APPLIED MEASUREMENTS LTD.
Transducer Specialists...

+44 (0) 118 981 7339
info@appmeas.co.uk
https://appmeas.co.uk

DBBSUB S-Beam Permanently Submersible Load Cell

Key Features:

- Capacities 0-0.5kN to 0-5kN
- Output: 2mV/V ±0.1%
- Sealed to IP68 Submersible to 10m/1bar
- Hermetically Sealed for Harsh Environments
- High Accuracy: <±0.02%/FS
- Stainless Steel Robust Construction
- 3 Year Warranty

Click here to view the product video

For use in Tension and Compression in Harsh Industrial and Underwater Environments

The DBBSUB series of S-Beam load cells are designed for use in both tension and compression and are ideal for force measurement and weighing applications alike. The DBBSUB S-beam load cell is hermetically sealed to IP68 making it perfect for permanent submersion underwater up to a depth of 10m or for use in harsh industrial conditions.

Typical environments include geotechnical testing, locations susceptible to flooding, submersible and hydrostatic applications. Typical applications include crane scales and hanging scales, tensile testing machines, suspended hoppers, geotechnical test equipment, testing chambers, lifts and other harsh environmental tension applications. Their ease of mounting makes them very attractive for use as a general purpose load cell.

If you need to fit into a restricted space try our DBBSMM range of miniature S-Beam load cells designed to fit where space is limited with an IP67 optional rating.

Options:

- Rod End Bearings & Load Buttons
- TEDS (Transducer Electronic Data Sheet)
- TEDS Allows Plug & Play with TEDS Enabled Instrumentation.
- USB Version (via DSC-USB)
- Vacuum Application Versions
- Single or Multi-Channel PC-Based Monitoring & Data Logging System
- Fatigue Rated - Capacities up to 2kN
- Wireless Version (via T24 instrumentation)

Applications:

- Submersible Environments
- Force & Load Measurement Applications
- Suspended Hoppers
- Geotechnical Test Equipment
- Tensile Testing Machines
- Wave Tank Monitoring

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Specification:

	UNITS	DBBSUB
Rated Capacity (RC)	kN	0-0.5, 0-1, 0-2, 0-5
Operating Modes	Tension/Compression / Tension & Compression	
Sensitivity (RO)	mV/V	2 ± 0.1% (1±0.2% on 0.5kN capacity)
Pressure Sensitivity	%/FS/bar (metre)	<0.05 (<0.005)
Zero Balance/Offset	±%/Rated Output	5
Zero Return after 30 mins	±%/Applied Load	<0.02
Output Symmetry (tension vs. compression)	±%/Rated Output	<0.1
Non-Linearity	±%/Rated Output	<0.02
Hysteresis	% / Rated Output	<0.02
Repeatability	±%/Rated Output	<0.02
Temperature Effect on Zero	±%/Rated Output/˚C	<0.002
Temperature Effect on Sensitivity	±%/Rated Output/˚C	<0.001
Input Resistance	Ohms	1100 ± 50
Output Resistance	Ohms	1000 ± 2
Insulation Resistance	Megohms	>5000 @ 100Vdc
Excitation Voltage	Volts AC or DC	10 recommended (2-15 acceptable)
Operating Temperature Range	˚C	-40 to +80 (ATEX -40 to +60)
Compensated Temperature Range	˚C	-10 to +40
Storage Temperature Range	˚C	-40 to +80
Safe Overload	% of Rated Capacity	200
Ultimate Overload	% of Rated Capacity	300
Maximum Safe Side Load	% of Rated Capacity	30
Deflection @ Rated Capacity	mm	0.3 nominal
Fundamental Resonant Frequency*	Hz	see dimensional table
IP Rating (Environmental Protection)		IP68 up to 10m water depth/1bar
Weight (excluding cable)	kg	0.55
Fatigue Life		10^8 cycles typical (10^9 cycles on fatigue-rated version)
Cable Length (as standard)	metres	6m
Cable Type		Shielded, 4 conductor cable (AWG 24) Ø5mm, Cable jacket polyurethane (PUR)
Construction Material		17-4 PH Stainless Steel Body. 303 Stainless Steel (Cable Gland)
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
	Green	+ve excitation
	Black	-ve excitation
	White	+ve signal
	Red	-ve signal
	Shield	To ground - not connected to load cell body

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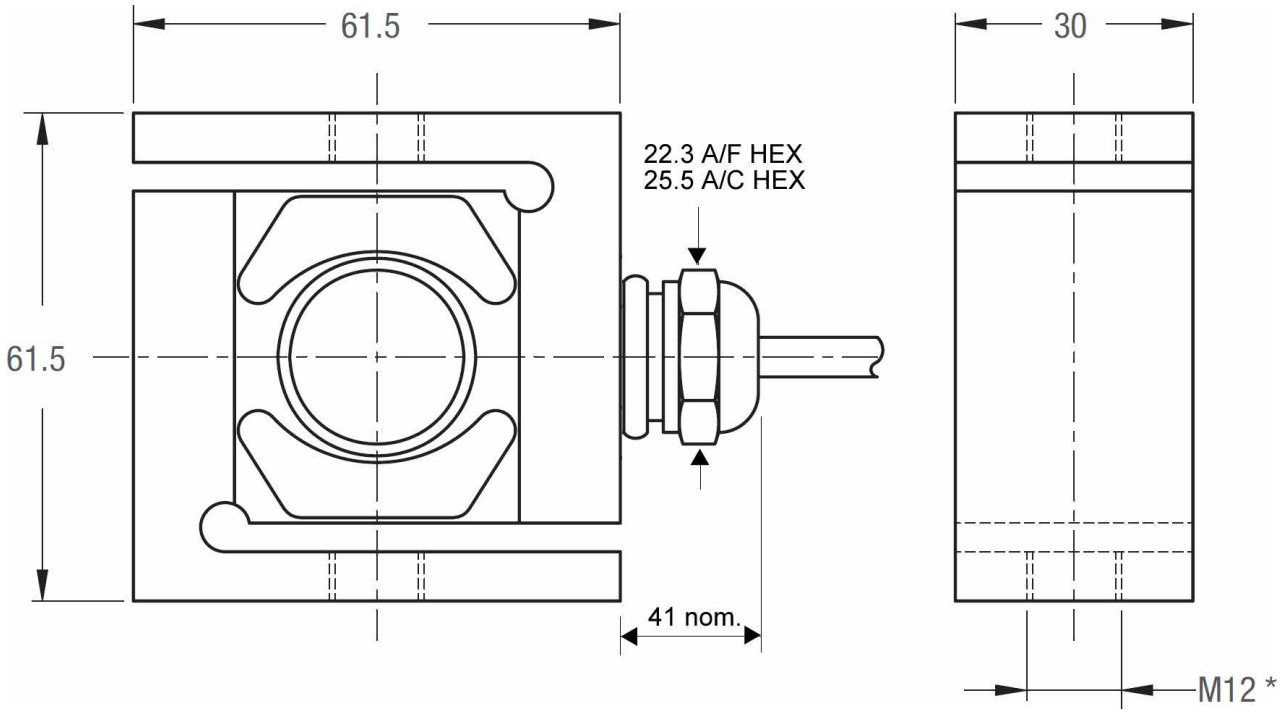
Dimensions (mm):

Capacity (kN)	H	L	W	Threads T	Resonant Frequency Hz
0-0.5	61.5	61.5	30	M12	400
0-1	61.5	61.5	30	M12	500
0-2	61.5	61.5	30	M12	700
0-5	61.5	61.5	30	M12	1000



*Unified thread 1/2-20 UNF is available

Ordering Codes:

Core Product	Capacity (inc Engineering Units)	Cable Length (m)	Specials Code	Example Result
DBBSUB	0.5kN	006	000	DBBSUB-0.5kN-006-000
DBBSUB	1kN	006	000	DBBSUB-1kN-006-000
DBBSUB	2kN	006	000	DBBSUB-2kN-006-000
DBBSUB	5kN	006	000	DBBSUB-5kN-006-000

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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.

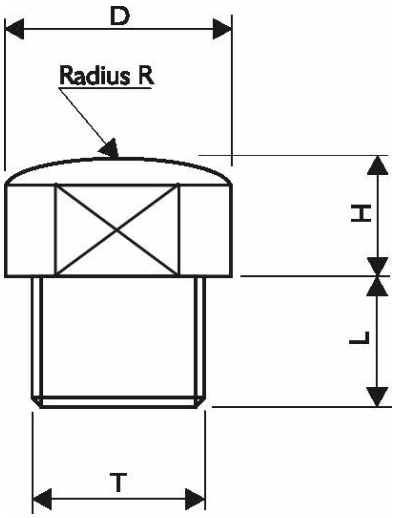
Load Buttons and Rod End Bearings

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	M12 x 1.75
D	22
H	6
L	12
R	150

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Rod End Bearings for Tension Use

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

Rod End Bearings for Tension Use

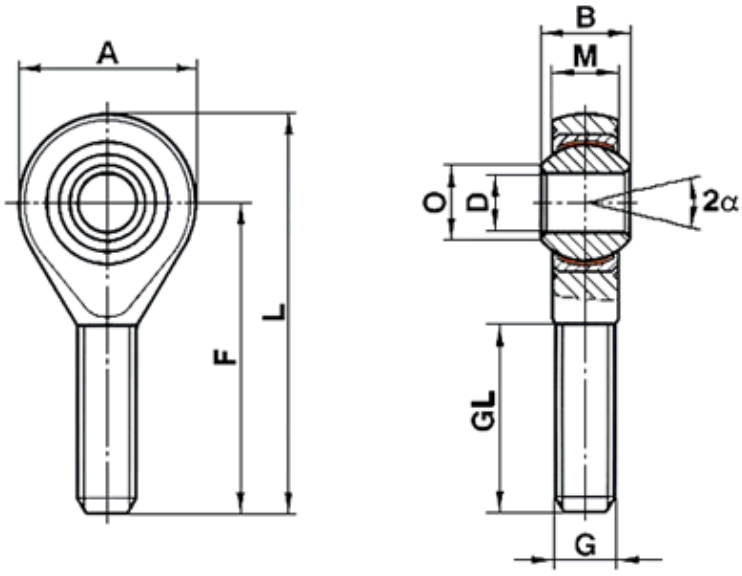
Designed to align forces through the principle axis of the load cell thus reducing the effects of extraneous forces, hence offering improved performance from the cell.

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

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.
- Stainless Steel for corrosion resistance.
- Are maintenance-free.
- Fitted with radial spherical plain bearings.
- PTFE composite sliding contact surfaces.
- Enables compact adjacent construction thanks to its thin walled design of the eye housing.



LOAD CELL	ORDERING CODES	Size (D)	B	M	A	F	L	O	G	GL	Static load C_0 kN	Dynamic load C kN	Limiting Speed rev/min	Weight g
DBBSUB	GARSW-12RR-316	12	16	12.00	32	54	70	15.4	M12	32	34.5	32.0	300	87

Materials: Stainless Steel + PTFE

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