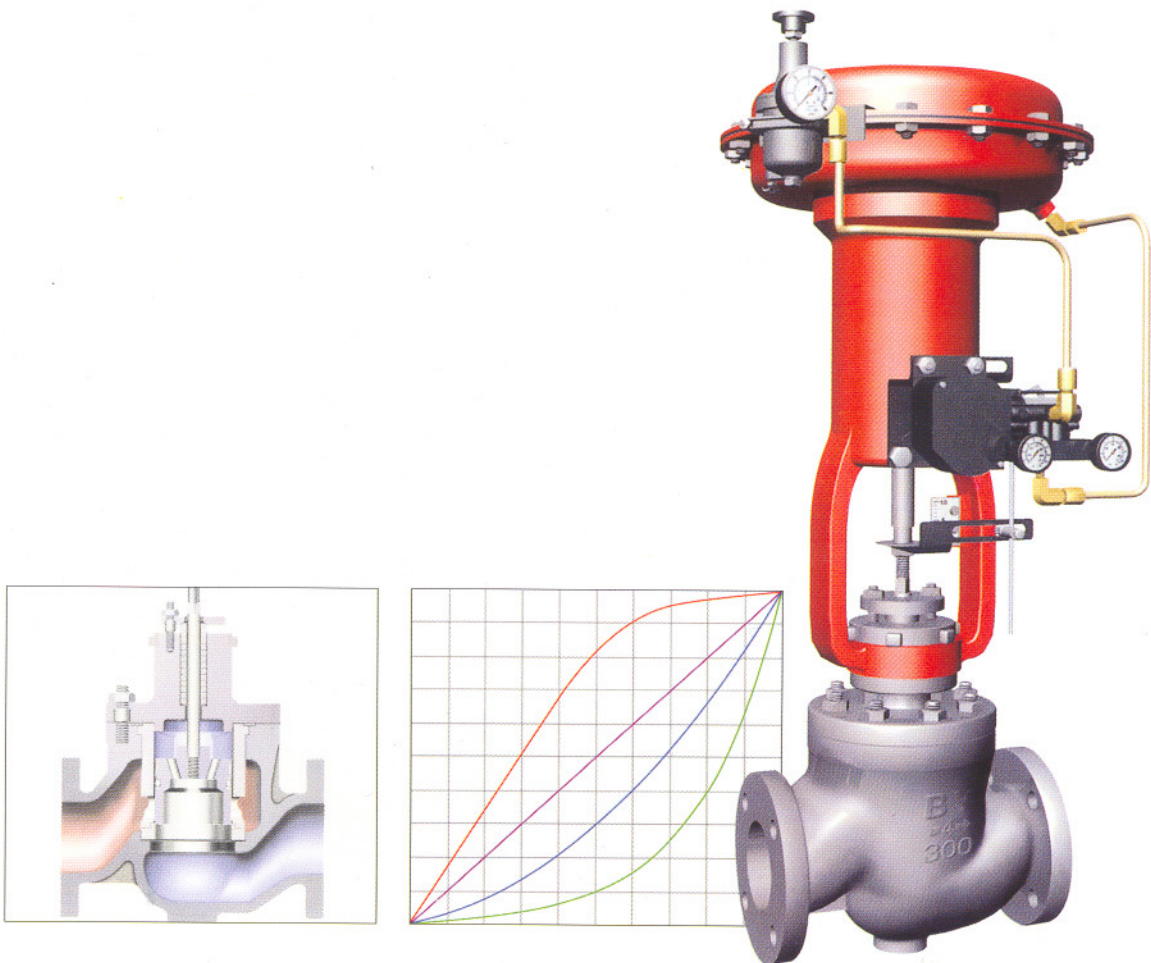


EAGLE

CAGE GUIDED THROTTLING CONTROL VALVE

| DG - SERIES |



ISO-9001 REGISTERED FIRM
Det Norske Veritas BV, NETHERLANDS

FEATURES

Eagle DG-Series globe body control valve is designed to operate under the most demanding flow control conditions. The core of these valves is the massive cage guidance system for the valve plug which provides strength, rigidity and years of precise flow control even in very high pressure drop applications.

Eagle DG's cage is suspended in the body from a machined shoulder, eliminating the problems of bonnet gasket leakage, cage deformation, sticking plugs, seat gasket and body wash - out, which can plug of DG globe valve are not welded, but flexibly connected with pin and screw. This prevents the valves from leakage and the o - ring or bearing in the plug from bias - wearing.

The balanced plug design allows line pressure under the plug to build up above the plug effectively cancelling out any unbalanced stem force due to pressure.

Some Special Features in Design and Operation

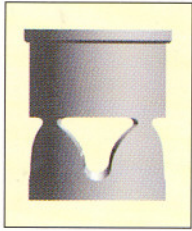
- *Lock-Nut connection between the bonnet and the actuator. Lock Nut connection allows quick assembly and disassembly of the valves, and the design also allows the actuator to be oriented in any direction (360 degrees) in relation to the valve body.*
- *Single Bonnet Mounting Size for all valves and actuators. The valve bonnet is designed as such that all the valve bodies and all the actuators will fit to a single bonnet in Eagle valve series.*
- *Handwheels and positioners are provided as an option. Any other accessories such as Air Filter Regulators, I / P Transducers, Pressure / Temperature Transmitters, Solenoid Valve, Limit Switches can be provided as required.*

GENERAL SPECIFICATION

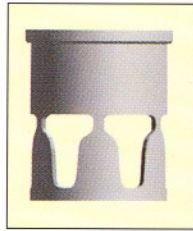
Valve Body Type & Style	Single seated globe body with cage guided throttling trim
Pressure Rating	ANSI 125 ~ 2500 or JIS 5 ~ 63K
Valve Size	1" ~ 16" (25 ~ 400 mm)
Temperature Range	PTFE V - ring : -20 ~ 460° F (-29 ~ 238° C) Laminated Graphite : -320 ~ 800° F (-195 ~ 427° C)
Body & Bonnet Material	ASTM A126 CL.B (FC20) ASTM A216 Gr. WCB (SCPH2) ASTM A536 Gr. 65 - 45 - 12 (FCD45) ASTM A351 Gr. CF8 or CF8M (SCS13 or SCS14)
Flow Coefficient (Rated Cv)	18 to 1280
Flow Characteristics	Equal Percentage, Linear, Quick Opening, Parabolic
Leakage Class	ANSI IV, V, VI
Rangeability	30 : 1 ~ 50 : 1
Max. Allowable Press. Drop	See the table (Page : 6)
Actuator Size	35 in ² , 55 in ² , 85 in ² , 135 in ² , 180 in ²
Actuator Action	Direct (air to close) / Reverse (air to open)
Spring Range	3 ~ 15 psi (0.2 ~ 1.0 kg / cm ²) / 6 ~ 30 psi (0.4 ~ 2.0 kg / cm ²)

T RIM SELECTION

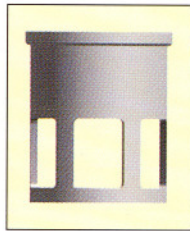
★ Flow characteristics



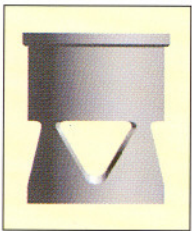
EQ %



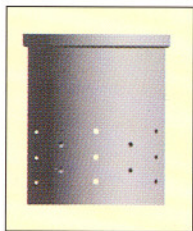
Linear



Quick Opening



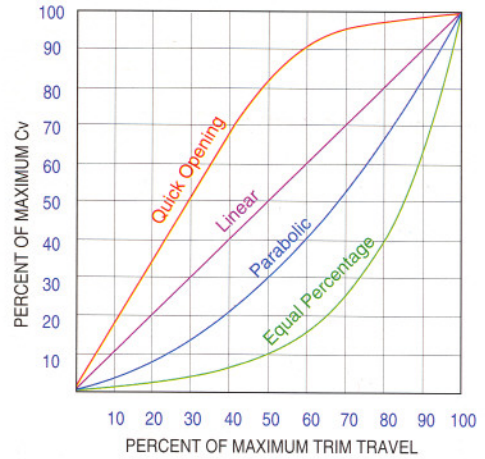
Parabolic



Anti Cavitation



Noise Reducing



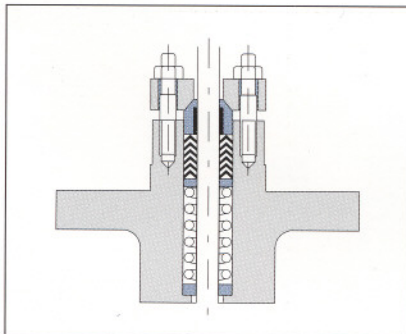
Note ; Anti-Cavitation and Noise Reducing have linear characteristics

★ Trim Material

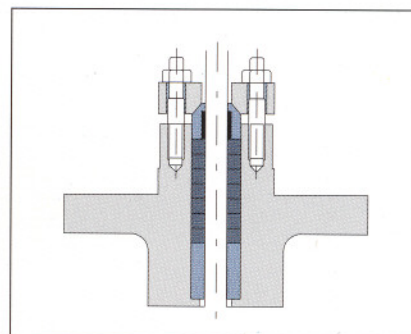
Plug Material	Cage Material	Seat Material	Limits	
			F	C
316 SST	A351 CF8 M	316 SST	- 300° to 400°	- 184° to 204°
316 SST / Stellite	A351 CF8 M	316 SST / Stellite	- 20° to 800°	- 29° to 427°

P ACKING SELECTION

★ Packing Configurations



PTFE - Ring

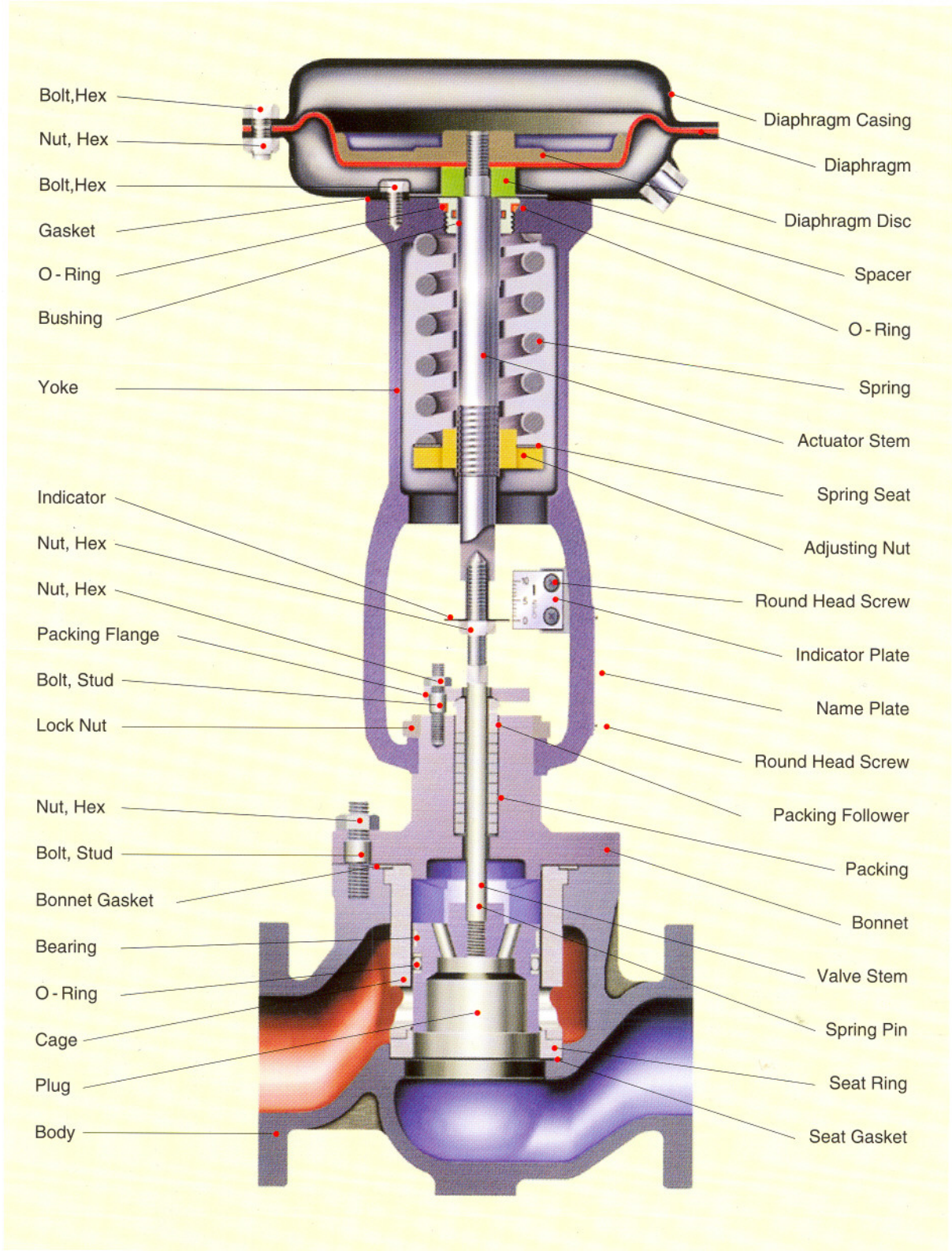


Laminated Graphite

★ Packing Material

Packing Material	Limits	
	F	C
PTFE V - Ring	- 20° to 460°	- 29° to 238°
Laminated Graphite	- 320° to 800°	- 195° to 427°

COMPONENTS



S standard material of construction

ITEM	ASTM	JIS
Body & Bonnet	A 126 CL.B A 216 Gr. WCB A 536 Gr. 65 - 45 - 12 A 351 Gr. CF8 or CF8M	FC 20 SCPH 2 FCD 45 SCS 13 or SCS 14
Valve Plug	316 SST	SUS 316
Valve Stem	316 SST	SUS 316
Valve Seat	316 SST	SUS 316
Packing	PTFE V - Ring or Graphite	PTFE V - Ring or Graphite
Bonnet Gasket	PTFE	PTFE
Diaphragm	BUNA-N	Neoprene
Actuator Stem	316 SST	SUS 316
Spring	SAE 9254	SAE 9254
Yoke	A 126 CL.B	FC 20
Diaphragm Casing	A 36	SS 41
Diaphragm Disc	A 126 CL.B	FC 20

F low coefficients (Cv)

BODY SIZE inches (mm)	TRIM SIZE inches (mm)	CHARACTERISTIC	VALVE OPENING - PERCENT TOTAL TRAVEL									
			10	20	30	40	50	60	70	80	90	100
1 (25)	1 (25.4)	EQUAL PERCENTAGE	0.31	0.58	1.25	2.4	4.6	7.8	12.0	15.1	17.1	18
		LINEAR	0.40	1.1	2.5	5.2	8.2	11.1	14.2	16.5	18.1	19
1½ (40)	1½ (38.1)	EQUAL PERCENTAGE	0.40	0.78	2.1	4.6	7.8	14.0	20.7	28.1	32.1	36
		LINEAR	0.90	3.3	7.5	13.1	19.8	26.9	33.3	36.8	40.1	42
2 (50)	2 (50.8)	EQUAL PERCENTAGE	0.62	2.2	4.7	9.3	15.2	25.4	38.6	52.6	57.5	62
		LINEAR	1.5	4.7	10.8	19.8	30.2	40.8	49.5	56	60.8	65
2½ (65)	2½ (63.5)	EQUAL PERCENTAGE	0.81	3.1	6.4	13.1	21.8	36.1	56.0	76.1	83.1	90
		LINEAR	2.1	6.7	15.5	28.1	43.8	58.2	71.2	81.1	87.2	93
3 (80)	3 (76.2)	EQUAL PERCENTAGE	0.92	3.5	7.8	15.9	28.5	47.8	71.5	95.1	110	125
		LINEAR	3.5	9.0	21.1	40.5	60.1	80.8	96.4	108	118	127
4 (100)	4 (101.6)	EQUAL PERCENTAGE	2.9	10.5	21.3	36.2	55.2	82.1	125	166	190	205
		LINEAR	9.1	22.0	45.1	72.3	99.2	126	152	176	193	206
5 (125)	5 (127)	EQUAL PERCENTAGE	4.4	14.2	29.2	50.5	76.1	113	173	232	261	285
		LINEAR	12.7	30.7	63.5	101	138	177	215	245	270	288
6 (150)	6 (152.4)	EQUAL PERCENTAGE	7.8	22.5	46.1	80.5	124	189	280	371	410	435
		LINEAR	22	61	115	170	223	278	332	381	413	439
8 (200)	8 (203.2)	EQUAL PERCENTAGE	18.5	44.6	88.1	145	225	347	481	640	723	760
		LINEAR	54.6	124	221	324	419	515	611	696	743	781
10 (250)	10 (254)	EQUAL PERCENTAGE	20.6	55.8	110	181	281	434	601	800	904	950
		LINEAR	68.5	155.6	277	407	526	646	767	873	932	980
12 (300)	12 (304.8)	EQUAL PERCENTAGE	26.1	70.4	139	229	355	548	759	1011	1142	1200
		LINEAR	87.4	198.5	354	519	671	824	978	1114	1189	1250
14 (350)	14 (355.6)	EQUAL PERCENTAGE	47.85	129.07	254.8	419.8	650.8	1005	1392	1854	2094	2200
		LINEAR	157.32	357.3	637.2	934.2	1208	1483	1760	2005	2140	2250
16 (400)	16 (406.4)	EQUAL PERCENTAGE	60.9	164.27	324.3	534.3	828.3	1279	1771	2359	2665	2800
		LINEAR	199.27	452.58	807.1	1183	1530	1879	2230	2540	2711	2850

M AXIMUM ALLOWABLE PRESSURE DROP (psi)

★ REVERSE

ACTUATOR SIZE	INITIAL AIR PRESSURE	TRIM SIZE - inches (mm)									
		1 (25.4)	1¼ (31.8)	1½ (38.1)	2 (50.8)	2½ (63.5)	3 (76.2)	4 (101.6)	5 (127)	6 (152.4)	8 (203.2)
35 in ²	3	260	199	171							
	6	562	398	341							
	9	950	711	569							
55 in ²	3		307	246	205	143	123				
	6		614	492	410	287	246				
	9		1106	901	717	553	451				
85 in ²	3			370	317	238	185	159	136	114	
	6			741	635	462	370	317	271	226	
	9			1376	1111	846	688	556	432	360	
135 in ²	3							242	199	171	128
	6							484	398	341	256
	9							881	711	597	455

★ DIRECT (6 to 30 psi spring)

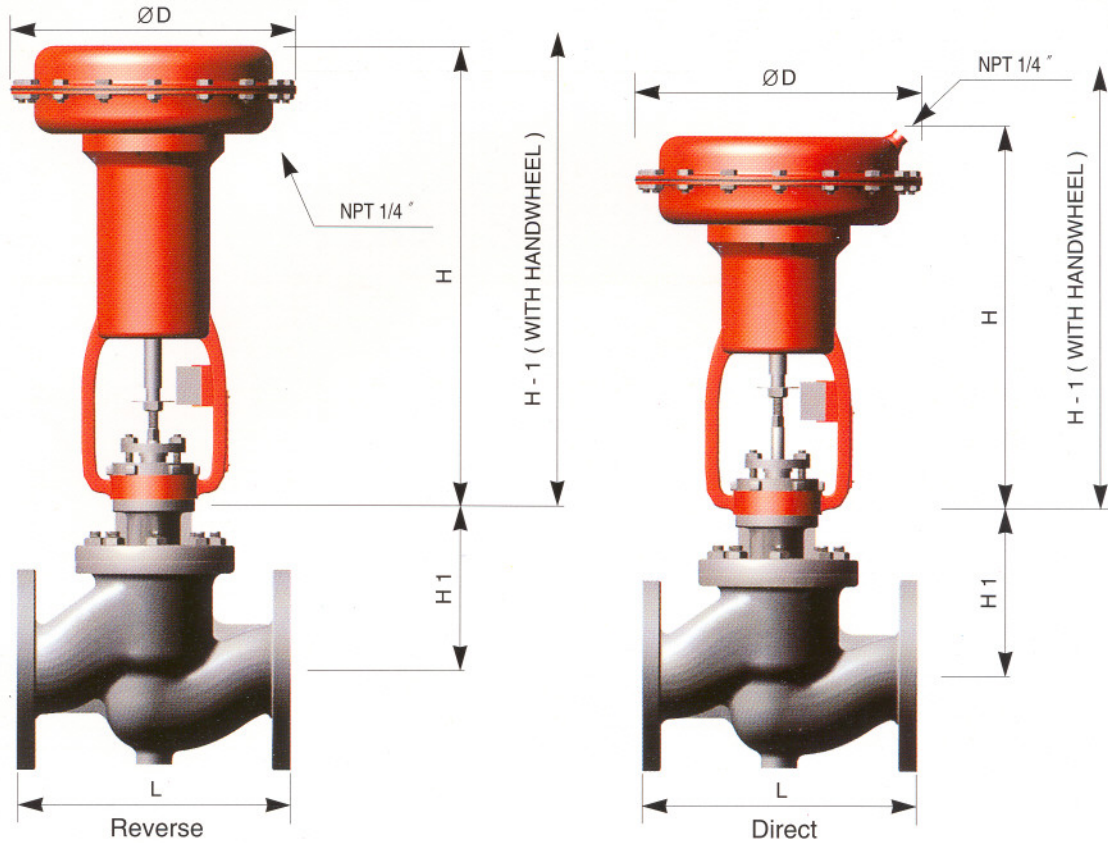
ACTUATOR SIZE	AIR SUPPLY PRESSURE	TRIM SIZE - inches (mm)									
		1 (25.4)	1¼ (31.8)	1½ (38.1)	2 (50.8)	2½ (63.5)	3 (76.2)	4 (101.6)	5 (127)	6 (152.4)	8 (203.2)
35 in ²	18	260	199	171							
	20	461	331	284							
	22	717	507	420							
	24	950	711	569							
55 in ²	18		307	246	205	143	123				
	20		505	410	338	237	205				
	22		782	675	538	390	325				
	24		1106	910	717	553	451				
85 in ²	18			370	317	238	185	159	136	114	
	20			617	527	387	306	246	226	188	
	22			965	816	602	488	405	335	277	
	24			1376	1111	846	688	556	432	360	
135 in ²	18							242	199	171	128
	20							403	322	280	208
	22							615	497	434	341
	24							881	711	597	455

A PPLICABLE INDUSTRY STANDARDS

ANSI B16.1 CAST IRON FLANGE AND FLANGED FITTING
 ANSI B16.5 PIPE FLANGES AND FLANGED FITTINGS
 ANSI B16.10 FACE - TO - FACE DIMENSIONS
 ANSI B16.34 VALVES, FLANGED AND BUTT - WELD
 ANSI B16.37 HYDROTESTING OF CONTROL VALVES
 ANSI/ISA70-2 CONTROL VALVE SEAT LEAKAGE
 ANSI B1.20.1 PIPE THREADS
 MSS SP25 STANDARD MARKING SYSTEM FOR
 VALVES, FITTINGS, FLANGES, AND UNIONS
 MSS SP84 STEEL VALVES, SOCKET - WELD END AND
 THREADED END

ISA S75.01 FLOW EQUATIONS FOR SIZING CONTROL VALVES.
 ISA S75.02 CONTROL VALVE CAPACITY TEST PROCEDURE
 ISA S75.03 FACE - TO - FACE DIMENSIONS FOR FLANGED
 GLOBE STYLE CONTROL VALVES
 ISA S75.11 INHERENT FLOW CHARACTERISTIC AND
 RANGEABILITY OF CONTROL VALVES
 ISA S75.12 FACE - TO - FACE DIMENSIONS FOR
 SOCKET - WELD END AND SCREWED END
 GLOBE STYLE CONTROL VALVES

DIMENSION



inches (mm)

VALVE PARTS					
VALVE SIZE	L (FLANGED)			H1	WEIGHT lb (kg)
	ANSI 150	ANSI 300	ANSI 600		
1 (25)	7.25 (184)	7.75 (197)	8.25 (210)	4.92 (125)	25 (11.4)
1½ (40)	8.75 (222)	9.25 (235)	9.88 (251)	5.20 (132)	46 (20.1)
2 (50)	10.00 (254)	10.50 (267)	11.25 (286)	6.34 (161)	65 (29.5)
2½ (65)	10.88 (276)	11.50 (292)	12.25 (311)	6.93 (176)	104 (47.3)
3 (80)	11.75 (298)	12.50 (318)	13.25 (337)	7.87 (200)	121 (54.9)
4 (100)	13.88 (352)	14.50 (368)	15.50 (394)	9.57 (243)	165 (75)
5 (125)	15.87 (403)	16.73 (425)	18.00 (457)	10.12 (257)	213 (98)
6 (150)	17.75 (451)	18.62 (473)	20.00 (508)	10.75 (273)	321 (146)
8 (200)	21.38 (543)	22.38 (568)	24.00 (610)	12.24 (311)	510 (231.8)
10 (250)	26.50 (673)	27.88 (708)	29.62 (752)	14.33 (364)	760 (345.5)
12 (300)	29.00 (737)	30.50 (775)	32.25 (819)	16.77 (426)	1150 (522.7)
14 (350)	35.00 (889)	36.50 (927)	38.25 (972)	17.72 (450)	1132.5 (514.8)
16 (400)	40.00 (1016)	41.62 (1057)	43.62 (1108)	19.53 (496)	1740.1 (791.0)

ACTUATOR PARTS					
ACTUATOR SIZE	D	H	H-1	WEIGHT lb (kg)	
Reverse	35 in ²	9.65 (245)	14.76 (376)	20.63 (524)	32 (14.5)
	55 in ²	11.97 (304)	18.98 (482)	26.34 (669)	61 (27.7)
	85 in ²	14.76 (375)	24.80 (630)	33.27 (845)	123 (55.9)
	135 in ²	18.00 (457)	28.40 (722)	38.9 (987)	203 (92.4)
	180 in ²	20.63 (524)	33.86 (860)	45.2 (1148)	390 (177.3)
Direct	35 in ²	9.65 (245)	12.48 (317)	19.09 (485)	28 (12.7)
	55 in ²	11.97 (304)	15.75 (400)	25.39 (645)	52 (23.6)
	85 in ²	14.76 (375)	20.79 (528)	30.24 (768)	102 (46.3)
	135 in ²	18.00 (457)	24.41 (620)	35.83 (910)	189 (85.8)
	180 in ²	20.63 (524)	27.64 (702)	41.6 (1056)	368 (167.3)

Notes ; 1. Also available in JIS, DIN and BS. For all other standards please consult factory.

2. Weights are approximate and applied to ANSI 300.

ORDERING INFORMATION

DG-100 S 4 F L T D 8 4

Body Size - inches (mm)

25	1 (25)
40	1½ (40)
50	2 (50)
65	2½ (65)
80	3 (80)
100	4 (100)
125	5 (125)
150	6 (150)
200	8 (200)
250	10 (250)
300	12 (300)
350	14 (350)
400	16 (400)

Body Material

G	CAST IRON
S	CAST STEEL
D	DUCTILE IRON
T	STAINLESS STEEL

Body Rating

1	ANSI 125
2	ANSI 150
3	ANSI 250
4	ANSI 300
5	ANSI 600
6	ANSI 900
7	ANSI 1500
8	ANSI 2500
9	JIS 5K
10	JIS 10K
11	JIS 16K
12	JIS 20K
13	JIS 30K
14	JIS 40K
15	JIS 63K

Body Connection

F	Flanged
B	Butt - weld
S	Socket - weld

Option

T	Handwheel (top)
S	Handwheel (side)
1	Air Filter Regulator
2	I / P Transducer
3	P / P Positioner
4	E / P Positioner
5	3-Way Solenoid Valve
6	Limit Switch

Actuator Size

3	35 in ²
5	55 in ²
8	85 in ²
13	135 in ²
14	180 in ²

Actuator Action

D	Direct
R	Reverse

Packing

T	PTFE V - Ring
G	Graphite

Trim Type

E	EQ%
L	Linear
Q	Quick Opening
C	Anti - Cavitation
N	Noise Reducing
M	Modified Parabolic
P	Parabolic



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