

## LCM4348 Compression Load Cell for Centre of Gravity System



### Application

Centre of Gravity system for heavy lifts

### Features

- 250 tonne compression load cells manufactured from 17-4PH stainless steel
- TEDs enabled
- Supplied with base plate and load cap
- Customised 8 Channel COG software
- Each load cell supplied with a TR150 handheld display
- Environmentally sealed to IP67

### Design Brief

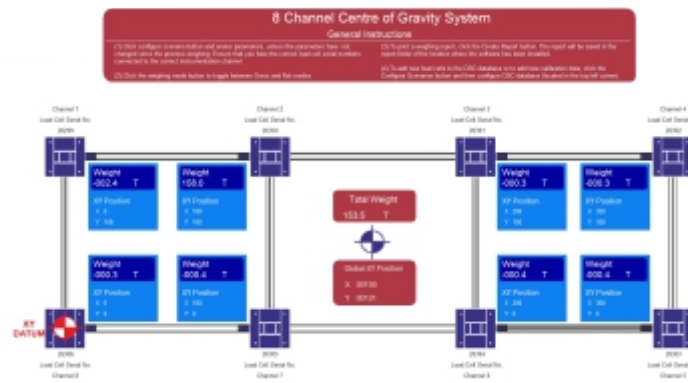
An enquiry was received from a regular customer operating in the heavy lift industry. They were looking for a Centre of Gravity system (COG) that could be used in a variety of weighing applications.

A custom version of the popular CPA compression load cell was offered, rated to 250 tonnes and supplied complete with base plate and load cap for optimal accuracy. The requirement was for 10 load cells with individual handheld displays, but the customer wanted to be able to use any display with any of the load cells. To achieve this, the load cell design incorporated a TEDs chip, which holds information such as model, serial number and calibration settings. This allows the load cells and handheld displays to be interchangeable, saving time and increasing system functionality. They can also be used

for other measurement applications when not being used as part of the COG system.

A tablet display was also supplied as part of the system that showed the load on each load cell, the total load and the centre of gravity point.

For the first application, the COG system was



used to weigh and transport 12 pipe rack modules with differing weights of up to 430 tonnes. The system proved to be instrumental in the successful lifting and transportation of the pipe rack modules.

Future use of the COG system will mainly be for determining the centre of gravity of ship to shore (container) cranes when they are taken out of service for maintenance purposes.

The customer was very happy with the system's performance, and have since gone on to order additional Centre of Gravity systems.

### Main Criteria

- 10 x 250 tonne compression load cells
- One handheld display per load cell required, but each load cell must be able to be used with any handheld
- Tablet PC with customised 8 channel COG software showing individual load cell weight, total combined weight and centre of gravity
- Each load cell must be supplied in its own wooden crate



### 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@lcm systems.com  
www.lcm systems.com

# APPLICATION NOTE

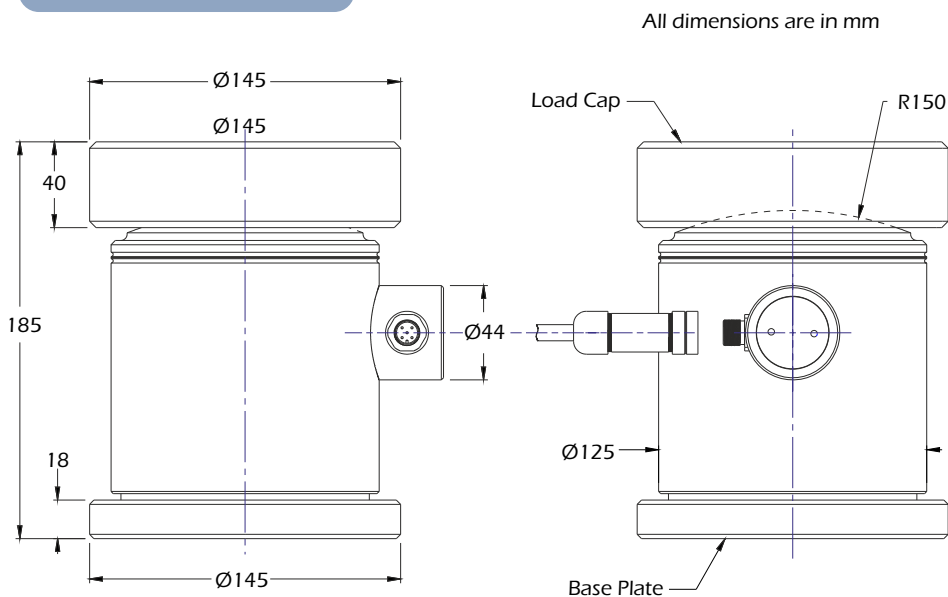
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### Specification

Rated load	250 Tonne
Proof load	150% of rated load
Ultimate breaking load	>300% of rated load
Output	2.1 mV/V (Nominal)
Non-linearity	<±0.25% of rated load
Non-repeatability	<±0.04% of rated load
Excitation voltage	10 VDC Recommended (15 VDC Max)
Bridge resistance	1400 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	IP67 with connector mated
Cable	6 Core PUR (20 Metres)

### Dimensions



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