



F300

Sideload Rejection Loadcell

Standard Ranges 1, 2, 5, 10, 20, 50, 100, 200 and 400kN (100kgf to 40tonnef)

- ◆ High performance
- ◆ Misalignment error compensation
- ◆ Excellent Sideload rejection
<1%RL error for 20%RL transverse loads and much less for vectors
- ◆ Formulaic error quantification
- ◆ Traceable calibration with certificate included in the standard price
- ◆ Standard 2 year warranty



Benefiting from advanced machining techniques, the F300's complex beam structure offers reliable error compensation in a cylindrical, 'donut' style footprint.

Whereas the long established 'donut' products such as the F202 require near perfect loading conditions, the F300's unique strain system compensates for typical axial misalignment as well as the combination of large sideloads and small moments. This has been used to good effect in 'Junkers' test machines, subjected to an extreme, rapid cycling of large sideloads, for bolt tension and 'self-loosening' fastener tests. **Further details of this application, along with simple error equations for the F300 loadcell can be found in Engineering Sheet E036.**

The circular patterns of fixing holes are deliberately over engineered to withstand potentially large moment effects and allow tension, compression and bi-directional versions as standard. There is also the added potential for customer supplied adaptor plates to give versatile end fixing options. Note that care should be taken to ensure the correct lengths of screws are used and that these are torqued correctly as given in E036.

We are happy to design variants of this loadcell to meet your specific requirements. Ranges above 5kN can be manufactured for fully compensated operation up to +250°C. Please consult our engineering department for further information.

Details of our other loadcell families can be found in the Product List and the Loadcell Specifier Guide. If you require copies 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.		
F300CFR0K0	Compression, unrationalised	F300CFR0KN	Compression, rationalised
F300TFR0K0	Tension, unrationalised	F300TFR0KN	Tension, rationalised
F300UFR0K0	Bi-directional, unrationalised	F300UFR0KN	Bi-directional, rationalised

F300 Specification

Parameter	Value	Unit
Non-linearity - Terminal	±0.03	% RL
Hysteresis	±0.03	% 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	100	% RL
Overload – Ultimate	200	% RL
Maximum permissible pure sideload	60	% RL
Maximum permissible moment	See reference chart in E036	
Sealing	IP65	
Weight – Nominal (excluding cable)	See table below	

Ranges up to 5kN are manufactured in aluminium; all other ranges are manufactured in stainless steel. For rationalised ranges up to 5kN 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)
1	2.0 x 10 ⁷	10	2.2 x 10 ⁸	100	2.2 x 10 ⁹
2	5.7 x 10 ⁷	20	6.1 x 10 ⁸	200	6.5 x 10 ⁹
5	2.2 x 10 ⁸	50	2.5 x 10 ⁹	400	2.4 x 10 ¹⁰

Notes

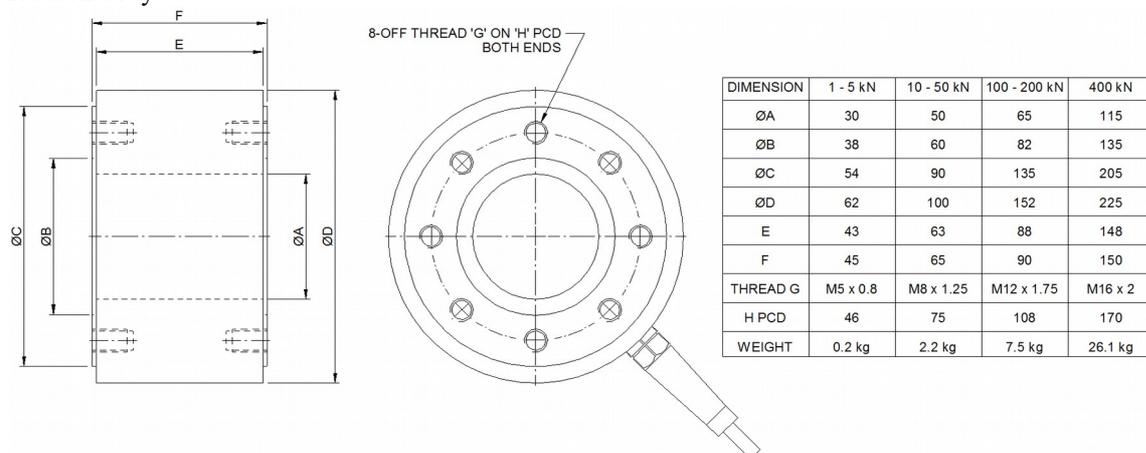
1. AL = Applied load.
2. RL = Rated load.
3. Temperature coefficients apply over the compensated range.
4. AO = Average of tension and compression outputs for full load.

Connections

For ranges up to 50kN the loadcell is fitted with 2 metres of PVC insulated 4 core screened cable type 7-2-4C. Ranges above 50kN are fitted with 16-2-4C cable.

Excitation + = Red Excitation - = Blue Signal + = Yellow Signal - = Green Screen = Orange

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

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