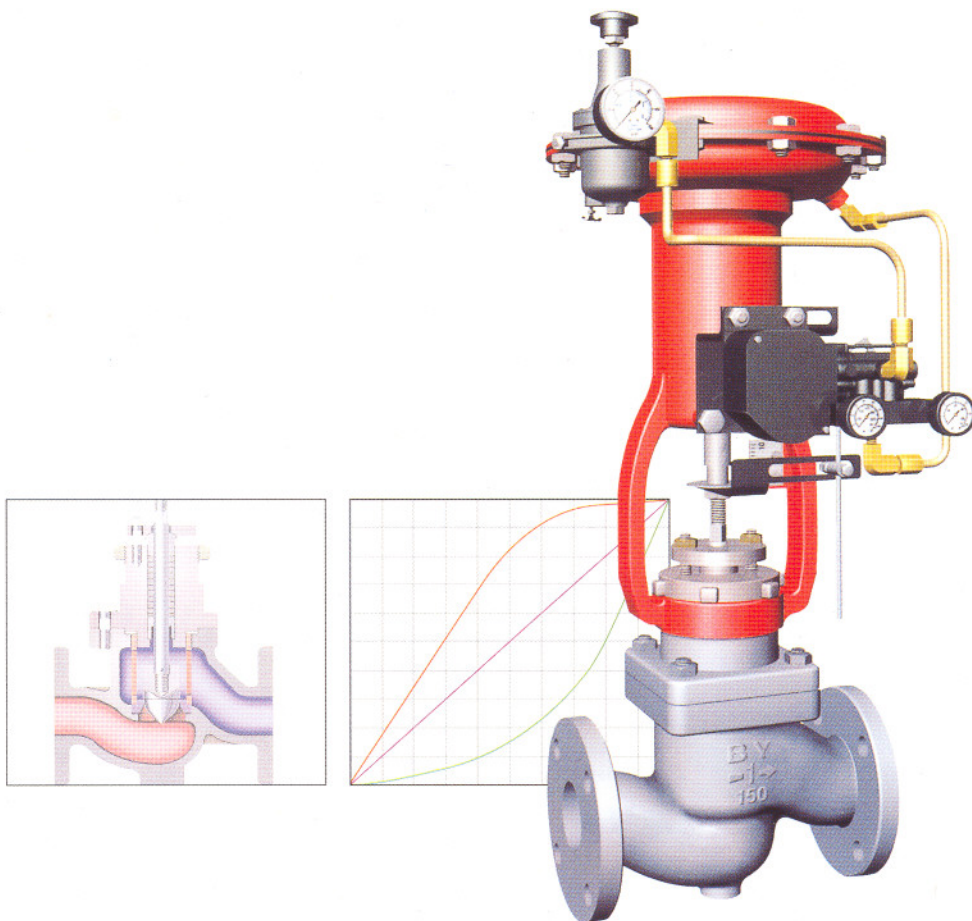


EAGLE

CAGE RETAINED TRIM CONTROL VALVE

| DP - SERIES |



ISO-9001 REGISTERED FIRM
Del Noorbe Veritas BV, NETHERLANDS

OUTLINE

Eagle DP-Series Cage Retained Trim Control Valves are designed for liquid, gas, and steam services. In this type of valves the seat and gasket are compressed by the cage (lantern ring) that is inserted in the body. The gasket between the body bridge and seat ring prevents leakage under the seat. The greatest advantage of this configuration is improved reparability.

Trim parts can be easily replaced by merely removing the bonnet, the cage and seat ring. Being of unbalanced type these valves have the same actuator sizing and stem strength limitations as the TG-Series 3-Way Control Valves. Typical application of this control valve in shipbuilding is in control of the steam flow for heating the fuel or lubrication oils.

FEATURES

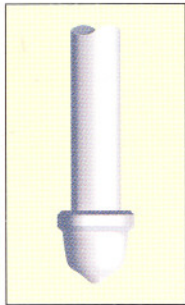
- Cage retained seat design is adopted. There are no internal threaded parts, and no special tool is required for replacement of the seats.
- Lock nut connects the bonnet and the actuator. Lock nut connection allows quick assembly and disassembly of the valves, and the design also allows the actuator to be oriented in any direction (360 degrees) in relation to the body.
- Handwheels and positioners are provided as an option. Any other accessories such as Air Filter Regulators, I/P Transducers, Pressure/Temperature Transmitters, Solenoid Valves, Limit Switches can be provided as required.

GENERAL SPECIFICATION

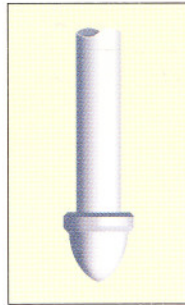
Valve Body Type & Style	Single seated globe body with cage retained trim
Pressure Rating	ANSI 125 ~ 600 or JIS 5 ~ 40K
Valve Size	1 / 2" ~ 2" (15 ~ 50 mm)
Temperature Range	PTFE V-ring : -20 ~ 460° F (-29 ~ 238° C) Laminated Graphite : -320 ~ 800° F (-195 ~ 427° C)
Body & Bonnet Material	ASTM A126 CL.B (FC20) ASTM A126 Gr. WCB (SCPH2) ASTM A536 Gr. 65 - 45 - 12 (FCD45) ASTM B584 C905 or C836 (BC3 or BC6) ASTM A351 Gr. CF8 or CF8M (SCS13 or SCS14)
Flow Coefficient (Rated Cv)	3.8 to 56
Flow Characteristics	Parabolic, Equal Percentage, Linear, Quick Opening
Leakage Class	ANSI IV
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
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)

TRIM SELECTION

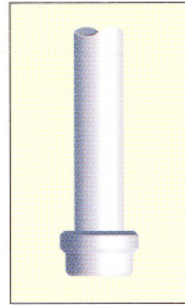
Flow Characteristics



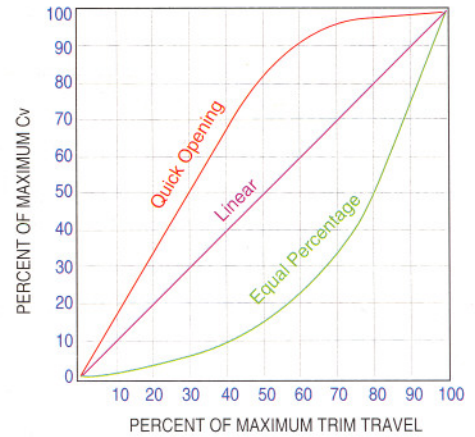
EQ %



Linear



Quick Opening

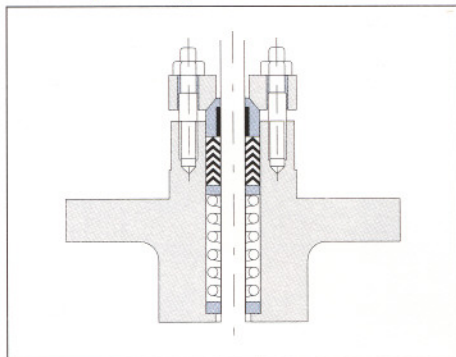


Trim Material

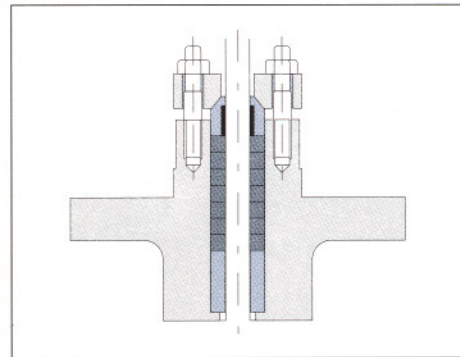
Plug Material	Cage Material	Seat Material	Limits	
			°F	°C
316 SST	316 SST	316 SST	- 300 ~ 400	- 184 ~ 204
316 SST / Stellite	316 SST	316 SST / Stellite	- 20 ~ 800	- 29 ~ 427

PACKING SELECTION

Packing Configurations



PTFE - Ring

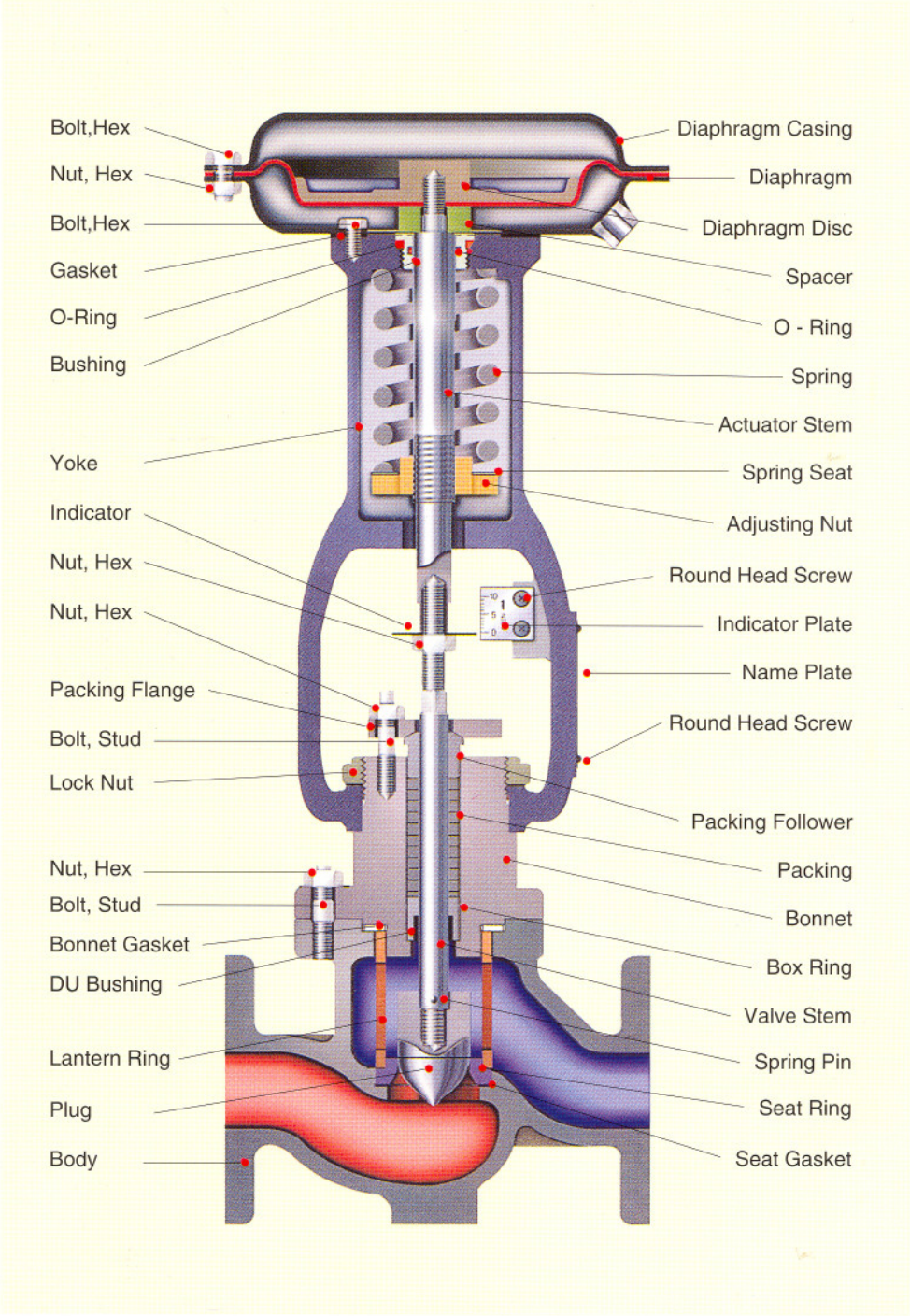


Laminated Graphite

Packing Material

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

COMPONENTS



STANDARD MATERIAL OF CONSTRUCTION

ITEM	ASTM	JIS
Body & Bonnet	A126 CL.B	FC 20
	A216 Gr. WCB	SCPH 2
	A536 Gr. 65 - 45 - 12	FCD 45
	B584 C905 or C836	BC 3 or BC 6
	A351 Gr. CF8 or CF8M	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	SS41
Diaphragm Disc	A 126 CL.B	FC 20

FLOW COEFFICIENTS (Cv)

BODY SIZE mm (inch)	TRIM SIZE inch (mm)	CHARACTERISTIC	VALVE OPENING - PERCENT TOTAL TRAVEL									
			10	20	30	40	50	60	70	80	90	100
15 (1/2)	1/2 (12.7)	EQUAL PERCENTAGE	0.14	0.27	0.57	0.84	1.14	1.5	2.0	2.6	3.3	3.8
		LINEAR	0.44	0.6	0.9	1.3	1.8	2.2	2.6	3.1	3.8	4.4
20 (3/4)	3/4 (19.1)	EQUAL PERCENTAGE	0.2	0.32	0.8	1.3	1.7	2.2	3.2	4.6	6.2	7.5
		LINEAR	0.97	1.84	2.7	3.6	4.5	5.2	6.0	6.9	7.7	8.5
25 (1)	1 (25.4)	EQUAL PERCENTAGE	0.39	0.98	1.9	3.6	5.4	7.9	10.6	12.3	13.6	15
		LINEAR	1.92	3.2	4.8	6.4	8.0	9.6	11.2	12.8	14.4	16
32 (1 1/4)	1 1/4 (31.8)	EQUAL PERCENTAGE	0.82	1.56	2.5	4.1	6.3	9	13.1	17.3	21.4	23
		LINEAR	2.7	5.4	8.1	10.8	13.5	16.2	18	20.7	23.4	25.2
40 (1 1/2)	1 1/2 (38.1)	EQUAL PERCENTAGE	1.2	2.4	4	6.3	9.6	13.7	20	26	32	35
		LINEAR	4.3	7.3	10.9	14.6	18.3	22	26	29	33	36.5
50 (2)	2 (50.8)	EQUAL PERCENTAGE	1.4	3.7	7.1	13.4	20	29	40	46	51	56
		LINEAR	7.0	11.7	17.5	23	29	35	41	47	53	58

APPLICABLE INDUSTRY STANDARDS

ANSI B16.1	CAST IRON FLANGE AND FLANGED FITTING	ANSI S75.01	FLOW EQUATIONS FOR SIZING CONTROL VALVES.
ANSI B16.5	PIPE FLANGES AND FLANGED FITTINGS	ANSI S75.02	CONTROL VALVE CAPACITY TEST PROCEDURE
ANSI B16.10	FACE - TO - FACE DIMENSIONS	ANSI S75.03	FACE - TO - FACE DIMENSIONS FOR FLANGED GLOBE STYLE CONTROL VALVES
ANSI B16.34	VALVES, FLANGED AND BUTT - WELD	ANSI S75.11	INHERENT FLOW CHARACTERISTIC AND RANGEABILITY OF CONTROL VALVES
ANSI B16.37	HYDROTESTING OF CONTROL VALVES	ANSI S75.12	FACE - TO - FACE DIMENSIONS FOR SOCKET - WELD END AND SCREWED END GLOBE STYLE CONTROL VALVES
ANSI / ISA70 - 2	CONTROL VALVE SEAT LEAKAGE		
ANSI B1.20.1	PIPE THREADS STANDARD MARKING SYSTEM FOR VALVES, FITTINGS, FLANGES, AND UNIONS		
MSS SP84	STEEL VALVES, SOCKET - WELD END AND THREADED END		

MAXIMUM ALLOWABLE PRESSURE DROP (psi)

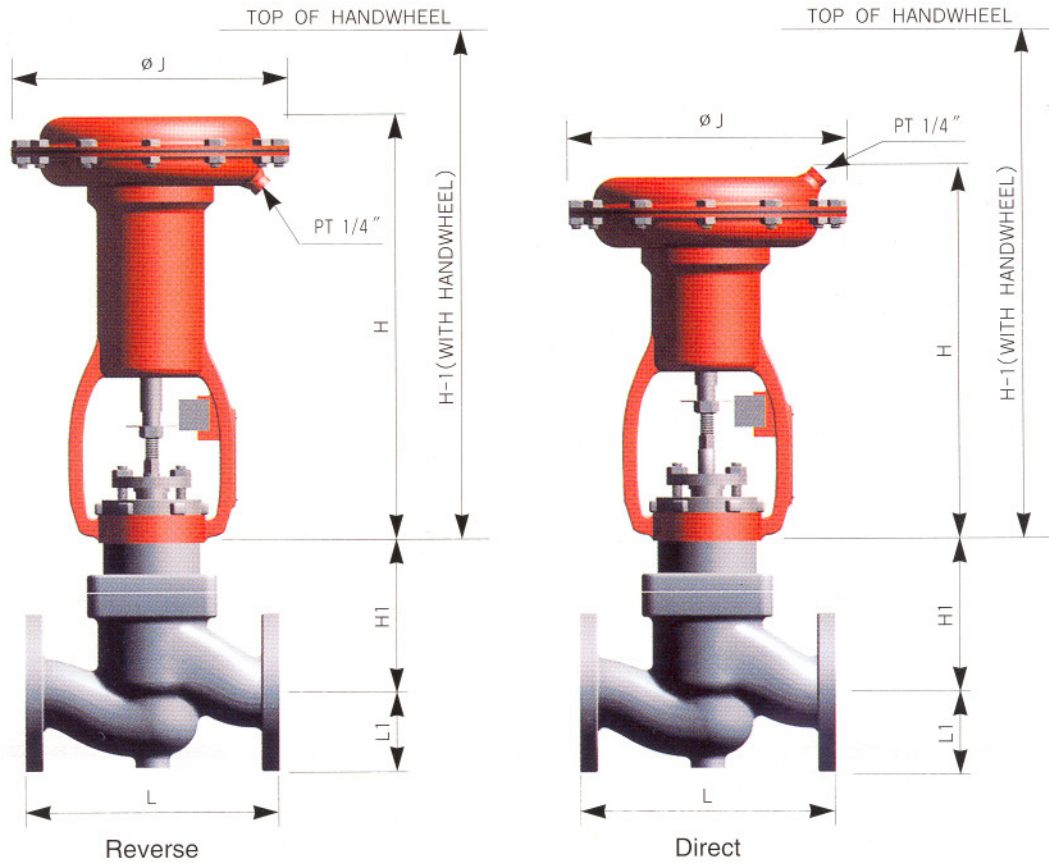
Reverse

ACTUATOR SIZE	INITIAL AIR PRESSURE	TRIM SIZE - inch (mm)					
		1/2 (12.7)	3/4 (19.1)	1 (25.4)	1 1/4 (31.8)	1 1/2 (38.1)	2 (50.8)
35 in ²	3	333	149	84	54	38	21
	6	697	310	172	112	80	44
	9	1043	470	265	171	116	68
55 in ²	3	535	264	150	95	66	37
	6	1124	552	316	196	139	76
	9	1670	826	468	297	201	115
85 in ²	3	843	374	210	135	95	54
	6	1776	786	449	295	211	122
	9	2668	1184	668	427	299	180

Direct (6 ~ 30 psi spring)

ACTUATOR SIZE	AIR SUPPLY PRESSURE	TRIM SIZE - inch (mm)					
		1/2 (12.7)	3/4 (19.1)	1 (25.4)	1 1/4 (31.8)	1 1/2 (38.1)	2 (50.8)
35 in ²	33	333	149	84	54	38	21
	35	557	249	142	90	64	37
	37	808	358	204	133	92	52
	39	1043	470	265	171	116	68
55 in ²	33	535	264	150	95	56	37
	35	892	441	253	150	114	64
	37	1301	641	365	229	159	91
	39	1670	826	468	297	201	115
85 in ²	33	843	374	210	135	95	54
	35	1408	625	353	227	157	91
	37	2041	904	508	326	236	138
	39	2668	1184	668	427	299	180

DIMENSION



JIS 5K, 10K, 16K, 20K VALVE DIMENSION

NOMINAL BORE		L	L1	H1
mm	inch			
15	1/2	184 (7.24)	48 (1.89)	127 (5.00)
20	3/4	184 (7.24)	50 (1.97)	127 (5.00)
25	1	184 (7.24)	63 (2.48)	127 (5.00)
32	1 1/4	222 (8.74)	68 (2.68)	132 (5.20)
40	1 1/2	222 (8.74)	70 (2.76)	132 (5.20)
50	2	254 (10.0)	78 (3.07)	161 (6.34)

DIAPHRAGM ACTUATOR DIMENSION

ACTUATOR SIZE		35 in ²	55 in ²	85 in ²
REVERSE TYPE	ϕJ	245 (9.65)	304 (12.0)	379 (14.9)
	H	376 (14.8)	482 (19.0)	608 (23.9)
	H-1	524 (20.6)	669 (26.3)	822 (32.4)
DIRECT TYPE	ϕJ	245 (9.65)	304 (12.0)	379 (14.9)
	H	317 (12.5)	400 (15.7)	511 (20.1)
	H-1	485 (19.1)	646 (25.4)	757 (29.8)

ORDERING INFORMATION

DP - 25 S 4 F L T D 3 4

Body Size - mm (inch)

15	15 (1/2)
20	20 (3/4)
25	25 (1)
32	32 (1 1/4)
40	40 (1 1/2)
50	50 (2)

Body Material

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

Body Rating

1	ANSI 125
2	ANSI 150
3	ANSI 250
4	ANSI 300
5	ANSI 600
6	JIS 5 K
7	JIS 10 K
8	JIS 16 K
9	JIS 20 K
10	JIS 30 K
11	JIS 40 K

Body Connection

F	Flanged
N	Screwed NPT
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 (on - off)

Actuator Size

3	35 in ²
5	55 in ²
8	85 in ²

Actuator Action

D	Direct
R	Reverse

Packing

T	PTFE V-Ring
G	Graphite

Trim Type

E	EQ%
L	Linear
Q	Quick Opening
P	Parabolic



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