

For extreme UHV and/or aggressive media

Bakeable to 300°C in open and closed position

Radiation resistant

Maintenance-free up to 20000 cycles

Opening possible up to 1 bar differential pressure



Body material

stainless steel

Manual actuator

handwheel

DN		Ordering numbers CF-F
mm	inch	
16	5/8	48124-CE01
40	1 1/2	48132-CE01
63	2 1/2	48236-CE01
100	4	48240-CE01
160	6	48244-CE01
200	8	48146-CE01

with position indicator 80°C: 48 . . . - . E08

with position indicator 200°C: 48 . . . - . E05

Pneumatic actuator

double acting
with position indicator 80°C
with solenoid

DN		Ordering numbers (specify control voltage)		
mm	inch	compact actuator valve 200°C CF-F	extended actuator valve 300°C CF-F	actuator modules see page 82
		16	5/8	
40	1 1/2		48132-CE44	
63	2 1/2	48236-CE74	48236-CE44	
100	4	48240-CE74	48240-CE44	
160	6	48244-CE74	48244-CE44	
200	8	48146-CE74	48146-CE44	
250	10	48148-CE74	48148-CE44	
320	12	48150-XE74	48150-XE44	X = customer specific

with position indicator 80°C, without solenoid: 48 . . . - . E72 (compact actuator)
48 . . . - . E24 (extended actuator)

further versions: see pages 82 and 83

Bake-out jacket

For bake-out we recommend commercial controllers with settable heating rate and temperature limiting device.

The bake-out jacket is without thermocouples and thermostats.

Details see page 216. Ordering number on request.

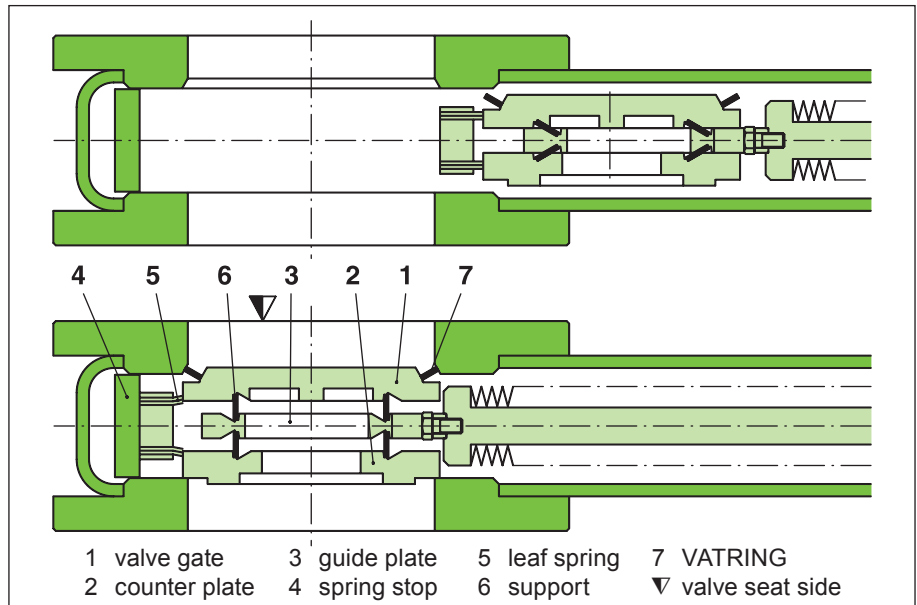
Sealing materials

Gate: metal

Bonnet: metal

Feedthrough

Bellows



Features

VATRING configuration (see glossary)

Sealing surfaces are only elastically deformed

Locked in closed position

Technical data

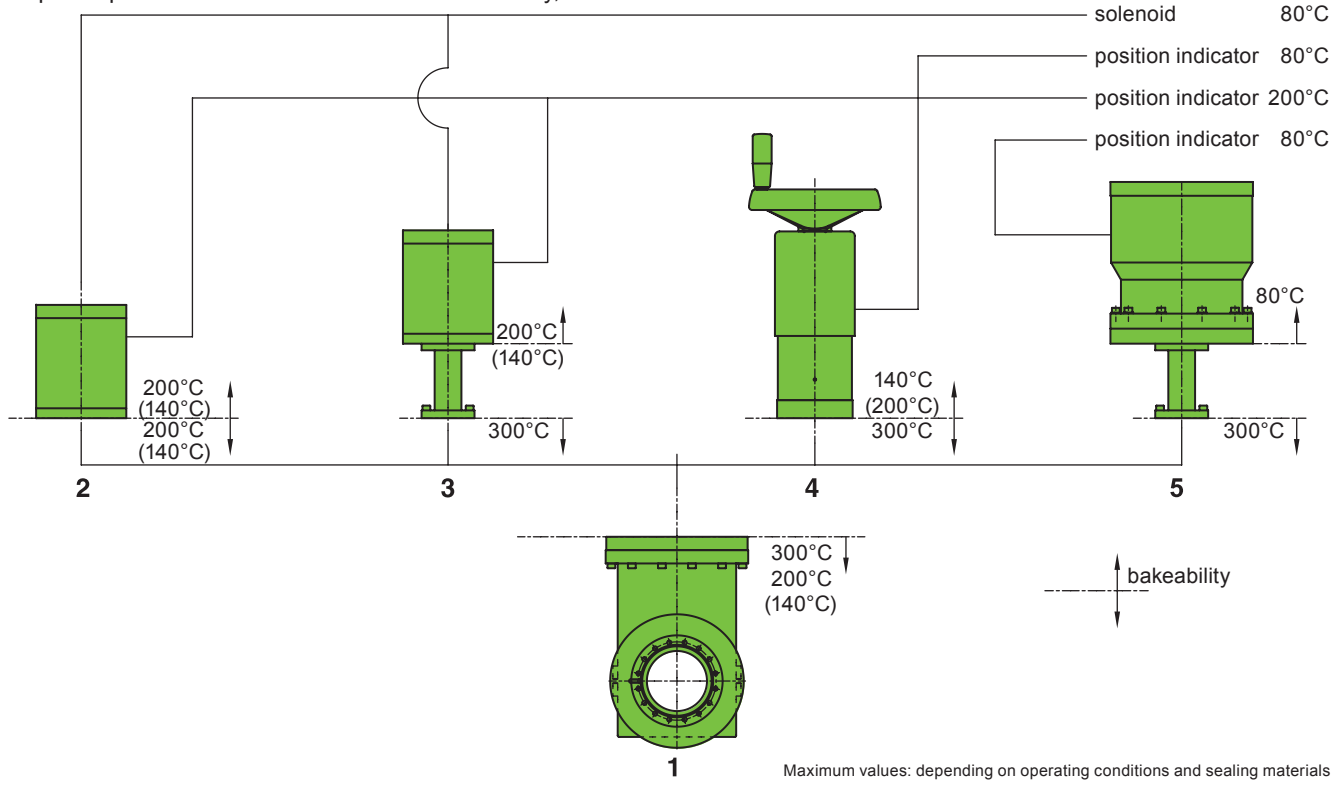
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Leak rate: body, valve seat	$< 1 \cdot 10^{-10}$ mbar ls ⁻¹
Pressure range	UHV to 2 bar (abs)
Differential pressure on the gate	2 bar in either direction
Differential pressure at opening	
- DN 16 - 40	≤ 1 bar
- DN 63 - 250	≤ 500 mbar (1 bar with reduced cycle life)
- DN 320	≤ 500 mbar with reduced cycle life
Cycles until first service	
- DN 16 - 200 / 250 - 320	20 000 / 5 000
Temperature ¹⁾	
- Valve body	≤ 300°C
- Manual actuator	≤ 140°C (option: 200°C)
- Pneumatic actuator	≤ 200°C
- Position indicator	≤ 80°C (option: 200°C)
- Solenoid	≤ 80°C
- Flexible bake-out jacket	≤ 300°C (valve), 115, 230 V, 50/60 Hz
Heating and cooling rate	
- DN 16 / 40 - 160 / 200 - 320	≤ 80°C h ⁻¹ / ≤ 50°C h ⁻¹ / ≤ 25°C h ⁻¹
Material	
- Valve body, mechanism	AISI 316L (1.4435, 1.4404)
- Bellows	AISI 316L (1.4435)
Seal: bonnet, gate	metal
Mounting position: DN 16 - 250	any
Solenoid	24 V DC, 2.5 W (others see «Options»)
Position indicator: contact rating	
- Voltage	80°C 200°C ≤ 50 VAC / DC ≤ 50 VAC / DC
- Current	≤ 1.2 A ≤ 1 A
Valve position	visual (mechanical)

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

Actuators – modular selection

- | | | | |
|---|---|---|---|
| 1 | Body, valve mechanism, bellows | : 10 ⁸ Gy, bakeable to 300°C | |
| 2 | Pneumatic actuator compact | : 10 ⁵ Gy, bakeable to 200°C | option: 10 ⁶ Gy, bakeable to 140°C |
| 3 | Pneumatic actuator extended | : 10 ⁵ Gy, bakeable to 200°C | option: 10 ⁶ Gy, bakeable to 140°C |
| 4 | Manual actuator | : 10 ⁵ Gy, bakeable to 140°C | option: 10 ⁵ Gy, bakeable to 200°C |
| 5 | Special pneumatic actuator for hot zone | : 10 ⁸ Gy, bakeable to 80°C | |



Accessories

- Fittings for installation of the valve: series 33
- Flexible bake-out jacket: see page 216

Seal kit

Consisting of seals for gate (VATRING) and bonnet
Ordering No.: see operating manual or price list

Technical data

DN (nominal I.D.)		CF-F flange	molecular flow conduc- tance	manual			pneumatic						
				turns per stroke	weight		compressed air pressure min. - max. overpressure	volume of air cylinder		closing or opening time	weight		
mm	inch	O.D.	ls ⁻¹	n	kg	lbs	bar	psi	l	ft ³	s	kg	lbs
16	5/8	1 1/8	10	19	2.5	6	4 - 8	55 - 115	0.1	0.003	1	3.8	8.4
40	1 1/2	2 3/4	100	21	5.5	12	4 - 8	55 - 115	0.27	0.01	1	7.2	16
63	2 1/2	4 1/2	400	32	16	35	4 - 8	55 - 115	0.5	0.018	2	17.3	38
100	4	6	1400	46	23.5	52	4 - 8	55 - 115	1.4	0.049	3	27	60
160	6	8	4200	66	38	84	4 - 8	55 - 115	4.3	0.152	8	38	84
200	8	10	6900	63	74.5	164	4 - 8	55 - 115	8.3	0.293	14	88	194
250	10	12	12700	-	-	-	4 - 8	55 - 115	10.7	0.378	24	156	344
320	12	X	23500	-	-	-	4 - 8	55 - 115	12.9	0.455	19	223	492

Options

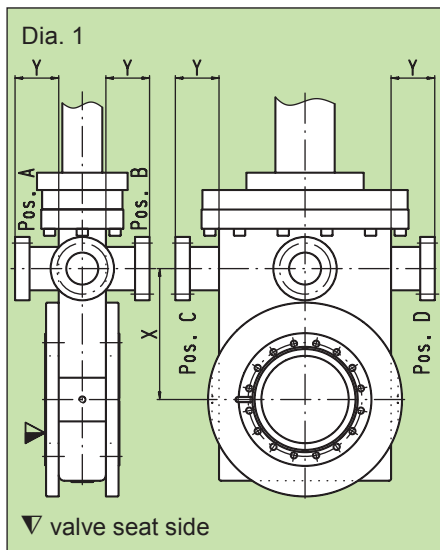
¹⁾ Maximum values: depending on operating conditions and sealing materials

Actuator:

- Accessory for pneumatic actuator for faster closing
- Pneumatic actuator compact or extended 10⁶ Gy, bakeable to 140°C ¹⁾
- Pneumatic actuator for hot zone: radiation resistant to 10⁸ Gy, bakeable to 80°C
- Manual actuator bakeable to 200°C ¹⁾
- Solenoid for impulse actuation:
actual valve position is maintained at power failure
- Solenoid for 12, 48 VDC
24, 48, 100, 115, 200, 230 V 50 Hz
24, 100, 115, 200, 230 V 60 Hz
- Solenoid radiation resistant to 10⁶ Gy (standard 10⁴ Gy)
- Position indicator for pneumatic actuator bakeable to 200°C
- Position indicator for manual actuator bakeable to 80°C or 200°C
- Double position indicator (2 switches each for the positions «open» and «closed»)

Valve:

- Customer specified flanges
- Larger diameters on request
- Antimagnetic version with defined permeability: see page 220
- Window in valve gate: see specification below
- Ports (diagram 1) for roughing (by-pass), venting or for gauges

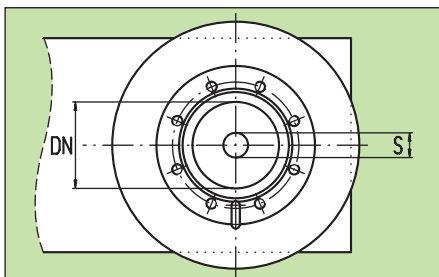
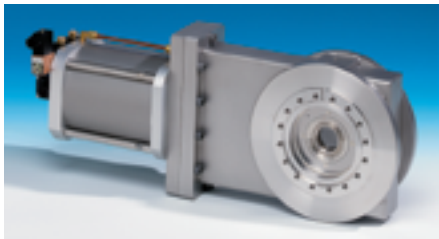


DN valve	mm inch	16 5/8	40 1 1/2	63 2 1/2	100 4	160 6	200 8	250 10	320 12
recommended port CF-F	mm inch	16 5/8	16 5/8	16 5/8	40 1 1/2	40 1 1/2	40 1 1/2	40 1 1/2	40 1 1/2
X	mm inch	40 1.57	70 2.76	115 4.53	135 5.31	220 8.66	280 11.02	365 14.37	440 17.32
Y	mm inch	18 0.71	18 0.71	20 0.79	50 1.97	50 1.97	50 1.97	50 1.97	50 1.97

Ordering information for options:

Ordering No. of valve-X (e. g. 48240-CE44-X, X = port CF-F 40 in positions A and B)

Gate valve with window



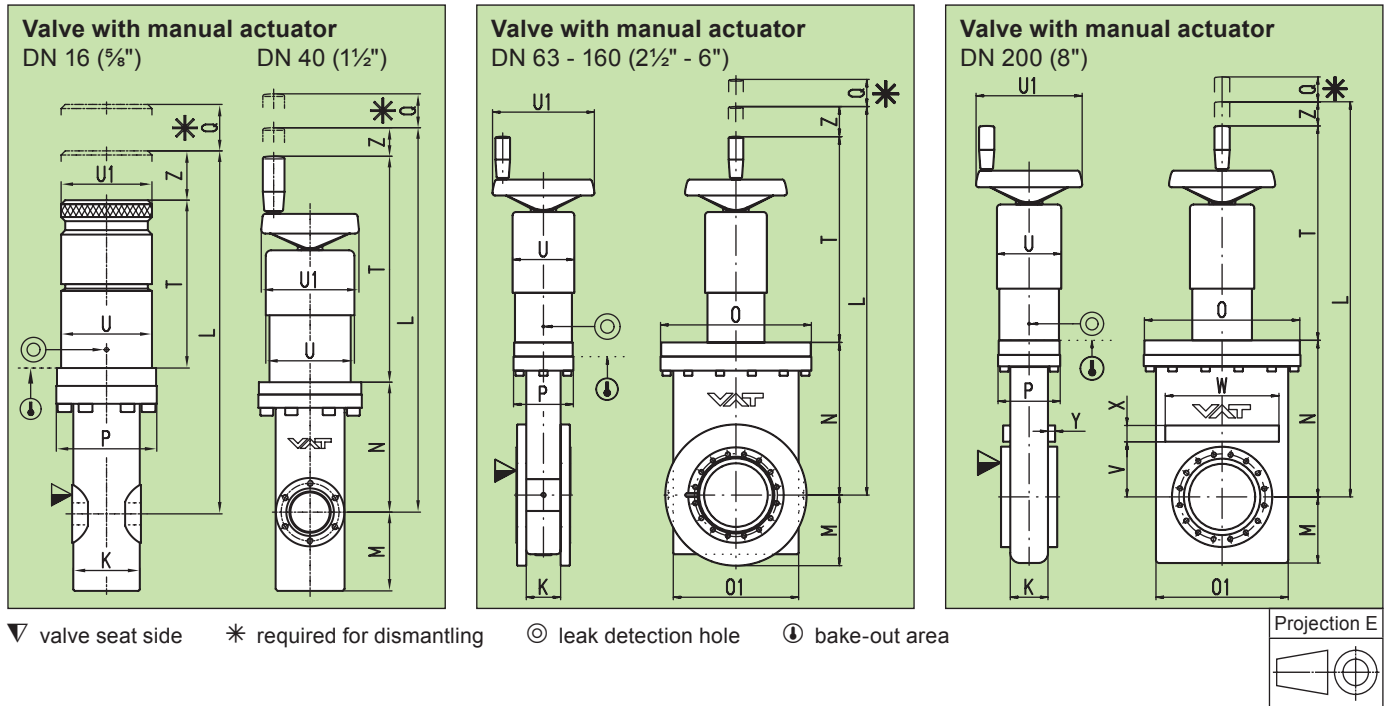
window welded into valve gate
window retrofitable at VAT
window material: sapphire

Options: - special glass qualities
- other materials (e. g. berillium)
- other window sizes

1 valve body
2 VATRING
3 valve gate
4 window
▼ valve seat side

DN valve	mm inch	40 1 1/2	63 2 1/2	100 4	160 6	200 8
optically free diameter «S»	mm inch	8 0.32	18 0.71	34 1.34	34 1.34	34 1.34
thickness of glass	mm inch	2 0.08	2 0.08	2 0.08	2 0.08	2 0.08

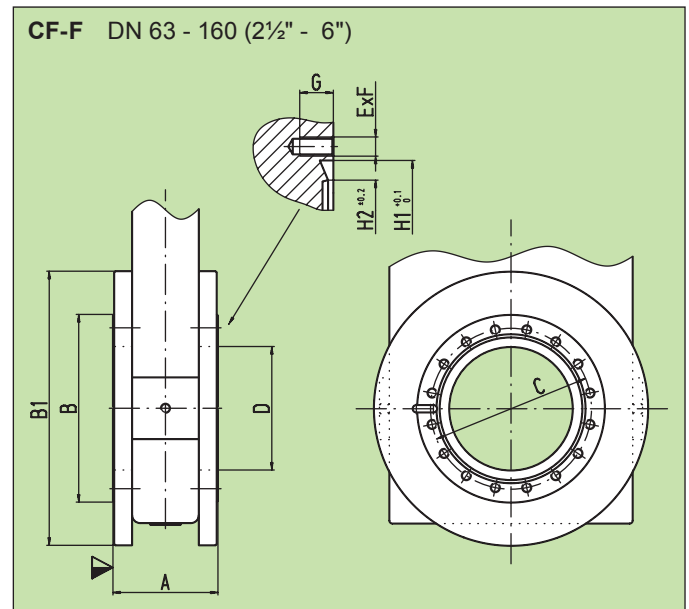
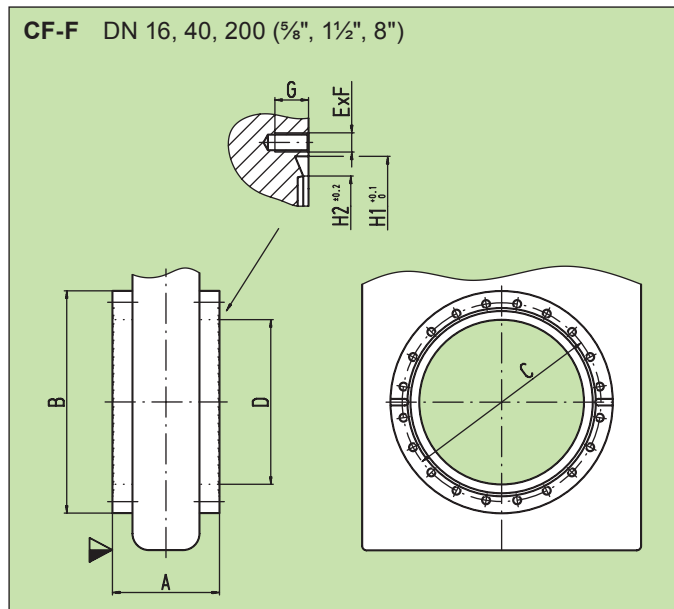
Main dimensions



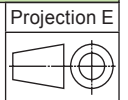
Flange dimensions see page 85

DN	mm inch	16 5/8	40 1 1/2	63 2 1/2	100 4	160 6	200 8
K	mm inch	48.5 1.91	70 2.76	46 1.81	54 2.13	58 2.28	78 3.07
L	mm inch	261 10.28	414 16.3	554 17.13	678 26.69	873 34.37	1101 43.33
M	mm inch	56 2.2	80 3.15	90 3.54	111 4.37	144 5.67	161 6.34
N	mm inch	106 4.17	132 5.2	209 8.23	240 9.45	329 12.95	410 16.14
O	mm inch	-	-	189 7.44	237 9.33	287 11.3	352 13.86
O1	mm inch	-	-	156 6.14	197 7.76	253 9.96	316 12.44
P	mm inch	73 2.87	105 4.13	77 3.03	94 3.7	93 3.66	114 4.49
Q	mm inch	150 5.9	200 7.87	280 11.02	320 12.6	450 17.72	570 22.44
T	mm inch	122 4.8	230 9.06	266 8.9	324 12.76	378 14.88	473 18.62
U	mm inch	66 2.6	90 3.54	97 3.81	97 3.81	97 3.81	97 3.81
U1	mm inch	66 2.6	100 3.7	100 3.94	160 6.3	160 6.3	200 7.87
V	mm inch	-	-	-	-	-	155 6.1
W	mm inch	-	-	-	-	-	277 10.91
X	mm inch	-	-	-	-	-	40 1.57
Y	mm inch	-	-	-	-	-	30 1.18
Z	mm inch	33 1.3	52 2.05	79 3.11	114 4.49	166 6.54	218 8.58

Flange dimensions

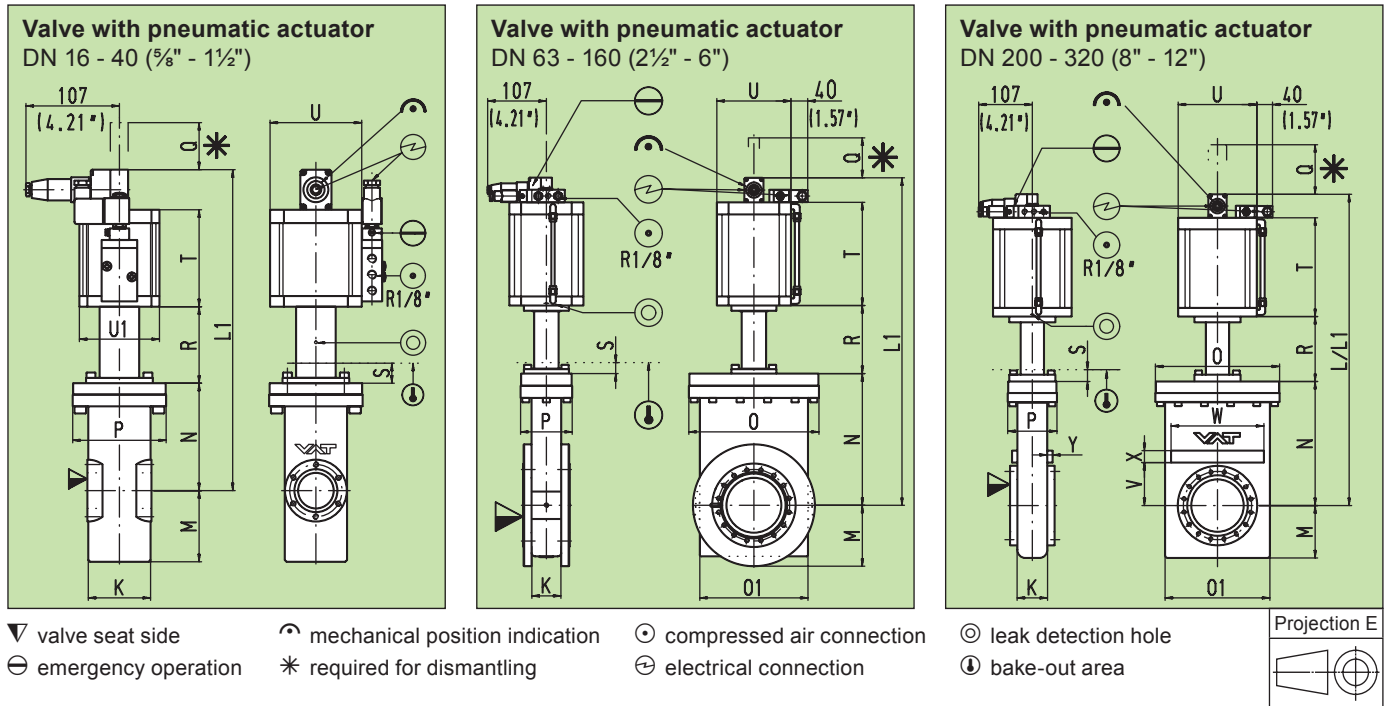


▽ valve seat side



DN	mm inch	16 5/8"	40 1 1/2"	63 2 1/2"	100 4"	160 6"	200 8"
O.D.	mm inch	1 1/8"	2 3/4"	4 1/2"	6"	8"	10"
A	mm inch	50 1.97	72 2.83	75 2.95	85 3.35	97.5 3.84	140 5.51
B	mm inch	42 1.65	69.5 2.73	113.5 4.47	152 5.98	202.5 7.97	277 10.9
B1	mm inch	-	-	180 7.08	222 8.73	288 11.33	-
C	mm inch	27 1.06	58.7 2.31	92.1 3.63	130.3 5.13	181 7.13	231.8 9.12
D	mm inch	16 0.63	40 1.57	63 2.48	100 3.94	150 5.9	200 7.87
E x F	mm inch	6 x M4	6 x M6	8 x M8	16 x M8	20 x M8	24 x M8
G	mm inch	8 0.31	10 0.39	12 0.47	14 0.55	16 0.63	17 0.67
H1	mm inch	21.4 0.84	48.3 1.9	82.5 3.25	120.65 4.75	171.45 6.75	222.3 8.75
H2	mm inch	18.5 0.72	42 1.65	77.4 3.05	115.5 4.55	166 6.53	217 8.54

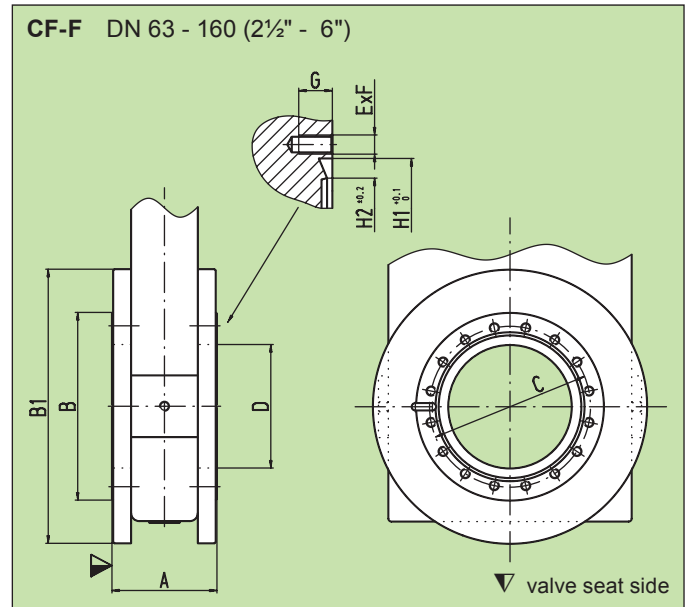
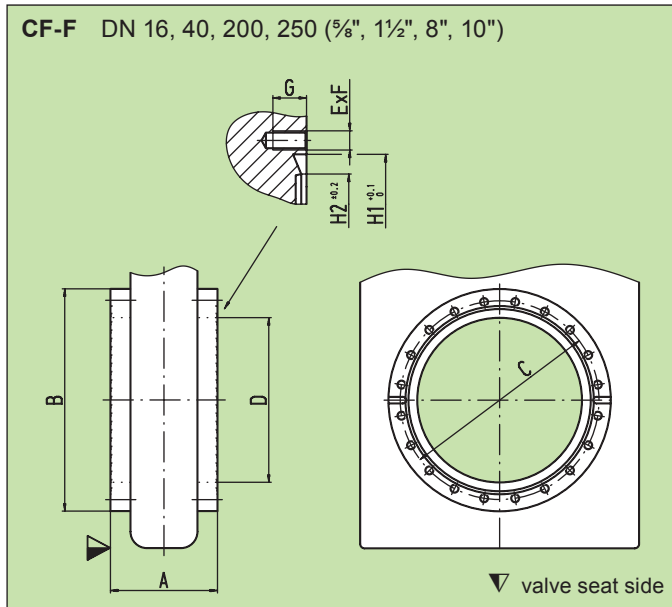
Main dimensions



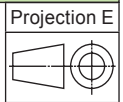
L1 and R for extended actuator / flange dimensions see page 87

DN	mm inch	16 5/8	40 1 1/2	63 2 1/2	100 4	160 6	200 8	250 10	320 12
K	mm inch	48.5 1.91	70 2.76	46 1.81	54 2.13	58 2.28	78 3.07	90 3.54	105 4.13
L	mm inch	-	-	403 15.87	473 18.62	616 24.25	770 30.31	947 37.28	1114 43.86
L1	mm inch	312 12.28	372 14.65	527 20.75	597 23.5	740 29.13	894 35.2	1071 42.17	1238 48.74
M	mm inch	56 2.2	80 3.15	90 3.54	111 4.37	144 5.67	161 6.34	205 8.07	240 9.45
N	mm inch	106 4.17	132 5.2	209 8.23	240 9.45	329 12.95	410 16.14	525 20.67	632 24.88
O	mm inch	-	-	189 7.44	237 9.33	287 11.3	352 13.86	446 17.56	516 20.32
O1	mm inch	-	-	156 6.14	197 7.76	253 9.96	316 12.44	410 16.14	480 18.89
P	mm inch	73 2.87	105 4.13	77 3.03	94 3.7	93 3.66	114 4.49	126 4.96	141 5.55
Q	mm inch	150 5.9	200 7.87	280 11.02	320 12.6	450 17.72	535 21.06	675 26.57	800 31.50
R	mm inch	64 2.52	86 3.39	124 4.88	124 4.88	124 4.88	124 4.88	124 4.88	124 4.88
S	mm inch	15 0.59	20 0.79	20 0.79	20 0.79	20 0.79	20 0.79	20 0.79	20 0.79
T	mm inch	90 3.54	109 4.29	149 5.87	188 7.4	242 9.53	315 12.4	377 14.84	438 17.24
U	mm inch	83 3.27	103 4.06	98 3.86	135 5.31	190 5.91	230 9.06	230 9.06	230 9.06
U1	mm inch	70 2.76	90 3.54	-	-	-	-	-	-
V	mm inch	-	-	-	-	-	155 6.1	210 8.27	245 9.65
W	mm inch	-	-	-	-	-	277 10.91	441 17.36	511 20.12
X x Y	mm inch	-	-	-	-	-	40 x 30 1.57 x 1.18	50 x 50 1.97 x 1.97	60 x 60 2.36 x 2.36

Flange dimensions



DN 320 customer specific



DN	mm inch	16 5/8	40 1 1/2	63 2 1/2	100 4	160 6	200 8	250 10	320 12
O.D.	mm inch	1 3/8	2 3/4	4 1/2	6	8	10	12	-
A	mm inch	50 1.97	72 2.83	75 2.95	85 3.35	97.5 3.84	140 5.51	150 5.91	170 6.69
B	mm inch	42 1.65	69.5 2.73	113.5 4.47	152 5.98	202.5 7.97	277 10.9	380 14.96	444 17.48
B1	mm inch	-	-	180 7.08	222 8.73	288 11.33	-	-	-
C	mm inch	27 1.06	58.7 2.31	92.1 3.63	130.3 5.13	181 7.13	231.8 9.12	284 11.18	-
D	mm inch	16 0.63	40 1.57	63 2.48	100 3.94	150 5.9	200 7.87	250 9.84	320 12.6
E x F	mm inch	6 x M4	6 x M6	8 x M8	16 x M8	20 x M8	24 x M8	32 x M8	-
G	mm inch	8 0.31	10 0.39	12 0.47	14 0.55	16 0.63	17 0.67	17 0.67	-
H1	mm inch	21.4 0.84	48.3 1.9	82.5 3.25	120.65 4.75	171.45 6.75	222.3 8.75	273.15 10.75	-
H2	mm inch	18.5 0.72	42 1.65	77.4 3.05	115.5 4.55	166 6.53	217 8.54	267 10.51	-