Neles™ 3-way globe valves
Series GW

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 primary application is temperature control. GW design combines the benefits of strong guiding with an unbalanced trim design. The actuator selection is done the same way as 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 & IV.

Standard units are equipped with spring diaphragm or cylinder actuators and Neles intelligent valve controllers for 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

Accurate control & performance

- Neles 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
- Stable control of valve and process
- ND9000 digital valve controller with online diagnostics enables performance follow up and predictive maintenance
- Efficient asset management with any FDT frame application and excellent networking capabilities
- Rugged one piece body and bottom flange structure to minimizes the leak paths
- Strictly tested to ensure specified performance with quality assurance systems in accordance to ISO 9001
- Certified ISO 15848 fugitive emissions
- Certified CE/PED & ATEX, TSG & EAC (GOST-R)

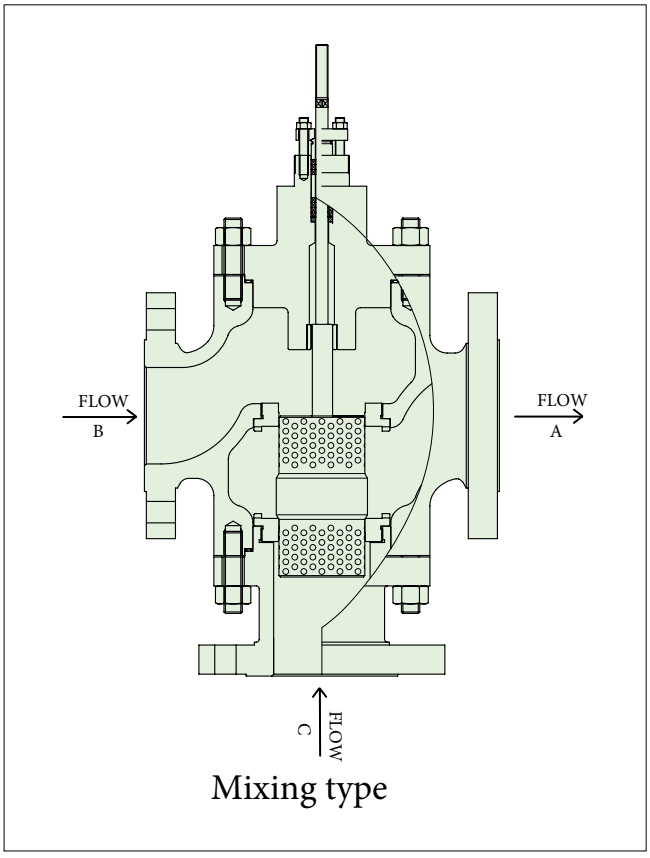
Accessories

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.

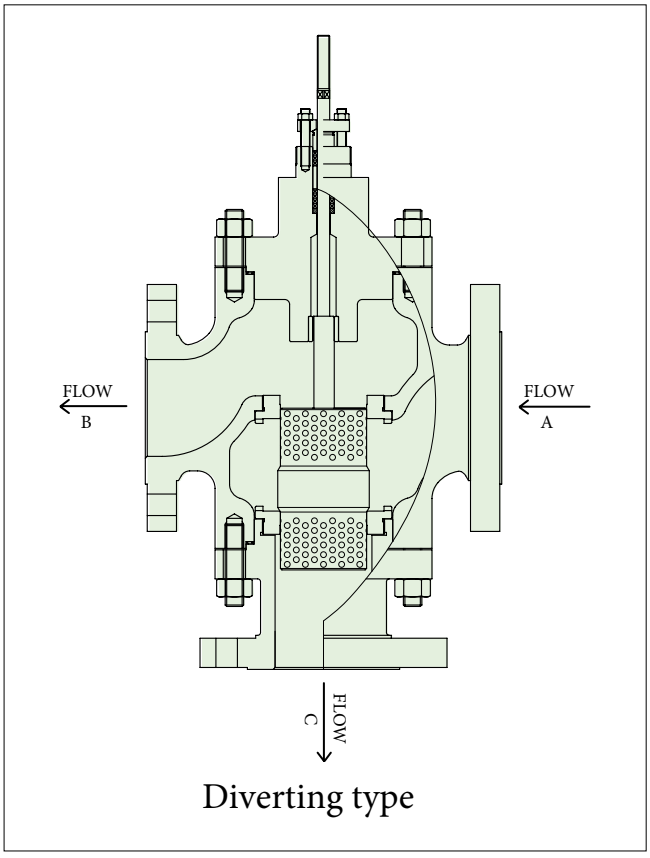
Safety and quality

- Rugged one piece body and bottom flange structure to minimizes the leak paths

Different flow directions

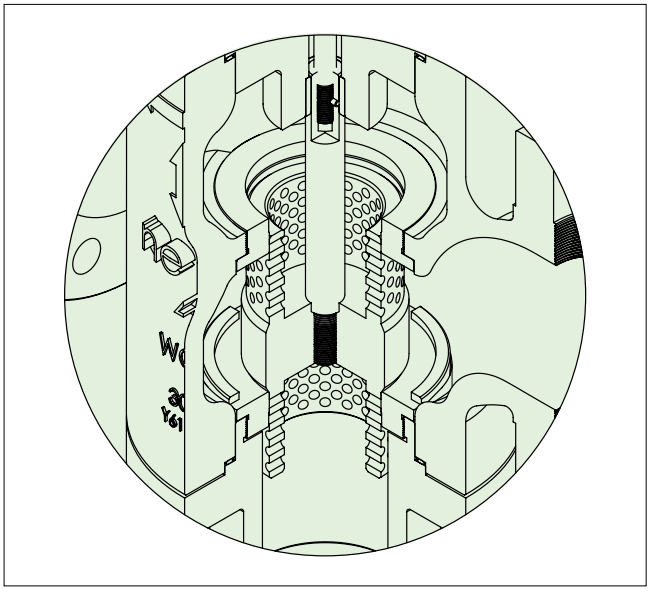


Mixing type



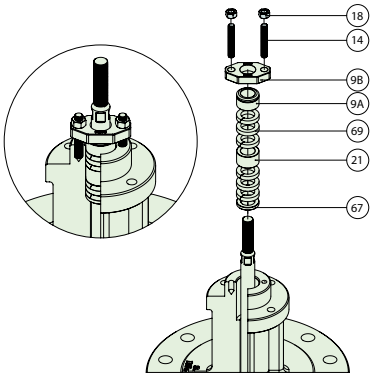
Diverting type

Standard trim design

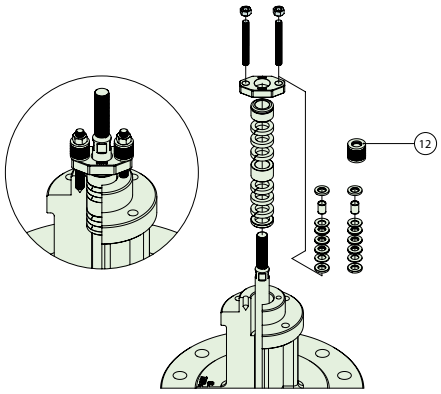


Series GW, standard cylindrical plug offers a smooth flow profile and heavy duty guiding. The arrangement of opened small and/or large drilled holes defines the flow path and the flow characteristics of the valve (standard is linear). The trim design combines benefits of stronger guiding with top and bottom seat rings and the solid cylindrical plug provides strong support to ensure valve alignment.

Packing constructions



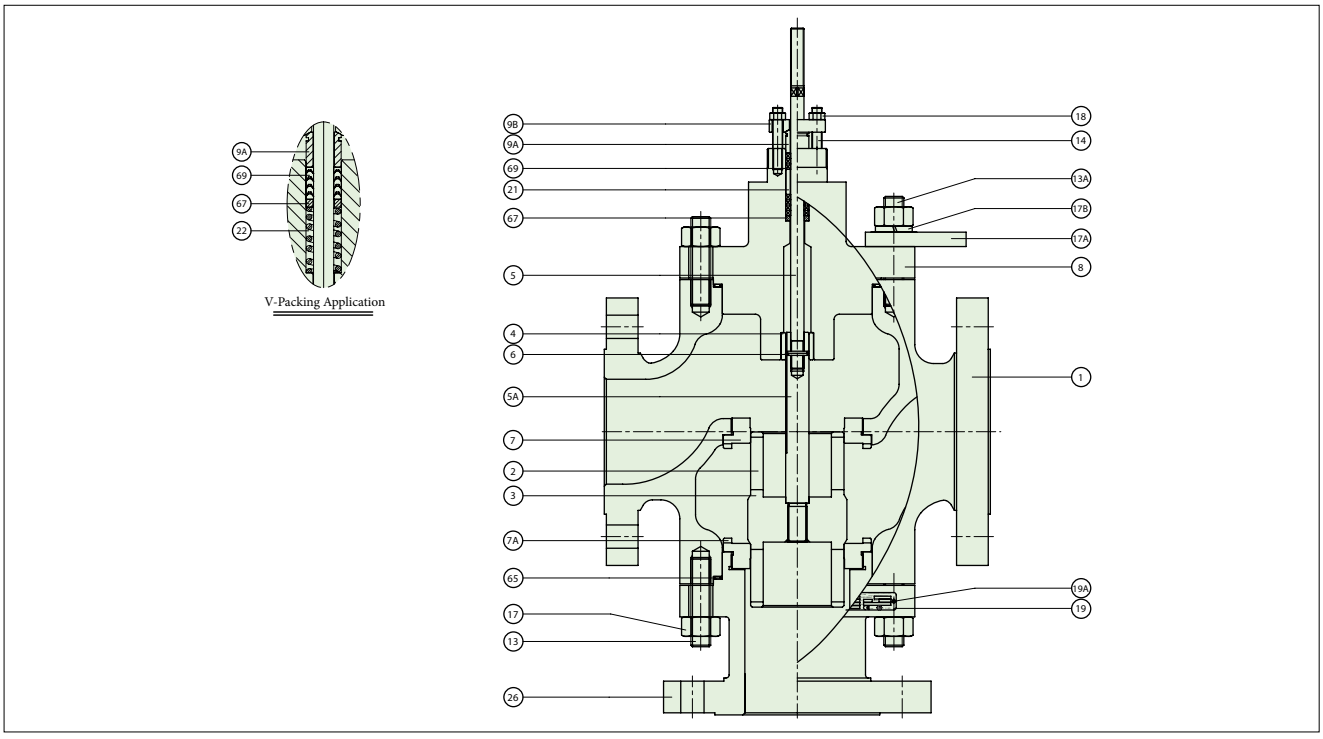
Standard construction



Low emission with
live loading spring

9A	Gland
9B	Gland fange
12	Disk spring assembly
14	Stud
18	Hexagon nut
21	Lantern ring
67	Packing spacer
69	Packing ring

GW, Components and materials



Body materials: Carbon steel

Part no.	Description	Material
1	BODY	ASTM A216 GR WCB
2	PLUG SET	410 SS / 630 SS
3*	PLUG	410 STAINLESS STEEL
4	GUIDE BUSHING	440C STAINLESS STEEL
5 / 5A*	STEM	630 STAINLESS STEEL
6*	PLUG PIN	316 STAINLESS STEEL
7	SEAT RING	410 STAINLESS STEEL
7A	SEAT RING	410 STAINLESS STEEL
8	BONNET	ASTM A216 GR WCB
9A	GLAND	304 STAINLESS STEEL
9B	GLAND FLANGE	A351 GR CF8
13	STUD	A193 Gr.B7M
13A	STUD	A193 Gr.B7M
14	STUD	A193 Gr.8M
17	HEXAGON NUT	A194 Gr.2HM
17A	LIFTING PLATE	JIS G3101-SS400
17B	SPRING WASHER	AISI 304
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	ASTM A216 GR WCB
65	BODY GASKET	S/W GASKET, 316L SS + GRAPHITE
67	PACKING SPACER	304 STAINLESS STEEL
69	PACKING RING	PTFE + CARBON FIBER

Note.
1. Plug/Seat hard facing (Cobalt based alloy) is available
2. Materials description
   316 SS : ASTM A276 TP316 or JIS 316 St. Steel
   410 SS : ASTM A276 TP410 or JIS 410 St. Steel
   440C SS : ASTM A276 TP440C ot JIS 440C St. Steel
   630 SS : 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 Valmet.
4. Optional materials to meet to requirements of NACE MR 01-75 are available
5. The materials are subject to change as equivalent depending on detail design
6. The part no. 3*, 5 / 5A*, 6* are delivered as a set with no. 2
7. The identification plate is attached to the body when only the bare stem valve is required. And the identification plate is attached to the actuator yoke when the completed valve and actuator is delivered.

Body materials: Stainless steel

Material	Spare part
ASTM A351 GR CF8M	
316 STAINLESS STEEL	Cat 3
316 STAINLESS STEEL	
316 SS + COBALT BASED ALLOY	
316 STAINLESS STEEL	
316 STAINLESS STEEL	
316 STAINLESS STEEL	Cat 3
316 STAINLESS STEEL	Cat 3
ASTM A351 GR CF8M	
304 STAINLESS STEEL	
A351 CF8	
A193 Gr. B8M	
A193 Gr. B8M	
A193 Gr. B8M	
A194 Gr. 8M	
JIS G3101-SS400	
AISI 304	
A194 Gr. 8M	
304 STAINLESS STEEL	
304 STAINLESS STEEL	
304 STAINLESS STEEL	
304 STAINLESS STEEL	
ASTM A351 GR CF8M	
S/W GASKET, 316L SS + GRAPHITE	Cat 1
304 STAINLESS STEEL	
PTFE + CARBON FIBER	Cat 1

Note.
1. Plug/Seat hard facing (Cobalt based alloy) is available
2. Materials description
   316 SS : ASTM A276 TP316 or JIS 316 St. Steel
3. Above standard materials to be applicable depending on specific service conditions, other optional materials to consult Valmet.
4. Optional materials to meet to requirements of NACE MR 01-75 are available
5. The materials are subject to change as equivalent depending on detail design
6. The part no. 3*, 5 / 5A*, 6* are delivered as a set with no. 2
7. The identification plate is attached to the body when only the bare stem valve is required. And the identification plate is attached to the actuator yoke when the completed valve and actuator is delivered.

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	Optional
25 … 250 / 1 … 10	150 ... 600	Metal seat	-29 … +425	II	III or IV*

* For achieving class IV requirement kindly contact factory.

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-B7M STUD / ASTM A194-2HM NUT	-29 ... +425	G
Stainless steel (CF3, CF8,CF3M, CF8M)	ASTM A193-B8M / ASTM A194 -8M NUT	-196 ... +425	D
Cr.Mo. Steel (WC6, F11, WC9, F22, C12A, F91)	ASTM A193-B16 STUD ASTM A194-4 NUT	-29 ... +425	H

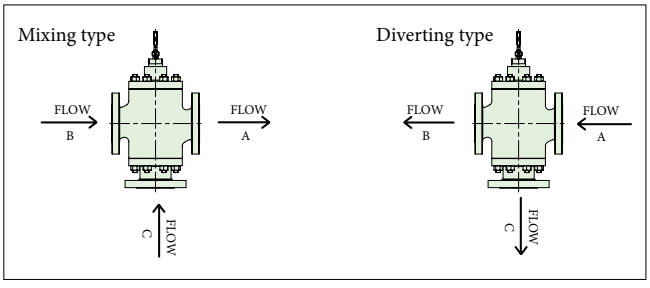
Packing applications

Packing material	Temp. range (°C)	Sign
PTFE Carbon Fiber (Braided TEF + Graphite)	-29…+260	G
PTFE V-Ring	-29…+232	T
Graphite (with Mold + Braided)	-29…+400	F*
Hi-Graphite (with Mold + Braided)	-29…+425	H

*Graphite packing with low emission, live loaded construction can be applicable up to +425 °C

Flow direction

Flow function	Flow positions
Mixing	From B and C to A
Diverting	From A to B and C



Trim materials

GW, trim			Temp. range (°C)	Sign
Plug	Stem	Seat		
410 SS	630 SS	410 SS	-29 ... +425	P1XBCS1R1
316 SS	316SS	316 SS	-29 ... +425	T6XTCS1T6X
316 SS + Cobalt based	316SS	316 SS + Cobalt based	-29 ... +425	T6ATCS1T6A
420 J2	630 SS	420 J2	-10 ... +425	*
316 SS	316SS	316 SS + PTFE	-29 ... +232	*
630 SS	630 SS	410 SS	-29 ... +425	*
XM-19	XM-19	XM-19	-29 ... +425	*
Inconel 625, 718, 750			-29 ... +425	*

* Please contact Valmet.
* Other materials are applicable.

Gasket applications

Body / Bonnet material	Gasket material	Temp. range (°C)	Sign
Carbon steel (WCB, A105)	S/W (Spiral wound) 316L + Graphite	-29…+425	S
Stainless steel (CF3, CF8, CF3M, CF8M)	S/W (Spiral wound) 316L + Graphite	-29…+425	S
	S/W (Spiral wound) 316L + PTFE	-29…+232	L
Cr.Mo. Steel (WC6, F11, WC9, F22, C12A, F91)	S/W (Spiral wound) 316L + Hi-Graphite	-29…+425	H*

* Please contact Valmet.

GW, ratings & end connections

Valve size DN / Inch	GW, ASME ratings			
	Class 150...600 (optionally up to 2500#)			
	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)

20. Sign	Trim type	21. Sign	Trim characteristic	22. Sign	Description	Rated Cv Body size and stroke													
						1"	Str.	1-1/2"	Str.	2"	Str.	3"	Str.	4"	Str.	6"	Str.	8"	Str.	10"	Str.
A	Cylindrical plug type	L	Linear	FC	Full capacity	10	(20)	22	(20)	36	(30)	76	(40)	126	(50)	274	(60)	490	(70)	760	(70)
		Q		1A	1-step reduction	6	(20)	14	(20)	22	(30)	46	(40)	76	(50)	168	(60)	300	(70)	460	(70)
				2A	2-step reduction	4	(20)	10	(20)	14	(30)	28	(40)	46	(50)	100	(60)	180	(70)	280	(70)
				3A	3-step reduction	2	(20)	6	(20)	10	(30)	16	(40)	30	(50)	64	(60)	120	(70)	170	(70)
Y	Special	Y	Special	YY	Special	Contact Valmet for Cv details													

* Rated Cv is applied differently depending on the trim type & trim characteristic.
* Available other flow characteristic.
* (Str.) means the valve stroke.
* FC: Full capacity 1A: 1-Step reduced 2A: 2-Step reduced 3A: 3-Step reduced

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
Valve size		Orifice diameter			Travel		Rated Cv									
Inch	mm	Sign	Inch	mm	Inch	mm										
1	25	FC	1.1	27.0	0.8	20	0.98	1.96	2.94	3.92	4.90	5.88	6.86	7.84	8.82	10
		1A					0.59	1.18	1.77	2.35	2.94	3.53	4.12	4.71	5.29	6
		2A					0.39	0.78	1.18	1.57	1.96	2.35	2.74	3.14	3.53	4
		3A					0.20	0.39	0.59	0.78	0.98	1.18	1.37	1.57	1.76	2
1-1/2	40	FC	1.5	38.4	0.8	20	2.16	4.32	6.47	8.63	10.78	12.94	15.10	17.25	19.41	22
		1A					1.37	2.75	4.12	5.49	6.86	8.23	9.61	10.98	12.35	14
		2A					0.98	1.96	2.94	3.92	4.90	5.88	6.86	7.84	8.82	10
		3A					0.59	1.18	1.77	2.35	2.94	3.53	4.12	4.71	5.29	6
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					2.16	4.32	6.47	8.63	10.78	12.94	15.10	17.25	19.41	22
		2A					1.37	2.75	4.12	5.49	6.86	8.23	9.61	10.98	12.35	14
		3A					0.98	1.96	2.94	3.92	4.90	5.88	6.86	7.84	8.82	10
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					4.52	9.03	13.53	18.04	22.55	27.06	31.57	36.07	40.58	46
		2A					2.75	5.49	8.24	10.98	13.73	16.47	19.21	21.96	24.70	28
		3A					1.57	3.14	4.71	6.28	7.84	9.41	10.98	12.55	14.12	16
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					7.46	14.91	22.36	29.81	37.26	44.70	52.15	59.60	67.05	76
		2A					4.52	9.03	13.53	18.04	22.55	27.06	31.57	36.07	40.58	46
		3A					2.95	5.89	8.83	11.77	14.71	17.65	20.59	23.53	26.47	30
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					16.50	32.96	49.43	65.89	82.35	98.82	115.28	131.75	148.21	168
		2A					9.82	19.62	29.42	39.22	49.02	58.82	68.62	78.42	88.22	100
		3A					6.28	12.56	18.83	25.10	31.37	37.64	43.92	50.19	56.46	64
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					29.46	58.86	88.26	117.66	147.06	176.46	205.86	235.26	264.66	300
		2A					17.68	35.32	52.96	70.60	88.24	105.88	123.52	141.16	158.80	180
		3A					11.78	23.54	35.30	47.06	58.82	70.58	82.34	94.10	105.86	120
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					45.10	90.25	134.33	180.41	225.49	270.57	315.65	360.73	405.81	460
		2A					27.46	54.94	82.38	109.82	137.26	164.70	192.14	219.58	247.02	280
		3A					16.68	33.35	50.01	66.67	83.33	99.99	116.65	133.31	149.97	170

NOTE

C_v: Valve flow coefficient

F_L: Liquid pressure recovery factor

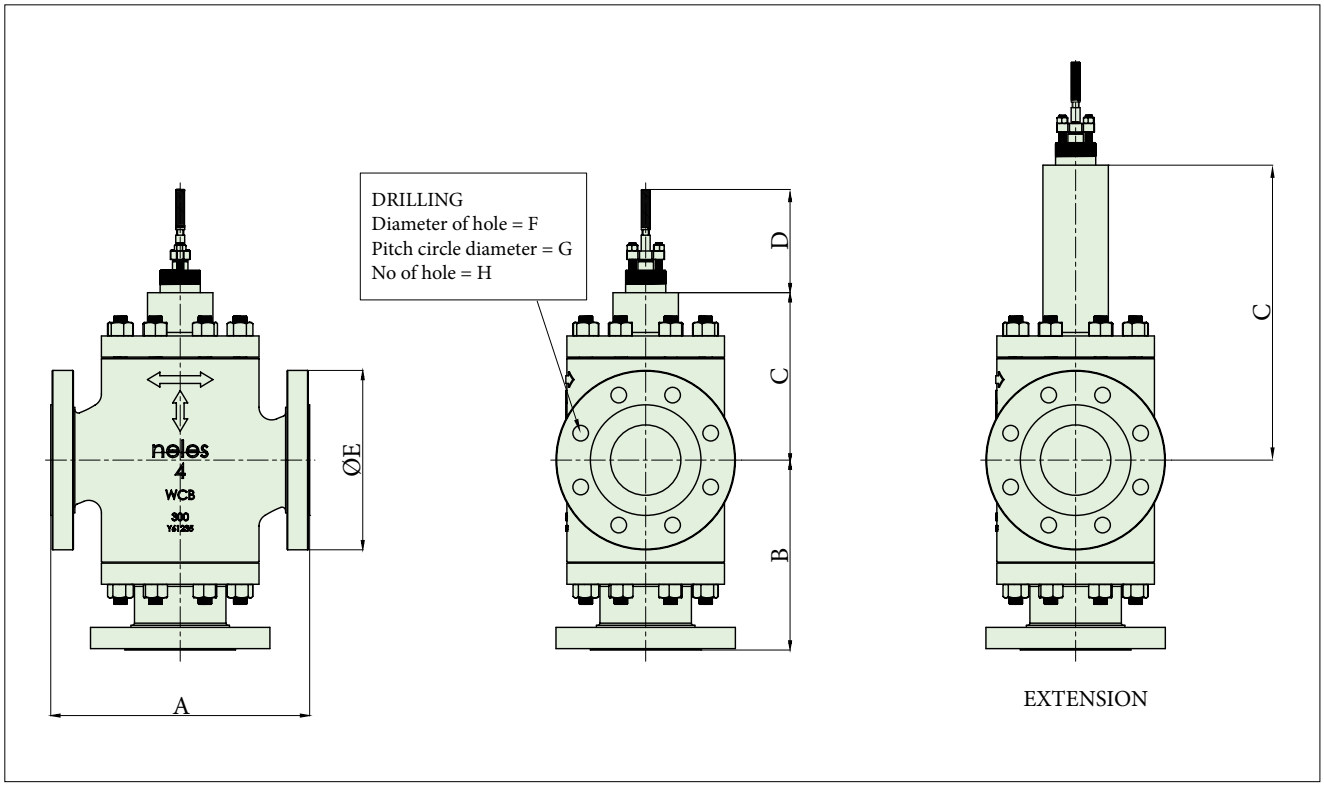
FC: Full capacity

1A: 1-Step reduced

2A: 2-Step reduced

3A: 3-Step reduced

Valve dimensions



Dimension (mm) / Size (mm)	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#
025	184	197	210	160	160	160	130	250	110	110	125	125	15.9	19.1	19.1	79.4	88.9	88.9	4	4	4	20	21	33
040	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
050	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
080	298	318	337	238	238	238	235	330	115	190	210	210	19.1	22.2	22.2	152.4	168.3	168.3	4	8	8	100	104	113
100	352	368	394	270	270	270	238	380	140	230	255	275	19.1	22.2	25.4	190.5	200	215.9	8	8	8	136	141	156
150	451	473	508	330	330	330	280	430	150	280	320	355	22.2	22.2	28.6	241.3	269.9	292.1	8	12	12	238	249	322
200	543	568	610	410	410	460	375	490	150	345	380	420	22.2	25.4	31.8	298.5	330.2	349.2	8	12	12	351	375	451
250	673	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

Dimension (inch) / Size (inch)	A			B			C		D	E			F			G			H			Weight (lbs)		
	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"	7.2	7.8	8.3	6.3	6.3	6.3	5.1	9.8	4.3	4.3	4.9	4.9	0.6	0.8	0.8	3.1	3.5	3.5	4	4	4	44	46	73
1-1/2"	8.7	9.3	9.9	7	7	7	6.1	11.6	4.3	4.9	6.1	6.1	0.6	0.9	0.9	3.9	4.5	4.5	4	4	4	90	95	110
2"	10	10.5	11.3	7.8	7.8	7.8	7.2	11.6	4.3	5.9	6.5	6.5	0.8	0.8	0.8	4.8	5	5	4	8	8	126	137	161
3"	11.7	12.5	13.3	9.4	9.4	9.4	9.3	13	4.5	7.5	8.3	8.3	0.8	0.9	0.9	6	6.6	6.6	4	8	8	221	229	249
4"	13.9	14.5	15.5	10.6	10.6	10.6	9.4	15	5.5	9.1	10	10.8	0.8	0.9	1	7.5	7.9	8.5	8	8	8	300	311	344
6"	17.8	18.6	20	13	13	13	11	16.9	5.9	11	12.6	14	0.9	0.9	1.1	9.5	10.6	11.5	8	12	12	525	549	710
8"	21.4	22.4	24	16.1	16.1	18.1	14.8	19.3	5.9	13.6	15	16.5	0.9	1	1.3	11.8	13	13.7	8	12	12	774	827	994
10"	26.5	27.9	29.6	18	18	19.3	16.4	23.6	5.9	15.9	17.5	20.1	1	1.1	1.4	14.3	15.3	17	12	16	16	1717	1867	2165

NOTE
P.C.D = Pitch Circle Diameter

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	G	X	S	G	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	G	ASME CLASS 900
H	ASME CLASS 1500	I	ASME CLASS 2500
J	EN PN 10	K	EN PN 16
L	EN PN 25	M	EN PN 40
N	EN PN 63	P	EN PN 100
B	EN PN 160	E	EN PN 250
A	EN PN 320		

4.	End connection
W	Flanged RF, ASME B16.5
C	Flanged RF, EN 1092-1
V	Socket welding, ASME B16.11
Q	Butt welding, ASME B16.25
Y	Special

5.	Bonnet construction	
	Bonnet type	Actuator connection
A	General	Applicable for VD_25/29/37
B	General	Applicable for VD_48/55
C	General	Applicable for VC_30, VB_32
D	General	Applicable for VC/VB_40/50
T	General	Applicable for VC/VB_60/70
E	Extension	Applicable for VD_25/29/37
F	Extension	Applicable for VD_48/55
G	Extension	Applicable for VC_30, VB_32
H	Extension	Applicable for VC/VB_40/50
U	Extension	Applicable for VC/VB_60/70
P	Cryogenic	Applicable for VD_25/29/37
Q	Cryogenic	Applicable for VD_48/55
R	Cryogenic	Applicable for VC_30, VB_32
S	Cryogenic	Applicable for VC/VB_40/50
V	Cryogenic	Applicable for VC/VB_60/70
Y	Special	Special

6.	Body material		
J2	A216 gr. WCB	S6	A351 gr. CF8M
S1	A351 gr. CF3M	YY	Special

- Bonnet material is same or equivalent with body material.

7.	Model code
B	Model B

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	630 SS	Standard for carbon steel body
TC	316 SS	Standard for stainless steel body
VX	XM-19	

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 / Bellows type
S	General packing
E	Low emission, Live loaded
C	Bellows Seal (316L SS, Formed)

15.	Packing material
G	PTFE + Carbon fiber
F	Graphite (with mold and braided)
T	PTFE V-Ring
C	PTFE + Carbon fiber (ATEX)
H	Hi-Graphite (with mold + braided)
Y	Special

16.	Seal ring material
X	Not applicable

17.	Gasket material
S	S/W gasket type, 316L SS + Graphite for standard
L	S/W gasket type, 316L SS + PTFE
H	S/W gasket type, 316L SS + Hi-Graphite
Y	Special

18.	Stud / Nut material
G	A193 gr. B7M / A194 gr. 2HM
D	A193 gr. B8M / A194 gr. 8M
K	A320 gr. B8M cl. 2 / A194 gr. 8M
H	A193 gr. B16 / A194 gr. 4
Y	Special

19.	Options
X	Not applicable
M	Globe 3-way, mixing type
Y	Special

* The body, bonnet, trim materials are subject to change as equivalent depending on detail design.
* Please see Neles Globe Typecode instruction for further options.

Trim type & rated Cv

20. Sign	Trim type	21. Sign	Trim characteristic	22. Sign	Description	Rated Cv Body size and stroke													
						1"	Str.	1-1/2"	Str.	2"	Str.	3"	Str.	4"	Str.	6"	Str.	8"	Str.	10"	Str.
A	Cylindrical plug type	L	Linear	FC	Full capacity	10	(20)	22	(20)	36	(30)	76	(40)	126	(50)	274	(60)	490	(70)	760	(70)
				1A	1-Step reduction	6	(20)	14	(20)	22	(30)	46	(40)	76	(50)	168	(60)	300	(70)	460	(70)
				2A	2-Step reduction	4	(20)	10	(20)	14	(30)	28	(40)	46	(50)	100	(60)	180	(70)	280	(70)
				3A	3-Step reduction	2	(20)	6	(20)	10	(30)	16	(40)	30	(50)	64	(60)	120	(70)	170	(70)
Y	Special	Y	Special	YY	Special	Contact Valmet for more information															

* Rated Cv is different depending on trim type and characteristic.

Valmet Flow Control Oy
Vanha Porvoontie 229, 01380 Vantaa, Finland.
Tel. +358 10 417 5000.
www.valmet.com/flowcontrol

Subject to change without prior notice.
Neles, Neles Easyflow, Jamesbury, Stonel, Valvcon and Flowrox, and certain other trademarks, are either registered trademarks or trademarks of Valmet Oyj or its subsidiaries in the United States and/or in other countries.

© Valmet, 4GV24EN -3/2025