



Installation Instructions

RMGZ800A

Heavy duty force sensor for pulley

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**Diese Montageanweisung ist auch in Deutsch erhältlich.
Bitte kontaktieren Sie die nächstgelegene FMS Vertretung.**

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2 Safety Information

All safety information, operating and installation regulations listed here ensure proper function of the device. Safe operation of the system requires compliance at all times. Noncompliance with the safety information or using the device outside of the specified performance data can endanger the safety and health of persons.

Work with respect to operation, maintenance, retrofit, repair, or setting the device described here must only be performed by expert personnel.

2.1 Presentation of Safety Information

2.1.1 Danger that Could Result in Minor or Moderate Injuries



Danger, warning, caution

Type of danger and its source

Possible consequences of nonobservance

Measure for danger prevention

2.1.2 Note Regarding Proper Function



Note

Note regarding proper operation

Simplification of operation

Ensuring function

2.2 General Safety Information



The force sensors may not be subjected to loads outside of the specified values during installation and operation later



The fastening points for supporting the force sensor must be designed correctly. Pay attention to correct installation of the pillow blocks.

3 Product Information

3.1 Product description

The force sensors of the RMGZ800-Series are used for the tension measurement in filamentary material. A large variety of standard pulleys can be mounted on the rotating flange. The installation of the force sensor to the machine frame is realized by means of a bore with keyway. The force sensors of the RMGZ800-Series can be used in static applications as well as for measurements in rotating applications (planetary or tubular stranders, bunchers, twisters, etc.). Standard pulleys are not supplied by FMS.

3.2 Functional description

The RMGZ800-Series force measuring sensor combines the bearing seat of the pulley and the force sensor within the same housing, thus minimizing the required installation space. The substantial overload protection translates to eliminated / minimized calibration issues due to machine upset conditions. The movement of the bending beam, which is proportional to the applied force, is detected by strain gauges arranged in a full bridge circuit and then converted into an electrical signal. This simple measurement principle delivers precise results even with low material tension and small web wrap angles. The Red Point, as located on the sensor body, should be aligned with the direction of the resultant force due to material tension.

3.3 Designations

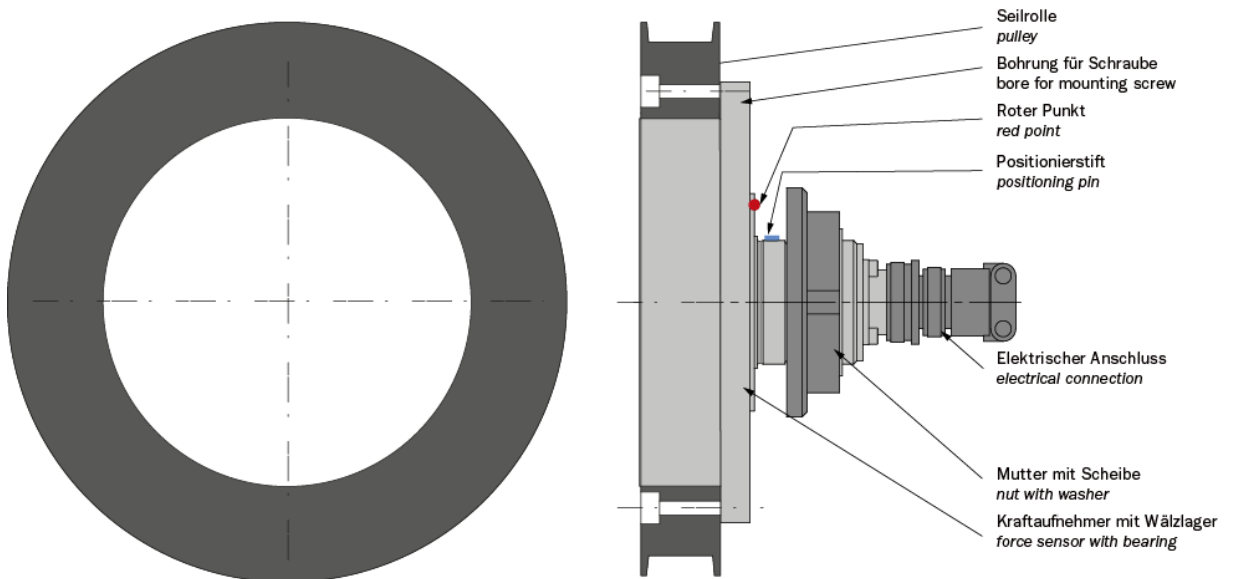


Figure 1: Designations

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3.4 Scope of delivery

Included in scope of delivery

Force sensor, straight connector (female), installation nut with washer

Options

H14 right-angle connector in scope of supply, replaces straight connector

H16 temperature range up to 120 °C (248 °F)

H18 with water tight, straight connector, replaces original connector

H29 resistant against aggressive media, especially acids (please specify), up to 120 °C (248 °F)

Accessories

Prefabricated cable (specify length) with connector (straight or right-angle)

3.5 Order code

RMGZ800A-Series : Order code			
RMGZ8	00A	.500	.H22
			Options
			Nominal force rating in N
			Size, design revision A
			Series

Figure 1: order code

Datasheet_RMGZ800_series.indd

4 Installation

4.1 Preparation

The force sensors are defined as “incomplete machine” in line with EC Directive 2006/42/EC, Article 2. When installing the force sensors, the following conditions must be met to ensure proper function and installation in a machine without negative impact on safety and health of persons:



The force sensors may not be subjected to loads outside of the specified values during installation and operation later



The fastening points for supporting the force sensor must be designed correctly. Pay attention to correct installation of the pillow blocks.



The force sensors must be connected electrically correctly.

4.2 Preparing the Machine Frame

The force sensors of the RMGZ400-series are usually mounted on a mounting bracket which is installed on the machine frame or on the rotating lay plate of a stranding machine. The integrated flange on the force sensor provides M5 threads for easier assembly. If mounting brackets are used, they need to have mounting holes with a spline groove



If the force sensor is used as a replacement for their predecessor products RMGZ400A or RMGZ600A, the 4mm [0.157 in.] position pin must be replaced with the supplied pin $\varnothing 3 \times 5$ [0.118 in. x 0.197 in.].

4.3 Installation for rotating applications

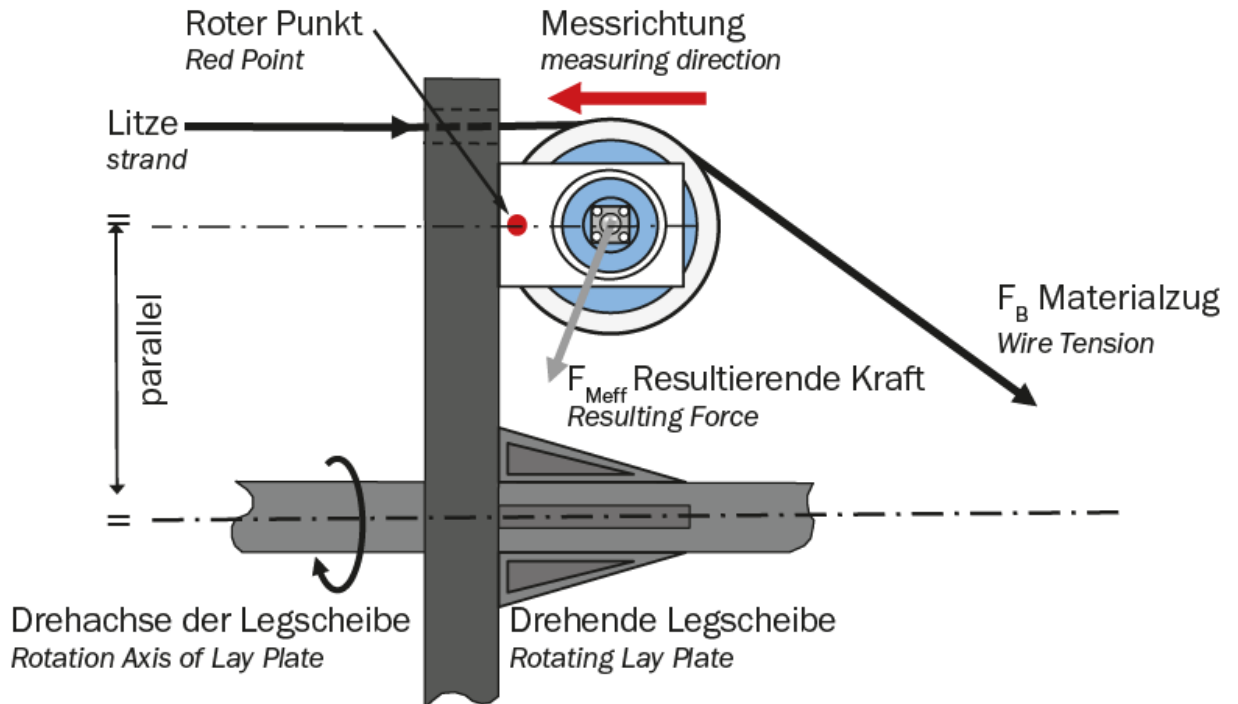


Figure 2: rotating applications

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In rotating applications (e.g. in stranding machines) the force sensors are mounted such that centrifugal forces are compensated. If using the RMGZ800 this can be achieved by turning the measuring axes of the sensor parallel to the rotation axis and in direction of the positive force component.



It is of importance to compensate the centrifugal forces caused by the rotating lay plate of the strander. In fast rotating machines already a small deviation in parallelism between rotation axis and Red Point (of e.g. 0.3°) can lead to a zero-point error.

The adjustment of the Red Point and hence the quality of the sensor adjustment can be tested after offset compensation and calibration. If the reading of an unloaded force sensor stays at zero (e.g. 0 N) regardless of the load cell position (e.g. at 12 o'clock or at 6 o'clock position), the red point is correctly aligned.

4.4 Installation for static applications

The support surface for the mounting brackets on the machine frame must be meticulously crafted. The brackets are mounted on the machine. The force sensor is screwed to the mounting holes of the mounting brackets whereas the spline groove holds the position pin preventing the roller from twisting out of position. The position of the red point and the position of the pin are aligned to each other. Their positions depend on the direction of the resulting force. If the force acts in the direction of the red point, the measuring amplifier will show positive measuring values.

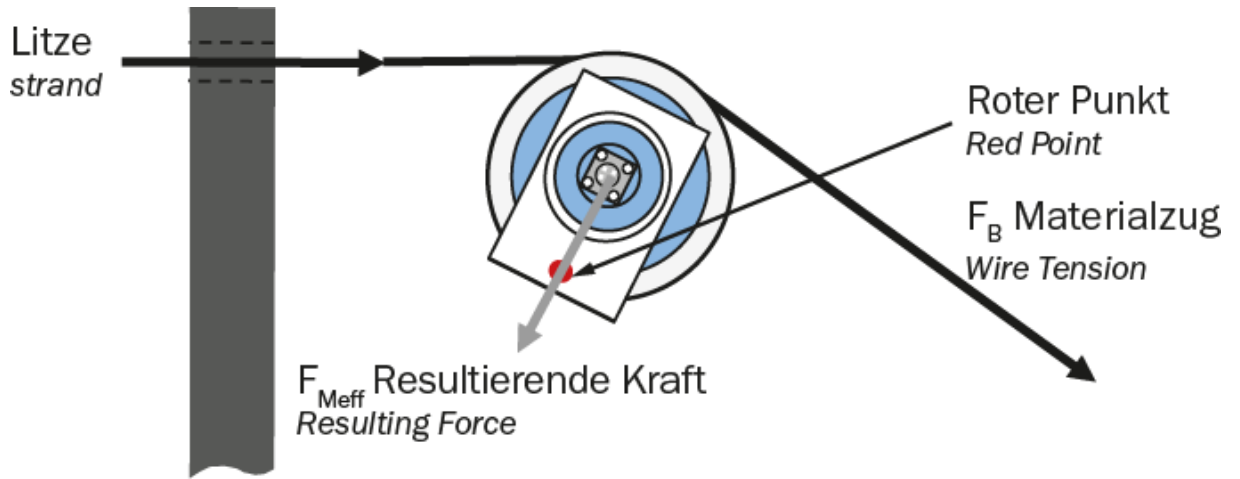


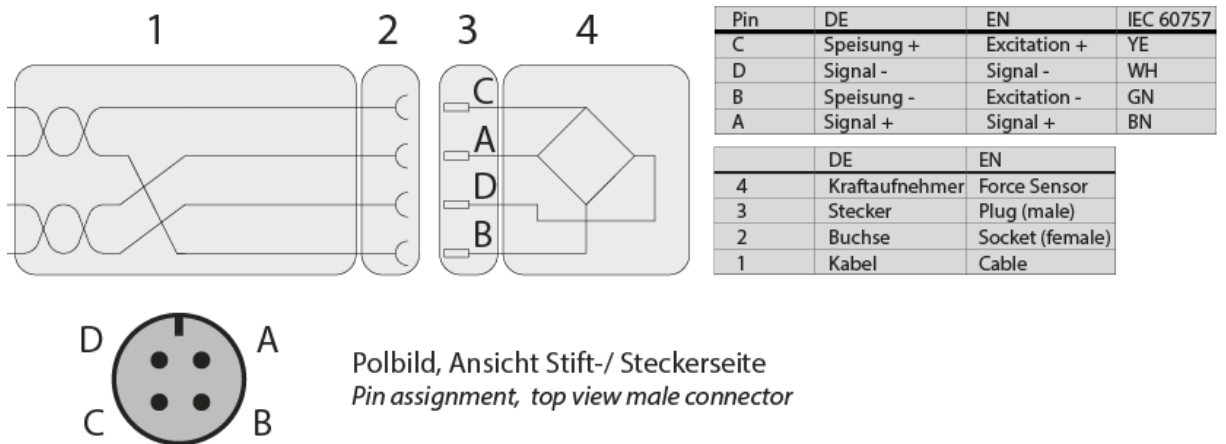
Figure 3: static applications

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4.5 Electrical Connection

The connection between force sensor and measuring amplifier is realized using a 4x0.25mm² [AWG 23] cable. The cable must be routed separately from the power cable.

The cable shielding must only be connected on the side of the measuring amplifier.



Farbangaben (IEC60757) und Codierung gelten nur für FMS Komponenten!
Color scheme (IEC60757) and pin codes are valid for FMS components, only!

Figure 2: Electrical Connection Pin_Assignment_Sensorkabel_Farben_Stecker.ai

5 Technical Data

Designations	
Sensitivity	1.8 mV/V
Sensitivity tolerance	<± 0.2 %
Accuracy class	± 0.5% (F _{Nom})
Temperature coefficient	±0.1% / 10 K
Temperature range	-10 to +60 °C (14 to 140 F)
Input resistance	350 Ω
Excitation voltage	1 to 7 VDC
Overload protection	10-times the nominal force F _{Nom}
Measuring body material	Steel
Protection class	IP40
Measuring range	30:1
Repeatability	0.05%
Electrical connection	Male connector amphenol, 4-pole

Table 1: Technical Data

6 Dimensions

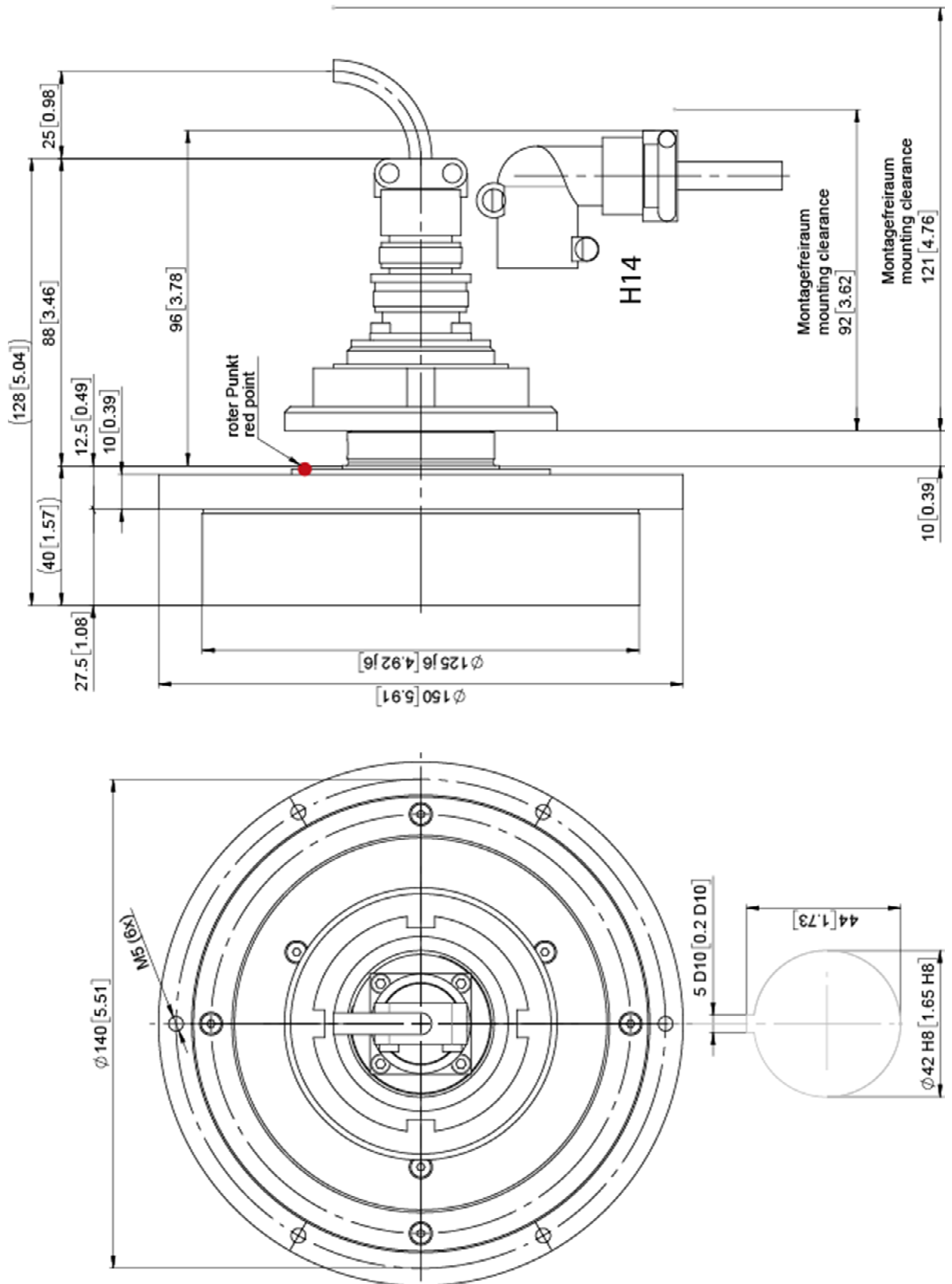


Figure 4: Dimensions

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