CMS - Condition Monitoring Systems

Condition detection is the first step towards successful maintenance in oil hydraulic systems.

Oil quality parameters such as cleanliness class according to ISO 4406, temperature, relative humidity, as well as a comprehensive oil condition analysis are among the most important parameters to be monitored.

All these oil quality measurements can be combined within the CM systems and configured in various versions.

The basic design allows for a choice between mountable, portable, or mobile variants.

Optionally, the systems can also be equipped with their own integrated electrical system for autonomous operation.

- Comprehensive oil condition monitoring
- Freely configurable variants
- Mobile solution
- Your first step towards predictive maintenance
- Flexible application thanks to self-priming pump

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Planning information

Connecting the oil circuit

The **Condition Monitoring System (CMS)** is equipped with a self-priming gear pump, as well as an integrated pressure regulation to maintain a minimum system pressure and an overpressure bypass. For this system to function reliably, the suction side of the pump must not be subjected to overpressure. Ensure a free return line!

During initial commissioning, manual bleeding at the sensor block may be necessary.

The connection between the system and the hydraulic unit should be stress-free and vibration-free, which is guaranteed when connecting with hoses.

Follow the relevant safety regulations to prevent environmental damage due to potential oil leaks (e.g. collection pans).

Versions

The Condition Monitoring System CMS can be configured in **three versions**:

The "**M – Mounting**" version is suitable for permanent installation on the system. The system can be securely connected to the installation via 4 through-holes in the support frame.

The "**T – Portable**" version additionally features a carrying handle for convenient movement of the device between different machines.

The "**F – Mobile**" version also comes with a sack truck that can be mounted via clamps, allowing for easy transport over longer distances between various locations.

Electrical

The electrical system "**VS – Version 1**" is equipped with the necessary functions for autonomous system operation (on/off switch for the pump, as well as restart protection, overtemperature protection and 24 V DC power supply).

Equipped with a 3 m connection cable with Schuko plug (230 V AC), the pump can be operated and two sensors with 8-pin M12 connectors can also be supplied with 24 V DC.

In addition, the signals from the RS232/CAN communication are looped through to separate connectors, allowing device data to be read out even during operation.

With the "VS – Version 1" electrical variant, sensors with 4-pin M12 connectors, such as the optional IO-Link devices, cannot be supplied. These devices are intended for customer-side power supply and signal evaluation.

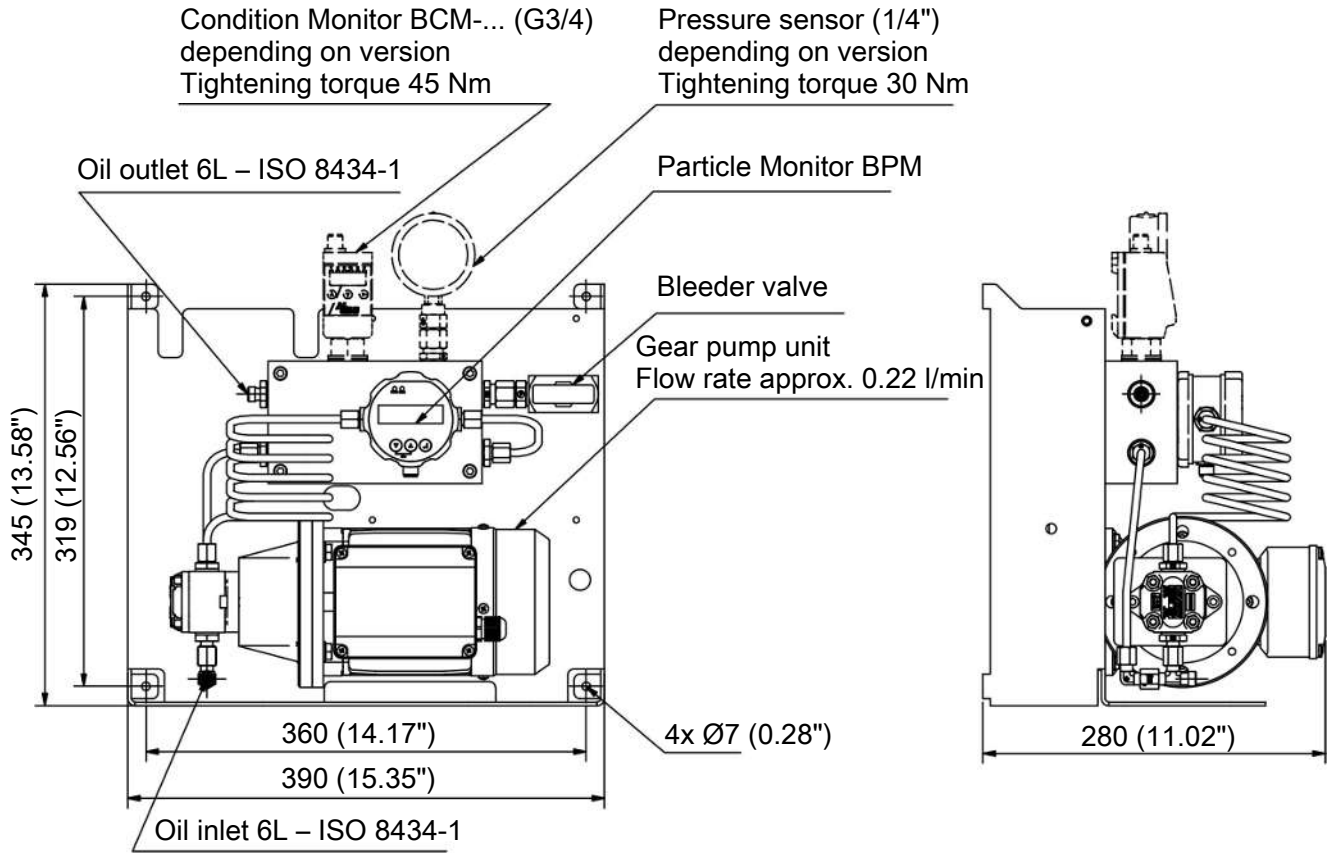
Technical data

Technical Data CMS	
Colour:	Steel parts: RAL 7001, silver grey Motor: RAL 7024 blue grey (Special colours available on request)
Surface protection:	Steel parts: ISO 12944, C3 medium Motor: ISO 12944, C2 medium Aluminium: bare (higher protection on request)
Operating fluids:	Mineral oils (H, HL, HLP, HLPD, HVLP) synthetic esters (HETG, HEPG, HEES, HEPR) polyalkylene glycols (PAG) zinc- and ash-free oils (ZAF) polyalphaolefins (PAO)
Operating pressure **on suction side:** **on discharge side:**	 Unpressurised (max. 0.5 bar) max. 50 bar
Suction pressure: **short-term:**	-0.4 bar -0.6 bar
Operating oil temperature:	-15 °C to +80 °C
Operating viscosity:	max. 500 cSt
Ambient temperature:	-20 °C to +40 °C (different ambient temperatures on request)
Weight:	18–22 kg (depending on version)
Power input:	approx. 1.4 A at 230 V 50 Hz

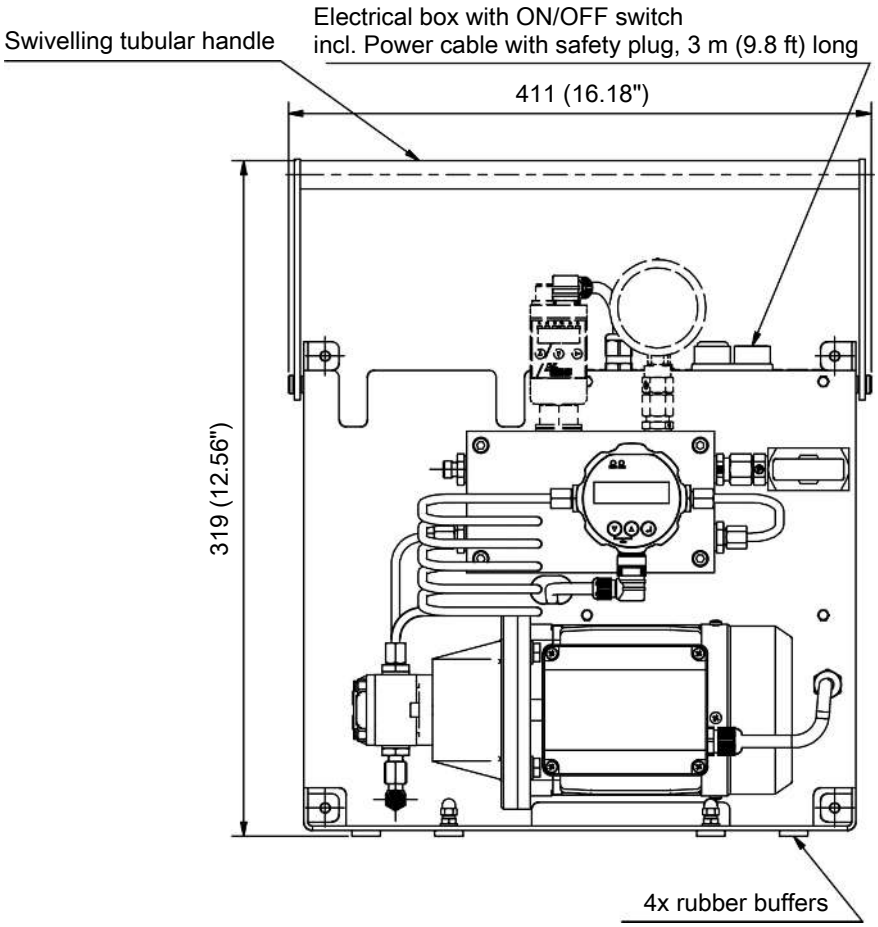
Electric motors (others available upon request)	
Voltage/frequency:	230 V 50 Hz, single-phase motor (special voltages/motor approvals on request)
Thermal stability:	Class of insulating material F, utilisation per Class B (higher on request)
IP rating:	IP55 (without electrical option) IP54 (with electrical option)
The motors comply with standards IEC 60034, IEC 60072, IEC 60085, EU 2019/1781	

Dimensions

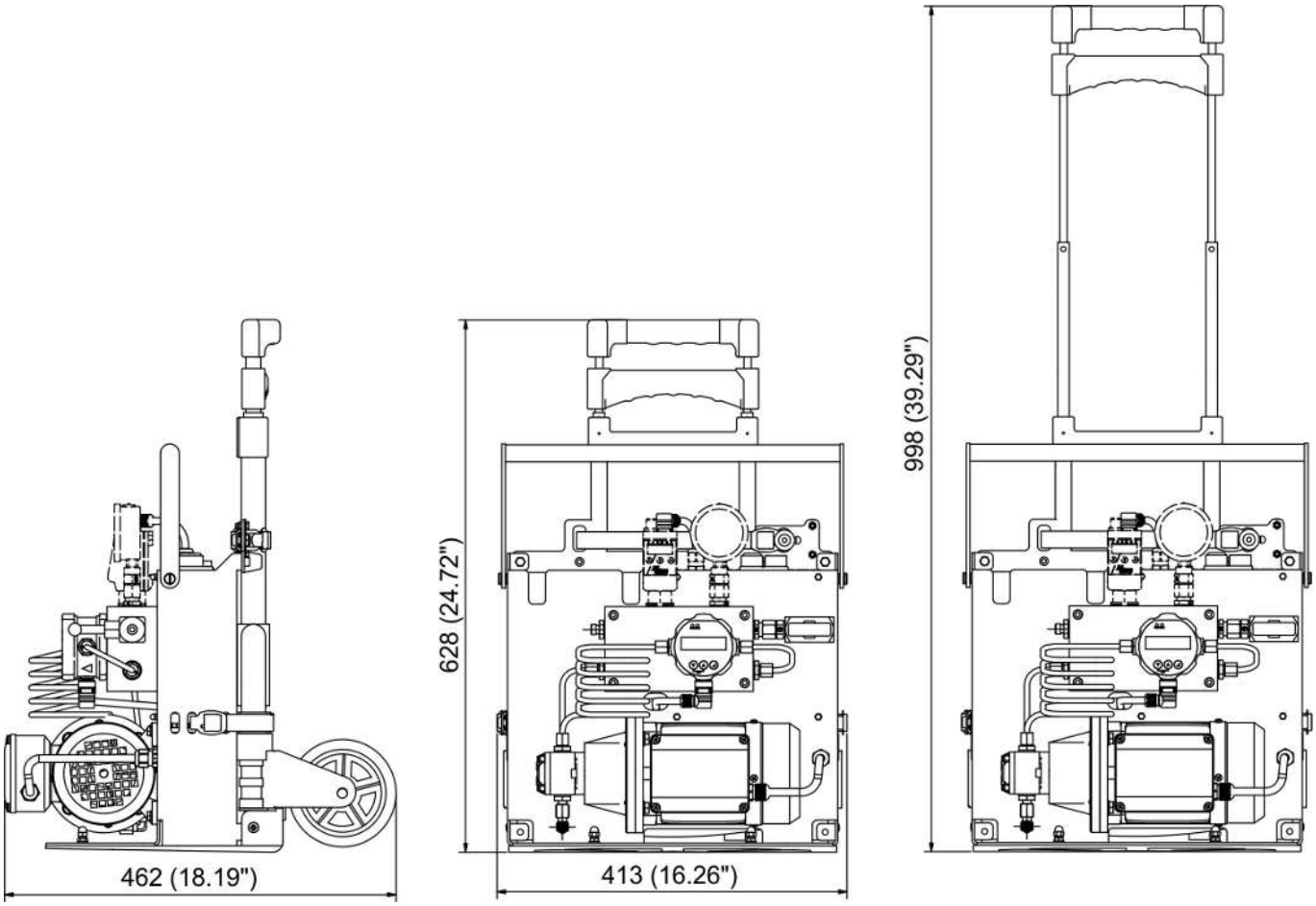
Version 'M' – Mounting



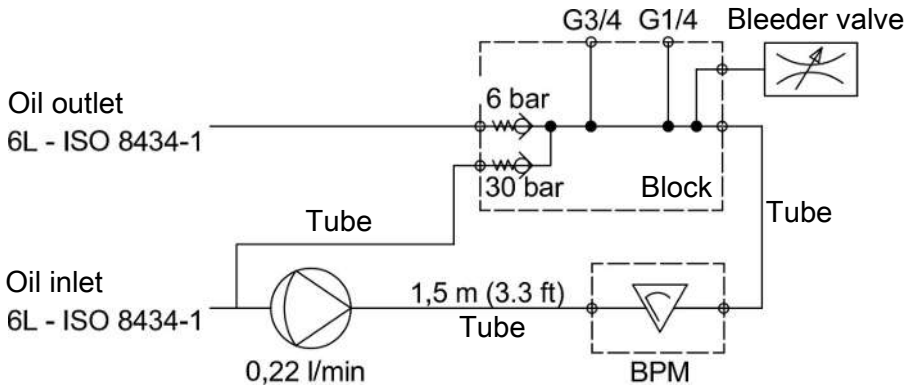
Version "T" – Portable



Version “F” – Mobile



Hydraulic Connection



Model Key

CMS - [ ] - [ ] - [ ] - [ ] - [ ]

Version

M	Installation
T	Portable
F	Mobile

Particle Monitor

DA	with display, analogue signal	(BPM-100-000-1DC2S1A)
OA	without display	(BPM-100-010-1DC2S1A)
DI	with display, IO-Link	(BPM-100-000-1D1S)*
OA	without display, IO-Link	(BPM-100-010-1D1S)*

Oil moisture sensor / oil condition

OOO	without (blanking plug)
MSO	BCM-MS200-1DC2A
WSD	BCM-WS100-1D*
WSA	BCM-WS100-1S2A
WDA	BCM-WD100-2S2A
WDD	BCM-WD100-1D1S*

Electrical

OO	without
VS	Version 1 (incl. mains plug and 24 V DC sensor supply for 8-pin sensors, M12 connector)

Pressure measurement

PO	without (blanking plug)	
PM	Pressure gauge	
PS	Pressure sensor	PT-703-100-G14-M12-13*
PD	PT-771-100-1D1S*	
PA	PT-771-100-1D1A*	

* Cannot be connected via electrical interface “VS”. Option for customer-side power supply.

Technical data of the sensors can be found in the corresponding data sheet.