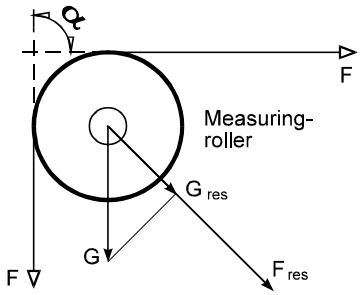
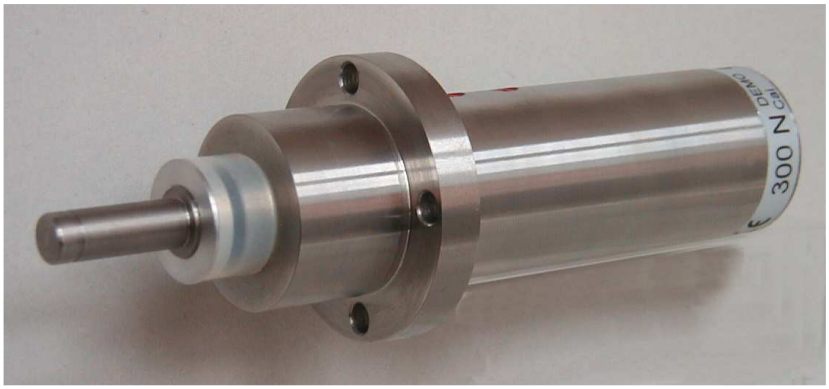
Radial Force Sensor Series M 1100 - 20 and M 1300 - 20





α = angle of contact
F = tensile force of the material to be measured
Fres = resulting force which is measured
G = weight of the measuring roller
Gres = part of the -measuring roller weight- in sphere-direction of the sensor

Radial - Force - Sensors out of series M 1100 - 20 and M 1300 - 20 are precise and reliable measuring-systems, as well high overload-protected as high in long-time-stability.

For measuring tensile forces on running material, fit a ball-bearing mounted roller on the journal-bearing.
This measuring-roller has to be mounted in a position, that the material which is measured, will deviated in a defined angle.
Here angle of contacts, of the material which is measured - around the measuring roller -, between 3° and 180° are possible.
The resulting radial forces, due to the deviation, are measured by the sensor.
The radial force is proportional to the tensile force, in the material which is measured.
Corresponding to this radial-force, the nominal load of the sensor is to select.

Application	Tensile force measurement on : cables, wires, ropes, rubber-cables, copper-cables, etc. Sensor for using in Tensometric measuring-stations.
Characteristics	Pulleys- or guide-rollers are mounted on the journal-bearing and used for tensile-force-measurement. Equiped with standard-journal-bearing of ∅ 10 mm. Realisation the measured data is independent of the width of the used roller.
Nominal loads	30 N, 50 N, 100 N, 200 N, 300 N, or 400 N others on request
Measuring range	By changing the angle of contact - around the measuring-roller -, the measuring range is variable.
Series M 1100 - 20	Strain-gage, full-bridge, the sensor transforms the, on the measuring-roller, active radial force into a proportional electric outputsignal. Electrical connection via 5 pol. male-connector.
Series M 1300 - 20	Strain-gage, full-bridge, with built-in amplifier. The sensor transforms the, on the measuring-roller, active radial force into a proportional electric outputsignal of 0 V up to +10 V . Adjusting screws for the electrical zero (Offset) and for the calibration (gain), are accessible from outside, at the connection-cable-page by means of a screw-driver. Connection via 5-pol. male connector.
Accessories available	connection-cable, amplifier with or without indication the tensile-forces, rollers.

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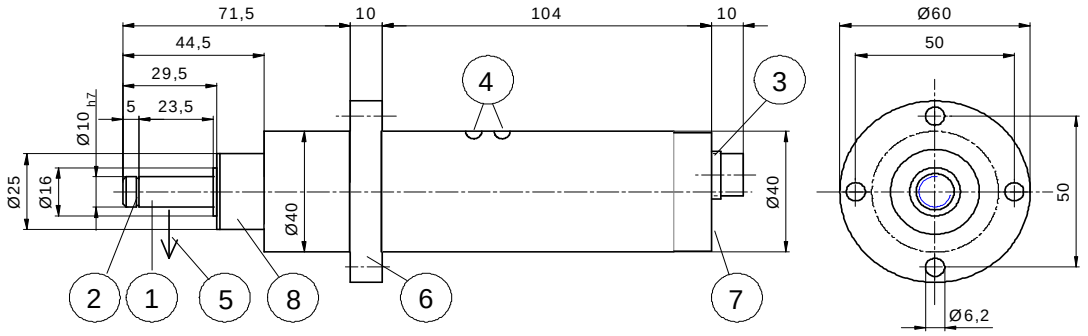
Technical data Radial Force Sensor Series M 1100 - 20 and 1300 - 20:

Dimensions M 1300 - 20:



1 = Shaft
2 = Seegerring A10
3 = Connection plug
4 = Red marks
5 = Loading direction
6 = Mounting flange
7 = Potentiometer to adjust zero and gain (calibration)
8 = Sealing

M 1100 - 20

Realisation the measured data via strain-gages, electrical connection via 5 pol. male-connector .

Nominal loads	30 N, 50 N, 100 N, 200 N, 300 N, or 400 N		
Measuring principle	strain-gage, full-bridge		
Measuring range	1 % up to approx. 115%	max. error in line.	< ± 0,2 %
		Coef. of temperature	< ± 0,01% / ℃
Overload-protection	10 times	Protection	IP 50 Option IP 64
Charact. value	1,5 mV / V	Resistance input	350 Ohm
Charact. value tolerance	< ± 0,2 %	Resistance output	350 Ohm
Charact. range of temp.	+ 5℃ ...+ 60℃	Refer ence-voltage	10 V
Mounting	4 screws M 6	Max. service-voltage	10 V

Volume of delivery: Sensor with standard-journal-bearing, 5 pol. female-connector, Instruction manual

M 1300 - 20 (M 1100 - 20 with built-in amplifier)

Realisation the measured data via strain-gages, the amplifier is built-in.
By ordering this types - the desired service-voltage must be indicated.
Service-voltage and output-signal are galvanic separate. Not valid for ± 15 V. Connection via 5-pol. male connector.

Nominal loads	30 N, 50 N, 100 N, 200 N, 300 N, or 400 N				
Measuring range	1 % up to approx.115%			Coef. of temperature	
max. error in line.	< ± 0,2 %			- of the zero	< 0,035 % / ℃
Overload-protection	10 times			- of the measuring range	< 0,05 % / ℃
Service voltage	5 V ± 10%	< 90 mA		Output - signal	0 ... ± 10V
	12 V ± 10%	< 70 mA		Output - current max.	2 mA
	24 V ± 10%	< 30 mA		Option : current output	4 - 20 mA
	± 15 V ± 10 %	+ 40 mA	- 7 mA		
Protection	IP 50 Option IP 64			Adjusting range zero	± 20% of the nominal load
Charact. range of temp.	+ 5℃ ... + 55℃			Adjustin g range calibration	± 20% of the nominal load
Mounting	4 screws M 6				

Volume of delivery: Sensor with standard journal-bearing, Instruction manual

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