

FMS Tension Control / Force Sensors

## **SMGZ** Hermetically Sealed Measuring Block for Strip Tension Control

- **Corrosion Resistant:**  
IP 67, inert gas filled,  
chemical, oil and solvent resistant
- **Robust Design:**  
Overload capacity at 10 times nominal force,  
stainless steel construction
- **Proven Performance:**  
2 year warranty
- **Maximum Flexibility:**  
Nominal forces from 2 to 100 kN  
(450 to 22500 lbf)



### **SMGZ**

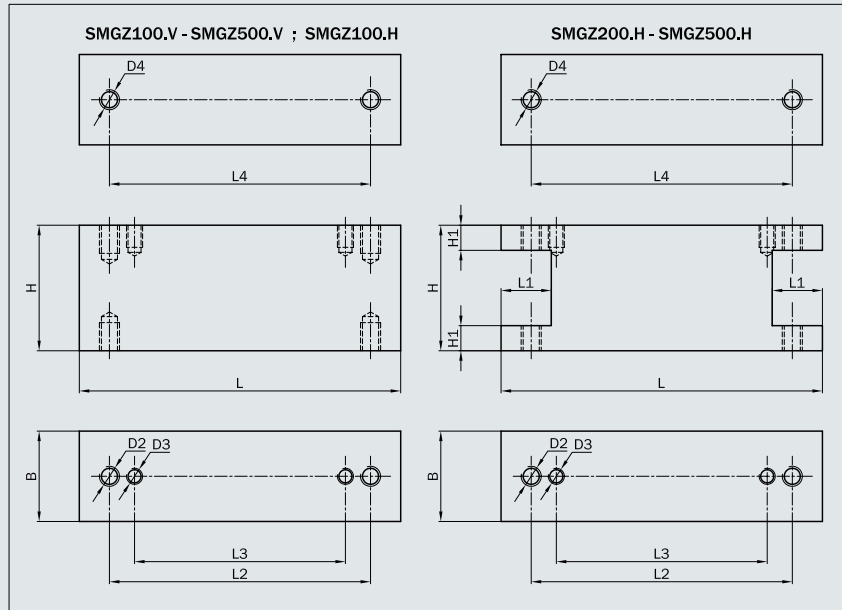
The SMGZ force measuring block is designed for use in the steel processing industry, where the harsh environment demands the use of specialized products. The block includes stainless steel construction, hermetic sealing, and an internal inert gas charge for unsurpassed performance and service life.

The SMGZ block will accurately measure from 5% to 100% of the full rated capacity of the block, and with its high overload capability the problems relating to signal drift and frequent recalibration are things of the past.

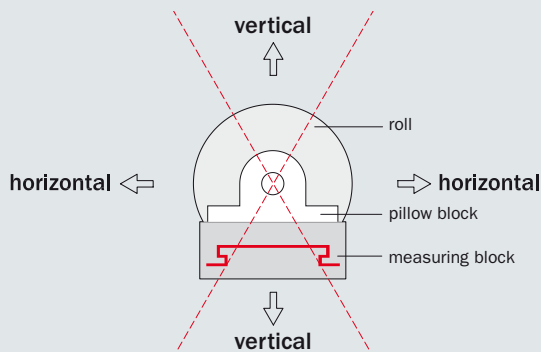
### **Functional Description**

A standard pillow block bearing is used in combination with the SMGZ force measuring block, allowing for easy maintenance or exchange of the blocks, bearings and roll. The SMGZ block is available in two measuring versions, horizontal and vertical, and thus can be specified for use in any mounting orientation and strip wrap configuration. Block mounting is simple utilizing four fasteners into the bottom surface and mounting holes for the pillow block bearing are included. In addition, the 6 m cable allows for an electrical connection away from the harsh environment. The SMGZ series of force measuring blocks provides accurate and precise measuring of strip tension even with low wrap angles, high tensions and heavy roll weights.

**SMGZ** | Dimensions

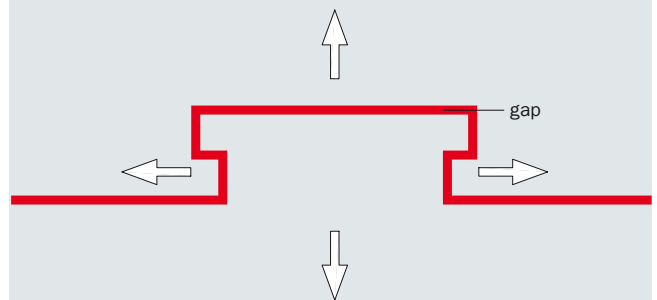


**Horizontal or vertical alignment of the sensor**



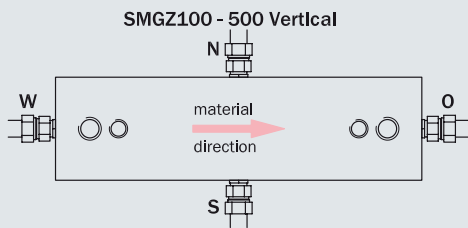
Schematic diagram: Depending on the direction of the resulting force, you can choose between a horizontal or vertical version of the SMGZ force measuring block.

**Integrated mechanical stop**



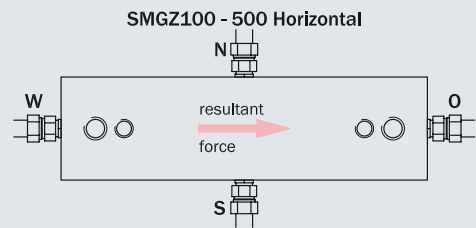
Schematic diagram: The mechanical stop is an integral part of all SMGZ force measuring blocks. This design protects the sensor and your machine from damage even with highest overload.

**Electrical connections of horizontal and vertical version**



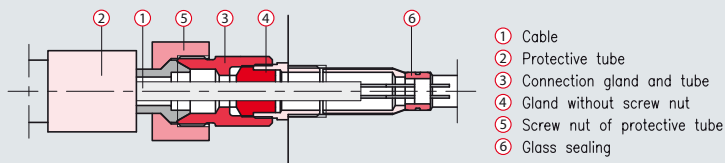
Standard: W (can also be applied as O version if both sensors aligned equally.)

Option: N,S,O



Standard: N,S  
On request: O,W

**FMS Sealing**



<b>SMGZ</b>   Nominal force / Pillow block			
<b>SMGZ</b> Series	<b>Shaft diameter</b> d ø	<b>Nominal force</b> [kN]	<b>Mounting bores</b> for pillow block
<b>SMGZ 100</b>	20 – 50	2, 5, 10, 20	130 x M12 or 170 x M12
<b>SMGZ 200</b>	40 – 85	2, 5, 10, 20, 30, 40	210 x M16 or 260 x M20
<b>SMGZ 300</b>	75 – 100	5, 10, 20, 50	320 x M24
<b>SMGZ 400.350</b>	85 – 120	10, 20, 50, 100	350 x M24
<b>SMGZ 400.390</b>	100 – 110	10, 20, 50, 100	390 x M24
<b>SMGZ 500</b>	110 – 160	10, 20, 50, 100	470 x M30

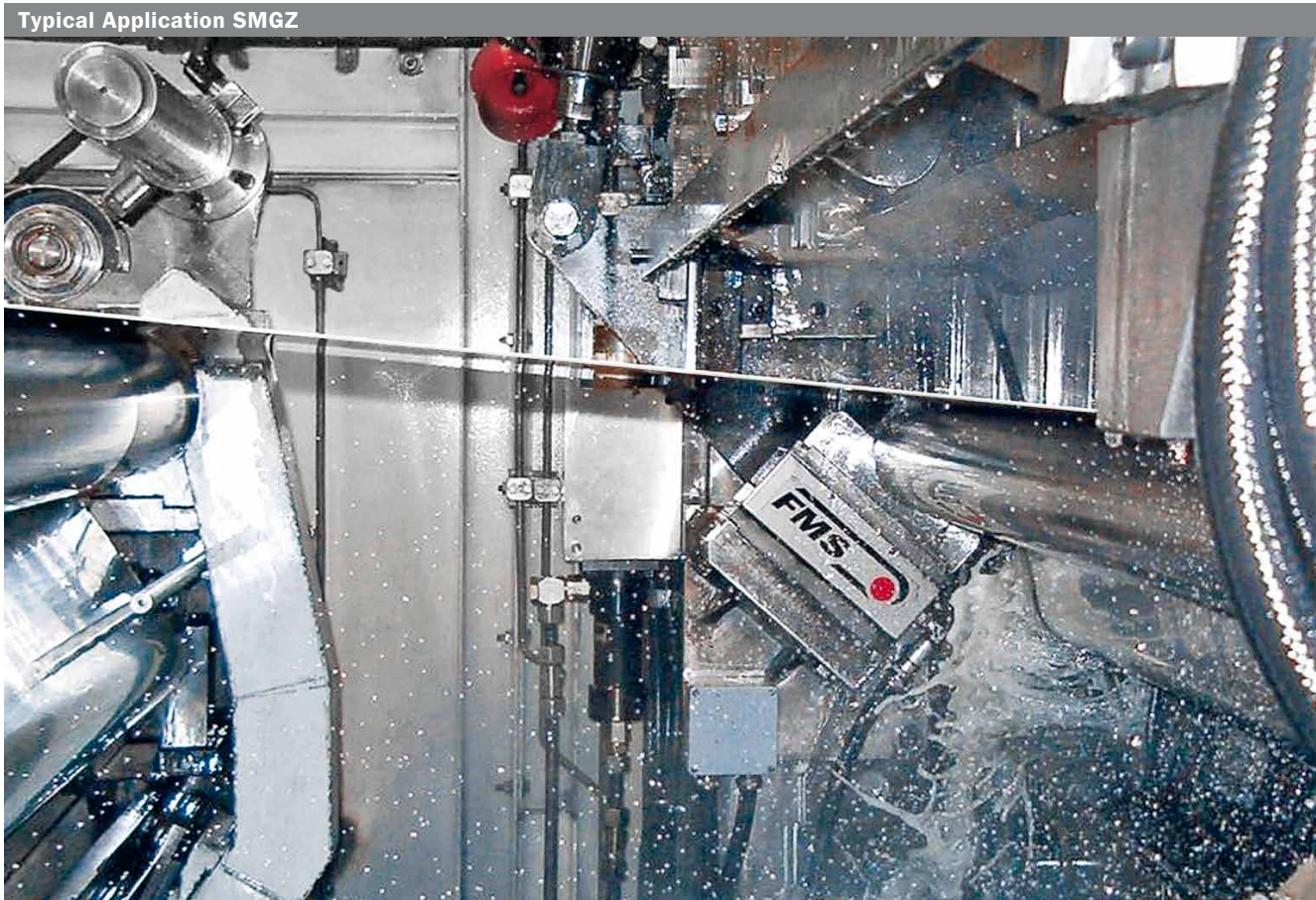
<b>SMGZ</b>   Dimensions									
<b>SMGZ</b> Series	<b>Dimensions in mm</b>			<b>Attachment of adapter plate</b>		<b>Lower attachment</b>	<b>Stiffness at F<sub>Nom</sub> approx. [mm]</b>		<b>Weight</b> [kg]
	L	B	H	L2 x D2	L3 x D3	L4 x D4	< 10 kN	≥ 10 kN	
<b>SMGZ 100</b>	230	90	125	170 x M12	130 x M12	170 x M16	0,5	0,2	20
<b>SMGZ 200</b>	320	90	125	260 x M20	210 x M16	260 x M20	0,5	0,2	28
<b>SMGZ 300</b>	380	110	125	320 x M24		320 x M24	0,5	0,2	44
<b>SMGZ 400.350</b>	450	130	125	350 x M24		390 x M24	0,5	0,2	57
<b>SMGZ 400.390</b>	450	130	125	390 x M24		390 x M24	0,5	0,2	57
<b>SMGZ 500</b>	560	170	150	470 x M30		470 x M30	0,5	0,2	75

<b>SMGZ</b>   Technical data	
<b>Sensitivity</b>	0.5 mV/V
<b>Tolerance of sensitivity</b>	< ±0.2 %
<b>Accuracy class</b>	±0.5% (F <sub>Nom</sub> )
<b>Temperature coefficient</b>	±0.1% / 10 K
<b>Temperature range</b>	-10...+90 °C
<b>Input resistance</b>	350 Ω
<b>Supply voltage</b>	1...12 VDC
<b>Max. permitted load, no drift</b>	5-times nominal force
<b>Overload capacity, offset required</b>	10-times nominal force
<b>Material of sensor</b>	Stainless steel
<b>Protection class</b>	IP67
<b>Electrical connection</b>	PG gland with 6 m cable (VG 95218)

<b>SMGZ</b>   Texture of the order code
<b>SMGZ 200. 40K. H. N. H14</b>
Series
Nominal force
Measuring direction (H = Horizontal, V = Vertical)
Electrical connection N/S/O/W
Option

<b>SMGZ</b>   Options	
<b>H 14</b>	right angle connection
	Junction box

<b>SMGZ</b>   Scope of delivery
<ul style="list-style-type: none"> <li>• Force measuring block</li> <li>• Straight electrical connection</li> <li>• 6 m cable</li> <li>• 5 m cable protection hose without junction box</li> </ul>



**FMS Tension Measurement** | Measuring Amplifiers

EMGZ 310	ExMGZ 100/200	Series 309	Series 490 PROFINET®	Series 321 EtherNet/IP
				

FMS electronic units are available in many different versions as measuring amplifiers in analog or digital form or with a wide range of fieldbus interfaces (PROFIBUS®, PROFINET®, EtherNet/IP, CanOpen, etc.). Mounting options allow for DIN rail, control panel or wall mounting. They are also available in waterproof and vibration resistant versions. All FMS electronic units have been specially developed for easy installation and operation.

FMS electronic units benefit from the advantages of the latest SMD and high-end microprocessor technologies for web tension measurement. Each electronic unit provides output signals of 0...10 V / ±10 V and 0...20 mA / 4...20 mA and includes an integrated signal filtering system.

FMS also offer an ATEX certified intrinsically safe barrier card (ExMGZ 100/200) for the use in explosion proof environment.