MB-02 SERIES
MINIATURE LOAD MEASURING PINS

FEATURES

- Overload detection and load measurement from 1 kN to 12 kN
- Admissible overload: 150 % of the nominal load
- High overload capacity
- Standard diameter available from ø10 mm
- Small size for compact applications
- Strain gauges full bridge technology
- High reliability for strict safety requirements
- Special high strength steel
- Ideal for use in hostile environments
- Protection class IP 66
- Can be designed with special dimensions for adaptation to various construction conditions.

Fig. 1: MB-02-10-10-2 | Miniature Load Pin

DESCRIPTION

Magtrol Miniature Load Measuring Pins are used to measure load and force and provide overload protection. The pins are mounted into machines in place of normal shafts and fitted with strain gauges, allowing them to produce a signal proportional to the measured load. Manufactured in Switzerland, Magtrol's MB-02 Series Miniature Load Pins are rugged with high resistance stainless steel and tight construction, designed specifically for use in harsh industrial environments.

OPERATING PRINCIPLE

When force is applied to the Load Measuring Pin along its sensitive axis, the effect on the strain gauge bridge results in an output signal proportional to the applied force. The powering of the strain gauge bridge, as well as the amplification of its output signal voltage, is performed by an external amplifier. Depending on the execution, the latter allows the monitoring of several levels.

APPLICATIONS

The compact design as well as the high protection class give this sensor an excellent aptitude for the measurement and monitoring of forces and overloads on mechanical compact applications, as well as in harsh environments.

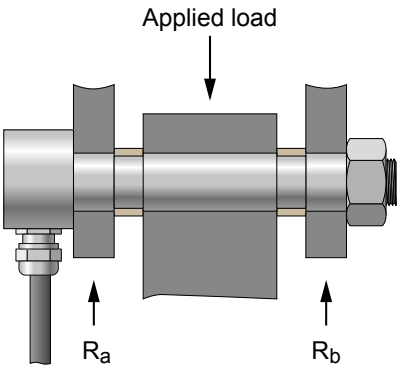


Fig. 2: R_a should equal R_b so that the force is evenly distributed

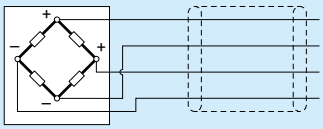
SPECIFICATIONS

LOAD MESURING	
Nominal Load (NL)	1 kN, 2 kN, 5 kN, 10 kN or 12 kN [b]
Overload Admissible (% of NL)	150 %
Overload at rupture (% of NL)	300 %
Non-linearity Error [a]	≤ 1 %
Zero Adjustment [a]	± 1 %

MECHANICAL CHARACTERISTICS	
Operating Principe	Full-bridge strain gauge
Material	Special high strength Stainless Steel
Lubrication	Not available

ENVIRONMENT	
Compensated temperature range	-10 °C ... +40 °C
Operating temperature range	+10 °C ... +60 °C

ELECTRICAL CHARACTERISTICS	
Nominal Sensitivity	2 mV / V ± 3 %
Strain Gauge Bridge Impedance: Input	450 Ω
Strain Gauge Bridge Impedance: Output	350 Ω
Power Supply	5-10 VDC
Protection class	IP66 (according to DIN 40050)

ELECTRICAL CONNECTION	
Radial output	Integrated PTFE K422 cable; lenght 1.5 m with heat shrink sleeve [c]
Wiring colors	 Supply + : red Supply - : blue Signal + : white Signal - : black

a) Of Full scale
b) Other highest nominal load available on request
c) Other lengths available on request

SYSTEM CONFIGURATION

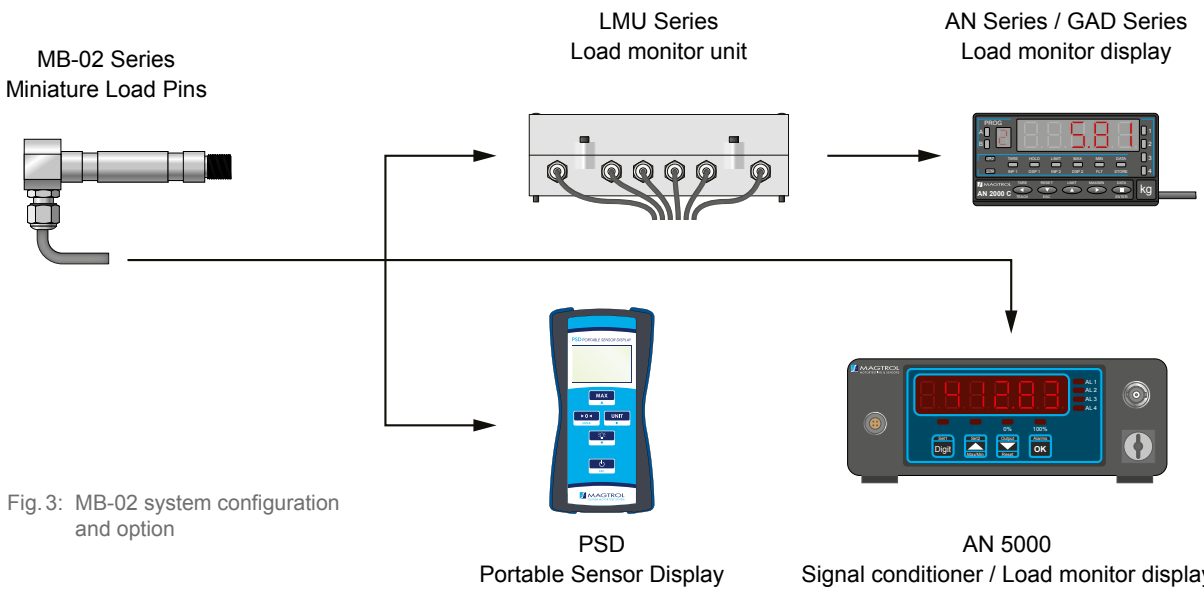
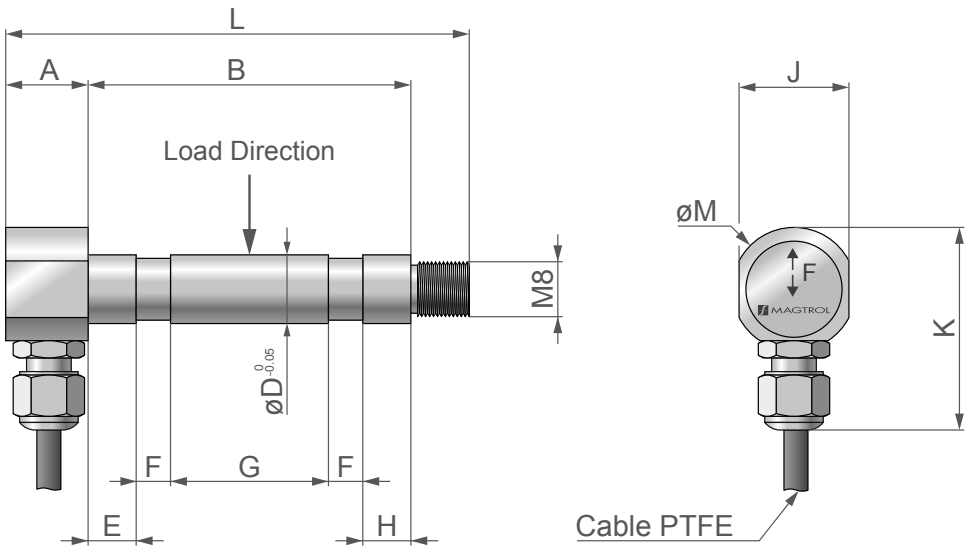


Fig. 3: MB-02 system configuration and option

DIMENSIONS



NOTE: All values are in metric units. Dimensions are in millimeters.

MODEL [a]	Load	L	A	B	øD 0 -0.05	E	F	G	H	J	K	ø M
MB-02-5-12	5 kN	47.25	12	26.25	12	5.75	5.0	4.5	6.0	16	29.5	18
MB-02-10-10	10 kN	46.0		25.7	10	6.0	4.7	4.3				
MB-02-10-10-2		50.5		30.0		7.3		6.0	7.3			
MB-02-10-10-3		71.5		51.0		7.0	5.0	27.0	7.0			
MB-02-10-10-4		67.5		47.0				23.0				
MB-02-10-12		79.0		58.0	12	11.5		25.0	11.5			
MB-02-12-10-6	12 kN	62.2		40.2	10	3.0	4.7	24.6	3.2			
MB-02-XX-XX-X	Other dimensions available on request [a]											

a) The models listed represent a part of our standard range. Other models (as well as customized models) are available on request.

NOTE: 3D STEP files of most of our products are available on our website: www.magtrol.com ; other files are available on request.

RELATED PRODUCT

LB & LE SERIES - LOAD MEASURING PINS

Fig. 4: **LB 210** & **LB 217** Load Measuring Pins

LB & LE Series Load Measuring Pins are used to measure load and force and to provide overload protection. The pins are mounted into machines in place of normal shafts and fitted with strain gauges, allowing them to produce a signal proportional to the measured load.

Load Pins are used for load measuring devices and overload protection on cranes, hoisting gear, elevators, winches, and force measurement for regulation processes in industrial installations and machinery production.

More information : **www.magtrol.com**

ORDERING INFORMATION

Please consider the Model Number listed in the dimension table as the ordering number.

In case you require another nominal load, dimensions, or a specific design, please indicate the requested nominal load (1 kN, 2 kN, 5 kN, 10 kN or 12 kN), the diameter ø and the specific dimensions according to the above drawing as well as the quantity required.

Our sales representatives will be pleased to contact you and provide you with a customized quote.

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