MOBILSENS® MOTION SENSING

REFERENCE MAGNETS

Reference magnets generate a homogeneous magnetic field in an air gap. They are mainly used to calibrate sensors for the magnetic field strength *H* or the magnetic flux density *B*. For example Gaussmeters, Teslameters or field strength measuring coils (search coils) can be calibrated using reference magnets.

• Reference Magnets VM 4

The transverse reference magnets VM 4 are available with different flux densities in a range from about 0.01 T to 1 T (0.1 kG to 10 kG).

One model, which stands out in the product range, is the reference magnet VM 4 - 10 mm. It is designed for maximum accuracy and generates a flux density of 0.25 T in an air gap of 10 mm height. The homogeneity of the magnetic field in the air gap is so good that the calibration of the system can be carried out directly by a nuclear magnetic resonance (NMR) measurement.

The reference magnets VM 4 - 2 mm and VM 4 - 5 mm have tapered pole caps.

Reference Magnet VM 4

Reference magnets VM 4 are available from stock in the following configurations:

Model	Air gap height	Air gap diameter	Field strength *H*	Flux density *B*
VM 4 - 2 mm - 1 T	2 mm	20 mm	800 kA/m (10 kOe)	1 T (10 kG)
VM 4 - 5 mm - 0,5 T	5 mm	35 mm	400 kA/m (5 kOe)	0.5 T (5 kG)
VM 4 - 10 mm - 0,25 T	10 mm	50 mm	200 kA/m (2.5 kOe)	0.25 T (2.5 kG)

Other flux densities in the range of about 0.01 T to 1 T (0.1 kG to 10 kG) are available on request, but require longer lead times.

Length:	120 mm
Width:	80 mm
Height:	100 mm
Weight:	2.2 kg

The reference magnets VM 4 contain long-term stable permanent magnets having low temperature coefficients. They are delivered in storage boxes.

The flux densities and field strengths given in the table are approximate values. The exact values are determined when the reference magnets are calibrated shortly before delivery.

• Reference Magnets VM 6

Reference magnets VM 6 are suitable to calibrate axial probes. These can have a diameter of up to 7.7 mm.

The homogeneity of the VM 6 is extraordinarily good for an axial reference magnet. The field strength in the center of the acceptance can be given with an uncertainty of approximately 0.3 %.

Reference Magnet VM 6

Axial acceptance	Field strength	Flux density
7.7 mm	180 kA/m (2.3 kOe)	0.23 Tesla (2.3 kGauss)

Diameter:	70 mm
Height:	45 mm
Weight:	0.88 kg

The reference magnets VM 6 contain long-term stable permanent magnets having low temperature coefficients. They are delivered in storage boxes.

The flux densities and field strengths given in the table are approximate values. The exact values are determined when the reference magnets are calibrated shortly before delivery.

A proprietary calibration certificate, which documents traceability of calibration to national standards, is provided free of charge on purchase of a VM 4 or VM 6. A calibration can alternately be carried out in our DAkkS (Deutsche Akkreditierungsstelle) accredited calibration laboratory for an extra charge. Periodic recalibration is recommended and can of course also be performed by our laboratory.

To preserve the calibration accuracy over a long time, we recommend observing the following precautions:

- Keep reference magnets away from magnetic fields.
- Do not insert magnetic or magnetizable parts, for example tools, into the air gap.
- Avoid magnetic pollution in the air gap.
- Store the reference magnets in a safe place and take them out only for the calibration of your measuring instruments.
- Do not expose the reference magnets to mechanical shock or extreme temperatures.

Due to continuous product improvements specifications are subject to change without notice.