

F317

High Performance Fatigue Rated Cylindrical Loadcell

Standard Ranges 0.5, 1, 2.5, 5, 10, 25, 50 and 100tonne (5 to 1000kN)

- ◆ Good output symmetry
- ◆ High structural load limit
- ◆ Fatigue rated
- ◆ Sealed to IP65
- ◆ Flying lead or connector option



The F317 is a high performance cylindrical loadcell offering a high degree of output symmetry in compression and tension. A high slenderness ratio strain section improves all round performance compared to the older design F204. New thread sizes are employed offering more economic sizing of rod end bearings and improved availability. Novatech can supply suitable rod ends.

The industry standard fatigue rated loadcell has traditionally been the pancake loadcell, our F254 is a typical example. By restricting the nominal output to a safe strain region the cylindrical loadcell offers the same number of full load reverse cycles as a minimum life expectancy. The cylindrical form offers the advantage of a reduced diameter, often advantageous in actuator applications. Adaptors are not required which are costly and add mechanical interfaces to the load train assembly.

We are happy to design variants of this loadcell to meet your specific requirements. Versions can be manufactured for fully compensated operation up to +250°C. Please consult our engineering department.

Details of our other loadcell families can be found in the Loadcell Specifier Guide. If you require a copy please contact our sales department or look on our web site at www.novatechloadcells.co.uk.

| | | | |
|------------------------|--------------------------------------|---|------------------------------------|
| Ordering Codes: | | See the loadcell ordering code sheet for more details. Add range in the required units. | |
| F317CFR0K0 | Compression, IP65, unrationalised | F317CFR0KN | Compression, IP65, rationalised |
| F317TFR0K0 | Tension, IP65, unrationalised | F317TFR0KN | Tension, IP65, rationalised |
| F317UFR0K0 | Bi-directional, IP65, unrationalised | F317UFR0KN | Bi-directional, IP65, rationalised |

Change the F to a P for the connector version. Not available on the 0.5tonne range.

F317 Specification

| Parameter | Value | Unit |
|--|-----------------|-----------|
| Non-linearity - Terminal | ±0.05 | % RL |
| Hysteresis | ±0.1 | % RL |
| Creep - 20 minutes | ±0.05 | % AL |
| Repeatability | ±0.02 | % RL |
| Rated output - Nominal | 1.2 | mV/V |
| Rated output - Rationalised | 1.0 | mV/V |
| Rationalisation tolerance (applies to single direction calibrations) | ±0.1 | % RL |
| Output symmetry | ±0.2 | % AO |
| Fatigue life | 10 ⁸ | RL cycles |
| Zero load output | ±4 | % RL |
| Temperature effect on rated output per °C | ±0.005 | % AL |
| Temperature effect on zero load output per °C | ±0.01 | % RL |
| Temperature range – Compensated | -10 to +50 | °C |
| Temperature range – Safe | -10 to +80 | °C |
| Excitation voltage – Recommended | 10 | V |
| Excitation voltage – Maximum | 20 | V |
| Bridge resistance | 700 | Ω |
| Insulation resistance – Minimum at 50Vdc | 500 | MΩ |
| Overload – Safe | 50 | % RL |
| Overload – Ultimate | 200 | % RL |
| Sealing | IP65 | |

All standard ranges are manufactured in stainless steel.

| Structural stiffness - Nominal | | | | | |
|--------------------------------|-----------------------|------------|-----------------------|------------|------------------------|
| Range (kN) | Stiffness (N/m) | Range (kN) | Stiffness (N/m) | Range (kN) | Stiffness (N/m) |
| 5 | 2.3 x 10 ⁸ | 50 | 1.3 x 10 ⁹ | 500 | 5.6 x 10 ⁹ |
| 10 | 2.5 x 10 ⁸ | 100 | 1.4 x 10 ⁹ | 1000 | 1.2 x 10 ¹⁰ |
| 25 | 6.3 x 10 ⁸ | 250 | 3.5 x 10 ⁹ | | |

Notes

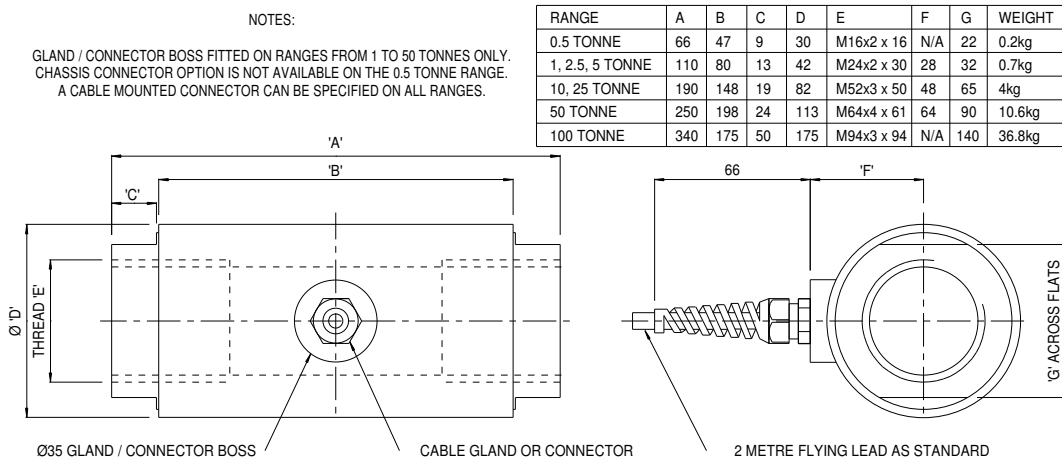
- AL = Applied load.
- RL = Rated load.
- Temperature coefficients apply over the compensated range.
- The load must be applied directly through the central loading axis.
- AO = Average of tension and compression outputs for full load.

Connections

The ranges above 0.5tonne are fitted with 2 metres of PVC insulated 4 core screened cable type 16-2-4C or a 4 pin Binder 723 series chassis plug. The 0.5tonne range is fitted with 2 metres of PVC insulated 4 core screened cable type 7-2-4C, the connector option is not available on this range.

Excitation + = Red or pin 1 Signal + = Yellow or pin 3 Screen = Orange
 Excitation - = Blue or pin 2 Signal - = Green or pin 4

Reverse the signal connections to obtain a positive signal in tension mode. The screen is not connected to the loadcell body.



Novatech reserves the right to vary the foregoing details without prior notice

01/2010

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