Contamination Sensor CS 1500

Features and Benefits

- Early detection of critical machine conditions

- Continuous oil condition monitoring

- Condition-based maintenance planning

- Straightforward operation & integration into industrial control systems

- Safe operation thanks to smart features such as turbidity detection (beta validation)

- Rapid creation of measurement reports

- Price-performance ratio

Features and Benefits

- Hydraulic and lubrication systems in industrial and mobile applications

Description

The ContaminationSensor CS1500 is used to continuously monitor the particle contamination in fluids. The cleanliness class results can be displayed according to ISO/SAE or ISO/NAS classifications. Using the latest technologies, combined with more than 20 years of tried-and-tested engineering, we can now provide the user with a small and robust sensor. Thanks to the new digital interface, operating the sensor with mobile devices is easy and intuitive. The field of application is now also being expanded with new industry standard communication interfaces.

Technical Data
Specifications

General information

Smart Features	- Last 10 events displayed as histogram on digital user interface - Adaptive measuring cycles for very clean fluids and changing measuring conditions. - Continuous self-diagnosis - with fault indication via LED, display and a digital interface
Digital Interface	- Wireless configuration and operation on smartphone. - Visualization of measured data and sensor status - Cleanliness limit value wizard - Creation of reports in PDF format
Display (only for CS152X)	LED, 6-digits, 17 segments each
Measured Variables	- ISO classes (>4µm >6µm >14µm >21µm) only ISO code in the display (>4µm >6µm >14µm) SAE (SAE AS 4059) or - ISO classes (>2µm >5µm >15µm >25µm) only ISO code in the display (>2µm >5µm >15µm) NAS (NAS 1638)
Service Variables	- Flow in ml/min - Drive (%) - Temp (°C) or (°F)
Installation Position	No restrictions (recommended: vertical flow direction)
Ambient Temp. Range	-30 °C to 80 °C / -22 °F to 176 °F
Storage Temp. Range	-40 °C to 80 °C / -40 °F to 176 °F
Relative Humidity	Max. 95 %, non-condensing
Sealing Material	- FPM for CS15X0 - EPDM for CS15X1
Protection Class	III (safety extra-low voltage)
Protection Class	IP67 (with connector screwed in place)
Weight	1.3 kg

CS 1500   Contamination Sensor

Specifications

Hydraulic Data

Measuring Range	From 20 to 32,000,000 particles per 100 ml, corresponding to ISO class 4 to 25
Accuracy	+/- 1/2 ISO class in the range ISO13/11/10 to 23/21/18
Operating Pressure	Max. 350 bar / 5075 psi
Hydraulic Connection	Pipe or hose connection (A,B): thread G1/4, ISO 228 or flange connection (C,D): DN 4
Permitted Measurement Flow Rate	30 to 500 ml/min
Permitted Viscosity Range	1 to 1000cSt (32 to 4635 SUS)
Fluid Temperature Range	0 to 85 °C / 32 to 185 °F

Electrical Data

Supply Voltage	24VDC +/-10%, residual ripple <10%
Power Consumption	5W plus connected loads - switching output / analogue output

Interface Depending on Type

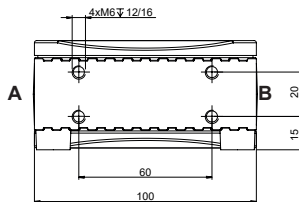|	
Connection Plug	- Plug-in connector M12x1, 8-pin, male, in accordance with VDE0627 or IEC61984 - Plug-in connector M12x1, 5-pin, male, in accordance with VDE0627 or IEC61984
Ethernet Interface	ModBus TCP, HTTP
RS485 (2-wire)	ModBus RTU or HSI (HYDAC proprietary protocol)
HSI (single wire)	HYDAC proprietary protocol
Analogue output (2-conductor technology)	4 to 20 mA output (active): max. load of 500 Ω Accuracy: ± 1 % FS
Switching output	p-, n-switching or push-pull, parameterisable, switching current < 300 mA

Dimensions

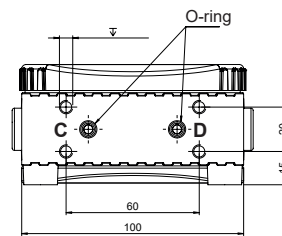CS1x1x without display
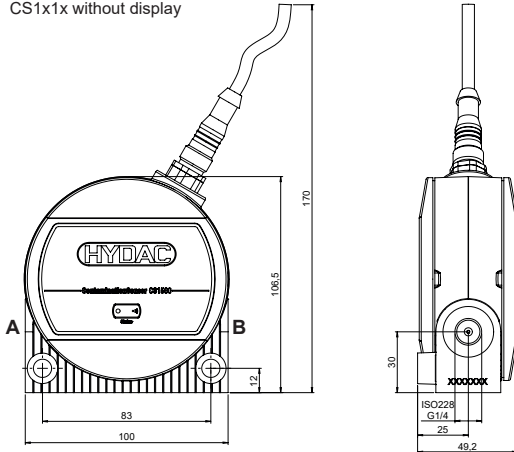
CS1x2x with display
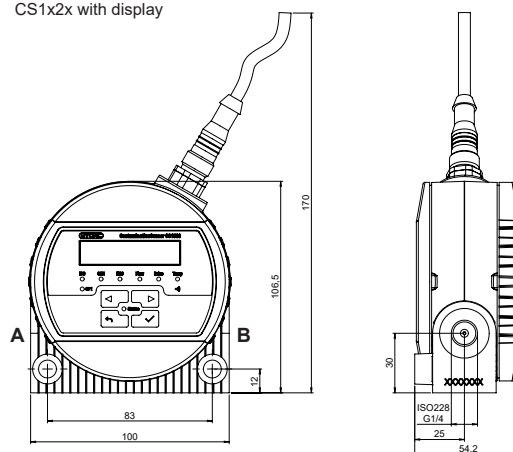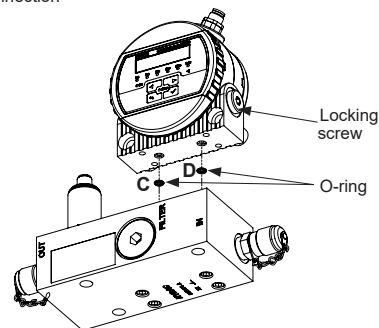

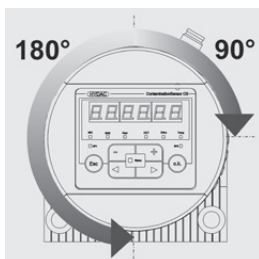View of underside

Pipe or hose connection

Flange connection

O-ring

Pipe or hose connection

Flange connection

Locking screw

O-ring

Display rotation

180°   90°

Hydraulic Connection Types

CS 1500 Contamination Sensor

How to Build a Valid Model Number for a Schroeder CS1500:

CS							
Type	Series	Contamination Code	Options	Media	Contamination Interfaces	Hydraulic Connection	Modification Number

**Starting from the left to the right you will choose your CS Type and work your way through each category as illustrated above.

Type	Series
☐ **CS =** Contamination Sensor	☐ **1 =** 1000 series, 4 particle size channels

Contamination Code	Options	Media
☐ **5 = ISO 4406: 1987:** > 2 μm, > 5 μm, > 15 μm, > 25 μm **NAS 1638:** switchable between 2-5 μm, 5-15 μm, 15-25 μm, > 25 μm **ISO 4406:** 1999 / SAE AS 4059: switchable between >4 μm(c), >6 μm(c), >14 μm(c), >21 μm(c)	☐ **1 =** Without display ☐ **2 =** With display (display can be rotated to any angle up to 270°)	☐ **0 =** on mineral oil basis with FKM seal ☐ **1 =** phosphate ester with EPDM seal

Communication Interfaces	Hydraulic Connection
☐ **0 =** Plug-in connector M12x1, 8-pin Ethernet / ModBus TCP Counting input for flow transmitter Limit value switching output ☐ **1 =** Plug-in connector M12x1, 8-pin RS485 / HSI or RS485 / ModBus RTU (configurable) Counting input for flow transmitter Limit value switching output Analogue output (4 to 20 mA)	☐ **0 =** Pipe or hose connection ☐ **1 =** Flange connection

| Modification Number |
|---------------------|
| ☐ **000 =** Standard ☐ **K =** CS Block Kit without AS1000 Sensor (requires Flange Connection) ☐ **KAS =** CS Block Kit with AS1000 Sensor (requires Flange Connection ☐ **KASD =** CS Block Kit with AS3008 Sensor (requires Flange Connection) |

Scope of Delivery

– Contamination Sensor

– 2 x O-ring (only for version with flange connection)

– Calibration certificate and instructions available as a digital download from the life cycle record

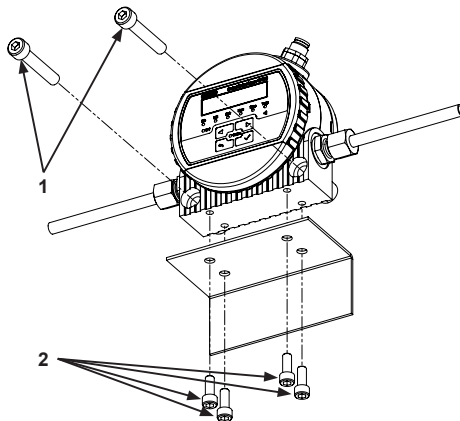## Accessories

Designation	Part-No.
Supply voltage	
Connector socket with 2 m cable, shielded, 8-pole, M12x1	3281220
Connection cable 16.4 ft. (5 m) with M12x1 connector, screened 8-pole	02702459

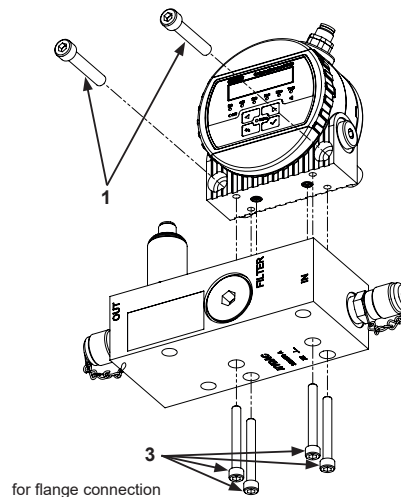## Pressure - Viscosity Range

Pressure viscosity range

Δp : Pressure
ν : Viscosity

Installation Types (examples)
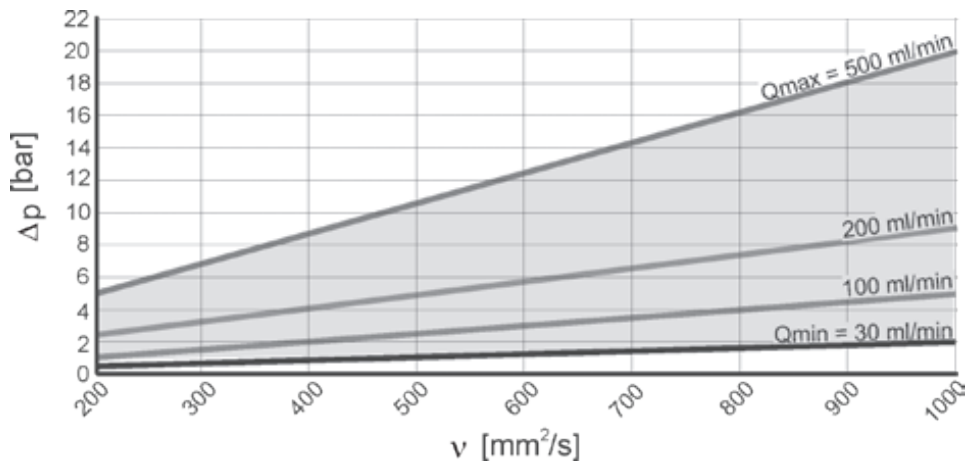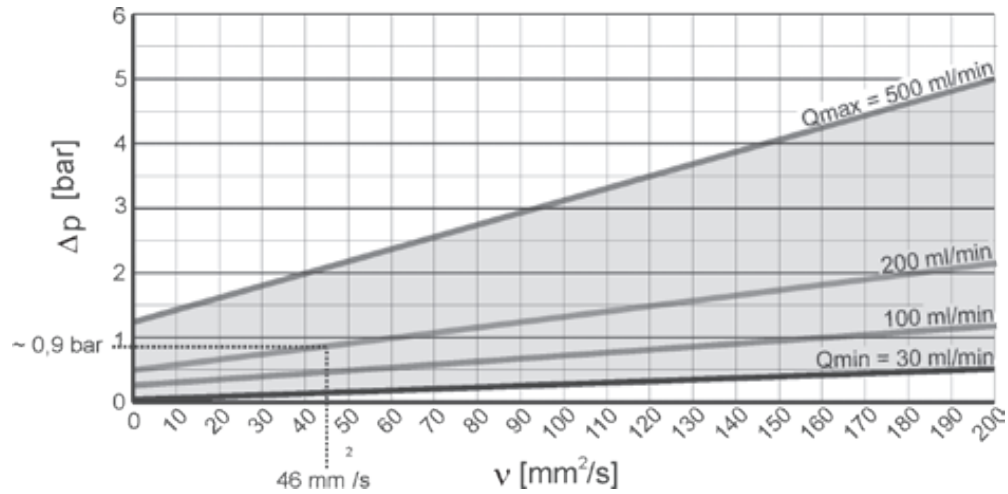
Wall or console mounting

1

2

for pipe or hose connection

Mounting on flange plate,
connection plate or control block

1

3

for flange connection

1: with 2 x M8 (ISO 4762) or
2, 3: with 4 x M6