APPLIED MEASUREMENTS LTD.
Transducer Specialists...

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

DBCR Miniature S-Beam Load Cell

Key Features:

- Capacities 0-10N to 0-500N
- Output: ±0.05% of Rated Capacity
- Sealed to IP50
- Robust Construction
- Compact Size
- 3 Year Warranty

For Tension and Compression Force/Load Measurement

The DBCR series of low capacity S-beam load cells are designed for use in tension and compression force measurement and weighing applications alike. The DBCR is a compact version of the classic S-beam load cell and offers an accuracy of ±0.05% of the rated capacity.

The DBCR 0-10N and 0-20N capacities are constructed of aluminium and the 0-50N to 0-500N are manufactured from 17-4PH stainless steel.

Typical applications include material test machines, component test rigs and general in-line force measurement. The DBCR can also be used in low capacity weighing applications, particularly with small suspended hoppers, where a slim, compact and accurate load cell is required.

Options:

- Other Ranges Available on Request
- Spherical Rod End Bearings and Load Buttons
- Cable Lengths
- Shunt Calibration Facility
- Mounting Options
- Higher Accuracy Versions Available
- USB Version (via DSC-USB)
- High Temperature Versions
- Fatigue Rated Versions
- Vacuum Applications Versions
- Single or Multi-Channel PC-Based Monitoring & Data Logging System
- TEDS (Transducer Electronic Data Sheet)
- TEDS Allows Plug & Play with TEDS Enabled Instrumentation
- Wireless Version (via T24 instrumentation)

Applications:

- Material Test Machines
- Component Test Rigs
- In-Line Force Measurements
- Low Capacity Weighing Applications
- Small Suspended Hoppers

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Specification:

DBCR Miniature S-Beam Load Cell		
Rated Capacity (RC)	N	0-10, 0-20, 0-50, 0-100, 0-250, 0-500
Operating Modes	Tension/Compression / Tension & Compression	
Sensitivity (RO)	mV/V	2.0 ±0.1%
Zero Balance/Offset	±%/Rated Output	<1.0
Output Symmetry (tension vs. compression	±%/Rated Output	<0.20
Non-Linearity	±%/Rated Output	<0.05
Hysteresis	%/Rated Output	<0.02
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
Deflection @ Rated Capacity	mm	
Fundamental Resonant Frequency*	Hz	0N=82; 20N=136; 50N=130; 100N=210; 250N=420; 500N=700
IP Rating (Environmental Protection)		IP50
Weight (excluding cable)	grams	10N to 20N = 85; 50N to 500N = 150
Fatigue Life		10^8 cycles typical (10^9 cycles on fatigue-rated version)
Cable Length (as standard)		2 Metres
Cable Type		4-core screened, PVC sheath, Ø3.5
Construction		10N-20N Aluminium Alloy, 50N-500N Stainless 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:

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

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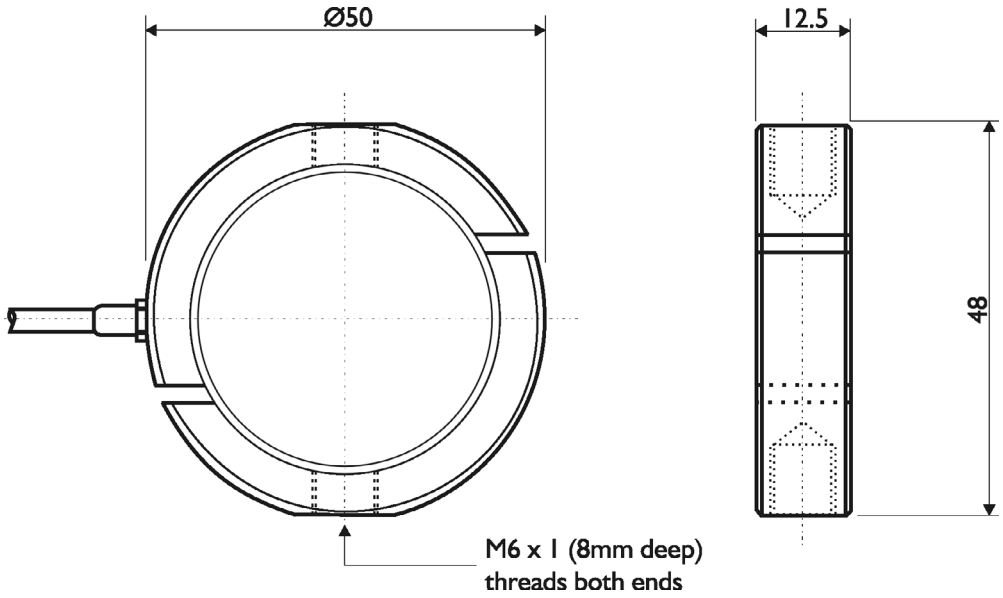
Dimensions (mm):



Ordering Codes:

Core Product	Capacity (inc Engineering Units)	Cable Length (m)	Specials Code	Example Result
DBCR	10N	002	000	DBCR-10N-002-000
DBCR	20N	002	000	DBCR-20N-002-000
DBCR	50N	002	000	DBCR-50N-002-000
DBCR	100N	002	000	DBCR-100N-002-000
DBCR	250N	002	000	DBCR-250N-002-000
DBCR	500N	002	000	DBCR-500N-002-000

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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

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Mounting and Installation Accessories:

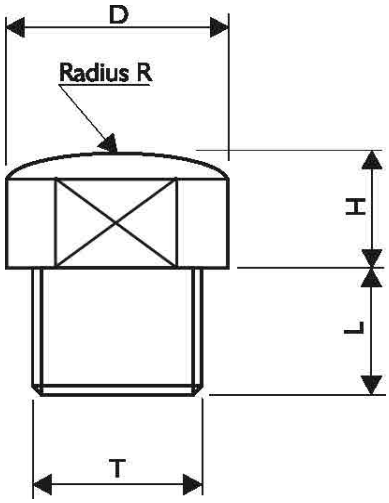
Helping You Get The Best Possible Performance From Your Load Cell.

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, please 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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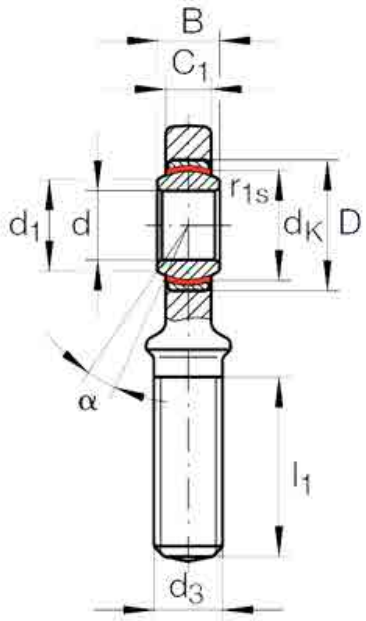
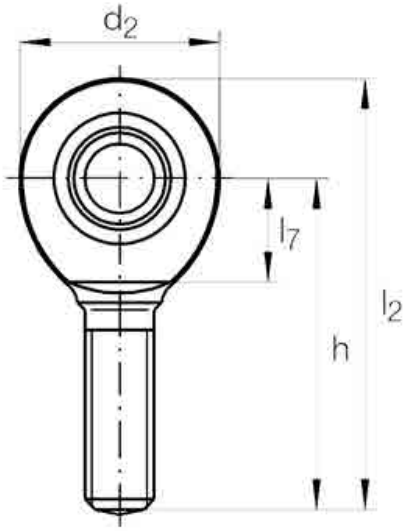
GAR..UK
(right hand thread)

- 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





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LOAD CELL	SHAFT DIAMETER	ORDERING CODE		MASS	DIMENSIONS						
	d	WITHOUT SEALS	WITH SEALS	≈ kg	d	D	B	d_K	d_1	d_2	d_3
DBCR	6	GAR 6 UK	-	0.017	$6_{-0.008}$	14	$6_{-0.12}$	10	8	21	M6

LOAD CELL			Degrees				Chamfer Dimension	Basic Load Ratings		Radial Internal Clearance	Shaft Diameter
	h	C_1	α	l_1	l_2	l_7	r1s min.	dyn. Cr N	stat. C_{0r} N		d
DBCR	36	4.4	13	18	46.5	12	0.3	3 600	6 920	0 - 0.032	6