

LCM4580 Stainless Steel Load Link

Application

Cable tension monitoring

Features

- 50kN load link manufactured from 17-4PH stainless steel
- Link holes sized to fit G-4159 shackles
- Machined with rounded edges
- Data logging facility
- Environmentally sealed to IP66

Design Brief

We were contacted by a customer with a requirement for a custom design load link for a cable laying application that would be used to monitor the tension on cable as it was being pulled through conduit. Due to the long lengths of cable involved, the customer was concerned that during installation the cable could become entangled and potentially brake, causing delays and incurring additional costs. The load link would therefore monitor the tension in the cable to ensure that it stayed constant, with any



increases potentially indicating that the cable had become snagged, enabling the operation to be halted while investigations were carried out. Because of the diameter of the conduit, there were several dimensional restrictions to take into consideration, as well as a requirement for the load link to have rounded edges to help prevent the load link becoming stuck as it travelled round bends, as well as to mitigate against any twisting forces being exerted.

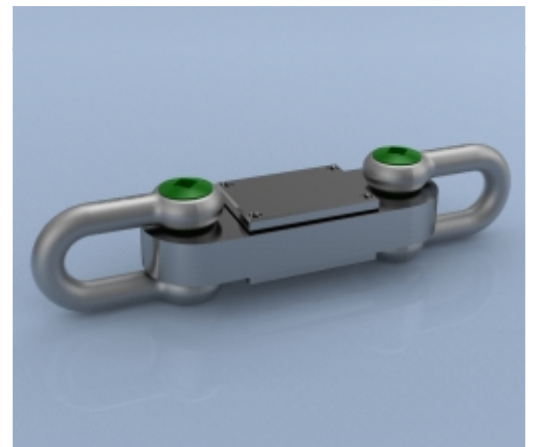
The load link rating needed to be 50kN and the customer additionally requested the holes be sized to fit Green Pin G-4159 6.5te shackles. They also wanted the link to power it (obviously external power supply was not an option for this application).

They also needed a removable cover to access the electronics for measurement data download and facilitate easy access to change the batteries when necessary.

Our design engineers were able to design a load link to the required dimensions which also featured environmental sealing to IP66 and had an accuracy 0.3% of rated load.

Main Criteria

- 1 x 50kN load link supplied with 2 x Green Pin G-4159 6.5te shackles
- Dimensional restrictions: no longer than 250mm and no wider than 100mm
- No cable permitted
- Must have integral power supply
- Must incorporate electronics supplied by the customer
- Removable cover required to access electronics and batteries



LCM Systems Ltd

Unit 15, Newport Business Park
Barry Way, Newport
Isle of Wight PO30 5GY UK
Tel: +44 (0)1983 249264
Fax: +44 (0)1983 249266
sales@lcmssystems.com
www.lcmssystems.com

APPLICATION NOTE



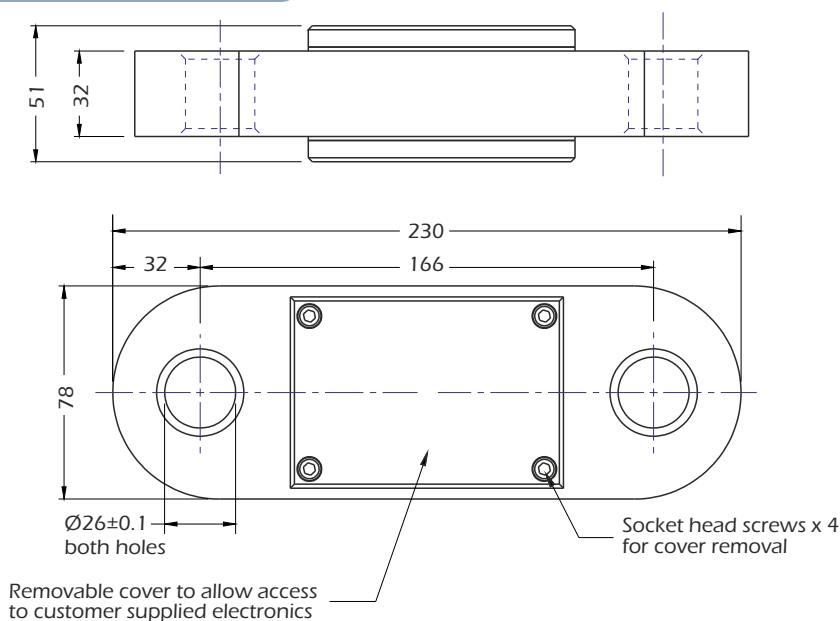
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Specification

| | |
|--------------------------------|---------------------------------|
| Rated load | 50kN |
| Proof load | 150% of rated load |
| Ultimate breaking load | >400% of rated load |
| Output | 1.2 mV/V (Nominal) |
| Non-linearity | <±0.5% of rated load |
| Non-repeatability | <±0.1% of rated load |
| Excitation voltage | 10 VDC recommended (15 VDC Max) |
| Bridge resistance | 1000 Ohm |
| Insulation resistance | >500 MOhm @500 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 | IP66 |

Dimensions

All dimensions are in mm



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APPROVED

(unapproved if printed)