



APPLIED MEASUREMENTS LTD.
Transducer Specialists...

+44 (0) 118 981 7339

info@appmeas.co.uk

<https://appmeas.co.uk>

DBB Series S-Beam Load Cell

Key Features:

- Capacities 50kg to 5000kg
- For sub-50kg Capacities see [DBBSM](#))
- Sealed to IP67 or IP68
- Robust Construction
- Output: 2mV/V
- Accuracy: $<\pm 0.03\%/RC$
- Simple Installation
- High Performance
- Optional ATEX Certificate on DBBW Model to II 1 GD EEx ia IIC T6
- Robust Construction
- 3 Year Warranty



Use in Tension and /or Compression for Force and Load Measurement

The DBB series of S-Beam load cells are designed for use in tension and compression and lend themselves to both force measurement and weighing applications alike.

There are three versions available covering the standard range which are the DBBE, DBBW and the DBBWAS. The DBBE is a dual bending beam design sealed to IP67 covering ranges from 50kg to 1000kg, the DBBW is a shear web design covering ranges of 0-500kg and 0-5000kg, fully welded and sealed to IP68 and the DBBWAS is a lower cost alloy steel version of the DBBW covering capacities from 1500kg to 5000kg.

Both the dual bending beam and the shear web design offer high accuracy performance 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.

Options:

- Equivalents to Other Manufacturers Available
- Spherical Rod End Bearings
- Load Buttons
- Different Cable Lengths
- Mounting Hardware
- ATEX Certification (DBBW only)
- TEDS (Transducer Electronic Data Sheet)
- TEDS Allows Plug & Play with TEDS Enabled Instrumentation.
- USB Versions (via DSC-USB)
- Single or Multi-Channel PC-Based Monitoring & Data Logging System
- Wireless Version (via T24 instrumentation)

Applications:

- Force & Load Measurement Applications
- Suspended Hoppers
- Geotechnical Test Equipment
- Tensile Testing Machines
- Materials Testing
- Bag Fillers
- Conversion of Mechanical Scales to Digital
- Dynamometers



Specification:

	DBBE	DBBW	DBBWAS	UNITS
Rated Capacity (RC)	0-50, 0-100, 0-150, 0-200, 0-300, 0-500, 0-1000	0-500, 0-1000, 0-2000, 0-5000	0-1500, 0-2000, 0-3000, 0-5000	kg
Operating Modes	Tension/Compression / Tension & Compression			
Sensitivity (RO)	2.0 ±0.1%	2.0 ±0.1%	2.0±0.1%	mV/V
Zero Balance/Offset	<5	<2	<2	±%/Rated Output
Total Error	<0.03	<0.030	<0.030	±%/Rated Output
Zero Return after 30 mins	<0.03	<0.025	<0.03	±%/Applied Load
Output Symmetry (tension vs. compression)	<0.2 typical			±%/Rated Output
Temperature Effect on Zero	<0.01	<0.003	<0.004	±%/Rated Load/°C
Temperature Effect on Sensitivity	<0.003	<0.0015	<0.0015	±%/Applied Load/°C
Input Resistance	415 ±20	400 ±20	390 nominal	Ohms
Output Resistance	350 ±3	350 ±3	350 typical	Ohms
Insulation Resistance	>2000	>5000	>2000	Megohms @ 50Vdc
Excitation Voltage	10 recommended (2-15 acceptable)			Volts AC or DC
Operating Temperature Range	-30 to +70	-30 to +80	-20 to +70	°C
Compensated Temperature Range	-10 to +45	-10 to +40	-10 to +40	°C
Storage Temperature Range	-30 to +70	-30 to +80	-20 to +70	°C
Safe Overload	150	150	150	% of Rated Capacity
Ultimate Overload	300	300	300	% of Rated Capacity
Deflection @ Rated Capacity	<0.4	<0.4	<0.4	mm
Fundamental Resonant Frequency*	200 to 1000 typical depending on capacity	800 typical	800 typical	Hz
IP Rating (Environmental Protection)	IP67	IP68	IP67	
Weight (excluding cable)	0.58	0.9 (1.9 for 5000kg)	0.9 (3000/5000kg=1.9)	kg
Fatigue Life	10 ⁸ cycles typical (10 ⁹ cycles on fatigue-rated version)			
Cable Length (as standard)	3	5	5	metres
Cable Type	6-core screened, PVC sheath, Ø6	6-core screened, PUR sheath, Ø6	6-core screened, PUR sheath, Ø6	
Construction	Nickel Plated Alloy Steel	Stainless Steel	Nickel Plated Alloy Steel	
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:

DBBE Wiring:

Wire	Designation
Green	+ve sense
Blue	+ve excitation
Black	-ve excitation
Brown	-ve sense
Red	+ve signal (tension)
White	-ve signal

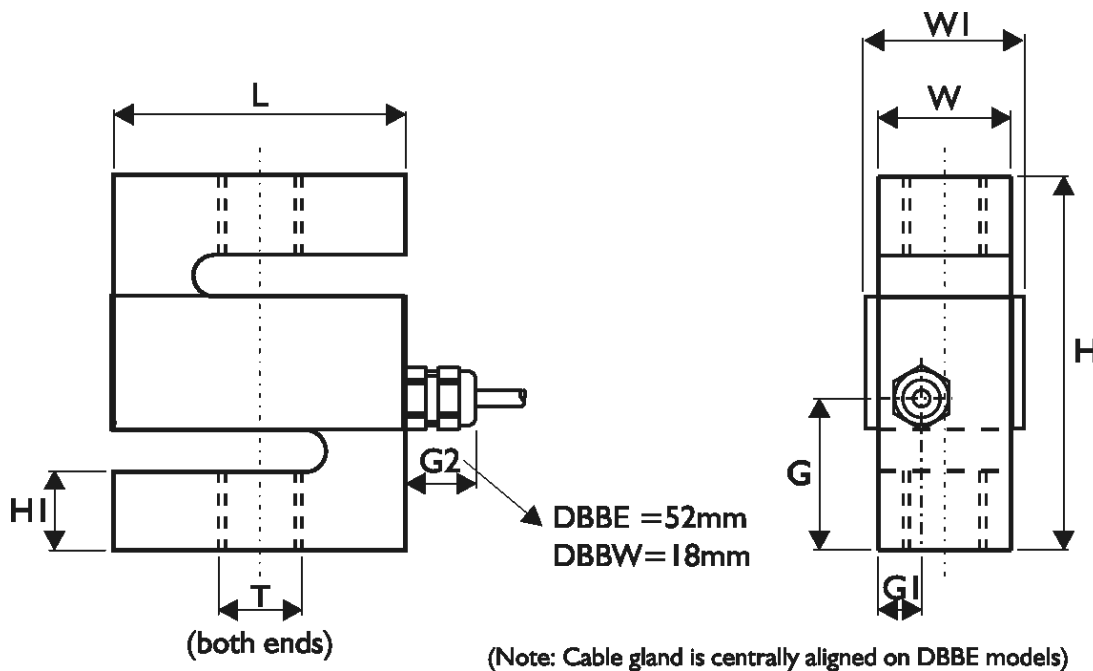
DBBW/DBBWAS Wiring:

Wire	Designation
Blue	+ve excitation
Green	+ve sense
Black	-ve excitation
Grey	-ve sense
White	-ve signal
Red	+ve signal (tension)



Dimensions (mm):

Model	Capacity (kgf)	H	L	W	WI	HI	G	GI	Threads T
DBBE	0-50, 0-1000	80	62.1	18	22	15	40	9	M12 x 1.75
DBBW	0-500	90	70	32	32	19	36.6	10.4	M12 x 1.75
DBBW	0-1000	90	70	32	32	19	36.6	10.4	M16 x 2.0
DBBW	0-2000	90	70	32	32	19	36.6	10.4	M16 x 2.0
DBBW	0-5000	120	100	45	45	26	60	13.8	M24 x 2.0
DBBWAS	0-1500	90	70	32	36	19	45	8.5	M16 x 2.0
DBBWAS	0-2000	90	70	32	36	19	45	8.5	M16 x 2.0
DBBWAS	0-3000	120	100	45	45	26	60	8.5	M24 x 2.0
DBBWAS	0-5000	120	100	45	45	26	60	8.5	M24 x 2.0



Ordering Codes:

Core Product	Capacity (inc Engineering Units)	Cable Length (m)	Specials Code	Example Result
DBBE	50kg	003	000	DBBE-50kg-003-000
DBBE	100kg	003	000	DBBE-100kg-003-000
DBBE	150kg	003	000	DBBE-150kg-003-000
DBBE	200kg	003	000	DBBE-200kg-003-000
DBBE	300kg	003	000	DBBE-300kg-003-000
DBBE	500kg	003	000	DBBE-500kg-003-000
DBBE	1000kg	003	000	DBBE-1000kg-003-000



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Ordering Codes (continued):

Core Product	Capacity (inc Engineering Units)	Cable Length (m)	Specials Code	Example Result
DBBW	500kg	005	000	DBBW-500kg-005-000
DBBW	1000kg	005	000	DBBW-1000kg-005-000
DBBW	2000kg	005	000	DBBW-2000kg-005-000
DBBW	5000kg	005	000	DBBW-5000kg-005-000

Core Product	Capacity (inc Engineering Units)	Cable Length (m)	Specials Code	Example Result
DBBWAS	1500kg	005	000	DBBWAS-1500kg-005-000
DBBWAS	2000kg	005	000	DBBWAS-2000kg-005-000
DBBWAS	3000kg	005	000	DBBWAS-3000kg-005-000
DBBWAS	5000kg	005	000	DBBWAS-5000kg-005-000

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.

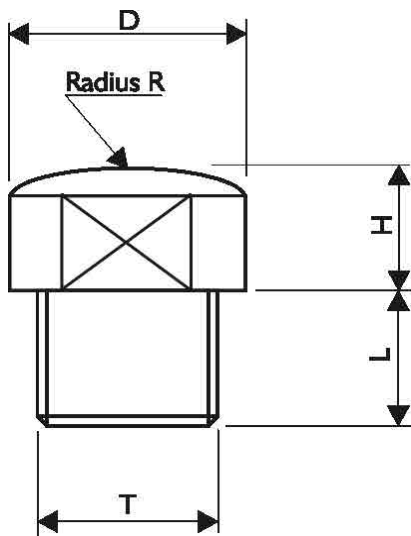
Load buttons are used where compressive forces are applied.

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



Dimensions in mm:

Load Buttons for Compression Use



THREAD T	M12 x 1.75	M16 x 2	M24 x 2
D	22	32	26
H	6	10	14
L	12	16	26
R	150	180	200

Rod End Bearings for Tension Use

Key Features:

- Supports radial loads in a tensile or compressive direction.
- Transmit slow movements with small or moderate swivel angles.
- Suitable for unilateral loads - can support alternating loads and alternating loads in combination with bearing GE..UK-2RS.
- Zinc plated for corrosion resistance.
- Are maintenance-free.
- Sealed maintenance-free rod ends use lip seals to protect against contaminants and water spray.
- Fitted with radial spherical plain bearings GE..UK
- Hard chromium/PTFE composite sliding contact surfaces.
- Right hand or left hand internal or external thread.
- Enables compact adjacent construction thanks to its thin walled design of the eye housing.



GAR..UK
(right hand thread)

GAL..UK
(left hand thread)

- To ISO 12 240-4, dimension series E, type M
- Shank with external thread
- For shaft diameters from 6mm to 30mm



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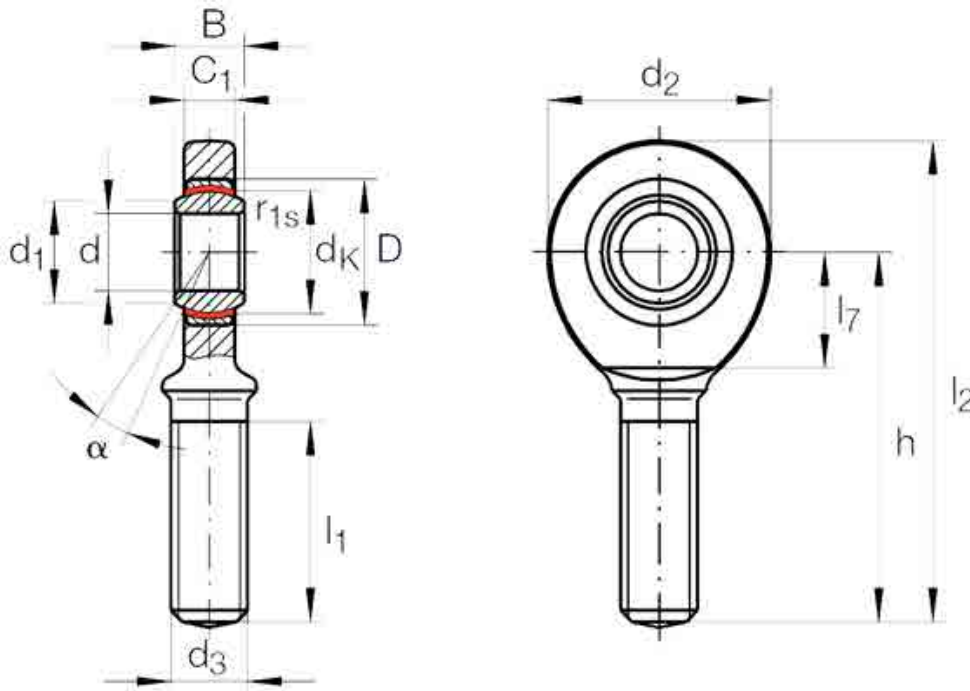
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Maintenance-free
 ISO 12 240-4, dimension series E, type M
 Sliding contact surface: hard chromium/PTFE

Series GAR..UK
 Sliding material: PTFE composite



TYPE	SHAFT DIAMETER	DESIGNATION ¹⁾		MASS ≈ kg	DIMENSIONS						
		WITHOUT SEALS	WITH SEALS		d	D	B	d _k	d ₁	d ₂	d ₃
DBBE-50-500kg	12	GAR 12 UK	-	0.086	12 _{-0.008}	22	10 _{-0.12}	18	14.9	34	M12
DBBW-500kg	12	GAR 12 UK	-	0.086	12 _{-0.008}	22	10 _{-0.12}	18	14.9	34	M12
DBBW-1000kg	17	GAR 17 UK	-	0.19	17 _{-0.008}	30	14 _{-0.12}	25	20.7	46	M16
DBBW-2000kg	17	GAR 17 UK	-	0.19	17 _{-0.008}	30	14 _{-0.12}	25	20.7	46	M16
DBBW-5000kg	25	GAR 25 UK	-	0.56	25 _{-0.01}	42	20 _{-0.12}	35.5	29.3	64	M24 x 2

TYPE	h	C ₁	Degrees			l ₁	l ₂	l ₇	Chamfer Dimension r1s min.	Basic Load Ratings		Radial Internal Clearance	Shaft Diameter d
			α	l ₁	l ₂					dyn. Cr N	stat. C _{or} N		
DBBE-50-500kg	54	8	11	28	71	18	0.3	11 400	30 100	0 - 0.032	12		
DBBW-500kg	54	8	11	28	71	18	0.3	11 400	30 100	0 - 0.032	12		
DBBW-1000kg	69	11	10	36	92	23	0.3	22 400	56 500	0 - 0.04	17		
DBBW-2000kg	69	11	10	36	92	23	0.3	22 400	56 500	0 - 0.04	17		
DBBW-5000kg	94	17	7	53	126	32	0.6	51 000	104 000	0 - 0.05	25		

1) For a left hand thread, the R is replaced by an L (example: GAL..).