathon valve can be used with confidence in chemical processing applications where tight shutoff and emissions containment are priority requirements. As a bonus, its very design assures long life, high cycle performance.

### **Viton O-rings**

A pair of Viton® O-rings prevents stem leakage while containing line pressure. They also protect the thrust collar against attack from atmospheric corrosion. PTFE back-up rings firmly lock the Viton O-rings in the stem grooves. Optional Kalrez® O-rings are available for special services.

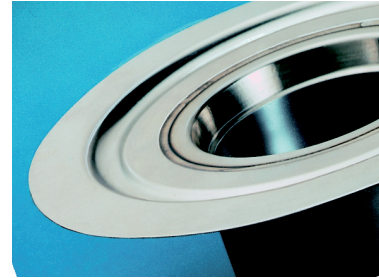
### **G4EB Marathon Valve**

Viton O-Rings & Welded Metal Diaphragm Stem Seals Sleeve & Diaphragm cut in four places



### **Passing the test**

In a remarkable test, lab technicians defeated the PTFE sleeve and PFA diaphragm, the G4EB's primary and secondary seals, by cutting both of them in four places. After 160,000 cycles, the G4EB emitted less than 10 parts per million of helium and showed no visible signs of stem wear.



### **New welded diaphragm**

The integral thrust collar/ alloy diaphragm is welded together for another line of defense against leakage to the atmosphere. The underside of the metal bellows-like diaphragm acts as an expansion joint by allowing the PFA diaphragm to adjust to plug movement and pressure changes.

The Hastelloy® C diaphragm provides an impermeable barrier to chlorine as well as many other services.

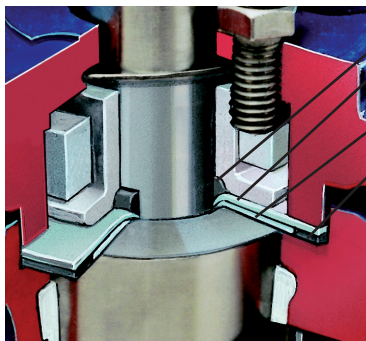
### **The conclusion**

G4EB Marathon valve fugitive emission containment is often equal to more expensive valves designed specifically as severe or toxic service valves.

®Viton and Kalrez are registered trademarks of the DuPont Company.  
®Hastelloy is a registered trademark of Haynes International.



## G4EZ Fire Sealed Valves



Packing (Grafoil®)  
Diaphragm  
(Stainless Steel or Monel®)  
Diaphragm (PFA)  
Gasket (Grafoil)

Durco Sleeveless valves have been fire tested in accordance with the procedures set forth in API 607 Third Edition. They surpassed the external sealing requirements of Section 4, Paragraph 4.2, "Performance Requirements."

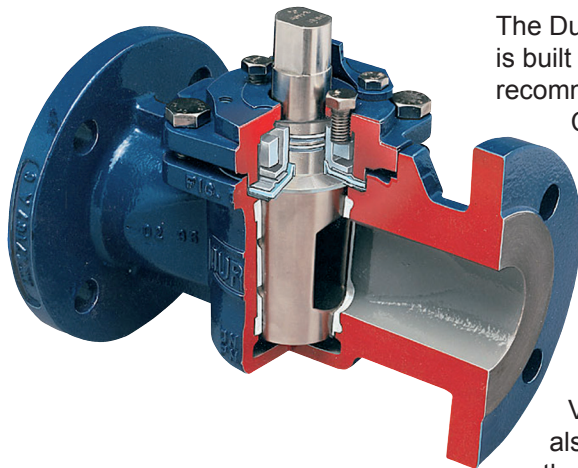
**Durco firesealed valves have been successfully used on refinery applications such as:**

- Isomerization
- Blending
- Light ends
- Gas plant
- Sulfur plant
- Crude desalting

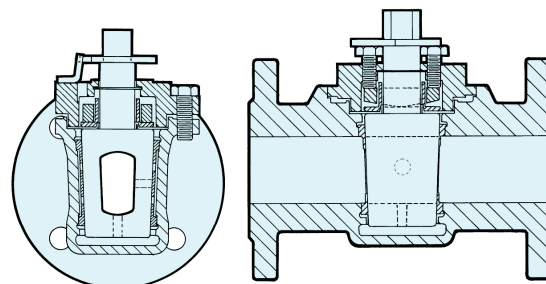
G4Z fire sealed valves have been temperature cycled to 204°C (400°F)\*. They have provided performance superior to any other soft-seated valves available for temperature cycling applications.

### Chlorine Valves

The Durco G4E Chlorine valve is built in accordance with the recommendations of the U.S. Chlorine Institute. This valve is manufactured with a cast carbon steel body and a vented Monel plug for dry chlorine service. It is cleaned, dried and packaged for delivery.



Vented plug design is also recommended for other cold liquids such as anhydrous HCL.



\* 232°C (450°F) with optional Duriron II sleeve.

Fire Sealed Sleeveless valves – both G4EZ and G4EBZ models – incorporate special Grafoil® packing rings at the stem and Grafoil® gaskets at the top cap that reduce atmospheric leakage to a negligible amount should fire destroy the PTFE sleeve and diaphragm. A metal diaphragm keeps the Grafoil® packing in place if the top seal is destroyed.

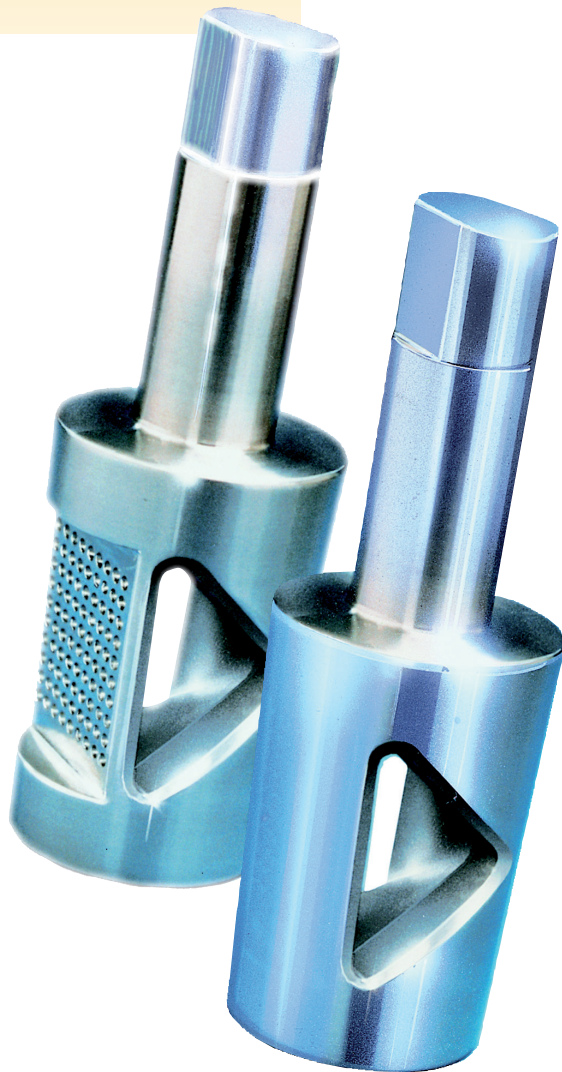
® Grafoil is registered trademark of Union Carbide Corporation.



## Technical Data for Durco G4E Valves

Specially trimmed control valves reduce noise, cavitation and flashing while improving flow and pressure performance. Unique, self-cleaning design prevents particulate build-up and clogging.

Durco V-port alloy control valves are available in DN 25 through DN 150 sizes with full open Kv values of 3 through 400. They are available in a wide range of materials to satisfy your flow control needs.



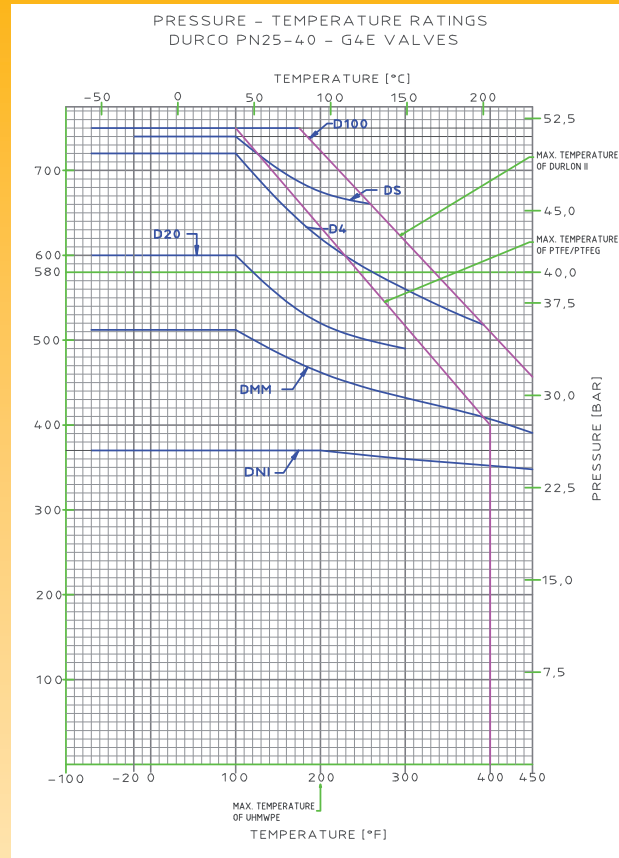
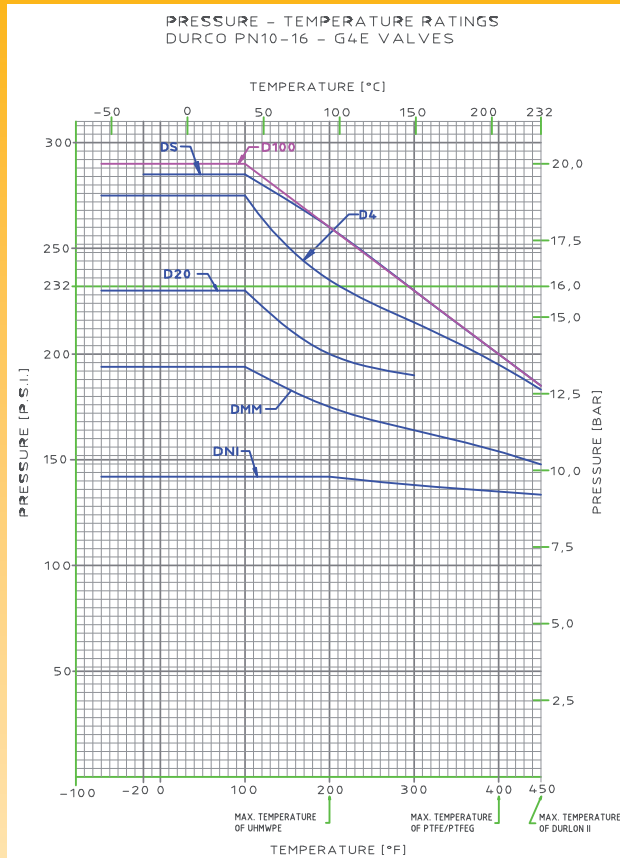
*G4E is readily actuated with Automax's SuperNova™ rack and pinion actuator and Apex 5000™ positioner with Pharos® visual position indicator.*

### Automax® automation equipment

Automax Inc., a wholly owned sub-sidiary of Flowserve Corporation, is a specialist in complete automation systems. Automax markets a broad line of rack and pinion, heavy-duty and electric actuators. In addition, Automax offers engineered special control circuits, solenoid valves, limit switches, positioners and actuator mounting kits.



## Technical Data for Durco G4E Valves



**D4** = ASTM A351/A744 Gr. CF8M (316 Stainless Steel); **DS** = ASTM A216 Grade WCB (Cast Steel); **D100** = ASTM A351/A744 Gr. CD4M Cu (Durcomet 100); **DMM** = ASTM A494 Gr. M35-1 (Monel 400); **DNI** = ASTM A494 Gr. CZ-100 (Nickel 200);

### Testing assures Durco dependability

Durco G4E valves are a revolutionary design. They incorporate all the best design and construction improvements that have been made in soft-seated valves since Flowserve Corporation introduced the original non-lubricated plug valve in 1950.

G4E valves have been extensively tested to ensure, insofar as possible, a completely reliable process valve.

The unique reverse lip stem seal has been tested from -46°C (-50°F) to 204°C (400°F) maximum, and with pressures up to 4960 kPa (720 psig). For higher temperatures contact your Flowserve Sales Office.

High temperature throttling tests at 204°C (400°F) with pressure drops of 1205 kPa (175 psig) have proven the superiority of the G4E valves over other soft-seated valves. Ask your Flowserve Sales Representative for specific test results.

The valves have been temperature cycled to 204°C (400°F), and have provided performance superior to any other soft-seated valve available for cyclical temperature situations.

We believe the G4E valve is the best soft-seated valve on the market today, and will outlast and outperform all competitive valves.

### Pressure-temperature ratings

The pressure-temperature ratings of all the materials above are based on mechanical property requirements cited in the latest DIN, ASTM or ANSI specifications.

Valves may require adjustment to remain drop tight at the lower end of temperature range when operating below -17°C (0°F) or in extreme temperature cycles.

*Special Note:* Flowserve pursues an aggressive and continuous product development program. As a result, Flowserve reserves the right to alter specifications without notice.



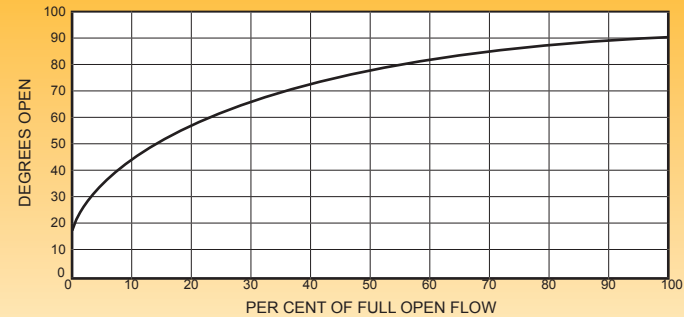
## Technical Data for Durco G4E Valves

### Manual valve turning torque\*

The turning torque of a PTFE sleeved plug valve is determined by two primary factors: setting of the plug to hold line pressure; and operating conditions (temperature, corrosion deposits, frequency of operation, etc.). All G4E valves 150 mm and smaller are air tested at ambient temperature. The gas closure test is in agreement with ANSI B16.34, 1988 for both the Class 150 and Class 300 valves. The average turning torques for new valves are shown in the table below.

### Flow Characteristics

TOTAL CHARACTERISTIC CURVE FOR STANDARD DURCO G4E VALVE



### Full Port

Size	K <sub>V</sub>	C <sub>V</sub>
DN 15	6,4	7,4
DN 20	16,8	19,5
DN 25	42	49
DN 40	71,8	83
DN 50	131,9	153
DN 80	276,9	322
DN 100	477,2	555
DN 150	821,2	954

### V-Port

Size	K <sub>V</sub>	C <sub>V</sub>
DN 15	-	-
DN 20	-	-
DN 25	3,5 / 6,9 / 26	4,1 / 8 / 30,2
DN 40	26	30,2
DN 50	46,5	54,0
DN 80	105	122,0
DN 100	162	188,3
DN 150	318	369,6

### Valve Standards Applicable To G4E21

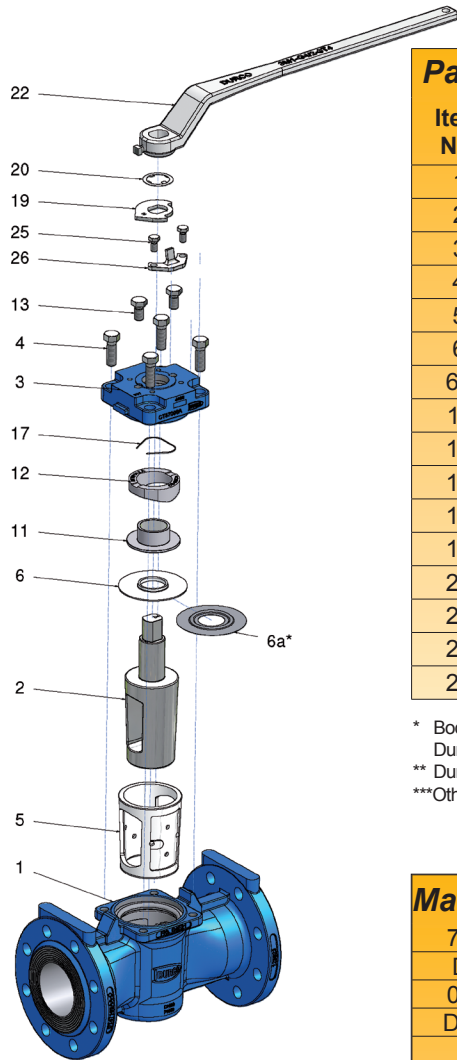
Specification	Title
ISO 5752 (1982) Table 6-Long	Face to Face Dimensions
DIN 2501 (1971) DIN 3230 PART 3	Flange Dia., Flange Drilling, Raised Face Dia., Etc.
DIN 2543 (1977) DIN 2545 (1977)	Flange Thickness, Raised Face Height, Etc.
ANSI B16.34 (1988) DIN 3840 (1982)	Valve Body Wall Thickness
DIN/ISO 5211.1 DIN/ISO 5211.2 (1993)	Actuator Mounting Flange

### Turning Torque / Sizing Torque – Nm (Ft-Lbs)

Valve Size	Sizing Torque for selection of actuators	
	Nm	(Ft-Lbs)
DN 15	34	(25)
DN 20	34	(25)
DN 25	38	(28)
DN 32	38	(28)
DN 40	56	(41)
DN 50	95	(70)
DN 65	133	(98)
DN 80	133	(98)
DN 100	271	(200)
DN 125	271	(200)
DN 150	678	(500)



## G4E Valves are available in Materials as listed below "Materials Selection Chart"



6a\* Backup stainless steel diaphragm is optional.

### Parts and Materials List

Item No.	Description	Material of Construction	No. Req.
1	Body	*	1
2	Plug	*	1
3	Top Cap	1.4408/CF8M or Ductile Cast iron	1
4	Top Cap Fastener	1.4301 (B8-M S.S.)	4
5	Sleeve	PTFE***	1
6	Diaphragm	PFA	1
6a	Diaphragm	1.4301 S.S. (optional)	1
11	G4E Thrust Collar	Durcoment 100 **	1
12	Ajuster	Durcoment 100**	1
13	Adjuster Fastener	1.4301 (B8-M S.S.)	2
17	Grounding Spring	301 S.S.	1
19	Stop Collar	Cadmium Plated Carbon Steel	1
20	Stop Collar Retainer	302 S.S.	1
22	Wrench	Ductile Iron	1
25	Stop Fastener	1.4301 (B8-M S.S.)	2
26	Stop	304 S.S.	1

\* Body (Item No. 1) and Plug (Item No. 2) available in the following cast materials: 0.7043, 1.0619, 1.4408, Durcoment 100, Durimet 20, Chlorimet 2 and 3, Nickel, Monel, Inconel, Titanium and Zirconium.

\*\* Durcoment 100 is a high alloy stainless steel, CD-4M Cu.

\*\*\*Other materials available on request.

### Materials Selection Chart

7043 = 0.7043/GGG40.3, Ref. ASTM A-395
DINI = Ductile Cast Iron Nickel Plated (Plug Only)
0619 = 1.0619/GSC-25, Ref. ASTM A-216, WCB
DSNI = Cast Steel Nickel Plated (Plug Only 75 mm (3 in) & larger)
D2 = ASTM A351/A744 Gr. CF8 (304 S.S.)
D2L = ASTM A351/A744 Gr. CF3 (304L S.S.)
4408 = 1.4408/G-X6 CrNiMo 18.10, Ref. ASTM A744, CF8M
D4L = ASTM A351/A744 Gr. CF3M (316L S.S.)
DV = Durcomet 5 (Durco's High Silicon Stainless Steel)
CD = ASTM A351/A744 Gr. CD4M Cu (Durcomet 100)
D20 = ASTM A351/A744 Gr. CN-7M (Durimet 20)
CK3M = ASTM A351/A744 Gr. CK-3MCuN (254 SMO) <sup>1</sup>
DIN = ASTM A494 Gr. CY-40 (Inconel 600) <sup>2</sup>
DM = ASTM A494 Gr. M35-2 (Monel 400) <sup>2</sup>
DMM = ASTM A494 Gr. M35-1 (Monel 400) <sup>2</sup>
DNI = ASTM A494 Gr. CZ-100 (Nickel 200)
DC2 = ASTM A494 Gr. N-7M (Chlorimet 2)
DC3 = ASTM A494 Gr. CW-6M (Chlorimet 3)
Ti = ASTM B367 Gr. C-3 (Titanium)
Zr = ASTM B752 Gr. 702C (Zirconium)
Zr5 = ASTM B752 Gr. 705C (Zirconium)

1. Registered trademark of Avesta AB

2. Registered trademark of the International Nickel Company, Inc.



## Flowserve Material

Flowserve Corporation has devoted more than 90 years to the development of alloys and the production of equipment to provide long, trouble-free life when handling severe corrosives. Flowserve, valves, pipe, fittings, and various accessory castings are among the equipment engineered and produced by Flowserve Corporation in various nickel-base alloys, iron-base alloys, and reactive alloys.

Corrosion charts for these alloys are available to provide assistance and reference in selection of alloy for specific service conditions.

### Composition

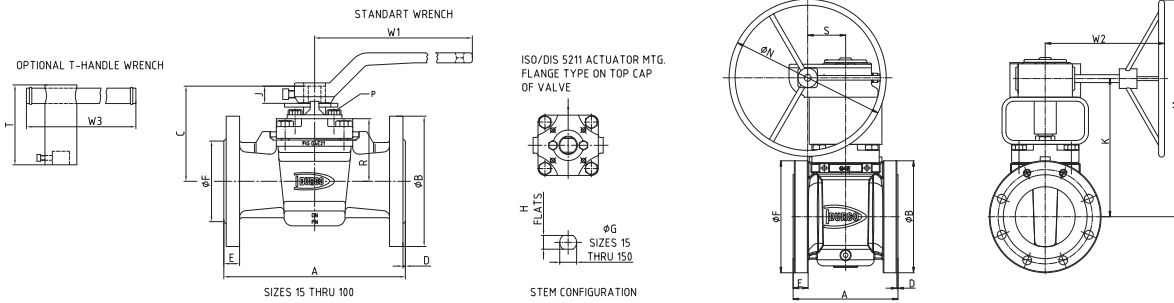
Durco Designation	Composition								
	Cr	Ni	Mo	Cu	Si	Mn	C	Fe	Co
Ductile Iron					2.75 max		3.0 min	Bal	
Carbon Steel	0.50 max	0.5 max	0.20 max	0.30 max	0.60 max	1.00 max	0.30 max	Bal	
17-4PH	15.5-17.5	3.0-5.0		3.0-5.0	1.0 max	1.0 max	0.07 max	Bal	
Durco CF-8M	18.0-21.0	9.0-12.0	2.0-3.0		2.00 max	1.50 max	0.08 max	Bal	
Durcomet 100	24.5-26.5	4.75-6.00	1.75-2.25	2.75-3.25	1.00 max	1.00 max	0.04 max	Bal	
Durimet 20	19.0-22.0	27.5-30.5	2.0-3.0	3.0-4.0	1.50 max	1.50 max	0.07 max	Bal	
Durcomet 5	20.0-22.0	15.0-17.0			4.0-6.0	1.50 max	.025 max	Bal	
Durco CK-3M	19.5-20.5	17.5-19.5	6.0-7.0	0.5-1.0	1.00 max	1.2 max.	.025 max	Bal	
Durco CY-40	14.0-17.0	Bal			3.00 max	1.50 max	0.40 max	11.00 max	
Durco M-35		Bal		26.0-33.0	1.25 max	1.50 max	0.35 max	3.50 max	
Nickel CZ-100		95.0 min		1.25 max	2.00 max	1.50 max	1.00 max	3.00 max	
Chlorimet 2	1.00 max	Bal	30.0-33.0		1.00 max	1.00 max	0.07 max	3.00 max	
Chlorimet 3	17.0-20.0	Bal	17.0-20.0		1.00 max	1.00 max	0.07 max	3.00 max	
Duriron	0.50 max		0.50 max	0.50 max	14.20-14.75	1.50 max	0.70-1.10	Bal	
Durichlor 51M	3.25-5.00		0.40-0.60	0.50 max	14.20-14.75	1.50 max	0.75-1.15	Bal	
Superchlor 77	4.00-4.50		3.00-3.30	0.12 max.	15.50-16.00	1.00 max	0.80-0.95	Bal	
Stellite 6	27.0-31.0	3.0 max	1.5 max		1.5 max	1.0 max	0.9-1.4	3.0 max	Bal
Durco DC-8	Proprietary Cobalt Base Alloy								
Titanium	N, 0.05 max; H, 0.015 max; O, 0.40 max						0.10 max	0.25 max	
Titanium-Pd	N, 0.05 max; H, 0.015 max; O, 0.40 max; Pd, 0.12 min						0.10 max	0.25 max	
Zirconium	N, 0.03 max; H, 0.005 max; O, 0.25 max; Hf, 4.5 max						0.10 max	0.30 max	
Zirconium 5	N, 0.03 max; H, 0.005 max; O, 0.30 max; Hf, 4.5 max; Cb, 2.0-3.0						0.10 max	0.30 max	

### Specifications and Properties

Durco Designation	Durco Symbol	ACI Designation	Equivalent-Wrought Designation	ASTM Specifications*	DIN (WN)	Mechanical Properties			Typical Brinell Hardness
						Tensile Strength min, psi	Yield Point min, psi	Elongation min, % in 2"	
Ductile Iron	DCI	None	None	A395	1693 (0.7043)	60,000	40,000	18	160
Carbon Steel	DS	None	Carbon Steel	A216, Gr. WCB	17245 (1.0619)	70,000	36,000	22	150
17-4PH	17-4	None	17-4PH	A564, Type 630	–	145,000	125,000	13	330
Durco CF-8M	D4	CF-8M	316	A744, Gr. CF-8M	17445 (1.4408)	70,000	30,000	30	154
Durcomet 100	CD4M	CD-4MCu	Ferrallium 255	A995, Gr. 1B	SEW410 (1.4463)	100,000	70,000	16	224
Durimet 20	D20	CN-7M	Alloy 20	A744, Gr. CN-7M	(1.4500)	62,000	25,000	35	133
Durcomet 5	DV	None	None	None	–	90,000	40,000	30	175
Durco CK-3M	CK-3M	CK-3MCuN	254SMO	A744, Gr. CK-3MCuN	(1.4529)	80,000	38,000	35	195
Durco CY-40	DINC	CY-40	Inconel 600	A494, Gr. CY-40	17742 (2.4816)	70,000	28,000	30	147
Durco M-35	DMM	M-35-1	Monel 400	A494, Gr. M-35-1	17130 (2.4365)	65,000	25,000	25	130
Nickel CZ-100	DNI	CZ-100	Nickel 200	A494, Gr. CZ-100	17730 (2.4170)	50,000	18,000	10	118
Chlorimet 2	DC2	N-7M	Hastelloy B-2	A494, Gr. N-7M	(2.4882)	76,000	40,000	20	200
Chlorimet 3	DC3	CW-6M	Hastelloy C-276	A494, Gr. CW-6M	(2.4883)	72,000	40,000	25	200
Duriron	D	None	None	A518, Gr. 1	–	930# (A)	–	–	520
Durichlor 51	D51M	None	None	A518, Gr. 2	–	930# (A)	–	–	520
Superchlor 77	SD77	None	None	None	–	1600# (A)	–	–	520
Stellite 6	F6	None	Stellite 6	None	–	115,000	96,000	3	400
Durco DC-8	DC8	None	None	None	–	–	–	–	300
Titanium	Ti	None	Titanium	B367, Gr. C-3	17850 (3.7031)	65,000	55,000	12(B)	200
Titanium-Pd	Ti-Pd	None	Titanium-Pd	B367, Gr. C-8A	17850 (3.7032)	65,000	55,000	12(B)	200
Zirconium	Zr	None	Zirconium702	B752, Gr. 702C	–	55,000	40,000	12(B)	190
Zirconium 5	Zr5	None	Zirconium705	B752, Gr. 705C	–	70,000	40,000	12(B)	190

\* Whenever an ASTM specification is cited, the Durco alloy will conform to the chemical and mechanical requirements of the latest edition of the specification. (A) Minimum transverse strength. (B) Minimum percent elongation in 1".

# G4E Valve Dimensions



Metric Units																						
Valve Size	Drilling PN 10-40			Drilling PN 10-16			Drilling PN25-40			A	B			C	D	E			F			
	No.	Size	B.C.	No.	Size	B.C.	No.	Size	B.C.		PN 10-40	PN 10-16	PN 25-40			PN 10-40	PN 10-16	PN 25-40	PN 10-40	PN 10-16	PN 25-40	
15	4	14	65						130	95			81	2	16					45		
20	4	14	75						150	105			81	2	18					58		
25	4	14	85						160	115			94	2	18					68		
32	4	18	100						180	140			94	2	18					78		
40	4	18	110						200	150			106	3	18					88		
50	4	18	125						230	165			121	3	20					102		
65				4	18	145	8	18	145	290		185	185	152	3		18	22			122	122
80	8	18	160						310	200			152	3	24					138		
100				8	18	180	8	22	190	350		220	235	194	3		20	24			158	162
125				8	18	210	8	26	220	400		250	270	194	3		22	26			188	188
150				8	22	240	8	26	250	480		285	300	247	3		22	28			212	218

Valve Size	GØ	H	J	K	M	N	P ISO Pad	R	S	T	W1 Std. Wrench	W2 Std. Gear	W3 Opt. T-Handle	Area of Port Sq. Cm.	Weights - kg		
															PN 10-40	PN 10-16	PN 25-40
15	13.61/13.49	11.10/10.97	18		121		F05	48		130	152		350	1.59	3.2		
20	13.61/13.49	11.10/10.97	18		121		F05	48		130	152		350	1.59	3.9		
25	19.99/19.86	16.66/16.54	22		122		F05	58		140	178		510	5.1	6.0		
32	19.99/19.86	16.66/16.54	22		122		F05	58		140	178		510	5.1	7.0		
40	19.99/19.86	16.66/16.54	24		140		F05	67		140	229		510	7.8	9.3		
50	27.31/27.18	22.23/22.10	25		160		F07	79		145	305		610	13.0	11.6		
65	27.31/27.18	22.23/22.10	30		190		F07	106		145	457		610	30.0		16.0	18.0
80	27.31/27.18	22.23/22.10	30		190		F07	106		145	457		610	30.0	21.2		
100	42.85/42.60	36.09/35.97	40	213	229	305	F10	133	76	150	762	224	710	48.0		30.4	35.3
125	42.85/42.60	36.09/35.97	40	213		305	F10	133	76			224		48.0		45.0	55.0
150	47.63/47.37	36.09/35.97	41	263		305	F12	183	76			224		104.0		66.9	73.7

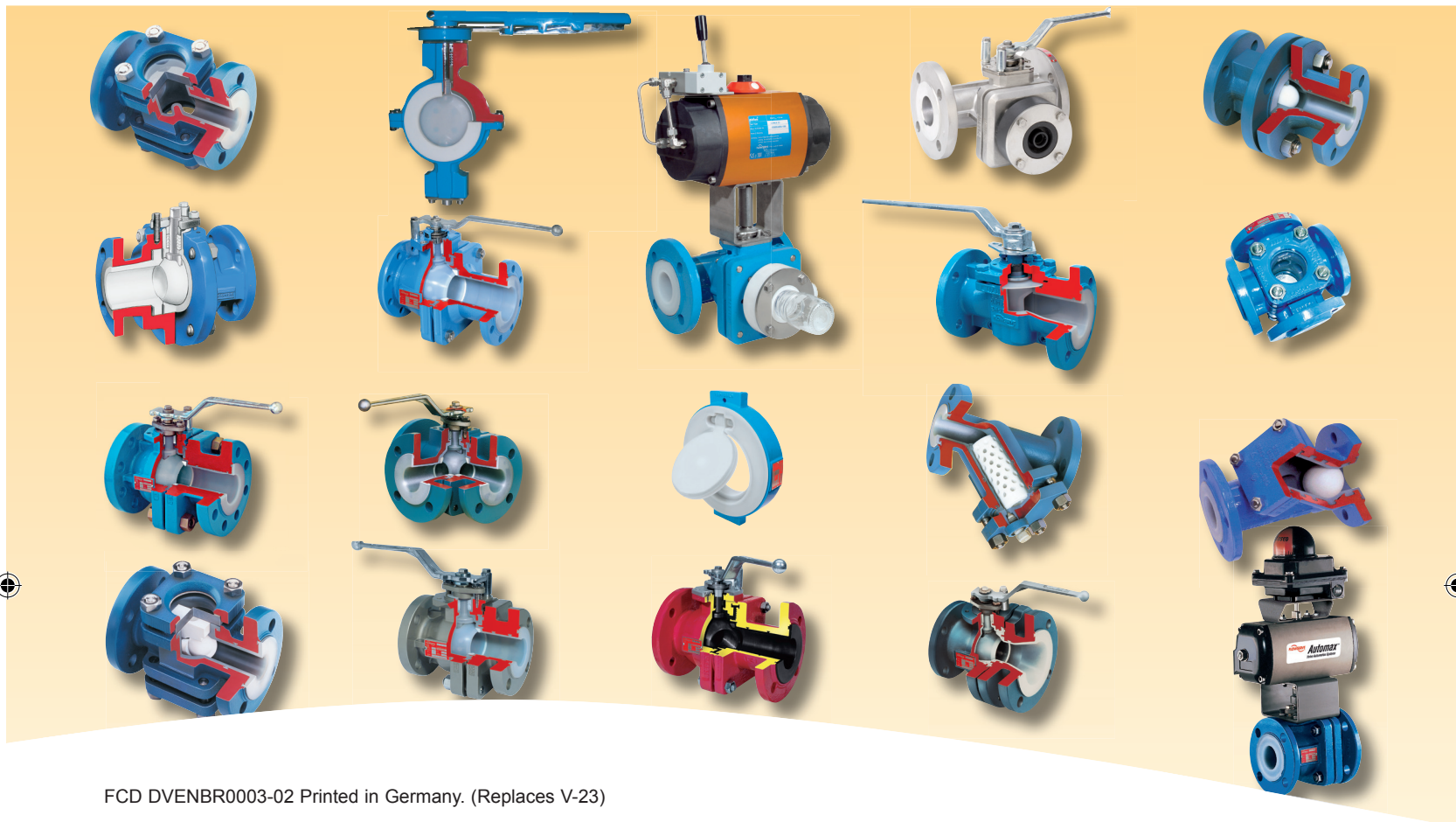
English Units																							
Valve Size	Drilling PN 10-40			Drilling PN 10-16			Drilling PN25-40			A	B			C	D	E			F				
	No.	Size	B.C.	No.	Size	B.C.	No.	Size	B.C.		PN 10-40	PN 10-16	PN 25-40			PN 10-40	PN 10-16	PN 25-40	PN 10-40	PN 10-16	PN 25-40		
1/2	4	9/16	2 9/16						5 1/8	3 3/4			3 3/8	1/16	5/8					1 3/4			
3/4	4	9/16	2 15/16						5 15/16	4 1/8			3 3/8	1/16	1 1/16					2 1/4			
1	4	9/16	3 3/8						6 3/8	4 1/2			3 1 1/16	1/16	1 1/16					2 1 1/16			
1 1/4	4	1 1/16	3 15/16						7 1/16	5 1/2			3 1 1/16	1/16	1 1/16					3 1/16			
1 1/2	4	1 1/16	4 3/16						7 7/8	5 5/16			4 3/8	1/8	1 1/16					3 7/16			
2	4	1 1/16	4 15/16						9 1/16	6 1/2			4 3/4	1/8	3/4					4			
2 1/2				4	1 1/16	5 1 1/16	8	1 1/16	5 1 1/16	11 7/16		7 1/4	7 1/4	6	1/8		1 1/16	7/8			4 7/8	4 13/16	
3	8	1 1/16	6 5/16						12 3/16	7 7/8			6	1/8	1 5/16					5 7/16			
4				8	1 1/16	7 1/16	8	7/8	7 1/2	13 3/4		8 1 1/16	9 1/4	7 7/8	1/8		3/4	1 5/16			6 1/4	6 3/8	
5				8	1 1/16	8 1/4	8	1	8 1 1/16	15 3/4		9 7/8	10 3/8	7 7/8	1/8		7/8	1			7 3/8	7 3/8	
6				8	7/8	9 7/16	8	1	9 7/8	18 7/8			11 1/4	11 13/16	9 3/4	1/8		7/8	1 1/8			8 3/8	8 3/8

Valve Size	GØ	H	J	K	M	N	P ISO Pad	R	S	T	W1 Std. Wrench	W2 Std. Gear	W3 Opt. T-Handle	Area of Port Sq. Cm.	Weights - kg		
															PN 10-40	PN 10-16	PN 25-40
1/2	17/32	7/16	2 3/32		4 3/4		F05	1 7/8		5 1/8	6		13 3/4	1/4	7		
3/4	17/32	7/16	2 3/32		4 3/4		F05	1 7/8		5 1/8	6		13 3/4	1/4	9		
1	25/32	2 1/32	7/8		4 3/4		F05	2 5/16		5 1/2	7		20	1 3/16	13		
1 1/4	25/32	2 1/32	7/8		4 3/4		F05	2 5/16		5 1/2	7		20	1 3/16	16		
1 1/2	25/32	2 1/32	1		5 1/2		F05	2 5/16		5 1/2	9		20	1 1/4	21		
2	1 5/64	7/8	1 3/16		6 5/16		F07	3 1/8		5 1 1/16	12		24	2	26		
2 1/2	1 5/64	7/8	1 3/16		7 1/2		F07	4 3/16		5 1 1/16	18		24	4 3/8		35	40
3	1 5/64	7/8	1 3/16		7 1/2		F07	4 3/16		5 1 1/16	18		24	4 3/8	47		
4	1 11/16	1 27/64	1 1/16	8 3/8	9	12	F10	5 1/4	3	5 7/8	30	8 13/16	28	7 3/8		67	78
5	1 11/16	1 27/64	1 1/16	8 3/8	12	12	F10	5 1/4	3	5 7/8	30	8 13/16	28	7 3/8		99	121
6	1 7/8	1 27/64	1 5/8	10 3/8		12	F12	7 3/16	3			8 13/16		16 1/8		148	163

All dimensions are approximate and for illustration purposes only. For exact dimensions request certified dimensional prints.





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