



High Precision Load Cell type CSP-M

CSP-M Load Cells are designed to meet the most stringent requirements with respect to accuracy and performance. Approvals have been obtained from Weights & Measures Authorities in accordance with the worldwide accepted O.I.M.L.

The standard stainless steel low profile construction is hermetically sealed, which makes this load cell ideally suited for use in the harshest industrial environments. The load cells are designed to determine compressive loads.

Typical applications for CSP-M load cells include weighbridges, platform scales, hopper weighers, crane weighers, aircraft weighing systems and conversions of conventional lever system scales.

The CSP-M load cell is a compressive type cell, utilizing strain gauges for conversion load into output signal. Four columns, equally spaced on the base plate are utilized to support and measure the applied load. The four column design gives this load cell its unique characteristics to non-centric loading and its low profile.

The special "Current Calibration" simplifies the time-consuming corner calibration during commissioning. Recalibration after load cell replacement can be omitted, depending on local W&M regulations.

Major Features:

- Covering a range from 10 to 100 t
- High accuracy
- Hermetically sealed
- Very low profile
- W&M approved for 3,500 v
- Multi range accuracy available
- Current calibration
- Optionally explosion proof version

SPECIFICATIONS CSP-M LOAD CELLS

ACCURACY CLASS (1)		C1	C3	C3MB	C3.5	C3.5MB
Maximum capacity (E_{max})	t	10-25-40-60-100				
Minimum load cell verification interval (v_{min})	kg	$E_{max}/5000$	$E_{max}/10000$	$E_{max}/20000$	$E_{max}/11666$	$E_{max}/23333$
Minimum utilization	% E_{max}	20	30	15	30	15
Safe load limit	% E_{max}	150				
Maximum load; ultimate	% E_{max}	400				
Maximum side load; safe	% E_{max}	10				
Reference temperature	°C	+21				
Compensated temperature range	°C	-10 to +40				
Operating temperature range	°C	-40 to +80				
Storage temperature range	°C	-40 to +90				
Excitation voltage; AC or DC	V	5 to 20				
Rated output (=RO) (4)	mV/V	2.0 ± 0.02				
Input resistance	Ω	450 ± 4.5				
Output resistance (4)	Ω	480 ± 4.8				
Insulation resistance	M Ω	> 5000				
Output ratio error (4)	%RO	$\leq \pm 0.05$				
Zero balance	%RO	$\leq \pm 1$				
Combined error (2)(3)	%RO	≤ 0.0300	≤ 0.0200	≤ 0.0150	≤ 0.0180	≤ 0.0130
Repeatability error	%RO	≤ 0.0200	≤ 0.0100	≤ 0.0100	≤ 0.0100	≤ 0.0100
Temperature effect on minimum dead load output	%RO/°C	≤ 0.0040	≤ 0.0014	≤ 0.0007	≤ 0.0012	≤ 0.0006
Temperature effect on sensitivity (2)	%RO/°C	≤ 0.0030	≤ 0.0008	≤ 0.0008	≤ 0.0007	≤ 0.0007
Minimum dead load output return (30 min)	%RO	≤ 0.0500	≤ 0.0170	≤ 0.0085	≤ 0.0140	≤ 0.0070
Creep (30 min)	%RO	≤ 0.0500	≤ 0.0200	≤ 0.0200	≤ 0.0140	≤ 0.0140
Protection standard (DIN 40 050)	IP	68				

NOTES

- (1) The "Accuracy class" C3 is in accordance with the O.I.M.L. International Recommendation R60. C3MB and C3.5MB for multi-range applications.
- (2) The "Temperature effect on sensitivity" and "Combined error" are balanced in such a way, that the sum is less than 70% of the error limit for non-automatic weighing instruments according to the O.I.M.L. International Recommendation R76.
- (3) The "Combined error" is defined as the algebraic sum of "Non-linearity" and "Hysteresis".
- (4) The "Output ratio" is defined as the "Output voltage" over "Output resistance". Calibrating load cells this way allows easy parallel connection of multiple CSP-M load cells.

Construction of the CSP-M Load Cell

The top-, bottomplate and the housing of the load cell are made of stainless steel.

The load cell is provided with a shielded 4 conductor cable.

OPTION: EXPLOSION PROOF

The 40 t and 60 t CSP-M are also available in an explosion proof version. Approval for EEx ib IIc T4/T6.

WIRING FOR POSITIVE POLARITY		
Input	(-)	black
Input	(+)	red
Output	(-)	green
Output	(+)	white
Shield		orange

Ordering Information for the CSP-M Load Cell

CSP-M-♣♣-♦♦-SC-SS

SS = STAINLESS STEEL

SC = OUTPUT CURRENT CALIBRATION

♦♦ = ACCURACY CLASS

C1 = 1,000 load cell intervals

C3 = 3,000 load cell intervals

C3MB = 2 x 3,000 intervals; multi-range

C3.5 = 3,500 load cell intervals

C3.5MB = 2 x 3,500 intervals; multi-range

♣♣ = NOMINAL LOAD

10 t = 10,000 kg

25 t = 25,000 kg

40 t = 40,000 kg

40 t-EEx = 40,000 kg explosion proof

60 t = 60,000 kg

60 t-EEx = 60,000 kg explosion proof

100 t = 100,000 kg

CSP-M = LOAD CELL TYPE



Dimensions of the CSP-M Load Cells

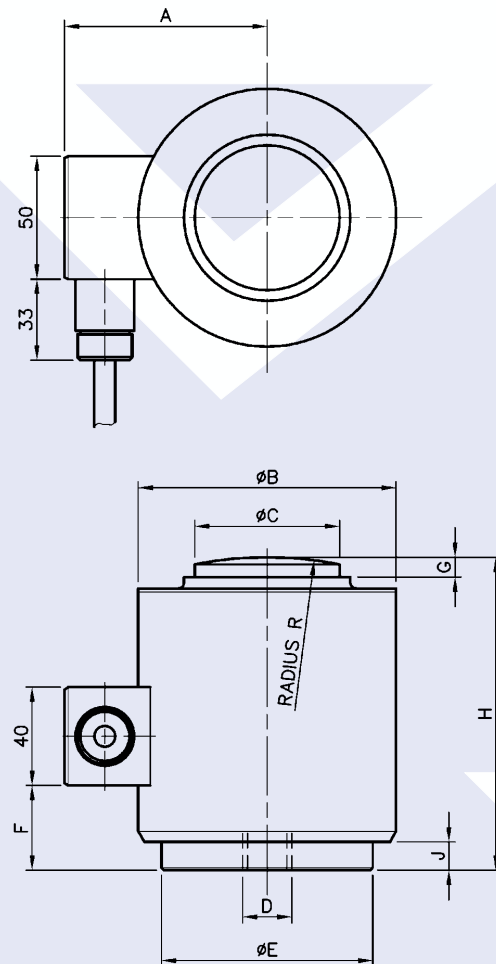


Figure 1: CSP-M Load Cell

DIMENSIONS TABLE FOR FIGURE 1

Capacity	A	ØB	ØC	Thread D	ØE	F	G	H	J	R
10 – 25 t	64	73	31.8	M12 (11 deep)	58	12	6.5	82.5	1.8	152
40 – 60 t	87	105	58.7	M20 (20 deep)	82.5	34	8	127	11	152
100 t	108.2	152.4	79.2	M20 (20 deep)	123.8	72.3	23.6	184.2	21.8	432

NOTES

- All dimensions in mm.
- All tolerances according to ISO 2768m, unless otherwise specified.

Please consult for more and specific details:

PRECIA-MOLEN
Frans Akker 1, 4824 AL Breda
P.O. Box 3246, 4800 DE Breda
The Netherlands

Phone +31 76 5242503
Fax +31 76 5228039
E-mail sales@preciamolen.nl
Website www.preciamolen.nl

Data may be subject to change without prior notice DC 50092

www.preciamolen.nl