

Clogging Indicators

DG 100 · DG 101 · DG 200 · DG 813 · DG 815 · DG 819 · DG 902

for Suction or Return Filters · Connection G $\frac{1}{4}$ resp. M12 x 1.5 · Response / switching pressure up to 2.5 bar / 36.3 psi



Manometer DG 100



Pressure switch DG 815

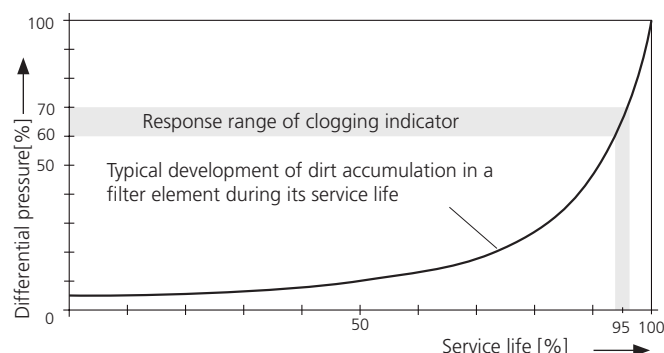
Description

Application

Monitoring the contamination of suction resp. return filters.

General

Filter elements installed in hydraulic filters remove dirt from a hydraulic system and therefore become contaminated themselves. Free pores or spaces in the filter material are obstructed by dirt particles, which causes a continuous increase in the pressure loss.



The dirt load collected in a filter element gradually increases during service, which also leads to a higher pressure drop. The resulting vacuum or back pressure is monitored by a clogging indicator. Once a preset value is reached, an electrical and / or optical signal is generated.

The following must be observed in this context:

The pressure drop caused by the filter element increases depending on the flow rate, the dirt load, and the viscosity of the pressure fluid. Therefore, a filter element is not regarded contaminated before the clogging indicator responds at operating temperature of the hydraulic system, causing a continuous signal.

Consequences of an overdue filter element change

Filters with by-pass valve:

The more dirt has collected in the filter element, the more frequently the bypass valve opens and part of the hydraulic fluid remains unfiltered. The high pressure drop causes unnecessary power consumption.

Suction filters without by-pass valve:

There is a high risk of pump cavitation with increasing vacuum caused by contaminated elements.

Characteristics

| | DG 100 | DG 101 | DG 902 | DG 200 | DG 813 | DG 815 | DG 819 |
|-----------------------------|--|--|---|--|--|--|--|
| Operating pressure | -1.0 ... +0.25 bar -14.5 ... +3.6 psi | -1.0 ... +0.25 bar -14.5 ... +3.6 psi | -0.5 ... +1.0 bar -7.3 ... +14.5 psi | 0 ... +10.0 bar 0 ... +145 psi | 0 ... +10.0 bar 0 ... +145 psi | 0 ... +10.0 bar 0 ... +145 psi | 0 ... +10.0 bar 0 ... +145 psi |
| Connection | Threaded ports according to ISO 228 or DIN 13. Sizes see Selection Chart, column 6 (other port threads on request). | | | | | | |
| Hydraulic fluids | Mineral oil and biodegradable fluids (HEES and HETG, see info-sheet 00.20) | | | | | | |
| Temperature range of fluids | -30 °C ... +100 °C (short term +120 °C) -22 °F ... +212 °F (short term +248 °F) | -30 °C ... +100 °C (short term +120 °C) -22 °F ... +212 °F (short term +248 °F) | -15 °C ... +100 °C (short term +130 °C) +5 °F ... +212 °F (short term +266 °F) | -20 °C ... +90 °C -4 °F ... +194 °F | -30 °C ... +100 °C (short term +120 °C) -22 °F ... +212 °F (short term +248 °F) | -30 °C ... +100 °C (short term +120 °C) -22 °F ... +212 °F (short term +248 °F) | -30 °C ... +100 °C (short term +120 °C) -22 °F ... +212 °F (short term +248 °F) |
| Ambient temperature range | -30 °C ... +80 °C -22 °F ... +176 °F | -30 °C ... +80 °C -22 °F ... +176 °F | -30 °C ... +80 °C -22 °F ... +176 °F | -20 °C ... +90 °C -4 °F ... +194 °F | -30 °C ... +80 °C -22 °F ... +176 °F | -30 °C ... +80 °C -22 °F ... +176 °F | -30 °C ... +80 °C -22 °F ... +176 °F |

* Design-related the switching tolerance increases at temperatures -15 °C / +5 °F.

Characteristics

Materials

DG 100: Housing steel, fitting brass, seal copper
 DG 101: Housing steel, fitting brass, seal copper
 DG 902: Housing brass, protection cap polyamide, diaphragm FPM, seal NBR
 DG 200: Housing polyamide, fitting brass, seal PTFE
 DG 813 / DG 819: Housing steel galvanized, protection cap NBR, diaphragm NBR, seal copper
 DG 815: Housing polyamide, fitting steel galvanized, diaphragm NBR, seal copper

Electrical connection

› DG 902: Flat plugs DIN 46247 - 6.3 x 1 / 0.25 x 0.04
 Cable diameter approx. 6.5 mm / 0.26 inch
 › DG 813: Flat plugs DIN 46244 - A 6.3 - 0.8 / 0.25 x 0.03
 Cable diameter approx. 4 mm / 0.16 inch
 › DG 815: Socket DIN 43650 - AF3
 Cable diameter 6 ... 8 mm / 0.24 ... 0.31 inch
 › DG 819: Mating plug AMP Superseal and Deutsch DT04-2P resp.
 Cable diameter approx. 4 mm / 0.16 inch

Operating voltage

10 ... 30 V DC
 (only required for clogging indicators with built-in LEDs).

Mounting position

No limitation

Electrical service life

DG 902/DG 813/DG 815/DG 819:
 min. 10⁶ switching cycles

Electrical protection

› DG 902: IP 44 (with protection cap)
 › DG 813: IP 65 (switch housing), IP 54 (with protection cap)
 › DG 815: IP 65 (with mounted and secured socket)
 › DG 819: IP 67 (in connected condition)

DG 100 / DG 101 - Manometer for Suction Filters



Function:

Manometer for optical monitoring of the dirt load in suction filters.

Green reading area = filter element O.K.,
Red reading area = filter element clogged.

Option:

Bottom-mounted fitting (DG 101), making it possible to turn the manometer into the direction from which it is viewed, as compared to a fitting mounted on the back (standard).

DG 902 - Vacuum Switch for Suction Filters (change-over)



Function:

When the preset vacuum is reached, the built-in diaphragm switch changes over.

The change-over (CO) switch makes it possible to indicate a broken wire by means of a suitable electronic circuit, as compared to a make contact (normally open / NO) switch.

DG 200 - Manometer for Return Filters



Function:

Manometer for optical monitoring of the dirt load in return filters.

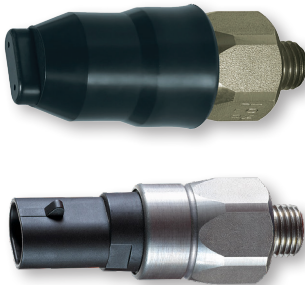
Green reading area = filter element O.K.,
Red reading area = filter element clogged.

In order to protect the measuring element from pressure peaks, the unit is provided with a built-in orifice system.

Option:

Bottom-mounted fitting, making it possible to turn the manometer into the direction from which it is viewed, as compared to a fitting mounted on the back (standard).

DG 813/DG 819 - Pressure Switch for Return Filters (make/break)



Function:

The diaphragm switch closes resp. opens as soon as the pressure exceeds the preset value.

Accessories:

Suitable protection caps for DG 813 are available under part no. DG 813.0701

(central hole for cable Ø 1.5 up to 5 mm / Ø 0.06 up to 0.20 inch) and

DG 813.0702

(2 holes for cable Ø 1.7 up to 2.2 mm / Ø 0.07 up to 0.09 inch).

DG 815 - Pressure Switch for Return Filters (change-over)



Function:

When the preset back pressure is reached, the built-in diaphragm switch changes over.

The change-over (CO) switch makes it possible to indicate a broken wire by means of a suitable electronic circuit, as compared to a make contact (normally open / NO) switch.

Option:

The transparent socket with 2 built-in LEDs makes it possible to have an additional optical indication of the element contamination. When the operating voltage is switched on, a green LED lights up. When the switching pressure is reached, a yellow LED lights up in addition.

Selection Chart

| Part No. | Optical indicator | Electrical switch | Temperature suppression < +32 °C / +90 °F | Response / switching pressure | Type of contact | Switching voltage U | Switching current I | Switching power P | Symbol | Weight | Remarks | | |
|------------------------|-------------------|-------------------|--|----------------------------------|-----------------|---------------------|---------------------|-------------------|---------------|--------|---------|------|------------------------|
| | | | | bar | psi | | V AC/DC | A AC/DC | VA/W AC/DC | | kg | lbs | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | |
| DG 100-00 | • | - | - | -0.25 | -3.6 | - | - | - | - | 1 | 0.11 | 0.24 | fitting on the back |
| DG 101-04 | • | - | - | -0.25 | -3.6 | - | - | - | - | 1 | 0.11 | 0.24 | bottom fitting |
| DG 902-11 | - | • | - | -0.15 | -2.2 | change-over | 250/24 | 6.0/2.0 | 1500/48 | 2 | 0.13 | 0.29 | with protection cap |
| DG 902-12 | - | • | - | -0.25 | -3.6 | change-over | 250/24 | 6.0/2.0 | 1500/48 | 2 | 0.13 | 0.29 | with protection cap |
| DG 200-05 | • | - | - | +1.0 | +14.5 | - | - | - | - | 1 | 0.07 | 0.15 | fitting on the back |
| DG 200-11 ¹ | • | - | - | +1.0 | +14.5 | - | - | - | - | 1 | 0.07 | 0.15 | fitting on the back |
| DG 200-06 | • | - | - | +2.0 | +29.0 | - | - | - | - | 1 | 0.07 | 0.15 | fitting on the back |
| DG 200-15 ¹ | • | - | - | +2.0 | +29.0 | - | - | - | - | 1 | 0.07 | 0.15 | fitting on the back |
| DG 200-16 ² | • | - | - | +2.0 | +29.0 | - | - | - | - | 1 | 0.07 | 0.15 | fitting on the back |
| DG 200-10 | • | - | - | +2.0 | +29.0 | - | - | - | - | 1 | 0.07 | 0.15 | bottom fitting |
| DG 813-00 | - | • | - | +1.2 | +17.4 | make | 42/42 | 4.0/4.0 | 100/100 | 3 | 0.09 | 0.20 | without protection cap |
| DG 813-03 | - | • | - | +1.5 | +21.8 | make | 42/42 | 4.0/4.0 | 100/100 | 3 | 0.09 | 0.20 | without protection cap |
| DG 813-01 | - | • | - | +2.0 | +29.0 | make | 42/42 | 4.0/4.0 | 100/100 | 3 | 0.09 | 0.20 | without protection cap |
| DG 813-05 | - | • | - | +2.5 | +36.3 | make | 42/42 | 4.0/4.0 | 100/100 | 3 | 0.09 | 0.20 | without protection cap |
| DG 813-20 | - | • | - | +1.2 | +17.4 | break | 42/42 | 4.0/4.0 | 100/100 | 4 | 0.09 | 0.20 | without protection cap |
| DG 813-21 | - | • | - | +2.0 | +29.0 | break | 42/42 | 4.0/4.0 | 100/100 | 4 | 0.09 | 0.20 | without protection cap |
| DG 819-21 | - | • | - | +2.0 | +29.0 | break | 42/42 | ≤4.0 | 100/100 | 4 | 0.09 | 0.20 | AMP Superseal |
| DG 819-22 | - | • | - | +2.0 | +29.0 | break | 42/42 | ≤4.0 | 100/100 | 4 | 0.09 | 0.20 | Deutsch DT04-2P |
| DG 815-01 | - | • | - | +1.2 | +17.4 | change-over | 250/30 | 4.0/4.0 | 250/60 | 5 | 0.13 | 0.29 | incl. socket |
| DG 815-11 | • | • | - | +1.2 | +17.4 | change-over | -/30 | -/0.25 | -/3.0 | 6 | 0.13 | 0.29 | incl. socket |
| DG 815-02 | - | • | - | +2.0 | +29.0 | change-over | 250/30 | 4.0/4.0 | 250/60 | 5 | 0.13 | 0.29 | incl. socket |
| DG 815-12 | • | • | - | +2.0 | +29.0 | change-over | -/30 | -/0.25 | -/3.0 | 6 | 0.13 | 0.29 | incl. socket |

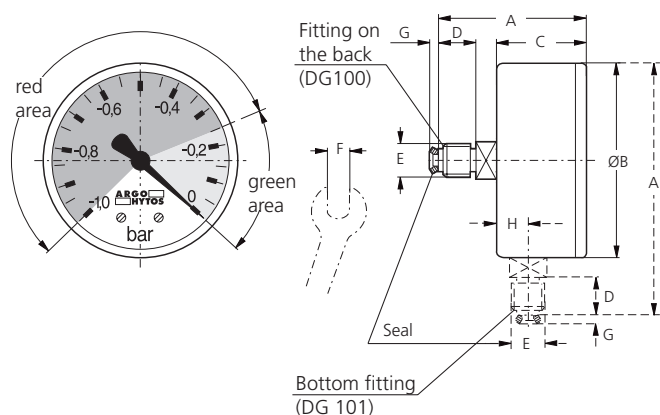
¹ For FR 043 / FR 072 (with preformed seals)

² For FNA 008 / FNA 016 (as DG 200-06 but without throttle screw)

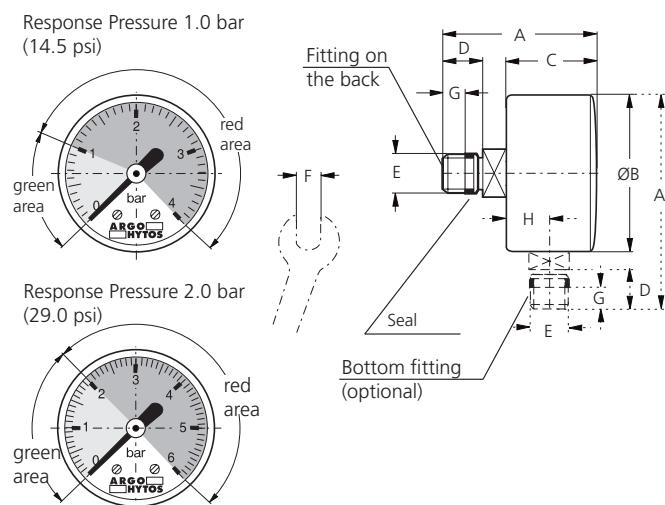
Remarks:

- With return filters, the response/switching pressure of the clogging indicator used must be lower than the cracking pressure of the bypass valve, with suction filters it must be higher.
- Clogging indicators listed in this chart are standard units. Other designs available on request.

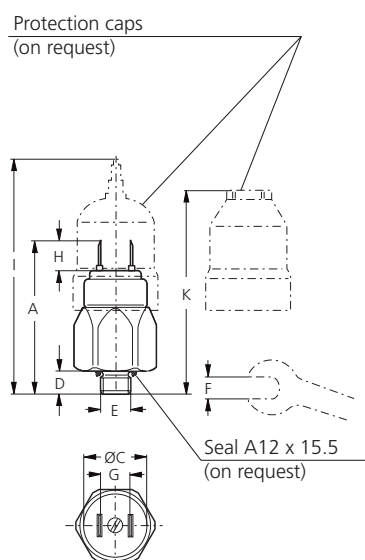
DG 100 / DG101



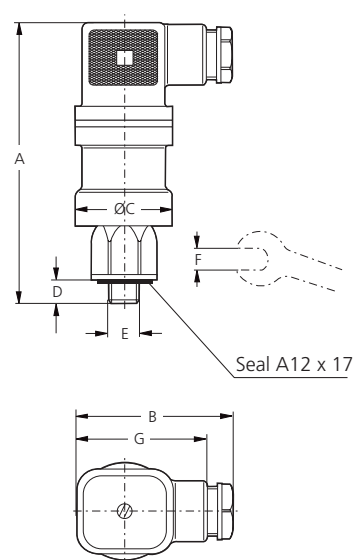
DG 200



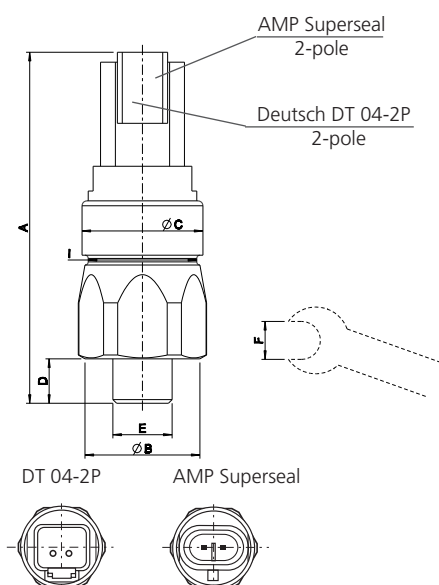
DG 813



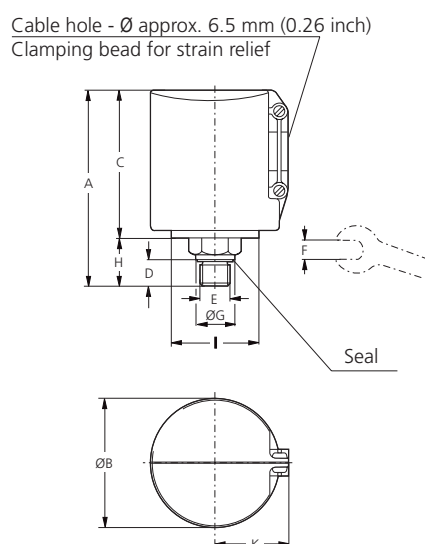
DG 815



DG 819



DG 902



Measurements in mm

| Type | A | B | C | D | E | F | G | H | I | K |
|---------------|----------|------|----------|----|---------|----------|------|-----|----|----|
| DG 100 / 101* | 50 / 84* | 64 | 30 | 13 | G¼ | 14 | 3.2 | 10* | - | - |
| DG 902 | 76 | 50 | 56 | 10 | G¼ | 21 | 18.5 | 20 | 34 | 30 |
| DG 200 | 47 / 59* | 41 | 26 / 24* | 12 | M12x1.5 | 14 / 12* | 5 | 9* | - | - |
| DG 813 | 55 | 23.3 | 24 | 9 | M12x1.5 | AF 24 | 13 | 9 | 88 | 74 |
| DG 815 | 92 | 50 | 34 | 9 | M12x1.5 | AF 27 | 40 | - | - | - |
| DG 819-21 | 70 | 23.3 | 24 | 9 | M12x1.5 | AF 24 | - | - | - | - |
| DG 819-22 | 71 | 23.3 | 24 | 9 | M12x1.5 | AF 24 | - | - | - | - |

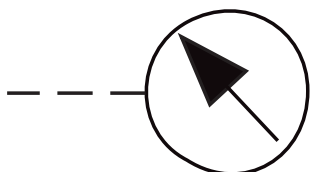
Measurements in inch

| Type | A | B | C | D | E | F mm | G | H | I | K |
|---------------|--------------|------|--------------|------|---------|----------|------|-------|------|------|
| DG 100 / 101* | 1.97 / 3.31* | 2.52 | 1.18 | 0.51 | G¼ | 14 | 0.13 | 0.39* | - | - |
| DG 902 | 2.99 | 1.97 | 2.20 | 0.39 | G¼ | 21 | 0.73 | 0.79 | 1.34 | 1.18 |
| DG 200 | 1.85 / 2.32* | 1.61 | 1.02 / 0.94* | 0.47 | M12x1.5 | 14 / 12* | 0.20 | 0.35* | - | - |
| DG 813 | 2.17 | 0.92 | 0.94 | 0.35 | M12x1.5 | AF 24 | 0.51 | 0.35 | 3.46 | 2.91 |
| DG 815 | 3.62 | 1.97 | 1.34 | 0.35 | M12x1.5 | AF 27 | 1.57 | - | - | - |
| DG 819-21 | 2.76 | 0.92 | 0.94 | 0.35 | M12x1.5 | AF 24 | - | - | - | - |
| DG 819-22 | 2.80 | 0.92 | 0.94 | 0.35 | M12x1.5 | AF 24 | - | - | - | - |

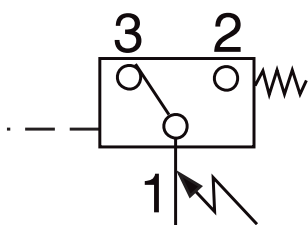
* Bottom fitting

Symbols

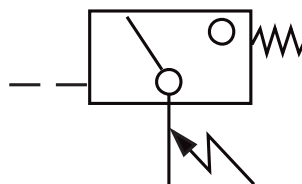
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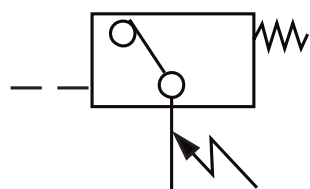
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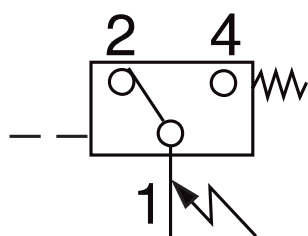
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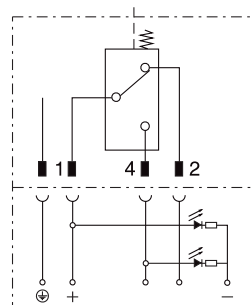
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5

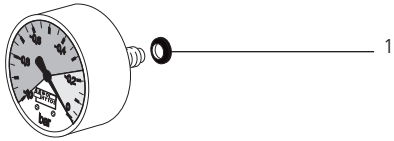


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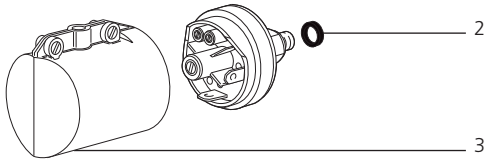


Spare Parts

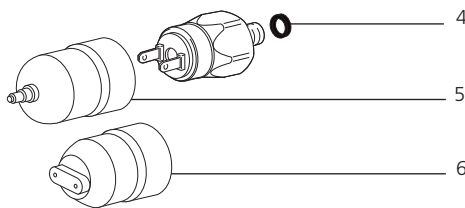
DG 100
DG 101



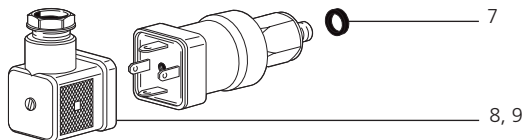
DG 902



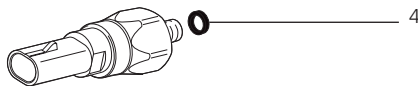
DG 813



DG 815



DG 819



| Pos. | Designation | Part No. |
|------|--------------------------------------|-------------|
| 1 | Seal | DG 100.0101 |
| 2 | Seal | DG 902.0103 |
| 3 | Protection cap | DG 902.1701 |
| 4 | Seal * A12 x 15.5 DIN 7603-Cu | 11049900 |
| 5 | Protection cap * | DG 813.0701 |
| 6 | Protection cap * | DG 813.0702 |
| 7 | Seal A12 x 17 DIN 7603-Cu | 11164200 |
| 8 | Socket DIN 43650 - AF3 | DG 041.1220 |
| 9 | Socket with 2 LED DIN 43650 - AF3 | DG 041.1200 |

*Not included in basic unit

The functions of the complete filters as well as the outstanding features of the filter elements assured by ARGO-HYTOS can only be guaranteed if original ARGO-HYTOS spare parts are used.

Quality Assurance

Quality management according to DIN EN ISO 9001

Various quality controls during the production process guarantee the leakfree function and solidity of our products.

Illustrations may sometimes differ from the original. ARGO-HYTOS is not responsible for any unintentional mistake in this specification sheet.