

FMS Tension Control / Force Sensors

A-Series Compact aluminum force measuring bearing

- **Compact dimensions, simple installation**
For machines with limited installation room
- **Precise results, even with small web tension**
Measuring range 30:1
Accuracy class $\pm 0.5\%$
- **For small to medium web tension**
Nominal force from 50 to 1'000 N
(11 to 225 lbf.)



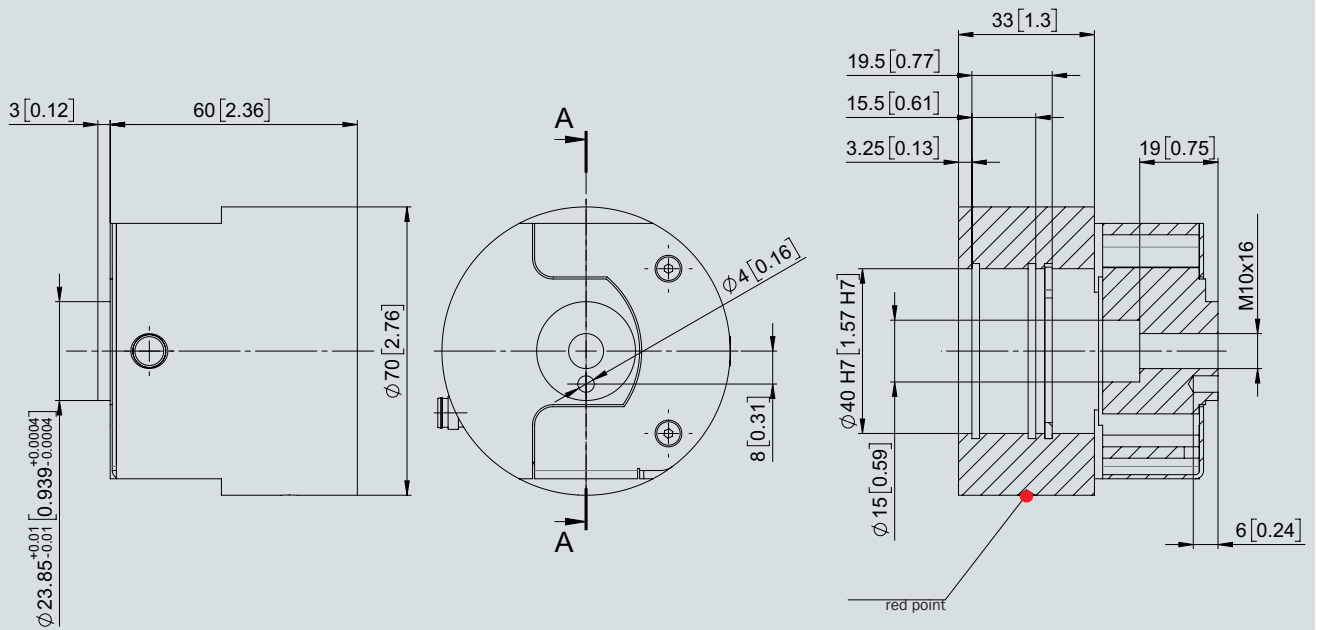
A-Series

The A-Series force measuring sensor offers compact dimensions and flexible installation options and is designed for the measurement of tension on continuous material processing lines where live shaft idler rolls are utilized. This feature minimizes the space required at installation. The compact dimensions and the simple installation with only one screw allow new assembly options in machines with tight installation space.

Functional description

The A-Series force measuring sensor combines the bearing seat 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 design includes dual bending beams, and this serves to eliminate the load specific influence of torque. The movement of the bending beams, 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 web tension.

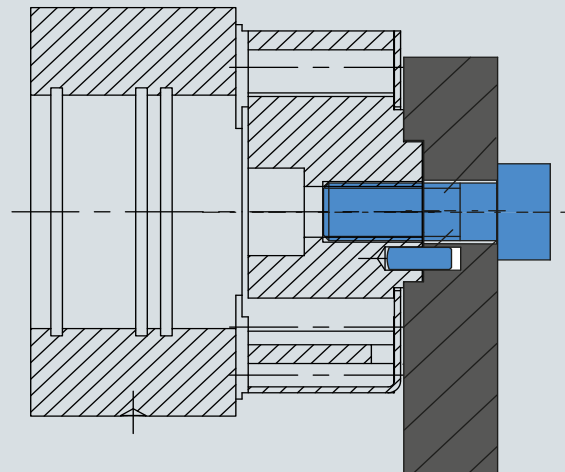
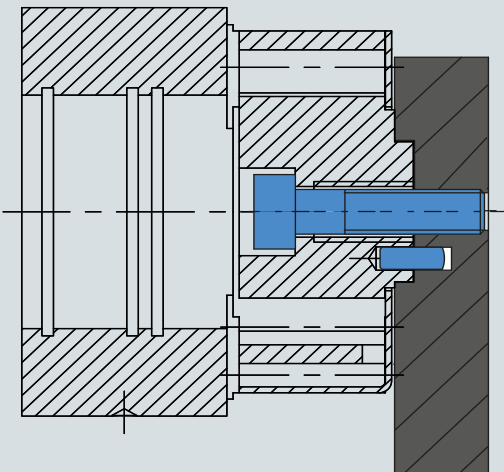
A-Series : Dimensions



A-Series : Installation options

Installation from „inside“ with M8
 recommendation: spring pin $\phi 4 \times 10$ DIN 7346

Installation from „outside“ with M8
 recommendation: spring pin $\phi 4 \times 10$ DIN 7346



A-Series : Nominal forces, Shaft diameter, Deflection, Weight								
Size Type	Nominal force N (lbf.)		Shaft diameter mm (in.)		Deflection mm (in.)		Weight kg (lbs.)	
A203.50	50	(11.2)	17	(0.67)	0.15	(0.0059)	0.5	(1.10)
A203.125	125	(28.1)	17	(0.67)	0.15	(0.0059)	0.5	(1.10)
A203.250	250	(56.2)	17	(0.67)	0.15	(0.0059)	0.5	(1.10)
A203.500	500	(112.4)	17	(0.67)	0.15	(0.0059)	0.5	(1.10)
A203.1000	1000	(224.8)	17	(0.67)	0.15	(0.0059)	0.5	(1.10)

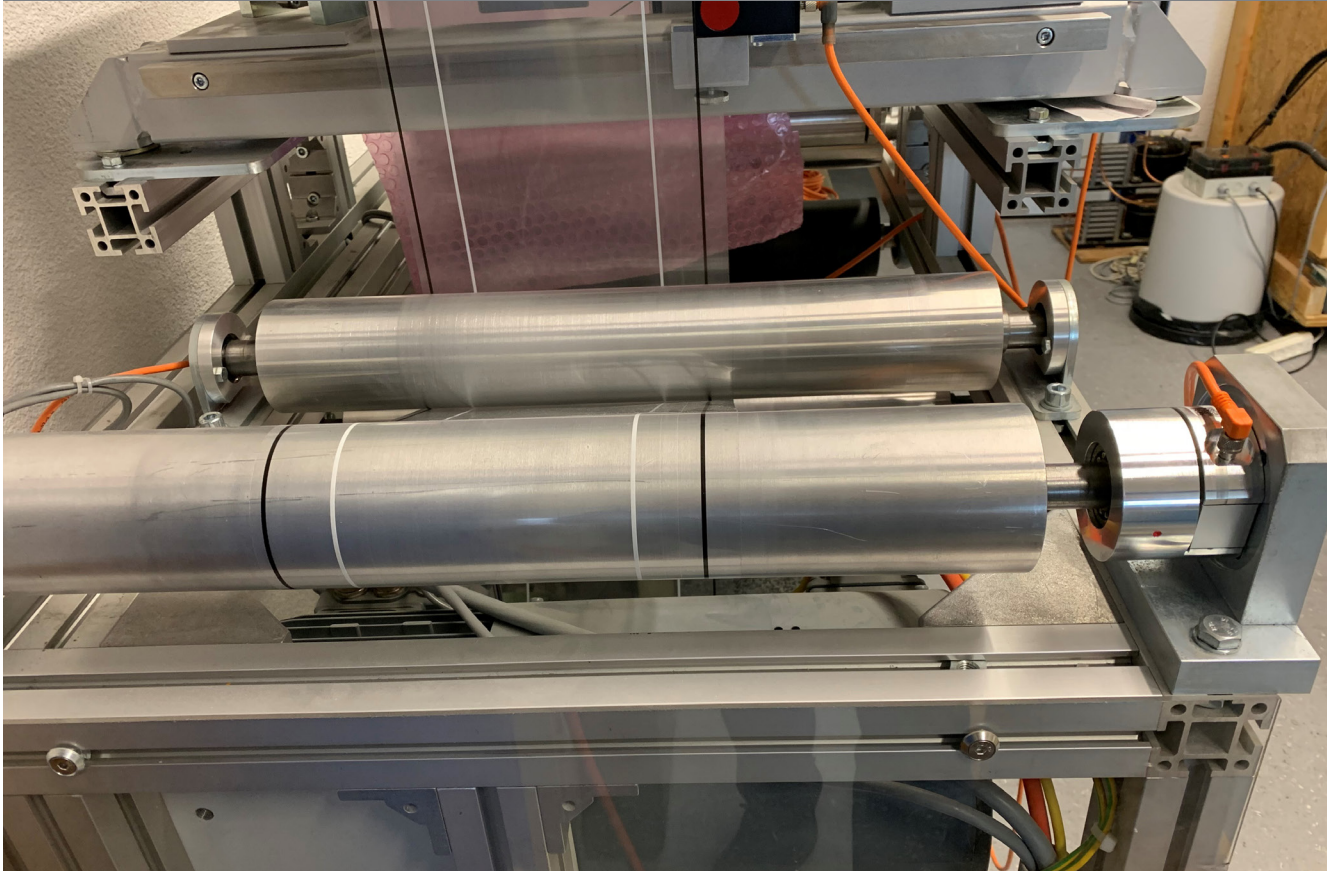
A-Series : Technical data	
Sensitivity	1.8 mV/V
Tolerance of sensitivity	< ± 2%
Accuracy class	± 0.5% (F _{Nom})
Temperature coefficient	± 0.1% / 10 K
Temperature range	-10 °C to +60 °C (14 F to 140 F)
Input resistance	350 Ω
Power supply	1 to 10 VDC
Overload protection	10 times nominal force F _{Nom}
Material main body	high-strength aluminum
Protection class	IP 42
Electrical connection	Male connector M8, 4-polig
Repeatability error	0.05 %
Measuring range	30 : 1

A-Series : Order code	
A 203 .500 .17	
Shaft diameter in mm	
Nominal force rating in N	
Size	
Series	

A-Series : Scope of supply
● force sensor ● clip ring

A-Series : Accessories
● connecting cable, 10 m (32.8 ft.) with right angle M8 connector ● connecting cable, 5 m (16.4 ft.) with right angle M8 connector
● connecting cable, 2 m (6.4 ft.) with right angle M8 connector ● connecting cable, 10 m (32.8 ft.) with straight M8 connector ● connecting cable, 5 m (16.4 ft.) with straight M8 connector ● connecting cable, 2 m (6.4 ft.) with straight M8 connector ● 2203 self-aligning ball bearing ● 1203 self-aligning ball bearing

A-Series : Typical application

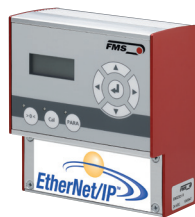


Other products : Tension Control

Measuring Amplifiers



Tension Controllers



Intrinsically Safe Barrier



About us

FMS Force Measuring Systems AG is the market leader in the field of web tension measurement, control and specialist for web guiding solutions. For the wire industry we are the only manufacturer offering a complete range of technologies for force measurement, data processing and radio transmission of signals.

Our in house developed products are used in the manufacturing industry, converting, metals, paper, textiles, as well as in cable and wire rope production. Utilising the latest technology, high quality components and a firm understanding of customer applications, FMS supports customers worldwide in the effort to maximize the productivity of their machines. Since 1993, our highly qualified employees have been creating high-end solutions for machine builders and plant operators. As an owner-managed company, we pride ourselves on being personal and approachable with the ability to make decisive moves fast.

World Headquarters: FMS Force Measuring Systems AG

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