

ALL-METAL VARIABLE LEAK VALVE, SERIES 59.0

Gas inlet valve for smallest gas flows to control the process pressure.



Resistant to corrosive and aggressive gases

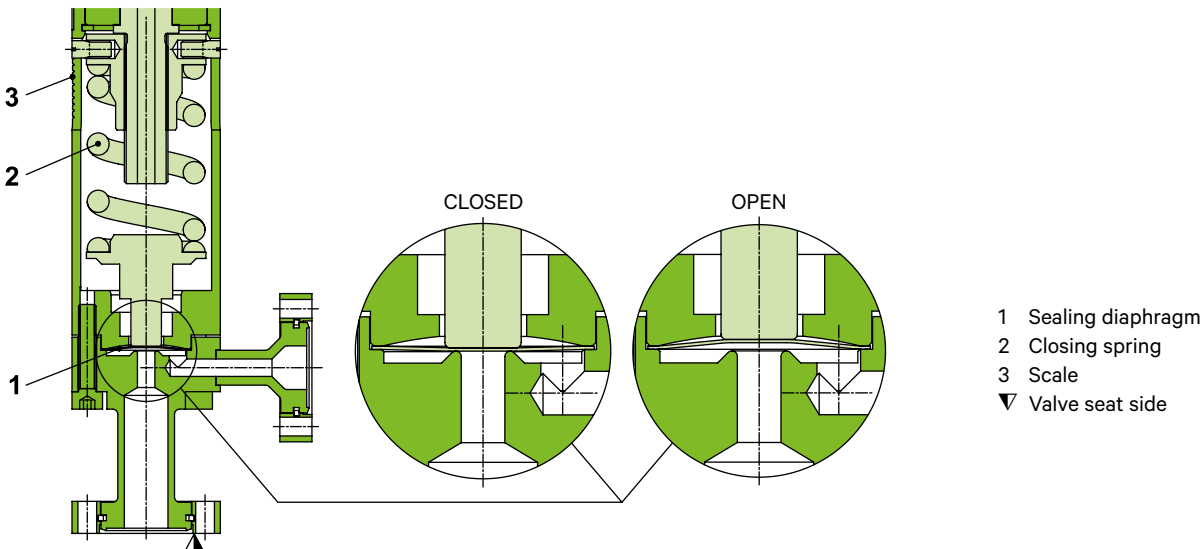
Precise, reproducible adjustment of the gas flow

Repeatable and reliable leaktight closing

MAIN FEATURES

Sizes	DN 16 mm (½")
Actuators	manual: handwheel integrated or detachable pressure controller with stepper motor
Body material	stainless steel
Standard flanges	CF-R
Sealing technology	diaphragm

FUNCTIONAL PRINCIPLE



TECHNICAL DATA

VALVE

Leak rate	Valve body, valve seat	$< 1 \cdot 10^{-10}$ mbar ls ⁻¹
Pressure range		UHV to 10 bar (abs)
Differential pressure at opening		≤ 10 bar
Dead volume	Angle valve: Seat side	2.7 cm ³
	Side port	1.1 cm ³
	Inline valve: Seat side	0.98 cm ³
	Side port	1.01 cm ³
Cycles until first service		20 000
Bake-out temperature ¹⁾	Valve body	≤ 300 °C
	Manual actuator	≤ 300 °C
	Controller with stepper motor	≤ 50 °C
Heating and cooling rate		≤ 60 °C h ⁻¹
Material	Valve body	AISI 660 (1.4943), AISI 316L (1.4404)
	Diaphragm	AISI 301 (1.4310), gold-plated
Mounting position		any
Valve position indication		visual (scale)
Conductance (molecular flow)		0.05 ls ⁻¹
Adjustable gas flow		$1 \cdot 10^{-10}$ mbar ls ⁻¹ to 500 mbar ls ⁻¹
Weight	With manual actuator	0.94 kg / 2.07 lbs
	With controlled stepper motor	2.5 kg / 5.5 lbs

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

CONTROLLER

Position resolution	100 000 steps
Closing time	3.5 s
Further data	see pages 184 – 189

OPTIONS, CUSTOMIZED SOLUTIONS

CF-F DN 40 seat side / VCR on seat or gas inlet side

SPARE PARTS

Under clean operating conditions, it is unlikely that the sealing diaphragm would need to be exchanged during the specified lifetime.

Nevertheless, should you have any questions for spare parts, we ask you to specify the fabrication number of the valve indicated on the identification tag.

ACCESSORIES

Flange connections for installation of the valve: see series 33

ORDERING INFORMATION

Valve with manual actuator
handwheel

DN		Ordering numbers	
mm	inch	Angle valve CF-R	Inline valve ¼" VCR male
16	¾"	59024-GE01	59024-XE01

Valve with pressure controller
and stepper motor

DN		Ordering numbers	
mm	inch	Valve with integrated controller CF-R	Valve with detachable controller CF-R
16	¾"	59024-GE x y	on request

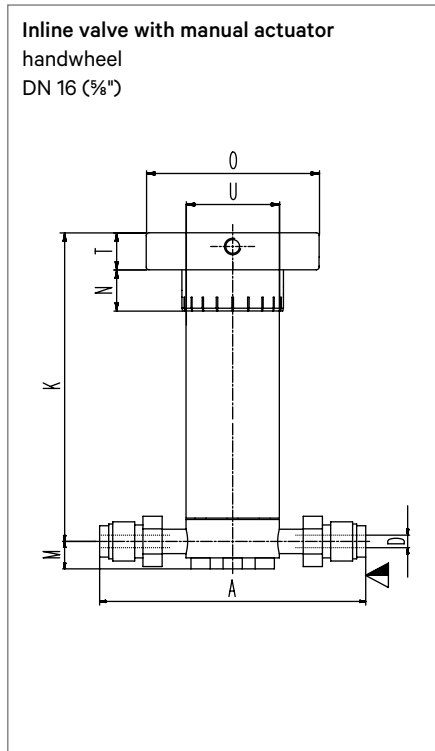
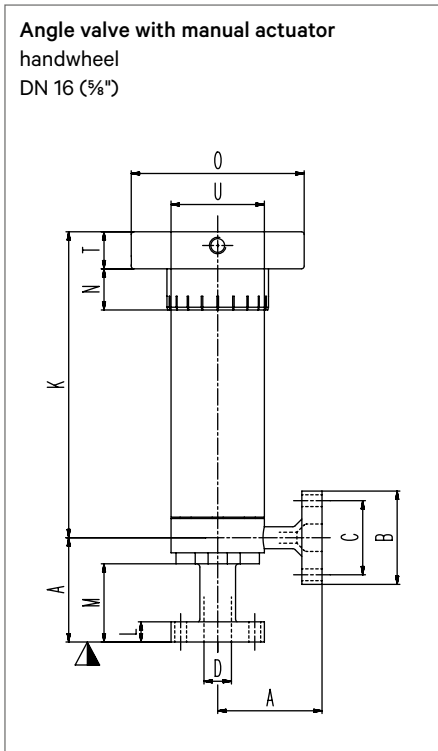
Controller configurations:

G = basic version
A = with SPS
(Sensor Power Supply,
±15 VDC power supply for sensor)

Interface	Number of sensors
G = RS232	1
C = Logic (analog / digital)	1
P = DeviceNet®	1
D = Profibus	1
J = RS485	1
Y = Ethernet	1
L = CC-Link	1
I = EtherCAT	1

Example: 59024-GEGG
= Controller with RS232 interface, 1 sensor

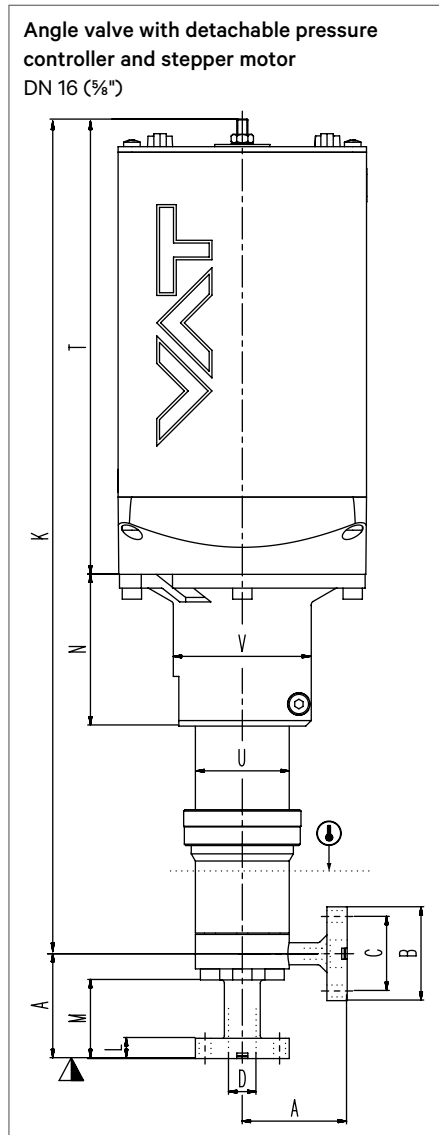
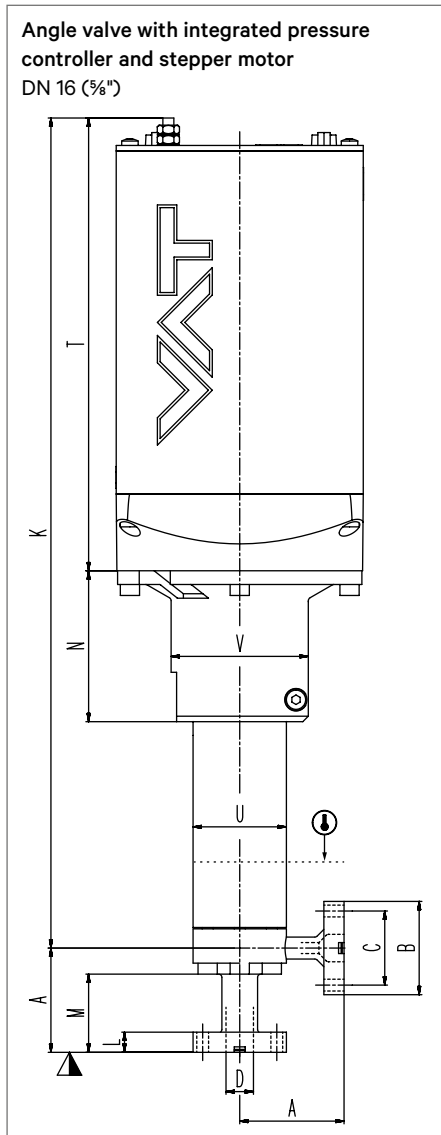
MAIN DIMENSIONS



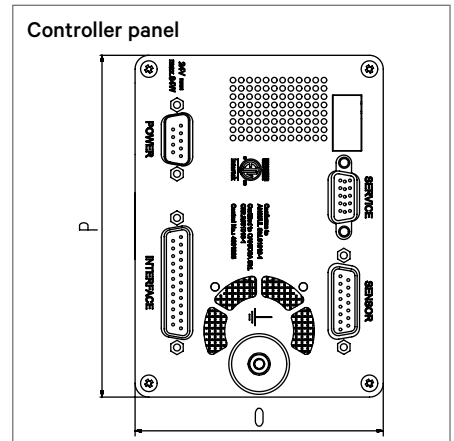
	Angle valve	Inline valve
DN	mm inch	mm inch
	16 ¾"	16 ¾"
A	mm inch	mm inch
	38 1.50	97 3.82
B	mm inch	mm inch
	34 1.34	-
C	mm inch	mm inch
	27 1.06	-
D	mm inch	mm inch
	10 0.39	4.6 0.18
K	mm inch	mm inch
	111.50 4.39	111.50 4.39
L	mm inch	mm inch
	7.35 0.29	-
M	mm inch	mm inch
	28.50 1.12	10 0.39
N	mm inch	mm inch
	15 0.59	15 0.59
O	mm inch	mm inch
	63 2.48	63 2.48
T	mm inch	mm inch
	13.50 0.53	13.50 0.53
U	mm inch	mm inch
	34 1.34	34 1.34

▽ Valve seat side

MAIN DIMENSIONS

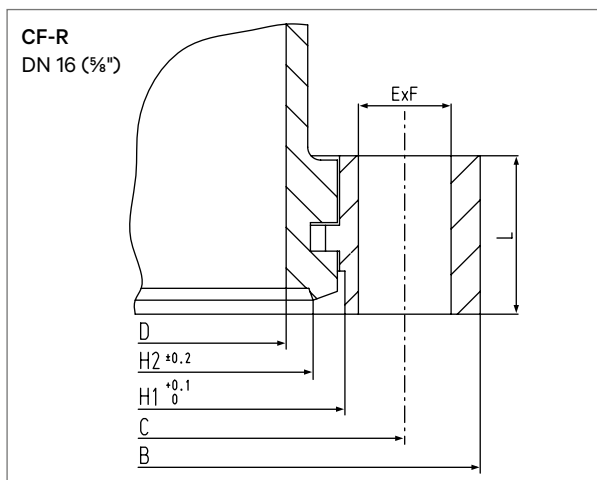


▼ Valve seat side ① Bake-out area



	Angle valve with integrated controller	Angle valve with detachable controller
DN	16 5/8"	16 5/8"
A	38 1.50	38 1.50
B	34 1.34	34 1.34
C	27 1.06	27 1.06
D	10 0.39	10 0.39
K	302.50 11.91	302.50 11.91
L	7.35 0.29	7.35 0.29
M	28.50 1.12	28.50 1.12
N	55 2.17	55 2.17
O	90 3.54	90 3.54
P	124 4.88	124 4.88
T	165 6.50	165 6.50
U	34 1.34	34 1.34
V	50 1.69	50 1.69

FLANGE DIMENSIONS



DN	mm inch	16 5/8"
B	mm inch	34 1.34
C	mm inch	27 1.06
D	mm inch	10 0.39
E × F	mm inch	6 × 4.30 6 × 0.17
H1	mm inch	21.40 0.84
H2	mm inch	18.50 0.73
L	mm inch	7.35 0.29