

Contamination switch VS

RE 95148

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- For detecting metallic impurities in oil

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Ordering code

01	02	03	04	05	06
VS				/	2

Type

01	Contamination switch	VS
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Electrical connection

02	Integrated plug connector to DIN 43650 / IEC 4400	S
	Connecting strands with protective sheath and socket DEUTSCH DT04, 2-pin	L

Screw thread

03	M18x1.5	18
	M22x1.5	22
	M26x1.5	26
	M33x2	33

Switch contact

04	Separate contact	S
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Series

05		2
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Index

06		2
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Material number

Variants	Material number
VSS18S/22	R902601956
VSS22S/22	R902601957
VSS26S/22	R902601958
VSS33S/22	R902601959
VSL22S/22	R902601963
VSL26S/22	R902601964
VSL33S/22	R902601965

Technical data

Type	VS	
Max. switching voltage	30 V	
Max. switching current	0.2 A	
Max. oil pressure	6 bar abs.	
Ambient temperature	-25 °C ... +90 °C	
Max. screw-in torque	Size 18	25 Nm
	Size 22	60 Nm
	Size 26	70 Nm
	Size 33	140 Nm
Installed position	Preferably with connector and cable outlet pointing downwards	

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 contamination 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.

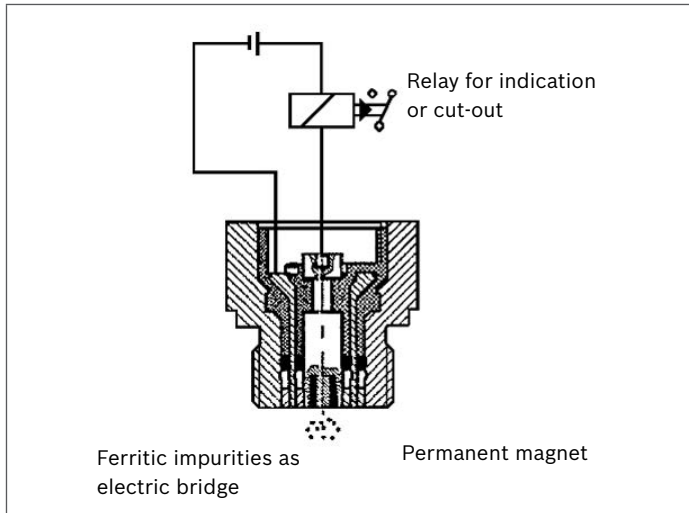
Two different versions are also available for the electrical connection: either an integrated plug connector with mating plug or a free plug connector on the end of a connecting lead with two strands and a protective sheath.

Main part

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

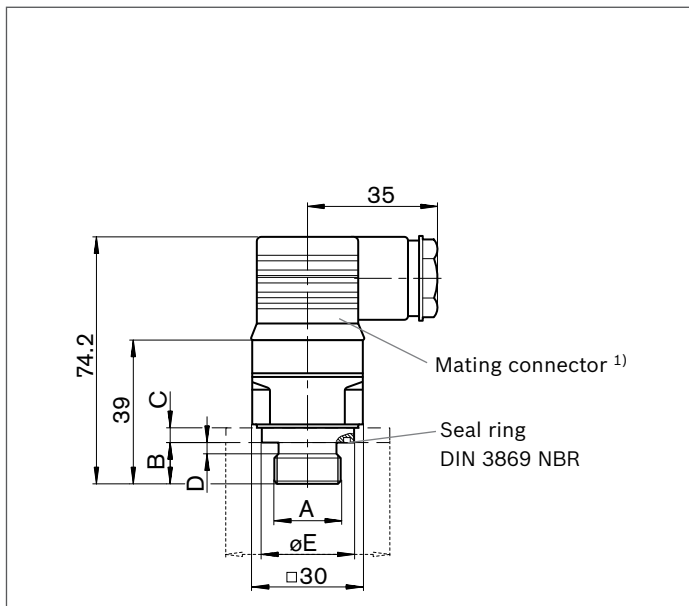
Connection

Switch contact version "S"



Dimensions

Connection version "S"

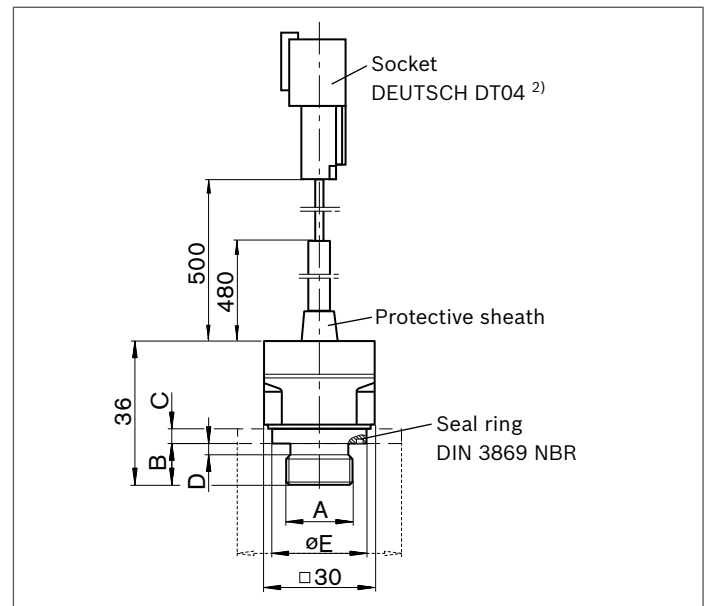


VSS	18	22	26	33
A	M18x1.5	M22x1.5	M26x1.5	M33x1.5
B	12	12	12	12
C	4	4	4	4.5
D	3	3	3	4
E	∅23.9	∅27	∅31.4	∅39.2

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 Rexroth on request.

Connection version "L"



VSL	22	26	33
A	M22x1.5	M26x1.5	M33x2
B	12	12	12
C	4	4	4.5
D	3	3	4
E	∅27	∅31.4	∅39.2

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.
- ▶ It is not permissible to open the sensor or to modify or repair the sensor. Modifications or repairs to the wiring could lead to dangerous malfunctions.
- ▶ Connections in the hydraulic system may only be opened in depressurized state.
- ▶ System developments, installations and commissioning of electronic systems for controlling hydraulic drives must only be carried out by trained and experienced specialists who are sufficiently familiar with both the components used and the complete system.
- ▶ 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.
- ▶ No defective or incorrectly functioning components may be used. 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 take into account 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-RL 2004/108/EC or 2014/30/EU. A declaration of conformity and the CE marking for individually sold sensors is not required, since the sensors are only sold to machine manufacturers (OEM) or to companies with the necessary expertise (i.e. certified Bosch Rexroth partners or companies with trained and qualified service personnel). Furthermore, the responsibility of the above mentioned companies for machine EMC testing remains unaffected in principle.
- ▶ The use of sensors by private users is not permissible, 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 sufficiently large distance to radio systems must be maintained.
- ▶ The connector of the sensor is to be unplugged during electrical welding and painting operations.
- ▶ Cables/wires must be sealed individually to prevent water from entering the sensor.

Notes on transport and storage

- ▶ Please examine the sensor for any damages which may have occurred during transport. If there are obvious signs of damage, please immediately inform the transport company and Bosch Rexroth.
- ▶ 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 as short as possible and be 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 should only be plugged and unplugged when it is in a deenergized state.
- ▶ The sensor lines are sensitive to radiation 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 fixated so that in-phase excitation with the sensor occurs (e.g. at the sensor mounting points).

- ▶ 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 released in this data sheet, particularly with regard to voltage, temperature, vibration, shock and other described environmental influences.
- ▶ Use outside of the specified and released boundary conditions may result in danger to life and/or cause damage to components which could result in consequential damage to the mobile working machine.

Improper use

- ▶ Any use of the sensor other than that described in chapter "Intended use" is considered to be improper.
- ▶ Use in explosive areas is not permissible.
- ▶ Damages which result from improper use and/or from unauthorized, interference in the component 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 suitable measures for ensuring safety (sensor redundancy, plausibility check, emergency switch, etc.).
- ▶ Product data that is necessary to assess the safety of the machine can be provided on request or are listed in this data sheet.

More detailed information

- ▶ The sensor must be disposed according to the national regulations of your country.

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