Ring Force Sensors RKS01

Design A - F

Scope of Supply

Force sensor with flat design, with 5 m cable (PVC) and connection T: cable gland, straight

Variants

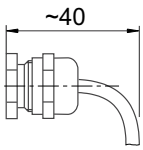
N3: plug connection, straight, M8, moulded

Additional Accessories

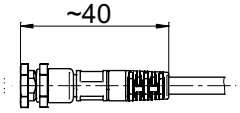
F: For use in explosive areas, J-Box incl.

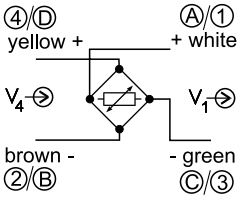
Connections

Variant T



Variant N3

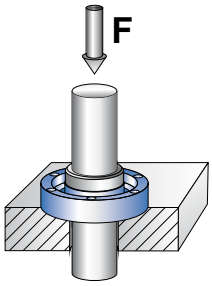




V_4: Supply voltage
V_1: Signal voltage

Special Features

- For dynamic and statical force measurement
- Made of stainless steel
- Designed for compression and tension force direction

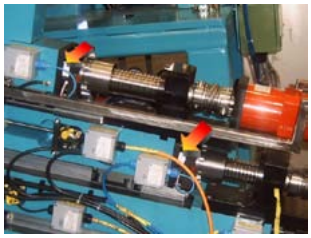


The force sensors **RKS** are optimally suited for the precise measurement of forces acting in axial direction. In most cases the outer ring is placed onto a support or screwed to it and the force is acting on the inner ring, e. g. via a linear actuator. A typical application is the force measurement at spindle drives of coating machinery.
The membrane design principle is especially well suited for the design of high precision low silhouette sensors. Its specially design makes the sensor less sensitive to a nonsymmetrical application of force.

Ordering Example

RKS01B5k-TF

Typ
Design
Nominal Force
Variants/ Options



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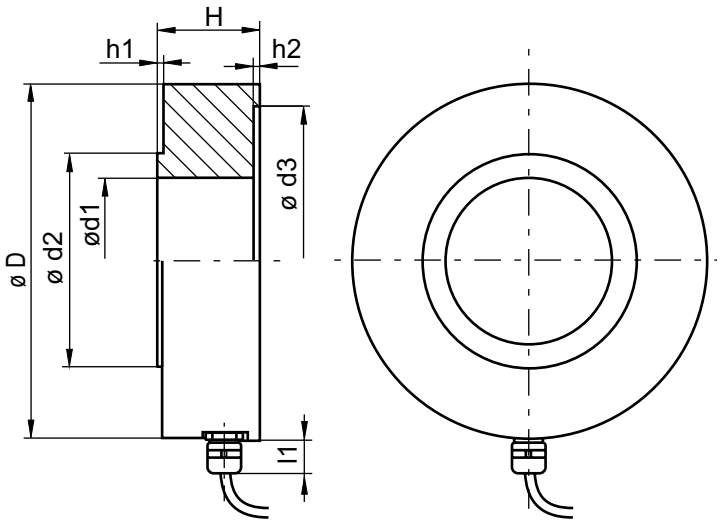
Technical Data	Design					
	A	B	C	D	E	F
Nominal Force Fnom [kN]	1; 3; 5; 7.5	5; 10; 20	5; 10; 20; 25	10; 20; 30; 40; 50	100; 200	100, 200
Max. operating force	150 %	160 %	150 %	160 %	160 %	160 %
Absolut max. force	150 %	200 %	300 %	300 %	250 %	250 %
Fracture Force	400 %	500 %				
Nominal Rating	1.0 mV/V	1.5 mV/V				
Accuracy class	0.5%					
Nominal ambient temperature	+10 ... +60 °C					
Operational temperature range	-10...+70 °C					
Nominal resistance of strain gauge	1000 Ω	700 Ω				
Bridge supply voltage	10 V DC					
Protection class (as DIN 40050)	IP 52					
Values (%) based on Fnom						



Design	D	d1	d2	d3	H	h1	h2	l1
A	49.5 ±0,15	8 +0.2	22	-	16	-	-	12.5
B	74 f7	34 H8	44	64	21	1	1	14
C	90 ± 0,1	M16x1.5	37	-	25	-	-	12.5
D	110 f7	46 +0.1	61	89.5	26	1	0.5	20
E	185 f7	50 +0.1	76	123	40	1	1	40
F	185 f7	50 +0,1	76	120	40	1	1	40

Special Design

Mechanical customizing on request
- Outer dimensions
- Inner diameter
- Holes
- Threads

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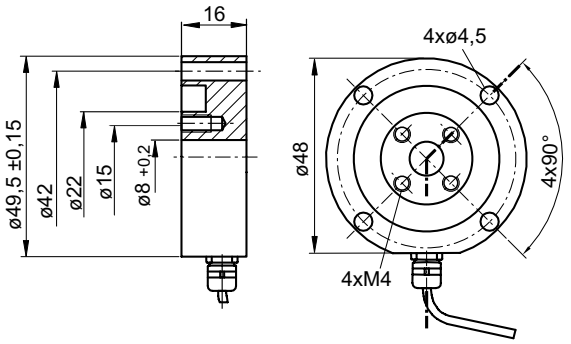
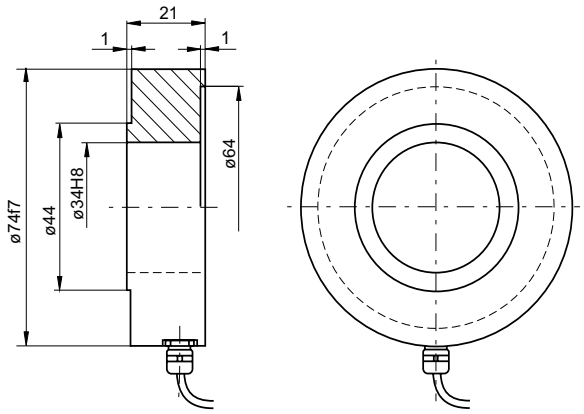
Ring Force Sensors RKS01

with several dimensions and drill holes

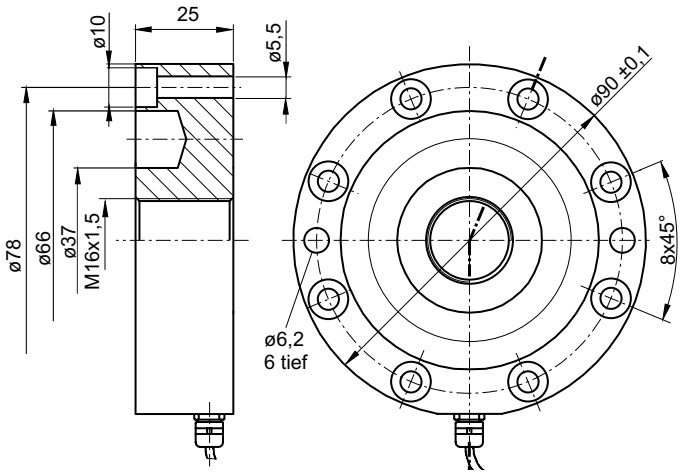
Design A Nominal force 1; 3; 5; 7.5 kN



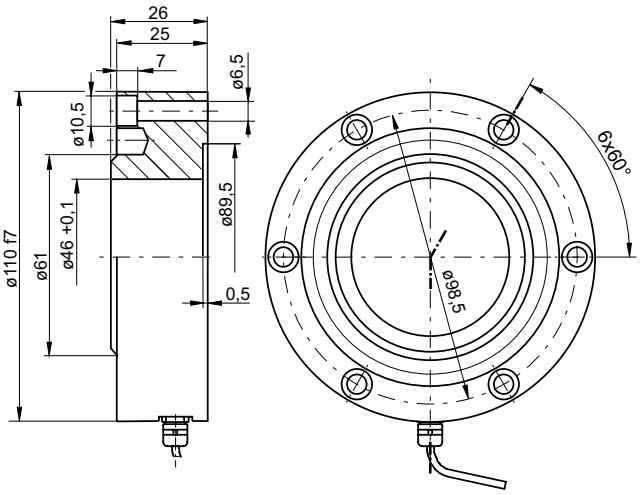
Design B Nominal force 5; 10; 20 kN



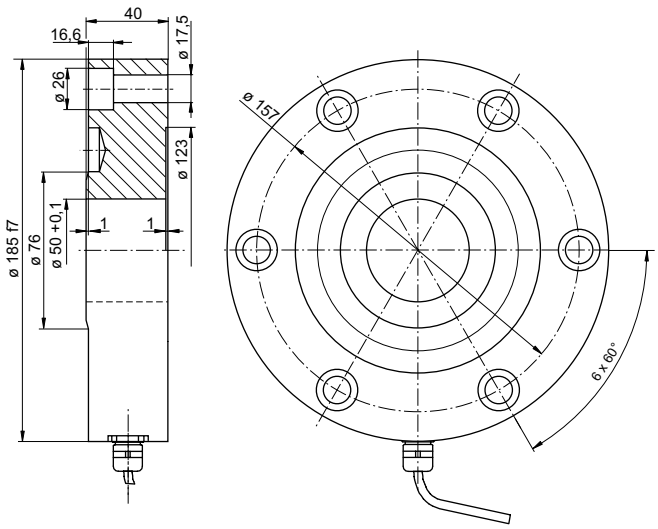
Design C Nominal force 5; 10; 20; 25 kN



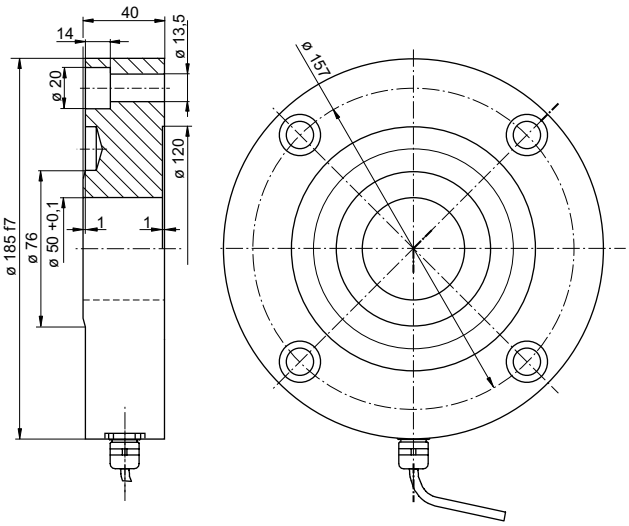
Design D Nominal force 10; 20; 30; 40; 50 kN



Design E Nominal force 100, 200 kN



Design F Nominal force 100; 200 kN



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Safety and Handling
The equipment is basically maintenance-free and can be installed in difficult to reach places. The units do not contain any spare parts or parts subject to wear. During the transportation and mounting careful handling is important, that means shocks and dropping should be avoided at all time. Otherwise equipment could be permanently damaged. Even under normal operation protection should be provided against excessive shocks and impacts. For critical applications we recommend to keep spares of sensors and electronic units in stock.
The mounting and safety notes in the "Practice Guide Web Tension Measurement and Control" should be observed.

Mounting
The sensors should be carefully handled.
In case of heavy load cells use suitable lifting devices.

Mounting Notes
The application of force should be plane parallel.
The mounting surfaces must be free of dust and grease.
The base respectively mounting plates must remain flat under all load conditions within an evenness of 0.02 mm.

Force sensors should never be overloaded!
In case of danger of breakage additional safety measures should be considered. The guidelines for personal safety must be strictly observed.

Installation guidelines
The forces should be acting exactly at the measurement direction.
Torsion and transversal forces as well as bending moments and eccentric loads result in measuring errors and could destroy the sensor when exceeding the permissible limit values. If the sensor is mounted on a plane parallel surface of sufficient size and hardness (e.g. a hardened plate HRc42...46) and at the right angle to the roll then eccentric of forces should not come into play. Heat expansion between several points of support in conjunction with fixed installation of the sensors can create transversal forces. This should be taken into consideration in the design phase.

Application
Each application requires an appropriate design and calculation of the mounting environment, e.g. the thickness of the mounting plate or the diameter, tensile strengths etc. of mounting bolts .

Thickness of mounting plate at HRc42 ...46	>30	>40	>50	>70	>90	>120
Nominal force of the sensors [MN]	0,2	0,5	1	2	5	10

Maximum tightening torques of the mounting bolts have to be strictly observed!

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