



**APPLIED MEASUREMENTS LTD.**  
Transducer Specialists...

+44 (0) 118 981 7339

[info@appmeas.co.uk](mailto:info@appmeas.co.uk)

<https://appmeas.co.uk>

## DDE Miniature In-Line Load Cell

### **Key Features:**

- Capacities 0-100N up to 0-50kN
- Tension and Compression
- Output: 2mV/V
- Sealed to IP65
- Accuracy:  $<\pm 0.3\%$ /Rated Capacity
- Low Profile Compact Design
- Integral Male Threads for In-Line Mounting
- Low Deflection
- High Natural Frequency
- Robust Construction
- 3 Year Warranty

*Low Profile Compact Load Cell for use in Tension and Compression*



The DDE series of miniature in-line load cells are designed for use in both tension and compression. Its low profile and compact design, along with its integral mounting threads, enables their use in applications with restricted mounting space, where other in-line load cells such as the S-beam load cells are too large.

The DDE's low weight, low deflection and high natural frequency results in a high stiffness assembly and makes the load cell suited to the measurement of fast changes in load and high frequency transients.

The DDE can be seen working in applications such as automotive production, cable tension monitoring and suspension force monitoring.

Customised versions with different thread sizes, specific dimensions and interim capacity can be provided, please [contact our technical sales team](#).

### **Options:**

- Non-Standard Sizes Available on Request
- Other Ranges Available on Request
- Shunt Calibration Facility
- Spherical Seating Rod End Bearings
- Female Adaptor Available on Request
- Compression Fittings Available
- High Temperature Versions
- Vacuum Application Versions
- USB Versions (via DSC-USB)
- 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)
- Fatigue Rated Versions

### **Applications:**

- Automotive Production
- Cable Tension Monitoring
- Suspension Force Monitoring
- General Force Applications
- Research & Development Applications
- Press Force Monitoring



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## Specification:

|   |  |  |
|---|--|--|
| Rated Capacity (RC)                       | N  | 0-100, 0-250, 0-500, 0-1000, 0-2500, 0-5000, 0-10000, 0-20000, 0-50000 |
| Operating Modes                           | Tension/Compression / Tension & Compression                                      |  |
| Sensitivity (RO)                          | mV/V   | 2.0 nominal (1.2 approx on 100N)                                       |
| Zero Balance/Offset                       | ±%/Rated Output  | <1.0   |
| Output Symmetry (tension vs. compression) | ±%/Rated Output  | <1   |
| Non-Linearity                             | ±%/Rated Output  | <0.3   |
| Hysteresis                                | ±%/Rated Output  | <0.3   |
| Repeatability                             | ±%/Rated Output  | <0.2   |
| Temperature Effect on Zero                | ±%/Rated Output/ °C  | <0.005   |
| Temperature Effect on Sensitivity         | ±%/Applied Load/ °C  | <0.005   |
| Input Resistance                          | Ohms   | 750 nominal  |
| Output Resistance                         | Ohms   | 700 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 Allowable Sideload                | % of Rated Capacity  | <5   |
| Deflection @ Rated Capacity               | mm   | See dimensions table   |
| Fundamental Resonant Frequency*           | kHz  | See dimensions table   |
| IP Rating (Environmental Protection)      |  | IP65   |
| Weight (excluding cable)                  | grams  | 150 nominal  |
| 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 + screen, PVC sheath, Ø3.5 typical                              |
| Construction                              |  | 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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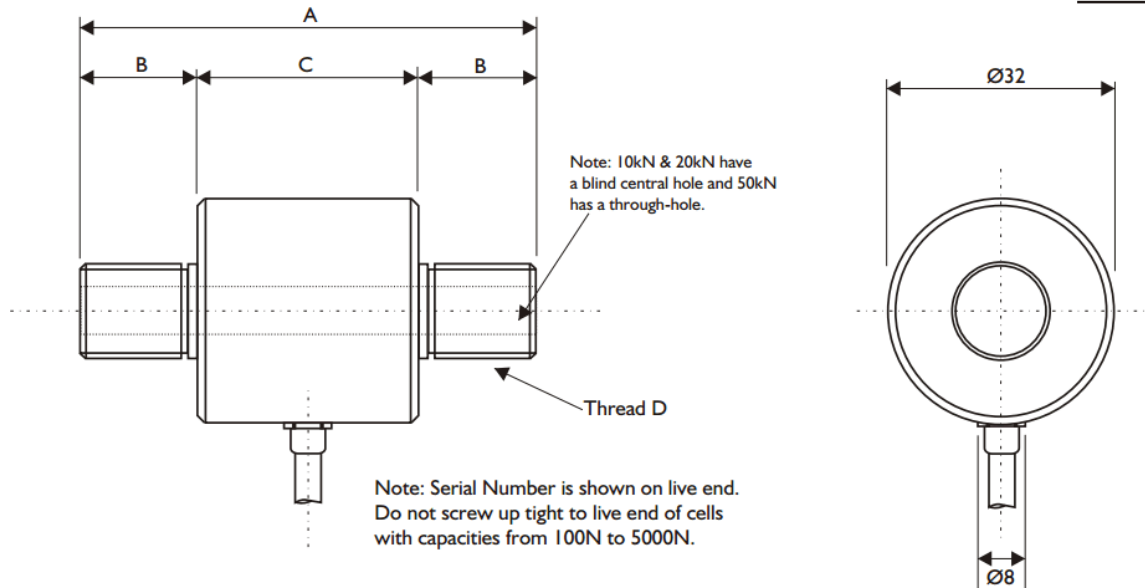
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## Dimensions (mm):

| CAPACITY (N) | A  | B    | C  | D          | DEFLECTION mm | RESONANT FREQUENCY kHz |
|--------------|----|------|----|------------|---------------|------------------------|
| 0-100        | 50 | 15   | 20 | M12 x 1.75 | 0.10          | 0.53                   |
| 0-250        | 50 | 15   | 20 | M12 x 1.75 | 0.10          | 0.84                   |
| 0-500        | 50 | 15   | 20 | M12 x 1.75 | 0.07          | 1.42                   |
| 0-1000       | 50 | 15   | 20 | M12 x 1.75 | 0.05          | 2.37                   |
| 0-2500       | 50 | 15   | 20 | M12 x 1.75 | 0.03          | 4.84                   |
| 0-5000       | 50 | 15   | 20 | M12 x 1.75 | 0.02          | 8.39                   |
| 0-10000      | 50 | 12.5 | 25 | M12 x 1.75 | 0.04          | 13                     |
| 0-20000      | 50 | 12.5 | 25 | M12 x 1.75 | 0.04          | 18                     |
| 0-50000      | 56 | 18   | 20 | M16 x 2.0  | 0.03          | 25                     |

### All dimensions in mm



## Ordering Codes:

| Core Product | Capacity (inc Engineering Units) | Cable Length (m) | Specials Code | Example Result    |
|--------------|----------------------------------|------------------|---------------|-------------------|
| DDE          | 100N                             | 002              | 000           | DDE-100N-002-000  |
| DDE          | 250N                             | 002              | 000           | DDE-250N-002-000  |
| DDE          | 500N                             | 002              | 000           | DDE-500N-002-000  |
| DDE          | 1000N                            | 002              | 000           | DDE-1000N-002-000 |
| DDE          | 2500N                            | 002              | 000           | DDE-2500N-002-000 |
| DDE          | 5000N                            | 002              | 000           | DDE-5000N-002-000 |
| DDE          | 10,000N                          | 002              | 000           | DDE-10kN-002-000  |
| DDE          | 20,000N                          | 002              | 000           | DDE-20kN-002-000  |
| DDE          | 50,000N                          | 002              | 000           | DDE-50kN-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](#)

## Mounting and Installation Accessories:

***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 - 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.



**Dimensions in mm:**

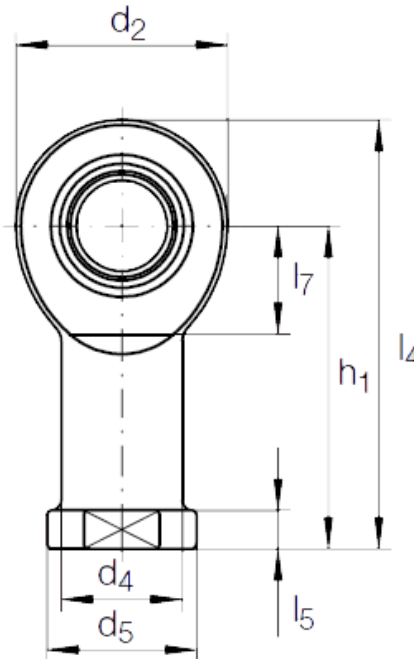
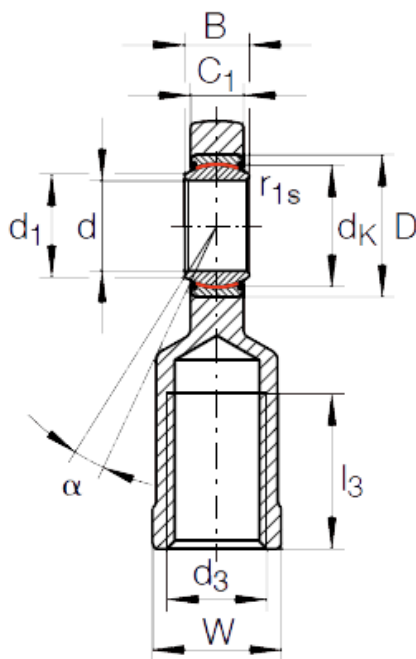


**GIR..UK**  
(right hand thread)

- To ISO 12 240-4, dimension series E, type F
- Shank with internal thread

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

Series GIR..UK  
Sliding material: PTFE composite



| LOAD CELL        | SHAFT DIAMETER | ORDERING CODE |            | MASS<br>≈ kg | DIMENSIONS           |    |                     |    |      |    |     |      |    |
|------------------|----------------|---------------|------------|--------------|----------------------|----|---------------------|----|------|----|-----|------|----|
|                  |                | WITHOUT SEALS | WITH SEALS |              | d                    | D  | B                   | dk | d1   | d2 | d3  | d4   | h1 |
| DDE-100N to 20kN | 12             | GIR 12 UK     | -          | 0.096        | 12 <sub>-0.008</sub> | 22 | 10 <sub>-0.12</sub> | 18 | 14.9 | 34 | M12 | 17.5 | 50 |
| DDE-50kN         | 17             | GIR 17 UK     | -          | 0.22         | 17 <sub>-0.008</sub> | 30 | 14 <sub>-0.12</sub> | 25 | 20.7 | 46 | M16 | 24   | 67 |

| LOAD CELL        | C1 | Degrees<br>α | Lengths |    |     |    |    | Chamfer Dimension<br>r1s min. | Basic Load Ratings |           | Radial Internal Clearance | Shaft Diameter<br>d |             |
|------------------|----|--------------|---------|----|-----|----|----|-------------------------------|--------------------|-----------|---------------------------|---------------------|-------------|
|                  |    |              | l3      | l4 | l5  | l7 | d5 |                               | W                  | dyn. Cr N |                           |                     | stat. C0r N |
| DDE-100N to 20kN | 8  | 11           | 23      | 67 | 6.5 | 18 | 22 | 19                            | 0.3                | 11 400    | 30 400                    | 0 - 0.032           | 12          |
| DDE-50kN         | 11 | 10           | 34      | 90 | 10  | 23 | 30 | 27                            | 0.3                | 22 400    | 56 500                    | 0 - 0.04            | 17          |