

Main applications

To preserve the vacuum in accelerators and storage rings in case of an air inrush



Ordering information

Series 75.2
Gate valve with pneumatic actuator
 double acting
 without controller

DN		Ordering numbers
mm	inch	
40	1½	CF-F 75232-CE44

Series 75.0
Flap valve with pneumatic actuator
 double acting
 without controller

DN		Ordering numbers
mm	inch	
63	2½	CF-F 75036-CE44
100	4	75040-CE44
160	6	75044-CE44
200	8	75046-CE44

Controller including accessories

See page 230

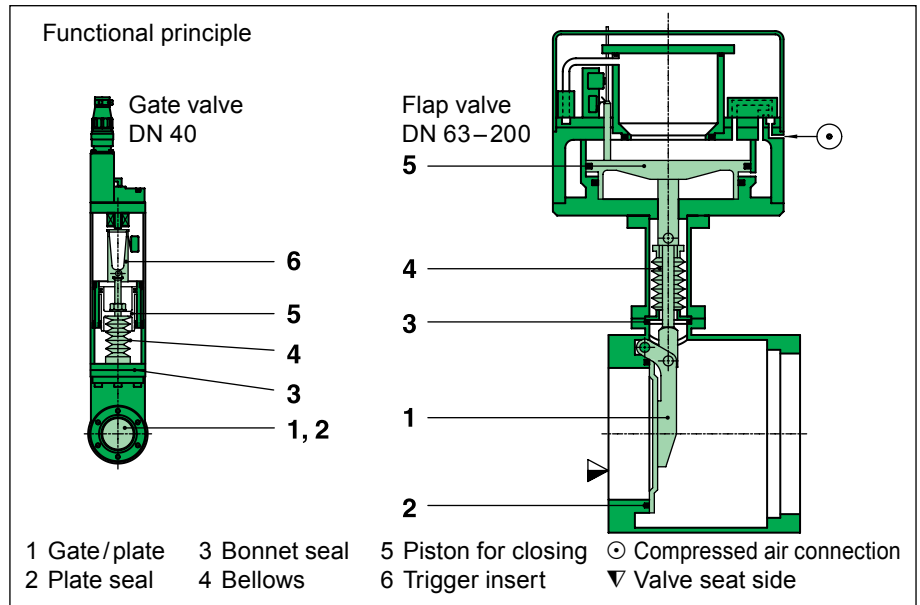
Features

Body material: stainless steel

Closes vacuum-tight in a few milli-seconds

Pneumatic dampening during closing

Closing by releasing a mechanical latch (DN 40) or fast venting/evacuation of the pneumatic cylinder (DN 63–200)



Technical data

Leak rate	
– Valve body	$< 1 \cdot 10^{-10}$ mbar Is ⁻¹
– Valve seat	$< 1 \cdot 10^{-9}$ mbar Is ⁻¹
Pressure range	$1 \cdot 10^{-10}$ to 2 bar (abs)
Differential pressure	see table on next page
Cycles until first service	2000
Bake-out temperature ¹⁾	
– Valve body	≤ 200 °C
– Pneumatic actuator	≤ 50 °C (DN 40: trigger insert removed)
Radiation resistance	
– Valve body	10^5 Gy
– Pneumatic actuator	10^4 Gy
Material	
– Valve body	
– DN 40	AISI 304 (1.4301)
– DN 63–200	AISI 316L (1.4435)
– Mechanism	
– DN 40	AISI 304 (1.4301)
– DN 63–200	AISI 316L (1.4435)
– Bellows	AISI 316L (1.4404, 1.4435)
Seal	
– Bonnet	metal
– Gate/plate	FKM (Viton®)
Feedthrough	bellows
Mounting position	seat side marked ▽ in opposite direction of the air inrush

¹⁾ 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)	Differential pressure: valve closed		Differential pressure at opening		Compressed air min. – max. overpressure		Volume of pneumatic actuator		Total closing time *)	Opening time	Weight	
				In closing direction	In opening direction	In closing direction	In opening direction								
mm	inch	O.D.	ls ⁻¹	bar	bar	mbar	bar	bar	psi	l	ft ³	ms	s	kg	lbs
Gate valve Series 75.2															
40	1½	2¾	220	≤1.2	≤1.2	≤ 30	≤30	4–5	58–73	0.36	0.01	<10	9	2	4.5
Flap valve Series 75.0															
63	2½	4½	200	≤2	≤1.2	≤600	≤1	5–8	73–116	3	0.11	13	7	25	55
100	4	6	700	≤2	≤1.2	≤180	≤1	5–8	73–116	3	0.11	15	7	29	64
160	6	8	1700	≤2	≤0.5	≤ 50	≤1	5–8	73–116	3	0.11	23	7	36	80
200	8	10	2500	≤2	≤0.07	≤ 25	≤1	5–8	73–116	3	0.11	40	7	42	93

*) from sensor signal to leak tight valve

Option

– Customer specified flanges

Ordering information for option:

Ordering No. of valve-X (e. g. 75040-CE44-X, X = special flanges)

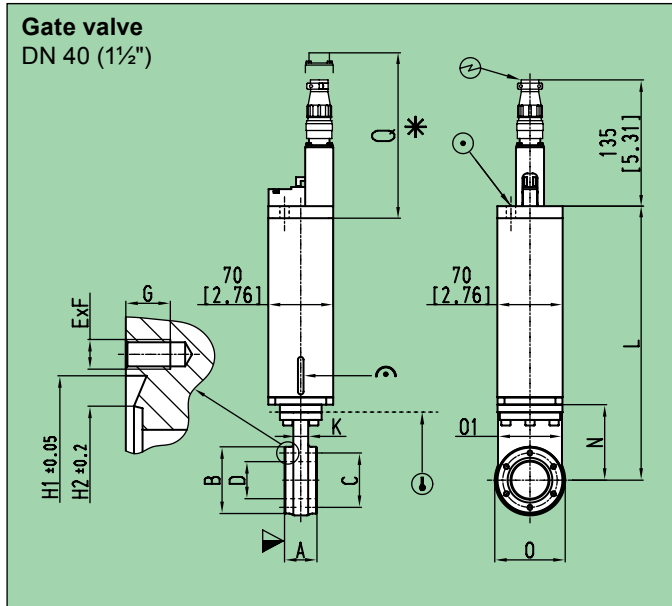
Spare parts

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

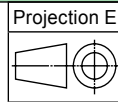
Accessories

– **Controller:** see page 230
– **Flange connections**
for installation of the valve: see series 33

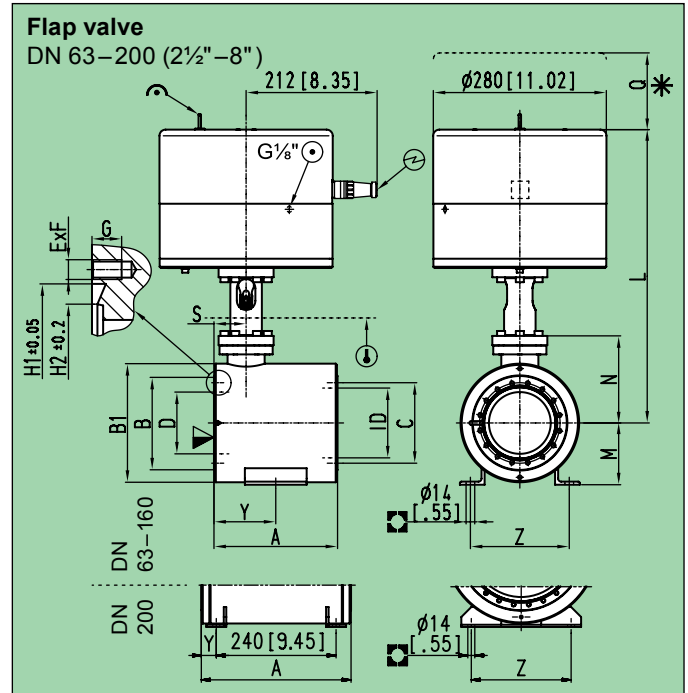
Dimensions



- ▽ Valve seat side
- * Required for dismantling
- ⊙ Compressed air connection
- ⊕ Electrical connection
- ⤴ Mechanical position indication
- Ⓞ Bake-out area
- For attachment



DN	mm	40			
	inch	1 1/2			
A	mm	35			
	inch	1.38			
B	mm	72			
	inch	2.83			
C	mm	58.70			
	inch	2.31			
D	mm	40			
	inch	1.57			
E × F		6 × M6			
G	mm	7			
	inch	0.28			
H1	mm	48.35			
	inch	1.90			
H2	mm	42			
	inch	1.65			
K	mm	16			
	inch	0.63			
L	mm	295.50			
	inch	11.63			
N	mm	81.50			
	inch	3.21			
O	mm	76			
	inch	2.99			
O1	mm	69			
	inch	2.72			
Q	mm	195			
	inch	7.68			



DN	mm	63	100	160	200
	inch	2 1/2	4	6	8
A	mm	150	200	250	300
	inch	5.91	7.87	9.84	11.81
B	mm	113.50	152	202.50	253
	inch	4.47	5.98	7.97	9.96
B1	mm	154	192	242	306
	inch	6.06	7.56	9.53	12.05
C	mm	92.10	130.30	181	231.80
	inch	3.63	5.13	7.13	9.13
D	mm	63	100	150	200
	inch	2.48	3.94	5.91	7.87
E × F		8 × M8	16 × M8	20 × M8	24 × M8
G	mm	12	12	12	12
	inch	0.47	0.47	0.47	0.47
H1	mm	82.55	120.65	171.50	222.35
	inch	3.25	4.75	6.75	8.75
H2	mm	77.40	115.50	166	217
	inch	3.05	4.55	6.54	8.54
ID	mm	76	113	164	214
	inch	2.99	4.45	6.47	8.43
L	mm	456	475	500	526
	inch	17.95	18.70	19.69	20.71
M	mm	80	100	125	160
	inch	3.15	3.94	4.92	6.30
N	mm	122	141	166	192
	inch	4.80	5.55	6.54	7.56
Q	mm	83	83	85	84
	inch	3.27	3.27	3.35	3.31
S	mm	52	52	52	52
	inch	2.05	2.05	2.05	2.05
Y	mm	75	100	125	30
	inch	2.95	3.94	4.92	1.18
Z	mm	120	160	160	200
	inch	4.72	6.30	6.30	7.87

Main applications

To preserve the vacuum in accelerators and storage rings in case of an air inrush



Ordering information

Series 77.3
Slot shutter with pneumatic actuator
 double acting
 without controller

DN		Circular opening		Ordering numbers
mm	inch	mm	inch	
40	1½	Ø 40	Ø 1½	CF-F 77332-CE44

DN		Slot opening	D × D1 (height × width)	Ordering numbers
mm	inch	mm	inch	
63	2½	35 × 50	1.38 × 1.97	CF-F 77336-CE44
100	4	35 × 80	1.38 × 3.15	77340-CE44
160	6	35 × 130	1.38 × 5.12	77344-CE44

Series 77.1
Flap shutter with pneumatic actuator
 double acting
 without controller

DN		Circular opening		Ordering numbers
mm	inch	mm	inch	
63	2½	Ø 63	Ø 2½	CF-F 77136-CE44
100	4	Ø 100	Ø 4	77140-CE44
160	6	Ø 160	Ø 6	77144-CE44

Controller including accessories

See page 230

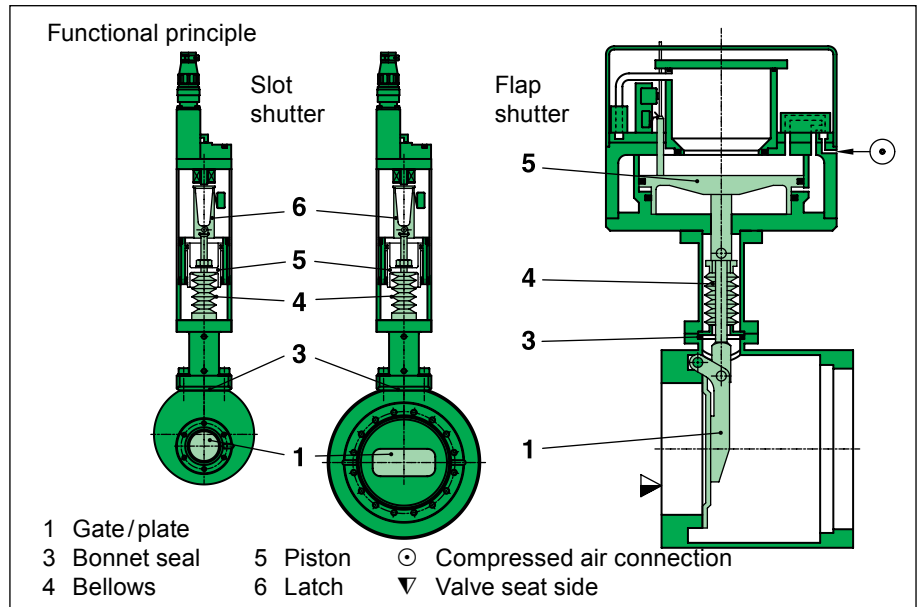
Features

Body material: stainless steel

Closes to a small leak in a few milli-seconds

Pneumatic dampening during closing

Closing by releasing a mechanical latch (Series 77.3) or fast venting/evacuation of the pneumatic cylinder (Series 77.1)



Technical data

Leak rate	
– Valve body	< 1 · 10 ⁻¹⁰ mbar ls ⁻¹
– Valve seat	
– Series 77.3	< 1 mbar ls ⁻¹
– Series 77.1	< 30 mbar ls ⁻¹
Pressure range	UHV to 1.2 bar (abs)
Differential pressure	see table on next page
Cycles until first service	
– Slot shutter	5000 ¹⁾
– Flap shutter	2000 ¹⁾
Bake-out temperature ²⁾	
– Valve body	≤ 300 °C
– Pneumatic actuator	≤ 50 °C
Radiation resistance	
– Valve body	10 ⁸ Gy
– Pneumatic actuator	10 ⁴ Gy
Material	
– Valve body	AISI 316L (1.4435, 1.4404)
– Mechanism	
– DN 40	AISI 304 (1.4301)
– DN 63– 160	AISI 316L (1.4435)
– Bellows	
– Slot shutter	AISI 633 (AM 350)
– Flap shutter	AISI 316L (1.4404)
– Gate/plate	
– Slot shutter	AISI 316L (1.4404), silver-plated
– Flap shutter	Titanium

Seal: bonnet

metal

Feedthrough

bellows

Mounting position

seat side marked ▽ in opposite direction of the air inrush

¹⁾ At 5 bar compressed air

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)	Differential pressure: valve closed		Differential pressure at opening		Compressed air min. – max. overpressure		Volume of pneumatic actuator		Total closing time *)	Opening time	Weight	
				In closing direction	In opening direction	In closing direction	In opening direction								
mm	inch	O.D.	ls ⁻¹	bar	bar	mbar	bar	bar	psi	l	ft ³	ms	s	kg	lbs
Slot shutter Series 77.3															
40	1½	2¾	110	≤1.2	≤1.2	≤300	≤300	4–6	58–87	0.36	0.01	<10	9	8.1	18
63	2½	4½	240	≤1.2	≤1.2	≤200	≤200	4–6	58–87	0.36	0.01	<10	9	11	24
100	4	6	450	≤1.2	≤1.2	≤150	≤150	4–6	58–87	0.36	0.01	<10	9	14	30
160	6	8	830	≤1.2	≤1.2	≤100	≤100	4–6	58–87	0.36	0.01	<10	9	20	44
Flap shutter Series 77.1															
63	2½	4½	200	≤2	≤1.2	≤600	≤1	5–8	73–116	3	0.11	13	7	25	55
100	4	6	700	≤2	≤1.2	≤180	≤1	5–8	73–116	3	0.11	15	7	29	64
160	6	8	1700	≤2	≤0.5	≤50	≤1	5–8	73–116	3	0.11	23	7	36	80

*) from sensor signal to closed shutter

Options

- Customer specified flanges
- Special slot dimensions (slot shutter)

Ordering information for options:

Ordering No. of shutter-X (e. g. 77340-CE44-X, X = special flanges)

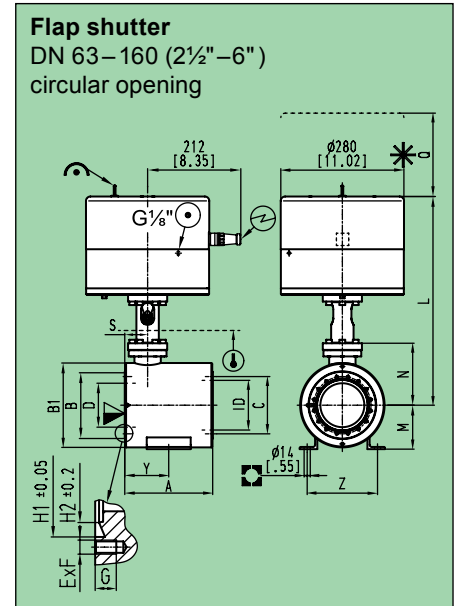
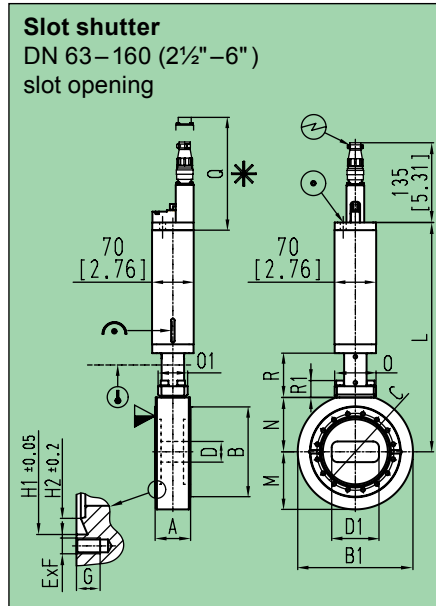
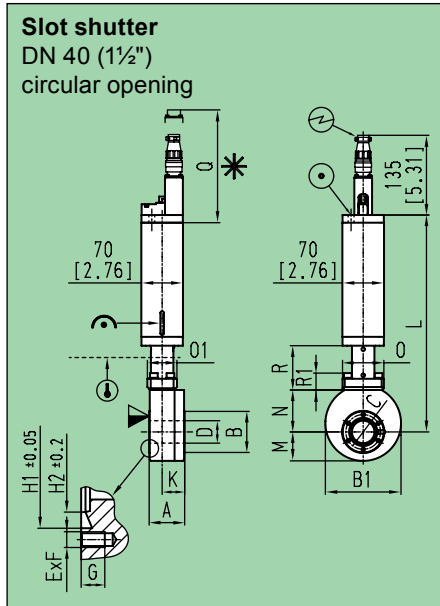
Spare parts

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

Accessories

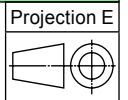
- **Controller:** see page 230
- **Flange connections**
for installation of the valve: see series 33

Dimensions



- ▽ Valve seat side ⊕ Electrical connection
- * Required for dismantling
- ⊙ Compressed air connection

- ⊙ Mech. position indication
- ⊙ Bake-out area
- ⊙ For attachment



DN	mm	40		
	inch	1½		
A	mm	60		
	inch	2.36		
B	mm	69.50		
	inch	2.74		
B1	mm	128		
	inch	5.04		
C	mm	58.70		
	inch	2.31		
D	mm	38		
	inch	1.50		
E × F		6 × M6		
G	mm	12		
	inch	0.47		
H1	mm	48.35		
	inch	1.90		
H2	mm	42		
	inch	1.65		
L	mm	367		
	inch	14.45		
M	mm	49		
	inch	1.93		
N	mm	71		
	inch	2.80		
O	mm	70		
	inch	2.76		
O1	mm	50		
	inch	1.97		
Q	mm	195		
	inch	7.68		
R	mm	75		
	inch	2.95		
R1	mm	29		
	inch	1.14		

DN	mm	63	100	160
	inch	2½	4	6
A	mm	60	60	60
	inch	2.36	2.36	2.36
B	mm	113.50	152	202.50
	inch	4.47	5.98	7.97
B1	mm	158	195	245
	inch	6.22	7.67	9.65
C	mm	92.10	130.30	181
	inch	3.63	5.13	7.13
D	mm	35	35	35
	inch	1.38	1.38	1.38
D1	mm	50	80	130
	inch	1.97	3.15	5.12
E × F		8 × M8	16 × M8	20 × M8
G	mm	12	12	12
	inch	0.47	0.47	0.47
H1	mm	82.55	120.70	171.50
	inch	3.25	4.75	6.75
H2	mm	77.40	115.50	166
	inch	3.05	4.55	6.54
L	mm	369	388	414
	inch	14.52	15.28	16.30
M	mm	79	97.50	122.50
	inch	3.11	3.84	4.82
N	mm	73	92	118
	inch	2.87	3.62	4.65
O	mm	70	70	70
	inch	2.76	2.76	2.76
O1	mm	50	50	50
	inch	1.97	1.97	1.97
Q	mm	195	195	195
	inch	7.68	7.68	7.68
R	mm	75	75	75
	inch	2.95	2.95	2.95
R1	mm	29	29	29
	inch	1.14	1.14	1.14

DN	mm	63	100	160
	inch	2½	4	6
A	mm	150	200	250
	inch	5.91	7.87	9.84
B	mm	113.50	152	202.50
	inch	4.47	5.98	7.97
B1	mm	154	192	242
	inch	6.06	7.56	9.53
C	mm	92.10	130.30	181
	inch	3.63	5.13	7.13
D	mm	63	100	150
	inch	2.48	3.94	5.91
E × F		8 × M8	16 × M8	20 × M8
G	mm	12	12	12
	inch	0.47	0.47	0.47
H1	mm	82.55	120.65	171.5
	inch	3.25	4.75	6.75
H2	mm	77.40	115.50	166
	inch	3.05	4.55	6.54
ID	mm	76	113	164
	inch	2.99	4.45	6.47
L	mm	456	475	500
	inch	17.95	18.70	19.69
M	mm	80	100	125
	inch	3.15	3.94	4.92
N	mm	122	141	166
	inch	4.80	5.55	6.54
Q	mm	83	83	83
	inch	3.27	3.27	3.27
S	mm	52	52	52
	inch	2.05	2.05	2.05
Y	mm	75	100	125
	inch	2.95	3.94	4.92
Z	mm	120	160	160
	inch	4.72	6.30	6.30

Main applications

Controller for fast closing and controlled opening of the

- valves series 75
- shutters series 77

For fast processing of the sensor signal

To control further isolation valves



Ordering information

Controller VF-2 combined with various modules
Ordering numbers on request

Technical data

Controller VF-2
(basic device)

- 19" rack insert with power supply
- Storage spaces for max. 10 modules
- Mains voltage: 100–240 V $\pm 10\%$, 50/60 Hz, max. 150 VA
- Key switch for «LOCAL», «LOCKED», «REMOTE»
- Ambient temperature: 0–50 °C
- Dimensions:
 - 19" rack insert, 3 height units
 - 445 × 132.5 × 300 mm / 17.5" × 5.2" × 11.8" (W × H × D)
 - Depth with plugs: 410 mm (16.1")
- Weight: 11 kg (24 lbs)

Modules
for controller VF-2

CONTROL

- Storage: space for 1 module required
- System control module for max. 6 sensors and 4 fast closing valves/shutters
- External trigger
- 8-pole plug for «REMOTE» control
- LED display «READY», «EXTERNAL TRIGGER»
- Push button «RESET»

FV SENSOR

- Storage: space for 1 module required
- Connection of a fine vacuum sensor by a triaxial connector (LEMO)
- Sensor voltage: 3.5 kV
- LED display «READY», «INRUSH», «EXTERNAL SIGNAL», «INTERLOCK»
- 8-pole plug for «REMOTE» control

HV SENSOR

- Storage: space for 2 modules required
- Connection of a high vacuum sensor by a triaxial connector (LEMO)
- Sensor voltage: 3.5 kV
- LED display for pressure
- Trigger pressure adjustable between $2 \cdot 10^{-8}$ and $8 \cdot 10^{-4}$ mbar
- Trigger time adjustable between 1 and 7 msec
- 8-pole plug for «REMOTE» control
- Analog pressure signal (optional)

- VALVE
 - Storage: space for 1 module required
 - Connection of a fast closing valve or shutter
 - LED display «READY», «TRIGGERED», «READY TO OPEN», «INTERLOCK»
 - Push buttons «OPEN», «CLOSE», «INTERLOCK»
 - 19-pole plug for connecting the valve/shutter
 - 12-pole plug for «REMOTE» control

- 1-GATE
 - Storage: space for 1 module required
 - Connection of 1 isolation valve
 - LED display «READY»
 - Push buttons «OPEN», «CLOSE»
 - 12-pole plug for connecting the isolation valve
 - 12-pole plug for «REMOTE» control

- 2-GATE
 - Storage: space for 1 module required
 - Connection of 2 isolation valves
 - LED display «READY» for each isolation valve
 - Push buttons «OPEN», «CLOSE» for each isolation valve
 - 12-pole plug (2 x) for connecting the isolation valves
 - 12-pole plug for «REMOTE» control

- LINK
 - Storage: space for 1 module per rack required
 - To link two controllers VF-2 if the 10 storage spaces of one controller are insufficient

Accessories

– Cable

- Sensor–SENSOR module: max. 300 m, triaxial cable
- Valve/shutter–VALVE module: max. 150 m, 12-pole cable 0.75 mm²
- Isolation valve–GATE module: max. 200 m, 7-pole cable 0.75 mm²

– Vacuum sensor

Fine vacuum sensor (FV)
glow discharge



High vacuum sensor (HV)
cold cathode



Technical data

Trigger pressure: approx. 10⁻² mbar
 Response time: approx. 1 ms
 Radiation resistance: 10⁸ Gy (10¹⁰ rad)
 Flange: CF-F 40
 Weight: approx. 1 kg (2 lbs)

FV

approx. 10⁻² mbar
 approx. 1 ms
 10⁸ Gy (10¹⁰ rad)
 CF-F 40
 approx. 1 kg (2 lbs)

HV

adjustable from 10⁻⁸ to 10⁻³ mbar
 2 ms (air inrush 1 bar)
 10⁷ Gy (10⁹ rad)
 CF-F 40
 approx. 1 kg (2 lbs)

