



**N** ALF 300

**Description**

- Measurement ranges from 0 ... 1 kN to 0 ... 400 kN
- Tension / compression
- Non-linearity 0.03 % RL
- Output signal 1.2 mV/V or rationalised 1.0 mV/V ±0.1 %
- Supply voltage 10 VDC, max. 20 VDC



Benefiting from advanced machining techniques, the ALF300's complex beam structure offers reliable error compensation in a cylindrical, 'donut' style footprint.

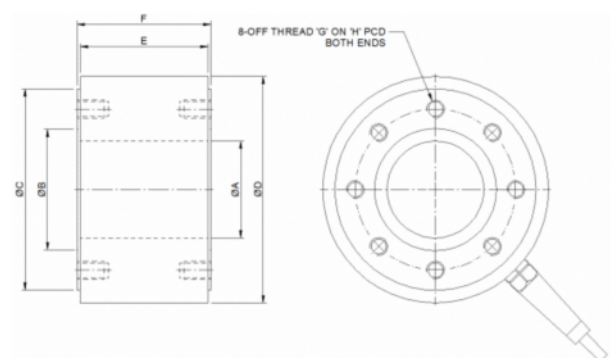
Whereas the long established 'donut' products such as the ALF202 require near perfect loading conditions, the ALF300's unique strain system compensates for typical axial misalignment as well as the combination of large sideloads and small moments. This has been used to good effect in 'Junkers' test machines, subjected to an extreme, rapid cycling of large side loads, for bolt tension and 'self-loosening' fastener tests. Further details of this application, along with simple error equations for the ALF300 load cell can be found in Engineering Sheet A036.

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 A036.

**Features**

- 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

**Dimensions**



Dimension	1 to 5 kN	10 to 50 kN	100 to 200 kN	400 kN
ØA	30	50	65	115
ØB	38	60	82	135
ØC	54	90	135	205
D	62	100	152	225
E	43	63	88	148
F	45	65	90	150
G	M5x0.8	M8x1.25	M12x1.75	M16x2
H	46	75	108	170
Weight	0.2 kg	2.2 kg	7.5 kg	26.1 kg

Dimensions in „mm“, approx. values

These drawings are for information only and not intended for construction purpose. Please contact us for detailed drawings!

## Specifications

Parameter	Value
Rated load:	1 kN / 2 kN / 5 kN / 10 kN / 20 kN / 50 kN / 100 kN / 200 kN / 400 kN
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 ±0.1 % RL, (Rationalisation tolerance applies to single direction calibrations only)
Output symmetry:	±0.2 % AO
Fatigue life:	10 <sup>8</sup> ±RL cycles
Zero load output:	±4 % RL
Temperature effect on rated output:	±0.005 % AL/K
Temperature effect on zero load output:	±0.01 % RL/K
Compensated temperature range:	-10 ... +50 °C
Operating temperature range:	-10 ... +80 °C
Supply voltage, recommended:	10 V
Supply voltage, max.:	20 V
Bridge resistance:	700 Ω
Insulation resistance, minimum at 50 VDC:	500 MΩ Overload, safe: 200 % RL
Overload, ultimate:	300 % RL
Dynamic load capacity:	70 % RL
Maximum permissible pure Sideload:	60 % RL
Maximum permissible moment:	See A036 Sealing: IP65
Weight (excl. cable):	See table page 1
Material	Aluminium (ranges: 1 to 5 kN) Stainless steel (ranges: 10 to 400 kN)

Rated load	Structural stiffness, nom.	Rated load	Structural stiffness, nom.	Rated load	Structural stiffness, nom.
1 kN	2.0 x 10 <sup>7</sup> N/m	10 kN	2.2 x 10 <sup>8</sup> N/m	100 kN	2.2 x 10 <sup>9</sup> N/m
2 kN	5.7 x 10 <sup>7</sup> N/m	20 kN	6.1 x 10 <sup>8</sup> N/m	200 kN	6.5 x 10 <sup>9</sup> N/m
5 kN	2.2 x 10 <sup>8</sup> N/m	50 kN	2.5 x 10 <sup>9</sup> N/m	400 kN	2.4 x 10 <sup>10</sup> N/m

- Notes:**
1. RL = rated load
  2. AL = applied load
  3. Temperature coefficients apply over the compensated range.
  4. AO = Average of tension/compression outputs for full load

## Electrical Connections

Wiring:		For ranges up to 50 kN the load cell is fitted with 2 m of PVC insulated 4 core screened cable type 7-2-4C. Ranges above 50 kN are fitted with 16-2-4C cable.  Reverse the signal connections to obtain a positive signal in tension mode. The screen is not connected to the load cell body.
+ supply voltage	red	
- supply voltage	blue	
+ output signal:	yellow	
- output signal:	green	
screen	orange	

## Ordering Codes

ALF300CFROK0	Compression	ALF300CFROKN	Compression, rationalized
ALF300TFROK0	Tension	ALF300TFROKN	Tension, rationalized
ALF300UFROK0	Bi-directional	ALF300UFROKN	Bi-directional, rationalized

If a non-standard cable length is required add this to the description and change the F to B. If bottom cable entry is required add this information to the description. Please add range.

### Safety note:

When using the load cell in tension mode it is essential to provide additional safety precautions like safety chains etc. for catching the load in a breakage, which cannot be excluded completely.

Due to continuous product development, ALTHEN and partners reserve the right to vary the foregoing details without prior notice.

*The information provided herein is to the best of our knowledge true and accurate, it is provided for guidance only. All specifications are subject to change without prior notification.*

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