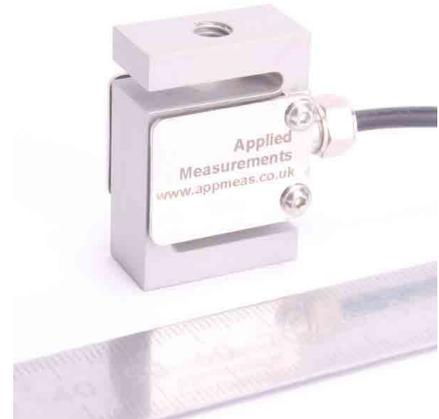




## DBBSMM Series Miniature S-Beam Load Cell

### 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)

For pricing or any further information, please contact Omni Instruments Ltd.



## 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 nominal
Output Resistance	Ohms	350 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 <sup>8</sup> cycles typical (10 <sup>9</sup> 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)

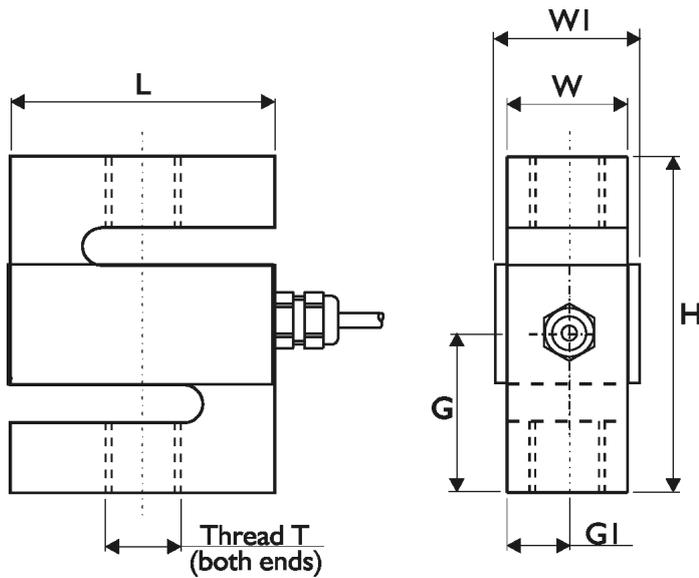
\*The resonant frequency is calculated with the body of the load cell attached to a large plate, ensuring that only the sensing element oscillates: This is vital to achieve the highest natural frequency and subsequent frequency response.

## 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](#)

For pricing or any further information, please contact Omni Instruments Ltd.



## Mounting and Installation Accessories:

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

### Load Buttons and Rod End Bearings

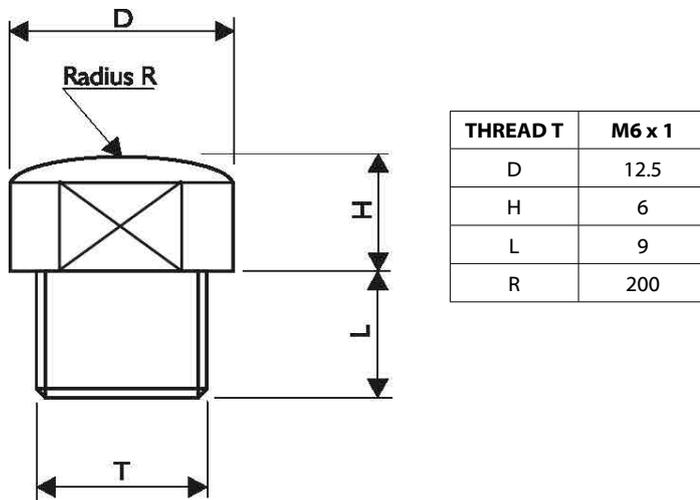
Designed to align forces through the principle axis of the load cell thus reducing the effects of extraneous forces, hence offering improved performance from the cell.

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



### 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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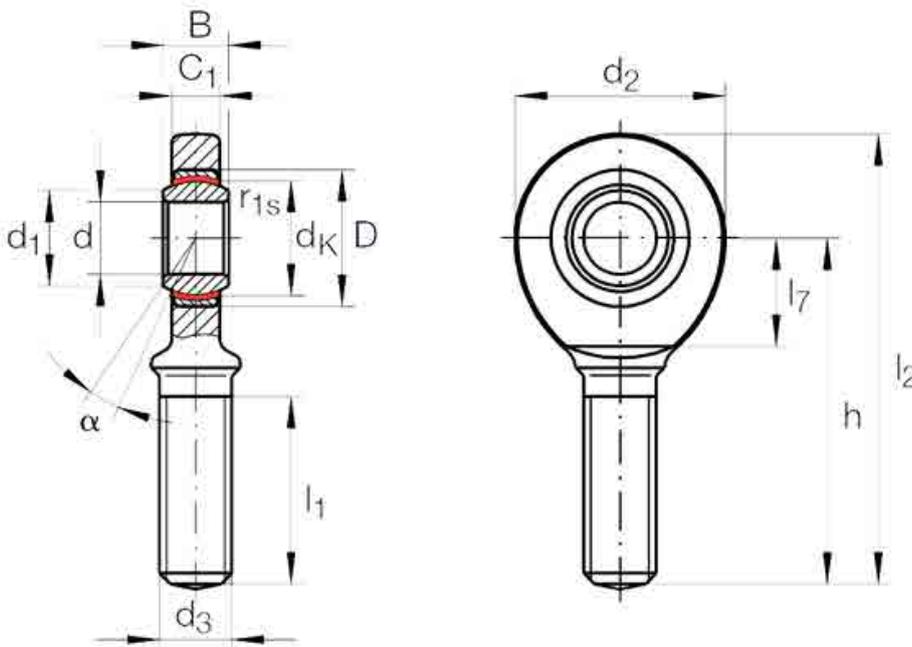


**GAR..UK**  
(right hand thread)

- 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 <sub>1</sub>	d <sub>2</sub>
DBBSMM	6	GAR 6 UK	-	0.017	6 <sub>-0.008</sub>	14	6 <sub>-0.12</sub>	10	8	21	M6

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

For pricing or any further information, please contact Omni Instruments Ltd.