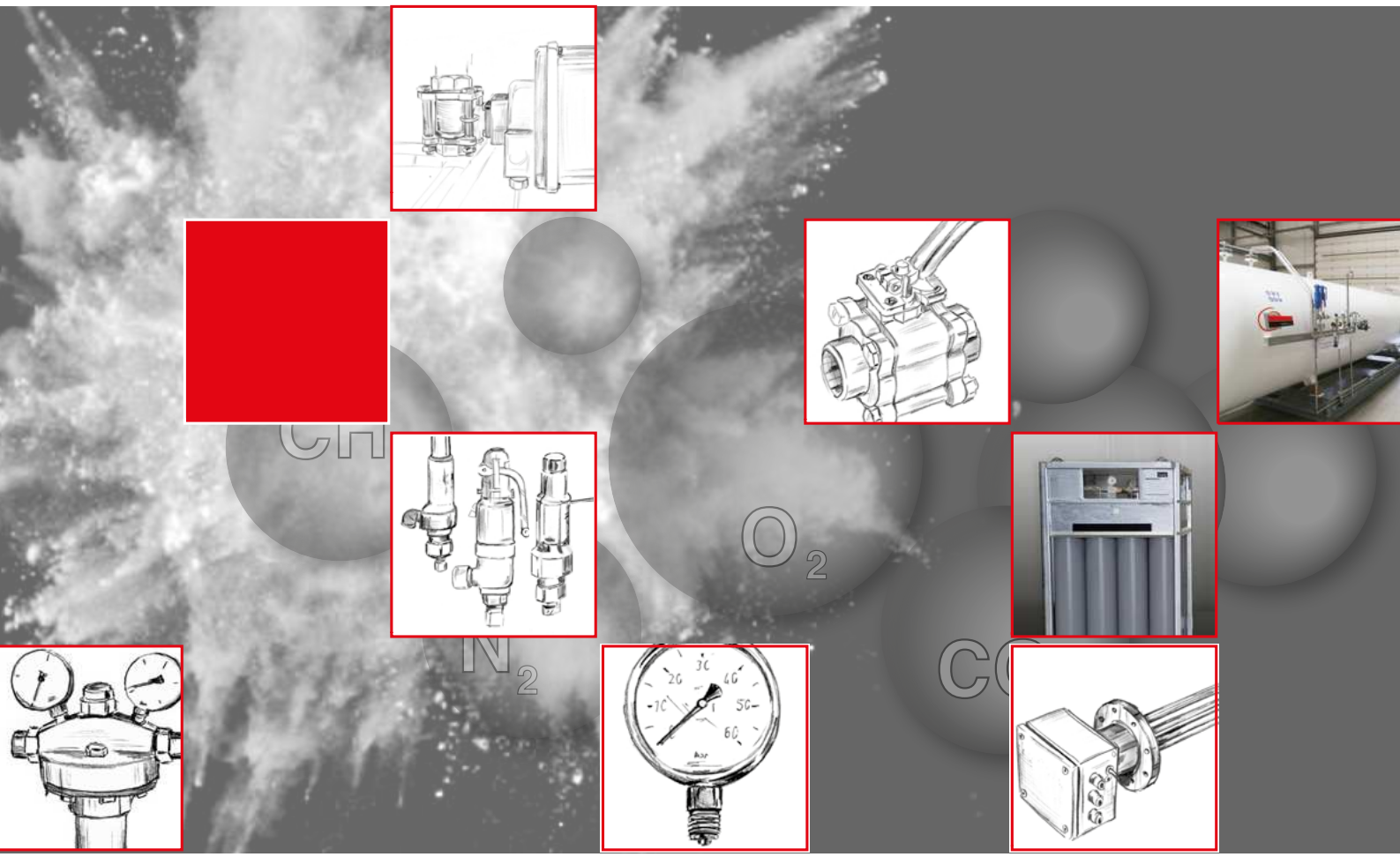
Inerting Technology

Components and Systems

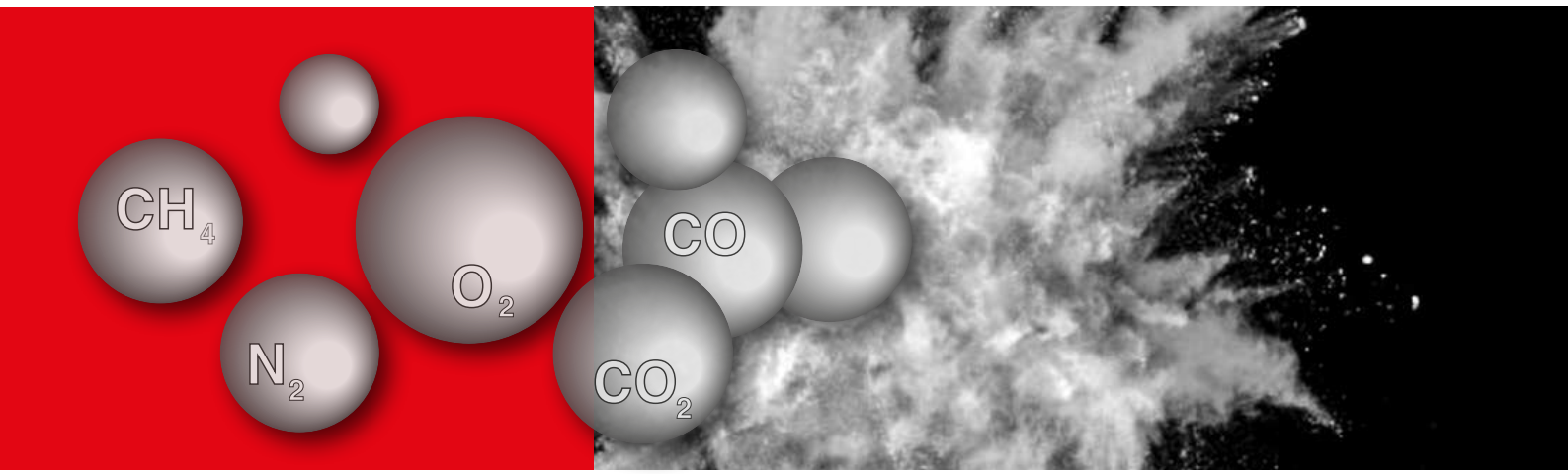


2022

CONTENT

CONTENT

Inerting Technology



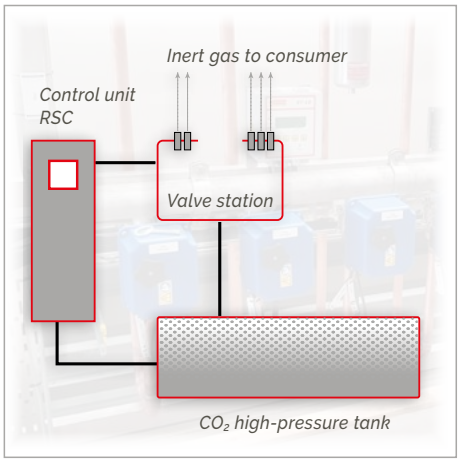
INERTING is an effective method to prevent explosions and fire.

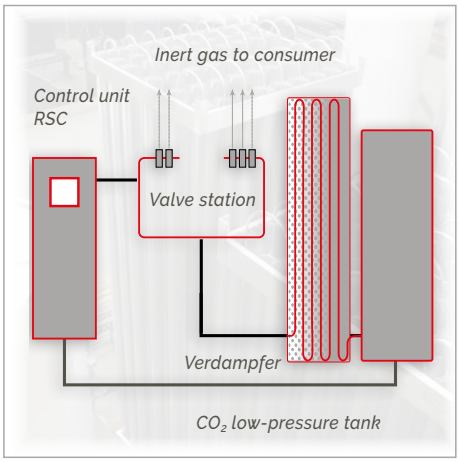
robecco recommends the use of the original robecco spare parts for the inerting systems.

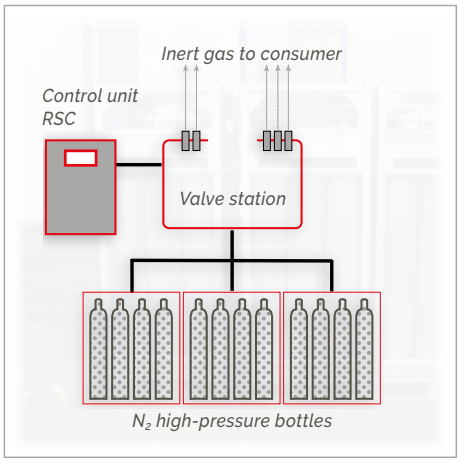
This ensures safe operation of the system, without long idle times.

robecco provides SAFETY

Overview of the robecco CO_2 / N_2 - Inerting systems.







HIGH-PRESSURE CO_2-INERTING

robecco INERT

- *HIGH AMOUNTS OF CO_2-GAS DIRECTLY FROM THE TANK*

LOW-PRESSURE CO_2-INERTING

robecco INERT

- *TANKS CAN BE FILLED WITH LOW PRESSURE FROM TANK TRUCKS*

HIGH-PRESSURE N_2-INERTING

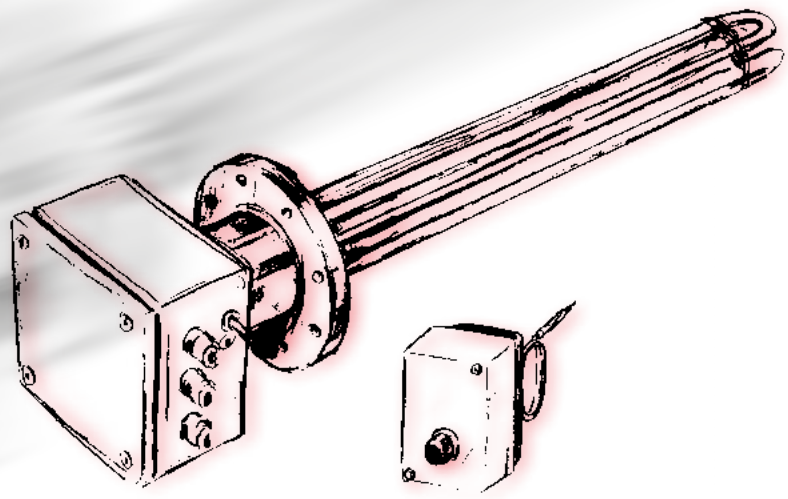
robecco INERT

- *N_2-GAS AVAILABLE DIRECTLY FROM THE PACKS*

Vessel heater

Vessel flange heating element BH-S | Temperature limiter TB-J

Heating and temperature limitation for high-pressure vessels



OPERATIONAL AREA

CO_2 High-pressure inerting systems

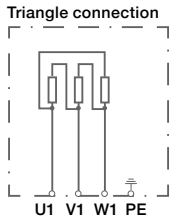
Vessel heater

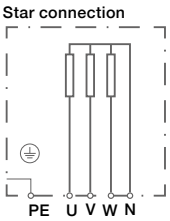
Vessel flange heating element BH-S | Temperature limiter TB-J

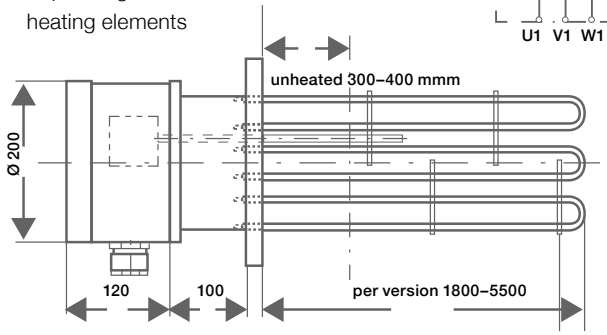
Vessel flange heaters are used for heating liquid or gaseous media.
The temperature limiter monitors and controls the temperature at the heater.

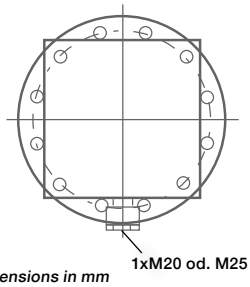
Vessel heater BH-S

- ❏ Direct heating of the medium
- ❏ Easy to operate
- ❏ Low maintenance costs
- ❏ Above-average insulation strength
- ❏ Depending on the version with 6 or 12 tubular heating elements







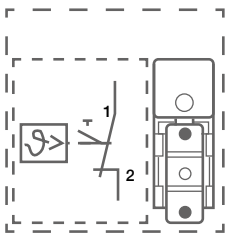


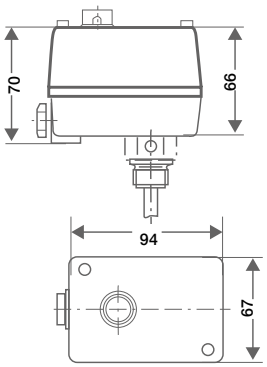
all dimensions in mm

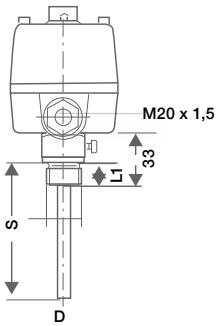
Material
Stainless steel
Media
liquid | gaseous
Operating temperature
up to 650°C
Nominal power
varies per type s.b.
Nominal voltage
V, Hz varies per type s.b.
Process connection
Flange B80 PN6, DIN 2527
Protection class
IP 54 | IP 65
Guidelines
2014/68/EU Pressure Equipment Directives
Welding procedure AD2020 HPOI DIN EN ISO

Temperature limiter TB-J

- ❏ With capillary, sensor as standard
- ❏ Robust housing
- ❏ Safety temperature limiter







all dimensions in mm

Operating temperature
-3°C up to +40°C
Max. limit value
500°C
Switching capacity
10A , 230 V
Connection
smooth round sensor
Protection class
IP 54
Guidelines
Pressure Equipment Directives 2014/68/EU
Low Voltage 2014/35/EU
EMV 2014/30/EU

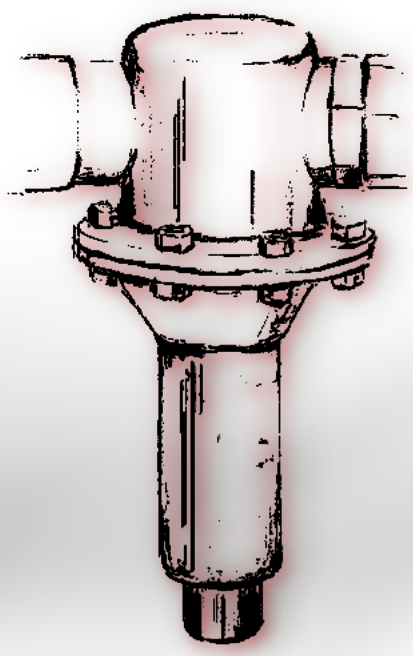
ORDER NUMBERS

Vessel flange heating element BH-S5	Nominal power 9,5 kW, Nominal voltage 400 V, 60 Hz L1, L2, L3, PE, Triangle connection, Installation length 1800 mm	**R002895**
Vessel flange heating element BH-S9	Nominal power 9,5 kW, Nominal voltage 525 V, 50 Hz, L1, L2, L3, N, PE, Star connection, Installation length 1800 mm	**R002898**
Vessel flange heating element BH-S1	Nominal power 19 kW, Nominal voltage 400V, 50 Hz, L1, L2, L3, PE, Triangle connection, Installation length 4350 mm	**R002892**
Vessel flange heating element BH-S3	Nominal power 19 kW, Nominal voltage 400 V, 50 Hz, L1, L2, L3, N, PE Star connection, Installation length 4350 mm	**R002853**
Vessel flange heating element BH-S4	Nominal power 9,5 kW, Nominal voltage 400 V, 50 Hz, L1, L2, L3, N, PE Star connection, Installation length 1800 mm	**R002894**
Vessel flange heating element BH-S6	Nominal power 19 kW, Nominal voltage 400 V, 50 Hz, L1, L2, L3, PE, Triangle connection, Installation length 3350 mm	**R002896**
Vessel flange heating element BH-S7	Nominal power 19 kW, Nominal voltage 400 V, 50 Hz, L1, L2, L3, N, PE, Star connection, Installation length 3350 mm	**R002785**
Vessel flange heating element BH-S8	Nominal power 22,5 kW, Nominal voltage 415 V, 50 Hz, L1, L2, L3, N, PE, Star connection, Installation length 3350 mm	**R002897**
Vessel flange heating element BH-S2	Nominal power 25 kW, Nominal voltage 400 V, 50 Hz, L1, L2, L3, N, PE Triangle connection, Installation length 4350 mm	**R002893**
Vessel flange heating element BH-S10	Nominal power 27 kW, Nominal voltage 380 V, 50 Hz, L1, L2, L3, N, PE, Star connection, Installation length 5500 mm	**R002899**
Wooden box for Vessel flange heating element	Sturdy box for delivery abroad	**R002900**
Temperature limiter TB-J		**R002811**

Pressure reducer

DM-M1

Pressure reducing for gases



OPERATIONAL AREA

CO_2 High-pressure inerting system

CO_2 Low pressure inerting system

Pressure reducer

DM-M1

Pressure reducing valves reduce a high and frequently fluctuating pressure to an adjustable constant pressure downstream of the valve.

Pressure reducer DM-M1

- ❏ single seated straight-way valve, diaphragm controlled
- ❏ New version with PEEK-round cone

TECHNICAL DATA

Material

Cone gasket: EPDM
Diaphragm: CR FPM/EPDM
Body: CrNiMo-steel
Inner parts: Messing / Cr-steel
Spring: CrNi-steel
Valve sealing: EU FPM/EPDM/PTFE

Kvs-value

0,6 – 4,2m3/h

Temperature range

-20°C up to +130°C

Inlet pressure

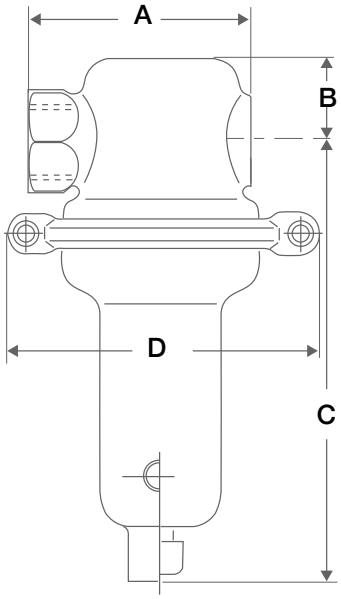
up to 100 bar

Outlet pressure

0,8 –16 bar

Inlet connection / Outlet connection

BSP female connection G1/2 – 2"
Flange connection DN 20–DN 50



DIMENSIONS

		Nominal size G					
		1/2	3/4	1	1 1/4	1 1/2	2
	A	85	95	105	120	130	150
	B	37	48	45	43	50	56
	C	195	200	200	205	205	220
	D			138			
Weight		1,5	2	2	2,5	3	3,5

ORDER NUMBERS

Pressure reducer DM-M1	G 3/4", 4-8 bar	**R002713**
Pressure reducer DM-M1	G 1", 4-8 bar	**R002716**
Pressure reducer DM-M1	G 1 1/4", 4-8 bar	**R002717**
Pressure reducer DM-M1	G 1 1/4", 10-16 bar	**R002796**
Pressure reducer DM-M1	G 1", 10-16bar	**R002715**
Pressure reducer DM-M1	G 1 1/2", 10-16 bar	**R002719**
Pressure reducer DM-M1	G 2", 10-16 bar	**R002722**
Repairing set for DM-M1	G 3/4"	**R002877**
Repairing set for DM-M1	G 1"	**R002876**
Repairing set for DM-M1	G 1 1/4"	**R002875**
Repairing set for DM-M1	G 1 1/2"	**R002878**
Repairing set for DM-M1	G 2"	**R002879**
Pressure reducer - PEEK round cone to retrofit older pressure reducers		**R002757**

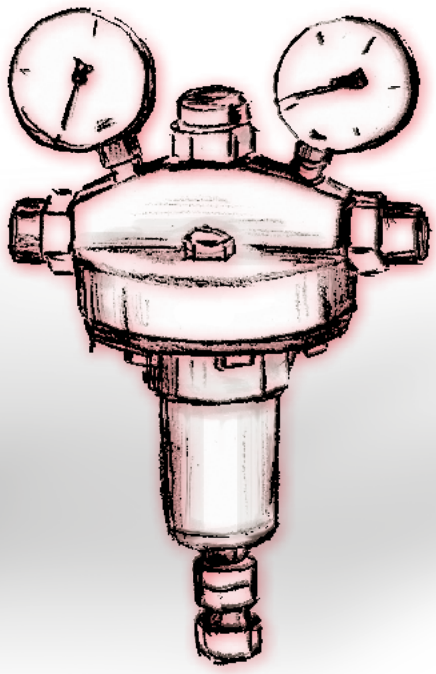
For easy installation retrofit or equipped with flanges

Pressure reducer flanges		**Welding flanges**	
High pressure flange adapter DN20 for DM-M1 3/4"	**R002863**	2x V-flanges DN20 PN100 with 2x special seals 72/31*4, M16x65 8 pieces screws, 8 nuts, 16 washer	**R002864**
High pressure flange adapter DN25 for DM-M1 1"	**R002865**	2x V-flanges DN25 PN100 with 2x special seals 82/36*4, M16x75 8 pieces screws, 8 nuts, 16 washer	**R002866**
High pressure flange adapter DN32 for DM-M1 1 1/4"	**R002867**	2x V-flanges DN32 PN100 with 2x special seals 88/46*4, M20x70 8 pieces screws, 8 nuts, 16 washer	**R002868**
High pressure flange adapter DN40 for DM-M1 1 1/2"	**R002869**	2x V-flanges DN40 PN100 with 2x special seals 103/53*4, M20x75 8 pieces screws, 8 nuts, 16 washer	**R002870**
High pressure flange adapter DN50 for DM-M1 2"	**R002871**	2x V-flanges DN50 PN100 with 2x special seals 8 pieces screws, 8 nuts, 16 washer	**R002872**

Pressure reducer

DM-H2

Pressure reduction for non-flammable gases



OPERATIONAL AREA

N_2 High-pressure inerting systems

Pressure reducer

DM-H2

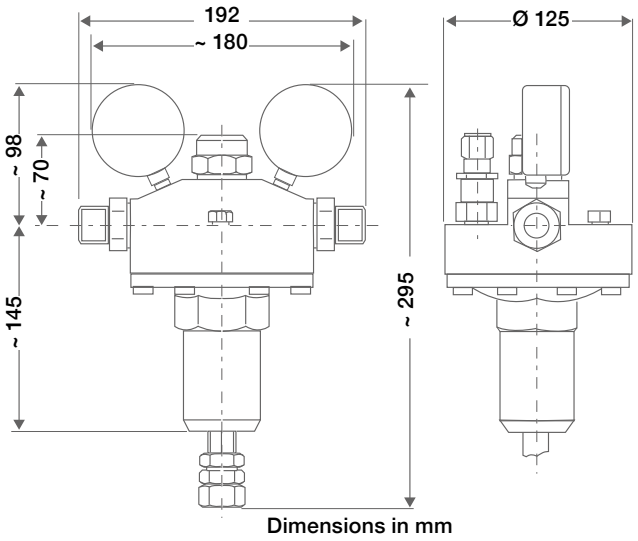
The pressure reducer DM-H2 reduces the max. inlet pressure of 300 bar to a maximum outlet pressure of 20 bar.
It is a single-stage, diaphragm-controlled pressure reducer with inlet pressure compensation.
The special piston design ensures a high pressure constancy.

Pressure reducer DM-H2

- ❏ Use with non-flammable gases
- ❏ Integrated dirt filter and pressure gauge
- ❏ Designed according to DIN EN738-2 and BAM tested for oxygen
- ❏ Single-stage, diaphragm-controlled pressure reducer with inlet pressure compensation
- ❏ Large pressure constancy ensured
- ❏ Blow-off valve for discharging excess pressure

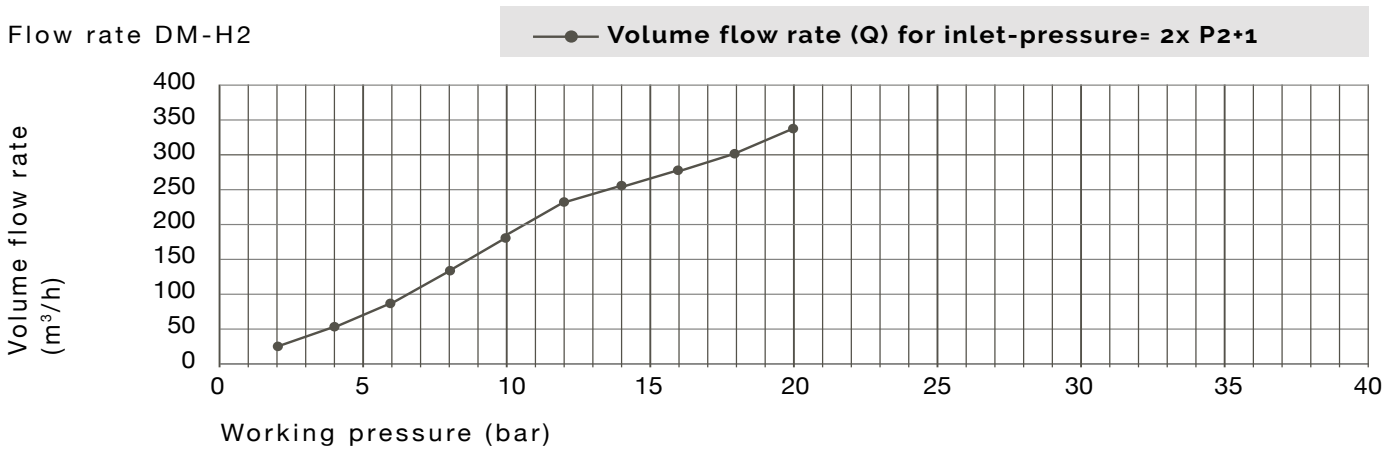
TECHNICAL DATA

Material
Body: Brass
Temperature range
-20°C up to +60°C
Adjustment range
0,5 – 20 bar
Inlet pressure
max. 300 bar
Maximum permissible outlet pressure
20 bar
Input / Output:
SP female connection G3/4" / G3/4"



Dimensions in mm

Flow rate DM-H2



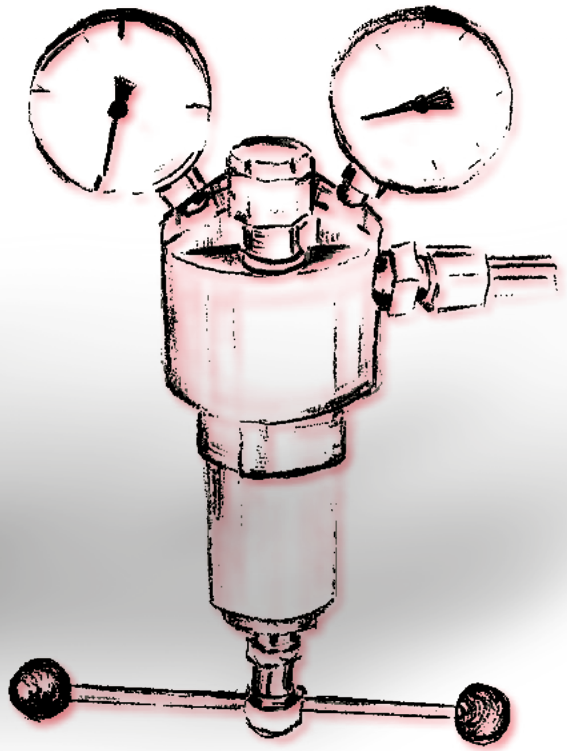
ORDER NUMBERS

Pressure reducer DM-H2	0,5 – 20 bar	**R002728**
Repairing set for DM-H2		**R002873**

Pressure reducer

DM-H3

Pressure reduction for non-flammable gases



OPERATIONAL AREA

N2 High-pressure inerting systems

Pressure reducer

DM-H3

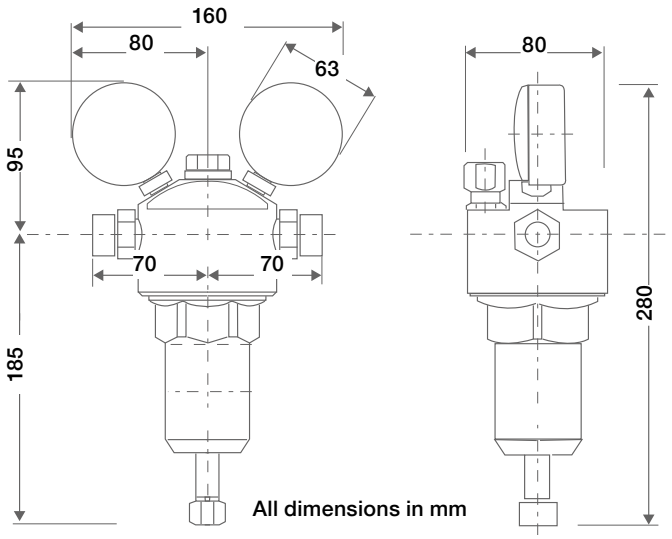
The pressure reducer DM-H3 reduces the inlet pressure from max. 300 bar to a pressure of max. 35 bar and keeps it constant.
It is a single-stage pressure reducer with safety valve.

Pressure reducer DM-H3

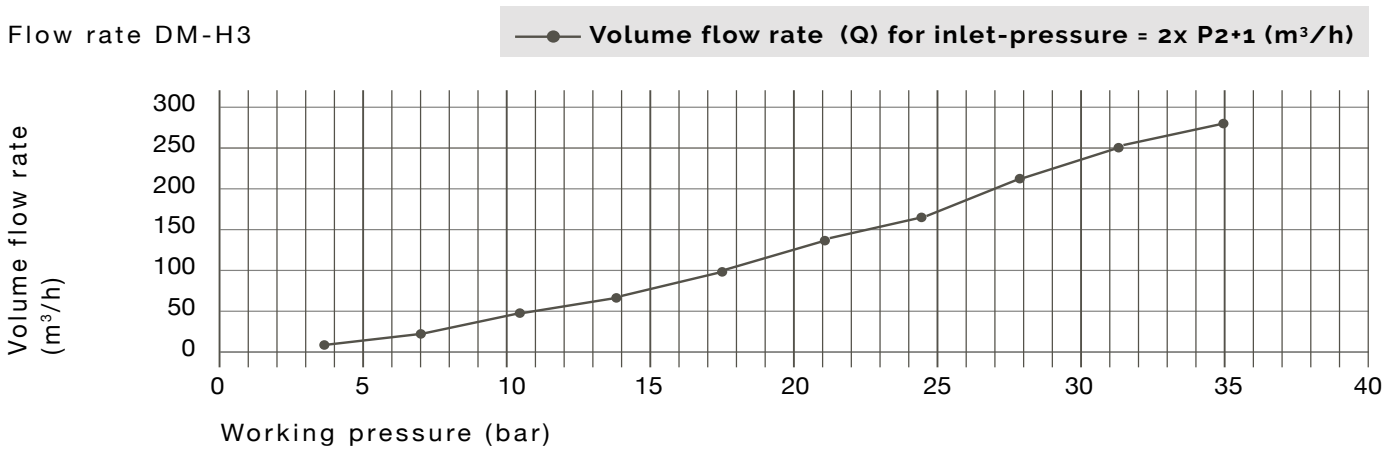
- ❏ Use with non-flammable gases
- ❏ Integrated dirt filter and pressure gauger
- ❏ Designed according to DIN EN961, BAM tested
- ❏ Single-stage, diaphragm-controlled pressure reducer with inlet pressure compensation
- ❏ Large pressure constancy ensured

TECHNICAL DATA

Material
Body: Brass
Temperature range
-20°C up to +60°C
Adjustment range
0 – 10 bar
Inlet pressure
max. 300 bar
Maximum permissible outlet pressure
35 bar
Input / Output:
BSP female connection G1/2



Flow rate DM-H3



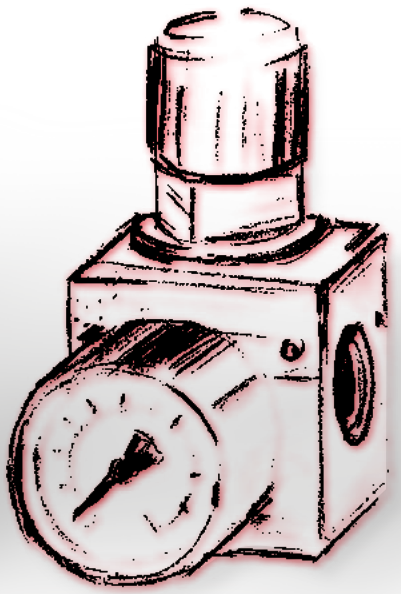
ORDER NUMBERS

Pressure reducer DM-H3	0–10 bar	**R002729**
Repairing set for DM-H3		**R002874**

Pressure reducer

DM-R1

Pressure reduction for gases



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems
CO_2 Low-pressure inerting systems

Pressure reducer

DM-R1

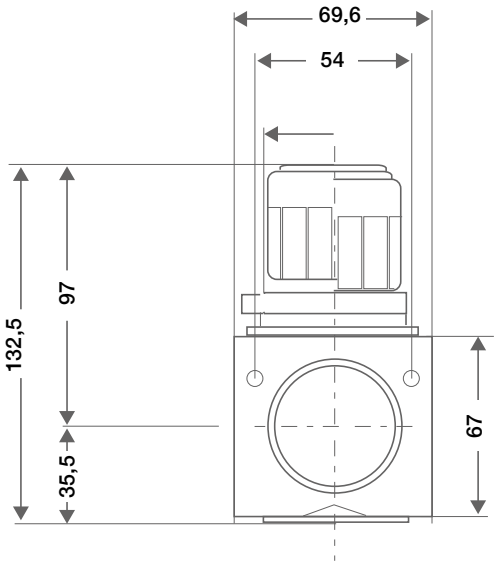
Pressure reducers reduce a high, often fluctuating pressure to an adjustable, constant pressure downstream of the valve.
The DM-R1 is a diaphragm pressure regulator with secondary venting.

Pressure reducer DM-R1

- ❏ Block design
- ❏ Diaphragm pressure regulator with secondary venting
- ❏ Easy interlocking of several individual units
- ❏ Pressure setting can be locked in place
- ❏ Can be installed in any position
- ❏ Inlet pressure independence
- ❏ Pressure gauge can be mounted on both sides
- ❏ Pressure gauge Ø 50 included in scope of delivery
- ❏ Single-seated globe valve, diaphragm-operated

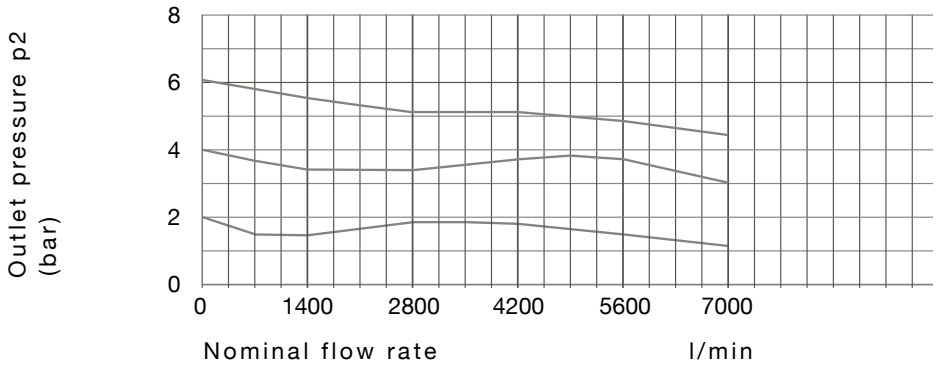
TECHNICAL DATA

Material
Head piece: Zinc-Z 410
Spring cap: POM-Ms
Diaphragm: NBR-Ms
Pressure spring: Galvanised steel
Valve cone: NBR-Ms
Back pressure spring: Niro
O-ring 50x2: NBR
Cover: PBTP
Spring cap lockable: POM-Al
Locking cylinder lockable: Ms
Medium temperature
max. 60°C
Ambient temperature
max. 60°C
Maximum inlet pressure p1
16 bar
Maximum permissible outlet pressure
0,5 – 10 bar
Connection
G 1/2"
Pressure gauge connection
G 1/4"
Weight
935 g



All dimensions in mm

Volume flow rate at p1= 8 bar



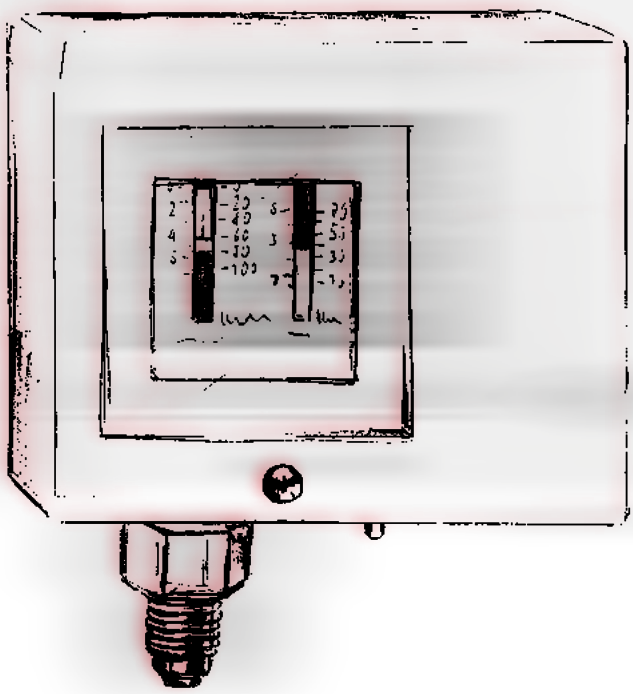
ORDER NUMBERS

Pressure reducer DM-R1	1/2", 0,5–10 bar	**R002725**

Pressure switch / limiter

DS-E | DB-E

Safety pressure limiter



OPERATIONAL AREA

CO_2 Low-pressure inerting systems

Pressure switch / limiter

DS-E | DB-E

Adjustable single pressure switches for low pressure applications.

Pressure switch DS-E

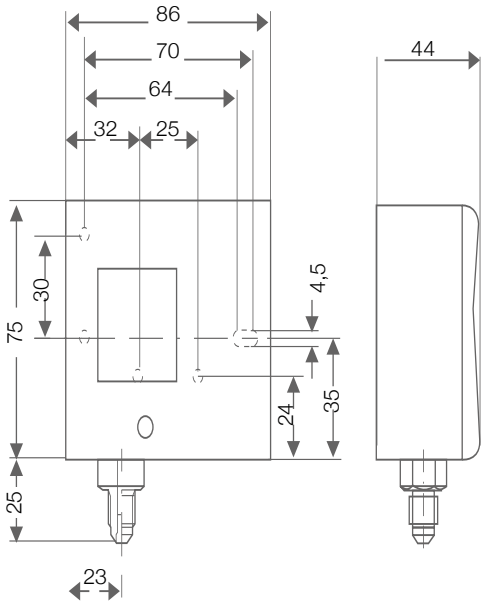
- ❏ Adjustable pressure range
- ❏ Range and differential setting individually sealable
- ❏ Change-over contacts with high contact load capacity
- ❏ Test lever with front operation for maintenance and system filling
- ❏ Automatic pressure switch

Pressure limiter DB-E

- ❏ Adjustable pressure range
- ❏ Range and differential setting individually sealable
- ❏ Change-over contacts with high contact load capacity
- ❏ Test lever with front operation for maintenance and system filling
- ❏ With manual reset for rising pressure

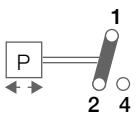
TECHNICAL DATA

Material
Housing shell: Polycarbonate (PC)
Housing frame: Steel, ROHS
compatible, corrosion protection
Materials with medium contact: Bronze
Ambient temperature
-50 °C … +70 °C
Medium temperature
-50 °C … +70 °C
Permissible operating overpressure
-0.9 bar to 31 bar
Protection class
IP44
Weight
ca. 500g
Dimensions
86mm W x 75mm H x 44mm D

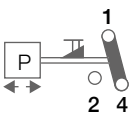


Switch functions:

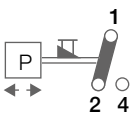
Automatic Reset



Manual reset with falling pressure



Manual reset with increasing pressure



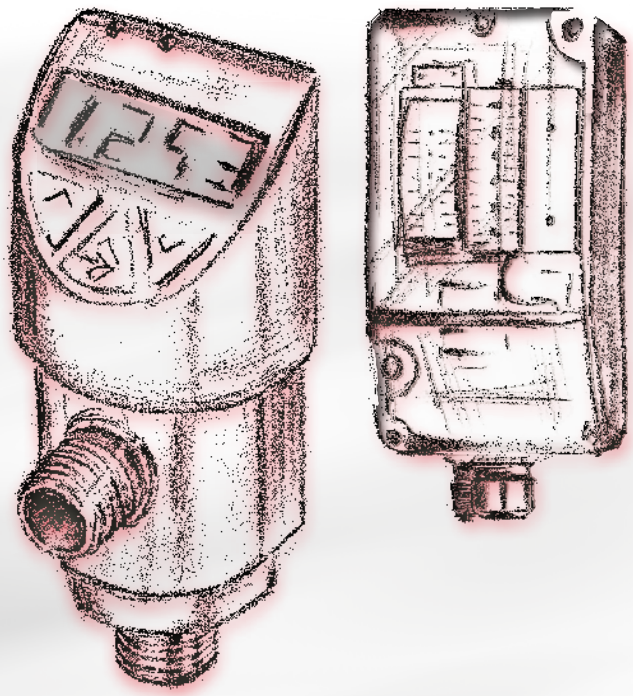
ORDER NUMBERS

Pressure switch DS-E	6 up to 31 bar, automatic	**R002880**
Pressure limiter DB-E	6 up to 31 bar, with external manual reset	**R002881**

Pressure switch

DS-M | DS-P

Detection and monitoring of system pressures



OPERATIONAL AREA

CO_2 High-pressure inerting systems

Pressure switch

DS-M | DS-P

Pressure switches detect and monitor system pressures.

Pressure switch DS-M

- ❏ Measuring range 4, 100, 400 bar
- ❏ Display for current pressure, min/max value memory
- ❏ Manipulation protected by password query
- ❏ Various switching functions programmable
- ❏ LED display

Pressure switch DS-P

- ❏ Measuring range 0 - 100 bar
- ❏ With calibrated setpoint scales
- ❏ With frictionless force balance measuring system
- ❏ With integrated actual value display
- ❏ operating comfort

TECHNICAL DATA

Material
Housing: Lower part steel 316L,
Head: plastic PBT

Ambient temperature
-20°C – +85°C

Measuring range
40, 100 or 400 bar

Auxiliary power supply
15...30 DC

Alarm output
2 x transistor PNP NC/NO contact

Analogue output
0/4..20 mA, freely programmable and scalable

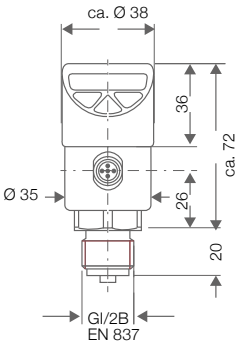
Protection class
IP 67

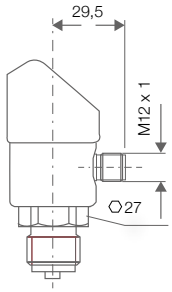
Electrical connection
Round connector M12 x 1

Process connection
G1/2B External thread

Weight
max. ca. 280g

CE conformity
2004/108/EG, EN 61326, Interference emission group 1, class B,
Pressure Equipment Directives 2014/68/EU





Material
Housing:
Polycarbonate a. Stainless steel 1.4571
Parts in contact with medium: Brass

Ambient temperature
-20°C – +70°C

Measuring range
0–100 bar

Digital output
Limit switching

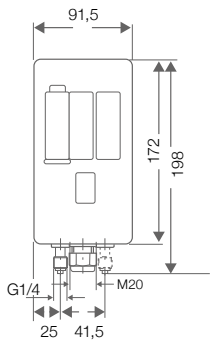
Protection class
IP 65

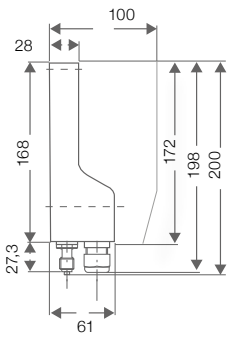
Electrical connection
M20

Process connection
G1/2 outside stainless steel

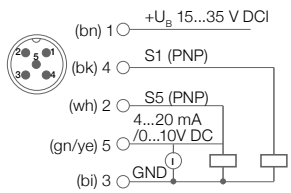
Weight
1–1,5 kg

CE conformity
DW 3598-4, 1986 | vd TÜV-100/1
TRD 604
Pressure Equipment Directives 2014/68/EU

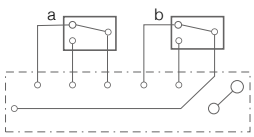




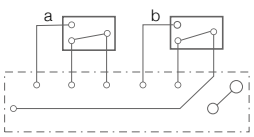
2 switching outputs
+ analogue output



Positive overpressure



Negative overpressure



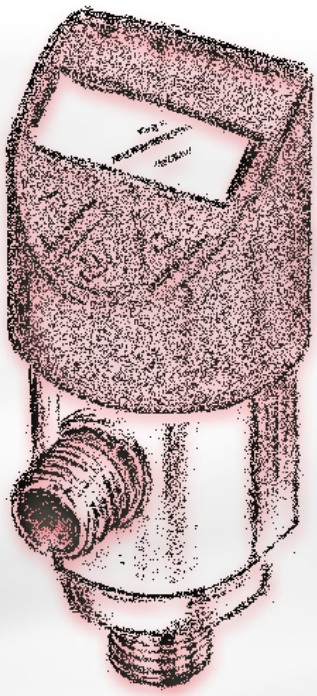
ORDER NUMBERS

Pressure switch DS-M 40, 100 or 400 bar	**R002792**	**Pressure switch DS-P** 0–100 bar	**R002806**

Pressure switch

DS-W

Detection and monitoring of system pressures



OPERATIONAL AREA

CO_2 High-pressure inerting systems

Pressure switch

DS-W

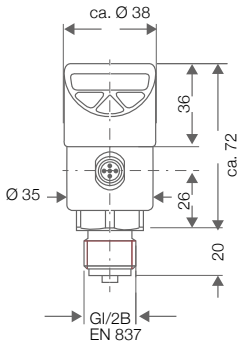
Pressure switches detect and monitor system pressures.

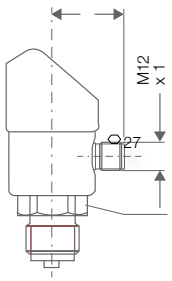
Pressure switch DS-W

- ❏ Measuring range 0-100 bar
- ❏ Display for current pressure, min/max value memory
- ❏ 2x overpressure limit
- ❏ Various switching functions programmable
- ❏ LED display
- ❏ shock resistance 50g, 6ms

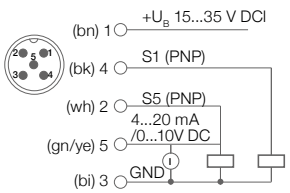
TECHNICAL DATA

Material
Messstoffberührte Bauteile: CrNi-Stahl 316L + PH-Stahl
Ambient temperature
-20°C – +80°C
Measuring range
0-100 bar
Auxiliary power supply
15...35 DC
Alarm output
2 x switching output (PNP/NPN)
Analogue output
4..20 mA, freely programmable and scalable
Protection class
IP 65 and IP 67
Electrical connection
Round connector M12 x 1
Process connection
G 1/4 A DIN EN ISO 1179-2 Sealing NRB
Weight
max. ca. 280g
CE conformity
DGRL EMV, EN 61326 Emission (Group 1, Class B) and Immunity (industrial area)





2 switching outputs
+ analogue output



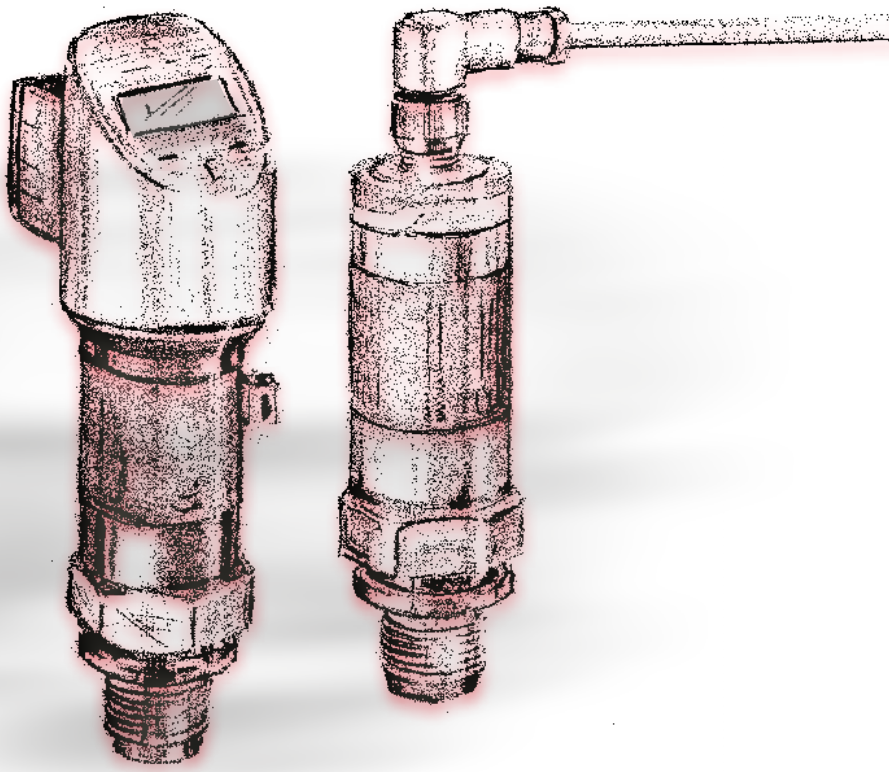
ORDER NUMBERS

Pressure switch DS-W 0–100 bar	**R003170**
Pressure switch DS-W 0–100 bar incl. 5m cableset	**R003171**

Pressure sensor

DS-C1 | DS-C2 | DS-C3

Process pressure measurement



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems

CO_2 Low-pressure inerting systems

Pressure sensor

DS-C1 | DS-C2 | DS-C3

These pressure sensors are suitable for the safe measurement and monitoring of absolute and relative pressure in gases, vapours, liquids and dusts.

Pressure sensor DS-C1

- ❏ Absolute and relative pressure measurable up to 100 bar
- ❏ Reference accuracy 0,3%
- ❏ Very compact
- ❏ For use internationally

Pressure sensor DS-C2

- ❏ Absolute and relative pressure measurable up to 400 bar
- ❏ Reference accuracy 0,5%
- ❏ Very compact
- ❏ Integrated switching electronics for decentralized monitoring
- ❏ Incl. LED switch display

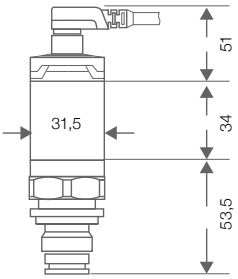
Pressure sensor DS-C3

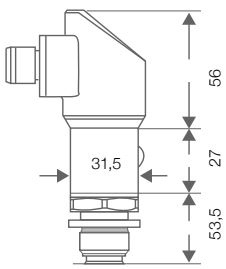
- ❏ Absolute and relative pressure measurable up to 100 bar
- ❏ Reference accuracy 0,5%
- ❏ Very compact
- ❏ Integrated switching electronics for decentralized monitoring
- ❏ Incl. LED switch display

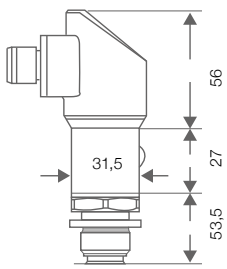
TECHNICAL DATA

DS-C1	DS-C2	DS-C3
Material	**Material:** Housing AISI 316L	**Material:** Housing AISI 316L
Housing of 316L (1.4404)	with electropolished surface	with electropolished surface
Process temperature	**Process temperature**	**Process temperature**
-40°C up to +100 °C	-40°C up to +100 °C	-40°C up to +100 °C
Ambient temperature	**Ambient temperature**	**Ambient temperature**
-40°C up to +85 °C	-20°C up to +70 °C	-20°C up to +70 °C
Measuring range	**Measuring range**	**Measuring range**
0…+100 bar	0…+400 bar	0…+100 bar
Measuring principle	**Measuring principle**	**Measuring principle**
Absolute and gauge pressure	Absolute and relative pressure	Absolute and relative pressure
Supply voltage	**Supply voltage**	**Supply voltage**
10…30 VDC	10…30 VDC	10…30 VDC
Power consumption / communication	**Power consumption / communication**	**Power consumption / communication**
4...20 mA	4...20 mA	4...20 mA
Protection class	**Protection class**	**Protection class**
IP 68	IP 65 / 67	IP 65 / 67
Process connection	**Process connection**	**Process connection**
Thread G1/2, EN 837	Thread G1/4, G1/2, DIN 13	Thread G1/4, G1/2, DIN 13
Weight	**Weight**	**Weight**
ca. 500g	ca. 500g	ca. 500g
Valve plug		
M16		

All dimensions in mm







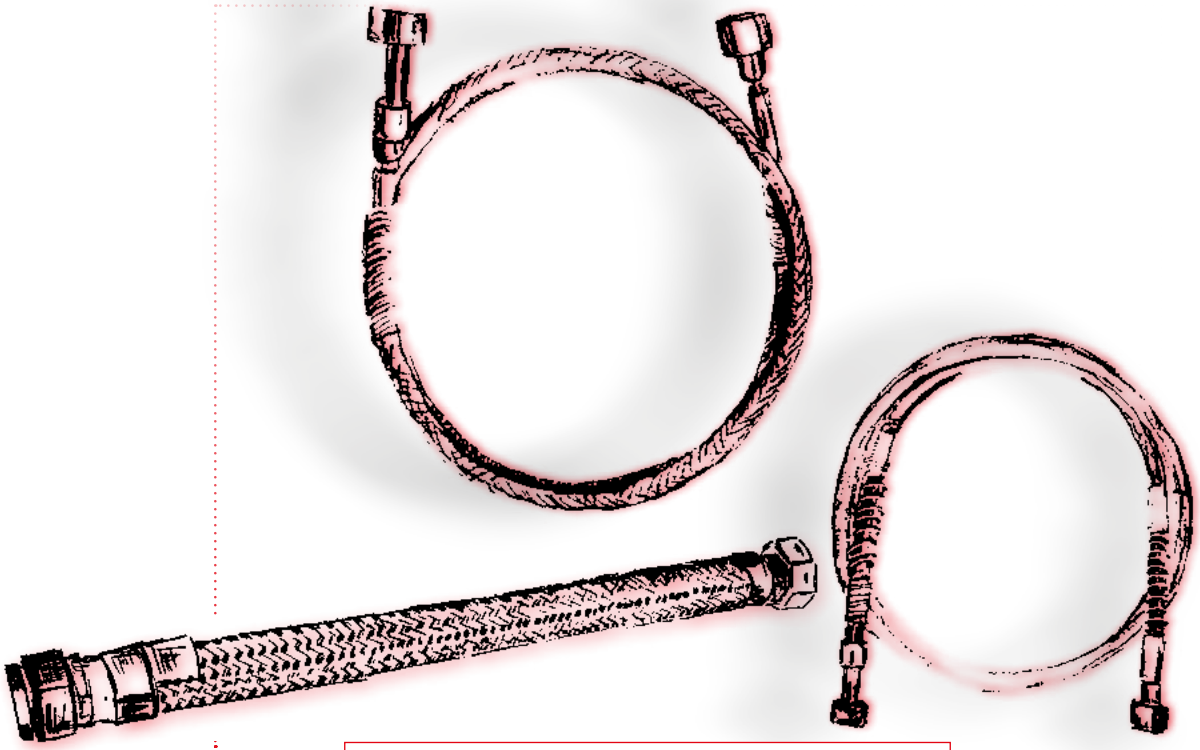
ORDER NUMBERS

Pressure sensor DS-C1	**Pressure sensor DS-C2**	**Pressure sensor DS-C3**
100 bar **R002773**	400 bar, incl. digital display **R002703**	100 bar, incl. digital display **R002742**

High pressure hoses

HDS-E | HDWS-E

Gas line for N_2 and Co_2



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems

CO_2 Low-pressure inerting systems

High pressure hoses

HDS-E | HDWS-E

The high-pressure hose systems are characterized by precision and safety. The operator is optimally protected by a fourfold safety at bursting pressure as well as anti-kink springs.

High pressure hose HDS-E

- With anti-kink spring on both sides
- Connection of N_2 bundle or CO_2 batteries to valve station
- 4-fold safety at burst pressure
- Braiding
- Ready for installation
- With gas type-specific fittings

High pressure hose HDWS-E

- Connecting hose for decoupling the tank
- With 2-fold braiding
- Ready for installation
- Extra heavy

TECHNICAL DATA

High pressure hose HDS-E	High pressure hose HDWS-E
Usage, medium	**Usage, medium**
Gas line from pipeline to valve station, N_2 / CO_2	Connection from tank to sample point, CO_2
Material	**Material**
Stainless steel | Polyamide	Stainless steel
Connection	**Connection**
Hexagon union nut with flat sealing connecting bolt Details see below, DIN 477-1	on both sides DRF flat sealing 1“ with PTFE-seal
Nominal width	**Nominal width**
DN6	DN25
Lenght	**Lenght**
10.000 mm, 3000 mm, 2000 mm, 1.500 mm, 750 mm	500 mm
Max. operating pressure	**Max. operating pressure**
200 bar	100 bar

ORDER NUMBERS

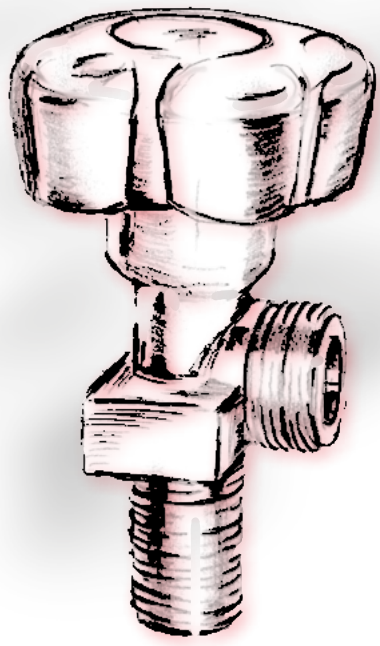
High pressure hose HDS-E1 PA, 750 mm, PN300, on both sides cap nuts W24, 32-RH, bds. St-verz.-hexagonal female threaded sleeve M16x1,5 if with screwed-in brass-connection W24,32x1/14" RH, DIN 477-1, FA 10 for N2-200 bar	**R002906**
High pressure hose HDS-E2 PA, 1.500 mm, PN300, on both sides cap nuts W24,32-RH, bds. St-verz.-hexagonal female threaded sleeve M16x1,5 if with screwed-in brass-connection W24,32x1/14" RH, DIN 477-1, FA 10 for N2-200 bar	**R002904**
High pressure hose HDS-E3 PA, 2.000 mm, PN300, on both sides cap nuts W21,8-RH, bds. St-verz.-hexagonal female threaded sleeve M16x1,5 if with screwed-in brass-connection W21,8x1/14" RH, DIN 477-1, FA 6 for Inert-200 bar	**R002903**
High pressure hose HDS-E4 VA, 750 mm, PN300, on both sides cap nuts W24,32-RH, bds. St-verz.-hexagonal female threaded sleeve M16x1,5 if with screwed-in brass-connection W24,32x1/14" RH, DIN 477-1, FA 10 for N2-200 bar	**R002905**
High pressure hose HDS-E5 VA, 1.500 mm, PN300, on both sides cap nuts W24,32-RH, bds. St-verz.-hexagonal female threaded sleeve M16x1,5 if with screwed-in brass-connection W24,32x1/14" RH, DIN 477-1, FA 10 for N2-200 bar	**R002755**
High pressure hose HDS-E6 VA, 3.000 mm, PN300, cap nuts W24,32-RH-ÜM G1/2" RH, fld., es VA-hexagonal female threaded sleeve M16x1,5 if with screwed-in brass-connection W24,32x1/14" RH, DIN 477-1, FA-10 for N2-200 bar, as. VA hexagon nutG1/2" RH	**R002754**
High pressure hose HDS-E7 VA, 10.000 mm, PN300, cap nuts W24,32 RH-ÜM G 1/2" RH, DIN 477-1, FA 10, VA square nut G1/2" RH	**R002902**
High pressure hose HDWS-E VA-1.4404, 500 mm, PN100 - extra heavy - DN25 x 500mm 1.4301	**R002756**

Further information on request

High-pressure angle valve

HDV-K

Release and interruption of gas flows



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems

CO_2 Low-pressure inerting systems

High-pressure angle valve
HDV-K

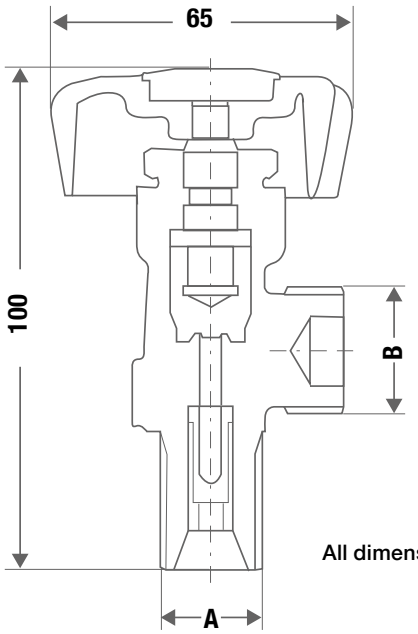
Angle valves are manually operated shut-off valves for releasing and interrupting gas flows.

High-pressure angle valve HDV-K

❏ Manual operation by handwheel

TECHNICAL DATA

Material	
Housing: Brass	
Seal: NBR, EPDM, PVDF	
Medium	
N2 or CO2	
Temperature range	
-20°C up to +65°C	
Operating pressure	
Up to nominal pressure PN 250 bar	
Connection	
G1/2" | G3/4"	
Weight	
Ca. 0,5 kg	



All dimensions in mm

Medium	Nitrogen	Carbon dioxide
Female thread A	G 1/2",	G 3/4
Male thread B	W24, 32 x 1/14	W21, 80 x 1/14

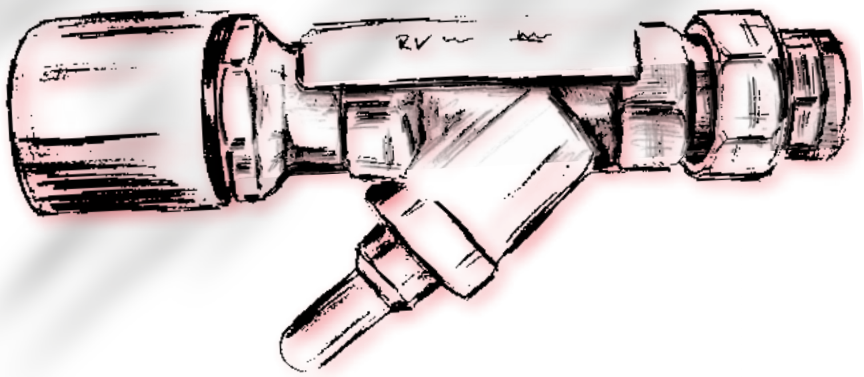
ORDER NUMBERS

High-pressure angle valve HDV-K	for N_2	**R002801**
High-pressure angle valve HDV-K	for CO_2, incl. locking nut	**R002802**

Complete set
Inerting nozzle KSI

Flat fan nozzle FSD-L | Non-return valve RSV-E

Set of fittings to regulate the injection of N_2 or CO_2



OPERATIONAL AREA

CO_2 / N_2 Inerting systems

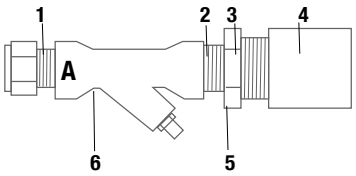
Complete set inerting nozzle KSI

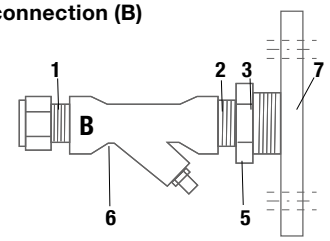
Flat fan nozzle FSD-L | Non-return valve RSV-E

Nozzle set for regulating N_2 or CO_2 injection.

Complete set inerting nozzle KSI

- ❏ Preassembled set consisting Flat spray nozzle and non-return valve
- ❏ Available with **Welding connection (A)** or **Flange connection (B)**



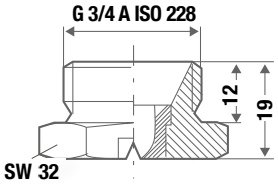


1. Screw connection for copper
2. Double nipple
3. Nozzle inside
4. Welding sleeve R 1 1/2".
5. Reduction non-return valve NW - 1 1/2" D
6. Non-return valve
7. Flange connection

Flat fan nozzle FSD-L

- ❏ Uniform, parabolic liquid distributiong
- ❏ Nozzle insensitive to clogging with high spray energy
- ❏ Compact design for confined installation conditions

Material
Brass
Angle of beam
60°
Weight
ca. per 75 g



Valve I Volumen (m³/h)

CO_2-valve

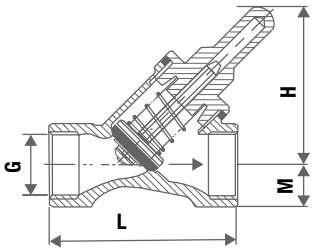
Größe	6 bar	12 bar	16 bar
3 x 60	13	30	45
4 x 60	20	50	70
5 x 60	45	85	115
6 x 60	70	135	190
8 x 60	120	225	310
9 x 60	150	290	390
10 x 60	185	360	480
12 x 60	290	550	730

N_2-valve

Größe	6 bar	12 bar	16 bar
3 x 60	27	53	71
4 x 60	48	96	128
5 x 60	78	156	209
6 x 60	127	255	340
8 x 60	191	382	509
10 x 60	300	600	800
12 x 60	440	880	1173

Non-return valve RSV-E

- ❏ Body consists of two screwed parts
- ❏ Al desired, please refer to flow direction



G	1/2	3/4	1
Dimensions in mm:			
L	65	76	90
H	46	58	76
M	14	16	21
Weight ca. kg:			
	0,3	0,4	0,6

Material	
Housing: Brass | Bonnet:Brass (Ms.58)	
Spring: Stainless steel 1.4310 | Seal: NBR	
Temperature range	
-20°C up to max +90°C	
Pressure range	
max. 16 bar	
Connection	
B.S.P. thread, G1/2 - G1 (DIN ISO 228 T1)	

ORDER NUMBERS

Complete set inerting nozzle KSI	preassembled socket 1 1/2"	**R002834**
Complete set inerting nozzle KSI	preassembled flange DN65_PN10	**R002835**
Complete set inerting nozzle KSI	preassembled flange DN50_PN10	**R002836**
Complete set inerting nozzle KSI	preassembled flange DN100_PN10	**R002837**

Ersatzteile

Flat spray nozzle

Flat fan nozzle 3x60	**R002838**
Flat fan nozzle 4x60	**R002839**
Flat fan nozzle 5x60	**R002840**
Flat fan nozzle 6x60	**R002841**
Flat fan nozzle 8x60	**R002842**
Flat fan nozzle 9x60	**R003035**
Flat fan nozzle 10x60	**R003036**
Flat fan nozzle 12x60	**R002843**

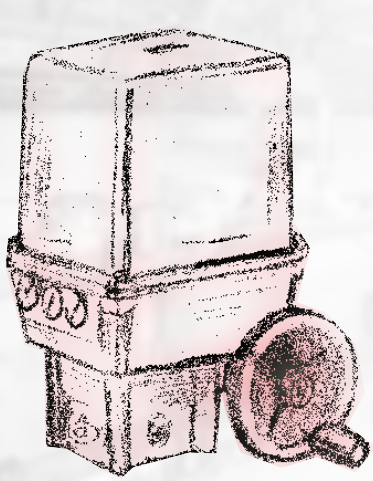
Non-return valve

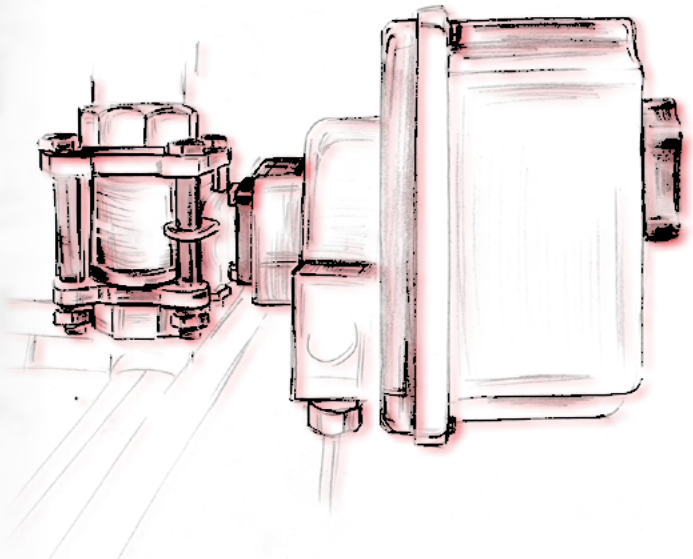
Non-return valve	1/2"	**R000656**
Non-return valve	3/4"	**R002372**
Non-return valve	1"	**R002976**

Complete set
Inerting valve

IVS-H | IVS-B with ball valve and actuator

Inerting





OPERATIONAL AREA

Co_2 / N_2 High-pressure inerting systems

Co_2 Low-pressure inerting systems

Complete set Inerting valve

IVS-H | IVS-B with ball valve and actuator

The inert gas reaches the corresponding consumers or system parts via the electrically driven inerting valves.

Complete set Inerting valve IVS-H

- ❏ Set completely pre-assembled
- ❏ Set consisting of rotary drive incl. position indicator, and ball valve

Actuator SA-H

- ❏ Designed for harsh industrial use
- ❏ Electrical activation
- ❏ Emergency operation with handwheel
- ❏ High positioning accuracy
- ❏ Any mounting position (NOT COVER DOWN)

Complete set Inerting valve IVS-B

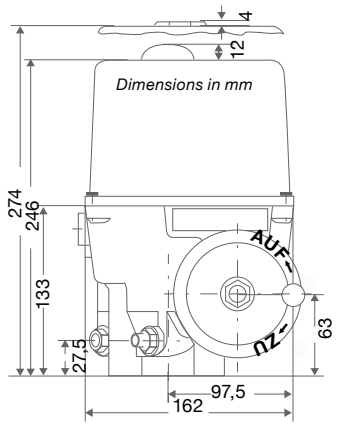
- ❏ Set completely pre-assembled
- ❏ Set consisting of rotary drive incl. position indicator, and ball valve

Actuator SA-B

- ❏ Electrical activation
- ❏ Emergency operation with handwheel
- ❏ Any mounting position (NOT COVER DOWN)

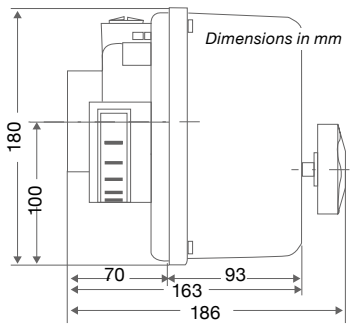
TECHNICAL DATA OF ACTUATOR

Ambient temperature	
-20°C up to +60 °C	
Wight	
ca. 5,5–6 kg	
Supply voltage	
24 VDC, 230 VAC, 110VAC, further on request	
Electr. Connection	
Terminal strip inside	
Mech. Connection	
Flange ISO 5211	
Protection class	
IP 67	



*Dimension of actuator **incl.** ball valve*
ca.: 180b x 229h x 324–386d

Ambient temperature	
-25°C up to +70 °C	
Wight	
ca. 2,5–3 kg	
Supply voltage	
24 VDC, 230 VAC, 110VAC, further on request	
Electr. Connection	
Terminal strip inside	
Mech. Connection	
Flange ISO 5211	
Protection class	
IP 65	



*Dimension of actuator **incl.** ball valve*
ca.: 146b x 180h x 265–327d

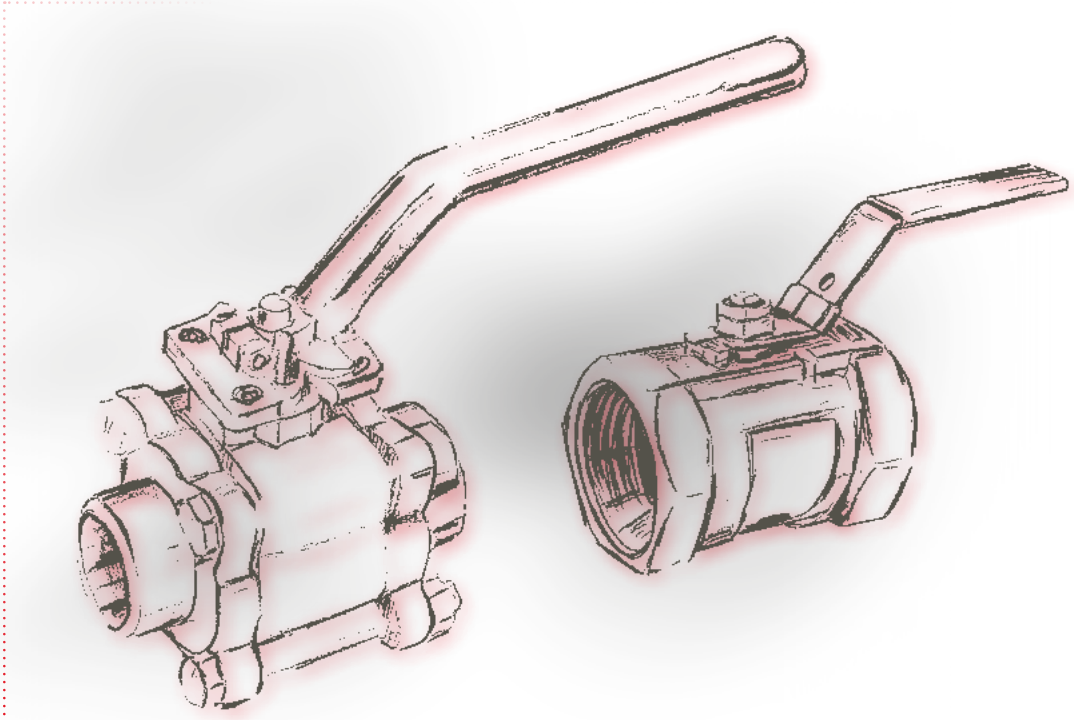
ORDER NUMBERS

Complete set Inerting valve IVS-H1	Voltage 24VDC, DN 20 PN63	**R002736**
Complete set Inerting valve IVS-H2	Voltage 24VDC, DN 25 PN63	**R002737**
Complete set Inerting valve IVS-H3	Voltage 24VDC, DN 32 PN63	**R002738**
Complete set Inerting valve IVS-H4	Voltage 24VDC, DN 40 PN63	**R002739**
Complete set Inerting valve IVS-H5	Voltage 24VDC, DN 50 PN63	**R002740**
Complete set Inerting valve IVS-H6	Voltage 230VAC, DN 20 PN63	**R002933**
Complete set Inerting valve IVS-H7	Voltage 230VAC, DN 25 PN63	**R002934**
Complete set Inerting valve IVS-H8	Voltage 230VAC, DN 32 PN63	**R002935**
Complete set Inerting valve IVS-H9	Voltage 230VAC, DN 40 PN63	**R002936**
Complete set Inerting valve IVS-H10	Voltage 230VAC, DN 50 PN63	**R002937**
Complete set Inerting valve IVS-H11	Voltage 110VAC, 60 Hz, DN 25 PN63	**R002777**
Complete set Inerting valve IVS-H12	Voltage 110VAC, 60 Hz, DN 32 PN63	**R002743**
Complete set Inerting valve IVS-H13	Voltage 110VAC, 60 Hz, DN 40 PN63	**R002938**
Complete set Inerting valve IVS-B1	Voltage 24VDC, DN 15 PN63	**R002908**
Complete set Inerting valve IVS-B2	Voltage 24VDC DN 20 PN63	**R002860**
Complete set Inerting valve IVS-B3	Voltage 24VDC, DN 25 PN63	**R002820**
Complete set Inerting valve IVS-B4	3-way, Voltage 24VDC, DN 25 PN63	**R002909**
Complete set Inerting valve IVS-B5	Voltage 24VDC, DN 32 PN63	**R002819**
Complete set Inerting valve IVS-B6	Voltage 24VDC, DN 40 PN63	**R002818**
Complete set Inerting valve IVS-B7	Voltage 24VDC, DN 50 PN63	**R002910**
	Equipment	
Sealing kit for ball valve	DN20	**R002888**
Sealing kit for ball valve	DN25	**R002891**
Sealing kit for ball valve	DN32	**R002890**
Sealing kit for ball valve	DN40	**R002889**
Electrical actuator SA-H		**R002939**
Double bracket & shaft extension for electrical ball valve SA-H		**R002925**
Electrical actuator SA-B		**R002911**
Double bracket & shaft extension for electrical ball valve SA-B		**R002912**

Ball valve

KH-G | KH-B | KH-E

For shutting off pipelines



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems

CO_2 Low-pressure inerting systems

Ball valve

KH-G | KH-B

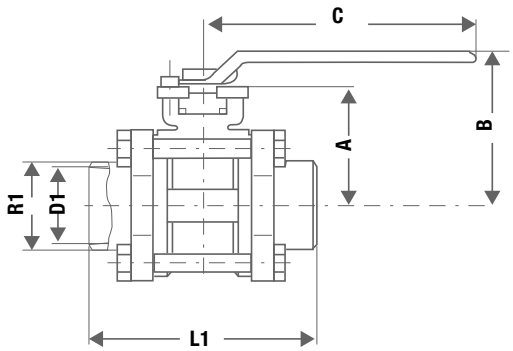
Ball valves are used to shut off and open ball valves. The robecco ball valves are all made of stainless steel.

Ball valve KH-G for use in CO_2 High-pressure systems !

- ❏ Ball valve for welding in
- ❏ Short version
- ❏ Three-piece housing
- ❏ Operation by hand lever
- ❏ Pressure rating up to PN 125 bar
- ❏ Nominal width DN up to 40
- ❏ Ball with floating bearing
- ❏ Vacuum-tight

TECHNICAL DATA

Material
Stainless steel 1.4408
Medium
Liquid and gaseous
Pressure range
PN 125 bar
Connection
Welding ends
Nominal width
DN 20, 25, 32, 40



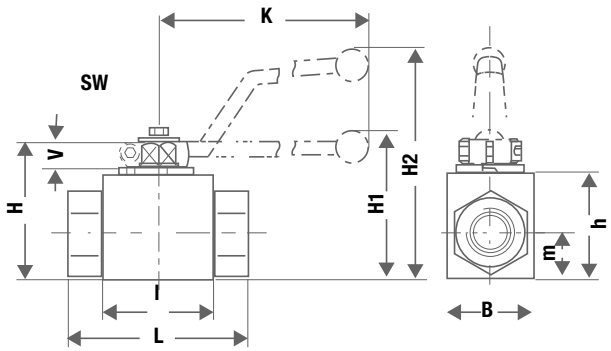
	DN 20	DN25	DN32	DN40
Dimensions in mm:				
A	46	50	61	66
B	65	70	80	85
C	40	140	150	150
ØD1	22,3	28	37	42,8
L1	90	100	110	125
ØR1	28	34	43	49
Wight:				
Kg ca.	1,0	1,5	2	3

Ball valve KH-B for use in N_2 High-pressure systems !

- ❏ Use for inerting with nitrogen
- ❏ DN 20 / DN 25

TECHNICAL DATA

Material
Housing: Steel | Ball: Stainless steel AISI 316
Control shaft: Stainless steel AISI 316
Medium
Liquid and gaseous
Temperature range
-30°C – + 100°C
Pressure range
PN 315 bar
Connection
Sleeves
Wight
ca. 1,5 / 2,5 kg



	DN 20	DN25
Dimension in mm:		
L	95	113
l	62	66
B	49	58
H	75	83
h	57	65
m	24,5	29,5
V	14	14
SW	14	14
K	200	200
H1	79	87
Wight:		
Kg ca.	1,5	2,5

ORDER NUMBERS

Ball valve KH-G	**DN20**	**R002704**
Ball valve KH-G	**DN25**	**R002705**
Ball valve KH-G	**DN32**	**R002706**
Ball valve KH-G	**DN40**	**R002707**
Sealing kit for ball valve KH-G	**DN20**	**R002961**
Sealing kit for ball valve KH-G	**DN25**	**R002816**
Sealing kit for ball valve KH-G	**DN32**	**R002810**
Sealing kit for ball valve KH-G	**DN40**	**R002926**
Ball valve KH-B	**DN20**	**R002858**
Ball valve KH-B	**DN25**	**R002859**

Ball valve

KH-E

Ball valves are used to shut off and open ball valves. The robecco ball valves are all made of stainless steel.

Ball valve KH-E-1 for use in CO_2 Low-pressure systems !

- ❏ Ball valve for welding in or with screw thread
- ❏ Three-piece housing
- ❏ Operation by hand lever
- ❏ Pressure rating up to PN 64 bar
- ❏ Two way ball valve

TECHNICAL DATA

Material
Stainless steel 1.4408

Medium
Gaseous

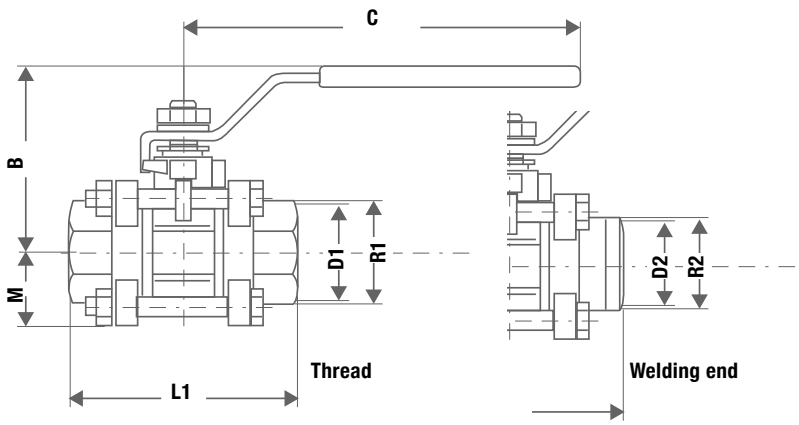
Temperature range
-30°C – +180°C

Pressure range
up to PN 40 bar or up to PN 64 bar

Connection
Welding ends | Screw thread

Connection size
3/4", 1", 1 1/4", 1 1/2", 2 " | DN 20, 25, 32, 40, 50

Wight
1–3,5 kg je typ



Dimensions of thread:

ØR1	3/4"	1"	1 1/4""	1 1/2"	2"
B	59	70	76	90	99
C	101,5	126,5	126,5	161,5	161,5
ØD1	20	24,5	32	38	50
L1	80	90	110	120	140
M	25	29	33	39	46
PN	**64**	**64**	**40**	**40**	**40**
kg ca.	**0,6**	**0,9**	**1,3**	**2,1**	**3,5**

Dimensions of welding end:

Nominal width:	DN20	DN25	DN32	DN40	DN50
B	59	70	76	90	99
C	101,5	126,5	126,5	161,5	161,5
ØD2	20	24,5	32	38	50
L1	90	100	110	125	150
M	25	29	33	39	47
R2	26,9	33,7	42,4	28,3	60,3
PN	**64**	**64**	**40**	**40**	**40**
kg ca.	**0,6**	**0,9**	**1,3**	**2,1**	**3,3**

ORDER NUMBERS

Ball valve KH-E-1 3/4"	**PN64 threaded connection**	**R002954**
Ball valve KH-E-1 1"	**PN64 threaded connection**	**R002710**
Ball valve KH-E-1 1 1/4"	**PN40 threaded connection**	**R002711**
Ball valve KH-E-1 1 1/2"	**PN40 threaded connection**	**R002821**
Ball valve KH-E-1 2"	**PN40 threaded connection**	**R002709**
Ball valve KH-E-1 DN20	**PN64 welded connection**	**R002957**
Ball valve KH-E-1 DN25	**PN64 welded connection**	**R002956**
Ball valve KH-E-1 DN32	**PN40 welded connection**	**R002955**
Ball valve KH-E-1 DN40	**PN40 welded connection**	**R002712**
Ball valve KH-E-1 DN50	**PN40 welded connection**	**R002822**

Ball valve

KH-E

Ball valves are used to shut off and open ball valves. The robecco ball valves are all made of stainless steel.

Ball valve KH-E-2 | KH-E-3

- ❏ Ball valve with screw thread
- ❏ One-piece housing | Two-piece housing
- ❏ Operation by hand lever
- ❏ Pressure rating up to PN 63 bar
- ❏ 2 way ball valve

TECHNICAL DATA

Material
Stainless steel 1.4408

Medium
Gaseous

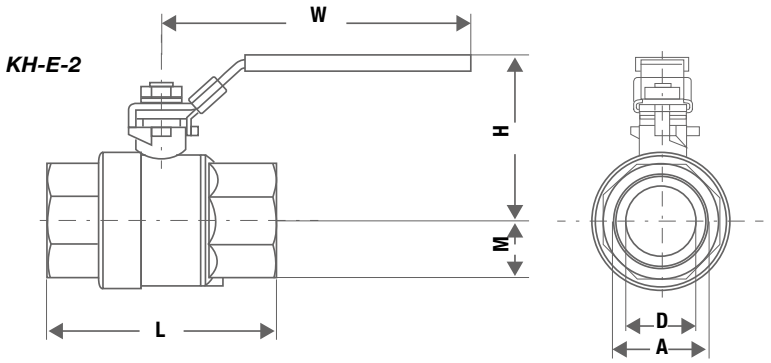
Temperature range
-25°C – +180°C

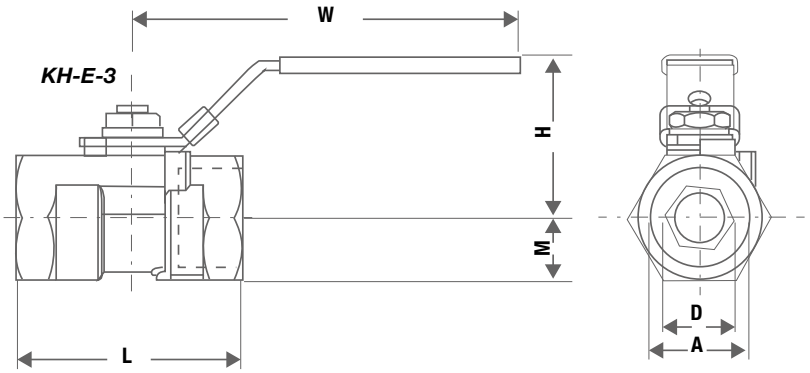
Pressure range
up to PN 63 bar

Connection
Screw thread

Dimension of connection
1/2"

Wight
0,32 kg | 0,16 kg





Dimensions:

	KH-E-2	KH-E-3
A	1/2"	1/2"
DØ	15	9
L	75	55,6
H	62	34,4
M	17	12,5
W	123	95
PN	64	64
Kg ca.	0,32	0,16

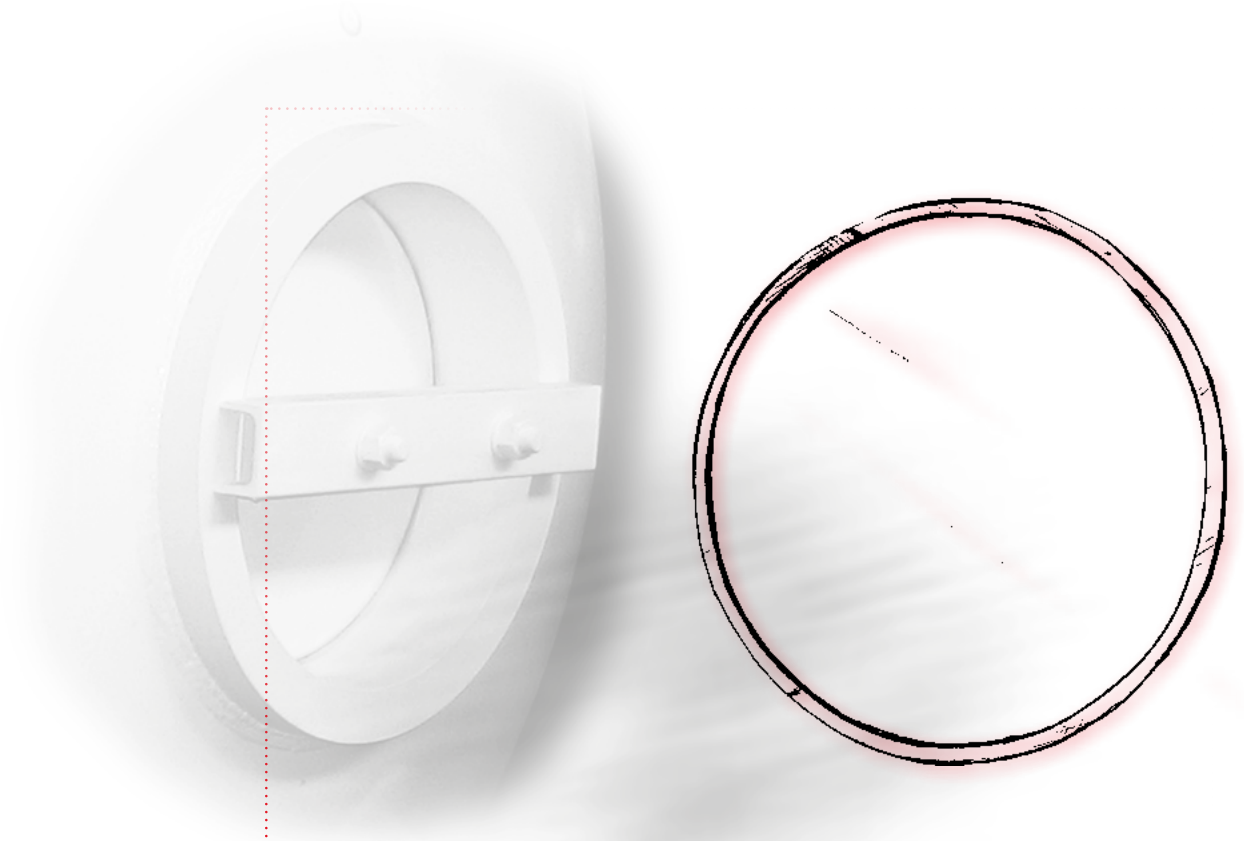
ORDER NUMBERS

Ball valve KH-E-2	**1/2" PN64 threaded connection**	**R002708**
Ball valve KH-E-3	**1/2" PN64 threaded connection**	**R002825**

Manhole seal

BMD

Seals for use on high-pressure vessels



OPERATIONAL AREA

CO_2 High-pressure inerting systems

Manhole seal
BMD

Spare part for high pressure vessels

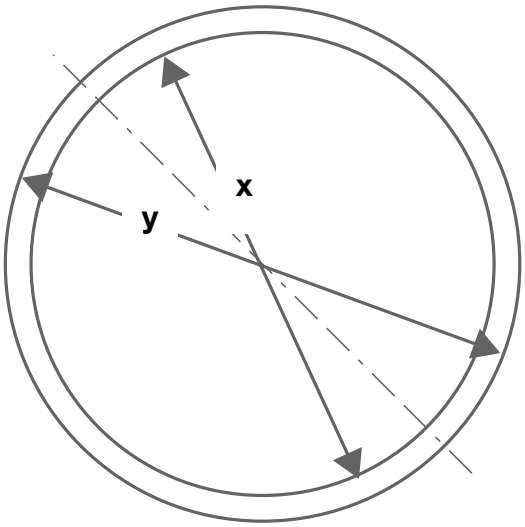
Manhole seal BMD

❏ Very durable

Dimensions standard:
x: Ø 480 mm inner diameter
y: Ø 492 mm outer diameter

Dimensions 450/510:
x: Ø 450 mm inner diameter
y: Ø 510 mm outer diameter

Material
Klinger C 4430



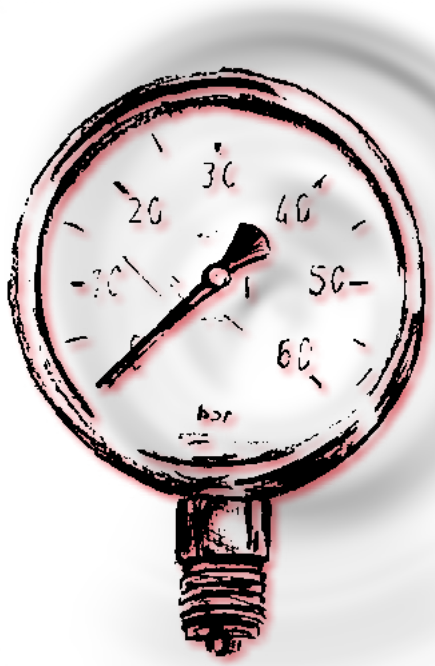
ORDER NUMBERS

Manhole seal BMD-1	for high-pressure vessel standard	**R002799**
Manhole seal BMD-2	for high-pressure vessel; diameter 450/510	**R002800**

Pressure gauge

MM-P

Pressure monitoring in pipelines



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems
CO_2 Low-pressure inerting systems

Pressure gauge

MM-P

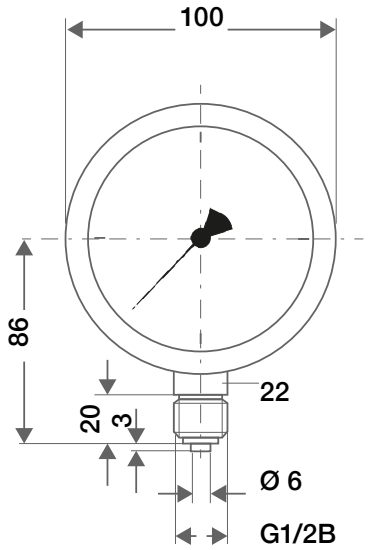
The pressure gauge is used to monitor the pressure of gasous and liquid, non-crystallizing and not highly viscous media. It can be used for low pressure, normal pressure and high pressure.

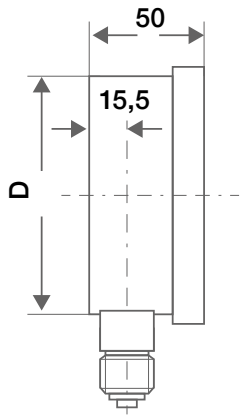
Pressure gauge MM-P

- ❏ Equipped with a mechanical Bourdon tube measuring element
- ❏ Stainless steel
- ❏ Display range 0 – 160 bar selectable

TECHNICAL DATA

Material
Housing: Stainless steel, CrNi-steel 1.4301
Material dial and pointer: Aluminium
Wetted Parts Stainless Steel: CrNi-steel 1.4571
Cover glass: Safety laminated glass
Medium
Liquid and gaseous media
Permissible medium temperature
-20 ° – +130°C
Permissible ambient temperatur
-20 ° – +60°C
Process connection
NG 100 G 1/2" B, radial
Protection class (EN 60529)
IP 54
Wight
ca. 0,6 kg
Measuring accuracy (EN 837)
Class 1,0





Dimensions in mm indication

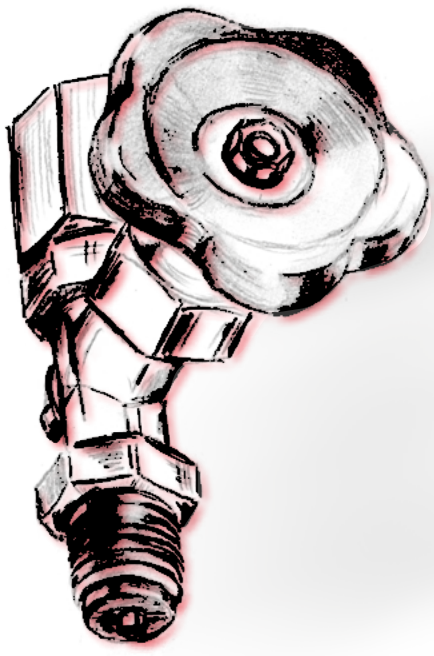
ORDER NUMBERS

Pressure gauge MM-P	Vacuum ranges 0 - 5 bar	**R002970**
Pressure gauge MM-P	Vacuum ranges 0 - 10 bar	**R002817**
Pressure gauge MM-P	Vacuum ranges 0 - 25 bar	**R002815**
Pressure gauge MM-P	Vacuum ranges 0 - 40 bar	**R002971**
Pressure gauge MM-P	Vacuum ranges 0 - 100 bar	**R002809**
Pressure gauge MM-P	Vacuum ranges 0 - 160 bar	**R002972**

Pressure gauge valve

MMV-B

Shutting off pressure measuring devices
in emergencies and for repairs



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems
CO_2 Low-pressure inerting systems

Pressure gauge valve

MMV-B

robecco pressure gauge valves are used to shut off pressure gauges in inerting systems.

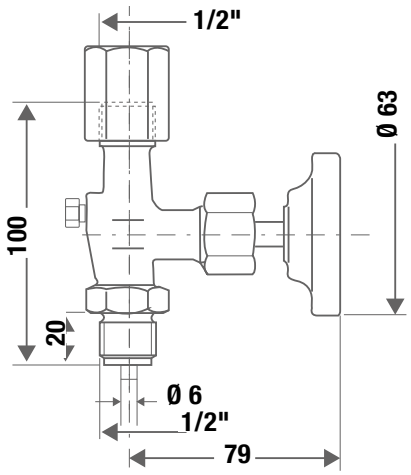
Pressure gauge valve MMV-B

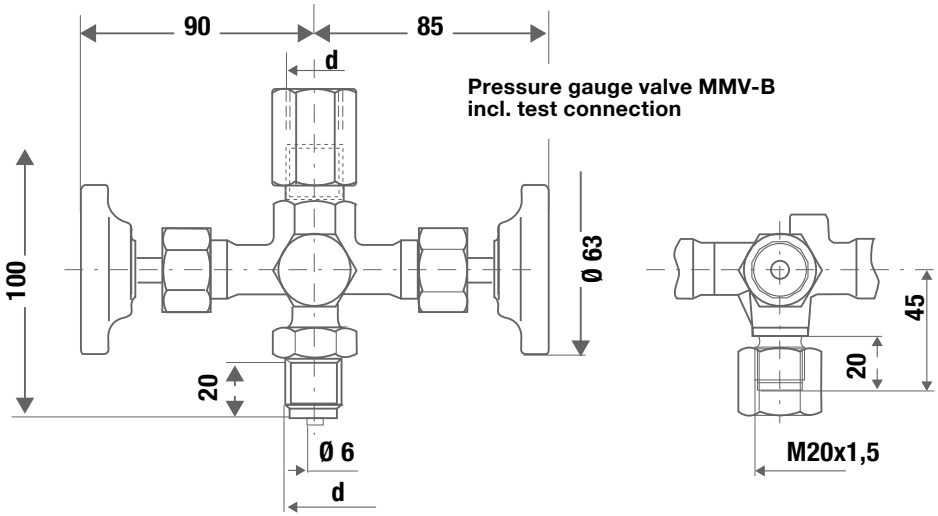
- ❏ Internal stem thread
- ❏ Stem with cold rolled surface and non-rotating needle tip
- ❏ Valves are operated by hand

TECHNICAL DATA

Material
Body: Messing
Valve stem and valve tip: Stainless steel 1.4104
Union nut and adjusting nut: Steel
Swivel nut: Brass
Handwheel: plastic
Temperature range
-10°C up to max. +120°C
Operation pressure
Up to nominal pressure PN 250 bar
Connection
G1/2"
Wight
ca. 0,8 kg
Actuation
Turning the handwheel
Clockwise closing

Pressure gauge valve MMV-B





Pressure gauge valve MMV-B incl. test connection

Dimensions in mm specification

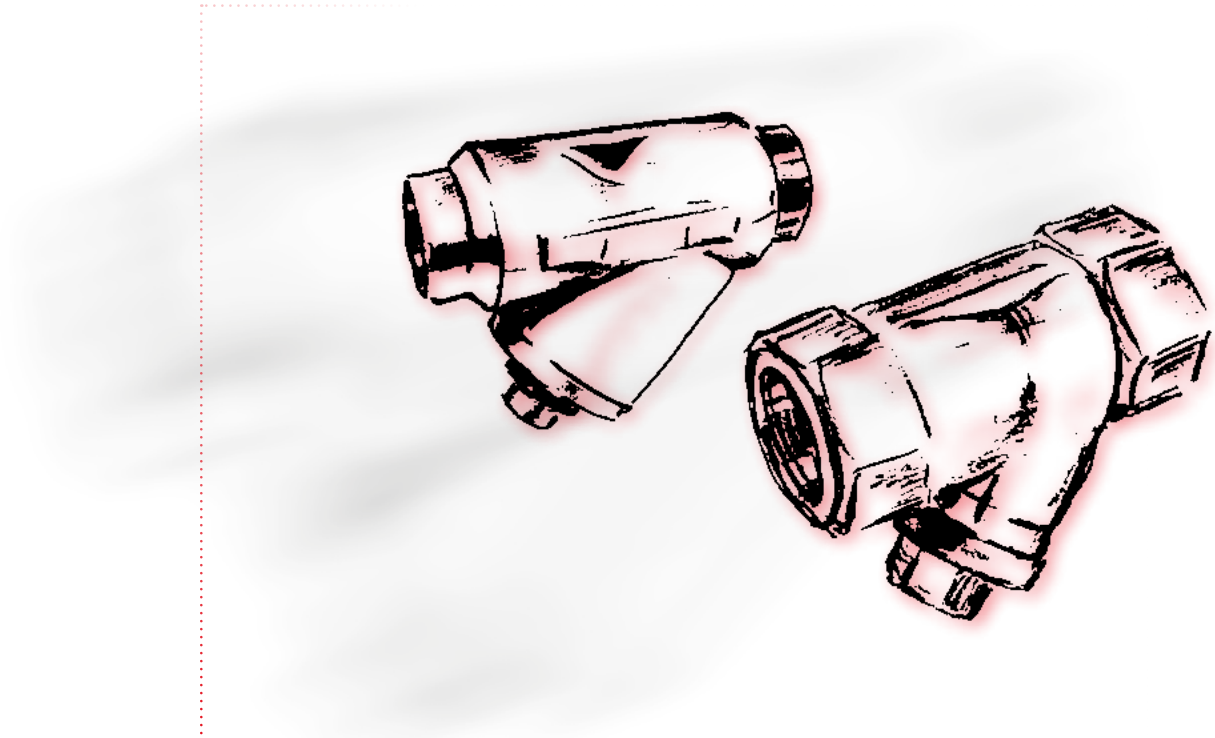
ORDER NUMBERS

Pressure gauge valve MMV-B	G 1/2"	**R002844**
Pressure gauge valve MMV-B	G 1/2", incl. test connection	**R002845**

Strainer

SF-E | SF-G

Filtration of impurities from pipelines



OPERATIONAL AREA

CO_2 High-pressure inerting systems
CO_2 Low-pressure inerting systems

Strainer

SF-E | SF-G

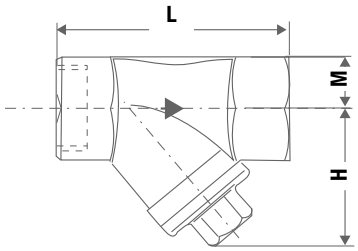
Strainers are used to filter out impurities from pipelines.
The cleaning effect of these types depends on the size of the mesh.

Strainer SF-E (LOW PRESSURE)

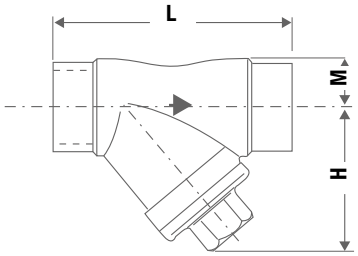
- ❏ Body exists of two (screwed) parts
- ❏ Stainless steel
- ❏ Bonnet upside down, please refer to flow direction
- ❏ Use after pressure reduction in LOW PRESSURE systems

Material
Entry housing: Stainless steel
Bonnet: Stainless steel
Mesh: Stainless steel
Seal: PTFE
Permissible temperature range
-30°C up to max. +180°C
Mesh size
0,25
Nominal pressure
max. 40 bar

Threaded connection



Welded connection

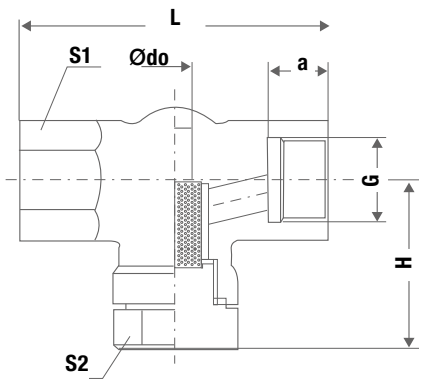


Nominal size DN	Thread G	Length L	Hight H	M
25	1"	90	57,5	18,5
32	1 1/4"	110	65	23
40	1 1/2"	120	74	26,5

Strainer SF-G (HIGH PRESSURE)

- ❏ Stainless steel
- ❏ High-pressure fitting
- ❏ Use after pressure reduction in HIGH PRESSURE systems

Material
Housing: Chrome steel 1.4021
Stake: 1.0715.07
Filter: 1.4301I
Permissible temperature range
-40°C– +400°C
Mesh size
0,25
Nominal pressure
250 bar



Nominal size DN	Thread G	Face to face dim.L	Hight H	Soccet depth a	flow diam. do	widht across flats S1	widht across flats S2	Wight
20	1"	130	65	19,1	18	46	41	ca. 1,5 kg
25	1 1/4"	160	80	21,4	25	60	50	ca. 3,3 kg

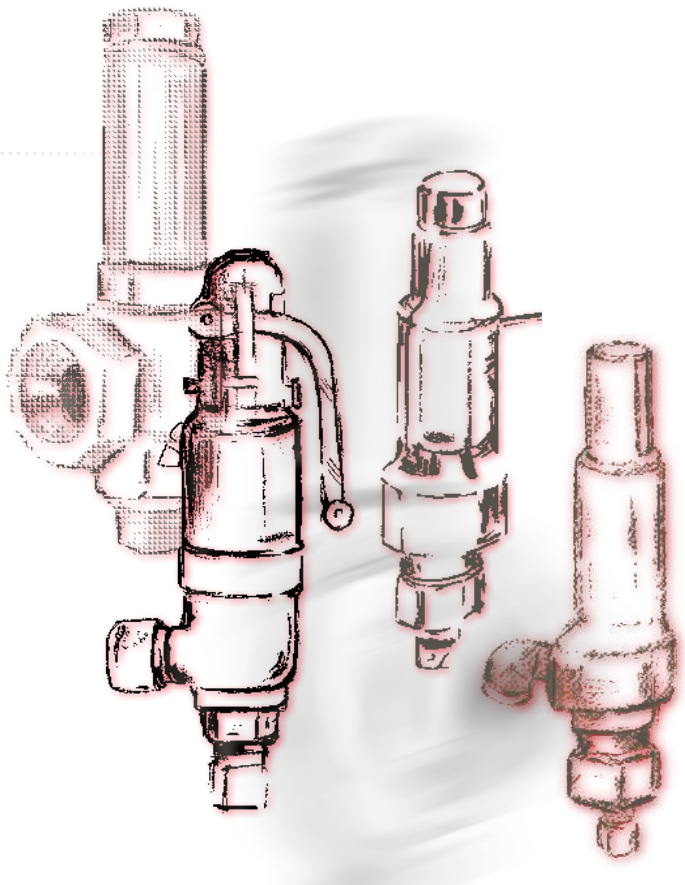
ORDER NUMBERS

Strainer SF-E	1", with Screw connection	**R002980**
Strainer SF-E	1 1/4", with Screw connection	**R002979**
Strainer SF-E	1 1/2", with Screw connection	**R002982**
Strainer SF-E	1 1/4", with welded connection	**R002981**
Strainer SF-G	1"	**R002700**
Strainer SF-G	1 1/4"	**R002702**

Safety valves

SV-H1 | SV-L1 | SV-L2 | SV-L3

Valves for protection against pressure rise



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems
CO_2 Low-pressure inerting systems

Safety valves

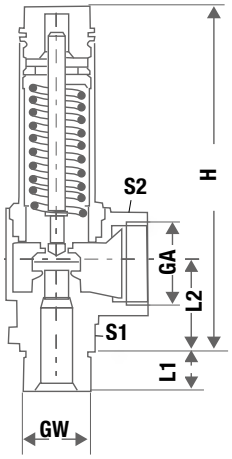
SV-L1 | SV-H1

A safety valve is a valve which opens automatically to prevent a predetermined gauge pressure being exceeded and which recloses after decrease in pressure. Intended as a safety device against impermissible excess pressure in stationary and mobile pressurized gas containers. **In closed rooms, blow-off lines must be led from all safety valves to the outside, and robecco gas warning systems must be installed.** Each robecco safety valve is delivered with a valid acceptance certificate from the ZÜS. (Zugelassene Überwachungsstelle)

Safety valve SV-H1

- ❏ Closed bonnet
- ❏ Permitted for cryogenic gases such as oxygen and nitrogen

Material
Brass PN 40
Inletbody: Stainless steel
Obturator with coal filled PTFE valve seal
Permissable temperature range
-196°– +185°C
Wight
ca. 0,80 kg



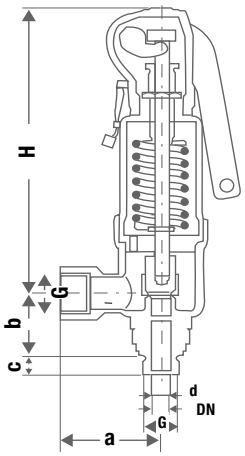
Pressure stages
10 bar
20 bar
25 bar
32 bar
40 bar

Dimensions	
Nom. size GW: 3/4"	Key size S1: ca. 30 mm
Hight H: ca. 140 mm	Key size S2: ca. 41 mm
Length L1: ca.16 mm	Outlet GA: ca.1"
Length L2: ca.36 mm	

Safety valve SV-L1

- ❏ Bonnet
- ❏ Permitted for gases and steam

Material
Bronze PN 40
Inletbody: Stainless steel
Obturator with coal filled PTFE valve seal
Permissable temperature range
-10°– +300°C
Wight
ca. 2,6 kg
Pressure stages
80 bar



Dimensions	
Hight H: ca. 230 mm	Nominal diameter: DN 15
together with bellows 45 mm	Entrance cone G 3/4"
Centre to face: a 75 mm | b 50 mm	Outlet socket G 1"
Pin lenght: c 16 mm	

ORDER NUMBERS

Safety valve SV-H1	¾“, d07, 10 bar	**R002776**
Safety valve SV-H1	¾“, d07, 20 bar	**R002775**
Safety valve SV-H1	¾“, d07, 25 bar	**R002928**
Safety valve SV-H1	¾“, d07, 32 bar	**R002774**
Safety valve SV-H1	¾“, d07, 40 bar	**R002732**
Safety valve SV-L1	¾“, VA, 80 bar	**R002734**

Safety valves

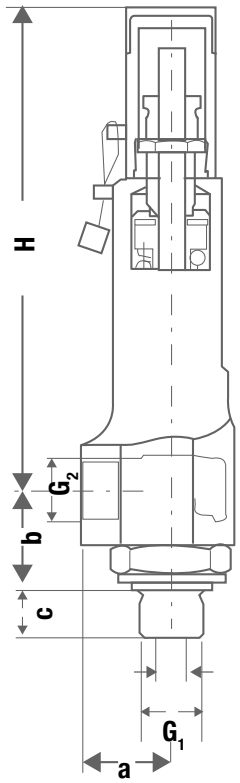
SV-L2 | SV-L3

A safety valve is a valve which opens automatically to prevent a predetermined gauge pressure being exceeded and which recloses after decrease in pressure. Intended as a safety device against impermissible excess pressure in stationary and mobile pressurized gas containers. **In closed rooms, blow-off lines must be led from all safety valves to the outside, and robecco gas warning systems must be installed.** Each robecco safety valve is delivered with a valid acceptance certificate from the ZÜS. (Zugelassene Überwachungsstelle)

Safety valve SV-L2

- ❏ Closed bonnet
- ❏ Permitted for gases and steam

	Material
	Stainless steel
	Inletbody: Stainless steel
	Permitted temperature range
	-10 – +300°C
Pressure stages	**Wight**
	ca. 1,6 kg
10 bar	**Max. set pressure**
20 bar	180 bar
40 bar	
Dimensions	
Hight H: ca. 158 mm	Nominal diameter: DN 10
Centre to face: a 30 mm | b 33 mm	Entrance cone G_1 1/2 | G_1 3/4
Pin lenght: c 16 mm	Outlet socket G_2 1/2



Safety valve SV-L3

- ❏ Closed bonnet
- ❏ Permitted for gases and steam

	Material
	Stainless steel, corrosion-proof
	Inletbody: Stainless steel
	Permitted temperature range
	-270 – +400°C
Pressure stages	**Wight**
240 bar	ca. 1,6 kg
Dimensions	
Hight H: ca. 158 mm	Nominal diameter DN 6
Centre to face: a 30 mm | b 33 mm	Entrance cone $G_1$1/2 | G_1 3/4
Pin lenght: c 16 mm	Outlet socket G_2 1/2
	Smallest Flow area 28,3 mm^2
	Smallest Flow diameter 6 mm

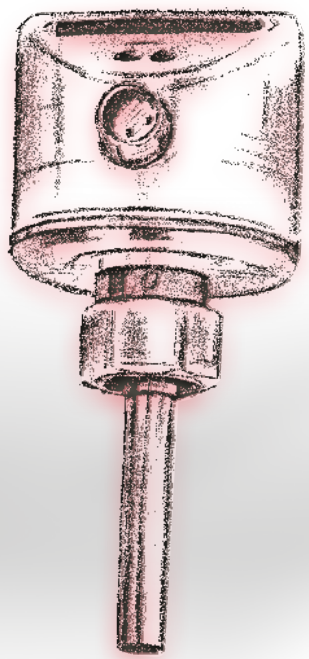
ORDER NUMBERS

Safety valve SV-L2	3/4", VA, 10 bar	**R002983**
Safety valve SV-L2	3/4", VA, 20 bar	**R002984**
Safety valve SV-L2	3/4", VA, 40 bar	**R002985**
Safety valve SV-L2	3/4", VA, 100 bar	**R002733**
Safety valve SV-L3	1/2“, VA, 240 bar	**R002735**

Flow sensor

SW-I

Monitoring of the flow condition
in pipelines



OPERATIONAL AREA

CO_2 / N_2 High-pressure inerting systems

CO_2 Low-pressure inerting systems

Flow sensor

SW-I

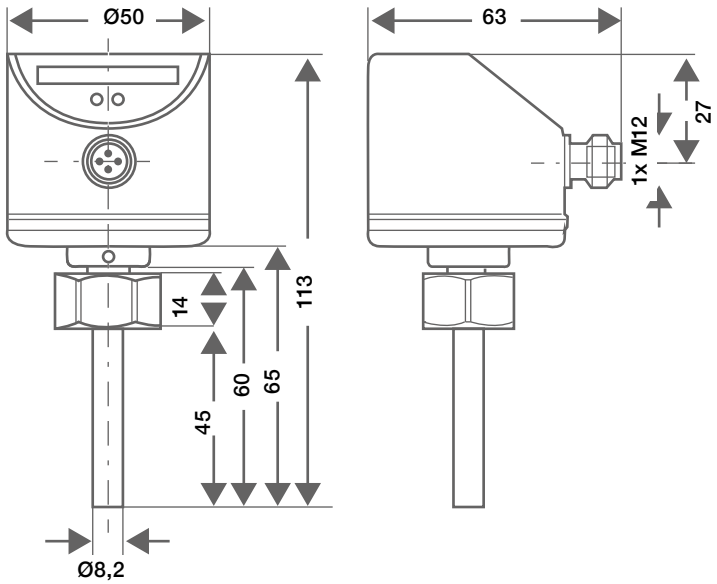
This sensor is used to monitor the flow condition of liquid and gaseous media in pipelines.

Flow sensor SW-I

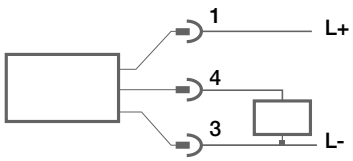
- ❏ Can be used in harsh industrial environments
- ❏ Variable process connection via adapter
- ❏ Simple setting of switching points for fast commissioning
- ❏ LED bar graph for display of switching point and flow status

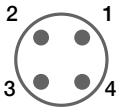
TECHNICAL DATA

Material	
Housing: Stainless steel 1.4301, PC (Makrolom), PBT-GF20	
Media	
liquid | gaseous	
Temperature range	
-25°C up to +80°C	
Weight	
ca. 250 g	
Operating voltage V	
19...36 DC	
Compressive strength	
300 bar	
Process connection	
1/2"	
Protection class	
IP 67, III	
Electr. connection	
Plug connection: 1 x M12	
Standard	
EN 61000-6-2	



Connection assignment





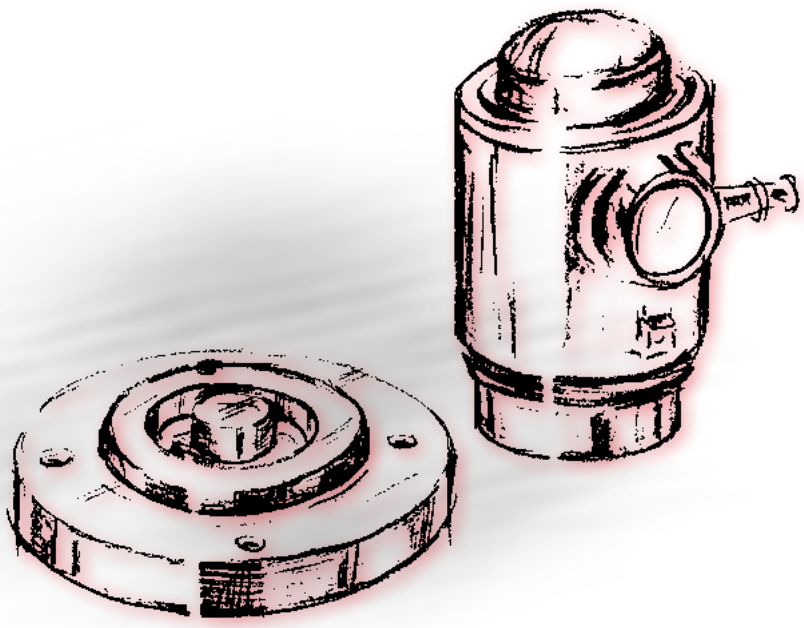
ORDER NUMBER

Flow sensor SW-I	**R002701**

Load cells

WZ-S | WZ-SP

designed for weighing vessels



OPERATIONAL AREA

CO_2 High-pressure inerting systems
CO_2 Low-pressure inerting systems

Load cells

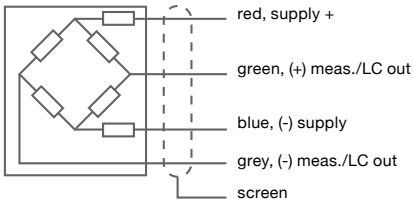
WZ-S

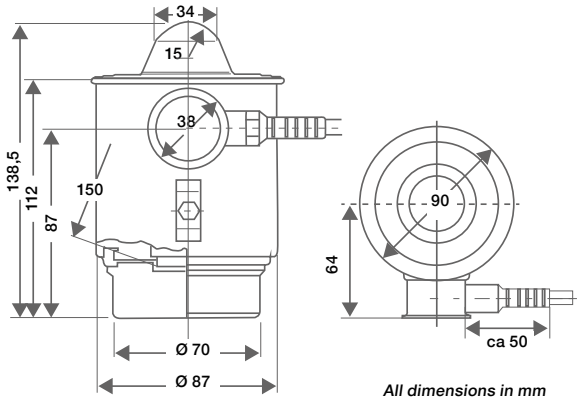
Load cells are designed for weighing vessels.

Load cell WZ-S

- ❏ Insert for high pressure vessel
- ❏ Easy installation
- ❏ Stainless steel
- ❏ Due to “matched output” technology, a damaged load cell can be exchanged without the need for re-calibration.

Material
Housing: Stainless steel
Temperature range
-10° C up to +55° C
Weight
ca. 2,00 –2,5 Kg
Protection class
IP 68
Output
1 od 2 mV/V
Pressure force
per Typ 5 t / 10 t
Nominal supply voltage
4... 24 VDC



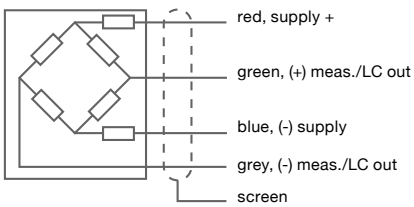


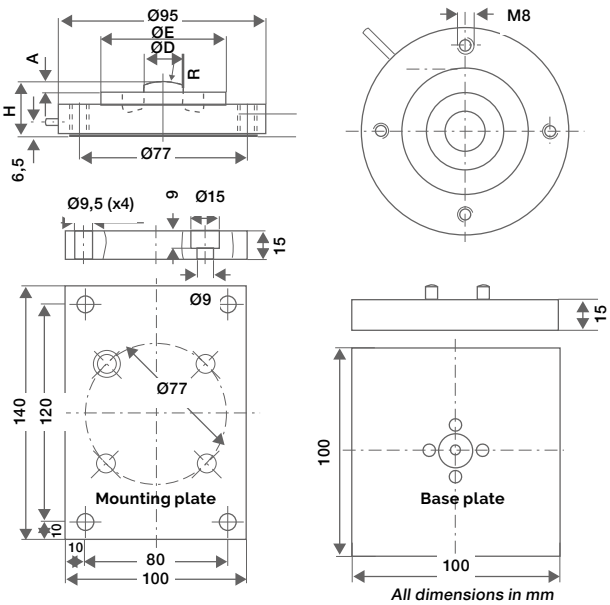
All dimensions in mm

Load cell WZ-SP

- ❏ Insert for low pressure vessels and S-Batteries
- ❏ Very asy installation
- ❏ Stainless steel
- ❏ Compact installation height 25 /35 mm

Material
Housing: Stainless steel
Temperature range
-10°C up to +70°C
Weight
ca. 0,9 –1,2 Kg
Protection class
IP68
Output
1 od 2 mV/V
Pressure force
per Typ 2t / 5 t / 10 t
Nominal supply voltage
4... 24 V
Dimensions
Ø 95 mm x 25 / 35 mm H





All dimensions in mm

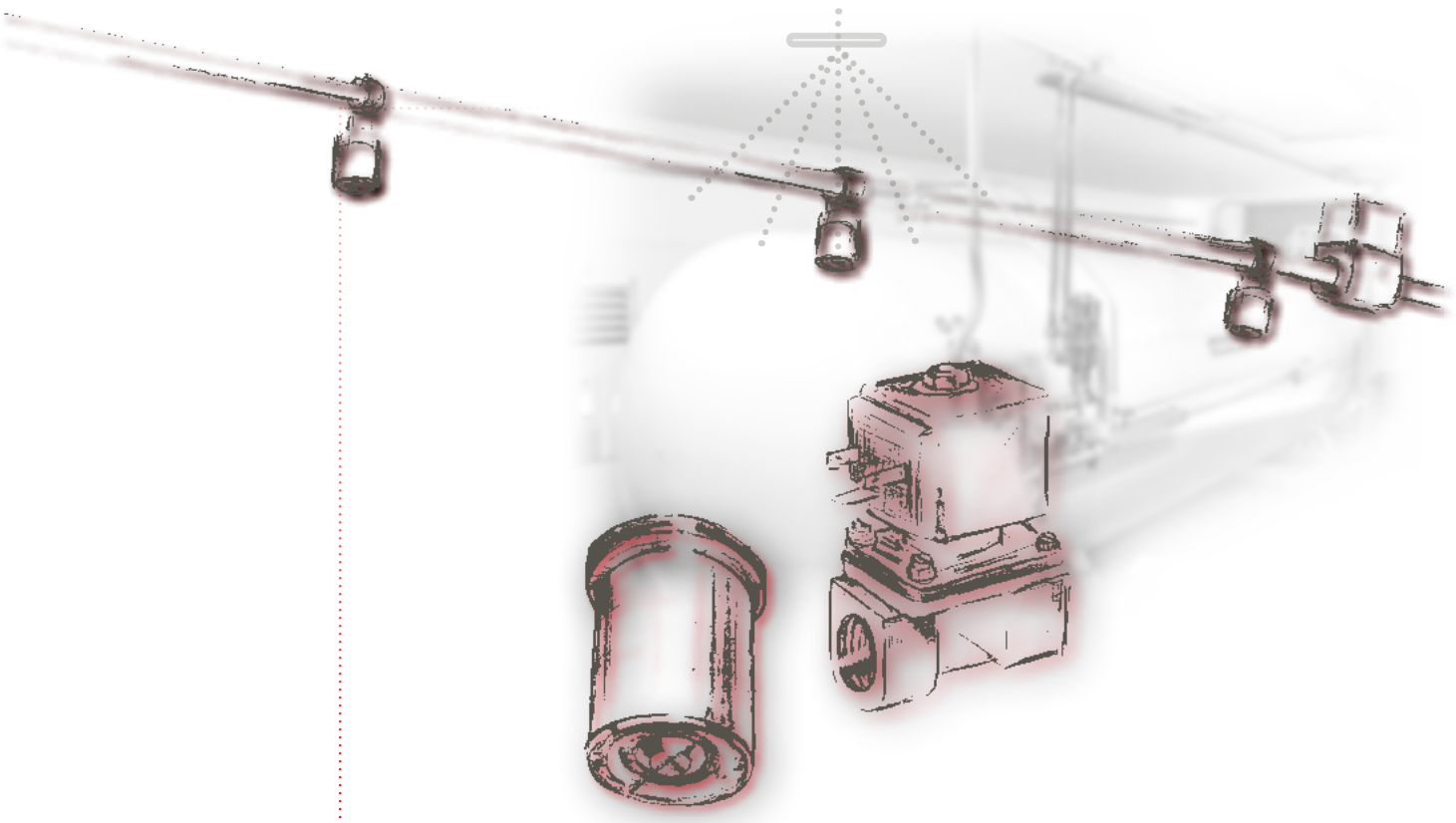
ORDER NUMBERS

Load cell WZ-S1	Pressure force 10 t	**R002812**
Load cell WZ-S2	Pressure force 5 t	**R002999**
Load cell WZ-SP3	Pressure force 10 t	**R003001**
Load cell WZ-SP4	Pressure force 5 t	**R003002**
Load cell WZ-SP5	Pressure force 2 t	**R003000**
Load cell base plate for WZ-SP3, SP4, SP5		**R003003**
Load cell mounting plate for WZ-SP3, SP4, SP5		**R003004**

Water sprinkling unit

Solenoid valve WMV-S | Hose line WSL
Full cone nozzle WVKD-L

Installation for cooling high-pressure vessels



OPERATIONAL AREA

CO_2 High-pressure inerting systems

Water sprinkling unit

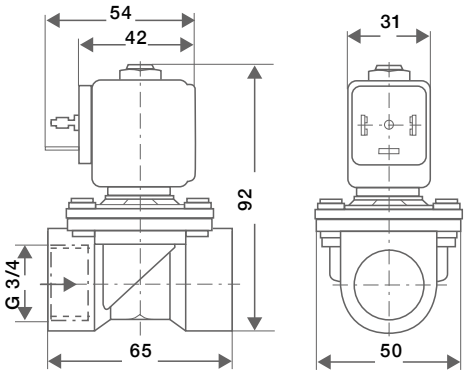
Solenoid valve WMV-S | Hose line WSL | Full cone nozzle WVKD-L

Unit for cooling CO_2 high-pressure vessels.
The unit consists of solenoid valve, hose line, stainless steel pipe and nozzles. robecco will assemble the complete unit for you individually.
The individual components are available as spare parts.

Solenoid valve WMV-S

- ❏ Pre-actuated 2/2-way solenoid valve
- ❏ Minimum operating pressure 0.1 bar

Connection	G 3/4"
Max. permissible pressure	16 bar
Electrical connection	24 V DC / 230 V AC
Ambient temperature	- 10°C + 60°
Material	Body: Brass
Protection class	IP 65 EN



all Dimensions in mm

We reserve the right to amand specification

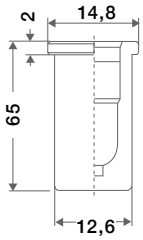
Hose line WSL

- ❏ Sheathing stainless steel braiding NEOFLEX

Length	1.000 mm
Permissible pressure	max. 10 bar
Connection	DN 16 | 3/4" Überwurfmutter
Material	AISI 304

Full cone nozzle WVKD-L

- ❏ Axial full cone nozzle
- ❏ Even liquid distribution
- ❏ Mounting with union nut



Strahlwinkel	90°
Reference pressure / flow rate	5 bar = 18 l/min
Connection thread	3/8" Union nut
Material	Brass

Equipment

❏ Mounting clamp

❏ Union nut

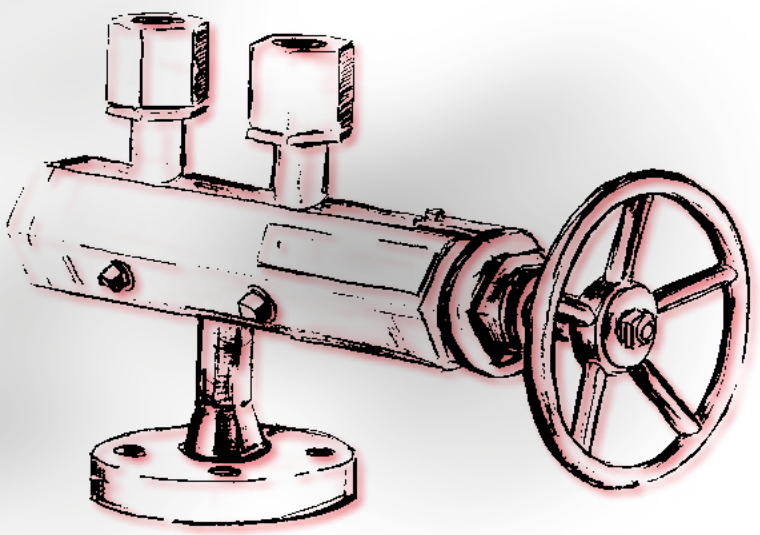
ORDER NUMBERS

Solenoid valve WMV-S1	24 V DC	**R002851**
Solenoid valve WMV-S2	230 V AC	**R002852**
Hose line WSL		**R002968**
Full cone nozzle WVKD-L	MS58	**R002996**
Equipment		
Mounting clamp for full cone nozzle WVKD-L	Polyamid	**R002997**
Union nut for full cone nozzle WVKD-L	MS58	**R002998**

Change-over valve

WV-H

for the installation of two safety valves



OPERATIONAL AREA

CO_2 High-pressure inerting systems

Change-over valve

WV-H

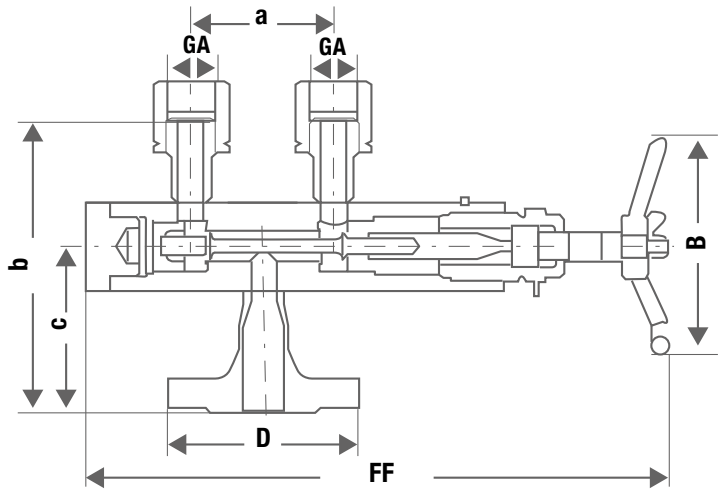
for the installation of two safety valves. Cryogenic Changeover valves, stainless steel.
Approved for air gases, vapours and cryogenic liquefied gases.

Change-over valve WV-H

- ❏ Cryogenic Changeover Valves, stainless steel
- ❏ With two test connections
- ❏ Approved for air gases, vapours and cryogenic liquefied gases
- ❏ Manual operation by handwheel

TECHNICAL DATA

Material	
Housing: Stainless steel 1.4571	
Sealing: PTFG	
Hand wheel: Aluminium	
Medium	
air gases, vapours and cryogenic liquefied gases	
Temperature range	
-196°C – +185°C	
Operation pressure	
PN 160 bar	
Flange diameter	
Flange DN 2638, DN15	
Outlet	
Spannmuffe 3/4 "	
Weight	
ca. 5 kg	



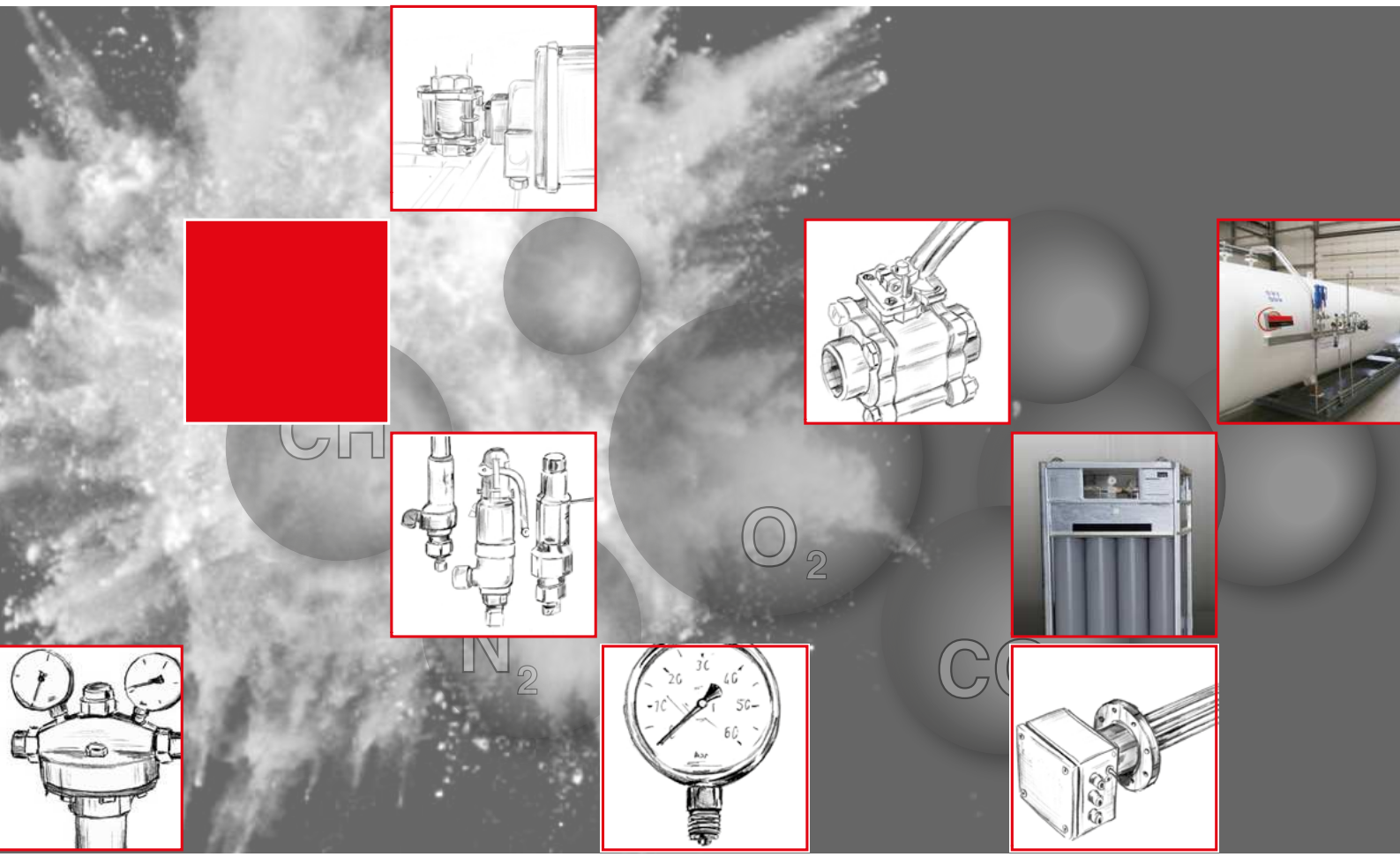
DIMENSIONS in mm

Dimension data						
a	b	D	B	c	FF	GA
110	140	105	120	70	325	3/4"

ORDER NUMBER

Change-over valve WV-H	DN15, PN160 bar	**R002793**

Further information on request


CH
O_2
N_2
CO