

## UMGZ.P Force Measuring Blocks

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**Drop-in replacement for Philips PR 9951/52 measuring blocks**

**Easy exchange without machine frame modifications**

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**Overload protection 10 times nominal force  
No recalibration required**

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**Accuracy class 0.3 %  
Highly linear measuring characteristic**

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**Nominal force ratings from 1 kN (225 lbf)  
to 10 kN (2248 lbf)**

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**Forces suitable for many applications**

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**Stainless steel force sensor  
Corrosion resistant, ultra durable**

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### ● UMGZ.P Series

UMGZ.P force measuring blocks are meant to be a substitute for the discontinued Philips products PR 9951/52. The measuring blocks from FMS are with regards to the outline dimensions and mounting holes 1-to-1 compatible with the former Philips blocks. The FMS blocks feature exceptional durability and operational reliability. Constructed of stainless steel and with their high overload protection these rugged products provide accurate web tension measurement even under the most stringent requirements. They are used in any application where an easy access to and fast change of rollers is vital.

### ● Measuring principle

The measuring force is applied via the plummer block to the force sensor. A Wheatstone full-bridge circuit, containing four foil-based strain gauges, measures the current strip tension. This measuring signal is received in the FMS measuring amplifier for further processing. The used measuring principle eliminates angular deflection and ensures tension measurement with the highest accuracy and reliability even at low wrap angles and with heavy rollers. The UN-22 connector enables straightforward wiring with the amplifier. The UMGZ.P sensors are compatible with the full line of FMS electronics.

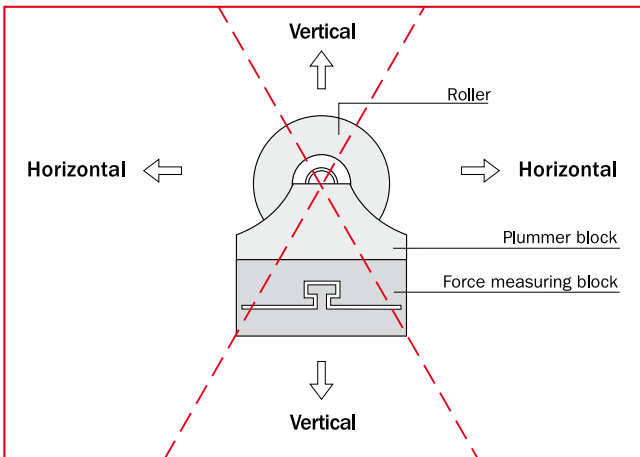
● **Functional Description**

UMGZ.P load cell and plunger block together are combined to form the measuring point – an arrangement that allows for easy mounting and fast bearing/roller change.

The UMGZ.P load cells measure the horizontal force component in both directions i.e. the force in longitudinal direction, parallel to the base plate. The red point on the force sensor indicates the positive measuring direction.

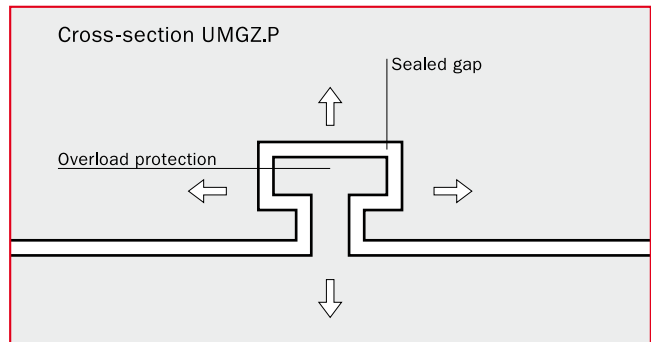
The UMGZ.P force measuring blocks provide an extremely accurate and precise web tension measurement even with small wrap angles and heavy rollers.

● **Horizontal or vertical force measuring block**



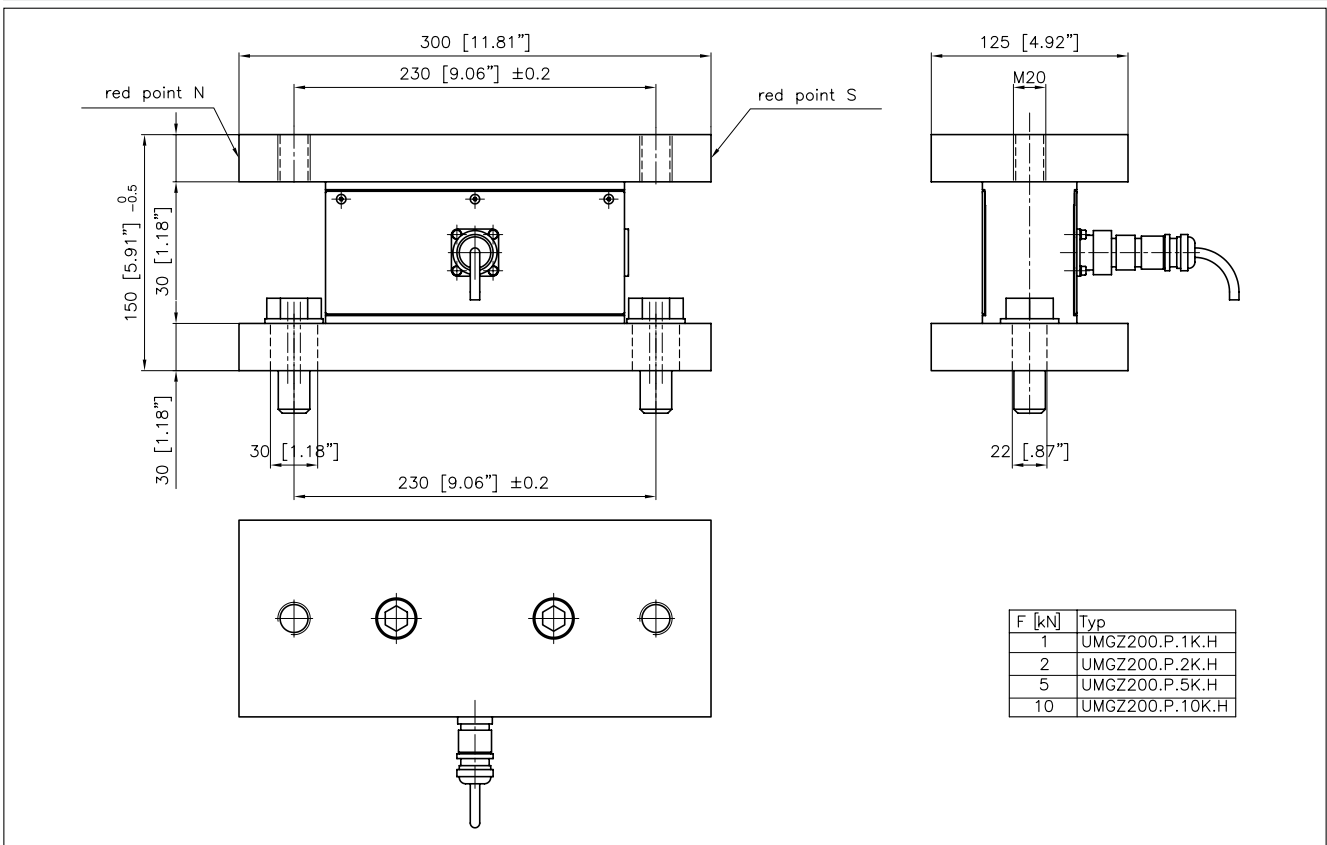
The UMGZ.P force measuring blocks measure forces in the horizontal measuring direction.

● **Integrated mechanical overload protection**



All UMGZ force measuring blocks have an integrated mechanical overload protection system. The UMGZ force measuring block moves to the mechanical end stop at about 120% of the nominal measuring force. Such a structure ensures the highest possible level of accuracy and functional safety. No recalibration is required because of this mechanical overload protection.

**UMGZ.P Series • Dimensions in mm [in]**



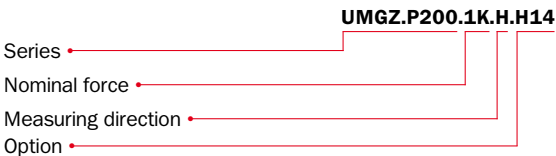
**UMGZ.P Series • Specification**

| Sensor Type           | Nominal Force |        | Stiffness at F <sub>n</sub> |         |
|-----------------------|---------------|--------|-----------------------------|---------|
|                       | N             | [lbf]  | [mm]                        | [in]    |
| <b>UMGZ.P 200.1k</b>  | 1000          | [225]  | 0.5                         | [0.019] |
| <b>UMGZ.P 200.2k</b>  | 2000          | [450]  | 0.5                         | [0.019] |
| <b>UMGZ.P 200.5k</b>  | 5000          | [1124] | 0.3                         | [0.012] |
| <b>UMGZ.P 200.10k</b> | 10000         | [2248] | 0.2                         | [0.008] |

**UMGZ.P Series • Technical Data**

|                                |                                      |
|--------------------------------|--------------------------------------|
| <b>Sensitivity</b>             | 1.8 mV/V ± 2 %                       |
| <b>Accuracy class</b>          | ± 0.3 % (F <sub>nominal</sub> )      |
| <b>Temperature coefficient</b> | ± 0.1 % / 10 K                       |
| <b>Temperature range</b>       | - 10...+ 60 °C [14°... 140 °F]       |
| <b>Input resistance</b>        | 350 Ω                                |
| <b>Supply voltage</b>          | 1...12 VDC                           |
| <b>Maximum overload</b>        | > 10-times the rated nominal force   |
| <b>Protection class</b>        | IP 42                                |
| <b>Electrical connection</b>   | Amphenol UN22; PG-gland as an option |
| <b>Weight</b>                  | 26 kg [57 lbs]                       |
| <b>Material for sensor</b>     | Stainless steel                      |

**Order code (example):**



**Options:**

- H 14** = Right angle connector
- H 16** = Temperature range of sensor with PG-gland  
up to 150 °C [302 °F], with connector up to 120 °C [248 °F]
- H 21** = PG-gland with 10 m [33 ft] PVC cable

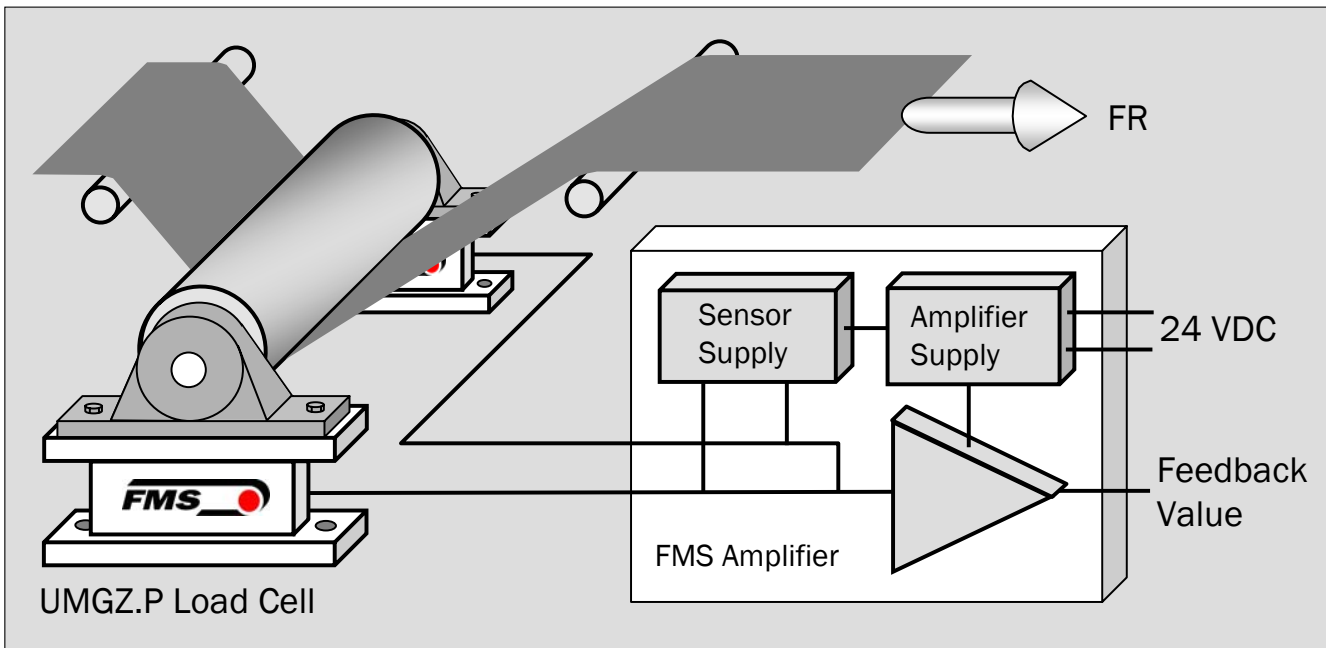
**Scope of delivery:**

1 Force measuring block, 1 UN22 right angle connector, operation manual

**Not included:**

Mounting screws, washers, cable

• System Schematics UMGZ.P Force Measuring Blocks with FMS Amplifier



FMS Electronic Units

EMGZ 306A



ExMGZ 100/200



Series 309



Series 470



Series 600



FMS electronic units are available in many different versions as measuring amplifiers in analog or digital form or as direct fieldbus connections (PROFIBUS®, Ethernet, CanOpen, etc.).

**They can be fitted on rails and in racks or onto control panels or walls.** They are also available in waterproof and vibration-free versions. All FMS electronic units have been specially developed for **easy fitting and operating.**

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

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

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