

# 4.0 valves

Valves



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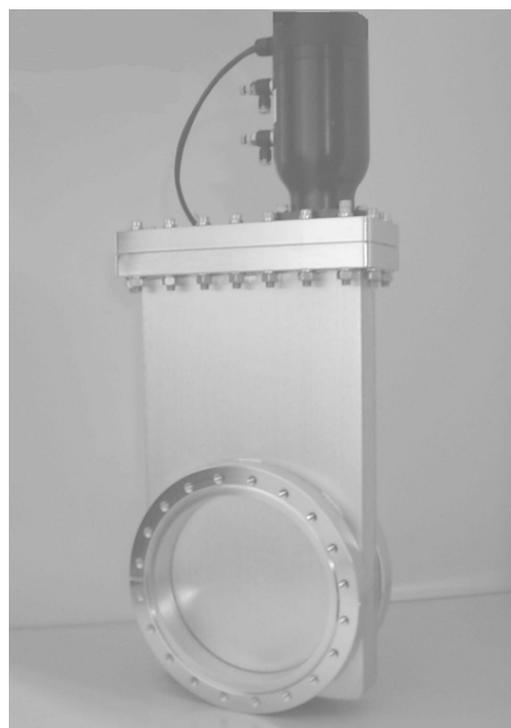
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**Description**

Our gate valve is manufactured carefully for a long lifetime use. The body is made up out of electropolished stainless steel (in- and outside), the linear actuation is driven by AM-350 welded bellows. All standard flange styles CF, KF, LF and ISO-K are available, flange sizes vary from DN16 to DN200. Manual and pneumatic driven versions are possible.

The supplied versions show metric flange sizes, US style versions are possible on request. As a standard solenoid applies a DC 24V version, please ask us for further solutions.

Gate valves with a copper bonnet seal are rated to  $< 2 \times 10^{-10}$  mbar, max. bake out temperature is 200°C in open position. Gate valves with a Viton bonnet sealing are rated to  $< 2 \times 10^{-9}$  mbar with a max. bake out temperature of 150°C in open position. As an option microswitch position indicator can be provided. The closing disc of our gate valve is Viton sealed.

**UHV Gate Valves CF style flanges Copper bonnet seal**

Type	Description	Part Number
CF40	UHV GATE VALVE MANUAL METRIC	4-GV-1010
CF63	UHV GATE VALVE MANUAL METRIC	4-GV-7010
CF100	UHV GATE VALVE MANUAL METRIC	4-GV-1510
CF160	UHV GATE VALVE MANUAL METRIC	4-GV-5110
CF200	UHV GATE VALVE MANUAL METRIC	4-GV-3210
CF250	UHV GATE VALVE MANUAL METRIC	4-GV-1310
CF355	UHV GATE VALVE MANUAL METRIC	4-GV-9310
CF40	UHV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-2010
CF63	UHV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-8010
CF100	UHV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-2510
CF160	UHV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-6110
CF200	UHV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-4210
CF250	UHV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-2310
CF355	UHV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-0410

## HV Gate Valves CF flange type Viton bonnet seal

Type	Description	Part Number
CF40	HV GATE VALVE MANUAL METRIC	4-GV-3010
CF63	HV GATE VALVE MANUAL METRIC	4-GV-9010
CF100	HV GATE VALVE MANUAL METRIC	4-GV-3510
CF160	HV GATE VALVE MANUAL METRIC	4-GV-7110
CF200	HV GATE VALVE MANUAL METRIC	4-GV-5210
CF250	HV GATE VALVE MANUAL METRIC	4-GV-3310
CF355	HV GATE VALVE MANUAL METRIC	4-GV-1410
CF40	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-4010
CF63	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-0110
CF100	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-4510
CF160	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-8110
CF200	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-6210
CF250	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-4310
CF355	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-2410

## HV Gate Valves KF and LF clamp style flange Viton bonnet seal

Type	Description	Part Number
KF40	HV GATE VALVE MANUAL	4-GV-5010
KF50	HV GATE VALVE MANUAL	4-GV-9540
LF63	HV GATE VALVE MANUAL	4-GV-3110
LF100	HV GATE VALVE MANUAL	4-GV-7510
LF160	HV GATE VALVE MANUAL	4-GV-1210
LF200	HV GATE VALVE MANUAL	4-GV-9210
LF250	HV GATE VALVE MANUAL	4-GV-7310
LF320	HV GATE VALVE MANUAL	4-GV-5410
KF40	HV GATE VALVE PNEUMATIC 24VDC	4-GV-6010
KF50	HV GATE VALVE PNEUMATIC 24VDC	4-GV-0640
LF63	HV GATE VALVE PNEUMATIC 24VDC	4-GV-4110
LF100	HV GATE VALVE PNEUMATIC 24VDC	4-GV-8510
LF160	HV GATE VALVE PNEUMATIC 24VDC	4-GV-2210
LF200	HV GATE VALVE PNEUMATIC 24VDC	4-GV-0310
LF250	HV GATE VALVE PNEUMATIC 24VDC	4-GV-8310
LF320	HV GATE VALVE PNEUMATIC 24VDC	4-GV-6410

## HV Gate Valves KF and LF bolted style flange Viton bonnet seal

Type	Description	Part Number
LF63	HV GATE VALVE MANANUAL METRIC	4-GV-1110
LF100	HV GATE VALVE MANANUAL METRIC	4-GV-5510
LF160	HV GATE VALVE MANANUAL METRIC	4-GV-9110
LF200	HV GATE VALVE MANANUAL METRIC	4-GV-7210
LF250	HV GATE VALVE MANANUAL METRIC	4-GV-5310
LF320	HV GATE VALVE MANANUAL METRIC	4-GV-3410
LF63	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-2110
LF100	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-6510
LF160	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-0210
LF200	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-8210
LF250	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-6310
LF320	HV GATE VALVE PNEUMATIC METRIC 24VDC	4-GV-4410

## Description

Body and flanges of our angle valves are manufactured out of stainless steel, the linear actuation is driven by AM-350 welded bellows.

All standard flange styles CF, KF, LF, ISO-K as well as weldable versions are available, flange sizes vary from DN10 to DN100.

The supplied versions show metric flange sizes.

Manual and pneumatic driven versions are possible. As a standard solenoid applies a DC 24V version, please ask us for further solutions.

Angle valves with a copper bonnet seal are rated to  $< 2 \times 10^{-10}$  mbar, max. bake out temperature is 200°C in open position. Angle valves with a Viton bonnet sealing are rated to  $< 2 \times 10^{-8}$  mbar with a max. bake out temperature of 150°C in open position. An elastomer gasket is used for the closing poppet sealing.



Type	Description	Part Number
KF10	HV ANGLE VALVE MANUAL	4-AV-5720
KF16	HV ANGLE VALVE MANUAL	4-AV-3020
KF25	HV ANGLE VALVE MANUAL	4-AV-8020
KF40	HV ANGLE VALVE MANUAL	4-AV-3120
KF50	HV ANGLE VALVE MANUAL	4-AV-8120
LF63	HV ANGLE VALVE MANUAL	4-AV-3220
KF10	HV ANGLE VALVE MANUAL	4-AV-9420
KF16	HV ANGLE VALVE MANUAL	4-AV-0520
KF25	HV ANGLE VALVE MANUAL	4-AV-1520
KF40	HV ANGLE VALVE MANUAL	4-AV-2520
KF50	HV ANGLE VALVE MANUAL	4-AV-3520
LF63	HV ANGLE VALVE MANUAL	4-AV-4520
LF100	HV ANGLE VALVE MANUAL	4-AV-6520

Type	Description	Part Number
CF16	UHV ANGLE VALVE MANUAL	4-AV-1020
CF40	UHV ANGLE VALVE MANUAL	4-AV-1120
CF63	UHV ANGLE VALVE MANUAL	4-AV-1220
CF16	UHV ANGLE VALVE PNEUMATIC	4-AV-0620
CF40	UHV ANGLE VALVE PNEUMATIC	4-AV-6620
CF63	UHV ANGLE VALVE PNEUMATIC	4-AV-07200
CF100	UHV ANGLE VALVE PNEUMATIC	4-AV-4720

Type	Description	Part Number
CF16	HV ANGLE VALVE MANUAL	4-AV-2020
CF40	HV ANGLE VALVE MANUAL	4-AV-2120
CF63	HV ANGLE VALVE MANUAL	4-AV-2220
CF16	ANGLE VALVE PNEUMATIC	4-AV-9520
CF40	ANGLE VALVE PNEUMATIC	4-AV-5620
CF63	ANGLE VALVE PNEUMATIC	4-AV-9620
CF100	ANGLE VALVE PNEUMATIC	4-AV-3720

**Description**

Body and flanges of our in-line valves are manufactured out of stainless steel, the linear actuation is driven by AM-350 welded bellows.

All standard flange styles CF, KF, LF, ISO-K as well as weldable "tube end" versions are available, flange sizes vary from DN10 to DN100. The supplied versions show metric flange sizes.

Manual and pneumatic driven versions are possible. As a standard solenoid applies a DC 24V version, please ask us for further solutions.

UHV in-line valves with a copper bonnet seal are rated to  $< 2 \times 10^{-10}$  mbar, max. bake out temperature is 200°C in open position. HV in-line valves with a Viton bonnet sealing are rated to  $< 2 \times 10^{-8}$  mbar with a max. bake out temperature of 150°C in open position. An elastomer gasket is used for the closing poppet sealing.

**In-line valves KF & LF flanges style Viton bonnet seal**

Type	Description	Part Number
KF10	HV IN-LINE VALVE MANUAL	4-IV-7030
KF16	HV IN-LINE VALVE MANUAL	4-IV-2130
KF25	HV IN-LINE VALVE MANUAL	4-IV-7130
KF40	HV IN-LINE VALVE MANUAL	4-IV-2230
KF50	HV IN-LINE VALVE MANUAL	4-IV-7230
LF63	HV IN-LINE VALVE MANUAL	4-IV-2330
KF10	HV IN-LINE VALVE PNEUMATIC	4-IV-3630
KF16	HV IN-LINE VALVE PNEUMATIC	4-IV-4630
KF25	HV IN-LINE VALVE PNEUMATIC	4-IV-5630
KF40	HV IN-LINE VALVE PNEUMATIC	4-IV-6630
KF50	HV IN-LINE VALVE PNEUMATIC	4-IV-7630
LF63	HV IN-LINE VALVE PNEUMATIC	4-IV-8630
LF100	HV IN-LINE VALVE PNEUMATIC	4-IV-0730

Type	Description	Part Number
CF16	UHV IN-LINE VALVE MANUAL	4-IV-0130
CF40	UHV IN-LINE VALVE MANUAL	4-IV-0230
CF63	UHV IN-LINE VALVE MANUAL	4-IV-0330
CF16	UHV IN-LINE VALVE PNEUMATIC	4-IV-6730
CF40	UHV IN-LINE VALVE PNEUMATIC	4-IV-0830
CF63	UHV IN-LINE VALVE PNEUMATIC	4-IV-4830
CF100	UHV IN-LINE VALVE PNEUMATIC	4-IV-8830

Type	Description	Part Number
CF16	HV IN-LINE VALVE MANUAL	4-IV-1130
CF40	HV IN-LINE VALVE MANUAL	4-IV-1230
CF63	HV IN-LINE VALVE MANUAL	4-IV-1330
CF16	HV IN-LINE VALVE PNEUMATIC	4-IV-5730
CF40	HV IN-LINE VALVE PNEUMATIC	4-IV-9730
CF63	HV IN-LINE VALVE PNEUMATIC	4-IV-3830
CF100	HV IN-LINE VALVE PNEUMATIC	4-IV-7830

**Description**

Our manual all-metal valve is manufactured entirely out of metal: Body and flanges are out of stainless steel, the sealing is realised by a special copper poppet gasket that will be compressed into a stainless steel knife edge seat.

The all-metal valve is available as CF16 and CF40 version. A weldable "tube end" version is available on request. All versions are UHV rated to  $< 2 \times 10^{-10}$  mbar. The max. bakeout temperature is 400°C.

The valve can be used in a cryogenic application down to -250°C.

**All-Metal valves**

Type	Description	Part Number
CF16	ALL METAL ANGLE VALVE	4-AV-6220
CF40	ALL METAL ANGLE VALVE	4-AV-8220

**Description**

The UHV leak valve shows a firm and compact design and is manufactured entirely out of metal. It provides the ability for a precise gas inlet in smallest steps from atmosphere to UHV into your system.

The heart of the valve is a diaphragm out of gold plated stainless steel which is used for sealing. This technique allows innumerable closing/open cycles without any problems as the diaphragm can barely be damaged when used under normal handling.

The valve is available with CF16 and CF40 flanges as well as a VCR-version. Please contact us when looking for further connecting possibilities.

The standard version is driven by a hand wheel that needs 10 turns throughout the total pressure range. It can be used up to 300 °C, the max. bakeout temperature is 450 °C (in open position).

As an option we supply a motorized version as well. It runs within 10s through the whole pressure range.

A further option is a pneumatic actuator version. It helps running the valve between 2 defined settings in a very short time.

A further option that can be supplied is a heater cartridge that is placed at the valve seat. It allows a constant heating during work time.

Features:

Material housing:	316L stainless steel
Material diaphragm:	gold plated 316L stainless steel
Materials outside of vacuum:	304 protected stainless steel
Lifetime:	100.000 cycles until first service
Direction of gas flow:	any
Mounting position:	any
Weights:	2.0 kg (CF40-CF16-version) 1.3 kg (CF16-CF16-version) 1.3 kg (VCR-version) + 2.3 kg additional weight for motor version + 8.6 kg additional weight for pneumatic version
Inside pressure:	Vacuum to 10 bar
Pressure difference:	10 bar from either side
Heating temperatures:	450 °C valve open 300 °C valve operable
Tightness housing:	$1 \times 10^{-10}$ mbar l/s
Tightness valve seat:	$1 \times 10^{-10}$ mbar l/s
Dead volumes:	1.0 – 1.4 ccm main flange side 4.6 ccm side flange
Turns of handwheel:	10
Moving time motor actuator:	10 s throughout whole control range
Compressed air pressure:	4–9 bar overpressure when pneumatically operated

### Description

Bottle gas valves are designed to easily connect disposable gas bottles to high and ultra high vacuum systems. They are manually actuated and suited to handle the common gas types like pure gases (i.e. Argon, Oxygen, Nitrogen) or a mixture of gasses normally used in research environments.

The valve body is manufactured of stainless steel (AISI 304L) and fitted with a DN16CF flange on one end (system side) and a specific thread sealed with an elastomer o-ring on the opposite side (gas bottle).

The valve can be mounted in any position.

The space between the flange and the body of the valve has been increased for easy use of tools.

The valve works by simple turns of the knurled knob.



### Specification:

Seals:	inside membrane bellow bottle side Viton
Temperature range:	-60 - +180 °C
Pressure range:	max. 40 bar
Vacuum range:	1 x 10 <sup>-8</sup> mbar
Weight:	0.5 kg

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