

Contamination switch VS

RE 95148/12.2018
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- Detecting metallic contamination in oil

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Product description

The contamination switch VS detects metallic ferromagnetic impurities in oil. Installed in an axial piston unit, the contamination switch VS provides early warning of wear processes and makes it possible to avoid consequential damage in good time.

The contamination switch VS is screwed into the existing bores (e.g. case drain ports) of hydraulic pumps and hydraulic motors. Most abrasion is likely to occur in the case drain area. The plug connector should be fitted so that it faces downwards in order to promote the accumulation of particles due to gravity.

Ferromagnetic impurities in the oil are attracted by a permanent magnet on the measuring surface of the contami-

nation switch VS. As the particles accumulate, they form an electric bridge between the magnet and adjacent metal contacts. This switch signal can then be used to activate an alarm via a relay, for example, or to switch off the hydraulic system.

The magnet always forms one of the two switch contacts. A separate contact which is isolated from the switch housing forms the second switch contact.

Two different versions are also available for the electrical connection: either an integrated plug connector with mating plug or a free plug connector on the end of a connecting lead with two strands and a protective sheath.

Main part

- ▶ Supplied with sealing ring
- ▶ Supplied with mating plug (connection version S)

Type code

01	02	03	04		05	06
VS				/	2	2

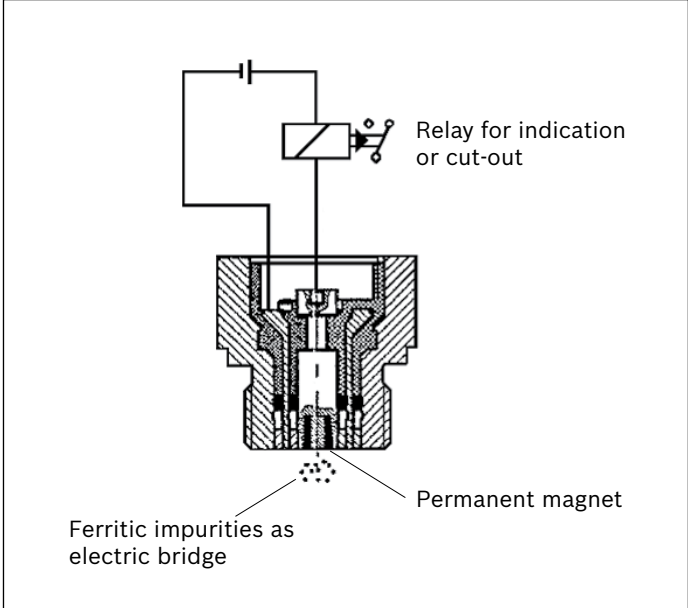
Type	
01	Contamination switch VS
Electrical connection	
02	Integrated plug connector to EN 175301-803 / IEC 4400 S
	Connecting strands with protective sheath and socket DEUTSCH DT04, 2-pin L
Screw thread	
03	M18 x 1.5 18
	M22 x 1.5 22
	M26 x 1.5 26
	M33 x 2 33
Switch contact	
04	Separate contact S
Series	
05	2
Index	
06	2

Technical data

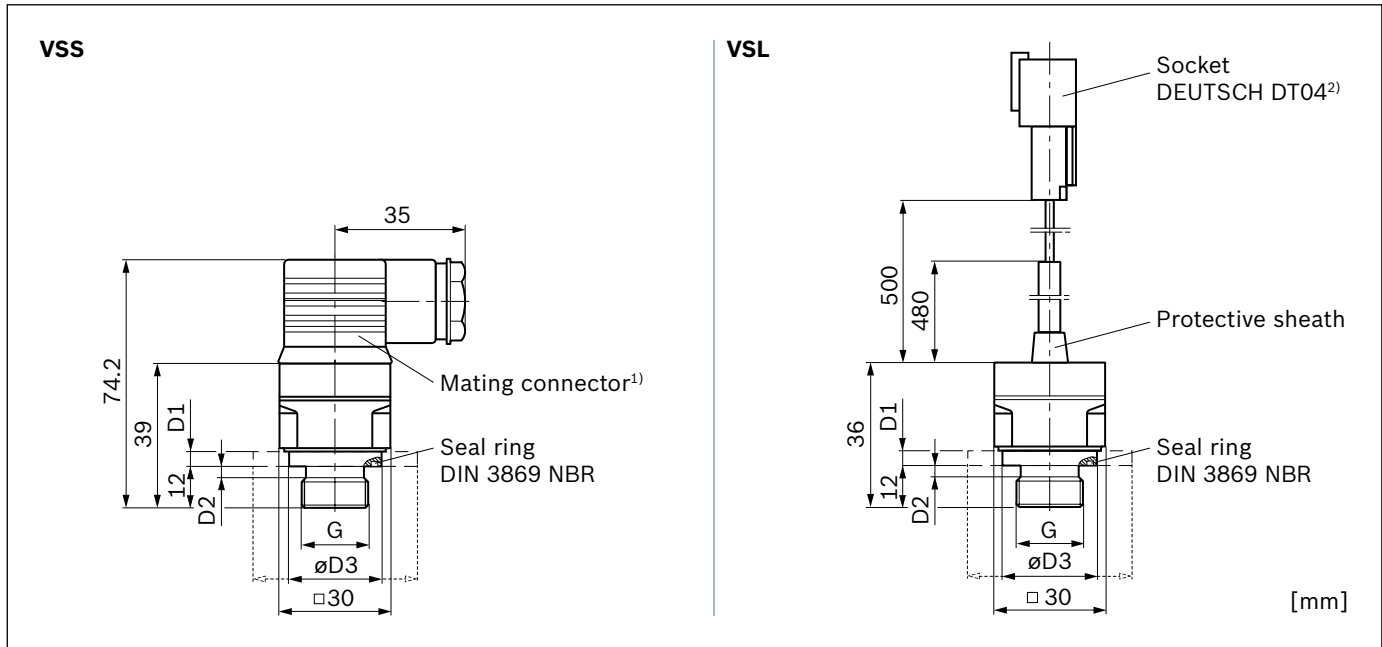
Type	VSS18	VSS22	VSL22	VSS26	VSL26	VSS33	VSL33
Switching voltage maximum U_{\max} V	30						
Switching current maximum I_{\max} A	0.2						
Oil pressure maximum p_{\max} bar	6						
Ambient temperature ϑ °C	-25 ... +90						
Screw-in torque maximum T_{\max} Nm	25	60		70		140	
Installation position	Preferably with connector and cable outlet pointing downwards						
ROHS	EU-RoHS2-compliant						

Electrical connection

Connection switch contact



Dimensions



- ¹⁾ Connection version "S" is supplied complete with mating connector.
- ²⁾ The mating connector DEUTSCH DT06-2S-EP04 for connection version "L" is not included in supply. Available from Bosch Rexroth on request.

Type	D1 mm	D2 mm	D3 mm	G
VSS18	4	3	23.9	M18 x 1.5
VSS22	4	3	27	M22 x 1.5
VSL22	4	3	27	M22 x 1.5
VSS26	4	3	31.4	M26 x 1.5
VSL26	4	3	31.4	M26 x 1.5
VSS33	4.5	4	39.2	M33 x 1.5
VSL33	4.5	4	39.2	M33 x 2

Safety Instructions

General instructions

- ▶ Before finalizing your design, request a binding installation drawing.
- ▶ The proposed circuits do not imply any technical liability for the system on the part of Bosch Rexroth.
- ▶ Opening the sensor or carrying out modifications to or repairs on the sensor is prohibited. Modifications or repairs to the wiring could lead to dangerous malfunctions.
- ▶ The sensor may only be assembled/disassembled in a deenergized state.
- ▶ Only trained and experienced specialists who are adequately familiar with both the components used and the complete system should implement system developments or install and commission electronic systems for controlling hydraulic drives.
- ▶ When commissioning the sensor, the machine may pose unforeseen hazards. Before commissioning the system, you must therefore ensure that the vehicle and the hydraulic system are in a safe condition.
- ▶ Make sure that nobody is in the machine's danger zone.
- ▶ Do not use defective components or components not in proper working order. If the sensor should fail or demonstrate faulty operation, it must be replaced.
- ▶ Despite every care being taken when compiling this document, it is not possible to consider all feasible applications. If instructions for your specific application are missing, you can contact Bosch Rexroth.
- ▶ Sensors do not fall under the scope of EMC Directive 2014/30/EC. A declaration of conformity and the CE marking for individually sold sensors is not required, since these are passive sensors.
- ▶ The use of sensors by private users is not permitted, since these users do not typically have the required level of expertise.

Notes on the installation location and position

- ▶ Do not install the sensor close to parts that generate considerable heat (e.g. exhaust).
- ▶ Lines are to be routed with sufficient distance from hot or moving vehicle parts.
- ▶ A sufficient distance to radio systems must be maintained.
- ▶ Before electric welding and painting operations, the sensor must be disconnected from the power supply and the sensor connector must be removed.
- ▶ Cables/wires must be sealed individually to prevent water from entering the sensor.

Notes on transport and storage

- ▶ Please examine the sensor for any damage which may have occurred during transport. If there are obvious signs of damage, please inform the transport company and Bosch Rexroth immediately.
- ▶ If it is dropped, the sensor must not be used any longer, as invisible damage could have a negative impact on reliability.

Notes on wiring and circuitry

- ▶ Lines to the sensors must be designed so that they are as short as possible and shielded. The shielding must be connected to the electronics on one side or to the machine or vehicle ground via a low-resistance connection.
- ▶ The sensor mating connector must only be plugged and unplugged when it is in a deenergized state.
- ▶ The sensor lines are sensitive to spurious interference. For this reason, the following measures should be taken when operating the sensor:
 - Sensor lines should be attached as far away as possible from large electric machines.
 - If the signal requirements are satisfied, it is possible to extend the sensor cable.

- ▶ Lines from the sensor to the electronics must not be routed close to other power-conducting lines in the machine or vehicle.
- ▶ The wiring harness should be fixated mechanically in the area in which the sensor is installed (spacing < 150 mm). The wiring harness should be secured so that in-phase excitation with the sensor occurs (e.g. at the sensor mounting point).
- ▶ If possible, lines should be routed in the vehicle interior. If the lines are routed outside the vehicle, make sure that they are securely fixed.
- ▶ Lines must not be kinked or twisted, must not rub against edges and must not be routed through sharp-edged ducts without protection.

Intended use

- ▶ The sensor is designed for use in mobile working machines provided no limitations/restrictions are made to certain application areas in this data sheet.
- ▶ Operation of the sensor must generally occur within the operating ranges specified and approved in this data sheet, particularly with regard to voltage, temperature, vibration, shock and other described environmental influences.
- ▶ Use outside of the specified and approved boundary conditions may result in danger to life and/or cause damage to components which could result in sequential damage to the mobile working machine.
- ▶ Serious personal injury and/or damage to property may occur in case of non-compliance with the appropriate regulations.

Improper use

- ▶ Any use of the sensor other than that described in the chapter "Intended use" is considered to be improper.
- ▶ Use in explosive areas is not permitted.
- ▶ Damages which result from improper use and/or from unauthorized, unintended interventions in the device not described in this data sheet render all warranty and liability claims with respect to the manufacturer void.

Use in safety-related functions

- ▶ The customer is responsible for performing a risk analysis of the mobile working machine and determining the possible safety-related functions.
- ▶ In safety-related applications, the customer is responsible for taking proper measures to ensure safety (sensor redundancy, plausibility check, etc.).

Further information

- ▶ Further information about the sensor can be found at www.boschrexroth.de/mobileelektronik.
- ▶ The sensor must be disposed of in accordance with the national regulations of the country in which it is used.

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