

# Vacuum

Single stage and multi stage vacuum pumps, a wide range of suction cups, plus switches, gauges and silencers. Use the fast find guide to get the part you need to get the job done. For rapid advice or order support, call us today.

User friendly switches



Cups for most applications



Energy efficient



# Fast Find Guide

**Please note:** These products represent only part of the IMI Precision Engineering vacuum range. If you can't see the option you require please contact us.

## ● Vacuum Pumps

|                                                                                                                                                |                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M/58112</b><br>Single stage<br><br><b>EXPRESS</b> Page 145 | <b>M/58102</b><br>Multi stage<br><br><b>EXPRESS</b> Page 146 |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|

## ● Vacuum Cups & Bellows

|                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M/58300, M/58400</b><br>Ø 6 ... 150 mm<br><br><b>EXPRESS</b> Page 148 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|

## ● Vacuum Switches

|                                                                                                                                                  |                                                                                                                                          |                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>18D Electro-mechanical</b><br>-1 ... 1 bar<br><br>Page 150 | <b>51D Electronic</b><br>-1 ... 1 bar<br><br>Page 151 | <b>33D Electronic</b><br>-1 ... 1 bar<br><br>Page 152 |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|

## ● Accessories

|                                                                                                                                               |                                                                                                                                              |                                                                                                                         |                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Flexible connectors for vacuum cups</b><br><br>Page 153 | <b>Level compensators for vacuum cups</b><br><br>Page 153 | <b>Vacuum Gauges</b><br><br>Page 153 | <b>Silencers</b><br><br>Page 153 |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|

## M/58112

## Materials

**Medium:**  
Compressed air, filtered  
and non-lubricated

**Operating pressure:**  
5 bar optimum  
8 bar maximum

Ambient temperature:  
-20°C ... +150°C

Air supply must be dry enough to avoid ice formation at temperatures below +2°C

Vacuum:

-0,85 bar maximum (M/58112/09)

-0,90 bar maximum (M/58112/11)

**Housing:**  
Anodised aluminium

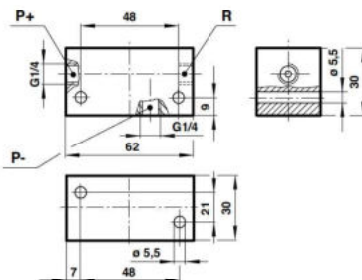
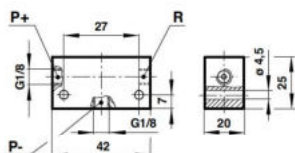
Nozzles:  
Brass

**EXPRESS**



M/58112/09

M/58112/11



- Induced air (NI/min), free air

| Model      | 0 bar | -0,1 bar | -0,2 bar | -0,3 bar | -0,4 bar | -0,5 bar | -0,6 bar | -0,7 bar | -0,8 bar |
|------------|-------|----------|----------|----------|----------|----------|----------|----------|----------|
| M/58112/09 | 28    | 24       | 18       | 14       | 11       | 8        | 5,5      | 3        | 1        |
| M/58112/11 | 55    | 47       | 36       | 28       | 23       | 17       | 12       | 6        | 2,5      |

● Time (sec) for evacuation of 1 litre volume to vacuum

| Model      | -0,1 bar | -0,2 bar | -0,3 bar | -0,4 bar | -0,5 bar | -0,6 bar | -0,7 bar | -0,8 bar | -0,85 bar | -0,9 bar |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| M/58112/09 | 0,27     | 0,56     | 0,89     | 1,44     | 2,00     | 2,88     | 4,31     | 7,97     | 14,36     | –        |
| M/58112/11 | 0,15     | 0,31     | 0,49     | 0,72     | 1,00     | 1,41     | 2,08     | 3,71     | 5,60      | 8,11     |

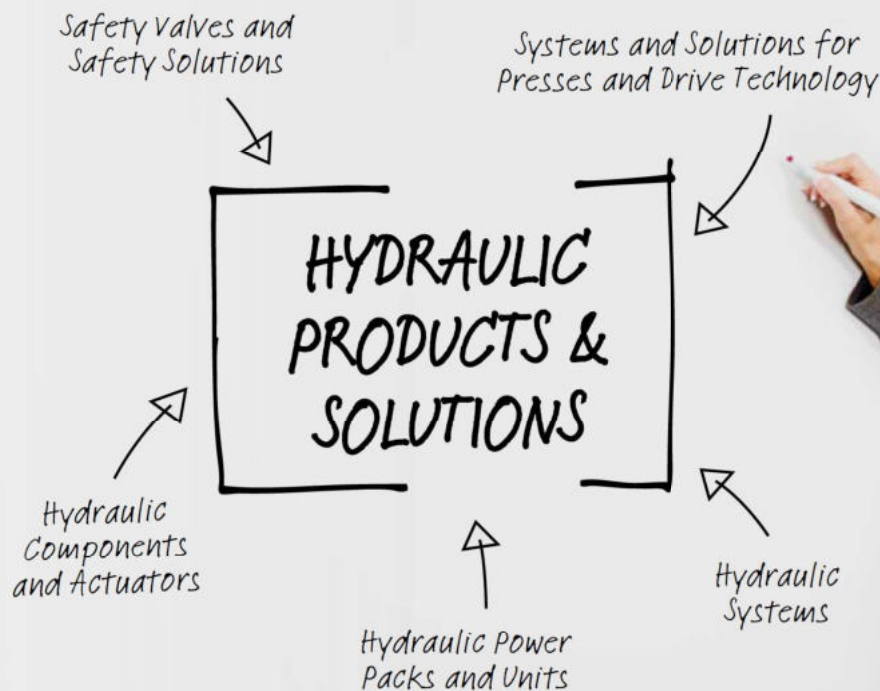
Note: Values given in the tables are theoretical and apply to an operating pressure of 5 bar.

● Recommended tube dimensions (internal diameter)

| Model      | Compressed air | Vacuum | Exhaust |
|------------|----------------|--------|---------|
| M/58112/09 | > Ø 3          | > Ø 5  | > Ø 6   |
| M/58112/11 | > Ø 3          | > Ø 7  | > Ø 9   |







## IMI Herion

### Hydraulic products and solutions

**Whether it be standard or completely individual, the IMI Herion brand stands for more than 50 years of experience in hydraulic components, products and safety technology. The modular concept of our products and the flexibility of our engineering teams enable us to develop and produce “in-house” individual components cost-effectively and in a short period of time.**

We offer to our customers tailor-made engineering and quality in five core competence areas:

#### Safety valves and solutions

- > 3/2 way valves DN10 and 16  
Safe depressurizing  
EN 692, DIN EN ISO 13849-1 and 13849-2, cat. 4
- > Proportional valves DN 6 and 10
- > Position monitored, SIL capable, ATEX valves

#### Systems and components for presses and drive technology

- > Hydraulic clutch-brake combinations
- > “Sliptronic” electronic monitoring
- > Press safety valves
- > Fast exhaust devices
- > hydraulic overload safety devices
- > Ram weight compensation

#### Hydraulic valves and actuators

- > Complete range of standard components from DN 6 to DN 25
- > Pressure valves
- > Flow control valves
- > Check valves
- > DN 3 valves for applications up to 350 bar
- > Proportional valves DN 6 to 25

#### Hydraulic systems

#### Hydraulic power packs and units

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# VACUUM CUPS & BELLOWS

M/58300, M/58400 Ø 6 ... 150 mm

- Flat cups ideal where minimal movement is required for pliable materials
- Bellows cups ideal where level compensation is required

## Technical Data

Medium:  
Vacuum

Ambient temperature:  
-10°C ... +70°C for NBR  
-30°C ... +200°C for VMQ cups  
Air supply must be dry enough to avoid ice formation at temperatures below +2°C

## Materials

M/58\*\*\*/01:  
Cups: NBR  
Connection fittings: Aluminium

M/58\*\*\*/02:  
Cups: VMQ  
Connection fittings: Aluminium

**EXPRESS**

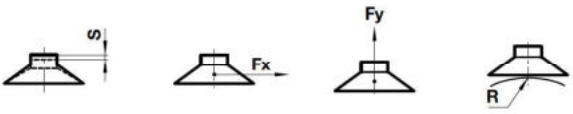


## Material characteristics

|                    | NBR       | VMQ       |
|--------------------|-----------|-----------|
| Wear resistance    | Good      | Fair      |
| Oil resistance     | Excellent | Fair      |
| Weather resistance | Good      | Excellent |
| Ozone resistance   | Fair      | Excellent |

## Models

$F_x = \mu \times F_y$   
Where  $\mu$  is the friction coefficient of the material being handled.  
An approximate guide:  
Plastic:  $\mu = 0,4 \dots 0,5$ , Steel, oiled:  $\mu = 0,1 \dots 0,3$ ,  
Glass:  $\mu = 0,3 \dots 0,5$



| Flat Cups  |            | Dia. Ø<br>(mm) | Fy -0,2 bar<br>(N) | Fy -0,6 bar<br>(N) | Fy -0,9 bar<br>(N) | Minimum radius of<br>work surface 'R'<br>(mm) | Maximum movement 'S'<br>(mm) | Volume<br>cm³ |
|------------|------------|----------------|--------------------|--------------------|--------------------|-----------------------------------------------|------------------------------|---------------|
| Model NBR  | Model VMQ  |                |                    |                    |                    |                                               |                              |               |
| M/58301/01 | M/58301/02 | 6              | 0,5                | 1,5                | 2,3                | 5                                             | 1,5                          | 0,017         |
| M/58302/01 | M/58302/02 | 8              | 1                  | 2,5                | 3,5                | 7                                             | 1,5                          | 0,041         |
| M/58303/01 | M/58303/02 | 10             | 1,5                | 4                  | 6                  | 9                                             | 2                            | 0,065         |
| M/58304/01 | M/58304/02 | 15             | 2,7                | 8                  | 12                 | 12                                            | 4                            | 0,330         |
| M/58305/01 | M/58305/02 | 20             | 5                  | 15,5               | 23                 | 13                                            | 2                            | 0,500         |
| M/58306/01 | M/58306/02 | 25             | 9                  | 26,5               | 40                 | 17,5                                          | 2,5                          | 0,750         |
| M/58307/01 | M/58307/02 | 30             | 11                 | 34                 | 51                 | 26                                            | 2,5                          | 1,3           |
| M/58308/01 | M/58308/02 | 40             | 19                 | 57,5               | 86                 | 37                                            | 3,5                          | 3             |
| M/58309/01 | M/58309/02 | 50             | 30                 | 91                 | 135                | 41                                            | 4                            | 4,2           |
| M/58310/01 | M/58310/02 | 80             | 86                 | 260                | 390                | 100                                           | 6                            | 21            |
| M/58311/01 | M/58311/02 | 120            | 180                | 540                | 810                | 365                                           | 6                            | 82            |
| M/58312/01 | M/58312/02 | 150            | 280                | 842                | 1250               | 380                                           | 9                            | 177           |

| Bellows Cups |            | Dia. Ø<br>(mm) | Fy -0,2 bar<br>(N) | Fy -0,6 bar<br>(N) | Fy -0,9 bar<br>(N) | Minimum radius of<br>work surface 'R'<br>(mm) | Maximum movement 'S'<br>(mm) | Volume<br>cm³ |
|--------------|------------|----------------|--------------------|--------------------|--------------------|-----------------------------------------------|------------------------------|---------------|
| Model NBR    | Model VMQ  |                |                    |                    |                    |                                               |                              |               |
| M/58403/01   | M/58403/02 | 10             | 1,5                | 3,5                | 5                  | 3                                             | 4                            | 0,225         |
| M/58404/01   | M/58404/02 | 15             | 3                  | 6                  | 8                  | 5                                             | 6                            | 0,75          |
| M/58405/01   | M/58405/02 | 20             | 6                  | 10                 | 14                 | 8                                             | 5                            | 1,4           |
| M/58407/01   | M/58407/02 | 30             | 12                 | 22                 | 28                 | 15                                            | 12                           | 4,75          |
| M/58408/01   | M/58408/02 | 40             | 22                 | 40                 | 50                 | 30                                            | 10                           | 9,25          |
| M/58409/01   | M/58409/02 | 50             | 34                 | 66                 | 84                 | 40                                            | 15                           | 26,25         |
| M/58410/01   | M/58410/02 | 75             | 75                 | 170                | 230                | 70                                            | 14                           | 76            |
| M/58411/01   | M/58411/02 | 110            | 140                | 350                | 460                | 85                                            | 36                           | 111           |
| M/58412/01   | M/58412/02 | 150            | 300                | 700                | 900                | 250                                           | 38                           | 260           |

Note: Theoretical values are given in this table. Always allow a safety factor of > 2.

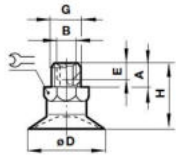
# VACUUM CUPS & BELLOWS

M/58300, M/58400 Ø 6 ... 150 mm

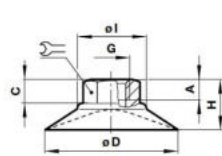
## ● Dimensions

### Flat cups

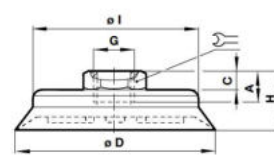
Ø 6 ... 30



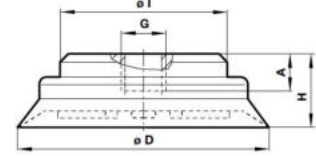
Ø 40 & 50



Ø 80



Ø 120 & 150

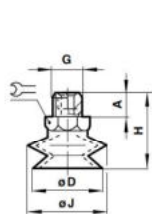


| Model     | Ø D | A   | C   | G      | H    | Ø I |    |
|-----------|-----|-----|-----|--------|------|-----|----|
| M/58301/* | 6   | 4,5 | —   | M 5    | 15   | —   | 8  |
| M/58302/* | 8   | 4,5 | —   | M 5    | 16   | —   | 8  |
| M/58303/* | 10  | 4,5 | —   | M 5    | 20   | —   | 8  |
| M/58304/* | 15  | 4,5 | —   | M 5    | 21   | —   | 8  |
| M/58305/* | 20  | 8   | —   | G1/8 A | 19,5 | —   | 14 |
| M/58306/* | 25  | 8   | —   | G1/8 A | 20   | —   | 14 |
| M/58307/* | 30  | 8   | —   | G1/8 A | 20,5 | —   | 14 |
| M/58308/* | 40  | 6   | 9   | G1/8   | 23   | 24  | 14 |
| M/58309/* | 50  | 6   | 11  | G1/8   | 26   | 26  | 14 |
| M/58310/* | 80  | 13  | 3,5 | G1/8   | 21,5 | 53  | 19 |
| M/58311/* | 120 | 9,5 | —   | G1/2   | 34,5 | 65  | —  |
| M/58312/* | 150 | 9,5 | —   | G1/2   | 41,5 | 65  | —  |

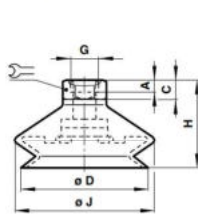
\* Material of suction cups: 01 = NBR, 02 = VMQ.

### Bellows cups

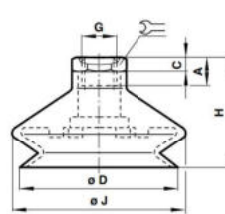
Ø 10 ... 30



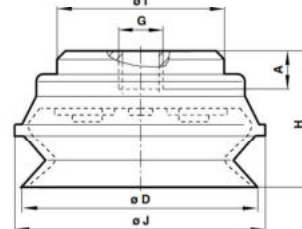
Ø 40 & 50



Ø 75



Ø 110 & 150



| Model     | Ø   | A   | C | Ø D | G      | H    | Ø I | Ø J |    |
|-----------|-----|-----|---|-----|--------|------|-----|-----|----|
| M/58403/* | 10  | 5   | — | 11  | M 5    | 26   | —   | 12  | 7  |
| M/58404/* | 15  | 5   | — | 16  | M 5    | 29   | —   | 17  | 7  |
| M/58405/* | 20  | 7,5 | — | 22  | G1/8 A | 30,5 | —   | 24  | 14 |
| M/58407/* | 30  | 7,5 | — | 33  | G1/8 A | 39   | —   | 36  | 17 |
| M/58408/* | 40  | 6   | 9 | 43  | G1/8   | 37   | —   | 46  | 17 |
| M/58409/* | 50  | 6   | 9 | 53  | G1/8   | 43   | —   | 59  | 17 |
| M/58410/* | 75  | 12  | 4 | 78  | G1/8   | 50   | —   | 83  | 21 |
| M/58411/* | 110 | 9,5 | — | 110 | G1/2   | 66,5 | 65  | 122 | —  |
| M/58412/* | 150 | 9,5 | — | 150 | G1/2   | 85,5 | 65  | 167 | —  |

\* Material of suction cups: 01 = NBR, 02 = VMQ.

# ELECTRO-MECHANICAL VACUUM SWITCH

18D -1 ... 1 bar

- Gold-plated contacts
- High cycle life
- Vibration resistant to 15 g
- Microswitch approved by UL and CSA
- Intrinsically safe operation

## Technical Data

**Medium:**  
For filtered, lubricated or non lubricated compressed air and neutral gases

**Operation:**  
Diaphragm

**Operating pressure:**  
-1 ... 1 bar

**Over pressure:**  
80 bar max.

**Ambient temperature:**  
-10°C ... +80°C  
Air supply must be dry enough to avoid ice formation at temperatures below +2°C

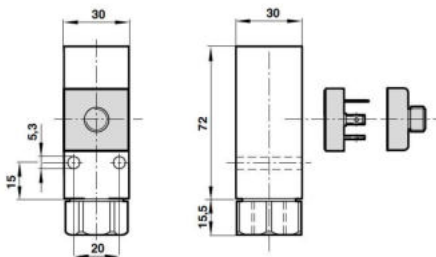
**Repeatability:**  
±3%, of full scale

## Materials

Housing: Aluminium (brass)  
Sealing: NBR/FPM



## ● Dimensions



## ● Models

## Accessories

| Model                                                                               | Pressure range (bar) | Fluid connection | Electrical connection     | Switching pressure difference (bar) | Max. over pressure (bar) | Connector DIN EN 175301-803                                                         | Electrical connector M12 x 1                                                          |                                                                                       |                  |
|-------------------------------------------------------------------------------------|----------------------|------------------|---------------------------|-------------------------------------|--------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------|
|                                                                                     |                      |                  |                           |                                     |                          |                                                                                     | Straight x 2 m long                                                                   | Straight x 5 m long                                                                   | 90° x 2 m long   |
|  |                      |                  |                           |                                     |                          |  |  |  |                  |
| 0880100000000000                                                                    | -1 ... 0             | G1/4             | *DIN EN 175301-803 Form A | 0,15 ... 0,18                       | 80                       | 0570110000000000                                                                    | —                                                                                     | —                                                                                     | —                |
| 0880110000000000                                                                    | -1 ... 1             | G1/4             | *DIN EN 175301-803 Form A | 0,25 ... 0,35                       | 80                       | 0570110000000000                                                                    | —                                                                                     | —                                                                                     | —                |
| 0880160000000000                                                                    | -1 ... 0             | G1/4             | M12 x 1                   | 0,15 ... 0,18                       | 80                       | —                                                                                   | 0523057000000000                                                                      | 0523052000000000                                                                      | 0523058000000000 |

\* DIN plug is supplied as standard.



# ELECTRONIC VACUUM SWITCH

51D -1 ... 1 bar

- System pressure (unit bar, psi, Mpa, KPa, kgf/cm<sup>2</sup>, mmHg, InHg or mmH<sub>2</sub>O) selectable
- High accuracy and resolution
- Switching status indicated by LED

## Technical Data

### Medium:

For filtered, lubricated or non lubricated compressed air, neutral and incombustible gases

### Ambient temperature:

0°C ... +50°C

Air supply must be dry enough to avoid ice formation at temperatures below +2°C

### Display:

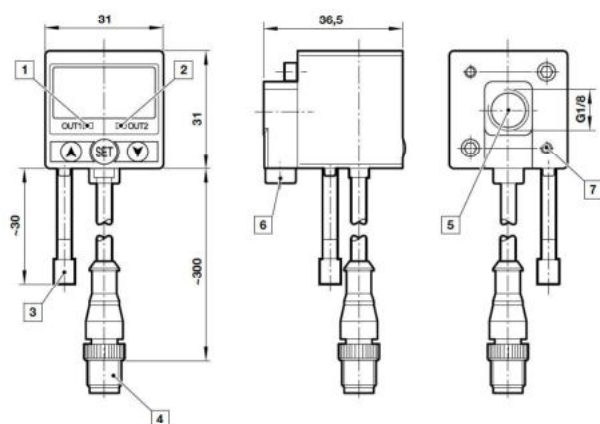
3 1/2 digit LED

## Materials

Body: PC



## Dimensions



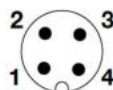
- 1 Switch OUT 1, green LED
- 2 Switch OUT 2, red LED
- 3 Dustproof protector
- 4 Connector M12 x 1
- 5 Inlet port
- 6 Alternative inlet port G1/8 plugged
- 7 Thread for mounting screw

## Electrical parameters

|                               |                         |
|-------------------------------|-------------------------|
| <b>Electrical connection:</b> | M12 x 1                 |
| <b>Power supply:</b>          | 12 ... 24 V d.c.        |
|                               | 24 V d.c. (PNP) maximum |
|                               | 30 V d.c. (NPN) maximum |

## Electrical connection M12 x 1

| PIN-No. | Signal | Cable colour |
|---------|--------|--------------|
| 1       | +UB    | Brown        |
| 2       | Out 2  | White        |
| 3       | -      | Blue         |
| 4       | Out 1  | Black        |



## Models

| Model            | Port size | Switching pressure range (bar) | Over pressure* (bar) | Output signal | Mounting bracket (wall mounting) | Mounting bracket (bottom mounting) | Panel mounting kit |
|------------------|-----------|--------------------------------|----------------------|---------------|----------------------------------|------------------------------------|--------------------|
| 0860820000000000 | G1/8      | - 1 ... 1                      | 3                    | 2 x PNP       |                                  |                                    |                    |
| 0860825000000000 | G1/8      | - 1 ... 1                      | 3                    | 2 x NPN       |                                  |                                    |                    |

\* Short-term pressure peaks are not allowed to exceed this limit value during operation. Operative utilization of the limit value is not permitted. The limit value corresponds to the maximum testing pressure.

# ELECTRONIC VACUUM SWITCH

33D -1 ... 1 bar

- Display of system pressure and unit (pressure unit programmable)
- Compact and robust design
- Easy programming of set points and additional functions
- Transistor output signals 1 x PNP/2 x PNP/1 x PNP + 4 to 20 mA
- Electronic lock
- Switching status indicated by LED
- Standard M12x1 electrical connection (IP 65)

## Technical Data

**Medium:**  
For filtered, lubricated or non lubricated compressed air and neutral gases

**Display:**  
LCD 4 digits illuminated, pressure unit programmable for bar, psi, mpa

**Mounting position:**  
Optional

**Operating pressure:**  
-1 ... 1 bar

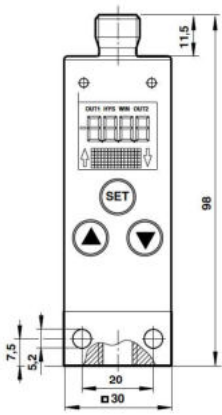
**Ambient temperature:**  
-10°C ... 60°C  
Air supply must be dry enough to avoid ice formation at temperatures below +2°C

## Materials

Housing: Aluminium/Stainless steel  
Sensor (fluid-affected parts):  
Silizium/Aluminium



## Dimensions



## Electrical parameters

|                               |                                                  |
|-------------------------------|--------------------------------------------------|
| <b>Electrical connection:</b> | M12 x 1                                          |
| <b>Power supply:</b>          | 10 ... 32 V d.c. (polarity safe) digital models  |
|                               | 15 ... 32 V d.c. (polarity safe) analogue models |

## Electrical connection M12 x 1

| PIN-No. | Signal                           | Cable colour |
|---------|----------------------------------|--------------|
| 1       | +UB                              | Brown        |
| 2       | Out 2 (PNP) / analog 4 ... 20 mA | White        |
| 3       | 0 V                              | Blue         |
| 4       | Out 1 (PNP)                      | Black        |
| 5       | PE                               | Grey         |

## Models

| Model                                                                               | Pressure range (bar) | Over Pressure (bar) | Fluid connection | Output signal                | Electrical connector M12 x 1 |                     |                  |                  |
|-------------------------------------------------------------------------------------|----------------------|---------------------|------------------|------------------------------|------------------------------|---------------------|------------------|------------------|
|                                                                                     |                      |                     |                  |                              | Straight x 2 m long          | Straight x 5 m long | 90° x 2 m long   | 90° x 5 m long   |
|  |                      |                     |                  |                              |                              |                     |                  |                  |
| 0863012000000000                                                                    | -1 ... 1             | 10                  | G1/4             | 1 x PNP                      | 0523057000000000             | 0523052000000000    | 0523058000000000 | 0523053000000000 |
| 0863022000000000                                                                    | -1 ... 1             | 10                  | G1/4             | 2 x PNP                      | 0523057000000000             | 0523052000000000    | 0523058000000000 | 0523053000000000 |
| 0863042000000000                                                                    | -1 ... 1             | 10                  | G1/4             | 1 x PNP / analog 4 ... 20 mA | 0523057000000000             | 0523052000000000    | 0523058000000000 | 0523053000000000 |
| 0863016000000000                                                                    | -1 ... 1             | 10                  | Flange           | 1 x PNP                      | 0523057000000000             | 0523052000000000    | 0523058000000000 | 0523053000000000 |

## Accessories



# ACCESSORIES

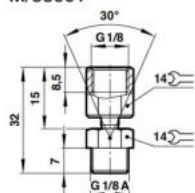
## FLEXIBLE CONNECTORS FOR VACUUM CUPS

- For use where a vertical offset motion is involved on curved surfaces
- Simple to install

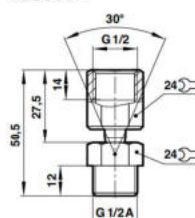


### Dimensions

M/58001



M/58002



### Models

| Model   | Type               | Size |
|---------|--------------------|------|
| M/58001 | Flexible connector | G1/8 |
| M/58002 | Flexible connector | G1/2 |

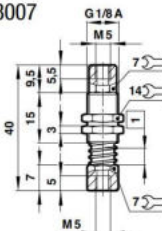
## LEVEL COMPENSATORS FOR VACUUM CUPS

- Allows for variations in product positioning
- For use with uneven product forms

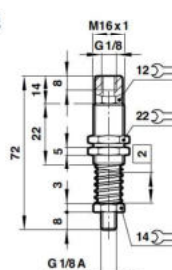


### Dimensions

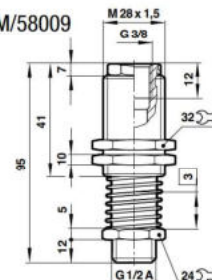
M/58007



M/58008



M/58009



### Models

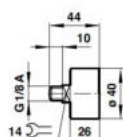
| Model   | Type              | Size |
|---------|-------------------|------|
| M/58007 | Level compensator | M5   |
| M/58008 | Level compensator | G1/8 |
| M/58009 | Level compensator | G1/2 |

## VACUUM GAUGES

- 0 ... -1 bar calibration
- Accurate vacuum level indication



### Dimensions



### Models

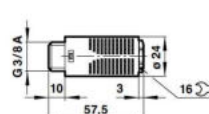
| Model   | Range        |
|---------|--------------|
| M/58080 | 0 ... -1 bar |

## SILENCERS

- Compact
- Optimum air silencing characteristics



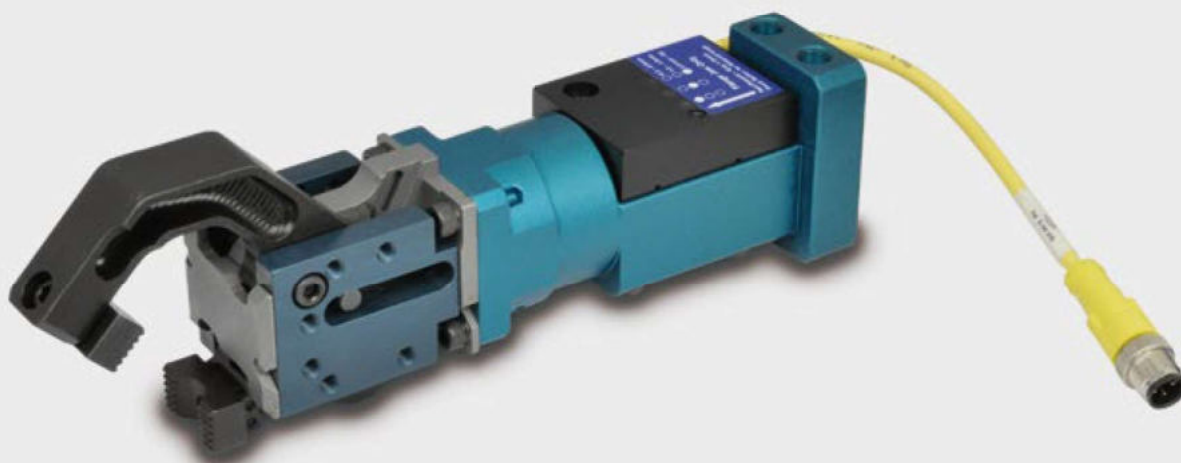
### Dimensions



### Models

| Model   | Range |
|---------|-------|
| M/58019 | G3/8  |





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