

Main applications

The standard valve for vacuum isolation applications in research and industry



Ordering information

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 14.0, 16.8, 19

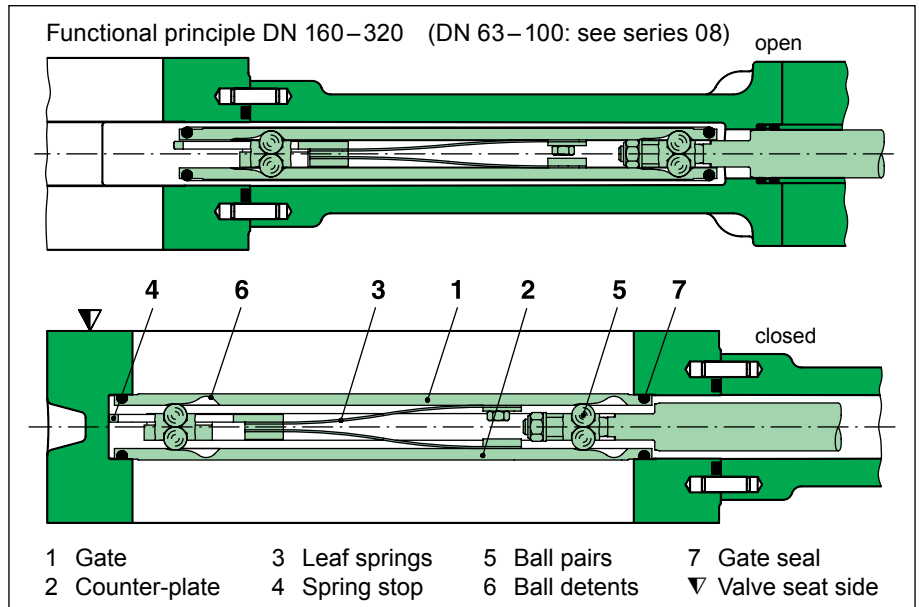
without solenoid valve, without position indicator: 121 . . . A14

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

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

Features

- Body material: aluminum
- Low cost gate valve
- Split body for easy cleaning
- VATLOCK configuration: see glossary



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), -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 VDC, 5.4 W (others on request)
Position indicator: contact rating		
– Voltage		≤ 250 VAC ≤ 50 VDC
– Current		≤ 2 A ≤ 1.2 A
Valve position indication		visual (mechanical)

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

Further technical data on next page →

Continued Technical data

DN (nominal I.D.)		Standard flanges	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 pneu- matic actuator		Closing or opening time	Weight	
mm	inch		ls ⁻¹	kg	lbs	bar	psi	l	ft ³	s	kg	lbs
63	2 ½	See page 57	550	3	7	4–7	58–102	0.16	0.006	1.5	3	7
80	3		1000	3.8	9	4–7	58–102	0.20	0.007	1.7	3.8	9
100	4		2000	4.5	10	4–7	58–102	0.22	0.008	2	4.5	10
160	6		6000	9	20	4–7	58–102	0.50	0.018	2	9	20
200	8		12000	–	–	4–7	58–102	0.90	0.032	3	18	38
250	10		22000	–	–	4–7	58–102	1.50	0.053	5	25	55
320	12		33000	–	–	4–7	58–102	2.80	0.099	7	40	88

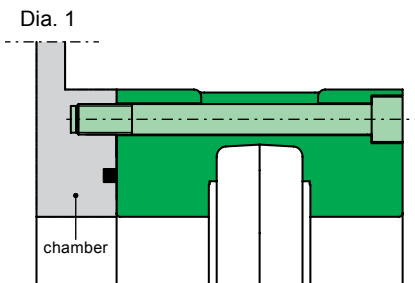
Options

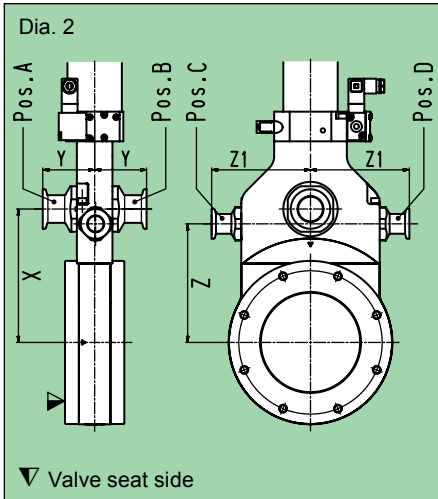
Actuator

- Solenoid valve for impulse actuation:
last valve position is maintained at power failure
- Solenoid valve separate, for external mounting
- Other solenoid valve voltage (standard: 24 VDC)
- 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 venting or for gauges (Dia. 2)
 - with DN 63–100 possible in positions C and D
 - with DN 63–320 possible in positions A, B, C and D

DN valve	mm inch	63 2 ½	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								

- Ports for roughing (by-pass)

Ordering information for options:

Ordering No. of valve-X (e. g. 12148-PA44-X, X = port ISO-KF 40 in position A)

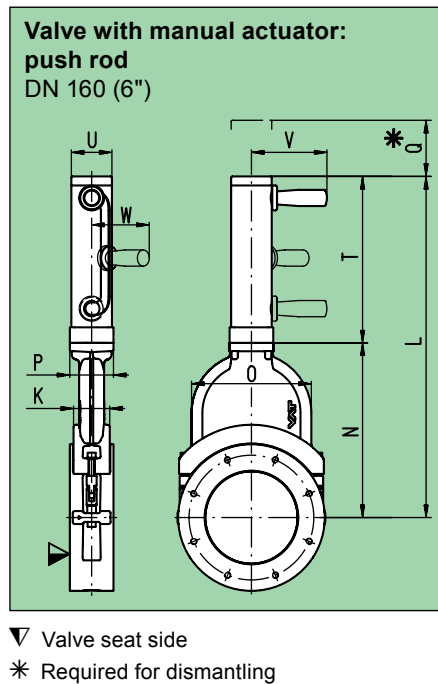
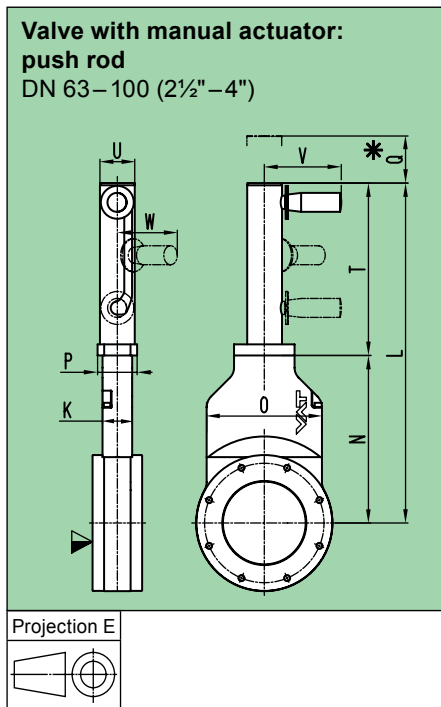
Spare parts

- **Seals**
on request (specify fabrication number of valve)

Accessories

- **Heater and insulation jacket**
on request (specify fabrication number of valve)
- **Flange connections**
for installation of the valve: see series 32

Main dimensions

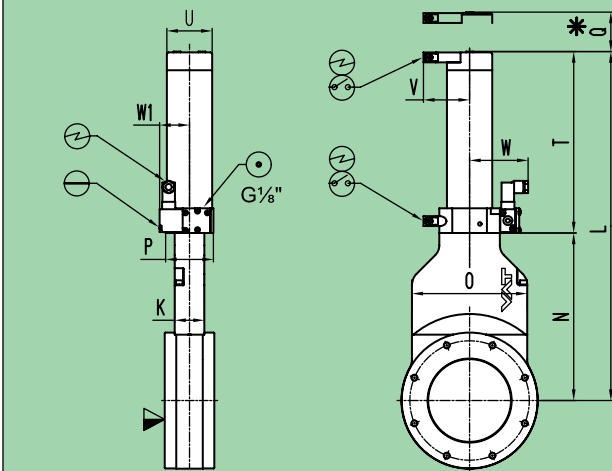


DN	mm inch	63 2 ½	80 3	100 4	160 6
K	mm inch	36 1.42	36 1.42	36 1.42	58 2.28
L	mm inch	329.50 12.97	363 14.29	413 16.26	547 21.54
N	mm inch	155.50 6.12	173.50 6.83	203.50 8.01	280 11.02
O	mm inch	100 3.94	118 4.65	140 5.51	192 7.56
P	mm inch	48 1.89	48 1.89	48 1.89	70 2.76
Q	mm inch	25 0.98	25 0.98	25 0.98	60 2.36
T	mm inch	174 6.85	189.50 7.46	209.50 8.25	267 10.51
U	mm inch	43 1.69	43 1.69	43 1.69	65 2.56
V	mm inch	94 3.70	94 3.70	94 3.70	122 4.80
W	mm inch	75 2.95	75 2.95	75 2.95	95 3.74

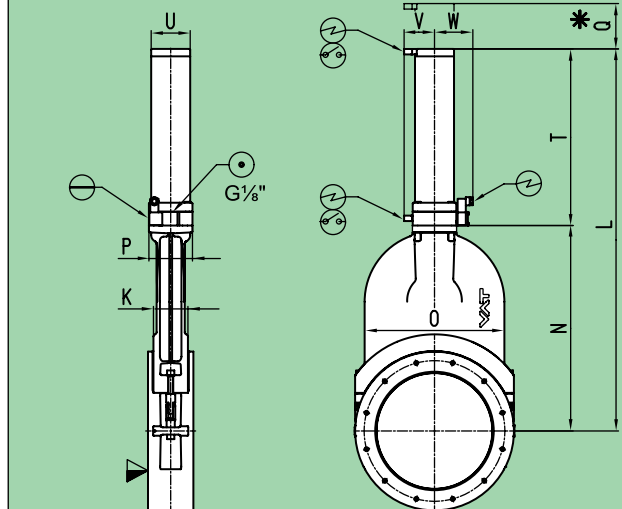
Flange dimensions: see page 57

Main dimensions

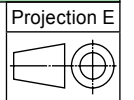
Valve with pneumatic actuator: double acting
DN 63–100 (2½"–4")



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



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



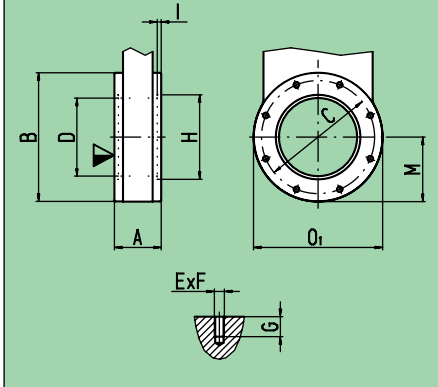
Flange dimensions: see page 57

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

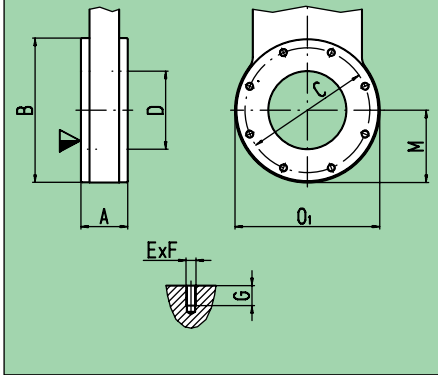
Flange dimensions

ISO-F
DN 63–320 (2½"–12")



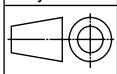
DN	mm inch	63 2½	80 3	100 4	160 6	200 8	250 10	320 12
A	mm inch	60 2.36	60 2.36	60 2.36	70 2.76	80 3.15	100 3.94	120 4.72
B	mm inch	130 5.12	145 5.71	165 6.50	235 9.25	288 11.34	350 13.78	425 16.73
C	mm inch	110 4.33	125 4.92	145 5.71	200 7.87	260 10.24	310 12.20	395 15.55
D	mm inch	65 2.56	80 3.15	100 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

JIS B 2290: 1998 / ISO 1609
DN 65–300 (2½"–12")



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

Projection E



▼ Valve seat side