



# F313

## Low Profile Donut Loadcell

Standard Ranges 1, 2, 4, 8, 10, 12, 16 and 20tonne (10 to 200kN)

- ◆ Low profile with centre hole
- ◆ Ranges to suit bolt sizes from M6 to M36
- ◆ Stainless steel construction
- ◆ Tensile applications are 'fail-safe'
- ◆ Standard 2 year warranty



Geometry: Axial strain cylinder in weather sealed case, with raised end load bearing faces and hole right through. For use in compression or in fail-safe tensile applications on a wide range of OEM or end-user applications.

The F313 is ideally suited to engineering force measurements.

It is designed for easy installation, usually between two flat faces bearing on its loading rings, either unattached or with retaining spigots positioned in the centre hole. Alternatively tensile load transfer can be achieved via a tie rod assembly through the centre hole. In this way the loadcell can indirectly measure tensile loads in a "fail-safe" mode.

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](http://www.novatechloadcells.co.uk).

<b>Ordering Codes:</b>	See the loadcell ordering code sheet for more details. Add range in the required units.		
F313CFR0K0	Compression, IP65, unrationalised	F313CFR0KN	Compression, IP65, rationalised
Change the K to an H for the 1 tonne range.			

## F313 Specification

Parameter	1tonne	2 to 20tonne	Unit
Non-linearity - Terminal	±0.5	±0.5	% RL
Hysteresis	±0.5	±0.5	% RL
Creep - 20 minutes	±0.1	±0.1	% AL
Repeatability (excluding rotational effects)	±0.1	±0.1	% RL
Rated output - Nominal	1.3	1.3	mV/V
Rated output - Rationalised	1.0	1.0	mV/V
Rationalisation tolerance	±0.5	±0.5	% RL
Zero load output	±4	±4	% RL
Temperature effect on rated output per °C	±0.005	±0.005	% AL
Temperature effect on zero load output per °C	±0.03	±0.03	% RL
Temperature range - Compensated	-10 to +50	-10 to +50	°C
Temperature range - Safe	-10 to +80	-10 to +80	°C
Excitation voltage - Recommended	10	10	V
Excitation voltage - Maximum	10	20	V
Bridge resistance	350	700	Ω
Insulation resistance - Minimum at 50Vdc	500	500	MΩ
Overload - Safe	50	50	% RL
Overload - Ultimate	400	400	% RL
Sealing	IP65	IP65	
Weight - Nominal (excluding cable)	15	20-260	g

All standard ranges are manufactured in stainless steel.

When this loadcell is rationalised the resistors are housed in a capsule located in the loadcell cable 100mm from the free end. Capsule dimensions are Ø10mm by 57mm.

Structural stiffness - Nominal					
Range (kN)	Stiffness (N/m)	Range (kN)	Stiffness (N/m)	Range (kN)	Stiffness (N/m)
10	$1.1 \times 10^9$	80	$8.8 \times 10^9$	160	$8.0 \times 10^9$
20	$2.2 \times 10^9$	100	$7.7 \times 10^9$	200	$1.0 \times 10^{10}$
40	$4.4 \times 10^9$	120	$7.1 \times 10^9$		

### 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.

### Connections

For ranges up to 4 tonnes the loadcell is fitted with 2 metres of PVC insulated 4 core screened cable type 7-1-4C. Ranges above 4 tonnes are fitted with 7-2-4C cable.

Excitation + = Red

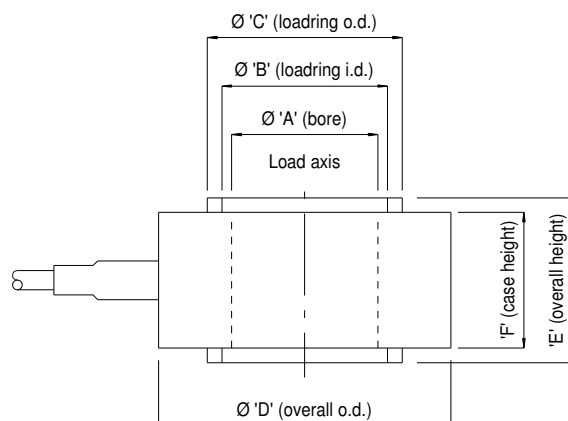
Signal + = Yellow

Screen = Orange

Excitation - = Blue

Signal - = Green

The screen is not connected to the loadcell body.



Range	Bolt Size	A	B	C	D	E	F
10 kN	M6	6.1	7.1	8.9	18	15	11
20 kN	M8	8.1	9.5	12.3	22	15	11
40 kN	M10	10.2	12.3	16.5	28	16	11
80 kN	M12	12.2	15.4	21.9	38	20	14
100 kN	M16	16.3	19.6	26.2	42	24	18
120 kN	M24	24.3	27.3	33.3	50	29	23
160 kN	M30	30.5	33.8	40.3	60	35	28
200 kN	M36	36.5	40	46.9	75	36	28

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