

Main applications

Sector valve for storage rings in accelerators and synchrotrons

Isolation valve in microwave transmission lines



Ordering information

Valve with pneumatic actuator
 double acting
 with solenoid valve
 with position indicator 80 °C

DN		Ordering numbers (specify control voltage)	
mm	inch	CF-F	
		compact actuator: valve bakeable to 200 °C	extended actuator: valve bakeable to 300 °C
63	2 ½	47236-CE74	47236-CE44
100	4	47240-CE74	47240-CE44
160	6	47244-CE74	47244-CE44
200	8	47146-CE74	47146-CE44

without solenoid valve, with position indicator 80 °C: compact actuator 47 . . . -CE72
 extended actuator 47 . . . -CE24

Other versions: see pages 218 + 219

Bake-out jacket

See page 270: ordering information and technical data on request

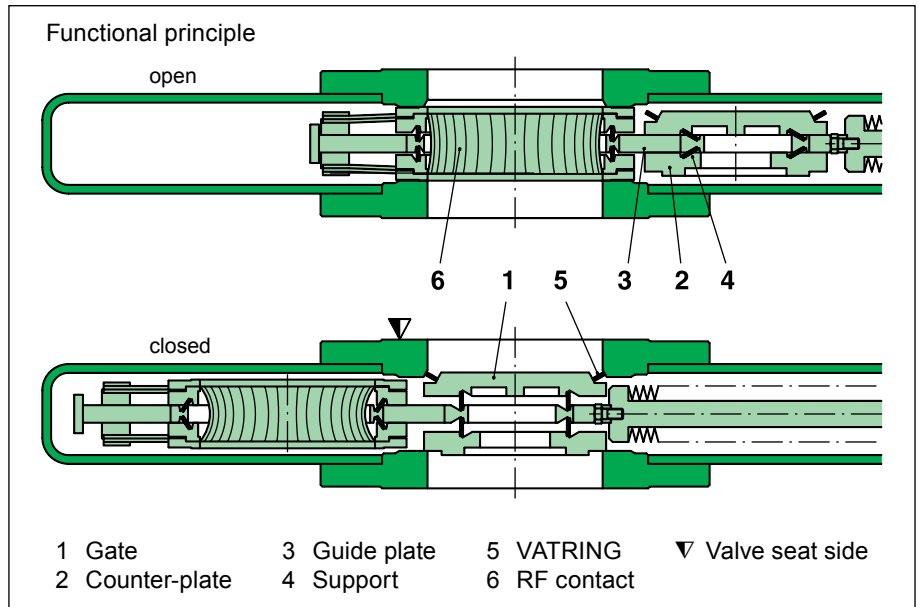
To control the heating process we recommend using commercial controllers with settable heating rate and temperature limiting device. Our bake-out jackets are supplied without thermocouples and thermostats.

Special version

Valve with gate seal made of FKM (Viton®) instead of metal: see page 221

Features

- Body material: stainless steel
- VATRING configuration: see glossary
- Mechanically locked in open and closed position
- Radiation resistant
- Low RF resistance
- Customer specific RF aperture
- Reproduceable RF contact due to mechanically loaded springs
- Bakeable to 300 °C in open and closed position



Technical data

Leak rate: valve body, valve seat	$1 \cdot 10^{-10}$ mbar ls ⁻¹
Pressure range	XHV to 2 bar (abs)
Differential pressure on the gate	≤ 1 bar
Differential pressure at opening	≤ 500 mbar ¹⁾
Cycles until first service	
– DN 63–160	10000
– DN 200	5000
Bake-out temperature ²⁾	
– Valve body	≤ 300 °C
– Pneumatic actuator	≤ 200 °C
– Solenoid valve	≤ 80 °C
– Position indicator	≤ 80 °C (option: 200 °C)
Heating and cooling rate	
– DN 63–160	≤ 50 °C h ⁻¹
– DN 200	≤ 25 °C h ⁻¹
Material	
– Valve body, mechanism	AISI 316L (1.4435, 1.4404)
– Bellows	AISI 316L (1.4435)
– RF contact	AISI 301 (1.4310), thermorestant silver-coated
Seal: bonnet, gate	metal
Feedthrough	bellows
Mounting position	beam line horizontal, otherwise any
Solenoid valve	24 VDC, 2.5 W (others on request)
Position indicator: contact rating	
– Voltage	≤ 50 VAC/DC
– Current	80 °C: ≤ 1.2 A 200 °C: ≤ 1 A
Valve position indication	visual (mechanical)

¹⁾ 1 bar with reduced number of cycles

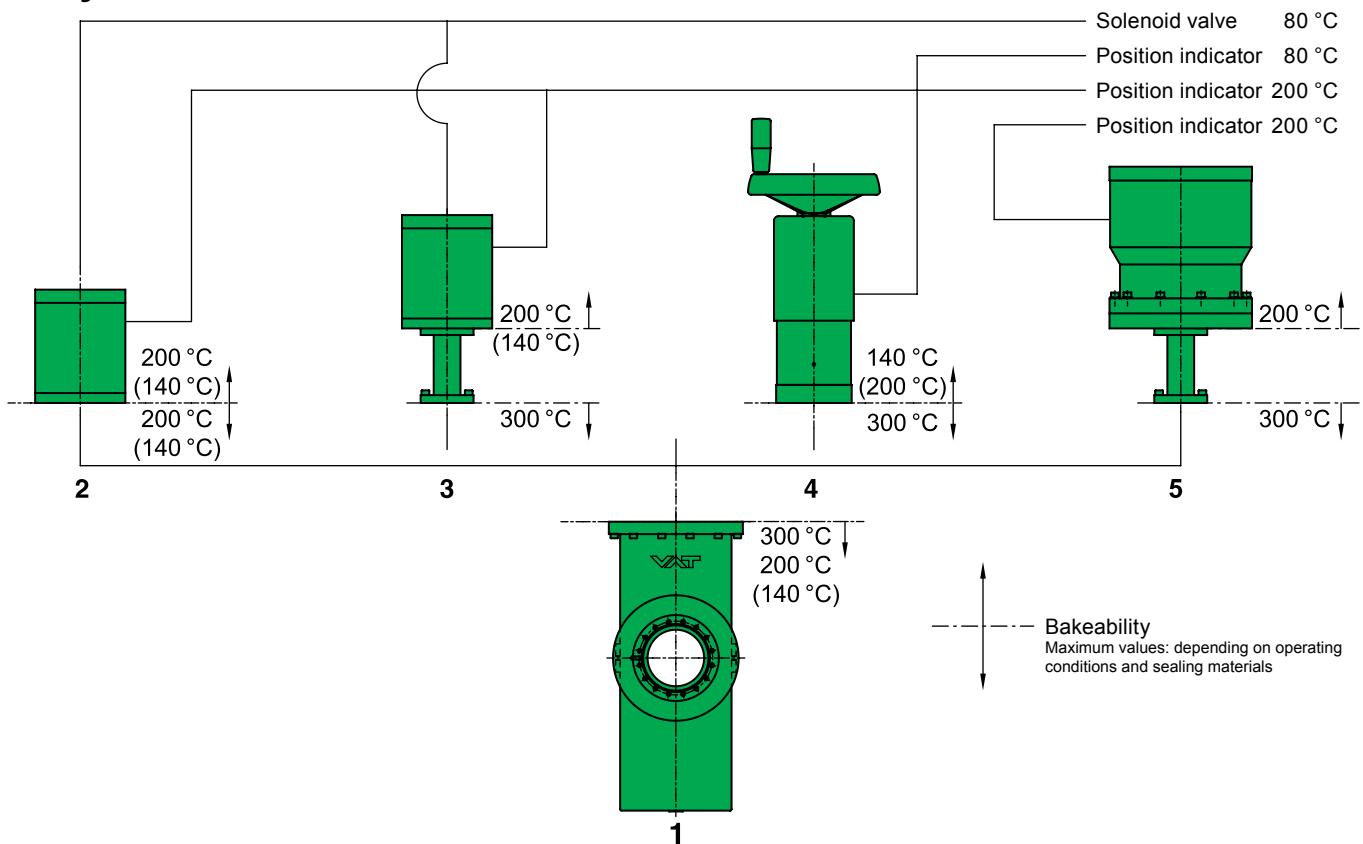
²⁾ Maximum values: depending on operating conditions and sealing materials

Further technical data on next page →

Continued Technical data

DN (nominal I.D.)		CF-F flange	Conductance (molecular flow)	Compressed air min. – max. overpressure		Volume of pneumatic actuator		Closing or opening time	Weight	
mm	inch	O.D.	ls ⁻¹	bar	psi	l	ft ³	s	kg	lbs
63	2½	4½	400	4–8	58–116	0.7	0.024	2	21	46
100	4	6	1400	4–8	58–116	1.7	0.060	4	36	80
160	6	8	3700	4–8	58–116	5.0	0.180	9	59	130
200	8	10	6100	4–8	58–116	9.7	0.340	18	148	326

Body and actuators: modular selection



- | | | |
|-------------------------------------------|----------------------------------------------------|------------------------------------------------|
| 1 Valve body, 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 (option) | : 10 ⁵ Gy, bakeable to 140 °C or 200 °C | |
| 5 Special pneumatic actuator for hot zone | : 10 ⁸ Gy, bakeable to 200 °C | |

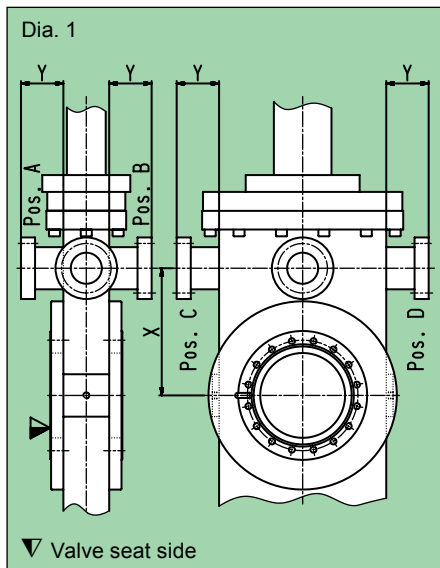
Options

Actuator

- Solenoid valve for impulse actuation:
last valve position is maintained at power failure
- Other solenoid valve voltage (standard: 24 VDC)
- Solenoid valve radiation resistant to 10^6 Gy (standard: 10^4 Gy)
- Position indicator for pneumatic actuator bakeable to $200\text{ }^\circ\text{C}^{1)}$ (standard: $80\text{ }^\circ\text{C}$)
- Double position indicator
(2 switches each for the positions «open» and «closed»)
- Accessory for pneumatic actuator for faster closing
- Pneumatic actuator (compact or extended):
radiation resistant to 10^6 Gy, bakeable to $140\text{ }^\circ\text{C}^{1)}$
- Pneumatic actuator for hot zone:
radiation resistant to 10^8 Gy, bakeable to $200\text{ }^\circ\text{C}^{1)}$
- Manual actuator bakeable to $140\text{ }^\circ\text{C}$ or $200\text{ }^\circ\text{C}^{1)}$
- Position indicator for manual actuator bakeable to $80\text{ }^\circ\text{C}$ or $200\text{ }^\circ\text{C}^{1)}$

Valve

- Customer specified flanges
- Antimagnetic version with defined permeability:
see glossary
- Ports for roughing (by-pass), venting or for gauges (Dia. 1),
possible in positions A, B, C and D



DN valve	mm	63	100	160	200
	inch	2 1/2	4	6	8
Recommended port CF-F	mm	16	40	40	40
	inch	5/8	1 1/2	1 1/2	1 1/2
X	mm	115	135	220	280
	inch	4.53	5.31	8.66	11.02
Y	mm	20	50	50	50
	inch	0.79	1.97	1.97	1.97
Other ports on request					

- Customer specific RF aperture
- RF contact «finger type» made of CuBe
- RF contact «comb type» made of OFHC copper
- Waveguide

Ordering information for options:

Ordering No. of valve-X (e. g. 47240-CE44-X,
X = solenoid valve for impulse actuation 220 V 50Hz)

Spare parts

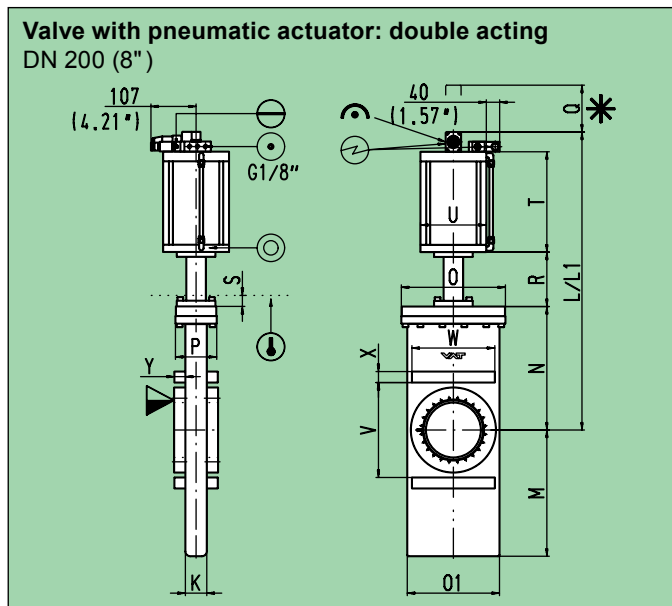
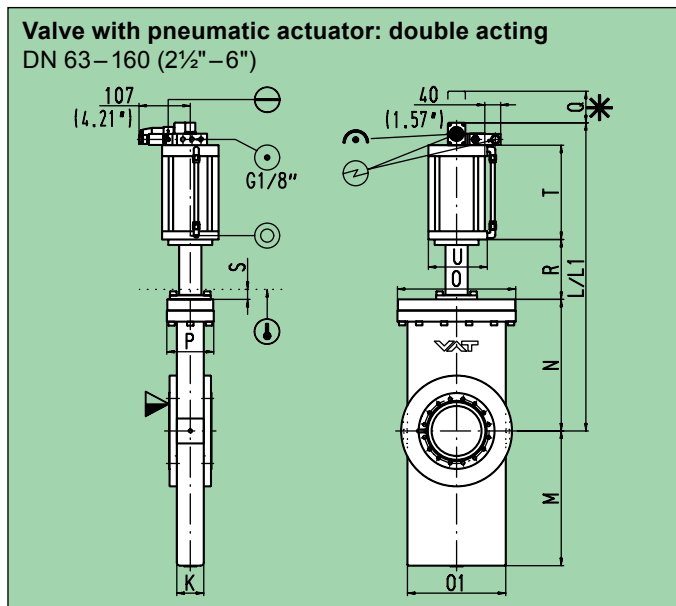
- **Seals**
on request (specify fabrication number of valve)

Accessories

- **Flexible bake-out jacket:** see page 270
- **Flange connections**
for installation of the valve: see series 33

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

Main dimensions



- Projection E
- ▽ Valve seat side
 - * Required for dismantling
 - ⊙ Compressed air connection
 - ⊕ Electrical connection
 - ⊖ Mechanical position indication
 - ⊙ Leak detection hole
 - ⊖ Emergency operation
 - ⊕ Bake-out area

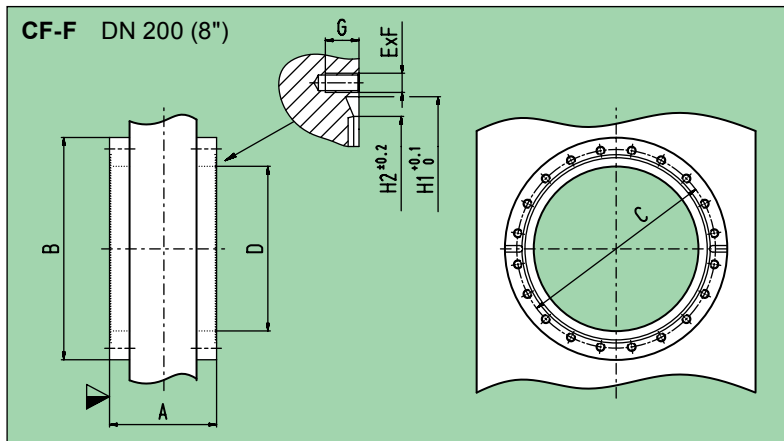
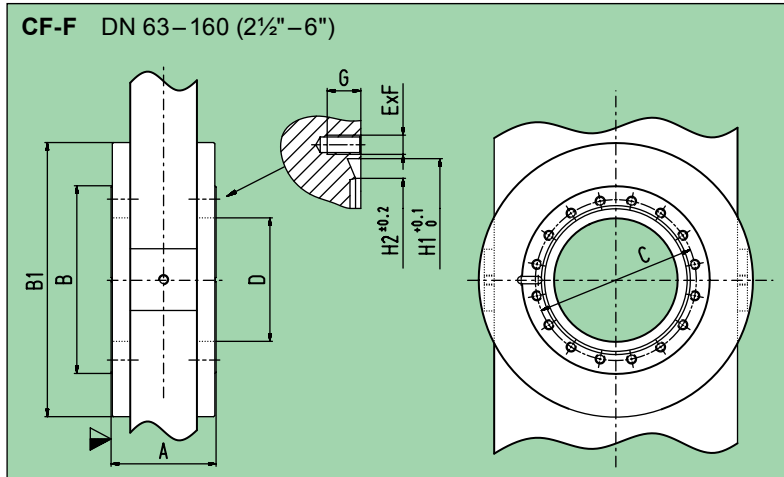
L1 and R for extended actuator
Flange dimensions: see page 221

L1 and R for extended actuator
Flange dimensions: see page 221

DN	mm inch	63 2½	100 4	160 6
K	mm inch	46 1.81	54 2.13	70 2.76
L	mm inch	459 18.07	537 21.14	702 27.64
L1	mm inch	583 22.95	661 26.02	826 32.52
M	mm inch	215 8.46	272 10.70	356 14.02
N	mm inch	231 9.09	264 10.39	370 14.57
O	mm inch	189 7.44	237 9.33	287 11.30
O1	mm inch	156 6.14	197 7.76	253 9.96
P	mm inch	77 3.03	94 3.70	93 3.66
Q	mm inch	420 16.54	520 20.47	700 27.56
R	mm inch	124 4.88	124 4.88	124 4.88
S	mm inch	20 0.79	20 0.79	20 0.79
T	mm inch	183 7.20	228 8.98	287 11.30
U	mm inch	104 4.09	135 5.31	190 7.48

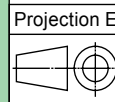
DN	mm inch	200 8		
K	mm inch	78 3.07		
L	mm inch	851 33.50		
L1	mm inch	975 38.39		
M	mm inch	460 18.11		
N	mm inch	443 17.44		
O	mm inch	372 14.65		
O1	mm inch	336 13.23		
P	mm inch	114 4.49		
Q	mm inch	880 34.65		
R	mm inch	124 4.88		
S	mm inch	20 0.79		
T	mm inch	363 14.29		
U	mm inch	230 9.06		
V	mm inch	346 10.24		
W	mm inch	302 14.89		
X	mm inch	40 1.57		
Y	mm inch	40 1.57		

Flange dimensions



DN	mm inch	63 2½	100 4	160 6	200 8
O.D.	inch	4½	6	8	10
A	mm inch	75 2.95	85 3.35	110 4.33	160 6.30
B	mm inch	113.50 4.47	152 5.98	202.50 7.97	310 12.20
B1	mm inch	180 7.08	222 8.74	288 11.34	–
C	mm inch	92.10 3.63	130.30 5.13	181 7.13	231.80 9.13
D	mm inch	63 2.48	100 3.94	150 5.91	200 7.87
E × F	mm inch	8 × M8	16 × M8	20 × M8	24 × M8
G	mm inch	12 0.47	14 0.55	17 0.67	17 0.67
H1	mm inch	82.50 3.25	120.65 4.75	171.45 6.75	222.30 8.75
H2	mm inch	77.40 3.05	115.50 4.55	166 6.54	217 8.54

▼ Valve seat side



Special version



HF-UHV gate valve with gate seal made of FKM (Viton®)

Technical data:

Leak rate

- Valve body <math>< 5 \cdot 10^{-10}</math> mbar ls⁻¹
- Valve seat <math>< 1 \cdot 10^{-9}</math> mbar ls⁻¹

Pressure range

UHV to 1 bar (abs)

Differential pressure on the gate

≤ 1 bar

Cycles until first service

10000

Bake-out temperature ¹⁾

- Valve body ≤ 200 °C
- Pneumatic actuator ≤ 200 °C
- Solenoid valve ≤ 80 °C
- Position indicator ≤ 80 °C (option: 200 °C)

Seal

- Bonnet metal
- Gate FKM (Viton®)

Further details

on request

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