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## FIPA Control technology and system monitoring



	<ul> <li>"Inline" pressure regulators</li> <li>&gt; Limitation of holding force of grippers</li> <li>&gt; Defined reduction in operating pressure for ejectors</li> <li>&gt; Models with integrated gauge (32.582 - 32.586)</li> <li>&gt; See page 330</li> </ul>
	<ul> <li>Vacuum regulators</li> <li>Maintain system vacuum independent of porosity of workpiece and fluctuations of vacuum supply</li> <li>See page 332</li> </ul>
Dr. T	<ul> <li>Vacuum filters</li> <li>&gt; Retent impurities and liquids taken in the vacuum system for example by vacuum cups or pumps</li> <li>&gt; Protect vacuum pumps or ejectors from damage or excessive wear</li> <li>&gt; See page 333</li> </ul>
	<ul> <li>Flow control valves</li> <li>Maintain system vacuum by closing non-covered suction openings</li> <li>Handling of dense or porous workpieces</li> <li>See page 335</li> </ul>





# FIPA Control technology and system monitoring **Pressure valves** > Control of compressed air circuits > Optional construction of valve clusters > See page 336 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 340 Vacuum / Pressure switches > Monitoring of vacuum / compressed air and optimise 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 345 Mounting brackets for vacuum switches and pressure switches > Adapters and mounting brackets for flange assembly, front panel mounting or mounting on extrusions > See page 349 For additional products please refer to our Vacuum Technology Catalogue. Our technical customer service will be happy to help you find the optimal products for your application (email: info@fipa.com; phone: +49 (0) 89/96 24 89-0)







## **Control technology and system monitoring** | Pressure regulators

"Inline" pressure regulators with pressure gauge

### "Inline" pressure regulators with pressure gauge



### Product description

> 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

### Notes

> Only suitable for compressed air

### **Technical data**

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



Item no.	<b>d1</b> [mm]	<b>d2</b> [mm]	<b>d3</b> [mm]	<b>A</b> [mm]	<b>B</b> [mm]	<b>C</b> [mm]	<b>D</b> [mm]	<b>E</b> [mm]	<b>F</b> [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

## "Inline" pressure regulators



### **Product description**

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

### Notes

> Only suitable for compressed air

### **Technical data**

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





Item no.	<b>d1</b> [mm]	<b>d2</b> [mm]	<b>d3</b> [mm]	<b>A</b> [mm]	<b>B</b> [mm]	<b>C</b> [mm]	<b>D</b> [mm]	E [mm]	<b>F</b> [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





# **Control technology and system monitoring** | Pressure regulators

Vacuum regulators

## Vacuum regulators



Vacuum regulator 33.105 with vacuum gauge

### **Product description**

> 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

### **Technical data**

Item no.	Maximum flow rate [m³/h]	Regulating range [mbar]	Operating temperature [°C]	Weight [kg]	Suitable vacuum gauge
33.105	10	-200999	-10 - 80	0.6	91.001
33.120	80	-200999	-10 - 80	2.1	91.003

### Dimensions





① = The bottom side must not be covered ② = Adjusting screw ③ = Vacuum gauge (optional)

Item no.	G1	G2	<b>A</b> [mm]	<b>B</b> [mm]	<b>C</b> [mm]	<b>D</b> [mm]	<b>d1</b> [mm]	<b>E</b> [mm]	<b>F</b> [mm]
33.105	G3/8	G1/8	89	40	60	20	6.5	10	40
33.120	G1	G1/4	118	60	120	30	8.5	15	90

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# Control technology and system monitoring | Vacuum filters

**Plug-in filters** 

## **Plug-in filters**





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

### **Product description**

> 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 to 71.004: Economical use due to replaceable filter cartridges

### **Technical data**

Item no.	Filter surface [cm <sup>2</sup> ]	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	

Ø d2

### Dimensions









### 71.070 | 71.071

Item no.	<b>Ø d1</b> [mm]	<b>Ø d2</b> [mm]	Ø d3 [mm]	<b>A</b> [mm]	<b>B</b> [mm]	<b>C</b> [mm]	<b>D</b> [mm]	<b>E</b> [mm]	<b>H</b> [mm]	<b>L</b> [mm]
71.000	4	18.5	4.5	55	18	29	33	10		
71.001	6	18.5	4.5	58	18	29	33	10		
71.002	6	22.5	4.5	66	20	35	39.5	14		
71.003	8	22.5	4.5	67.5	20	35	39.5	14		
71.004	10	22.5	4.5	75	20	35	39.5	14		
71.070	4	8		38.6		11			11	21.5
71.071	6	10.5		41		11.6			11.6	21.8







# **Control technology and system monitoring** | Vacuum filters

Filter / Condensate trap

## Filter / Condensate trap

Precipitation of condensable vapors



### Product description

- > 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

### Notes

> Filter needs to be ventilated before opening

### **Technical data**

ltem no.	Max. volume flow [m³/h]	Max. filling capacity [cm <sup>3</sup> ]	Grade of filtration [µm]	Filter material	Max. input pressure [bar]	Max. operating temperature [°C]	Weight [kg]	Suitable spare cartridges
71.035	10.6	30	100	Stainless steel mesh	7.3	122	0.6	71.035-Kartusche
71.036	17.7	25	50	Polyethylene - sintered	7.3	122	0.8	71.036-Kartusche
71.037	21.2	40	30	Synthetic felt	7.3	122	1.7	71.037-Kartusche
71.038	35.3	50	30	Synthetic felt	7.3	122	5	71.038-Kartusche
71.039	58.9	100	30	Synthetic felt	7.3	122	9.3	71.039-Kartusche

### Dimensions



### ① = Bleeding screw ② = Blow-off screw

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



Flow control valves with flow pin

Flow control valves with flow pin For handling of porous products



### **Product description**

- > 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**

ltem no.	Suction power to achieve 30 % vacuum [NI/min]	Suction power to achieve 60 % vacuum [NI/min]	Max. flow rate with blow-off at 5 bar [NI/min]	Flow pin bore hole diameter [mm]	Leakage loss [m³/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	<b>A</b> [mm]	<b>B</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	17







### Solenoid valves for compressed air

## Solenoid valves for compressed air

Indirectly controlled, with spring reset



### **Product description**

- > 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

### **Ordering notes**

- > Included in scope of delivery: Coil and DIN plug 10.006 for 24 VDC, IP65
- > Spare part kits available on request

### Technical data

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

### Wiring diagrams



#### Assignment

- ① Compressed air inlet
- (2), (4) Working connection
- 3, 5 Bleeding



#### Assignment

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



Solenoid valves for compressed air



Dimensions



\* = Assignment see wiring diagrams

Item no.	G1	G2	<b>A</b> [mm]	<b>B</b> [mm]	<b>C</b> [mm]	<b>D</b> [mm]	<b>Ø d1</b> [mm]	<b>E</b> [mm]	<b>F</b> [mm]	<b>H</b> [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

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2/2-way electromagnetic vacuum valves, directly controlled

### 2/2-way electromagnetic vacuum valves, directly controlled



### Product description

- > 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 minimised power consumption and less heat development

### **Ordering notes**

- > Energy saving coil 24 VDV 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 [m <sup>3</sup> /h]	4.8	4.8
Pressure range [bar]	-1 - 4	-1 - 4
Operating principle	NC	NC
Switching time [ms]	20	20
Power-on time [ED]	100 %	100 %
Max. Power consumption [W]	12	9
Protection class	IP65	IP65
Operating temperature [°C]	-10 - 60	-10 - 60
Weight [g]	520	520
Accessories	Plug 10.007 Coil 10.0050/24VDC	Plug 10.007 Coil 10.0050/230VAC

### Wiring diagram









2/2-way electromagnetic vacuum valves, directly controlled











3/2-way solenoid vacuum valve, directly controlled

### 3/2-way solenoid vacuum valve, directly controlled



RESISTANCE AGAINST LOW OZONE CONCENTRATIONS

### Product description

- > 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

### **Ordering notes**

- > 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 [m <sup>3</sup> /h]	2.1
Pressure range [bar]	-1 - 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]	-10 - 50
Weight [g]	155





3/2-way solenoid vacuum valve, directly controlled

### Wiring diagram



### Dimensions



① = Vacuum supply ② = Compressed air, blow-off ③ = Vacuum connection (Product side)





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

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



36.210 | 36.211



36.515 to 36.525

### **Product description**

- > 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

### **Ordering notes**

- > 36.210 and 36.211: Coil and DIN plug included in scope of delivery
- > 36.515 to 36.525: Delivery without coil and plug; please order: Power consumption: 24 VDC: 5 W, 230 VAC: 5 VA

### **Technical data**

ltem no.	Nominal width [mm]	Nominal flow rate [m³/h]	Pressure range [bar]	Operating principle	<b>Control pressure</b> [bar]	Switching time [ms]	Material	Operating temperature [°C]	Weight [g]	Accessories
36.210	10	10	-0.99 - 0	NC	2.5	22	Aluminium anodised	-5 - 50	360	
36.211	10	10	-0.99 - 0	NO	2.5	22	Aluminium anodised	-5 - 50	360	
36.515	15	20	-0.99 - 0	NO/NC	2.5	90	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	390	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.520	20	40	-0.99 - 0	NO/NC	2.5	90	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	370	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006
36.525	25	90	-0.99 - 0	NO/NC	2.5	90	High resistant, fiber-glass reinforced Polyarylamide (IXEF®)	-5 - 50	500	Solenoid coil 10.0058/230VAC Solenoid coil 10.0052/24VDC Plug 10.006

### Wiring diagrams



- 2 = A (Product side)
- ③ = R (Vacuum supply)



Assignment:

- 1 = P (Vacuum supply)
- 2 = A (Product side)
- $\bigcirc$  = R (Ventilation (Blow-off))



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

### **Pilot valve**



> Manual mode for functional test: Setscrew in zero position
 > Automatic mode: Setscrew in position "1"

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



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









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

### 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]	<b>A</b> [mm]	<b>B</b> [mm]	<b>C</b> [mm]	<b>D</b> [mm]	<b>d1</b> [mm]	E [mm]	<b>F</b> [mm]	<b>H</b> [mm]	l [mm]	<b>K</b> [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 analogue output

## Vacuum switch - electronic with analogue output



### **Product description**

> Analogue output enables monitoring of the continuous vacuum trend

- > Compact and light design for installation directly on the vacuum cup
- > LED-display in plug connection

### Notes

> As an option: Mounting rail 20.008-H incl. channel nut for mounting the vacuum switch, e.g. on FIPA SLine extrusions

### **Technical data**

Item no.	20.007
Adjustable range [mbar]	-999 - 0
Hysteresis	0 - 30 %
Analogue output [VDC]	1-5
Switching logic	Contact breaker (NC)
Response time [ms]	<5
Thermal error	± 3 % from measuring range
Overpressure safety [bar]	3
Supply voltage [VDC]	18 - 30
Current consumption [mA]	< 20
Protection class	IP50
Suitable media	Dry, unoiled air and non-abrasive gases
<b>Operating temperature</b> [°C]	0 - 50
Weight [g]	85
Electric connection	Plug M8x1, 4-pin
Accessories	Mounting rail 20.008-H Connector cable 20.501 (p.380) Connector cable 20.502 (p.380)









Mini vacuum switch - electronic with digital output

### 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 description**

- > 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

### **Ordering notes**

> Included in scope of delivery: Cable 1.5 meter, 3-pole, open wire

### Technical data

recificatuata		
Item no.	20.040	20.041
Adjustable range [mbar]	-990 - 0	-990 - 0
Hysteresis	3 % from default setting	3 % from default setting
Digital switching outputs	PNP	NPN
Response time [ms]	~ 1	~ 1
Repeat accuracy [%]	$\leq$ ± 1 % from measuring range	$\leq$ ± 1 % from measuring range
Overpressure safety [bar]	2	2
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]	0 - 60	0 - 60
Weight [g]	20	20





Vacuum switch - electronic with two digital outputs and display



### **Product description**

- Monitoring of vacuum levels, e.g. in handling systems
- > Optimisation of cycle times to improve the economy of vacuum systems
- > Two freely adjustable digital outputs to set lower and upper threshold values
- > Additional analogue output
- > 7-segment LED-display
- > Protection class IP65 (no ventilation tube required)
- > Integrated reverse voltage protection
- > Compact, lightweight and robust design
- > Flexible mounting: 20.021 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.	20.021	20.022
Measuring range [bar]	-1 - 0	-1 - 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]	6	6
Supply voltage [VDC]	11 - 30	11 - 30
Current consumption [mA]	< 55	< 55
Maximum 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
<b>Operating temperature</b> [°C]	0 - 50	0 - 50
Weight [g]	25	45
Accessories	Connector cable 20.501 (p.380), Connector cable 20.502 (p.380), Adapter 20.522 (p.349), Adapter 20.523 (p.349), Adapter 20.511 (p.349), Wall clip 20.520 (p.351)	Connector cable 20.501 (p.380), Connector cable 20.502 (p.380), Mounting bracket 20.514 (p.350), Mounting bracket 20.515 (p.350)







Pressure switches - electronic with two digital switching outputs

## Pressure switches - electronic with two digital switching outputs





Diagram with installation kit 20.515 for control panel installation

#### **Product description**

- 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]	0 - 10	
Digital switching outputs	2x PNP (NO/NC)	
Repeat accuracy [%]	± 0.2 % from measuring range	
Overpressure safety [bar]	0.2	
Supply voltage [V]	11 - 30	
Current consumption [mA]	< 55	
Maximum switching current [mA]	125	
Electric connection	Plug M8x1, 4-pin	
Protection class	IP65	
Suitable media	Filtered, oiled or unoiled air or neutral gases	
<b>Operating temperature</b> [°C]	0 - 50	
Weight [g]	40	
Accessories	Connector cable 20.501 (p.380), Connector cable 20.502 (p.380), Mounting bracket 20.514 (p.350), Mounting bracket 20.515 (p.350)	

### **Dimensions**



■ = Compressed air connection





Adapter and mounting brackets for vacuum switches and pressure switches

Adapter and mounting brackets for vacuum switches and pressure switches



### **Ordering notes**

> Mounting material included in scope of delivery

### **Technical data**

ltem no.	Description	Suitable for vacuum / pressure switches
20.511	Push-in fitting G1/8, hose-Ø 6 mm with mounting angle	20.020, 20.021, 20.026, 20.027
20.522	Adapter with angle bracket for flange assembly	20.020, 20.021, 20.026, 20.027
20.523	Adapter for flange assembly	20.020, 20.021, 20.026, 20.027







Mounting frame and brackets for front panel mounting

## Mounting frame and brackets for front panel mounting





Example application: Gauge 20.023 with installation kit 20.515

### **Ordering 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





\* = Installation frame drilling dimensions

350





Clip 16 mm for wall mounting



> 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, 20.021





1		Notes:
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