RE 95 130/03.99

Replaces: RE 95038/06.94

engineering mannesmann Rexroth

Inductive Speed Sensor ID

for frequency proportional speed measurement

Series 2

IDR18/20-L250 IDR18/20-L400

Features

The "ID" inductive speed sensor is used for contact-free measurement of the rotary speeds of Brueninghaus Hydromatik hydraulic pumps of type A4VTG (see RE 92012) and hydraulic motors of types A2FM (see RE 91001), A2FE (see RE 91008), A6VM (see RE 91604) or A6VE (see RE 91606).

The sensor is installed in a special mounting hole in the housing of the axial piston pump/motor and detects the speed on an internal gear wheel or comparable component made of ferromagnetic material.

The frequency f of the generated sensor output voltage is a function of the number of teeth z on the circumference of the gear wheel and of the rotary speed n of the input shaft or output shaft:

$$f = \frac{z \cdot n}{60}$$

f in sec^{-1}

n in min^{-1}

The rotary speed of the axial piston pump or motor can then be calculated from the frequency of the signal using a suitable electronic device (e.g. an MC microcontroller, RE 95050).

The ID speed sensor is simply screwed firmly into the housing of the axial piston pump or motor and requires no further adjustment. In the hydraulic motor, the precise measuring distance is set by a special spacer ring, which has an integral O-ring to ensure a safe seal against the housing pressure.

Main components

- Permanent solenoid with coil
- Steel housing, galvanized and chromalized
- Pressure resistant sensor measuring surface
- Water-tight plug-in connector

Special features

- No external voltage supply required
- Easy to install with fixed lengths of thread engagement ensured by spacer rings on the hydraulic motors
- Sealing surface for O-ring seal

Ordering Code

ID	R	18	/	2	0	–	

Type

Inductive speed sensor	**ID**

Model

with circular connector conforming to DIN 72585	**R**

Thread

M18x1.5	**18**

Series

	2

Index

	0

Length of thread engagement

Fixed length of thread engagement L = 25.0 mm	**L250**
Fixed length of thread engagement L = 40.0 mm	**L400**

Note:

Due to the inductive measuring principle, low speeds result in only a low voltage amplitude in the sensor signal. Therefore, in order to record slow speeds, e.g. to detect standstill for travel drives, an HD Hall-effect speed sensor (see RE 95134) must be used instead of the ID speed sensor.

Technical Data

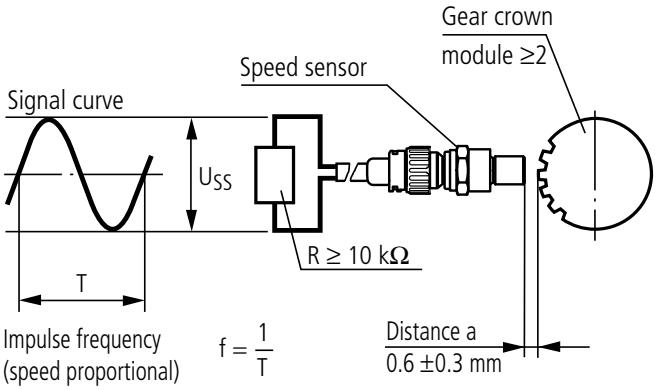
Type	ID
Internal resistance of the coil	1050 Ω ±100 Ω
Operating temperature range	–30 °C to +140 °C
Storage temperature range	–55 °C to +150 °C
Enclosure protection class to DIN 40050	IP 67
Max. tightening torque	50 Nm
Installation position	optional
Weight IDR...-L250	approx. 100 g
IDR...-L400	approx. 125 g

Typical Operating Data

Type	ID
Gear wheel module m	2
Measuring distance, sensor-to-gear wheel	0.6 ±0.3 mm
Load impedance	10 kΩ
Output voltage	

Frequency	Effective AC voltage
500 Hz	$U_{eff} \geq 0.7$ V
1000 Hz	$U_{eff} \geq 1.0$ V
2000 Hz	$U_{eff} \geq 1.5$ V
4000 Hz	$U_{eff} \geq 1.5$ V

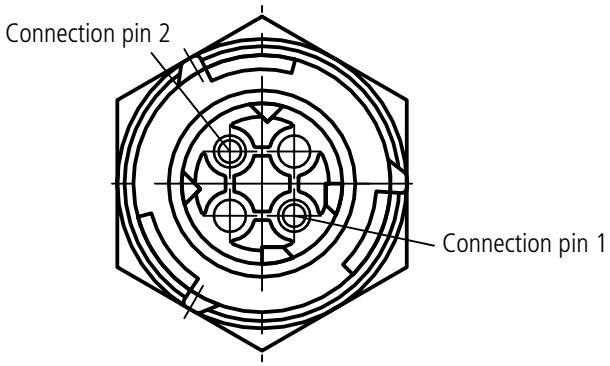
Measuring Arrangement



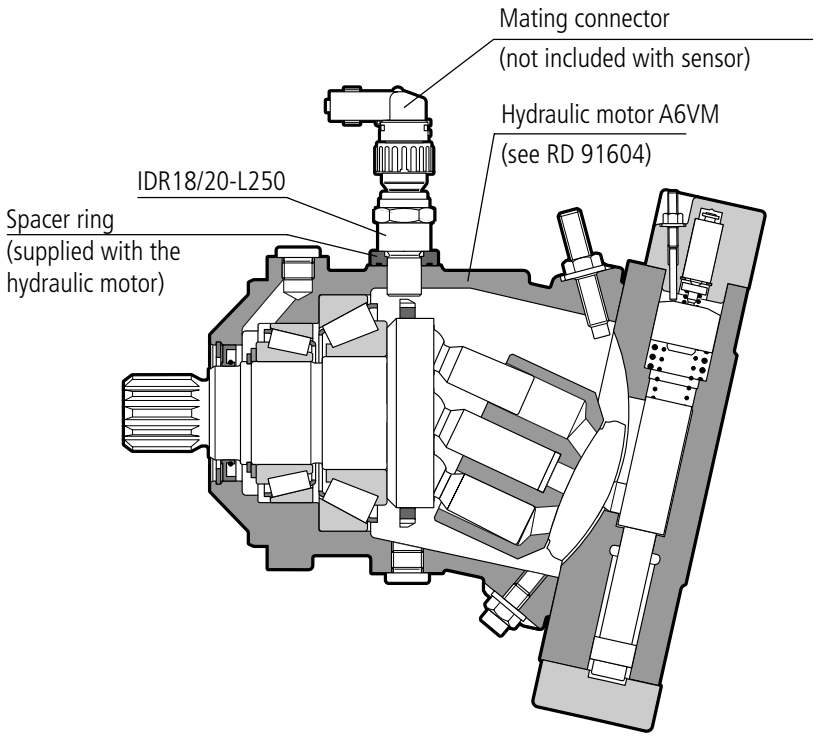
Impulse frequency (speed proportional) $f = \frac{1}{T}$

Effective voltage $U_{eff} = \frac{U_{SS}}{2 \cdot \sqrt{2}}$

Terminal Connection

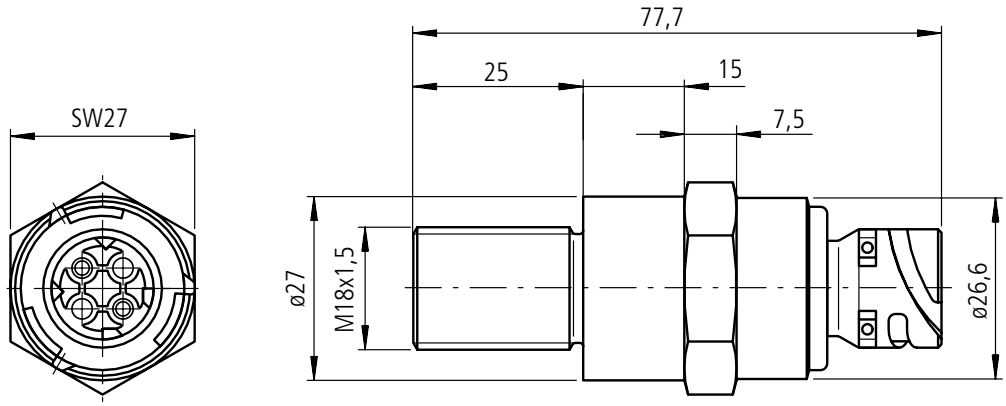


Example Application

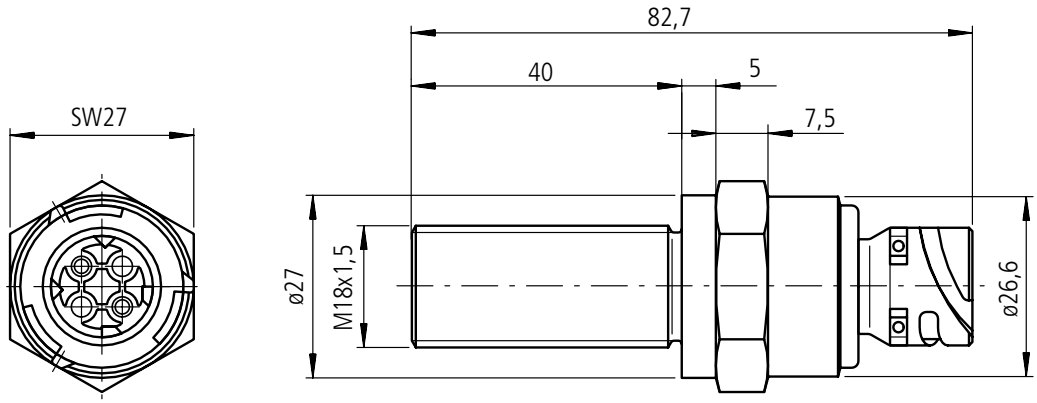


Unit dimensions

IDR18/20-L250



IDR18/20-L400



The mating connector for the ID speed sensor, optionally available in 180° (straight) or 90° (elbow) versions, is not included with the sensor. See table below for ordering details.

Supply via Brueninghaus Hydromatik on enquiry.

Order designation	Features	Comprising	AMP No.
"Mating connector for IDR, elbow"	90°, right-angled, 2- or 3-pin	1 socket housing, 3-pin, coding 1	AMP 1-967325-2
		1 cap, 90°, with variable clamping	AMP 965576-1
		3 socket contacts for wire size 0.5 – 1.0	AMP 962981-1
		3 individual seals	AMP 828920-1
		1 blanking plug	AMP 828922-1
"Mating connector for IDR, straight"	180°, straight 2- or 3-pin	1 socket housing, 3-pin, coding 1	AMP 1-967325-2
		1 cap, 90°, with variable clamping	AMP 965784-1
		3 socket contacts for wire size 0.5 – 1.0	AMP 962981-1
		3 individual seals	AMP 828920-1
		1 blanking plug	AMP 828922-1

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The specified data is for product description purposes only and may not be deemed to be guaranteed unless expressly confirmed in the contract.