

# MB-02 SERIES

## MINIATURE LOAD PINS

### FEATURES

- Overload detection and load measurement from 1 k-N to 12 k-N
- Admissible overload: 150 % of the nominal load
- High overload capacity
- Standard diameter available  $\varnothing 10\text{h6}$
- 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 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.

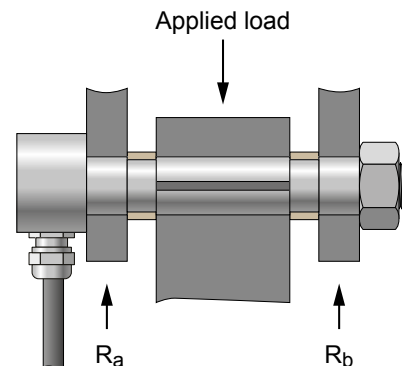


Fig.2 :  $R_a$  should equal  $R_b$  so that the force is evenly distributed

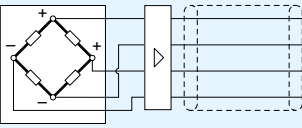
**SPECIFICATIONS**

LOAD MEASURING	
Nominal Load (NL)	1 k·N to 12 k·N
Overload Admissible (% of NL)	150 %
Overload at rupture (% of NL)	300 %
Non-linearity Error <sup>a)</sup>	≤ 1 %
Zero Adjustment <sup>a)</sup>	± 1 %

MECHANICAL CHARACTERISTICS	
Operating Principle	Full-bridge strain gauge
Material	Special high strength Stainless Steel
Fit	G7 / h6
Lubrication	Not available

ENVIRONMENT	
Compensated temperature range	-10 °C to +40 °C
Operating temperature range	+10 °C to +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	5-10VDC
Protection class	IP 66 (according to DIN 40050)

ELECTRICAL CONNECTION	
Radial output	Integrated 1.5m cable with heat shrink sleeve
Wiring colors	 <ul style="list-style-type: none"> <li>Supply + : red</li> <li>Supply - : blue</li> <li>Signal + : white</li> <li>Signal - : black</li> </ul>

a) At Full scale.

**SYSTEM CONFIGURATION**

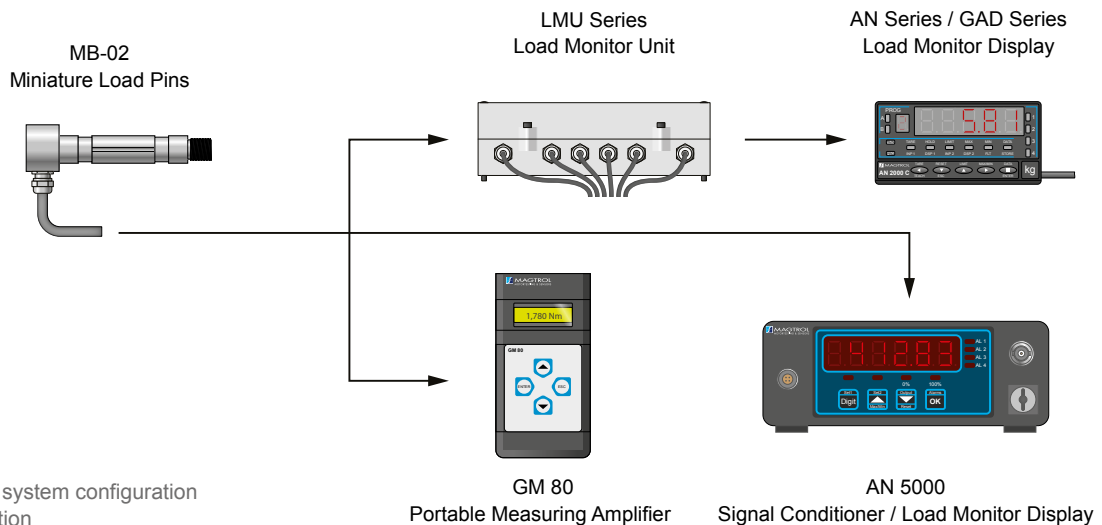
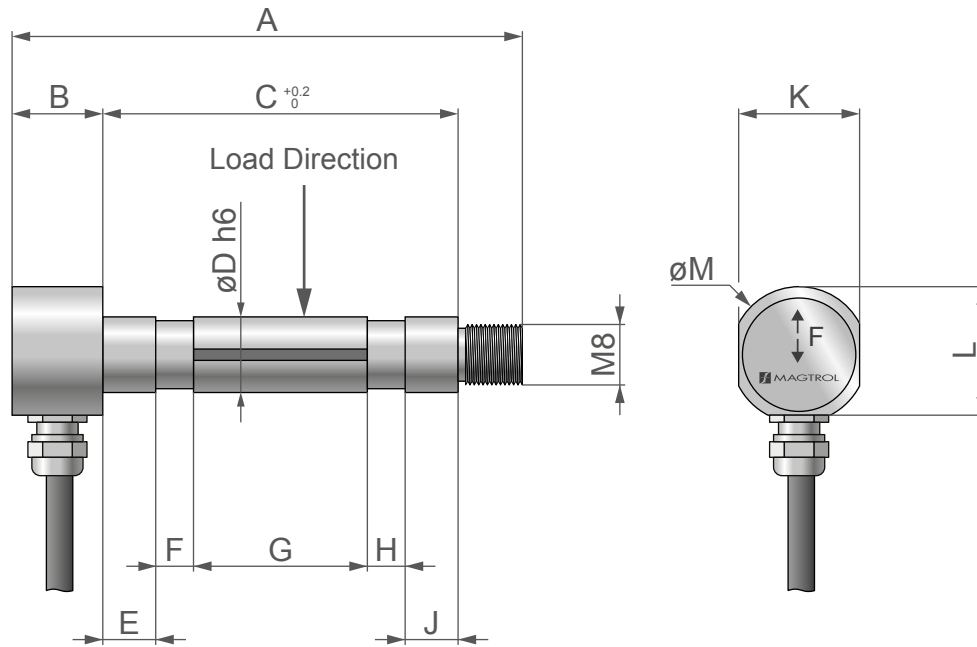


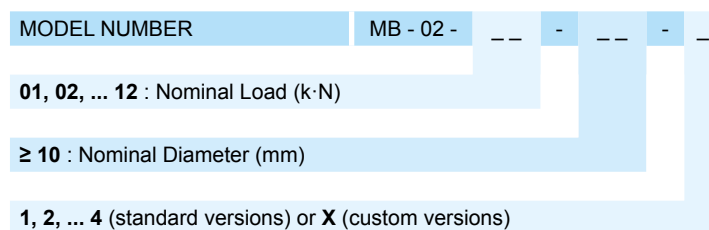
Fig.3 : MB-02 system configuration and option

**DIMENSIONS**



MODEL	DIMENSIONS (mm)											
	A	B	C <sup>+0.2</sup>	øD h6	E	F	G	H	J	K	L	øM
MB-02-10-10-1	46.0	12	25.7	10	6.0	4.7	4.3	4.7	6.0	16	25	18
MB-02-10-10-2	50.5	12	30.0	10	7.3	4.7	6.0	4.7	7.3	16	25	18
MB-02-10-10-3	71.5	12	51.0	10	7.0	5.0	27.0	5.0	7.0	16	25	18
MB-02-10-10-4	67.5	12	47.0	10	7.0	5.0	23.0	5.0	7.0	16	25	18
MB-02-XX-XX-X	Other dimensions available upon customer request											

**ORDERING INFORMATION**



Example: MB-02 Miniature Load Pins for nominal load 10k·N and with a nominal diameter 18mm, would be ordered as: MB-02-10-18-X