

## ALF254

### Fatigue rated pancake load cell

- ▣ Measurement ranges 0 ... 25 kN to 0 ... 200 kN
- ▣ Tension / compression
- ▣ Non-linearity  $\pm 0.1$  % RL
- ▣ Output signal 2.1 mV/V or rationalised 2.0 mV/V  $\pm 0.5$  %
- ▣ Supply voltage 10 VDC, max. 20 VDC
- ▣ Optional with integrated electronics



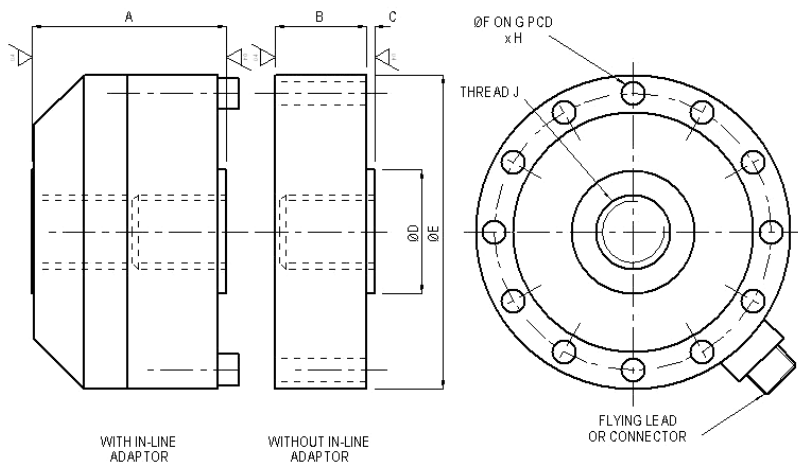
The ALF254 is designed for high levels of cyclic loading and is readily adapted to series mechanical connection within actuator rods or pistons by using our 'in-line' adaptor.

The load cell has good output symmetry between compression and tension operation. All standard bi-directional load cells are calibrated in both modes. If you require a recessed boss the ALF318 pancake load cell may be more suitable. The ALF318 has standard ranges from 1 to 500 kN.

#### Geometry:

Shear web structure with high vertical and lateral mechanical stiffness.

#### ▣ Dimensions



#### Note:

The mounting bolts on PCD should be tightened with a torque of approx. 48 N m (25 kN models with 10 N m)! Bolt grade 8.8

Load cell and in-line adaptor mounting faces are surface ground to flatness of  $\pm 0.005$  mm. To maintain datasheet performance, components in contact with the load cell mounting faces should have a corresponding flatness.

Dimensions	Size 1 [25 kN]	Size 2 [50 kN, 100 kN, 200 kN]	Dimensions in „mm“, approx. values
A	66	94	These drawings are for information only and not intended for construction purpose. Please contact us for detailed drawings.
B	30	44	
C	4	4	
Ø D	34	60	
Ø E	125	152	
Ø F	8.2	11	
Ø G (PCD)	107	134	
H (Number of holes on PCD)	8	12	
Thread J	M20 x 1.5	M36 x 3	

#### ▣ Specification

Rated load:	25 kN / 50 kN / 100 kN / 200 kN
Non-linearity, terminal:	$\pm 0.1$ % RL
Hysteresis:	$\pm 0.1$ % RL
Creep, 20 min:	$\pm 0.05$ % AL

Repeatability:	±0.02 % RL
Rated output, nominal:	2.1 mV/V
Rated output, rationalised:	2 mV/V ±0.5 % RL
Output symmetry:	±0.2 % AO (note 3)
Fatigue life:	10 <sup>8</sup> RL cycles at 100 % rated load
Zero load output:	±4 % RL
Temperature effect on rated output:	±0.005 % AL/K
Temperature effect on zero load output:	±0.005 % 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 Ohm
Insulation resistance, minimum at 50 VDC:	500 MOhm
Fixing bolt torque (bolt grade 8.8)	range 25 kN: 10 Nm other ranges: 48 Nm
Overload, safe:	150 % RL
Overload, ultimate:	300 % RL
Dynamic load capacity:	70 % RL
Environmental sealing:	IP65
Weight (excl. cable):	approx. 1.9 kg to 4.2 kg
Material:	stainless steel

Rated load	Structural stiffness, nom.	Rated load	Structural stiffness, nom.
25 kN	1.3 x 10 <sup>9</sup> N/m	100 kN	1.7 x 10 <sup>9</sup> N/m
50 kN	2.6 x 10 <sup>9</sup> N/m	200 kN	3.4 x 10 <sup>9</sup> N/m

#### Notes:

1. RL = rated load
2. AL = applied load

- 3 AO = average of tension and compression outputs for full load
4. Temperature coefficients apply over the compensated range.

### ■ Electrical Connections

The load cell is fitted with 2 m of PVC insulated 4 core screened cable type 16-2-4C or a 4 pin Binder 723 series chassis plug.

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

#### Wiring:

+ supply voltage:	red	Pin 1
- supply voltage:	blue	Pin 2
+ output signal:	yellow	Pin 3
- output signal:	green	Pin 4
screen:	orange	

### ■ Option: Integrated Electronics

The amplifier is build onto the load cell in an additional housing. The dimensions of the load cell will change.

integrated amplifier with 4 ... 20 mA output 2-wire, supply voltage 24 VDC (20 ... 36 VDC)

integrated amplifier with 4 ... 20 mA output 3-wire, supply voltage 12 VDC (11.5 ... 12.5 VDC)

integrated amplifier with 4 ... 20 mA output 3-wire, supply voltage 24 VDC (15 ... 30 VDC)

integrated amplifier with voltage output ±10 V, supply voltage 14 ... 27 VDC

### ■ Ordering Codes

ALF254CFR0K0	compression, cable, IP65	ALF254CFR0KN	compression, cable, IP65, rationalised
ALF254TFR0K0	tension, cable, IP65	ALF254TFR0KN	tension, cable, IP65, rationalised
ALF254UFR0K0	bi-directional, cable, IP65	ALF254UFR0KN	bi-directional, cable, IP65, rationalised

Change the second F to a P for the connector version.

Please add range in the required units.

Option integrated amplifier: a special order no. ALF254-Zxxx will be created

#### 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.

Our policy is to improve specification of our products continuously, so technical and production details can be changed without any notice.