



Condition Monitoring Package for potentially explosive zones CMP 1000 Ex

Description

The Condition Monitoring Package CMP 1000 Ex for potentially explosive areas is an online measuring system for determining solid particle contamination, water saturation and the condition of hydraulic and lubricating fluids in pressure circuits.

The CMP 1000 Ex consists of a flameproof encapsulated sensor connection block, equipped with an optical particle counter for determining the fluid cleanliness (ISO monitor) and a fluid condition sensor for determining the water saturation and aging condition of monitored fluids.

In addition, the CMP 1000 Ex is equipped with the HYDAC CSI-C-11, a data-logger and network interface for local storage, condition monitoring or process control systems as well as the HYDAC CMX.

The CMP 1000 Ex thus presents itself as a compact and easy-to-retrofit condition monitoring solution for fluids in potentially explosive zones.

Applications

- Oil cleanliness and fluid condition monitoring in pressure lines of hydraulic systems in the oil and gas industry
- Monitoring of hydraulic and lubrication systems in areas at risk of explosion according to Zone 1 and Zone 2

Advantages

- Determination of solid particle contamination, water saturation and fluid condition in hydraulic systems
- Possibility of direct connection and monitoring of four additional analogue sensors (e.g. for tank level, coolant temperature, system pressure and differential pressure at the filter)
- Ready-to-connect solution for the direct integration in pressure circuits
- Certified for use in potentially explosive areas according to Zone 1 and Zone 2

Technical details

| Hydraulic specifications | |
|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hydraulic connections: P _{IN} (IN) and P _{OUT} (OUT) | Port M18x1.5 according to ISO 8434-1; Adapter M18x1.5 at NPT 3/8" male, Material: 1.4571 |
| Permitted operating fluids | Hydraulic and lubricating fluids based on mineral oils and synthetic esters. Others on request. Flash point > 115 °C / 239 °F |
| Sealing material | <ul style="list-style-type: none"> ● Fluid path: FKM ● Pipe fittings: SOLO LSF ● Housing seal: Silicone |
| Permissible operating pressure (static, nonpulsing): P _{IN} (IN) | 5 ... 300 bar / 73 ... 4350 psi |
| functional minimum inlet pressure | ≈ 5 bar / 73 psi ¹⁾ ¹⁾ depending on viscosity |
| Permitted viscosity range | 1 to 350 mm ² /s |
| Max. flow rate | ≈ 500 ml/min |
| Permitted fluid temperature range | 0 °C ... 80 °C / 32 °F ... 176 °F |
| Electrical data | |
| Supply voltage | 24 V DC (10% residual ripple) |
| Current consumption | ≈ 700 mA |
| Power consumption | ≈ 7 watts |
| IP class | IP66 according to IEC EN 60529 |
| Protection type | ⚡ (Safety extra-low voltage) |
| Ambient and storage conditions | |
| Permissible ambient temperature range | -25 °C ... 50 °C / -13 °F ... 122 °F |
| Permitted storage temperature range | -25 °C ... 50 °C / -13 °F ... 122 °F |
| General data | |
| Conforming design according to explosion protection | IEC/EN 60079-0, 60079-1 |
| - Gas explosion protection (ATEX) | ⚡ II 2G Ex db IIC T5 Gb |
| - Gas explosion protection (IECEX) | Ex db IIC T5 Gb |
| Housing material | Aluminium alloy EN AC-AISi7 Mg 0.3 T6 |
| Colour/paint (corrosion protection) | RAL 7035 with Epoxy Primer CX according to ISO12944:2018 |
| Housing draining and bleeding | Drain and vent nozzles, see assembly drawing |
| Cable glands | 7x screw-in thread for Ex d cable inlets CMP-20PXSS2K-REX KLE VA M20 (6271047) with potting compound barrier (RapidEx); clamping area 6.5 ... 14.0 mm |
| Weight | ~ 35 kg |

Type code

CMP 131 0 - 1 - 1 - U - 6 /-EX50-T600

Type

CMP = ConditionMonitoring Package

ContaminationSensor

1 = CS1000 → ISO / SAE / NAS without display, 4 – 20 mA

Fluid

0 = Mineral oil

Gehäuse / Lackierung

1 = Aluminium housing painted CX according to ISO12944:2018 ISO12944-2 RAL 7035 (offshore suitable)

Electrical interface

1 = Data logger and network interface CSI-C-11 with additional module for analogue sensors

Supply voltage

U = 24V DC

Additional sensor

6 = HydacLab HLB1400 with 2x analogue output 4 – 20 mA

Modification number

EX50 = Ex II 2 G Ex db IIC T5 Gb

T600 = Analogue output as well as Modbus TCP (Ethernet) and Modbus RTU (RS485) via CSI-C-11

DIMENSIONS

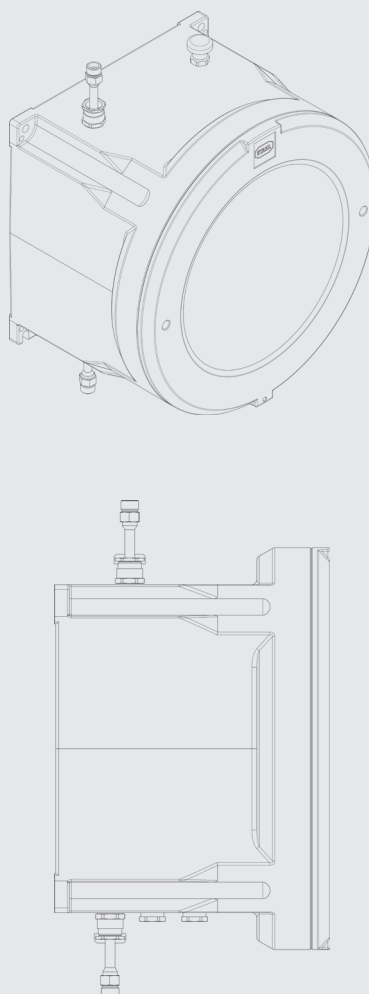
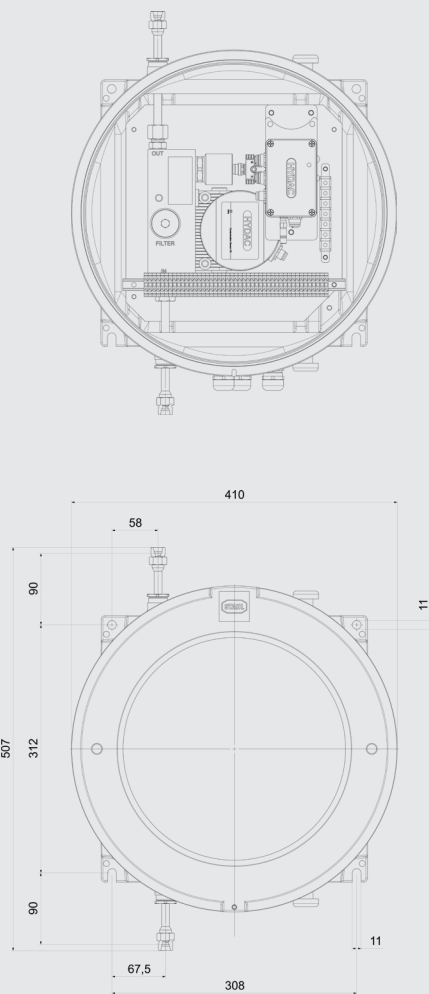
CMP1310-1-1-U-6/-EX50-T600 (4542911)

Housing: Flameproof Enclosure

Lid fastening: Grub screw with internal hexagon and tip M5x16-A2 (ISO 4027), stainless austenitic steel

Housing cover disassembled

Housing cover assembled



All dimensions in mm

Scope of delivery

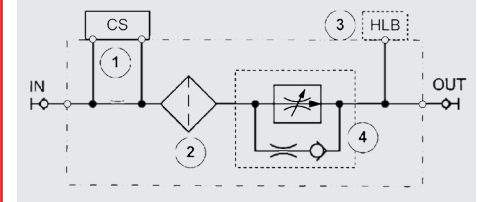
- CMP, ready-to-connect
- Technical documentation
- 2x adapter M18x1.5 on NPT 3/8" male, Mat. no.: 6276457
- 2x socket wrench
- 2x Ex d cable inlets with potting compound barrier (RapidEx)

Preferred models

| Designation | Part No. |
|----------------------------|----------|
| CMP1310-1-1-U-6/-EX50-T600 | 4542911 |

Hydraulic diagram

CMP1310-1-1-U-6/-EX50-T600



| No. | Designation |
|-----|-----------------------------------------|
| IN | Inlet |
| OUT | Outlet |
| 1 | CS 1000 Contamination Sensor |
| 2 | Protective filter |
| 3 | HYDACLab HLB 1400 |
| 4 | Flow control valve/pressure compensator |

Data interfaces

| Interface | Designation |
|------------|-----------------------------------|
| LAN | Ethernet (HSI TCP/IP; Modbus TCP) |
| RS485 | Modbus RTU |
| 4 – 20 mA | CS (CS 1000 analogue out) |
| 4 – 20 mA | HLB1 (HYDACLab analogue out 1) |
| 4 – 20 mA | HLB2 (HYDACLab analogue out 2) |
| 4 – 20 mA, | Additional analogue sensor 1 |
| 0 – 20 mA, | |
| 0 – 10 V, | |
| 0 – 5 V, | |
| 2 – 10 V, | Additional analogue sensor 2 |
| 1 – 5 V | |
| | Additional analogue sensor 3 |
| | Additional analogue sensor 4 |

Equipment

| Designation | Part No. |
|--------------------------------------------------------------------------------------------------------------------------------------|----------|
| Ex d cable inlets CMP-20PXSS2KREX KLE VA M20 with potting compound barrier (RapidEx); Clamping range 6.5 ... 14.0 mm; (1 pc.) | 6271047 |
| Notice about use: as a spare part or to connect additional analogue sensors (1 pc. per sensor) | |

NOTE

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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