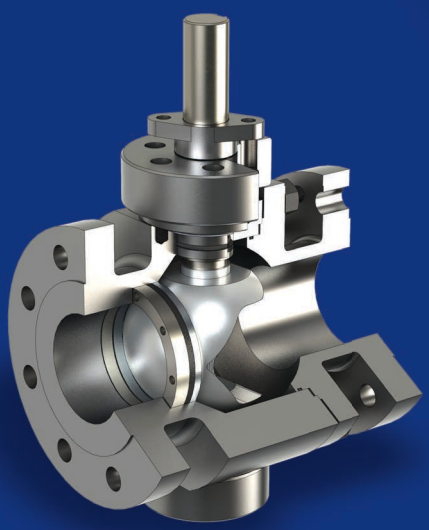
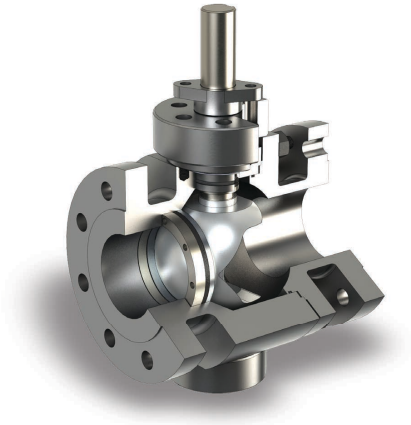
www.cvdvalve.com

Segment Ball Valve

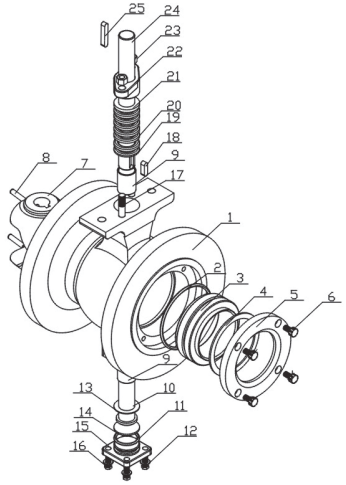


DHCv
DaehanCVD Co., Ltd.
Valves

PARTS LIST/MATERIALS OF CONSTRUCTION



Two-Piece Body (Full Bore)



One-Piece Body (Reduced Bore)

No.	Name	Quantity	Material	Remark
1	Body	1	WCB, CF8, CF8M	
2	O-ring	1	Viton, Graphite	
3	Seat	1	SS304, SS316 + Stellite Surfacing	HVOF coating is available
4	Wavy spring	1	17-4PH	
5	Retainer	1	WCB, SS304, SS316	
6	Socket head screw	4	SS304	
7	Segment ball	1	CF8, CF8M + HCr	HVOF coating is available
8	Cylindrical pin	2	SS304 , SS316	
9	Self-lubricating bearing	2	SS304 + PTFE	
10	Lower shaft	1	17-4PH, SS316	
11	O-ring	1	Viton, Graphite	
12	Flat gasket	4	SS304	
13	Gasket	1	PTFE	

No.	Name	Quantity	Material	Remark
14	Adjust gasket	1	PTFE	
15	Blind flange	1	CF8, CF8M	
16	Hexagon screw	4	SS304	
17	Stud	2	SS304	
18	Flat Key	1	SS304	
19	Upper packing	1	PTFE	
20	Middle packing	Set	PTFE	
21	Lower packing	1	PTFE	
22	Gland	1	CF8, CF8M	
23	Hexagon nut	2	SS304	
24	Upper shaft	1	17-4Ph, SS316	
25	Key	1	SS304, SS316	

* Different materials can be applicable depend on media and temperature.

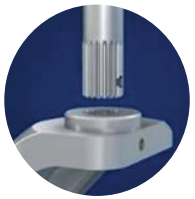
TECHNICAL DATA

End Connection

Wafer/Flange structure : 1″-10″ (DN25-DN250)
Flange structure : 12″-20″(DN300-DN500)

Normal Pressure Ratings

ANSI 150, ANSI 300, ANSI 600
DIN PN10, PN16, PN25, PN40, PN64



Option: Spline Connection

Design Standard

1 Flange standard : ASME B 16.5, EN1092-1:2001

2 Pressure-Temp rated Valve : ASME B 16.34-2003, ISO7005-1

3 Face to face length standard
Wafer : special size
Flange : ISA S75.04-1995, IEC/DIN 534-3-2

4 Applicable Temp range
-20℉~482℉(-29℃~250℃) for soft seat
-20℉~662℉(-29℃~350℃) for Metal seat
-20℉~1022℉(-29℃~550℃) for High temp metal seat

5 Seat and shell test standard
Each DHCv valve undergoes hydraulic test with 1.5 X pressure rating as shell test pressure and 1.1 X pressure rating as seat tightness test pressure. Test medium is water. (Nitrogen test is applicable on request.)

6. Leakage class : IEC 60534-4, ANSI/FCI 70-2, ISO 5208
* Optional Class V and Class VI on request.

MAXIMUM ALLOWABLE LEAKAGE RATE

Size	Metal seat	Soft seat
DN25(1″)	1.50ml/min	0.15ml/min
DN32(1 1/4″)	1.80ml/min	0.20ml/min
DN40(1 1/2″)	2.40ml/min	0.24ml/min
DN50(2″)	3.00ml/min	0.30ml/min
DB65(2 1/2″)	3.90ml/min	0.39ml/min
DN80(3″)	4.80ml/min	0.48ml/min
DN100(4″)	6.00ml/min	0.60ml/min
DN125(5″)	7.50ml/min	0.75ml/min
DN150(6″)	9.00ml/min	0.90ml/min
DN200(8″)	12.00ml/min	1.20ml/min
DN250(10″)	15.00ml/min	1.50ml/min
DN300(12″)	18.00ml/min	1.80ml/min
DN350(14″)	21.00ml/min	2.10ml/min
DN400(16″)	24.00ml/min	2.40ml/min

CV AND ALLOWABLE DIFFERENTIAL PRESSURE

Cv Versus Valve Rotation, in Degrees

Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
DN25(1˝)	0.11	0.84	2	4	7	11	16	21	27
DN32(1 1/4˝)	0.19	1.47	4	7	12	19	27	37	47
DN40(1 1/2˝)	0.28	2.18	6	11	19	28	40	55	70
DN50(2˝)	0.44	3.43	9	17	29	45	64	87	110
DN65(2 1/2˝)	0.68	5.30	14	27	45	69	98	134	170
DN80(3˝)	1	9	23	44	74	114	162	221	280
DN100(4˝)	2	13	34	64	109	166	237	324	410
DN125(5˝)	3	23	62	117	199	305	434	593	750
DN150(6˝)	4	31	81	153	260	398	566	774	980
DN200(8˝)	7	54	143	268	456	698	994	1359	1720
DN250(10˝)	12	90	241	452	769	1177	1676	2291	2900
DN300(12˝)	15	119	315	593	1007	1543	2196	3002	3800
DN350(14˝)	28	218	581	1092	1855	2842	4046	5530	7000
DN400(16˝)	39	306	813	1529	2597	3979	5664	7742	9800

Maximum Allowable Differential Pressure

Size	Wafer Connection Class 150		Wafer Connection Class 300		Flanged Connection Class 150		Flanged Connection Class 300	
	Max Shutoff dp	Max Control dp	Max Shutoff dp	Max Control dp	Max Shutoff dp	Max Control dp	Max Shutoff dp	Max Control dp
	psi	psi	psi	psi	psi	psi	psi	psi
DN25(1˝)	290	217	725	507	290	217	725	507
DN32(1 /14˝)	290	217	725	507	290	217	725	507
DN40(1 1/2˝)	290	217	725	507	290	217	725	507
DN50(2˝)	290	217	725	507	290	217	725	507
DN65(2 1/2˝)	290	217	725	507	290	217	725	507
DN80(3˝)	290	217	725	507	290	217	725	507
DN100(4˝)	232	174	580	362	232	174	580	362
DN125(5˝)	232	174	580	362	232	174	580	362
DN150(6˝)	232	174	580	362	232	174	580	362
DN200(8˝)	232	174	507	362	232	174	507	362
DN250(10˝)	203	145	507	362	203	145	507	362
DN300(12˝)	-	-	-	-	203	145	507	362
DN350(14˝)	-	-	-	-	174	116	435	290
DN400(16˝)	-	-	-	-	174	116	435	290

ACTUATOR SIZING

Segment ball Valve Actuator Sizing

Sie(mm)	Scotch-yoke type actuator		Rack and Pinion type actuator		Air connecting and fittings	Air supply(Mpa)
	Double Acting	Single Acting	Double Acting	Single Acting		
DN25 (1″)	RCI52DA	RCI52SR	DA AT92	SR AT92	NAMUR G1/4″	0.5-0.7
DN32 (1 ¼″)	RCI52DA	RCI52SR	DA AT92	SR AT92		
DN40 (1 ½″)	RCI52DA	RCI52SR	DA AT92	SR AT92		
DN50 (2″)	RCI52DA	RCI52SR	DA AT92	SR AT92		
DN65 (2 ½″)	RCI52DA	RCI52SR	DA AT92	SR AT92		
DN80 (3″)	RCI63DA	RCI63SR	DA AT92	SR AT92		
DN100 (4″)	RCI75DA	RCI75SR	DA AT105	SR AT105		
DN125 (5″)	RCI82DA	RCI82SR	DA AT125	SR AT125		
DN150 (6″)	RCI92DA	RCI92SR	DA AT140	SR AT140		
DN200 (8″)	RCI105DA	RCI105SR	DA AT160	SR AT160		
DN250 (10″)	RCI125DA	RCI125SR	DA AT190	SR AT190		
DN300 (12″)	RCI140DA	RCI140SR	DA AT210	SR AT210	NAMUR G1/2″	
DN350 (14″)	RCI160DA	RCI160SR	DA AT240	SR AT240		
DN400 (16″)	RCI190DA	RCI190SR	DA AT270	SR AT270		

SEGMENT BALL SURFACE TREATMENT

Penetrated CVD coating

Hardness HRC 80-84, suitable for abrasive conditions like solid particles, not applicable for corrosive conditions.

Hard chromium plating

Fine wear resistance and corrosion resistance, Hardness Rockwell HRC 55-62, for general service.

HVOF coating(Tungsten carbide coating / Chrome carbide coating / Ni-Cr fusing)

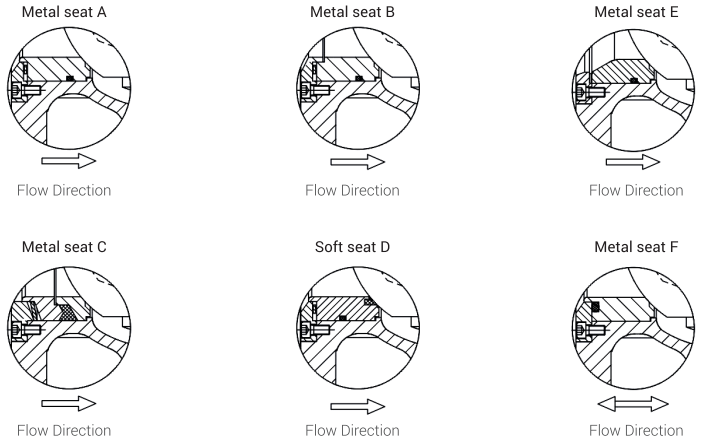
HRC 60-72 Excellent wear resistance and corrosion resistance, applicable for solid particles or severe conditions requiring long service life.

Stellite based alloy welding coating

Hardness HRC 40-55, superior abrasion and erosion resistance.

SIX DIFFERENT SEAT TYPES

Sealing structure schematic drawing



Metal seat type A	
Seat	SS304/SS316+stellite surfacing
Spring	17-7PH
O-ring	VITON
Temp range	-29℃~230℃
Applied medium	General

Metal seat type B	
Seat	SS304/SS316+stellite surfacing
Spring	17-7PH
O-ring	VITON
Temp range	-29℃~230℃
Applied medium	General or fluid containing long fiber

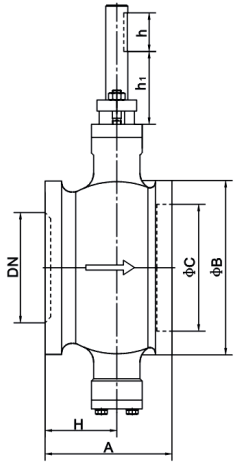
Metal seat type C	
Seat	SS304/SS316+stellite surfacing
Spring	17-7PH/Inconel
O-ring	Graphite
Temp range	-29℃~550℃
Applied medium	Vapor or condensate

Soft seat type D	
Seat	SS304/SS316+PTFE/RTFE
Spring	17-7PH
O-ring	VITON
Temp range	-29℃~120℃
Applied medium	General

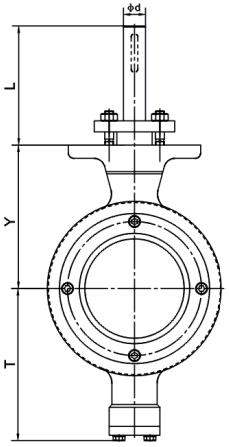
Metal seat type E	
Seat	SS304/SS316+stellite surfacing
Spring	17-7PH/Inconel
O-ring	VITON
Temp range	-29℃~230℃
Applied medium	Non-clogging design applied for high consistency pulp or solid particles

Metal seat type F	
Seat	SS304/SS316+stellite surfacing
Spring	17-7PH/Inconel
O-ring	VITON
Temp range	-29℃~230℃
Applied medium	General, Bi-directional flow

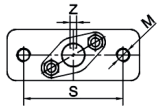
DIMENSION OF BARE STEM WAFER (DIN PN10, CLASS 150)

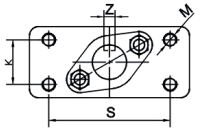


View for size DN25-DN125(1″-5″)

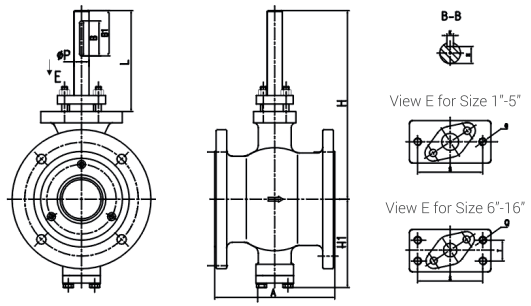


View for size DN150-DN250(6″-10″)





DN	A	H	B	C	T	Y	L	ød	h1	h	S	K	M	Z
25	50	30	68	38	81	73	102	16	64	35	75	/	2-M10	5
32	60	35	76	45	86	78	100	16	62	35	75	/	2-M10	5
40	60	35	84	50	90	80	102	16	64	35	75	/	2-M10	5
50	75	43	100	62	93	90	104	16	66	35	75	/	2-M10	5
65	100	50	118	73	108	105	102	16	64	35	75	/	2-M10	5
80	100	57	132	90	123	118	110	20	68	35	90	/	2-M12	6
100	115	65	158	115	138	130	108	20	66	35	90	/	2-M12	6
125	129	78	184	134	148	145	110	25	65	40	90	/	2-M12	8
150	160	95	216	164	170	170	124	30	69	50	110	40	4-M12	8
200	200	120	268	206	200	201	124	30	69	50	110	40	4-M12	8
250	240	148	326	260	240	237	140	40	77	60	135	40	4-M16	12



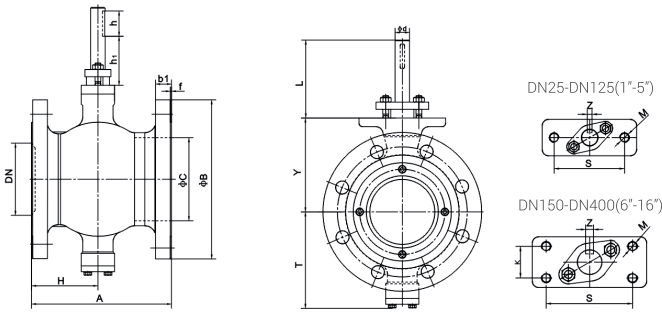
Flanged Style-ISA Face to Face 1"-16"

DIMENSIONS OF BARE STEM VALVE, Flanged CLASS 150-ISA Face to Face

Size	Outline Dimensions (Inches)				Connection Dimensions (Inches except as noted)							
	A	H	L	H1	øP	B1	B	K	N	S	Q	T
1″	4.0	7.5	4.5	3.4	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
1 ¼″	4.1	7.8	4.6	3.4	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
1½″	4.5	7.9	4.5	3.4	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
2″	4.9	7.9	4.5	3.8	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
2½″	5.7	8.7	4.3	4.4	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
3″	6.5	9.4	4.9	4.4	0.8	1.8	1.4	0.2	0.6	3.5	M12	-
4″	7.6	9.9	4.8	4.8	0.8	1.8	1.4	0.2	0.6	3.5	M12	-
5″	8.4	10.3	4.8	5.6	1.0	1.8	1.4	0.3	0.8	3.9	M12	-
6″	9.0	12.1	5.0	6.5	1.2	2.2	1.6	0.4	1.0	4.3	M12	1.6
8″	9.6	13.0	5.1	7.7	1.2	2.2	1.6	0.4	1.0	4.3	M12	1.6
10″	11.7	15.0	5.7	9.3	1.6	3.0	2.4	0.5	1.4	5.1	M12	1.8
12″	13.3	17.0	6.0	11.1	1.6	3.1	2.4	0.5	1.4	5.1	M12	1.8
14″	15.7	21.5	7.8	13.3	2.0	3.1	2.4	0.6	1.7	5.3	M16	2.5
16″	15.7	26.0	10.4	15.4	2.4	4.1	3.1	0.7	2.1	6.9	M20	2.8

DIMENSIONS OF BARE STEM VALVE, Flanged CLASS 300-ISA Face to Face

Size	Outline Dimensions (Inches)				Connection Dimensions (Inches except as noted)							
	A	H	L	H1	øP	B1	B	K	N	S	Q	T
1″	4.0	7.5	4.5	3.4	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
1 ¼″	4.1	7.8	4.6	3.4	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
1½″	4.5	7.9	4.5	3.4	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
2″	4.9	7.9	4.5	3.8	0.6	1.8	1.4	0.2	0.5	3.1	M10	-
2½″	5.7	8.7	4.3	4.4	0.8	1.8	1.4	0.2	0.6	3.5	M12	-
3″	6.5	9.4	4.9	4.4	0.8	2.0	1.6	0.2	0.6	3.5	M12	-
4″	7.6	9.9	4.8	4.8	1.0	2.0	1.6	0.3	0.8	3.9	M12	-
5″	8.4	10.3	4.8	5.6	1.2	2.2	1.6	0.4	1.0	4.3	M12	1.6
6″	9.0	12.1	5.0	6.5	1.2	2.2	1.6	0.4	1.0	4.3	M12	1.6
8″	9.6	13.0	5.1	7.7	1.6	3.0	2.4	0.5	1.4	4.3	M12	1.8
10″	11.7	15.0	5.7	9.3	1.6	3.1	2.4	0.5	1.4	5.1	M12	1.8
12″	13.3	17.0	6.0	11.1	2.0	3.1	2.4	0.6	1.7	5.3	M16	2.5
14″	15.7	21.5	7.8	13.3	2.4	4.1	3.1	0.7	2.1	6.9	M20	2.8
16″	15.7	26.0	10.4	15.4	28	4.1	3.1	0.8	2.5	7.5	M20	3.5



DIMENSION OF BARE STEM VALVE, FLANGED, DIN PN16

DN	A	H	B	b1	f	C	T	Y	L	ød	h1	h	S	K	M	Z
25	102	51	115	16	2	38	81	73	102	16	64	35	75	/	2-M10	5
32	102	51	140	18	2	45	86	78	100	16	62	35	75	/	2-M10	5
40	114	57	150	18	2	50	90	80	102	16	64	35	75	/	2-M10	5
50	124	60	165	20	2	62	93	90	104	16	66	35	75	/	2-M10	5
65	145	70	185	20	2	73	108	105	102	16	64	35	75	/	2-M10	5
80	165	75	200	20	2	90	123	118	110	20	68	35	90	/	2-M12	6
100	194	92	220	22	2	115	138	130	108	20	66	35	90	/	2-M12	6
125	194	97	250	22	2	134	148	154	110	25	65	40	90	/	2-M12	8
150	229	110	285	24	2	164	170	170	124	30	69	50	110	40	4-M12	8
200	243	120	340	24	2	206	200	201	124	30	69	50	110	40	4-M12	8
250	297	148	405	26	2	260	240	237	140	40	77	60	135	40	4-M16	12
300	338	190	460	28	2	316	286	282	140	40	77	60	135	40	4-M16	12
350	400	221	520	30	2	372	330	337	170	50	105	60	140	64	4-M16	14
400	400	220	580	32	2	420	367	372	212	60	127	80	170	80	4-M20	18

DIMENSION OF BARE STEM VALVE, FLANGED, DIN PN25

DN	A	H	B	b1	f	C	T	Y	L	ød	h1	h	S	K	M	Z
25	102	51	115	16	2	38	81	73	102	16	64	35	75	-	2-M10	5
32	102	51	140	18	2	45	86	78	100	16	62	35	75	-	2-M10	5
40	114	57	150	18	2	50	90	80	102	16	64	35	75	-	2-M10	5
50	124	60	165	20	2	62	93	90	104	16	66	35	75	-	2-M10	5
65	145	70	185	22	2	73	108	105	102	16	64	35	75	-	2-M10	5
80	165	75	200	24	2	90	123	118	110	20	68	35	90	-	2-M12	6
100	194	92	235	24	2	115	138	130	108	20	66	35	90	-	2-M12	6
125	194	97	270	26	2	134	148	145	110	25	65	40	90	-	2-M12	8
150	229	110	300	28	2	164	170	170	124	30	69	50	110	40	4-M12	8
200	243	120	360	30	2	206	200	201	124	30	69	50	110	40	4-M12	8
250	297	148	425	32	2	260	240	237	140	40	77	60	135	40	4-M16	12
300	338	190	485	34	2	316	286	282	140	40	77	60	135	40	4-M16	12
350	400	221	555	38	2	372	330	337	170	50	105	60	140	64	4-M16	14
400	400	220	620	40	2	420	367	372	212	60	127	80	170	80	4-M20	18

HOW TO ORDER – Segment Ball Valve

Example : SB 2" 150# D0 C3 C3 A R A

1 2 3 4 5 6 7 8 9

1 Valve Type

Code	SB
Type	Segment Ball Valve

2 Valve Size

Inch	1"	1 ¼"	1 ½"	2"	2 ½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
DN	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600

3 Nominal Pressure

GB,DIN Standard	Code	10	16	25	40	64
	Mpa	1.0	1.6	2.5	4.0	6.4
ANSI Standard	Code	150#	300#	400#	600#	
	Class	150	300	400	600	
JIS Standard	Code	J10	J20	J40		
	K	10K	20K	40K		

4 Body Material + Surface treatment

Code	A	B	C	D	E	F	G	H
Body Material	WCB-A105	WCB-A216	CF3-F304L	CF3M-F316L	CF8-F304	CF8M-F316	WC6-F11	WC9-F22

Code	I	J	K	L	M	N	O	P	X
Body Material	F91	LCB-LF2	Inconel	Incoloy	Hastelloy	Monel	Titanium	Duplex	Others

Code	0	1	2	3	4	5	6	7
Surface treatment	None	Hard Chromium Plating (Hcr)	Stellite Spray Welding (STL)	HVOF : Tungsten Carbide Coating (TCC)	Chrome Carbide Coating (CCC)	Ni-Cr Fusing	P-CVD	OTHERS

5 Ball Material + Surface treatment

Code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	X
Ball Material	CS	SS304L	SS316L	SS304	SS316	SS410	SS431	Inconel	Incoloy	Hastelloy	Monel	Duplex	Titanium	P-CVD	Others

Code	1	2	3	4	5	6	7
Surface treatment	Hard Chromium Plating (Hcr)	Stellite Spray Welding(STL)	HVOF : Tungsten Carbide Coating (TCC)	Chrome Carbide Coating (CCC)	Ni-Cr Fusing	P-CVD	OTHERS

6 Seat Material + Surface treatment

Metal Seat

Code	A	B	C	D	E	F	G	H	X
Seat Material	SS304	SS316	SS304L	SS316L	Duplex Steel	S317	SS317L	Titanium	Others

Code	1	2	3	4	5	6	7
Surface treatment	Hard Chromium Plating (Hcr)	Stellite Spray Welding	HVOF : Tungsten Carbide Coating (TCC)	Chrome Carbide Coating (CCC)	Ni-Cr Fusing	P-CVD	Others

Soft Seat

Code	P	RP	N	PE	PC	GR	X
Surface treatment	PTFE	R-PTFE	NYLON	PEEK	PCTFE	GRAPHITE	OTHERS

7 Stem Material

Code	A	B	C	D	E	F	G	H	I	J	X
Stem Material	17-4Ph	SS304L	SS316L	SS304	SS316	Duplex Steel	Hastelloy	SS317	SS317L	Titanium	Others

8 End Connection

Code	R	F	J	X
Connection	RF	FF	RTJ	OTHERS

9 Operation

Code	A	B	G	L
Type	Actuator	Bare Shaft	Gear	Lever

HOW TO ORDER – Actuator

Example : 1 DR 2 SR 3 FO

1 Actuator Type

Code	DR	DS
Type	Rack &Pinion	Scotch Yoke

2 Action Mode

Code	DA	SR
Mode	Double Acting	Single Return

3 Fail Position

Code	FC	FO
Mode	Fail Close	Fail Open

HOW TO ORDER – Accessories

Example : 1 P 2 S 3 IP 4 S 5 H

1 Operation Mode

Code	P	S
Type	Positioner	Solenoid Valve

2 Input Signal

Code	S	D	A1	A2
Signal	4-20mA	DC 24	AC 110	AC 220

3 Protection Type

Code	IP	EX
Type	IP66(Water Proof)	EX IIC

4 Positioner type

Code	EP	S
Signal	Electro Pneumatic	Smart

5 Others

Code	N	H	P
Type	None	Hart	PTM

DHCv

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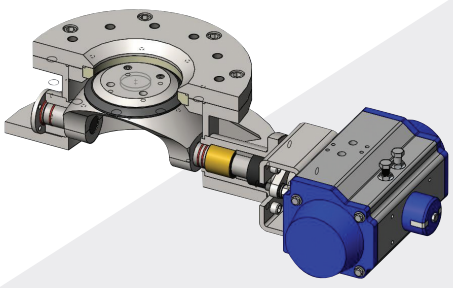

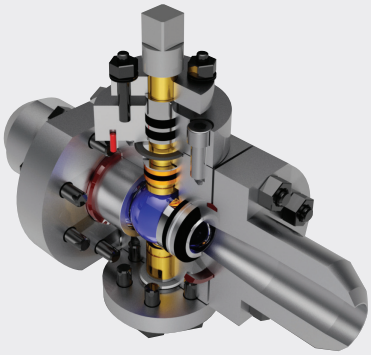

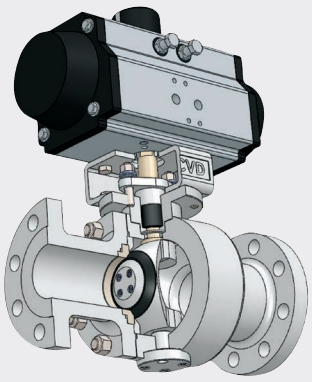

DEC 31, 2017