

VACUUM GATE VALVE, SERIES 12.1

The standard valve for VACUUM isolation applications in research and industry.



Manual

Pneumatic

Low cost of ownership

Through holes for direct mounting (option)

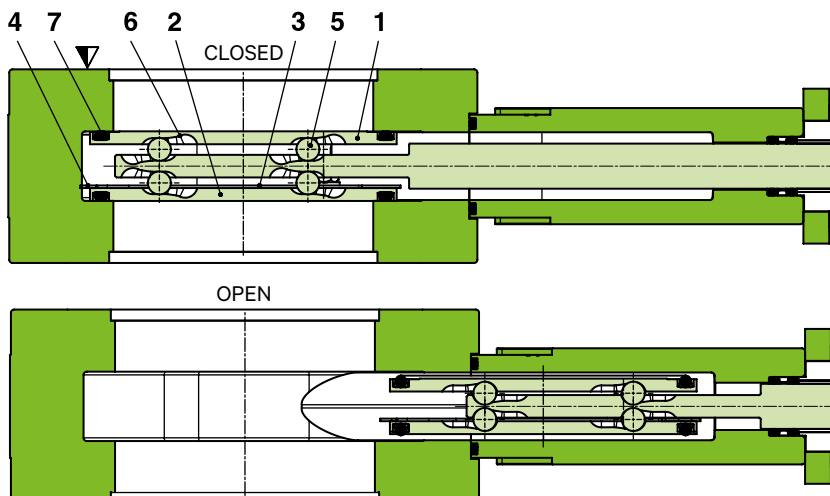
Split body for easy cleaning

Mechanically locked in closed position

MAIN FEATURES

Sizes	DN 63 – 320 mm (2½" – 12")
Actuators	manual with push rod pneumatic: double acting
Body material	aluminum
Feedthrough	shaft feedthrough
Standard flanges	ISO-F, JIS
Sealing technology	VATLOCK (see glossary)

FUNCTIONAL PRINCIPLE



- 1 Gate
- 2 Counter-plate
- 3 Leaf springs
- 4 Spring stop
- 5 Ball pairs
- 6 Ball detents
- 7 Gate seal
- ▼ Valve seat side

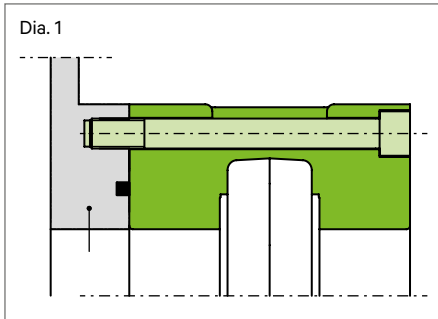
TECHNICAL DATA

Leak rate	Valve body, valve seat	$<1 \cdot 10^{-9}$ mbar ls ⁻¹
Pressure range	DN 63 – 200	$1 \cdot 10^{-7}$ mbar to 1.6 bar (abs)
	DN 250 – 320	$1 \cdot 10^{-7}$ mbar to 1.2 bar (abs)
Differential pressure on the gate	DN 63 – 200	≤ 1.6 bar
	DN 250 – 320	≤ 1.2 bar
Differential pressure at opening		≤ 30 mbar
Cycles until first service	DN 63 – 100	200 000
	DN 160 – 320	100 000
Temperature ¹⁾	Valve body	≤ 120 °C
	Manual and pneumatic actuator	≤ 80 °C
	Solenoid valve	≤ 50 °C
	Position indicator	≤ 80 °C
Heating and cooling rate		≤ 30 °C h ⁻¹
Material	Valve body DN 63 – 100	EN AW-5083 (3.3547), EN AW-6061 (3.3211)
	DN 160 – 320	EN AC-42100 (3.2371)
	Mechanism DN 63 – 100	AISI 304 (1.4301)
	DN 160 – 320	EN AW-6082 (3.2315)
Seal	Bonnet, gate	FKM (Viton®)
Feedthrough		shaft feedthrough
Mounting position		any
Solenoid valve		24 V DC, 5.4 W (others on request)
Position indicator: contact rating	Voltage	≤ 250 V AC ≤ 50 V DC
	Current	≤ 2 A ≤ 1.2 A
Valve position indication		visual (mechanical)

DN (nominal I. D.)		Conductance (molecular flow) (depending on A-dimension and flange type)	Valve with manual actuator		Valve with pneumatic actuator						
			Weight		Compressed air min. – max. overpressure		Volume of pneumatic actuator		Closing or opening time	Weight	
mm	inch	ls ⁻¹	kg	lbs	bar	psi	l	ft ³	s	kg	lbs
63	2½	550	3	7	4 – 7	58 – 102	0.16	0.006	1.5	3	6.6
80	3	1000	3.8	9	4 – 7	58 – 102	0.20	0.007	1.7	3.8	8.4
100	4	2000	4.5	10	4 – 7	58 – 102	0.22	0.008	2	4.5	9.9
160	6	6000	9	20	4 – 7	58 – 102	0.50	0.018	2	9	19.8
200	8	12000	–	–	4 – 7	58 – 102	0.90	0.032	3	18	39.7
250	10	22000	–	–	4 – 7	58 – 102	1.50	0.053	5	25	55.1
320	12	33000	–	–	4 – 7	58 – 102	2.80	0.099	7	40	88.2

¹⁾ Maximum values: depending on operating conditions and sealing materials.

OPTIONS, CUSTOMIZED SOLUTIONS

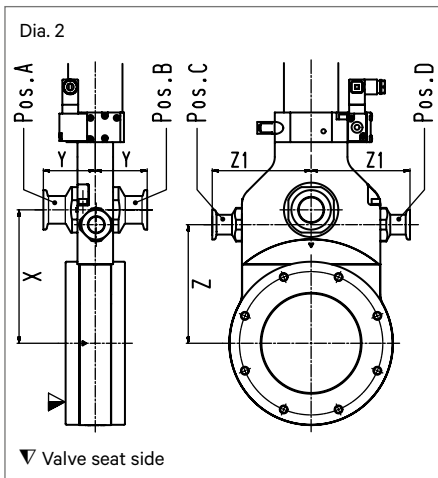


ACTUATOR

- Solenoid valve for impulse actuation:
last valve position is maintained at power failure
- Solenoid valve separate, for external mounting
- Other solenoid valve voltage (standard 24VDC)
- Manual emergency operation on solenoid valve lockable
- Double position indicator (2 switches each for the positions «open» and «closed»)
- Bakeable position indicator: actuator bakeable to max. 140 °C

VALVE

- Through holes for mounting the valve to the flat chamber wall (Dia. 1)
- Insert version (no valve body) for direct integration into the vacuum system
- Surface treatment, e. g. hard anodized valve body
- Customer specified flanges
- Other sealing materials
- Stainless steel gate for DN 160 – 320
- Shutter for laser application (gate without seal)
- ASA-LP flanges
- Ports for roughing (by-pass), venting or for gauges (Dia. 2):
DN 63 – 100 possible positions C and C
DN 63 – 320 possible positions A, B, C and D



DN valve	mm inch	63 2½	80 3	100 4	160 6	200 8	250 10	320 12
Recommended port ISO-KF		16	16	25	25	40	40	40
X	mm inch	105 4.13	110 4.33	135 5.31	190 7.48	232 9.13	285 11.22	350 13.78
Y	mm inch	48 1.89	48 1.89	63 2.48	54 2.13	60 2.36	65 2.56	74 2.91
Z	mm inch	90 3.54	100 3.94	120 4.72	-	-	-	-
Z1	mm inch	80 3.15	89 3.50	100 3.94	-	-	-	-
Other ports on request								

SPARE PARTS

We can offer a wide variety of spare parts. Please contact us for details and an offer.

Thank you for specifying the fabrication number of the valve indicated on the identification tag when asking for spare parts.

ACCESSORIES

- Flange connections for installation of the valve: see series 32
- Heater

ORDERING INFORMATION FOR STANDARD VALVES

Valve with manual actuator
push rod

DN		Ordering numbers	
mm	inch	ISO-F	JIS
63	2½	12136-PA03	12136-JA03
80	3	12138-PA03	12138-JA03
100	4	12140-PA03	12140-JA03
160	6	12144-PA03	12144-JA03

Valve with pneumatic actuator
double acting
with solenoid valve
with position indicator

DN		Ordering numbers (specify control voltage)	
mm	inch	ISO-F	JIS
63	2½	12136-PA44	12136-JA44
80	3	12138-PA44	12138-JA44
100	4	12140-PA44	12140-JA44
160	6	12144-PA44	12144-JA44
200	8	12146-PA44	12146-JA44
250	10	12148-PA44	12148-JA44
320	12	12150-PA44	12150-JA44

Larger sizes: see series 14, 16.8, 19

without solenoid valve, without position indicator: 121... - A14

without solenoid valve, with position indicator: 121... - A24

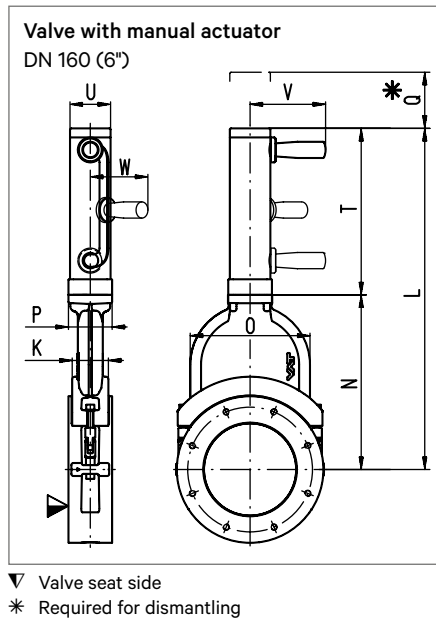
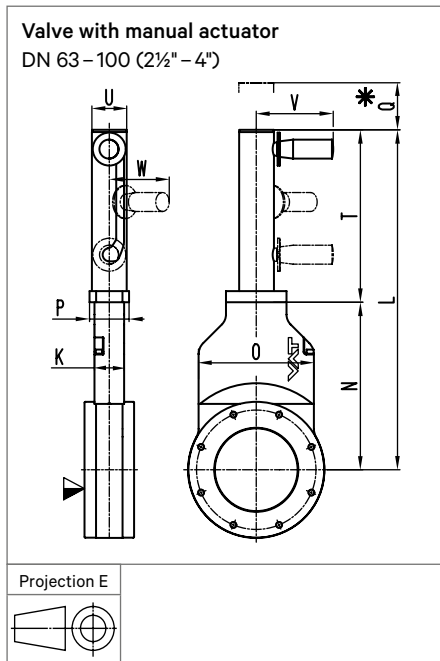
with solenoid valve, without position indicator: 121... - A34 (specify control voltage)

ORDERING INFORMATION FOR VALVES WITH OPTIONS

Basic ordering number plus «-X»: -X to be specified

Example: 12148-PA44-X, X = port ISO-KF 40 in position A

MAIN DIMENSIONS

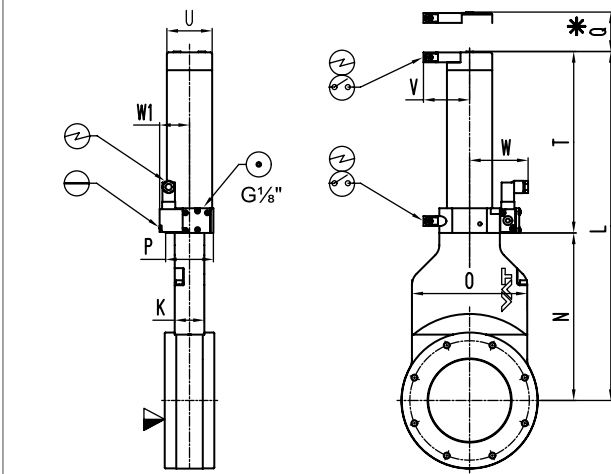


DN	mm	63	80	100	160
	inch	2½	3	4	6
K	mm	36	36	36	58
	inch	1.42	1.42	1.42	2.28
L	mm	329.50	363	413	547
	inch	12.97	14.29	16.26	21.54
N	mm	155.50	173.50	203.50	280
	inch	6.12	6.83	8.01	11.02
O	mm	100	118	140	192
	inch	3.94	4.65	5.51	7.56
P	mm	48	48	48	70
	inch	1.89	1.89	1.89	2.76
Q	mm	25	25	25	60
	inch	0.98	0.98	0.98	2.36
T	mm	174	189.50	209.50	267
	inch	6.85	7.46	8.25	10.51
U	mm	43	43	43	65
	inch	1.69	1.69	1.69	2.56
V	mm	94	94	94	122
	inch	3.70	3.70	3.70	4.80
W	mm	75	75	75	95
	inch	2.95	2.95	2.95	3.74

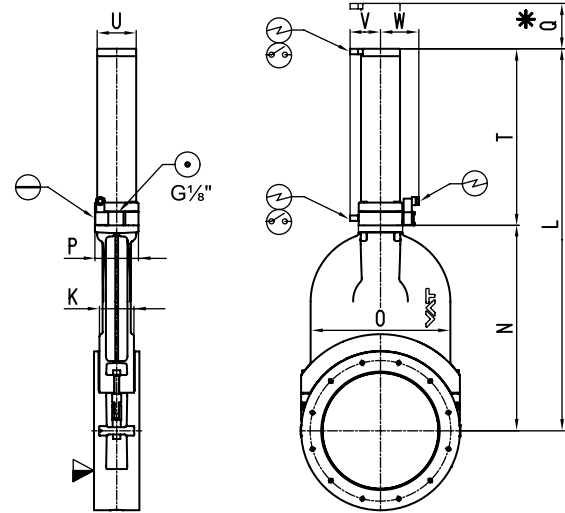
Flange dimensions: see page 65

MAIN DIMENSIONS

Valve with pneumatic actuator
DN 63 – 100 (2½" – 4")

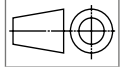


Valve with pneumatic actuator
DN 160 – 320 (6" – 12")



- ▼ Valve seat side
- * Required for dismantling
- ⊕ Compressed air connection
- ⊖ Electrical connection
- ⊗ Position indicator
- ⊖ Emergency operation

Projection E

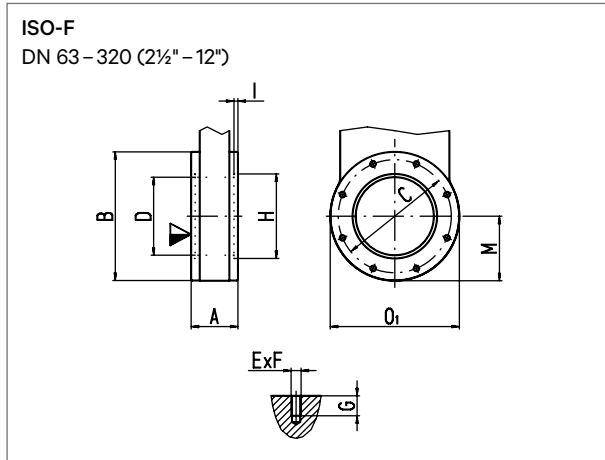


DN	mm	63	80	100
	inch	2½	3	4
K	mm	36	36	36
	inch	1.42	1.42	1.42
L	mm	341.50	375	425
	inch	13.45	14.76	16.69
N	mm	155.50	173.50	203.50
	inch	6.12	6.83	8.01
O	mm	100	118	140
	inch	3.94	4.65	5.51
P	mm	58	58	58
	inch	2.28	2.28	2.28
Q	mm	25	25	25
	inch	0.98	0.98	0.98
T	mm	186	201.50	221.50
	inch	7.32	7.93	8.72
U	mm	55	55	55
	inch	2.17	2.17	2.17
V	mm	56	56	56
	inch	2.20	2.20	2.20
W	mm	72	72	72
	inch	2.83	2.83	2.83
W1	mm	36.50	36.50	36.50
	inch	1.44	1.44	1.44

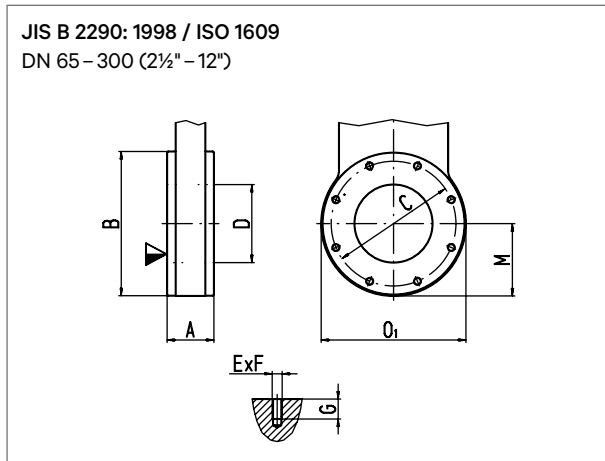
DN	mm	160	200	250	320
	inch	6	8	10	12
K	mm	58	66	76	96
	inch	2.28	2.60	2.99	3.78
L	mm	547	688	843	1029
	inch	21.54	27.09	33.19	40.51
N	mm	280	363.50	453	558
	inch	11.02	14.31	17.83	21.97
O	mm	192	240	308	370
	inch	7.56	9.45	12.13	14.57
P	mm	70	80	96	114
	inch	2.76	3.15	3.78	4.49
Q	mm	60	80	100	120
	inch	2.36	3.15	3.94	4.72
T	mm	267	324.50	390	471
	inch	10.51	12.78	15.35	18.54
U	mm	65	75	86	106
	inch	2.56	2.95	3.39	4.17
V	mm	57	62	67	75
	inch	2.24	2.44	2.64	2.95
W	mm	71.50	76.50	84.50	93.50
	inch	2.82	3.01	3.33	3.68

Flange dimensions: see page 65

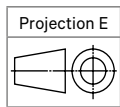
FLANGE DIMENSIONS



DN	mm inch	63 2½	80 3	100 4	160 6	200 8	250 10	320 12
A	mm inch	60 2.36	60 2.36	60 2.36	70 2.76	80 3.15	100 3.94	120 4.72
B	mm inch	130 5.12	145 5.71	165 6.50	235 9.25	288 11.34	350 13.78	425 16.73
C	mm inch	110 4.33	125 4.92	145 5.71	200 7.87	260 10.24	310 12.20	395 15.55
D	mm inch	65 2.56	80 3.15	100 3.94	150 5.91	200 7.87	261 10.27	318 12.52
E × F		4 × M8	8 × M8	8 × M8	8 × M10	12 × M10	12 × M10	12 × M12
G	mm inch	12 0.47	12 0.47	12 0.47	16 0.63	16 0.63	16 0.63	20 0.79
H	mm inch	70 2.76	83 3.27	102 4.02	153 6.02	213 8.39	-	-
I	mm inch	3 0.12	3 0.12	3 0.12	5 0.20	5 0.20	-	-
M	mm inch	65.50 2.58	73 2.87	83 3.27	117.50 4.63	144 5.67	175 6.89	212.50 8.37
O1	mm inch	131 5.16	146 5.75	166 6.54	237 9.33	290 11.42	352 13.86	428 16.85



DN	mm inch	65 2½	80 3	100 4	150 6	200 8	250 10	300 12
A	mm inch	60 2.36	60 2.36	60 2.36	70 2.76	80 3.15	100 3.94	120 4.72
B	mm inch	145 5.71	160 6.30	185 7.28	235 9.25	288 11.34	350 13.78	425 16.73
C	mm inch	120 4.72	135 5.31	160 6.30	210 8.27	270 10.63	320 12.60	370 14.57
D	mm inch	65 2.56	80 3.15	100 3.94	150 5.91	200 7.87	261 10.27	318 12.52
E × F		4 × M10	4 × M10	8 × M10	8 × M10	8 × M12	12 × M12	12 × M12
G	mm inch	12 0.47	12 0.47	12 0.47	16 0.63	16 0.63	16 0.63	20 0.79
M	mm inch	73 2.87	81 3.19	93 3.66	117.50 4.63	144 5.67	175 6.89	212.50 8.37
O1	mm inch	146 5.75	161 6.34	186 7.32	237 9.33	290 11.42	352 13.86	428 16.85



▼ Valve seat side