

F256 Axial Compensated Loadcell

Standard Ranges 200, 400, 800N and 1.25, 2.5, 5, 10, 20, 40, 60kN (20kgf to 6tonnef)

- ✓ High accuracy
- ✓ Misalignment error compensation
- ✓ Highly adaptable inert end fixings
- ✓ Standard 1 year warranty
- ✓ Output rationalised to 2mV/V
- ✓ Traceable calibration with certificate included in the standard price



Specification

Parameter	Value	Unit
Non-linearity - Terminal	$\hat{A}\pm 0.05$	% RL
Hysteresis	$\hat{A}\pm 0.05$	% RL
Creep - 20 minutes	$\hat{A}\pm 0.05$	% AL
Repeatability	$\hat{A}\pm 0.02$	% RL
Rated output - Rationalised	2.0	mV/V
Rationalisation tolerance (applies to single direction calibrations)	$\hat{A}\pm 0.1$	% RL
Output symmetry	$\hat{A}\pm 0.3$	%AO
Zero load output	$\hat{A}\pm 4$	% RL
Temperature effect on rated output per $\hat{A}^{\circ}\text{C}$	$\hat{A}\pm 0.005$	% AL
Temperature effect on zero load output per $\hat{A}^{\circ}\text{C}$	$\hat{A}\pm 0.005$	% RL
Temperature range - Compensated	-10 to +50	$\hat{A}^{\circ}\text{C}$
Temperature range - Safe	-10 to +80	$\hat{A}^{\circ}\text{C}$
Excitation voltage - Recommended	10	V

Excitation voltage - Maximum	20	V
Bridge resistance	700	Ω
Insulation resistance - Minimum at 50Vdc	500	MΩ
Inclined load error - concentric at 3°	±0.25	% RL
Overload - Safe	50	% RL
Overload - Ultimate	100	% RL
Sealing - R option	IP65	
Sealing - S option	IP67	
Weight - Nominal (T version excluding cable)	200-800N 0.1	kg
	1.25-5kN 0.3	kg
	10-60kN 1.0	kg

Ranges up to 800N are manufactured in aluminium; all other ranges are manufactured in stainless steel.

Geometry: Beam and diaphragm combination. Tension, compression and bi-directional options are available. All standard bi-directional loadcells are calibrated in both modes.

The loadcell's unique strain system compensates for typical force misalignment in force measurement rigs and industrial weighing systems. Maximum error in axial force component measurement is limited to 0.25% within a 3° angle swept through 360° around the loadcell axis. Its various end fixing options are all inert and easily modified for direct inclusion in mechanical assemblies. The basic versions are all sealed to IP65 with IP67 available as an option. See Engineering Application Sheet E032 and the ICA6H data-sheet for more information. 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. A special version of the F256 loadcell widely used in Formula 1 racing is the Set-up wheel loadcell.

Order Codes

Code	Description
F256CFR0KN	Compression, flat base, IP65
F256LFR0KN	Compression, convex base, IP65
F256TFR0KN	Tension, stud base, IP65
F256DFR0KN	Compression, stud base, IP65
F256UFR0KN	Bi-directional, stud base, IP65
F256EFR0KN	Tension, eye base, IP65
F256AFR0KN	Compression, female base, IP65
F256GFR0KN	Tension, female base, IP65
F256JFR0KN	Bi-directional, female base, IP65
All F256s are rationalised as standard. Change R to an S for IP67. Integral amplifiers are not available with A, G or J options in the standard body height. We can manufacture specials with increased height if integral amplifiers are required.	

Structural Stiffness - Nominal

Range (kN)	Stiffness (N/m)
200 (N)	7.8 x 10 ⁶
400 (N)	2.3 x 10 ⁷
800 (N)	1.2 x 10 ⁷
1.25	1.9 x 10 ⁷
2.5	3.9 x 10 ⁷
5	7.8 x 10 ⁷
10	1.0 x 10 ⁸
20	2.0 x 10 ⁸
40	4.0 x 10 ⁸
60	6.0 x 10 ⁸

Notes

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

Connections

For ranges up to 5kN the loadcell is fitted with 2 metres of PVC insulated 4 core screened cable type 7-2-4C. Ranges above 5kN 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.

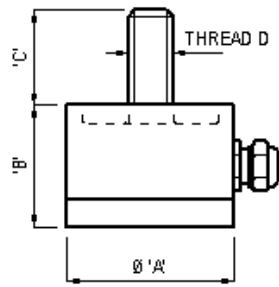
Files

Type	Title	Download
STEP File	F256CFR0KN 200N to 5kN (20 to 500kgf)	Download
STEP File	F256LFR0KN 200N to 5kN (20 to 500kgf)	Download
STEP File	F256-T/D/U-FR0KN 200N to 5kN (20 to 500kgf)	Download
STEP File	F256-A/G/J-FR0KN 200N to 5kN (20 to 500kgf)	Download
STEP File	F256EFR0KN 200N to 5kN (20 to 500kgf)	Download
STEP File	F256 Loadbutton 200N to 5kN (20 to 500kgf)	Download
STEP File	F256 Eye attachment 200N to 5kN (20 to 500kgf)	Download
STEP File	F256 Top plate 200N to 5kN (20 to 500kgf)	Download
STEP File	F256 Base plate 200N to 5kN (20 to 500kgf)	Download
STEP File	F256 Locknut 200N to 5kN	Download

	(20 to 500kgf)	
STEP File	F256 Female attachment 200N to 5kN (20 to 500kgf)	Download
STEP File	F256CFR0KN 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256LFR0KN 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256-T/D/U-FR0KN 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256-A/G/J-FR0KN 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256EFR0KN 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256 Loadbutton 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256 Eye attachment 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256 Top plate 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256 Base plate 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256 Locknut 10 to 60kN (1 to 6tonnef)	Download
STEP File	F256 Female attachment 10kN to 60kN (1 to 6tonnef)	Download

Outline

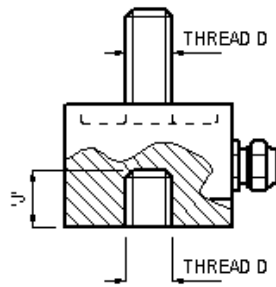
LOADCELL SIZE	Ø 'A'	'B'	'C'	THREAD 'D'	'E'	'F'	Ø 'G'	'H'	'I'	'J'
SIZE 1 200N - 5kN	44	32	25	M12 x 1.75	26.5	12	12	12	20	15
SIZE 2 10kN - 60kN	66	45	35	M24 x 2	51.5	24	24	24	40	25



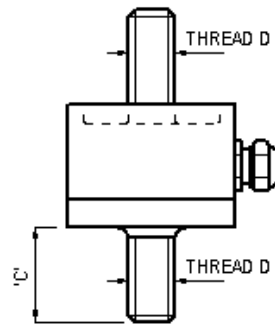
FLAT BASE: ORDER CODE 'C'



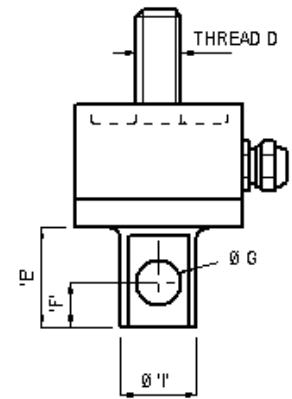
LOADFOOT: ORDER CODE 'L'



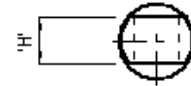
FEMALE BASE
 COMPRESSION: ORDER CODE 'A'
 TENSION: ORDER CODE 'G'
 COMP/TENS: ORDER CODE 'J'



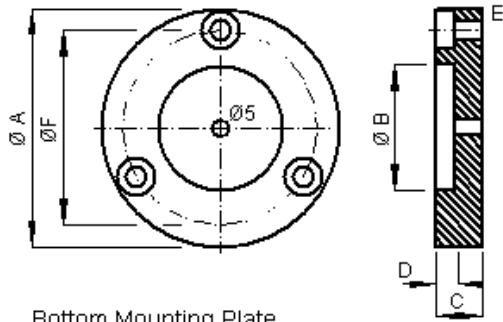
STUD BASE
 COMPRESSION: ORDER CODE 'D'
 TENSION: ORDER CODE 'T'
 COMP/TENS: ORDER CODE 'U'



TENS EYE BASE: ORDER CODE 'E'

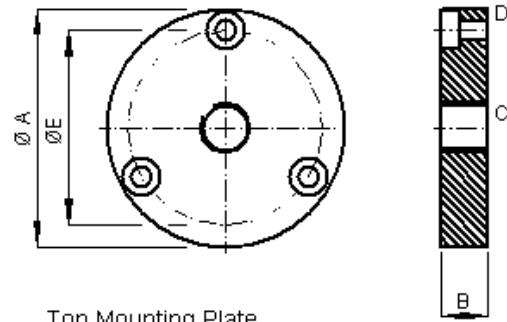


Fittings



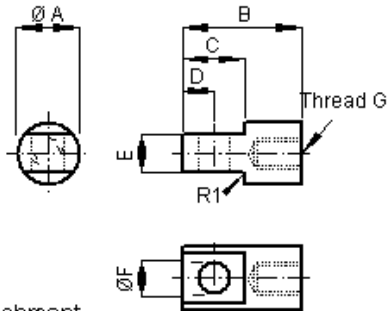
Bottom Mounting Plate

Part No	Range	A	B	C	D	E	F
256 637	200N - 5kN	76	47	20	6	for M6 cap head	60
256 639	10kN - 60kN	127	76	25	10	for M10 cap head	100



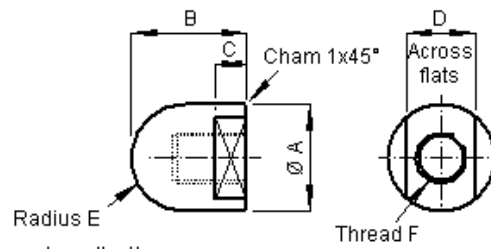
Top Mounting Plate

Part No	Range	A	B	C	D	E
256 636	200N - 5kN	76	20	M12x1.75	for M6 cap head	60
256 638	10kN - 60kN	127	25	M24x2	for M10 cap head	100



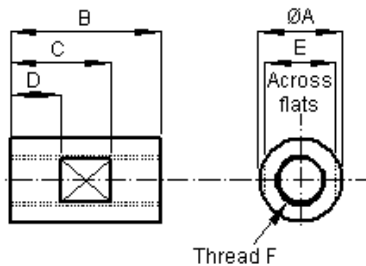
Eye attachment

Part No	Range	A	B	C	D	E	F	G
256 618	200N - 5kN	20	44	24	12	12	12	M12x1.75
256 619	10kN - 60kN	40	88	48	24	24	24	M24x2



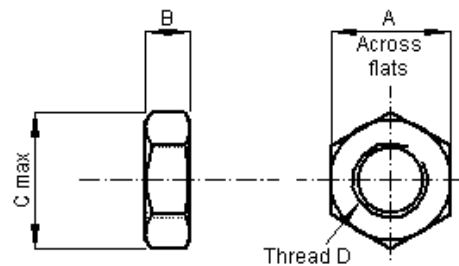
Loadbutton

Part No	Range	A	B	C	D	E	F
256 624	200N - 5kN	24	28	8	17	12	M12x1.75
256 625	10kN - 60kN	44	54	16	38	22	M24x2



Female attachment

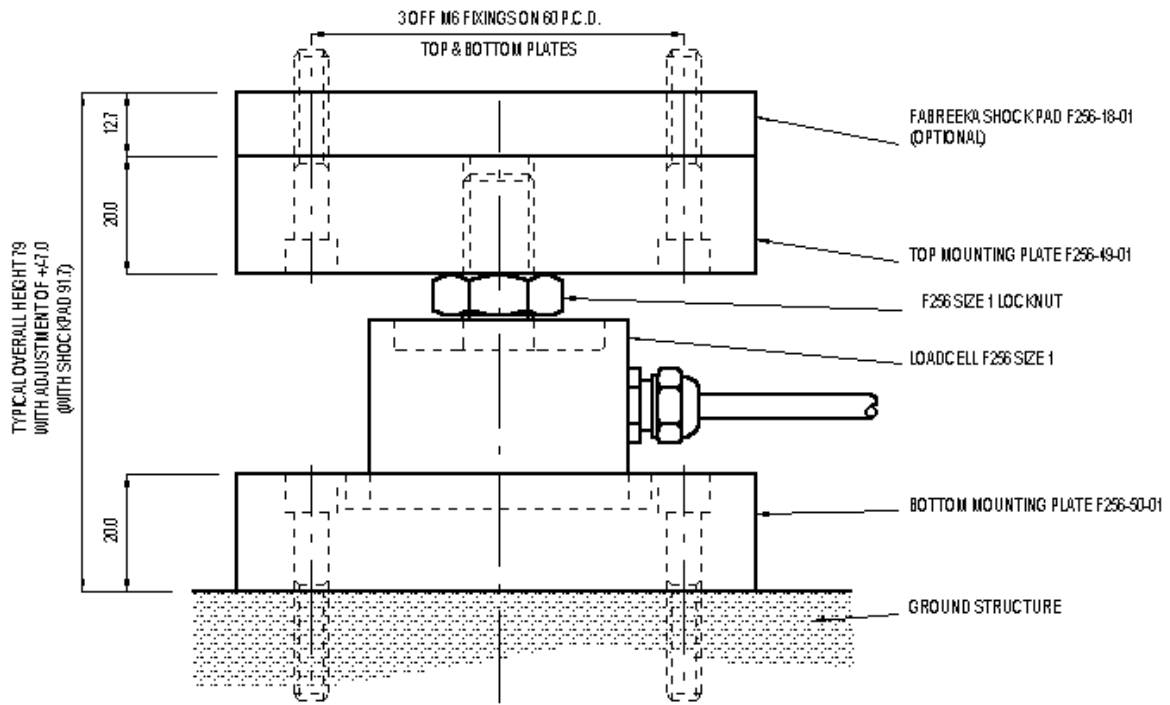
Part No	Range	A	B	C	D	E	F
256 643	200N - 5kN	20	36	24	12	17	M12x1.75
256 644	10kN - 60kN	38	50	35	15	32	M24x2



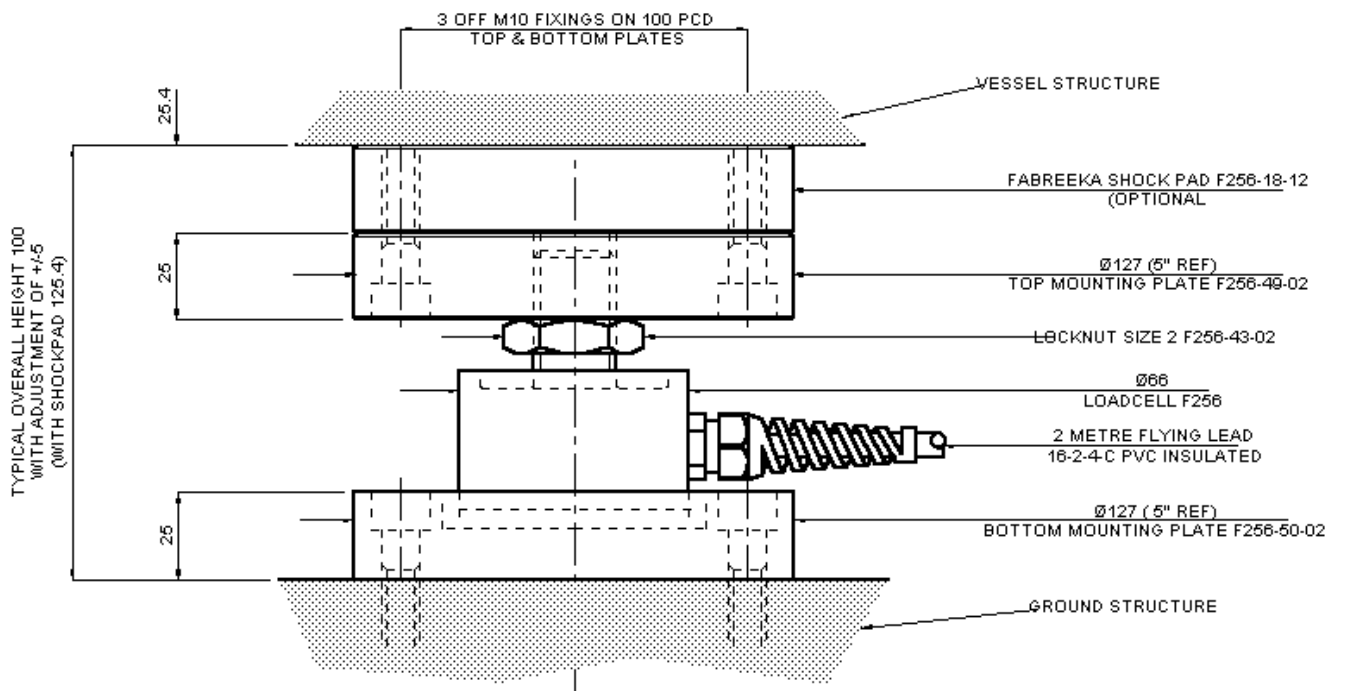
Locknut

Part No	Range	A	B	C	D
256 635	200N - 5kN	19	7	21.9	M12x1.75
256 634	10kN - 60kN	36	10	41.6	M24x2

Mounting



Mounting



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