



APPLIED MEASUREMENTS LTD.
Transducer Specialists...

+44 (0) 118 981 7339

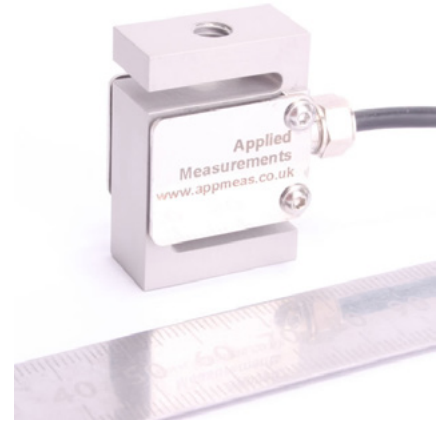
info@appmeas.co.uk

<https://appmeas.co.uk>

DBBSMM Series Miniature S-Beam Load Cell

Key Features:

- Capacities 0-1kg to 0-50kg
- Only 35mm High
- Output: 2mV/V nominal
- Accuracy: $<\pm 0.03\%/RC$
- Sealed to IP51
- Simple Installation
- High Performance
- High Side Load Resistance
- Robust Construction
- 3 Year Warranty



Use in Tension and/or Compression for Force and Load Measurement in Space-Constrained Applications.

The DBBSMM series of miniature S-Beam load cells are designed for use in tension and compression and lend themselves to both force measurement and weighing applications alike, where space is limited.

The DBBSMM series is environmentally sealed to IP51 as standard but can be enhanced to IP67 for more arduous applications. In addition, versions are available in lbf and N (kN) ranges.

All of the miniature s-beam load cells have an accuracy of better than $\pm 0.03\%$ of the rated capacity.

Their ease of mounting makes them very attractive for use as a general purpose load cell.

If you are not space-restricted try our [DBBSM range of s-beam load cells](#) which cover capacities of up to 0-30,000kg.

Options:

- Other Ranges Available
- Equivalents to Other Manufacturers Available
- Spherical Rod End Bearings & Load Buttons
- Internal Shunt Calibration Facility
- Improved Environmental Sealing to IP67
- TEDS (Transducer Electronic Data Sheet)
- TEDS Allows Plug & Play with TEDS Enabled Instrumentation.
- USB Version (via DSC-USB)
- High Temperature Version
- Vacuum Application Version
- Single or Multi-Channel PC-Based Monitoring & Data Logging System
- Fatigue Rated - Available all Capacities
- Different Cable Lengths
- Mounting Options
- Rationalised/Standardised Outputs Available
- Wireless Version (via T24 instrumentation)

Applications:

- Force & Load Measurement Applications
- Suspended Hoppers
- Geotechnical Test Equipment
- Tensile Testing Machines
- Wave Tank Monitoring (IP67 versions)



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Specification:

| | UNITS | DBBSMM |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------|
| Rated Capacity (RC) | kgf | 0-1, 0-2, 0-5, 0-10, 0-25, 0-50 |
| Operating Modes | Tension/Compression / Tension & Compression | |
| Sensitivity (RO) | mV/V | 2.0 nominal |
| Zero Balance/Offset | ±%/Rated Output | <1.0 |
| Zero Return after 30 mins | ±%/Applied Load | <0.03 |
| Output Symmetry (tension vs. compression) | ±%/Rated Output | <0.10 |
| Non-Linearity | ±%/Rated Output | <0.03 |
| Hysteresis | % / Rated Output | <0.02 |
| Output Symmetry | ±%/Rated Output | <0.10 |
| Repeatability | ±%/Rated Output | <0.02 |
| Temperature Effect on Zero | ±%/Rated Output/°C | <0.005 |
| Temperature Effect on Sensitivity | ±%/Applied Load/°C | <0.005 |
| Input Resistance | Ohms | 375-420 nominal |
| Output Resistance | Ohms | 340-360 nominal |
| Insulation Resistance | Megohms | >5000 @ 50Vdc |
| Excitation Voltage | Volts AC or DC | 10 recommended (2-15 acceptable) |
| Operating Temperature Range | °C | -20 to +80 |
| Compensated Temperature Range | °C | 0 to +70 |
| Storage Temperature Range | °C | -20 to +80 |
| Safe Overload | % of Rated Capacity | 150 |
| Ultimate Overload | % of Rated Capacity | 200 |
| Maximum Safe Side Load | % of Rated Capacity | 30 |
| Deflection @ Rated Capacity | mm (nominal) | 1kg = 0.50, 2kg = 0.30, 5kg = 0.26, 10kg = 0.19, 25kg = 0.12, 50kg = 0.08 |
| Fundamental Resonant Frequency* | Hz | 1kg = 200, 2kg = 300, 5kg = 600, 10kg = 950, 25kg = 1900, 50kg = 3000 |
| IP Rating (Environmental Protection) | | IP51 (IP67 optional) |
| Weight (excluding cable) | grams | 25 |
| Fatigue Life | | 10 ⁸ cycles typical (10 ⁹ cycles on fatigue-rated version) |
| Cable Length (as standard) | metres | 2 |
| Cable Type | | 4-core screened, PVC sheath, Ø3.5 |
| Construction Material | | Aluminium Alloy |
| Resolution | | 1 part in 250,000 (with appropriate instrumentation) |
| *The resonant frequency is calculated with the body of the load cell attached to a large plate, ensuring that only the sensing element oscillates: This is vital to achieve the highest natural frequency and subsequent frequency response. | | |

Wiring Diagram:

| Wire | Designation |
|--------|---------------------------------------------|
| Red | +ve excitation |
| Blue | -ve excitation |
| Green | +ve signal (tension) |
| Yellow | -ve signal |
| Screen | To ground - not connected to load cell body |



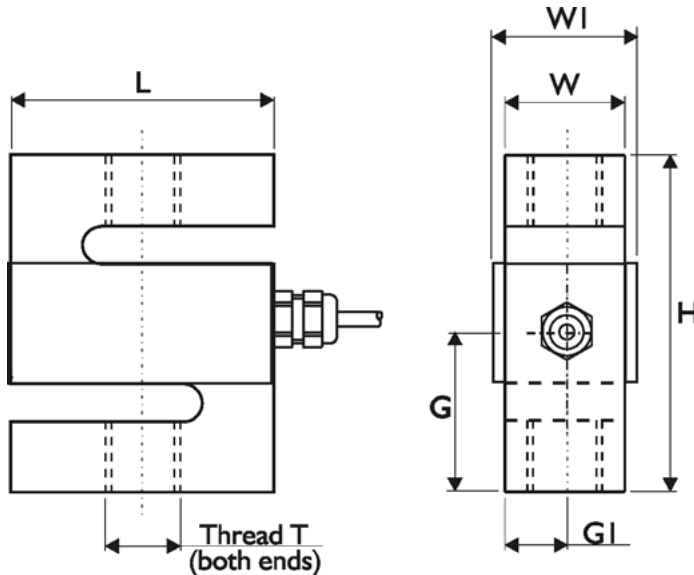
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Dimensions (mm):



| CAPACITY (kgf) | H | L | W | WI | G | GI | Threads T |
|----------------|----|----|----|----|------|----|-----------|
| 0-1 | 35 | 24 | 12 | 16 | 17.5 | 6 | M6 x 1 |
| 0-2 | 35 | 24 | 12 | 16 | 17.5 | 6 | M6 x 1 |
| 0-5 | 35 | 24 | 12 | 16 | 17.5 | 6 | M6 x 1 |
| 0-10 | 35 | 24 | 12 | 16 | 17.5 | 6 | M6 x 1 |
| 0-25 | 35 | 24 | 12 | 16 | 17.5 | 6 | M6 x 1 |
| 0-50 | 35 | 24 | 12 | 16 | 17.5 | 6 | M6 x 1 |

Ordering Codes:

| Core Product | Capacity (inc Engineering Units) | Cable Length (m) | Specials Code | Example Result |
|--------------|----------------------------------|------------------|---------------|---------------------|
| DBBSMM | 1kg | 002 | 000 | DBBSMM-1kg-002-000 |
| DBBSMM | 2kg | 002 | 000 | DBBSMM-2kg-002-000 |
| DBBSMM | 5kg | 002 | 000 | DBBSMM-5kg-002-000 |
| DBBSMM | 10kg | 002 | 000 | DBBSMM-10kg-002-000 |
| DBBSMM | 25kg | 002 | 000 | DBBSMM-25kg-002-000 |
| DBBSMM | 50kg | 002 | 000 | DBBSMM-50kg-002-000 |

Associated Products:



[TR150 Handheld Indicator](#)



[T24 Wireless Telemetry Range](#)



[Intuitive4-L Panel-Mount Indicator](#)



[DSC-USB USB Signal Digitiser](#)



[ICA Miniature Strain Gauge Amplifier](#)



[SGA Signal Conditioner/Amplifier](#)



Mounting and Installation Accessories:

Helping You Get The Best Possible Performance From Your Load Cell.

Load Buttons and Rod End Bearings

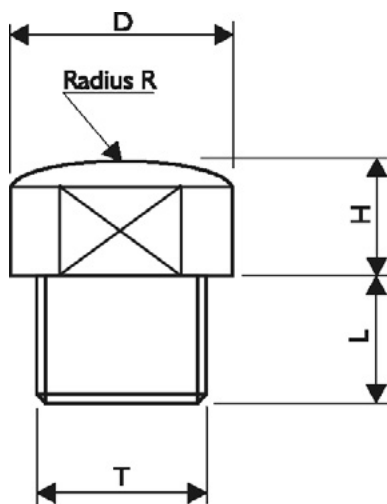
Designed to align forces through the principle axis of the load cell thus reducing the effects of extraneous forces, hence offering improved performance from the cell.

Load buttons are used where compressive forces are applied.

Rod End Bearings are used where tensile forces are being applied.

Dimensions in mm:

Load Buttons for Compression Use



| THREAD T | M6 x 1 |
|----------|--------|
| D | 12.5 |
| H | 6 |
| L | 9 |
| R | 200 |

Rod End Bearings for Tension Use

Maintenance-free rod ends are a complete units made up of a housing with both an integral shank (with an internal or external thread) and a maintenance-free spherical plain bearing, located within the housing.

Key Features:

- Supports radial loads in a tensile or compressive direction.
- Suitable for unilateral loads - can support alternating loads and alternating loads in combination with bearing GE..UK-2RS, consult sales.
- Zinc plated for corrosion resistance.
- Are maintenance-free.
- Fitted with radial spherical plain bearings GE..UK
- Hard chromium/PTFE composite sliding contact surfaces.
- Enables compact adjacent construction thanks to its thin walled design of the eye housing.



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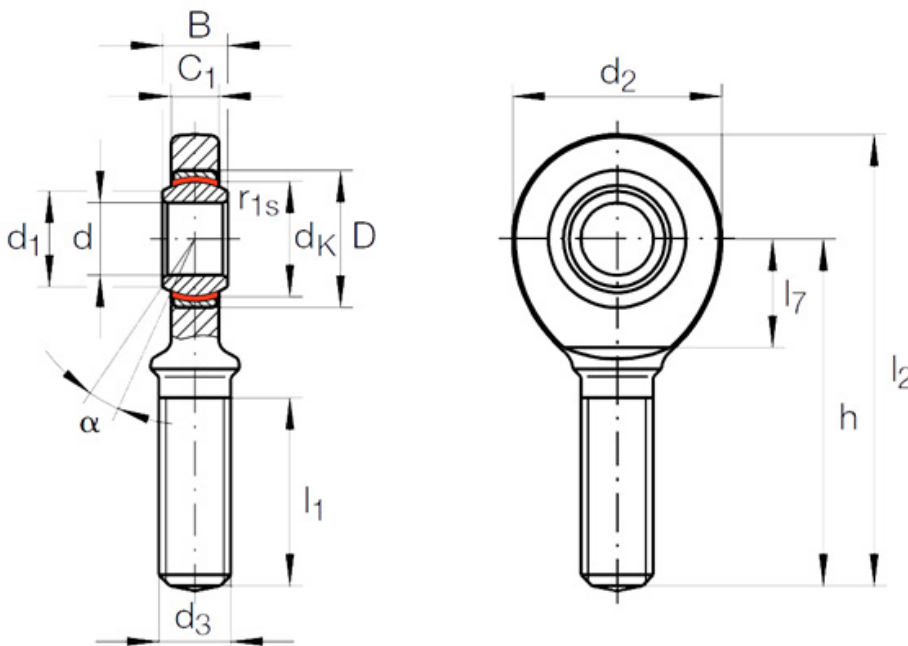
GAR..UK

(right hand thread)

- To ISO 12 240-4, dimension series E, type M
- Shank with external thread

Maintenance-free
 ISO 12 240-4, dimension series E, type M
 Sliding contact surface: hard chromium/PTFE

Series GAR..UK
 Sliding material: PTFE composite



| LOAD CELL | SHAFT DIAMETER | ORDERING CODE | | MASS | DIMENSIONS | | | | | | |
|-----------|----------------|---------------|------------|-------|---------------------|----|--------------------|----|----|----------------|----------------|
| | | WITHOUT SEALS | WITH SEALS | | ≈ kg | d | D | B | dk | d ₁ | d ₂ |
| DBBSMM | 6 | GAR 6 UK | - | 0.017 | 6 _{-0.008} | 14 | 6 _{-0.12} | 10 | 8 | 21 | M6 |

| LOAD CELL | h | C ₁ | Degrees | | | Chamfer Dimension | Basic Load Ratings | | Radial Internal Clearance | Shaft Diameter | |
|-----------|----|----------------|---------|----------------|----------------|-------------------|--------------------|----------|---------------------------|----------------|-----------|
| | | | α | l ₁ | l ₂ | | l ₇ | r1s min. | | | dyn. Cr N |
| DBBSMM | 36 | 4.4 | 13 | 18 | 46.5 | 12 | 0.3 | 3 600 | 6 920 | 0 - 0.032 | 6 |