



APPLIED MEASUREMENTS LTD.
Transducer Specialists...

+44 (0) 118 981 7339

info@appmeas.co.uk

<https://appmeas.co.uk>

DSCC Pancake Load Cell

Key Features:

- Capacities 0-5kN up to 0-1000kN
- Output: 2mV/V
- Stainless Steel Construction
- High Frequency Response
- High Accuracy $<\pm 0.05\%$ /Rated Capacity
- Low Profile Shear Design
- Low Deflection
- Excellent Rejection of Extraneous Forces
- Simple Installation
- Shunt Calibration Facility
- 3 Year Warranty

For Tension and/or Compression and Force and Load Measurement Applications



The DSCC series of pancake load cells are designed for weighing and force measurement applications and can operate in both tension and compression. They are perfectly suited for material and component fatigue testing applications where a high accuracy, low-profile device is required and forces are applied axially. The DSCC's high frequency response makes it ideal for dynamic force and load measurement applications such as crash test walls.

The DSCC can be entirely customised to suit your specific application, with alternative threads, custom dimensions, counter-bored mounting holes, protection ratings of IP67 and IP68 submersible and higher capacities in excess of 5000kN possible.

For a pancake load cell with a rated capacity below 5kN for low-range measurements, please see our [DSCRC low profile load cell](#) which covers forces from 0-200N up to 0-2kN.

Options:

- Calibration/Reference Grade Versions to Meet BS EN ISO 376
- Custom Dimensions to Match Other Manufacturers Models
- Full Range of Mounting Options inc.: Load Buttons, Spherical Rod End Bearings, Mounting Bases.
- Fatigue Rated Versions.
- Higher Capacities
- Integral Cable Versions
- USB Versions (via DSC-USB)
- Vacuum/Pressurised Environments
- High/Low Temperature Versions
- Double Bridge Versions
- IP67 or IP68 Submersible Protection Rating Versions
- Counter Bored Mounting Holes
- Alternative Threads
- TEDS (Transducer Electronic Data Sheet)
- TEDS Allows Plug & Play with TEDS Enabled Instrumentation.
- Single or Multi-Channel PC-Based Monitoring & Data Logging System
- Wireless Version (via T24 instrumentation)

Applications:

- Materials Testing
- Component Fatigue Testing Applications
- Dynamic Force Applications
- Crash Test Walls
- Calibration Test Rigs
- Load Measurement Applications



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Specification:

Rated Capacity (RC)	kN	0-5, 0-10, 0-25, 0-50, 0-100, 0-200, 0-250, 0-300, 0-500, 0-750, 0-1000
Operating Modes	Tension/Compression / Tension & Compression	
Sensitivity (RO)	mV/V	2.0 (up to 200kN) / 2.7 nominal (250kN upwards)
Zero Balance/Offset	±%/Rated Output	<1.0
Output Symmetry (tension vs. compression)	%/Rated Load	<0.25 (0.8 typical on Ø155 250kN)
Non-Linearity	±%/Rated Output	<0.05 (<0.03 typical)
Hysteresis	±%/Rated Output	<0.05 (<0.03 typical)
Repeatability	±%/Rated Output	<0.05 (<0.03 typical)
Temperature Effect on Zero	±%/Rated Capacity/ °C	<0.005
Temperature Effect on Sensitivity	±%/Applied Load/ °C	<0.005
Effect of Eccentricity	%/Rated Output/25mm	<0.25 typical
Effect of Side Load	%	0.25 typical
Input Resistance	Ohms	700 nominal
Output Resistance	Ohms	700 nominal
Insulation Resistance	Megohms @ 50 Vdc	>5000
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	>250
Maximum Safe Side Load ** (Fx or Fy)	% of Rated Capacity	40
Maximum Safe Torque/Bending Moment	(Mx, My or Mz) **	See dimensions table
Deflection @ Rated Capacity	mm (nominal) at Rated Load	0.05 (>50kN) / 0.1 (100-250kN) / 0.13 (300-1000kN)
Fundamental Resonant Frequency*		See dimensions table
IP Rating (Environmental Protection)		IP65
Weight (excluding cable)		See dimensions table
Cable Length (as standard)	metres	3
Cable Type	Single Bridge Versions	6-Pin Amphenol Connector + Mating Cable Assembly (4-core screened cable, PUR sheath, Ø5)
	Dual Bridge Versions	8-Pin M12 x 1 Connector + Mating Cable Assembly, (8-core screened cable, PUR sheath, Ø^)
Construction		Stainless Steel
Resolution		1 part in 250,000 (with appropriate instrumentation)
Fatigue Life	Fully Reversed Cycles	Standard Versions: 30-50 million typical Fatigue-Rated Versions: 500 million Versions rated to 1 billion+ on request

*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.

**Extraneous load ratings (Fx, Fy, Mx, My, Mz) are based on application of only one at any time in addition to force in the primary measurement axis (Fz). Contact our engineering department if multi extraneous loads will occur simultaneously.



Wiring Diagram:

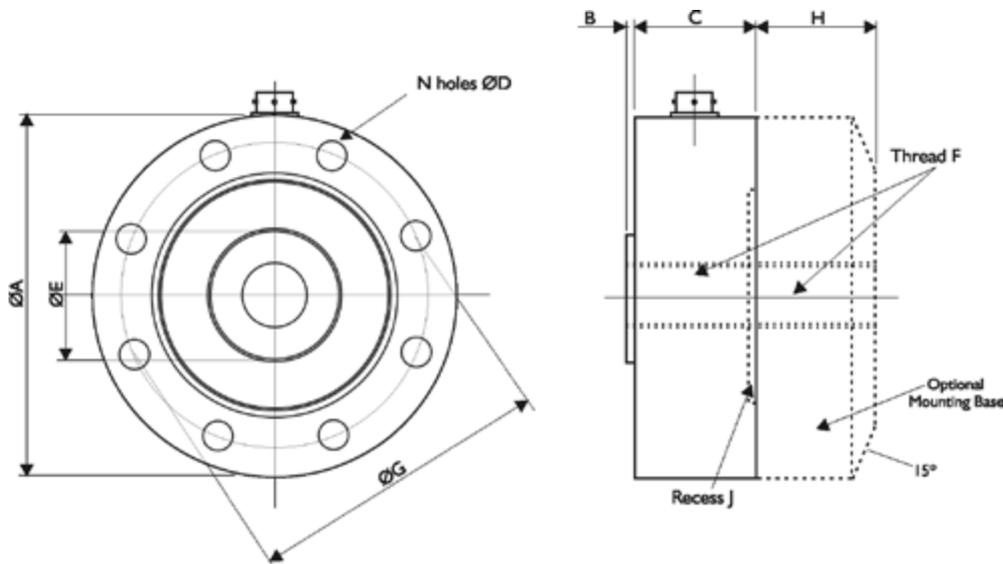
SINGLE BRIDGE VERSION		
Wire		Designation
Red	Red	+ve excitation
Blue	Blue	-ve excitation
Green	Green	+ve signal (compression)
Yellow	Yellow	-ve signal
Screen	Screen	To ground - not connected to load cell body

DUAL BRIDGE VERSION		
Wire		Designation
Red	Red	+ve excitation (bridge A)
Blue	Blue	-ve excitation (bridge A)
Green	Green	+ve signal (compression) (bridge A)
Yellow	Yellow	-ve signal (bridge A)
Brown	Brown	+ve excitation (bridge B)
White	White	-ve excitation (bridge B)
Pink	Pink	+ve signal (compression) (bridge B)
Grey	Grey	-ve signal (compression)
Screen	Screen	To ground - not connected to load cell body

Dimensions (mm):

CORE PRODUCT REF	CAPACITY (kN)	ØA (Size)	B	C	ØD	ØE	Thread F	ØG	N holes	H	J	Deflection at RC (mm nominal)	Resonant Frequency (kHz)	Extaneous Load Limit (Mx, My or Mz) (Nm)	Weight (kg no base)	Weight (kg with base)
DSCC	0-5, 0-10, 0-25, 0-50	107	2	33	8.5	33	M20 x 2.5	90	8	35	2	0.05	5kN=3.5	30	1.5	3.7
													10kN=4.5	60		
													25kN=6.5	150		
													50kN=7.2	300		
DSCC	0-100, 0-200, 0-250	155	3	45	11	60	M36 x 2	130	12	45	2	0.10	100kN=6.5	845	3.9	9.1
													200kN=7.8	1690		
													250kN=8.7	2000		
DSCC8	0-250, 0-300, 0-500	202	2	52	12.2	95.5	M56x4	165	16	50	2	0.10	250kN=9	1500	11	24
													300kN=9.3	1800		
													500kN=10	3000		
DSCC	0-300, 0-500, 0-750, 0-1000	278	6	78	17	118	M64 x 6*	230	16	84	4	0.13	300kN=8.7	2030	25.5	65
													500kN=8.9	3390		
													1000kN=9.0	6780		

*If you require rod end bearings please request an M64 x 4 thread. Note that the maximum rated safe static load on this size rod end is 689kN.





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Ordering Codes:

Core Product	Capacity (inc Engineering Units)	Cable Length (m)	Specials Code	Example Result
DSCC	5kN	003	000	DSCC-5kN-003-000
DSCC	10kN	003	000	DSCC-10kN-003-000
DSCC	25kN	003	000	DSCC-25kN-003-000
DSCC	50kN	003	000	DSCC-50kN-003-000
DSCC	100kN	003	000	DSCC-100kN-003-000
DSCC	200kN	003	000	DSCC-200kN-003-000
DSCC	250kN	003	000	DSCC-250kN-003-000
DSCC	300kN	003	000	DSCC-300kN-003-000
DSCC	500kN	003	000	DSCC-500kN-003-000
DSCC	750kN	003	000	DSCC-750kN-003-000
DSCC	1000kN	003	000	DSCC-1000kN-003-000
DSCC8	250kN	003	000	DSCC8-250kN-003-000
DSCC8	300kN	003	000	DSCC8-300kN-003-000
DSCC8	500kN	003	000	DSCC8-500kN-003-000
			Other Specials Code	Details
			029	Fatigue rated to 500 million cycles
			033	Mounting base fitted
			061	Fatigue rated to 500 million cycles + mounting base fitted
			088	Dual strain gauge bridges + fatigue rated to 500 million cycles
			126	Dual strain gauge bridges
			127	Dual strain gauge bridges + mounting base fitted
			128	Dual strain gauge bridge + mounting base + fatigue rated to 500 million cycles



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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](#)

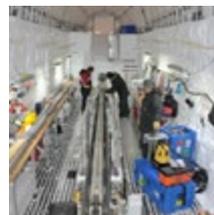
Associated Case Studies:

[Creating 1000 Times More Power with Submersible Load Measuring Pins](#)



Measuring the strut force in Deep Green's underwater tidal energy kite assembly. The measuring device needed to withstand permanent underwater submersion. [Read more...](#)

[Shear Pin Load Cells and Draw Wire Sensors Deliver Flawless Results in Sub-Zero Temperatures](#)



Using customised DBEP shear pin load cells, the RICE team were able to successfully extract a 763m deep ice core from an ice cap on Roosevelt Island. [Read more...](#)



Mounting and Installation Accessories:

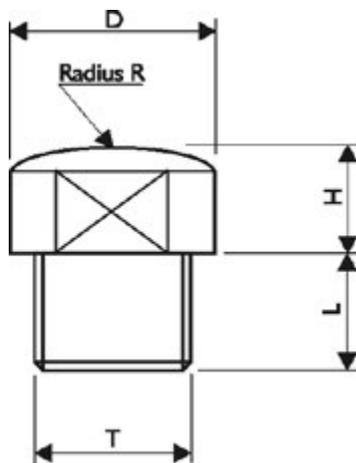
Helping You Get The Best Possible Performance From Your Load Cell.

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.

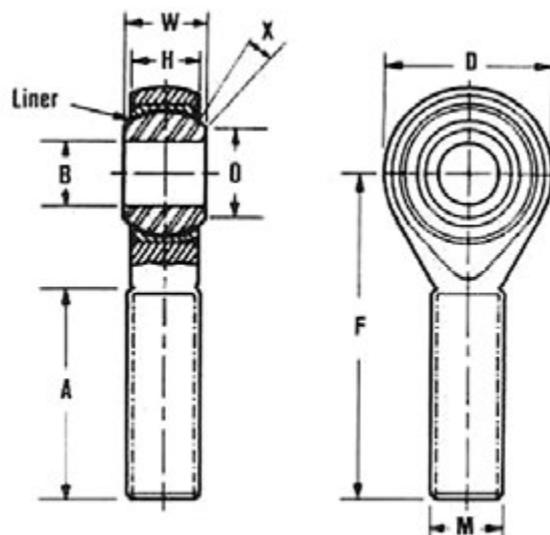
Load Buttons for Compression Use



THREAD T	M20 x 2.5	M36 x 2	M56 x 4	M64 x 6
D	33	60	95.5	118
H	14	25	40	50
L	26	40	50	65
R	200	200	300	400

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.





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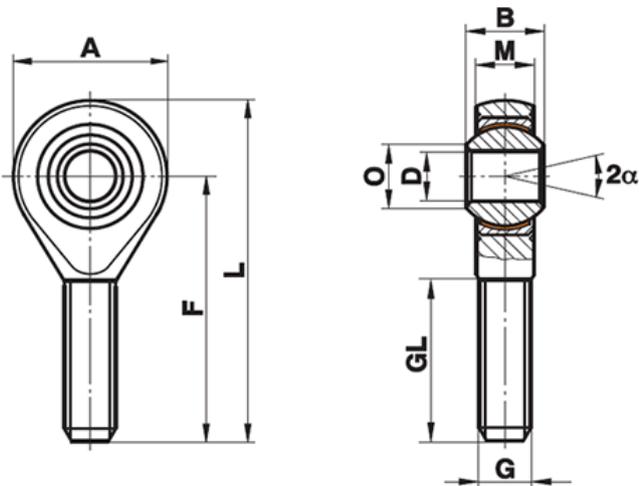
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Rod End Series K - Maintenance Free - Series GAXSW - DSCC up to 200kN

For use at high tension loads up to 230kN. Consult sales for rod-end to suit DSCC-250kN.

Rod ends with male thread made from heat-treated steel, zinc plated with PTFE liner, maintenance free.

Materials:	
Housing	Heat-treated steel to 42CrMo4, Aisi 4140, forged.
Insert	Free-cutting steel to 9SMnPb28K, 12L13, with PTFE liner bonded to the inner surface.
Ball	Bearing steel to 100Cr6, Aisi 52100, hardened, ground, polished.



Load Cell	Ordering Code	D	B	M	A	F	L	O	G	GL	Static Load C ₀ kN	Dynamic Load C kN	Limiting Speed rev/min *	Weight g
DSCC-5kN to 5kN	GAX-SW20x2.5	20	25	18	50	78	103	24.3	M20x2.5	47	93.5	78.0	190	348
DSCC-100kN to 200kN	GAXSW35	35	43	28.00	80	125	165	37.7	M36x2	73	230.0	205.0	110	1600

For DSCC-250kN consult sales.



Rod End Series GAR..UK-2RS - DSCC up to 1000kN (689kN max load*)

*Consult sales for rod-ends to suit forces over 689kN.

Maintenance-free

ISO 12 240-4, dimension series E, type M

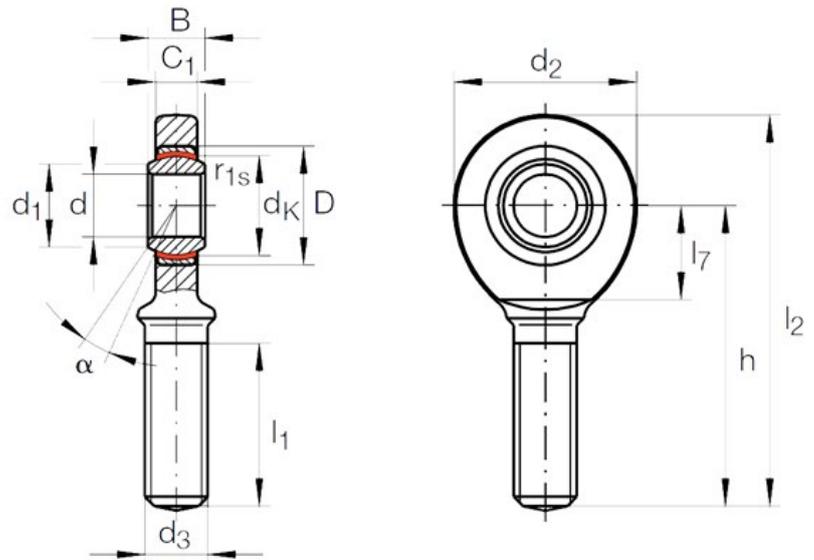
Sliding contact surface: hard chromium/PTFE

Sliding material: Elgoglide®



GAR..UK-2RS
(right hand thread)

- To ISO 12 240-4, dimension series E, type M
- Shank with external thread
- Suffix -2RS: lip seals on both sides, for operating temperatures from -30°C to +130°C



LOAD CELL	SHAFT DIAMETER	DESIGNATION		MASS ≈ kg	DIMENSIONS						
		WITHOUT SEALS	WITH SEALS		d	D	B	dk	d1	d2	d3
DSCC-300kN to 1000kN	80	-	GAR 80 UK-2RS	12	80 _{-0.015}	120	55 _{-0.15}	105	89.4	180	M64 x 6
DSCC8 0-250, 0-300, 0-500kN	70	-	GAR70-UK-2RS	8.2	80 _{-0.015}	105	49 _{-0.15}	92	77.8	160	M56 x 4

LOAD CELL	h	C1	Degrees			l1	l2	l7	Chamfer Dimension r1s min.	Basic Load Ratings ²⁾		Radial Internal Clearance	Shaft Diameter d
			α							dyn. Cr N	stat. C _{0r} N		
DSCC-300kN to 1000kN	270	47	6		140	360	100	1	1 125 000	689 000	0 - 0.072	80	
DSCC8 0-250, 0-300, 0-500kN	235	42	6		125	315	87	1	885 000	564 000	0 - 0.072	70	