

Series GW control valves

Globe, 3-way mixing & diverting, top and bottom seat guided

Metso's Neles series GW, 3-way top and bottom seat guided globe valves are high performance control valves with the all inherent benefits of linear control valves. The most primary application is in temperature control. GW design combines the benefits of strong guiding with an unbalanced trim design and the actuator selection is done the same way as the single seated valves.

The flow either comes into one side port and is diverted to the other side port and bottom port or it comes into the side and bottom ports and is mixed internally and passed to other side port.

GW standard seat leakage is ANSI B16.104 Class II and optionally Class III or IV.

Standard units are equipped with spring diaphragm or cylinder actuators and ND9000 intelligent valve controllers extended operational life and performance monitoring on-line.



Construction

- Heavy duty guiding with top and bottom seat for stable control
- Both diverting and mixing type available depending on the application
- Wide material selection for different applications
- All trim components removable from the bottom side after removed bottom flange
- Many end connection styles available for different applications
- Extension bonnet design for wide temperature range
- Stable control of valve and process
- ND9000 digital valve controller with online diagnostics enables performance follow up and predictive maintenance
- Efficient asset management with Metso FieldCare open architecture software and excellent networking Safety and quality
- Rugged one piece body and bottom flange structure to minimize the leak paths and makes the valve
- Strictly tested to ensure specified performance with quality assurance systems in according to ISO 9001

Accurate control & performance

- ND9000 digital valve controller for auto-calibration and accurate control
- Accurate and sensitive diaphragm and cylinder actuators
- Stable flow control with high rangeability
- Streamline flow passage to secure capacity

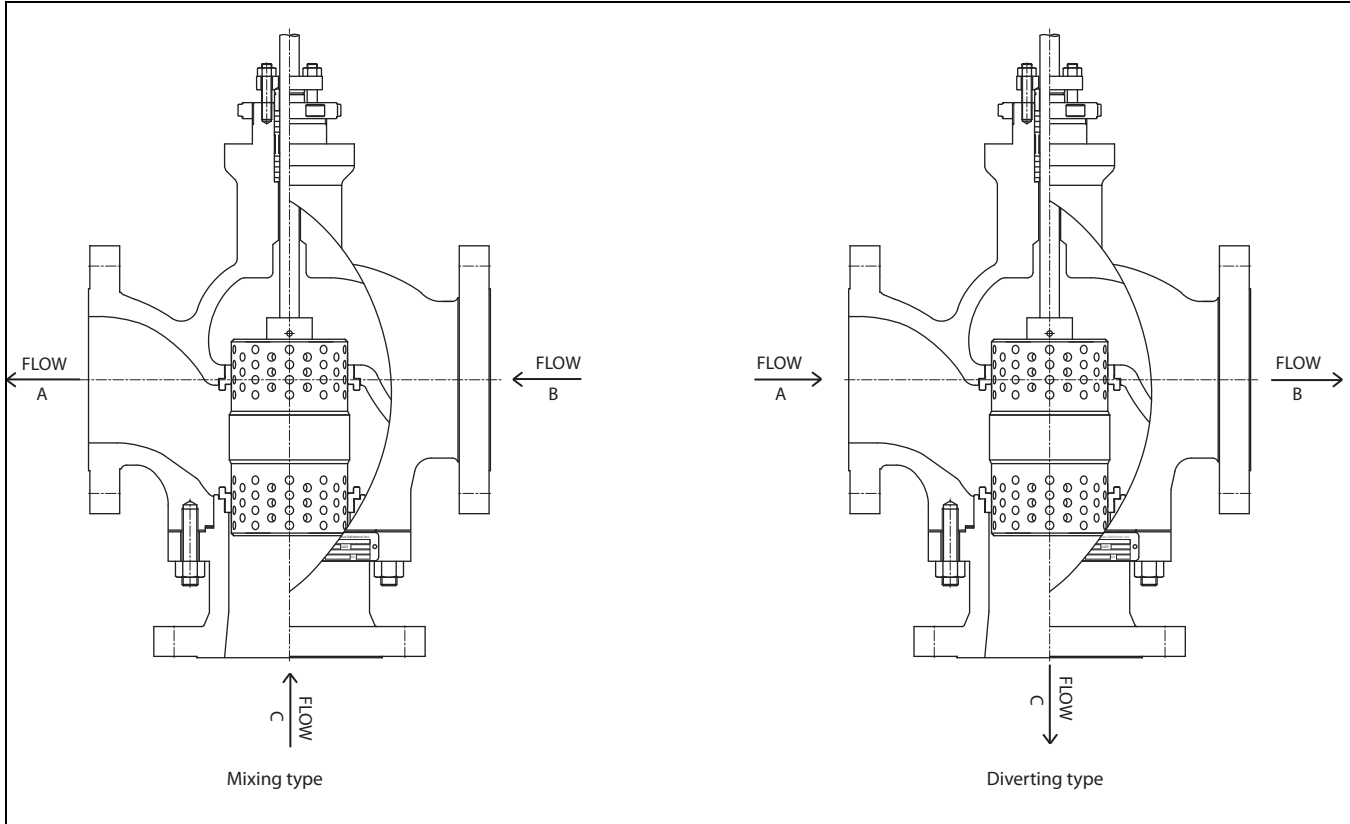
Benefits of GW series applications

- Commonly used in temperature control applications
- Top & bottom seated guiding reduces the vibration of the plug, which could cause valve failure
- Prolonged trim and valve life time

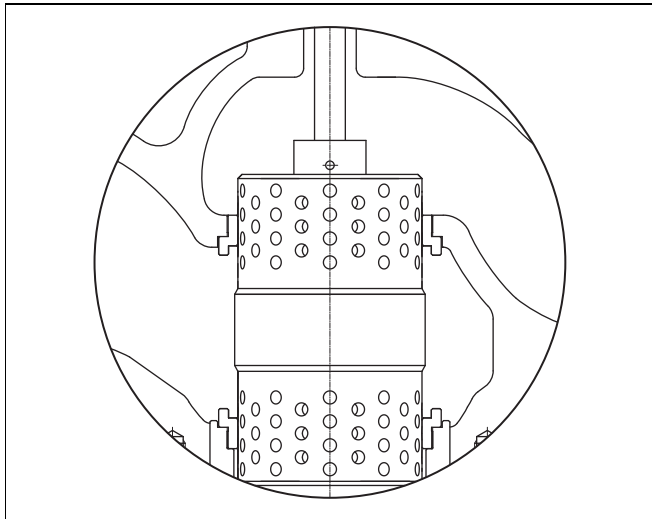
Accessories

A variety of accessories are available including Neles positioners and limit switches, solenoid valves, transducers, relays, boosters and volume tanks and build-in volume chambers etc..

Different flow directions



Different trim designs

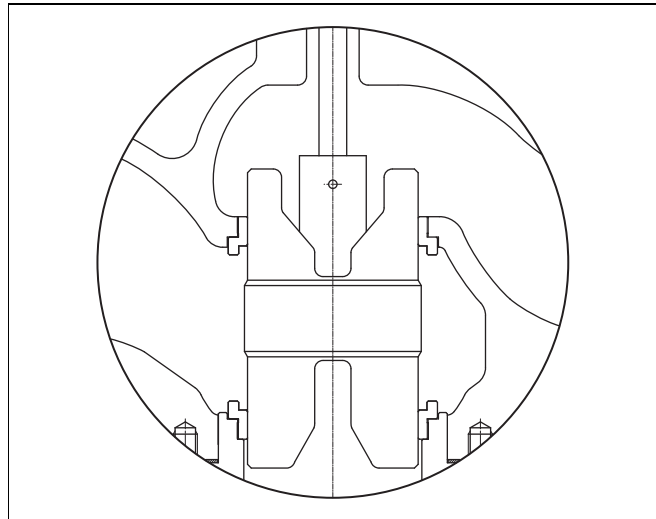


Series GW, Cylindrical plug trim

Series GW, standard cylindrical plug offers a smooth flow profile and heavy duty guiding.

A series of small and/or large drilled holes defines the flow path through the valve and flow characteristics of the valve (standard is linear).

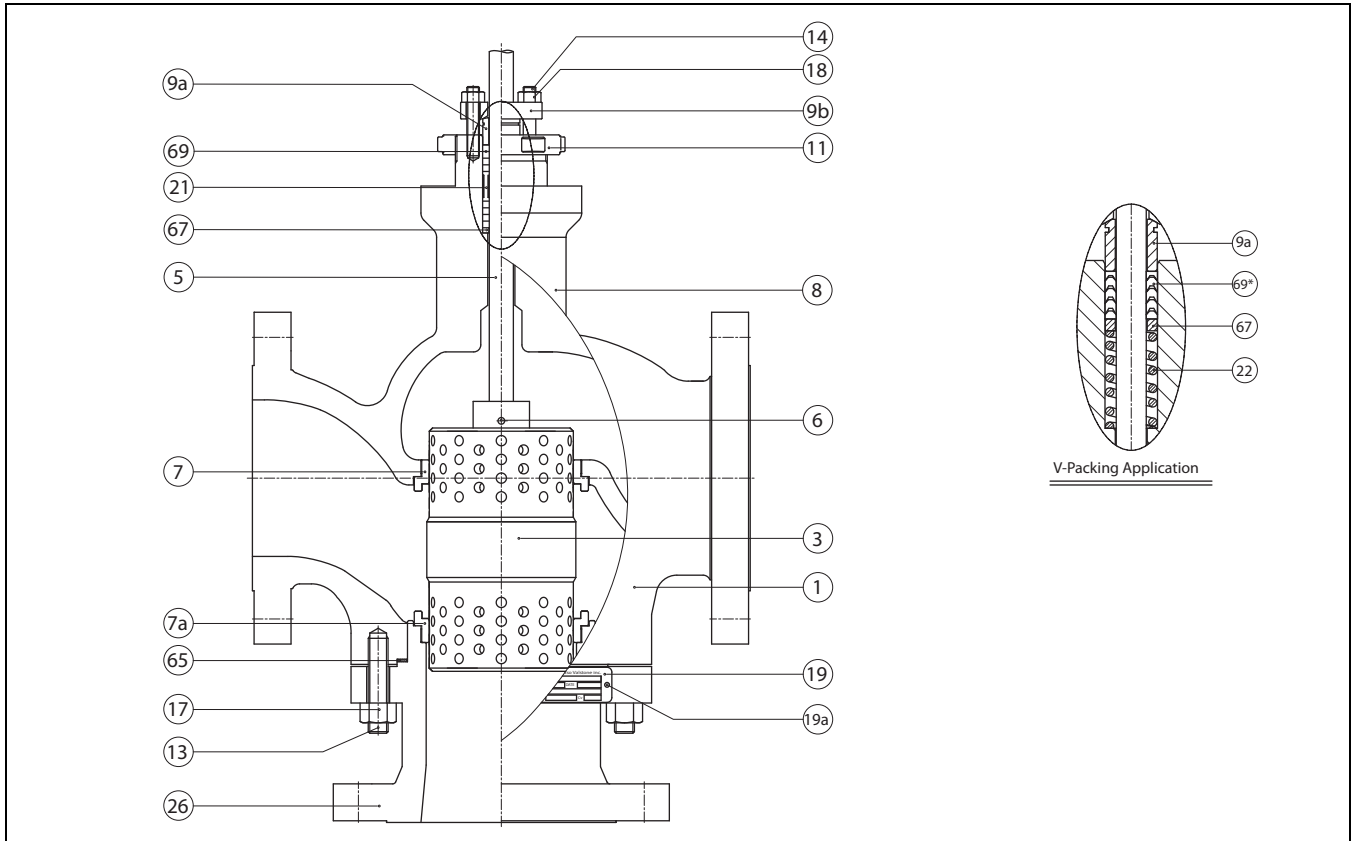
The trim design combines benefits of more strong guiding with a top and bottom seat rings and the solid cylindrical plug makes strong support to ensure valve alignment



Series GW, V-port plug trim

The V-port plug trim design is alternative plug design with top and bottom guided construction, capable of handling high pressure drops. The high F_L V-port gives excellent resistance to cavitation on high pressure drop applications. The V-port plug shape defines the flow path through the valve and the flow characteristics of the valve (standard is linear).

Components and materials



Body materials: Carbon steel or Alloy steel

Part no.	Description	Material
1	Body	A216 WCB / Alloy steel available
3	Plug	410 stainless steel
5	Stem	17-4PH stainless steel
6	Plug Pin	316 stainless steel
7	Seat Ring	410 stainless steel
7a	Seat Ring	410 stainless steel
8	Bonnet	A216 WCB / Alloy steel available
9a	Gland	304 stainless steel
9b	Gland Flange	A351 CF8
11	Yoke Nut	A351 CF8
13	Stud	A193 Gr.B7
14	Stud	A193 Gr.B8
17	Hexagon Nut	A194 Gr.2H
18	Hexagon Nut	A194 Gr.8
19	Identification Plate	304 stainless steel
19a	Rivet	304 stainless steel
21	Lantern Ring	304 stainless steel
22	Packing Spring	304 stainless steel
26	Bottom Flange	A216 WCB / Alloy steel available
65	Body Gasket	S/W Gasket, 316 SS + Graphite
67	Packing Spacer	304 stainless steel
69*	V-Ring Set	PTFE
69	Packing Ring	PTFE + Carbon Fiber, Graphite

Note.

1. Plug/Seat Hard Facing (Cobalt based alloy) & Soft Seat are available
2. Materials Description
316 SS: ASTM A276 TP316 or JIS 316 St. Steel
310 SS: ASTM A276 TP410 or JIS 410 St. Steel
440C SS: ASTM A276 TP440C or JIS 440C St. Steel
17-4PH: ASTM A564 630(H1100) or JIS 630(H1100) St. Steel
3. Above standard materials to be applicable depending on specific service conditions, other optional materials to consult Metso Automation.
4. Optional materials to meet to requirements of NACE MR 01-75 are available

Body materials: Stainless steel

Part no.	Description	Material
1	Body	A351 CF8M
3	Plug	316 stainless steel
5	Stem	316 stainless steel + HCr
6	Plug Pin	316 stainless steel
7	Seat Ring	316 stainless steel
7a	Seat Ring	316 stainless steel
8	Bonnet	A351 CF8M
9a	Gland	304 stainless steel
9b	Gland Flange	A351 CF8
11	Yoke Nut	A351 CF8
13	Stud	A193 Gr.B8(M)
14	Stud	A193 Gr.B8
17	Hexagon Nut	A194 Gr.8(M)
18	Hexagon Nut	A194 Gr.8
19	Identification Plate	304 stainless steel
19a	Rivet	304 stainless steel
21	Lantern Ring	304 stainless steel
22	Packing Spring	304 stainless steel
26	Bottom Flange	A351 CF8M
65	Body Gasket	S/W Gasket, 316 SS + Graphite
67	Packing Spacer	304 stainless steel
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GW, Applications guide

Temperature range & seat leakage class with different bonnet & seat applications

Valve Size DN / Inch	ASME Rating	Seat Type	Temp. Range (°C)		Seat Leakage class (ANSI B 16.104)	
			Standard Bonnet	Extension Bonnet	Standard	Optional
		Soft Seat	-30 ~ +232	-198 ~ +232	V	

* Leakage class will be II for metal seat and optionally class III or IV.

** Leakage class will be V for soft seat.

Temperature range with different body and stud/nut materials

Body / Bonnet Application	Stud / Nut Application	Temp. Range (°C)	Sign
Carbon steel (WCB, A105)	ASTM A193-B7 STUD ASTM A194-2H NUT	-30 ~ +425	A
Stainless steel (CF3, CF8, CF3M, CF8M)	ASTM A193-B7 STUD ASTM A194-2H NUT	-46 ~ +425	A
	ASTM A193-B8 STUD ASTM A194-8 NUT	-198 ~ +425	B
Cr.Mo. Steel (WC6, F11, WC9, F22, C12A, F91)	ASTM A193-B16 STUD ASTM A194-4 NUT	-30 ~ +425	*

* Please contact Metso Automation

Packing applications

Packing Material	Temp. Range (°C)	Sign
PTFE V-Ring	-198 ~ +232	T
Graphite (with Mold + Braided)	-198 ~ +400	F
PTFE Carbon Fiber (Braided TEF + Graphite)	-198 ~ +260	G
Hi-Graphite (with Mold + Braided)	-198 ~ +425	*
RTFE V-Ring	-40 ~ +260	*
RTFE V-Ring + Metal	-40 ~ +350	*

* Please contact Metso Automation

Flow Direction

	Flow Positions
Mixing Type (From B and C to A)	Flow to open (for each direction)
Diverting Type (From A to B and C)	Flow to Close (for each direction)

Trim materials

GW, Trim			Temp. Range (°C)	Sign
Plug	Stem	Seat		
410 SS	17-4PH + HCr	410 SS	-30 ~ +425	P1XBCS1R1
316 SS	316SS + HCr	316 SS	-198 ~ +425	T6XTCS1T6X
316 SS + Cobalt based	316SS + HCr	316 SS + Cobalt based	-198 ~ +425	T6ATCS1T6A
420 J2	17-4PH + HCr	420 J2	-30 ~ +425	*
316 SS	316SS + HCr	316 SS + PTFE	-198 ~ +232	*
17-4PH	17-4PH + HCr	410 SS	-30 ~ +425	*
Inconel 718	Inconel 718	F91	-30 ~ +425	*
Inconel 625, 718, 750			-198 ~ +425	*

* Please contact Metso Automation.

* Other materials are applicable.

Gasket applications

Body / Bonnet Material	Gasket Material	Temp. Range (°C)	Sign
Carbon steel (WCB, A105)	S/W (Spiral Wound) 316SS + Graphite	-30 ~ +425	S
Stainless steel (CF3, CF8, CF3M, CF8M)	S/W (Spiral Wound) 316SS + Graphite	-198 ~ +425	S
	S/W (Spiral Wound) 316SS + PTFE	-198 ~ +232	L
Cr.Mo. Steel (WC6, F11, WC9, F22, C12A, F91)	S/W (Spiral Wound) 316SS + Graphite + Non Asbestos	-30 ~ +425	H
	S/W (Spiral Wound) 316SS + Graphite + Mica (special Hi-Temp. max 950 °C)		*

* Please contact Metso Automation.

GW, Ratings & End Connections

Valve Size DN / Inch	GW, ASME Ratings			
	Class 150 ~ 600			
	RF	RTJ	SW	BW
25 / 1	O	O	O	O
40 / 1-1/2	O	O	O	O
50 / 2	O	O	O	O
80 / 3	O	O		O
100 / 4	O	O		O
150 / 6	O	O		O
200 / 8	O	O		O
250 / 10	O	O		O

* Note

1. RF: Raised Face Flange RTJ: Ring Joint SW: Socket Weld BW: Butt Weld

Rated Cv and Trim Table (Globe, 3-way mixing & diverting, top and bottom seat guided)

Sign	TRIM TYPE	Sign	TRIM CHARACTERISTIC	Sign	Description	RATED Cv							
						Body Size							
						1" Srk.	1-1/2" Srk.	2" Srk.	3" Srk.	4" Srk.	6" Srk.	8" Srk.	10" Srk.
A	Cylindrical plug type	L	Linear	FC	Full capacity	10 (15)	22 (20)	36 (30)	76 (40)	126 (50)	274 (60)	490 (70)	760 (70)
V	V-port plug type	Q	Quick Opening	1A	Reduced trim	4 (15)	10 (20)	16 (30)	36 (40)	62 (50)	135 (60)	240 (70)	360 (70)
Y	Special	Y	Special	YY	Special	Contact Metso Automation for Cv details							

* Rated Cv is applied differently depending on the trim type & trim characteristic.

* Available Other flow characteristic.

* (Srk.) means the valve stroke.

* FC: Full Capacity 1A: Reduced trim

GW series Cv vs travel

ANSI Class: 150# ~ 600#

Size: 1" ~ 10"

Flow Characteristic: LINEAR

Valve Travel [%]							10	20	30	40	50	60	70	80	90	100	
F _L							0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Valve Size		Orifice Dia.			Travel		Rated Cv										
Inch	mm	Sign	Inch	mm	Inch	mm											
1"	25	FC	1.1	27.0	0.6	15	0.98	1.96	2.94	3.92	4.90	5.88	6.86	7.84	8.82	10	
		1A					0.39	0.78	1.18	1.57	1.96	2.35	2.74	3.14	3.53	4	
1-1/2"	40	FC	1.5	38.0	0.8	20	2.16	4.32	6.47	8.63	10.78	12.94	15.10	17.25	19.41	22	
		1A					0.98	1.96	2.94	3.92	4.90	5.88	6.86	7.84	8.82	10	
2"	50	FC	2.0	50.8	1.2	30	3.54	7.06	10.59	14.12	17.65	21.18	24.70	28.23	31.76	36	
		1A					1.57	3.14	4.71	6.28	7.84	9.41	10.98	12.55	14.12	16	
3"	80	FC	2.6	66.7	1.6	40	7.46	14.91	22.36	29.81	37.26	44.70	52.15	59.60	67.05	76	
		1A					3.55	7.06	10.59	14.12	17.65	21.18	24.70	28.23	31.76	36	
4"	100	FC	3.5	89.0	2.0	50	12.37	24.72	37.07	49.42	61.77	74.11	86.46	98.81	111.16	126	
		1A					6.09	12.16	18.24	24.32	30.39	36.47	42.54	48.62	54.70	62	
6"	150	FC	5.3	134.0	2.4	60	26.91	53.76	80.61	107.46	134.31	161.17	188.02	214.87	241.72	274	
		1A					13.26	26.49	39.72	52.95	66.18	79.41	92.64	105.87	119.10	135	
8"	200	FC	7.0	178.0	2.8	70	48.12	96.14	144.16	192.18	240.20	288.22	336.24	384.26	432.28	490	
		1A					23.57	47.09	70.61	94.13	117.65	141.17	164.69	188.21	211.73	240	
10"	250	FC	8.8	224.0	2.8	70	74.63	149.11	223.59	298.07	372.55	447.03	521.51	595.99	670.47	760	
		1A					35.30	70.63	105.91	141.19	176.47	211.75	247.03	282.31	317.59	360	

NOTE

Cv: Valve flow coefficient
 F_L: Liquid pressure recovery factor
 FC: FC: Full Capacity 1A: Reduced trim

GW Allowable Pressure Drops

Actuator(VDD / VDR / VCC)

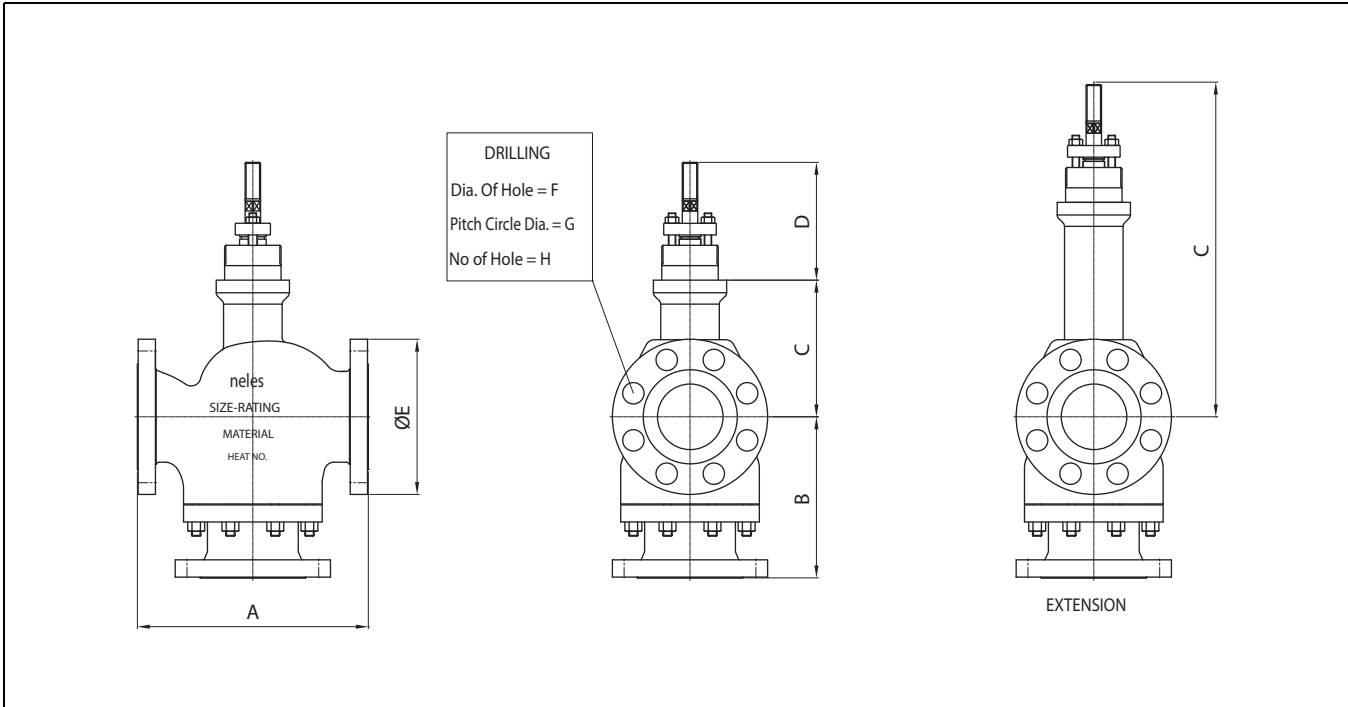
UNIT: bar

Valve Size		Travel		Rated Cv	Actuator Size	VD, Air To Open (Reverse)			VD, Air To Close (Direct)			VC, Double Act.	
Inch	mm	Inch	mm			Spring Range	Supply Press.	Allow.Pr. Drops	Spring Range	Supply Press.	Allow.Pr. Drops	Supply Press.	Allow.Pr. Drops
1"	25	0.6	15	10	#25 (VD)	0.4 ~ 2.1	2.4	20	0.4 ~ 2.1	2.4	48		
						0.8 ~ 2.6	3.2	40	0.8 ~ 2.6	3.2	67		
					#29 (VD)	0.8 ~ 2.6	3.2	56	0.8 ~ 2.6	3.2	96		
					#37 (VD)	0.8 ~ 2.6	3.2	86	0.8 ~ 2.6	3.2	154		
1-1/2"	40	0.8	20	22	#25 (VD)	0.4 ~ 2.1	2.4	16	0.4 ~ 2.1	2.4	38		
						0.8 ~ 2.6	3.2	32	0.8 ~ 2.6	3.2	54		
					#29 (VD)	0.8 ~ 2.6	3.2	44	0.8 ~ 2.6	3.2	76		
					#37 (VD)	0.8 ~ 2.6	3.2	66	0.8 ~ 2.6	3.2	112		
2"	50	1.2	30	36	#29 (VD)	0.8 ~ 2.6	3.2	28	0.8 ~ 2.6	3.2	34		
					#37 (VD)	0.8 ~ 2.6	3.2	54	0.8 ~ 2.6	3.2	62		
					#48 (VD)	0.8 ~ 2.6	3.2	92	0.8 ~ 2.6	3.2	105		
					#29 (VD)	0.8 ~ 2.6	3.2	18	0.8 ~ 2.6	3.2	26		
3"	80	1.6	40	76	#37 (VD)	0.8 ~ 2.6	3.2	30	0.8 ~ 2.6	3.2	48		
					#48 (VD)	0.8 ~ 2.6	3.2	60	0.8 ~ 2.6	3.2	84		
					#55 (VD)	0.8 ~ 2.6	3.2	104	0.8 ~ 2.6	3.2	124		
					#37 (VD)	0.8 ~ 2.6	3.2	26	0.8 ~ 2.6	3.2	40		
4"	100	2	50	126	#48 (VD)	0.8 ~ 2.6	3.2	45	0.8 ~ 2.6	3.2	72		
					#55 (VD)	0.8 ~ 2.6	3.2	74	0.8 ~ 2.6	3.2	104		
					#30 (VC)							5.0	210
					#48 (VD)	0.8 ~ 2.6	3.2	36	0.8 ~ 2.6	3.2	45		
6"	150	2.4	60	274	#55 (VD)	0.8 ~ 2.6	3.2	54	0.8 ~ 2.6	3.2	60		
					#30 (VC)							5.0	128
					#48 (VD)	0.8 ~ 2.6	3.2	26	0.8 ~ 2.6	3.2	32		
					#55 (VD)	0.8 ~ 2.6	3.2	38	0.8 ~ 2.6	3.2	44		
8"	200	2.8	70	490	#30 (VC)							5.0	78
					#40 (VC)							5.0	130
					#48 (VD)	0.8 ~ 2.6	3.2	16	0.8 ~ 2.6	3.2	28		
					#55 (VD)	0.8 ~ 2.6	3.2	21	0.8 ~ 2.6	3.2	34		
10"	250	2.8	70	760	#30 (VC)							5.0	63
					#40 (VC)							5.0	108
					#48 (VD)	0.8 ~ 2.6	3.2	16	0.8 ~ 2.6	3.2	28		
					#55 (VD)	0.8 ~ 2.6	3.2	21	0.8 ~ 2.6	3.2	34		

NOTE

1. VDD: Fail open, air to close (Direct) Multi-Spring Diaphragm Actuator
 2. VDR: Fail close, air to open (Reverse) Multi-Spring Diaphragm Actuator
 3. VCC: Springless double acting cylinder actuator
 4. See actuator bulletin 6DA20EN for more information about the actuators.

Valve dimensions



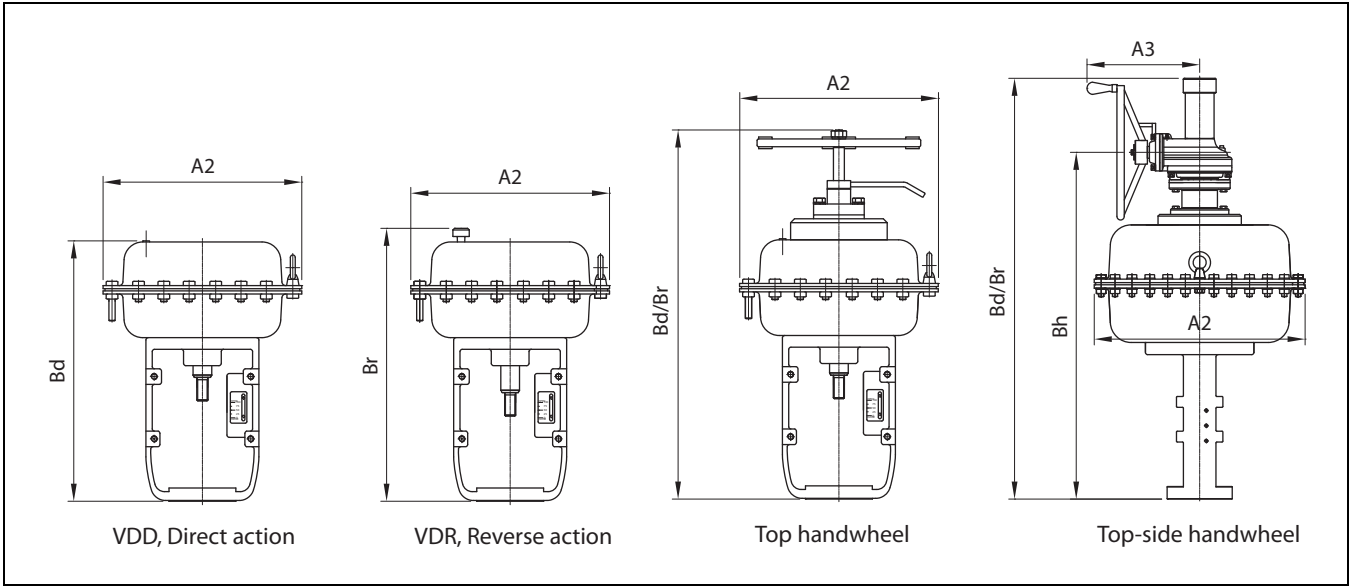
150 #/ 300 #/ 600

(UNIT: mm)

Dimension Size	A			B			C		D	E			F			G			H			Weight (kg)		
	150#	300#	600#	150#	300#	600#	STD	EXT	COMMON	150#	300#	600#	150#	300#	600#	150#	300#	600#	150#	300#	600#	150#	300#	600#
1"	184	197	210	140	140	140	142	250	110	110	125	125	15.9	19.1	19.1	79.4	88.9	88.9	4	4	4	20	21	33
1-1/2"	222	235	251	178	178	178	155	295	110	125	155	155	15.9	22.2	22.2	98.4	114.3	114.3	4	4	4	41	43	50
2"	254	267	286	197	197	197	184	295	110	150	165	165	19.1	19.1	19.1	120.7	127	127	4	8	8	57	62	73
3"	298	318	337	238	238	251	235	330	115	190	210	210	19.1	22.2	22.2	152.4	168.3	168.3	4	8	8	100	104	113
4"	352	368	394	270	270	282	238	380	140	230	255	275	19.1	22.2	25.4	190.5	200	215.9	8	8	8	136	141	156
6"	451	473	508	330	330	356	321	430	150	280	320	355	22.2	22.2	28.6	241.3	269.9	292.1	8	12	12	238	249	322
8"	543	568	610	391	391	416	375	490	150	345	380	420	22.2	25.4	31.8	298.5	330.2	349.2	8	12	12	351	375	451
10"	625	708	752	457	457	490	416	600	150	405	445	510	25.4	28.6	34.9	362	387.4	431.8	12	16	16	779	847	982

Actuator dimensions

VD Diaphragm actuators



(UNIT: mm)

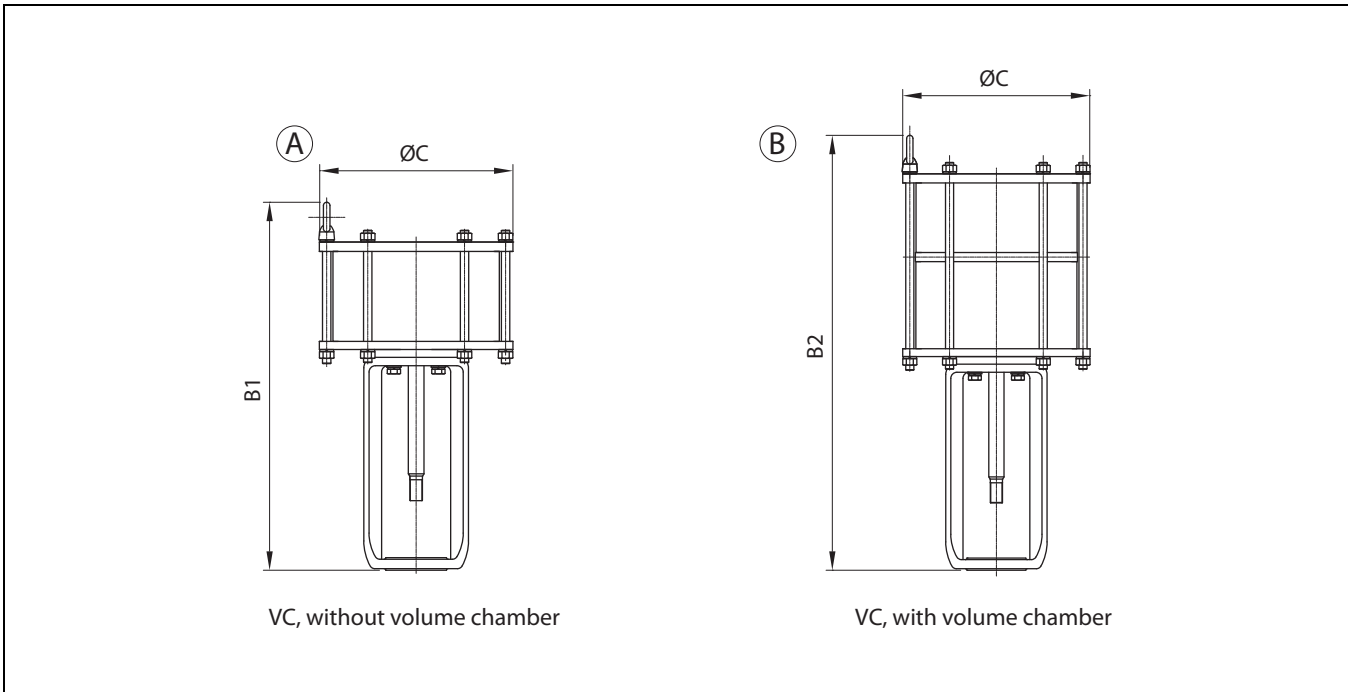
Without handwheel					With handwheel					
Dimension	A2	Bd	Br	Weight (kg)	A2	Bd	Br	A3	Bh	Weight (kg)
#25	255	333	358	10	255	473	440	-	-	13
#29	295	370	397	19	295	576	529	-	-	25
#37	375	450	475	37	375	660	614	-	-	46
#48	486	632	654	92	486	1053	1053	335	847	112
#55	566	675	700	116	566	1106	1106	335	915	145

NOTE:

1. "Br" refers to reverse acting actuator, VDR
2. "Bd" refers to direct acting actuator, VDD

Actuator dimensions

VC actuators without handwheel



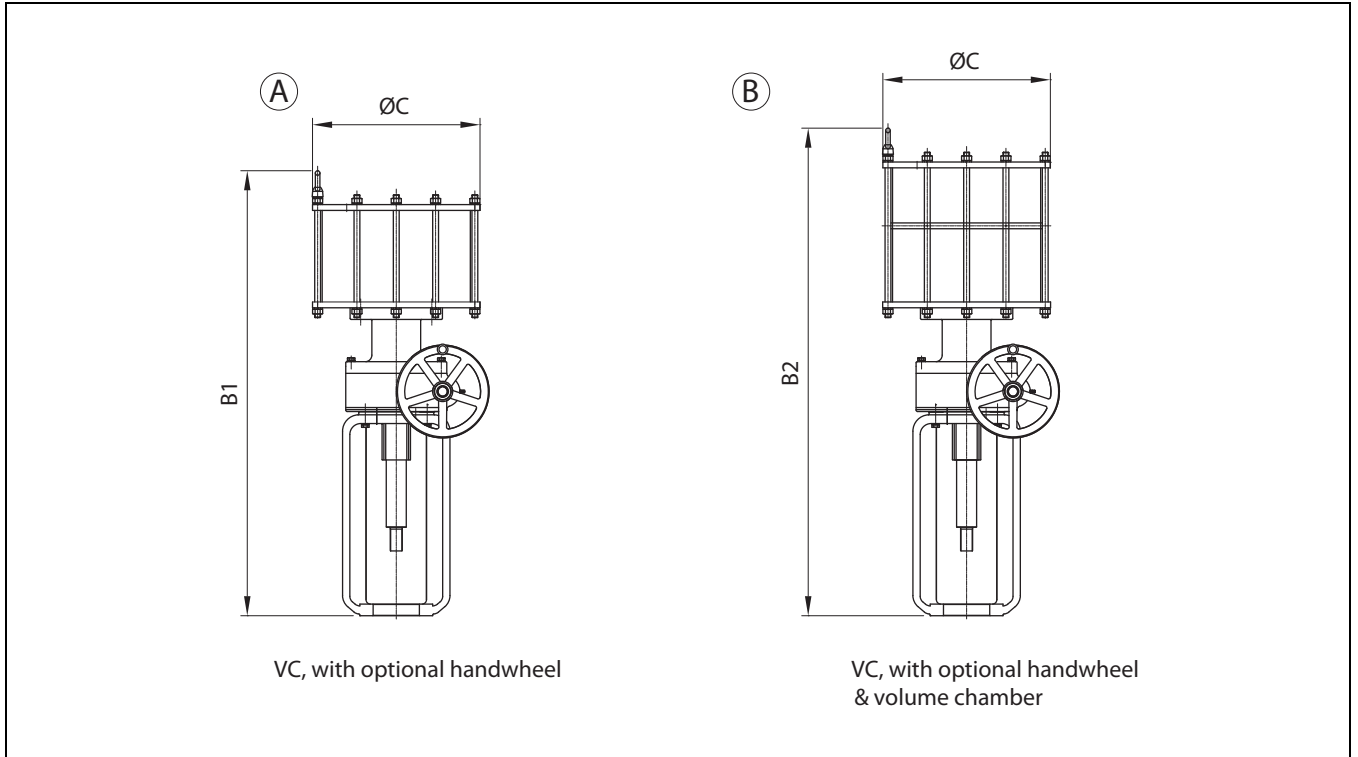
(UNIT: mm)

#30					#40					#50				
Stroke	B1	Ø C	Weight (kg)		Stroke	B1	Ø C	Weight (kg)		Stroke	B1	Ø C	Weight (kg)	
	B2		(A)	(B)		(A)		(B)	(A)		(B)			
40	590	Ø 370	92	116	40	625	Ø 460	118	149	40	625	Ø 560	150	188
	680					920					920			
50	610	Ø 370	97	122	50	645	Ø 460	123	156	50	645	Ø 560	156	195
	700					940					940			
70	650	Ø 370	102	128	70	685	Ø 460	127	160	70	685	Ø 560	162	202
	740					950					950			
80	670	Ø 370	107	134	80	705	Ø 460	132	166	80	705	Ø 560	168	210
	760					970					970			
100	710	Ø 370	113	141	100	745	Ø 460	135	170	100	745	Ø 560	175	218
	800					1010					1010			
120	750	Ø 370	119	147	120	785	Ø 460	139	175	120	785	Ø 560	181	226
	840					1030					1030			
150	845	Ø 370	119	147	150	845	Ø 460	144	181	150	845	Ø 560	188	233
	1090					1090					1090			
160	865	Ø 370	119	147	160	865	Ø 460	148	186	160	865	Ø 560	195	242
	1110					1110					1110			
170	885	Ø 370	119	147	170	885	Ø 460	155	194	170	885	Ø 560	202	250
	1130					1130					1130			
180	905	Ø 370	119	147	180	905	Ø 460	159	199	180	905	Ø 560	209	259
	1150					1150					1150			

NOTE:
 B1: without volume chamber
 B2: with volume chamber

Actuator dimensions

VC actuators with handwheel



(UNIT: mm)

Stroke	#30				Stroke	#40				Stroke	#50			
	B1	Ø C	Weight (kg)			B1	Ø C	Weight (kg)			B1	Ø C	Weight (kg)	
	B2		(A)	(B)		(A)		(B)	(A)		(B)			
40	910	Ø 370	120	144	40	1080	Ø 460	158	189	40	1080	Ø 560	190	228
	1020					1210					1210			
50	920	Ø 370	125	150	50	1090	Ø 460	163	196	50	1090	Ø 560	196	235
	1040					1230					1230			
70	940	Ø 370	130	156	70	1110	Ø 460	167	200	70	1110	Ø 560	202	242
	1080					1270					1270			
80	950	Ø 370	135	162	80	1120	Ø 460	172	206	80	1120	Ø 560	208	250
	1100					1290					1290			
100	970	Ø 370	141	169	100	1140	Ø 460	175	210	100	1140	Ø 560	215	258
	1140					1330					1330			
120	990	Ø 370	147	175	120	1160	Ø 460	179	215	120	1160	Ø 560	221	266
	1180					1370					1370			
					150	1190	Ø 460	184	221	150	1190	Ø 560	228	273
					1430	1430								
					160	1200	Ø 460	188	226	160	1200	Ø 560	235	282
					1450	1450								
					170	1210	Ø 460	195	234	170	1210	Ø 560	242	290
						1470					1470			
					180	1220	Ø 460	199	239	180	1220	Ø 560	249	299
						1490					1490			

NOTE:
 B1: without volume chamber
 B2: with volume chamber

HOW TO ORDER

Globe 3-Way, Diverting / Mixing type, Series GW

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
GW	02	C	W	A	J2	X	P1	X	BC	S2	P1	X	S	F	X	S	A	X	A	L	FC

VALVE CONSTRUCTIONS

1.	VALVE SERIES
GW	Globe 3-way, diverting type

2.	BODY SIZE		
01	1" / DN 25	1H	1-1/2" / DN 40
02	2" / DN 50	03	3" / DN 80
04	4" / DN 100	06	6" / DN 150
08	8" / DN 200	10	10" / DN 250
YY	Special		

3.	PRESSURE RATING		
C	ASME class 150	D	ASME class 300
F	ASME class 600	Y	Special

4.	END CONNECTION
W	Flanged RF, ASME B16.5
V	Socket welding, ASME B16.11
Q	Butt welding, ASME B16.25
Y	Special

5.	BONNET CONSTRUCTION	
	Bonnet Type	Actuator Connection
A	Standard	Standard actuator size
B	Standard	Applicable for VD_48/55 (3",4" only)
E	Extension	Standard actuator size
F	Extension	Applicable for VD_48/55 (3",4" only)
Y	Special	Special

6.	BODY & BONNET MATERIAL		
J2	A216 WCB	S4	A351 CF8
S6	A351 CF8M	S9	A351 CF3
S1	A351 CF3M	YY	Special

7.	BEARINGS (TRUNNION / THRUST BEARING)		
X	Not Applicable	Y	Special

TRIM CONSTRUCTIONS

8.	PLUG MATERIAL	
	Material	Description
P1	410 SS	Standard for carbon steel body
T6	316 SS	Standard for stainless steel body
YY	Special	Special materials

9.	PLUG APPLICATION
X	Not applicable
A	Cobalt based alloy
Y	Special

10.	STEM MATERIAL	
	Material	Description
BC	17-4PH + HCr	Standard for carbon steel body
TC	316 SS + HCr	Standard for stainless steel body
YY	Special	Special materials

11.	SEAT TYPE
S2	Double metal seat
YY	Special

12.	SEAT MATERIAL	
	Seat	Description
P1	410 SS	Standard for carbon steel body
T6	316 SS	Standard for stainless steel body
YY	Special	Special materials

13.	SEAT APPLICATION
X	Not applicable
A	Cobalt based alloy
Y	Special

OTHERS

14.	PACKING TYPE		
S	Standard	B	Bellows seal
D	Double packing	Y	Special

15.	PACKING MATERIAL		
T	PTFE V-ring	G	PTFE + Carbon fiber
F	Graphite	Y	Special

16.	SEALS MATERIAL		
X	Not applicable	Y	Special

17.	GASKET MATERIAL		
S	Standard, S/W gasket type, 316 SS + Graphite		
H	S/W gasket type, 316 SS + Graphite for high temp.		
L	S/W gasket type, 316 SS + PTFE		
Y	Special		

18.	STUD / NUT MATERIAL		
A	A193 B7 / A194 2H		
B	A193 B8 / A194 8		
Y	Special		

19.	OPTIONS		
X	Not applicable	M	Mixing type
Y	Special		

TRIM TYPE & RATED Cv

20.	TRIM TYPE	21.	TRIM CHARACTERISTIC	22.	RATED Cv										
Sign		Sign		Sign	Description	Body Size									
						1" Srk.	1-1/2" Srk.	2" Srk.	3" Srk.	4" Srk.	6" Srk.	8" Srk.	10" Srk.		
A	Cylindrical plug type	L	Linear	FC	Full capacity	10 (15)	22 (20)	36 (30)	76 (40)	126 (50)	274 (60)	490 (70)	760 (70)		
V	V-port plug type	Q	Quick Opening	1A	Reduced trim	4 (15)	10 (20)	16 (30)	36 (40)	62 (50)	135 (60)	240 (70)	360 (70)		
Y	Special trim type	Y	Special	YY	Special	Contact Metso Automation for Cv details									

* Optional rated Cv to meet to specific Cv are available, please contact Metso Automation.

* Available other flow characteristic.

* Srk. & number in bracket means the valve stroke.

Subject to change without prior notice.

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