FIPA Control technology and system monitoring

"Inline" pressure regulators

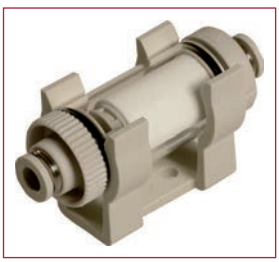
> Limitation of holding force of grippers
> Defined reduction in operating pressure for ejectors
> Models with integrated gauge (32.582 - 32.586)

> See page 360

Vacuum regulators

> Maintain system vacuum independent of porosity of workpiece and fluctuations of vacuum supply

> See page 362



Vacuum filters

> Retent impurities and liquids taken in the vacuum system for example by vacuum cups or pumps
> Protect vacuum pumps or ejectors from damage or excessive wear

> See page 364

Flow control valves

> Maintain system vacuum by closing non-covered suction openings
> Handling of dense or porous workpieces

> See page 366

FIPA Control technology and system monitoring

Pressure valves

> Control of compressed air circuits
> Optional construction of valve clusters

> See page 367

Vacuum valves

> 2/2-way and 3/2-way valves with short switching times and high flow for fast vacuum build-up
> Optional construction of valve clusters

> See page 371

Vacuum/Pressure switches

> Monitoring of vacuum / compressed air and optimize cycle times and improve gripper system effeciency

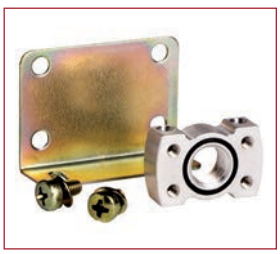
Mini vacuum switch 20.040/20.041

> PNP/NPN Outputs
> Hysteresis is fixed
> LED-diode

Vacuum switch 20.021/20.022

> 2 x PNP outputs
> 7-segment LED-display
> Compact, round design (20.022)

> See page 376



Mounting brackets for vacuum switches and pressure switches

> Adapters and mounting brackets for flange assembly, front panel mounting or mounting on extrusions

> See page 380

For additional products please refer to the FIPA Vacuum Technology Catalog.
Our technical customer service will be happy to help you find the optimal products for your application.
(email: info@fipa.com; phone: +49 89 962489-0)

"Inline" pressure regulators with pressure gauge

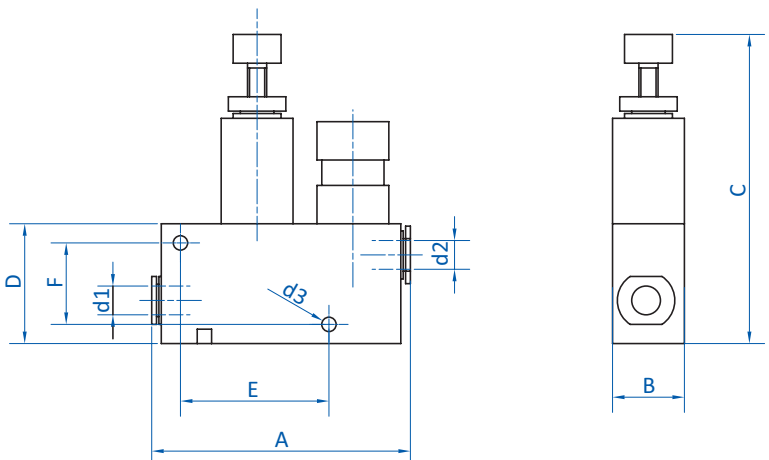
Product notes

> Defined reduction in operating pressure for ejectors, limitation of holding force of grippers
> Easy installation thanks to vertical and horizontal cross holes
> Pressure adjustment by means of knurled screw, pressure monitoring by means of gauges (readout in MPa)
> Integrated overpressure protection
> Only suitable for compressed air

Technical data

Item no.	Operating pressure [bar (psi)]	Regulating range [bar (psi)]	Accuracy (±) [%]	Operating temperature [°C (°F)]	Weight [g]
32.582	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	48
32.583	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	48
32.584	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	48
32.585	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	73
32.586	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	73

Dimensions



Item no.	d1 [mm]	d2 [mm]	d3 [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
32.582	4	4	3.2	55	15	63	25	30	17
32.583	6	4	3.2	55.5	15	63	25	30	17
32.584	6	6	3.2	56	15	63	25	30	17
32.585	8	6	3.2	69	19	67.5	29	39	21
32.586	8	8	3.2	69	19	67.5	29	39	21

"Inline" pressure regulators

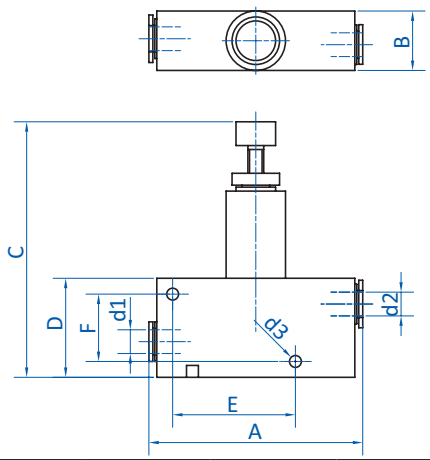
Product notes

> Defined reduction in operating pressure for ejectors, limitation of holding force of grippers
> Pressure adjustment by means of knurled screw
> Integrated overpressure protection
> Only suitable for compressed air

Technical data

Item no.	Operating pressure [bar (psi)]	Regulating range [bar (psi)]	Accuracy (±) [%]	Operating temperature [°C (°F)]	Weight [g]
32.577	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	36
32.578	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	36
32.579	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	36
32.580	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	60
32.581	0 - 9 (0 - 130.5)	1 - 8 (14.5 - 116)	5	0 - 60 (32 - 140)	60

Dimensions



Item no.	d1 [mm]	d2 [mm]	d3 [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
32.577	4	4	3.2	44	15	63	25	30	17
32.578	6	4	3.2	44.5	15	63	25	30	17
32.579	6	6	3.2	45	15	63	25	30	17
32.580	8	6	3.2	57	19	68	29	39	21
32.581	8	8	3.2	57	19	68	29	39	21

Vacuum regulators

Vacuum regulator 33.105 with vacuum gauge

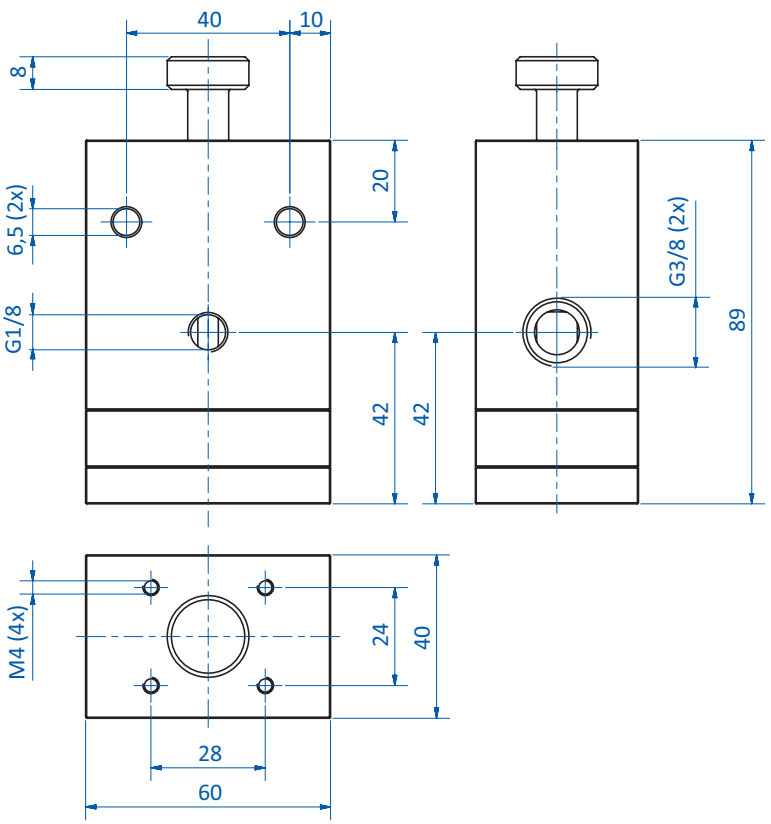
Product notes

> Vacuum adjustment of consumer loads, such as vacuum cups in handling systems
> Integration of a vacuum gauge recommended
> Blow-off is possible if vacuum gauge is not connected
> Any installation position
> Vacuum gauge not included in scope of delivery

Technical data

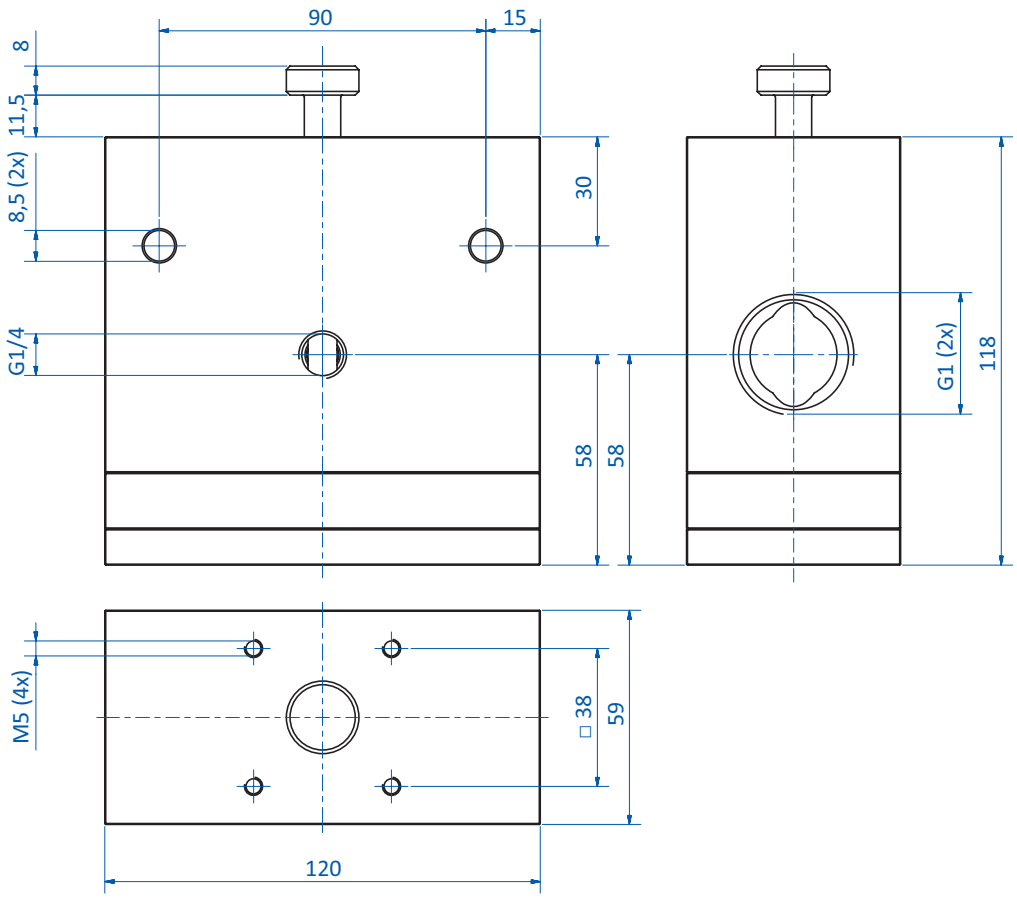
Item no.	Max. flow rate [m³/h]	Regulating range [mbar (psi)]	Operating temperature [°C (°F)]	Weight [kg]	Suitable vacuum gauge
33.105	10	-200 - -999 (-2.9 - -14.5)	-10 - 80 (14 - 176)	0.6	91.001
33.120	80	-200 - -999 (-2.9 - -14.5)	-10 - 80 (14 - 176)	2.1	91.003

Dimensions



33.105

Dimensions



33.120

Plug-in filters

71.070 and 71.071: plug-in pipe (Ø d1) fits in Ø 4 mm / 6 mm tubing connections

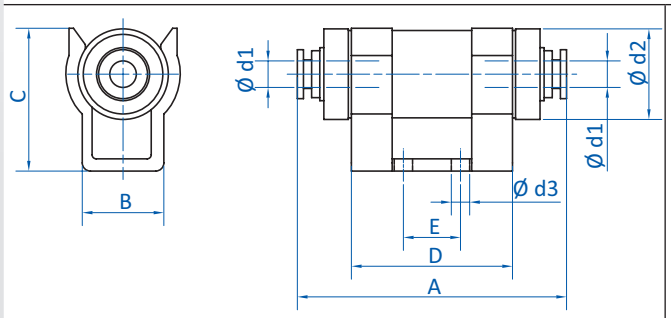
Product notes

> Trapping impurities and liquids which can be suctioned via the vacuum cup or other systems
> To protect vacuum components (e.g. ejectors) from damage or excessive wear
> 71.000 - 71.004: economical use due to replaceable filter cartridges

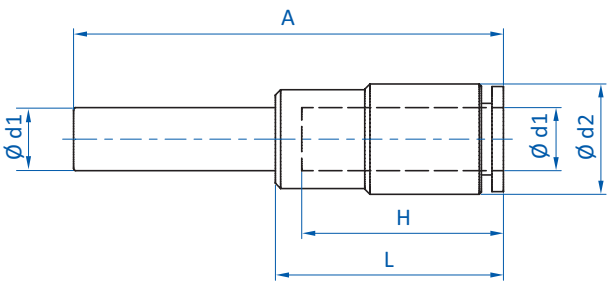
Technical data

Item no.	Filter surface [cm²]	Grade of filtration [µm]	Weight [g]	Accessories
71.000	7.5	10	16	Mounting bracket: VFUH2 Spare cartridge: 71.005-Kartusche
71.001	7.5	10	17	Mounting bracket: VFUH2 Spare cartridge: 71.005-Kartusche
71.002	12.5	10	25	Mounting bracket: VFUH3 Spare cartridge: 71.006-Kartusche
71.003	12.5	10	27	Mounting bracket: VFUH3 Spare cartridge: 71.006-Kartusche
71.004	12.5	10	33	Mounting bracket: VFUH3 Spare cartridge: 71.006-Kartusche
71.070	0.8	10	1.5	--
71.071	1.1	10	2.5	--

Dimensions



71.000 | 71.001 | 71.002 | 71.003 | 71.004



71.070 | 71.071

Item no.	Ø d1 [mm]	Ø d2 [mm]	Ø d3 [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	H [mm]	L [mm]
71.000	4	18.5	4.5	58	18	29	33	10	--	--
71.001	6	18.5	4.5	60	18	29	33	10	--	--
71.002	6	22.2	4.5	66.5	20	35	39.5	14	--	--
71.003	8	22.2	4.5	70.1	20	35	39.5	14	--	--
71.004	10	22.2	4.5	72.7	20	35	39.5	14	--	--
71.070	4	8	--	38.6	--	--	--	--	11	21.5
71.071	6	10	--	41	--	--	--	--	11.6	21.8

Filter / Condensate trap

Precipitation of condensable vapors

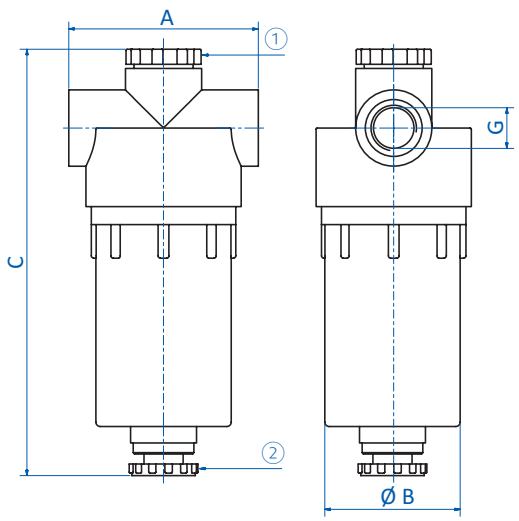
Product notes

> Efficient and reliable separation of water droplets out of vacuum systems
> Easy installation after vacuum pumps or ejectors
> Housing made of transparent plastics for filtration monitoring
> Drainage valve at the bottom to discharge the collected condensate
> Filter needs to be ventilated before opening

Technical data

Item no.	Max. volume flow [m³/h]	Max. filling capacity [cm³]	Grade of filtration [µm]	Filter material	Max. input pressure [bar (psi)]	Max. operating temperature [°C (°F)]	Weight [kg]	Suitable spare cartridges
71.035	10.6	30	100	Stainless steel mesh	7.3 (105.9)	122 (252)	0.6	71.035-Kartusche
71.036	17.7	25	50	Polyethylene - sintered	7.3 (105.9)	122 (252)	0.8	71.036-Kartusche
71.037	21.2	40	30	Synthetic felt	0.5 (7.3)	122 (252)	1.7	71.037-Kartusche
71.038	35.3	50	30	Synthetic felt	7.3 (105.9)	122 (252)	5	71.038-Kartusche
71.039	58.9	100	30	Synthetic felt	7.3 (105.9)	122 (252)	9.3	71.039-Kartusche

Dimensions



① = Bleeding screw ② = Blow-off screw

Item no.	G	A [mm]	Ø B [mm]	C [mm]
71.035	G3/8	80	75	135
71.036	G1/2	87	60	196
71.037	R3/4	125	100	255
71.038	G1	175	150	370
71.039	G1 1/2	220	190	450

Flow control valves with flow pin

For handling of porous products

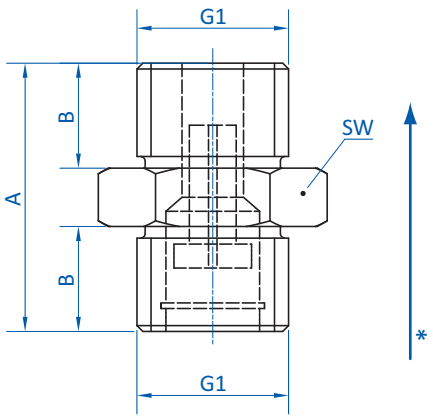
Product notes

> Sealing of unused suction openings to maintain the system vacuum
> Limited leakage prevents premature triggering with porous workpieces
> Compact design
> Optimal installation position is vertical

Technical data

Item no.	Suction power to achieve 30 % vacuum [Nl/min]	Suction power to achieve 60 % vacuum [Nl/min]	Max. flow rate with blow-off at 5 bar (72.5 psi) [Nl/min]	Flow pin bore hole diameter [mm]	Leakage loss [m^3/h]	Weight [g]
63.036	5	5	370	0.8	0.46	8
63.037	11	11	620	1.2	1.04	8
63.038	17	18	480	1.5	1.62	8
63.055	3	3	320	0.6	0.21	8

Dimensions



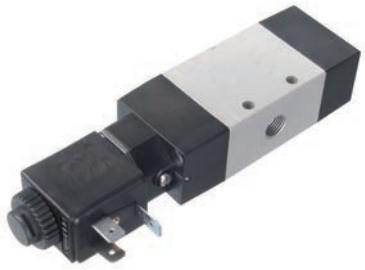
* = Flow direction

Item no.	G1	A [mm]	B [mm]	SW
63.036	G1/4	23	9	17
63.037	G1/4	23	9	17
63.038	G1/4	23	9	17
63.055	G1/8	16	5	12

Solenoid valves for compressed air

Indirectly controlled, with spring reset

36.060



36.061

Product notes

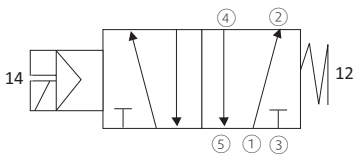
> Suitable for compressed air
> 36.060: for use e.g. to increase cycle times for ejectors without valve technology
Example: vacuum and blow-off control for multi-chamber ejectors e.g. 65.410
- 1x compressed air vacuum generation
- 1x compressed air blow-off
> 36.061: for use e.g. as a blow-off control valve for 3/2-way vacuum valves
> Robust and lightweight housing
> Included in scope of delivery: coil and DIN plug 10.006 for 24 VDC, IP65

Technical data

Item no.	Nominal width [mm]	Nominal flow rate at 6 bar [m³/h]	Control pressure [bar (psi)]	Design	Supply voltage [VDC]	Duty ratio [%]	Max. power consumption [W]	Protection class	Material	Operating temperature [°C (°F)]	Weight [g]
36.060	6	37.2	2.5 - 10 (36.3 - 145)	5/2	24	100	3.8	IP65	High resistant, fiberglass reinforced Polyarylamide (IXEF®)	-5 - 50 (23 - 122)	180
36.061	6	37.2	2.5 - 10 (36.3 - 145)	3/2	24	100	3.8	IP65	High resistant, fiberglass reinforced Polyarylamide (IXEF®)	-5 - 50 (23 - 122)	260

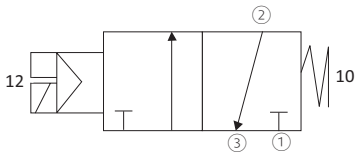
Wiring diagrams

36.060



Assignment
① Compressed air inlet
②, ④ Working connection
③, ⑤ Bleeding

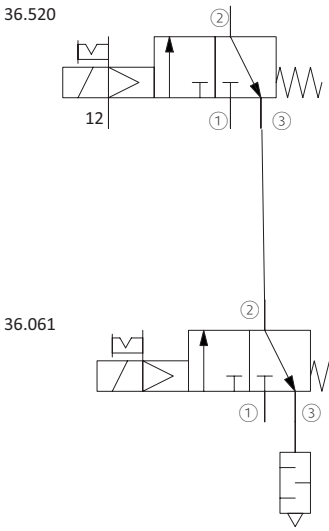
36.061



Assignment
① Compressed air inlet
② Working connection
③ Bleeding (e.g. 72.016): This connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line

Continued on the next page

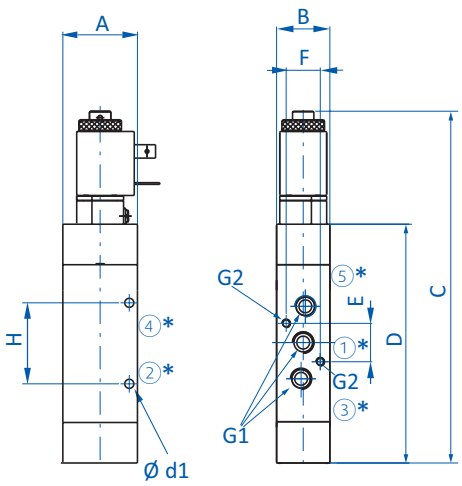
Application example: usage of 36.061 as control valve to activate blow-off of 3/2-way vacuum valves (here: valve 36.520)



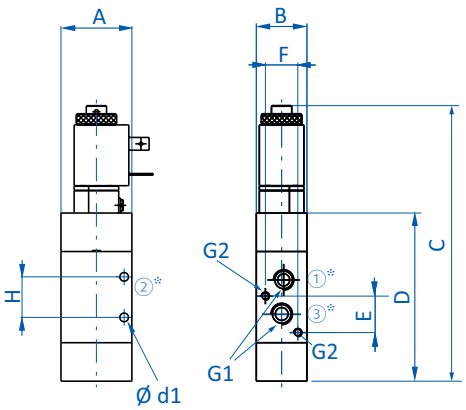
Assignment
① Vacuum supply
② Product side
③ Ventilation (blow-off)

Assignment
① Compressed air inlet
② Compressed air output
③ Use of silencer (e.g. 72.016): This connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line

Dimensions



36.060



36.061

* = Assignment see wiring diagrams

Item no.	G1	G2	A [mm]	B [mm]	C [mm]	D [mm]	Ø d1 [mm]	E [mm]	F [mm]	H [mm]
36.060	G1/8	M4	35	25	153	100	4.25	18	16	38
36.061	G1/8	M4	35	25	136	83	4.25	18	16	20

2/2-way electromagnetic vacuum valves, directly controlled

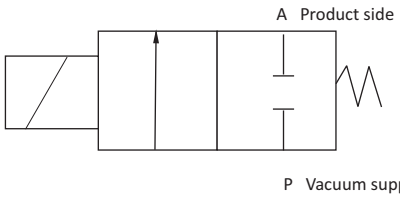
Product notes

> Very high suction power at small size for short evacuation time and fast vacuum build-up
> Short response time
> Robust brass housing and compact design for demanding applications
> Also suitable for positive pressure
> Incl. energy-saving coil for minimized power consumption and less heat development
> Energy-saving coil 24 VDC or 230 VAC and DIN plug IP65 included
> Further available voltages:
- VAC: 115, 48, 24
- VDC: 12

Technical data

Item no.	36.004-24VDC	36.004-230VAC
Nominal width [mm]	7	7
Nominal flow rate [m³/h]	4.8	4.8
Pressure range [bar (psi)]	-0.99 - 5 (-14.4 - 72.5)	-1 - 4 (-14.5 - 58)
Operating principle	NC	NC
Switching time [ms]	20	20
Power-on time [ED]	100 %	100 %
Max. power consumption [W]	18	9
Protection class	IP65	IP65
Operating temperature [°C (°F)]	-10 - 60 (14 - 140)	-10 - 60 (14 - 140)
Weight [g]	520	520
Accessories	Plug: 10.007 Coil: 10.0050/24VDC	Plug: 10.007 Coil: 10.0050/230VAC

Wiring diagram



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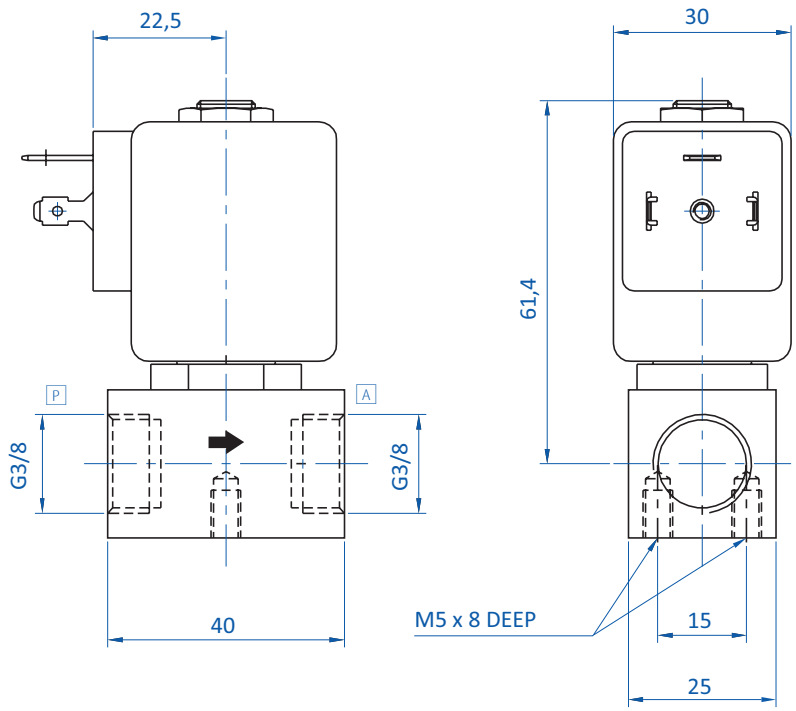
Dimensions



A = Product side P = Vacuum supply

3/2-way solenoid vacuum valve, directly controlled

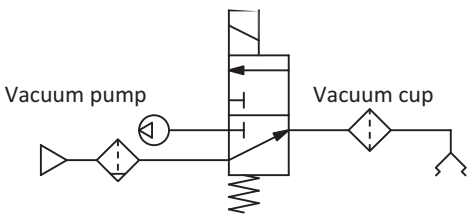
Product notes

> Very high suction power at small size for short evacuation time and fast vacuum build-up
> Small, compact and lightweight
> Suction on/off, blow-off or ventilation of vacuum cups
> HNBR diaphragm allows for flexible installation due to resistance against low ozone concentrations
> Fast switching time
> Factory set NO, can be switched to NC by the customer
> To be mounted in any position
> Resistance against low ozone concentration
> Included in scope of delivery: coil 24 VDC and DIN plug
> Other voltages on request

Technical data

Item no.	**36.003**
Connection	G 1/4
Nominal width [mm]	4.5
Nominal flow rate [m³/h]	2.1
Pressure range [bar (psi)]	-1 - 0 (-14.5 - 0)
Max. switching frequency [Hz]	10
Response time [ms]	20
Protection class	IP65
Operating principle	NC/NO
Duty ratio [%]	75
Operating voltage [VDC]	24
Power consumption [W]	4
DIN-plug	Yes
Operating temperature [°C (°F)]	-10 - 50 (14 - 122)
Weight [g]	155

Wiring diagram



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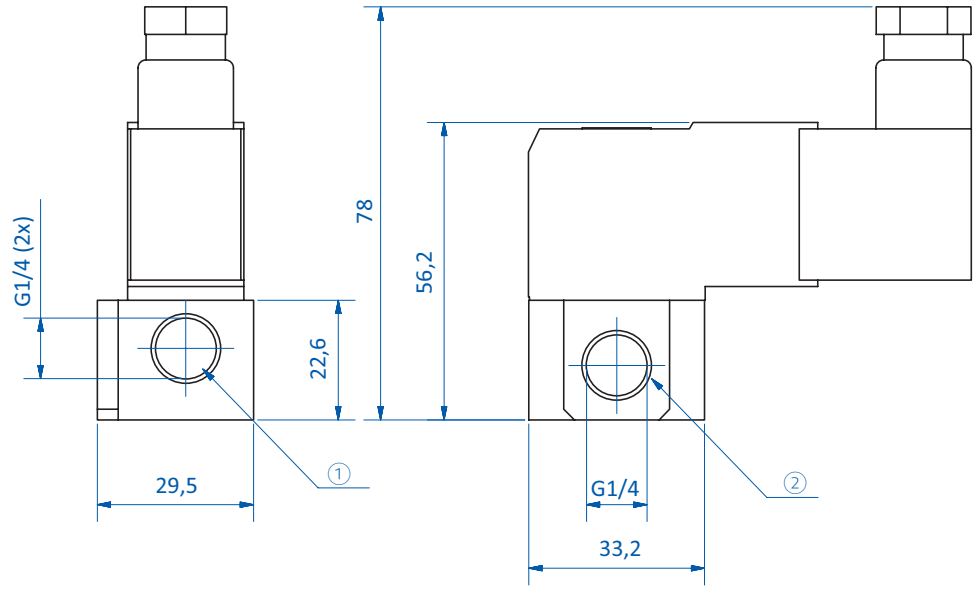
Dimensions



① = Vacuum supply ② = Compressed air, blow-off

3/2-way solenoid vacuum valves, pneumatically supported with spring reset

36.210 | 36.211

36.515 - 36.525

Product notes

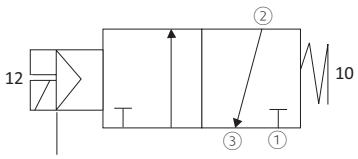
> Suction, blow-off, ventilation of vacuum cups
> High suction power at small construction for short evacuation times and fast vacuum build-up
> Short switching times
> Function: NC/NO as vacuum supply and blow-off/ventilation inlets can be exchanged
> NO: safe gripping of workpiece during power failure
> Robust and lightweight housing
> 36.210 and 36.211: coil and DIN plug included in scope of delivery
> 36.515 - 36.525: delivery without coil and plug; please order: Power consumption: 24 VDC: 5 W, 230 VAC: 5 W

Technical data

Item no.	Nominal width [mm]	Nominal flow rate [m³/h]	Pressure range [bar (psi)]	Operating principle	Control pressure [bar (psi)]	Switching time [ms]	Material	Operating temperature [°C (°F)]	Weight [g]	Accessories
36.210	10	10	-0.99 - 0 (-14.4 - 0)	NC	2.5 (36.3)	22	Aluminum anodized	-5 - 50 (23 - 122)	360	--
36.211	10	10	-0.99 - 0 (-14.4 - 0)	NO	2.5 (36.3)	22	Aluminum anodized	-5 - 50 (23 - 122)	360	--
36.515	15	20	-0.99 - 0 (-14.4 - 0)	NO/NC	2.5 (36.3)	90	High resistant, fiberglass reinforced Polyarylamide (IXEF®)	-5 - 50 (23 - 122)	390	Solenoid coil: 10.0058/230VAC Solenoid coil: 10.0052/24VDC Plug: 10.006
36.520	20	40	-0.99 - 0 (-14.4 - 0)	NO/NC	2.5 (36.3)	90	High resistant, fiberglass reinforced Polyarylamide (IXEF®)	-5 - 50 (23 - 122)	370	Solenoid coil: 10.0058/230VAC Solenoid coil: 10.0052/24VDC Plug: 10.006
36.525	25	90	-0.99 - 0 (-14.4 - 0)	NO/NC	2.5 (36.3)	90	High resistant, fiberglass reinforced Polyarylamide (IXEF®)	-5 - 50 (23 - 122)	500	Solenoid coil: 10.0058/230VAC Solenoid coil: 10.0052/24VDC Plug: 10.006

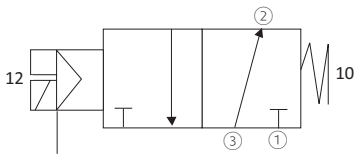
Wiring diagrams

NO: Normally open



Assignment:
① = P (ventilation (blow-off))
② = A (product side)
③ = R (vacuum supply)

NC: Normally closed



Assignment:
① = P (vacuum supply)
② = A (product side)
③ = R (ventilation (blow-off))

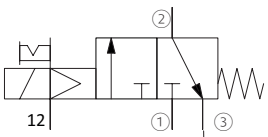
Continued on the next page

Pilot valve

> Manual mode for functional test: setscrew in position "0"
> Automatic mode: setscrew in position "1"

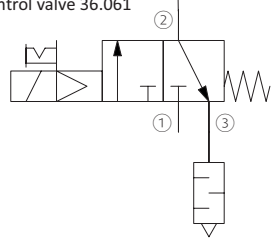
Wiring diagram: how to combine vacuum valve with pneumatic control valve for blow-off

Vacuum valve 36.520



Assignment
① Vacuum supply
② Product side
③ Ventilation (blow-off)

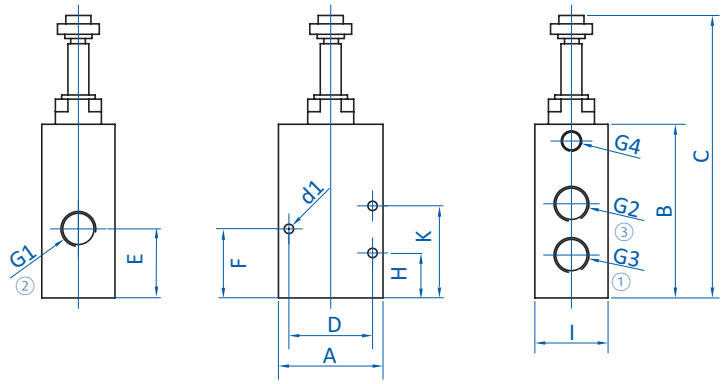
Control valve 36.061



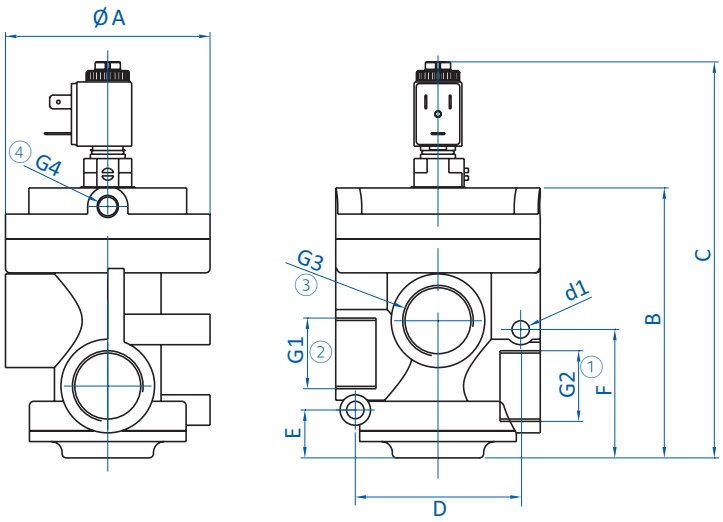
Assignment
① Compressed air inlet
② Compressed air output
③ Use of silencer (e.g. 72.016): This connects valve to atmospheric pressure and enables release of product in case of failure of compressed air line

Application example: 3/2-way vacuum valves 36.520 with control valve 36.061

Dimensions



36.210 | 36.211



36.515 | 36.520 | 36.525

① = Vacuum supply/Ventilation (blow-off) ② = Product side ③ = Ventilation (blow-off) / Vacuum supply ④ = Control pressure connection

Item no.	G1	G2	G3	G4	Ø A [mm]	A [mm]	B [mm]	C [mm]	D [mm]	d1 [mm]	E [mm]	F [mm]	H [mm]	I [mm]	K [mm]
36.210	G3/8	G3/8	G3/8	G1/8	--	50	83	137	40	4.5	33	32.8	22.5	35	44
36.211	G3/8	G3/8	G3/8	G1/8	--	50	83	137	40	4.5	33	32.8	22.5	35	44
36.515	G1/2	G1/2	G1/2	G1/8	75	--	101	155	63	6.5	22.5	55	--	--	--
36.520	G3/4	G3/4	G3/4	G1/8	75	--	101	155	63	6.5	22.5	55	--	--	--
36.525	G1	G1	G1	G1/8	92	--	114.5	168.5	63	6.9	22	58	--	--	--

Vacuum switch – electronic with analog output

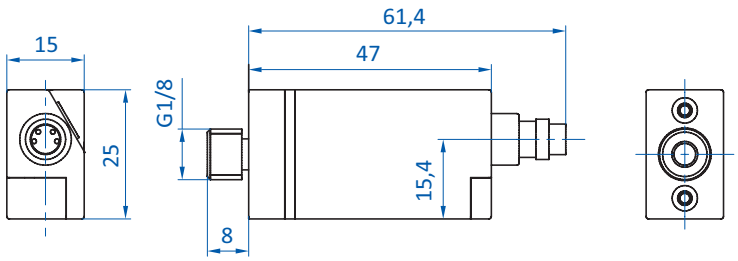
Product notes

> Analog output enables monitoring of the continuous vacuum trend
> Compact and light design for installation directly on the vacuum cup
> LED-display in plug connection
> As an option: mounting rail 20.008-H incl. slot nuts for mounting the vacuum switch, e.g. on FIPA SLine extrusions

Technical data

Item no.	**20.007**
Adjustable range [mbar (psi)]	-999 - 0 (-14.5 - 0)
Hysteresis	0 - 30 %
Analog output [VDC]	1 - 5
Switching logic	Contact breaker (NC)
Response time [ms]	< 5
Thermal error	± 3 % from measuring range
Overpressure safety [bar (psi)]	3 (43.5)
Supply voltage [VDC]	18 - 30
Current consumption [mA]	< 20
Electric connection	Plug M8x1, 4-pin
Protection class	IP50
Suitable media	Dry, unoiled air and non-abrasive gases
Operating temperature [°C (°F)]	0 - 50 (32 - 122)
Weight [g]	85
Accessories	Mounting rail: 20.008-H Connector cable: 20.501 (p.410) Connector cable: 20.502 (p.410)

Dimensions



Mini vacuum switch – electronic with digital output

Example: mini vacuum switch 20.040 on ejector EBA.08H.2-A and flat vacuum cup Ø 40 mm

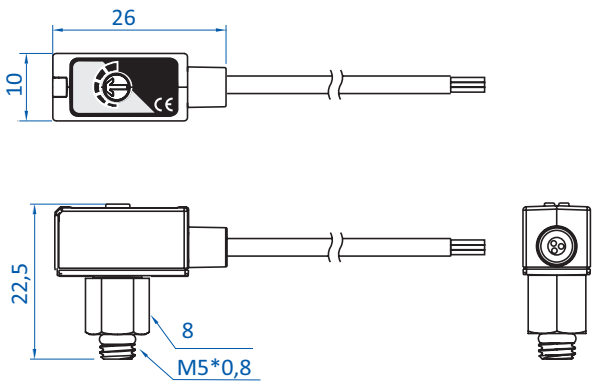
Product notes

> Switch outputs a digital signal when a specific vacuum level is reached
> Vacuum level is manually set with a potentiometer screw
> Hysteresis is fixed
> Red LED indicates set level reached
> Space-saving installation on ejectors thanks to very small design
> Included in scope of delivery: cable 1.5 m, 3-pole, open wire

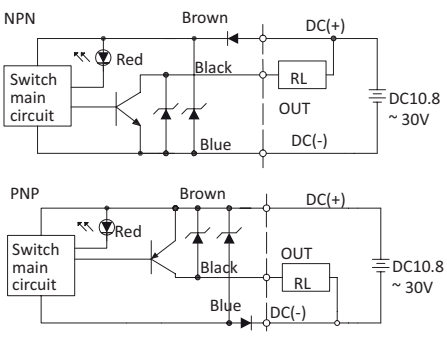
Technical data

Item no.	20.040	20.041
Adjustable range [mbar (psi)]	-990 - 0 (-14.4 - 0)	-990 - 0 (-14.4 - 0)
Hysteresis	3 % from default setting	3 % from default setting
Digital switching outputs	PNP	NPN
Response time [ms]	~ 1	~ 1
Repeat accuracy [%]	≤ ± 1 % from measuring range	≤ ± 1 % from measuring range
Overpressure safety [bar (psi)]	2 (29)	2 (29)
Supply voltage [VDC]	10.8 - 30	10.8 - 30
Max. current consumption [mA]	10	10
Vacuum connection	M5	M5
Protection class	IP40	IP40
Suitable media	Filtered, oiled or unoiled air or neutral gases	Filtered, oiled or unoiled air or neutral gases
Operating temperature [°C (°F)]	0 - 60 (32 - 140)	0 - 60 (32 - 140)
Weight [g]	20	20

Dimensions



Wiring diagrams



Vacuum switch – electronic with two digital outputs and display

GS02.001

20.022

Product notes

> Monitoring of vacuum levels, e.g. in handling systems
> Optimization of cycle times to improve the economy of vacuum systems
> Two freely adjustable digital outputs to set lower and upper threshold values
> Additional analog output
> 7-segment LED-display
> Protection class IP65 (no ventilation tube required)
> Integrated reverse voltage protection
> Compact, lightweight and robust design
> Flexible mounting: GS.001 can be rotated 360° after installation

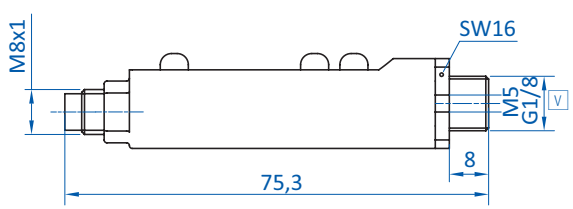
Notes

> Transient emissions: EN 61000-6-4:2007; EN 61326-2-3:2006
> Interference resistance: EN 61000-6-2:2005; EN 61326-2-3:2006
> Vacuum values can be displayed and adjusted by the customer in following units: MPa, bar, inHg, mmHg

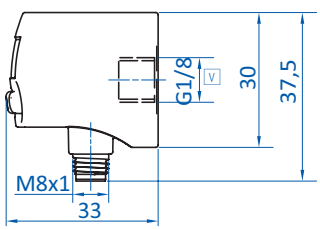
Technical data

Item no.	GS02.001	20.022
Measuring range [bar (inHg)]	-1 - 0 (-29.5 - 0)	-1 - 0 (-29.5 - 0)
Digital switching outputs	2x PNP (NO or NC)	2x PNP (NO or NC)
Repeat accuracy [%]	± 0.2 % from measuring range	± 0.2 % from measuring range
Overpressure safety [bar (psi)]	6 (87)	6 (87)
Supply voltage [VDC]	11 - 30	11 - 30
Current consumption [mA]	< 55	< 55
Max. switching current [mA]	125	125
Electric connection	Plug M8x1, 4-pin	Plug M8x1, 4-pin
Protection class	IP65	IP65
Suitable media	Filtered, oiled or unoiled air or neutral gases	Filtered, oiled or unoiled air or neutral gases
Operating temperature [°C (°F)]	0 - 50 (32 - 122)	0 - 50 (32 - 122)
Weight [g]	25	45
Accessories	Adapter: 20.522 (p.380), Adapter: 20.523 (p.380), Adapter: 20.511 (p.380), Connector cable: 20.501 (p.410), Connector cable: 20.502 (p.410), Wall clip: 20.520 (p.383)	Connector cable: 20.501 (p.410), Connector cable: 20.502 (p.410), Mounting bracket: 20.514 (p.382), Mounting bracket: 20.515 (p.382)

Dimensions



GS02.001



20.022

V = Vacuum connection

Pressure switches – electronic with two digital switching outputs

Diagram with installation kit 20.515 for control panel installation

Product notes

> Intelligent sensor for pressure monitoring
> Adjustable with "teaching" feature
> Switching point and hysteresis can be programmed as desired
> Simple operation using button functions and LCD-display
> Small and robust

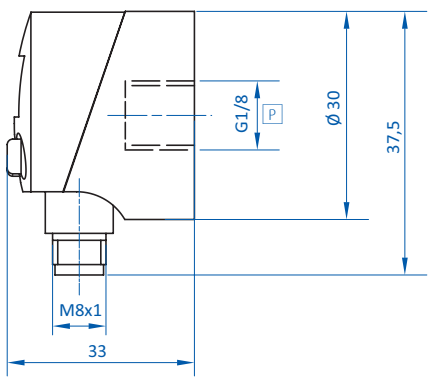
Notes

> Transient emissions: EN 61000-6-4:2007; EN 61326-2-3:2006
> Interference resistance: EN 61000-6-2:2005; EN 61326-2-3:2006
> Vacuum values can be displayed and adjusted by the customer in following units: MPa, bar, psi

Technical data

Item no.	**20.023**
Measuring range [bar (inHg)]	0 - 10 (0 - 295.3)
Digital switching outputs	2x PNP (NO/NC)
Repeat accuracy [%]	± 0.2 % from measuring range
Overpressure safety [bar (psi)]	0.2 (2.9)
Supply voltage [V]	11 - 30
Current consumption [mA]	< 55
Max. switching current [mA]	125
Electric connection	Plug M8x1, 4-pin
Protection class	IP65
Suitable media	Filtered, oiled or unoiled air or neutral gases
Operating temperature [°C (°F)]	0 - 50 (32 - 122)
Weight [g]	40
Accessories	Connector cable: 20.501 (p.410), Connector cable: 20.502 (p.410), Mounting bracket: 20.514 (p.382), Mounting bracket: 20.515 (p.382)

Dimensions



P = Compressed air connection

Adapter and mounting brackets for vacuum switches and pressure switches

20.522 | 20.523

20.511

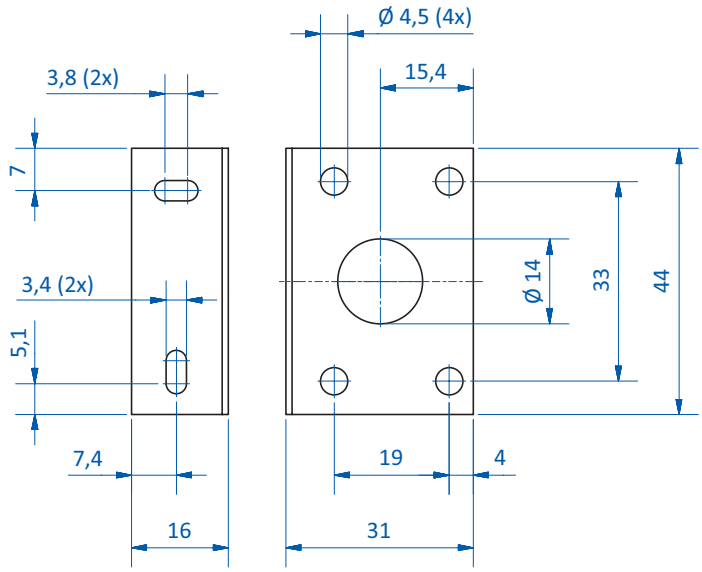
Ordering notes

> Mounting material included in scope of delivery

Technical data

Item no.	Description	Suitable for vacuum/pressure switches
20.511	Push-in fitting G1/8, hose-Ø 6 mm with mounting angle	20.020, GS02.001, 20.026, 20.027
20.522	Adapter with angle bracket for flange assembly	20.020, GS02.001, 20.026, 20.027
20.523	Adapter for flange assembly	20.020, GS02.001, 20.026, 20.027

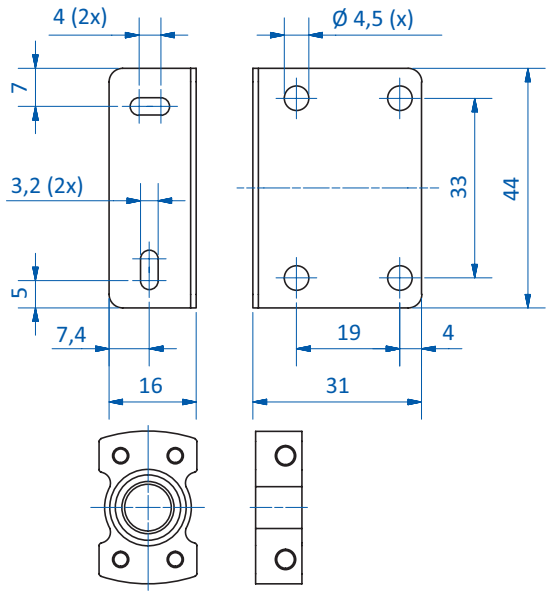
Dimensions



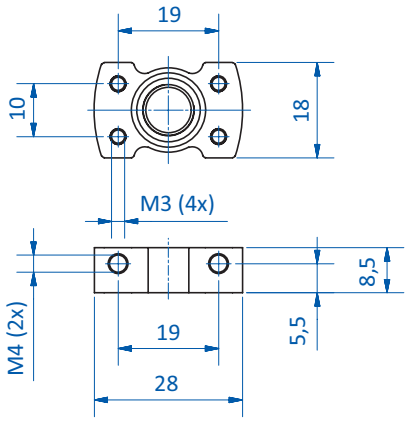
20.511

* = Push-in fitting G1/8, tubing Ø 6 mm not displayed

Dimensions



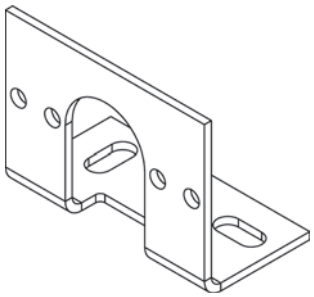
20.522



20.523

* = Push-in fitting G1/8, tubing Ø 6 mm not displayed

Mounting frame and brackets for front panel mounting



Example application: gauge 20.023 with installation kit 20.515

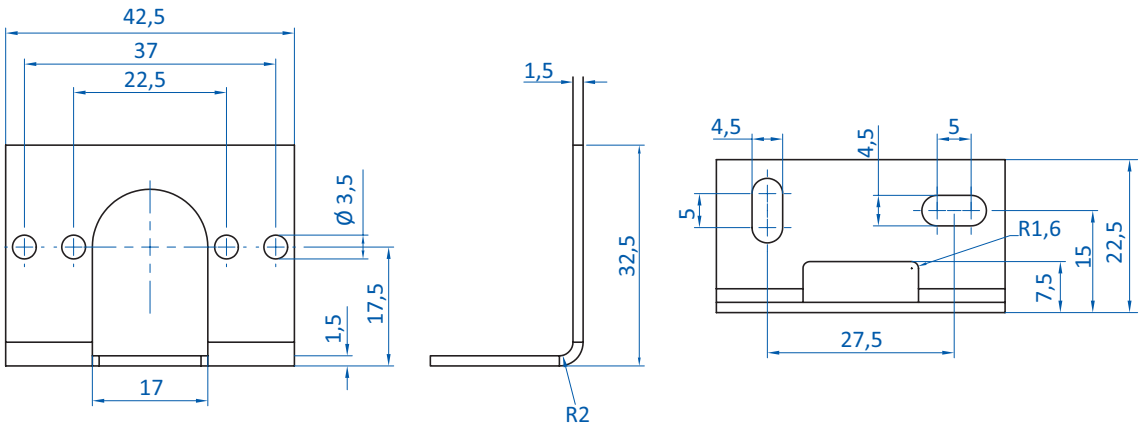
Product notes

> Mounting material included in scope of delivery

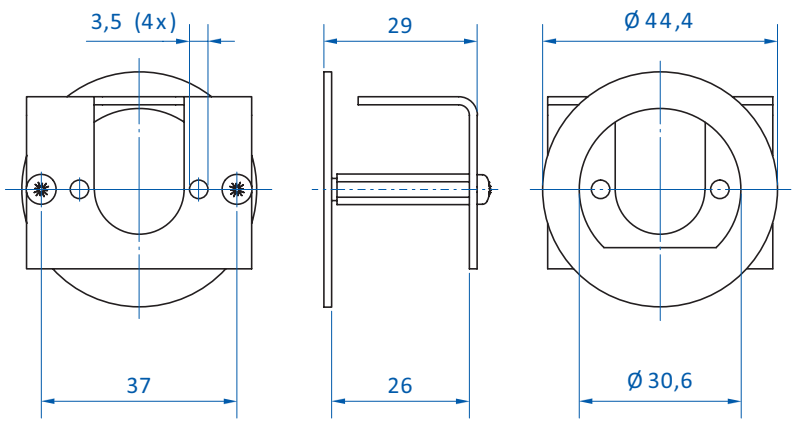
Technical data

Item no.	Description	Suitable for vacuum/pressure switches
20.514	Bracket	20.022, 20.023, 91.012
20.515	Mounting frame with bracket	20.022, 20.023, 91.012

Dimensions



20.514



20.515

* = Installation frame drilling dimensions

Clip 16 mm for wall mounting

Suitable for vacuum switches 20.020 and GS02.001

Product notes

> Mounting via through hole Ø 5 mm located centric at bottom side

Technical data

Item no.	Suitable for vacuum/pressure switches
20.520	20.020, GS02.001

Dimensions