



FMS Tension Control / Force Sensors

SMGZ-Series Hermetically sealed measuring block for strip tension control

- **Increased stiffness, robust Design**
IP 67, inert gas filled, chemical, oil and solvent resistant
- **Durability, corrosion resistant**
Overload capacity at 10-times nominal force, stainless steel construction
- **Highest reliability**
2 year FMS warranty
- **Maximum Flexibility**
Nominal forces from 1 to 80 kN
(225 to 17'980 lbf.)

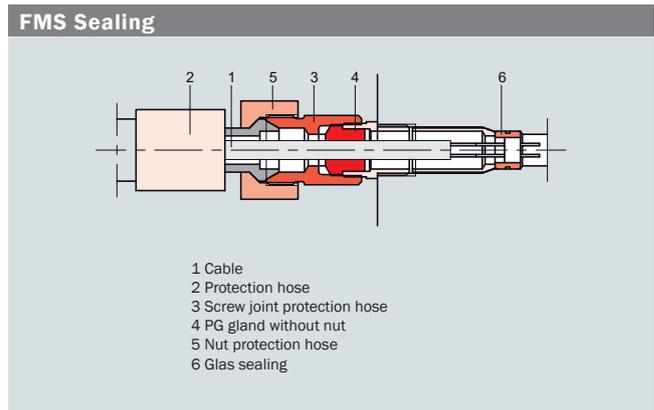
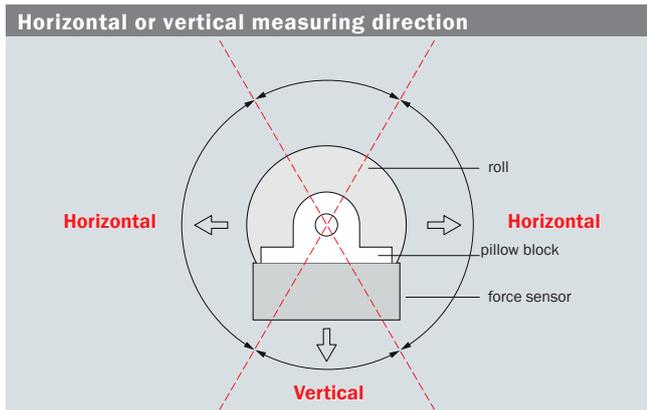
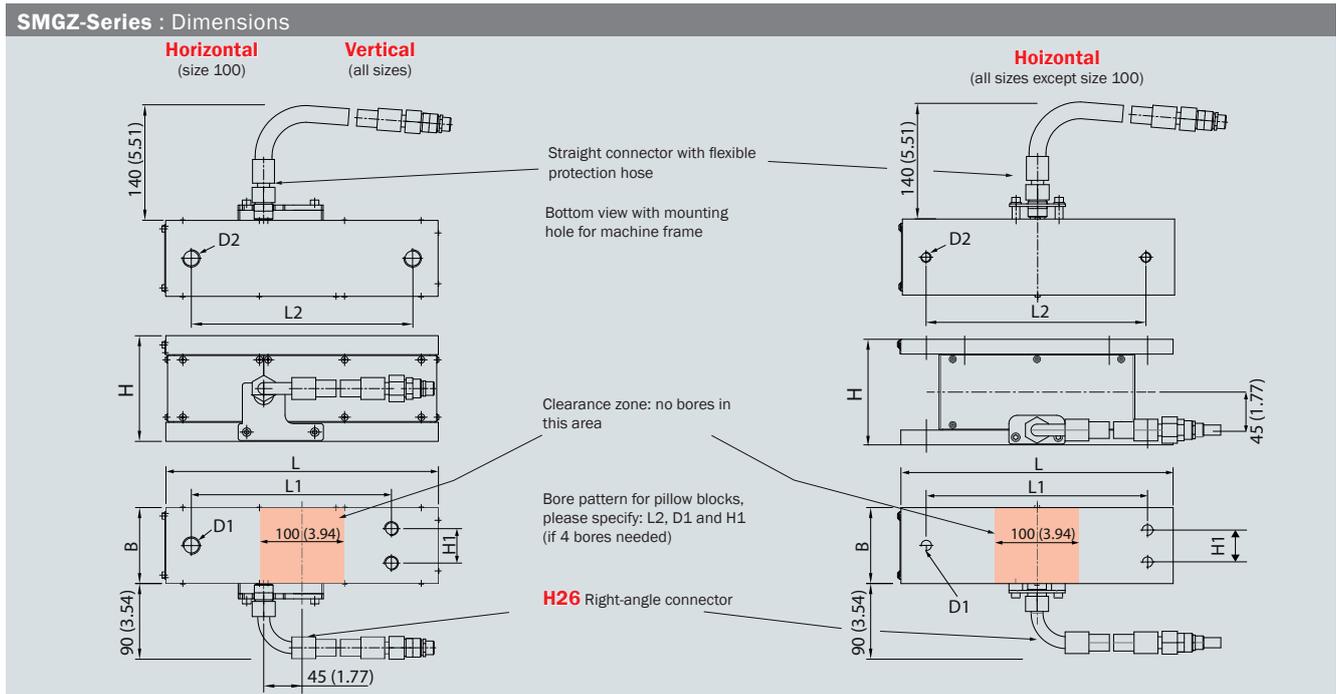


SMGZ-Series

The force sensors of the SMGZ-Series, designed for the measurement of strip tension on continuous metal processing lines, are used in combination with standard pillow blocks. This feature allows for easy maintenance or exchange of the blocks, bearings and roll. Block mounting is simple utilizing four fasteners into the bottom surface and mounting holes for the pillow block bearing are included based on your specifications. In addition, the 6 m cable allows for an electrical connection away from the harsh environment. The SMGZ-Series is available in two measuring, horizontal and vertical, and thus can be specified for use in any mounting orientation and strip wrap configuration. With the superior performance of the SMGZ-Series, accurate tension readings are obtained even with low web wrap angles and high roll weights.

Functional description

Standard pillow blocks are installed on the force measuring blocks of the SMGZ-Series. This design combines force sensor and bearing seat and allows for easy maintenance or exchange of the blocks, bearings and roll. The SMGZ-Series is available in two measuring versions, horizontal and vertical, and thus can be specified for use in any mounting orientation and material wrap configuration. 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 strip wrap angles. The Red Point, as located on the sensor body, should be aligned with the direction of the resultant force due to strip tension.



Sketch: depending on the direction of the resulting force, a horizontal or vertical version must be selected.

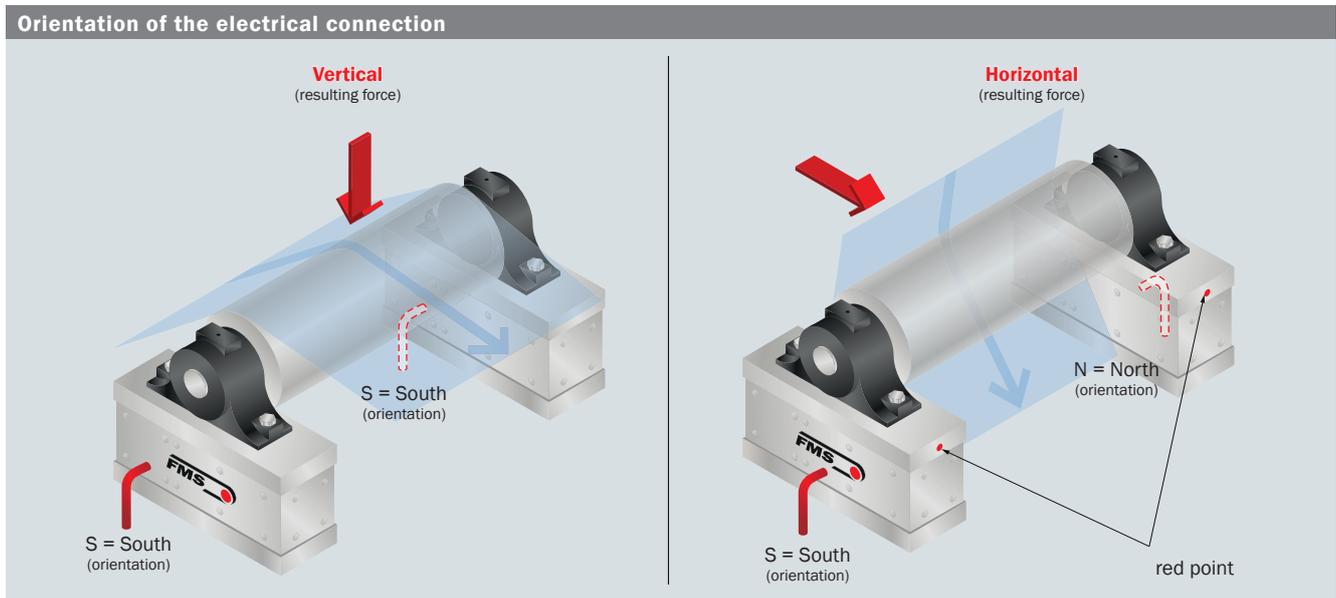


Illustration with two measuring blocks with S = South oriented electrical connections. The version "vertical" does not have a red point.

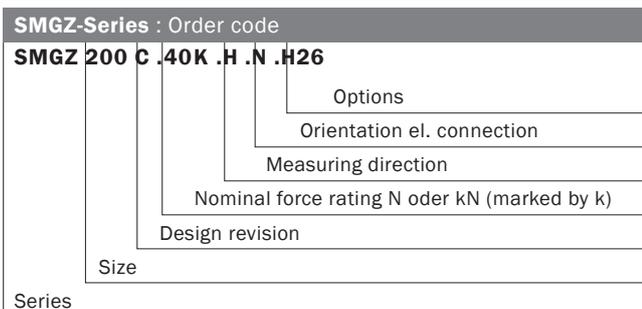
Illustration with one measuring block with S = South oriented and one with N = North oriented electrical connection.

SMGZ-Series : Shaft diameter, Nominal forces						
Size Type	Shaft diameter mm (in.)		Nominal force N, kN (lbf.)			
SMGZ100C	20/50	(0.79/1.97)	1 000, 2000, 5000, 10kN, 20kN			(225, 450, 1124, 2248, 4496)
SMGZ200C	40/85	(1.57/3.35)	1000, 2000, 5000, 10kN, 20kN			(225, 450, 1124, 2248, 4496)
SMGZ300C	75/100	(2.95/3.94)	5000, 10kN, 20kN, 30kN			(1124, 2248, 4496, 6744)
SMGZ400C	85/120	(3.35/4.72)	10kN, 20kN, 40kN, 60kN, 80kN			(2248, 4496, 11014, 13489, 17985)
SMGZ500C	110/160	(4.33/6.30)	10kN, 20kN, 40kN, 60kN, 80kN			(2248, 4496, 11014, 13489, 17985)

SMGZ-Series : Dimensions, Installation bores							
Size Type	Dimensions mm (in.)					Installation bores bottom	
	L		B		H	L 2 x D 2 mm (in.)	
SMGZ100C	230	(9.06)	90	(3.54)	125	(4.92)	170 x M16 (6.69 x M16)
SMGZ200C	320	(12.60)	90	(3.54)	125	(4.92)	260 x M20 (10.24 x M20)
SMGZ300C	380	(14.96)	110	(4.33)	125	(4.92)	320 x M24 (12.60 x M24)
SMGZ400C	450	(17.72)	130	(5.12)	125	(4.92)	390 x M24 (15.35 x M24)
SMGZ500C	560	(22.05)	170	(6.69)	150	(5.91)	470 x M30 (18.50 x M30)

SMGZ-Series : Deflection, Weight						
Size Type	Deflection mm (in.)				Weight kg (lbs.)	
	horizontal		vertical		vertical	horizontal
SMGZ100C	0.03	(0.0012)	0.05	(0.0020)	20	(44.09)
SMGZ200C	0.03	(0.0012)	0.09	(0.0035)	28	(61.73)
SMGZ300C	0.05	(0.0020)	0.16	(0.0055)	41	(90.39)
SMGZ400C	0.10	(0.0039)	0.54	(0.0213)	57	(125.66)
SMGZ500C	0.06	(0.0024)	0.33	(0.0130)	105	(231.46)

SMGZ-Series : Technical data	
Sensitivity	0.5 mV/V
Tolerance of sensitivity	< ± 0.2 %
Accuracy class	± 0.5 % (F _{Nom})
Temperature coefficient	± 0.1 % / 10 K
Temperature range	- 10 °C to +90 °C (14 F to 194 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 67
Electrical connection	PG-gland with 6 m (19.6 ft.) cable (VG 95218), other lengths on request
Repeatability error	0.05 %
Measuring range	30 : 1

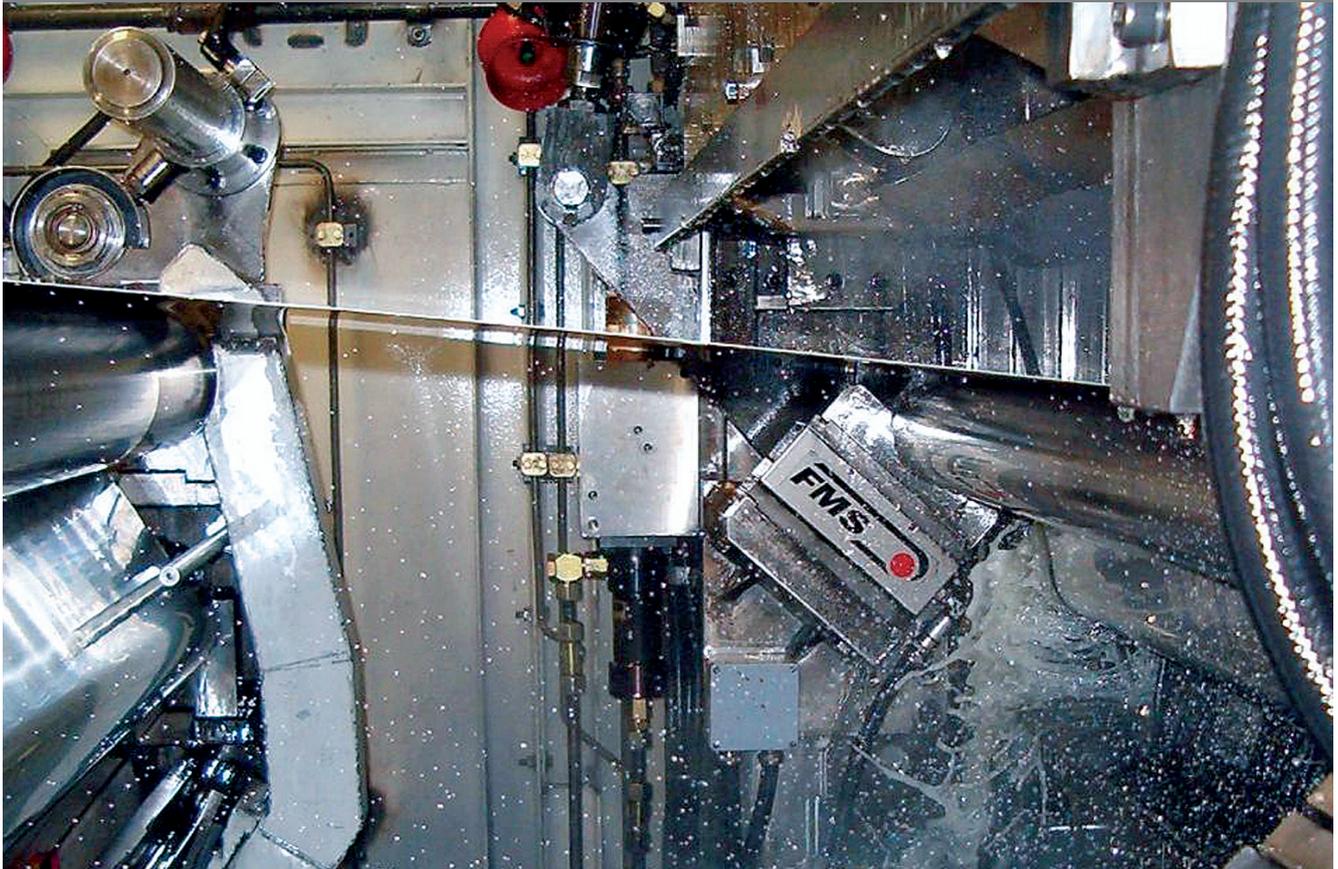


SMGZ-Series : Options	
H	horizontal measuring direction, appr. ±60 deg. from the horizontal
V	vertical measuring direction
N	electrical connection North, in direction of the moving web/strip
S	electrical connection South in direction of the moving web/strip
H26	right-angle electrical connection

SMGZ-Series : Scope of supply

● force measuring block ● straight electrical connection ● 6 m (19.7 ft.) cable ● 5 m (16.4 ft.) cable protection hose, other lengths on request ● the sealing of the open end of the cable is provided with a threaded connection M16 x 1.5mm (female thread required)

SMGZ-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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