

FMS Tension Control / Force Sensors

F-Series Ultra-flat, stainless steel force measuring bearing

- **For machines with limited installation room**
Extremely flat design
- **Highest precision**
Measuring range 30:1
Accuracy class $\pm 0.5\%$
- **For small to medium web tension**
Nominal forces from 50 to 500 N
(11 to 112 lbf.)
- **Robust and durable**
Measuring body from stainless steel

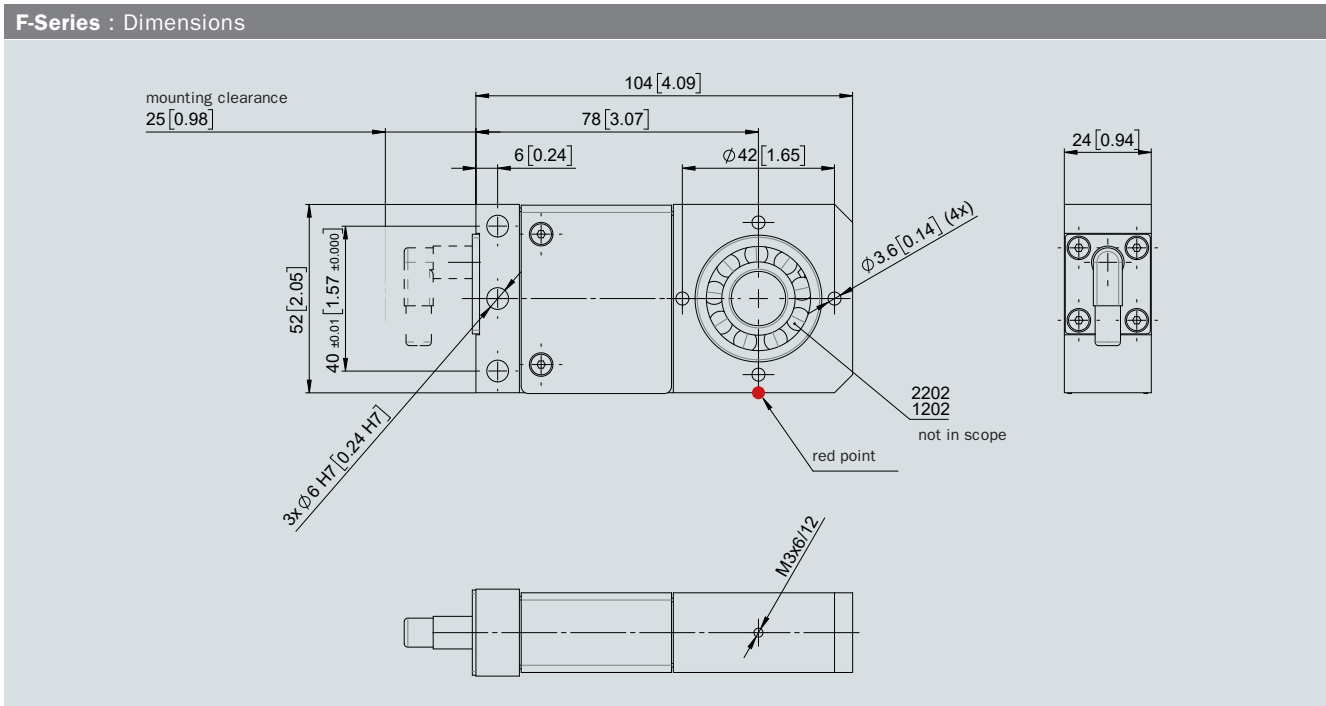


F-Series

The force measuring bearings of the F-Series feature an extremely slim design. They are designed for the measurement of tension on continuous material processing lines where live shaft idler rolls are utilized. The installation on the machine is simply realized with two shoulder bolts.

Functional description

The F-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 up-set 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.



Bearings 1202 TV and 2202 TV are for rollers with 15 mm journal diameter.

F-Series : Nominal forces, Deflection, Weight

Size Type	Nominal force N (.lbf)	Deflection mm (.in)	Weight kg (.lbs)
F202.50	50 (11)	0.15 (0.33)	0.61 (1.34)
F202.125	125 (27)	0.15 (0.33)	0.61 (1.34)
F202.250	250 (55)	0.15 (0.33)	0.61 (1.34)
F202.500	500 (110)	0.15 (0.33)	0.61 (1.34)

F-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	Stainless steel
Protection class	IP 42
Electrical connection	Male connector M8, 4-pole
Repeatability error	0.05%
Measuring range	30 : 1

F-Series : Order code	
F 202 .50 .15	
	Shaft diameter in mm
	Nominal force rating in N
	Size
	Series

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

F-Series : Accessories
<ul style="list-style-type: none"> ● 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 ● 2202 self-aligning ball bearing ● 1202 self-aligning ball bearing ● dowel pin ø 6 h6 x 20 for F-/FA-series ● dowel screw ø 6 x 30, M5 for F-/FA-series

F-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.

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