

LCM4825 Compression Load Cell for A-Frame Floating Crane

Application

Crane extension gib overload monitoring

Features

- 35 tonne compression load cells manufactured from 17-4PH stainless steel
- 4-20mA integral amplifier
- Supplied with integral load buttons
- 10m of armoured cable
- Environmentally sealed to IP67

Design Brief

One of our regular customers had a requirement for two compression load cells that would be installed in the jib extension hooks of an A-frame floating crane. The crane has a lifting capacity of up to 400 tonnes at a height of 45m, but with the jib extended it can achieve a lifting height of up to 76m with a lifting capacity of 200 tonnes. The crane is operated by a Norwegian specialist crane rental company who hire it out for general marine lifting operations along the Norwegian coast as far as Bergen in the north down to Germany in the south.

The load cells were required to monitor the loads on the jib when it is extended to protect against overload situations that could result in it being overstressed and consequently



susceptible to damage. The load cells are used to sense the force of the load during a lift, and when the load exceeds a pre-set percentage of the cranes rated capacity, an overload device temporarily stops the crane from lifting and only permits the lowering of the load.

Due to limited space, the load cells had height and width dimensional restrictions, so a custom design solution was required. With a height of 265mm and an 88mm maximum diameter, the load cells had a rated capacity of 35 tonnes. For suitability of use in a marine environment they also had environmental sealing to IP67, featured an integral amplifier to provide 4-20mA output for simple integration into the vessels PLC, and were supplied with 10m of armoured cable. Additionally, the load cells incorporated M42 x 2 load buttons on the top and bottom to assure more precise loading and hence more accurate and repeatable measurements.

Main Criteria

- 2 x 35te compression load cells
- Must be suitable for use in a marine environment
- Integral amplifiers required to give 4-20mA output
- Dimensional restrictions
- Heavy-duty cable required
- Calibration certificate traceable to UK National Standards



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APPLICATION NOTE

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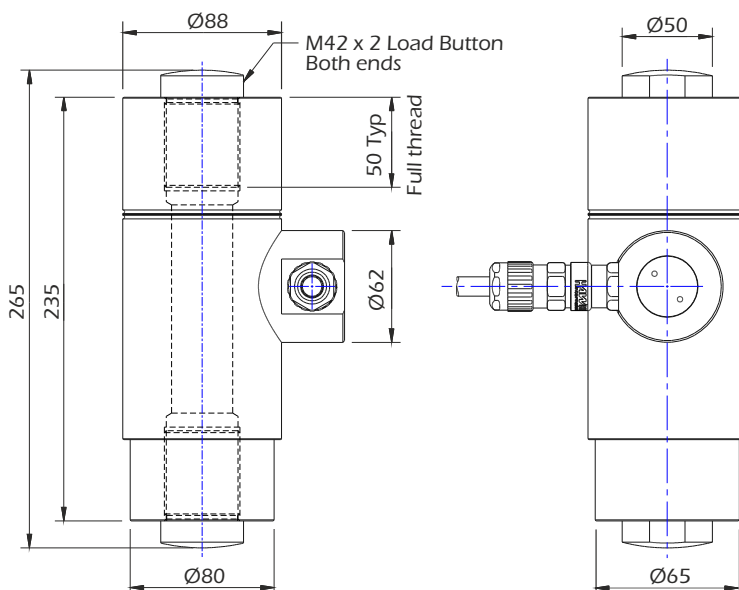


Specification

Rated load	35 Tonne
Proof load	150% of rated load
Ultimate breaking load	>300% of rated load
Output	2 wire 4 to 20mA
Non-linearity	<±0.2% of rated load
Non-repeatability	<±0.1% of rated load
Excitation voltage	7.5 to 28 VDC
Insulation resistance	>50 MOhm @50 VDC
Operating temperature range	-20 to +70°C
Compensated temperature range	-10 to +50°C
Zero temperature coefficient	<±0.01% of rated load/°C
Span temperature coefficient	<±0.01% of rated load/°C
Environmental protection level	IP67
Cable	4 Core Armoured PUR (10 Metres)

Dimensions

All dimensions are in mm



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