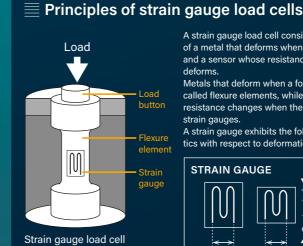




MG CO., LTD. www.mgco.jp Your local representative:

# **New Products Launch:** STRAIN GAUGE LOAD CELL





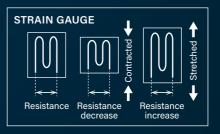
CELL

STRAIN GAUGE LOAD

A strain gauge load cell consists of a combination of a metal that deforms when a force is applied, and a sensor whose resistance changes when it

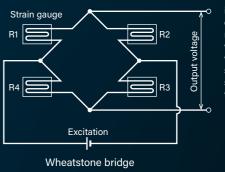
Metals that deform when a force is applied are called flexure elements, while sensors whose resistance changes when they deform are called

A strain gauge exhibits the following characteristics with respect to deformation.



### **■** Wheatstone bridge circuit and rated output The resistance change in a strain gauge is so small that it is converted to a voltage using a Wheatstone bridge circuit. When the resistance values of R1 × R3 and R2 × R4 are equal, the output

voltage of the Wheatstone bridge circuit is 0 V. When the resistance values are not equal, the output voltage changes



The rated output values in the strain gauge load cell matrix table (inside represent the output voltages for an excitation voltage of 1 V when the strain gauge load cell is subjected to a force of the rated capacity.

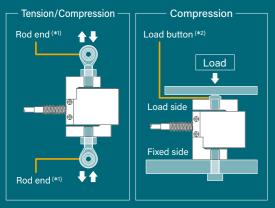
MG CO., LTD. www.mgco.jp



Load strain gauge load cells. capacities and sizes.

#### **Tension and Compression type**

Used by connecting rod ends (\*1) or eyebolts at the top and bottom. When used for compression, care must be taken because there are two sides, the fixed side and the load side.

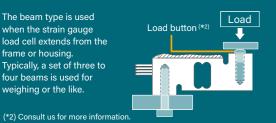


Rod end: A type of bearing consisting of a spherical ball enclosed within a housing. This construction allows for complex movement.

(\*1) Prepared by user (\*2) Consult us for more information.

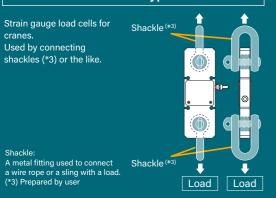
#### Beam type

The beam type is used when the strain gauge frame or housing Typically, a set of three to four beams is used for weighing or the like.



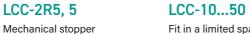
# **Tension type**

Strain gauge load cells for Used by connecting shackles (\*3) or the like.



## Compression

incorporated



Fit in a limited space Suitable for a variety of weight testing

LCC-100, 200

LCC-300, 500, 1K...200K (\*4)



Image: LCC-5K

LCC-300K, 500K (\*4) Customization available



Rated capacity (not a converted value)	2.5 N 255 gf		5 N 510 gf	10 N 1.02 kgf	20 N 2.04 kgf	50 N 5.1 kgf	100 N 10.2 kgf	200 N 20.4 kgf	300 N 30.6 kgf	500 N 51 kgf	1 kN 102 kgf	2 kN 204 kgf	3 kN 306 kgf	5 kN 510 kgf	10 kN 1020 kgf	20 kN 2039 kgf	30 kN 3059 kgf	50 kN 5099 kgf	100 kN 10.2 tf	200 kN 20.4 tf	300 kN 30.6 tf	500 kN 51 tf
Rated output	0.4 r	mV/V or m	ore	11	mV/V ±30	%	1 mV/\	/ ±10%						2 mV/V	±0.5%				2 mV/V ±5%			
Non-linearity	±	±0.3% R.O			±1% R.O.		±1%	R.O.				±0.	2% R.O.				±0.35% R.O.			±0.1% R.O.		
Hysteresis	±0.2% R.O. ±1% R.O.			±1%	R.O.	±0.2% R.O. ±0.35% R.O.								±0.1% R.O.								
Compensated temperature range	0 to 50°C 0 to 50°C			0 to	50°C	-10 to +60°C									-10 to +60°C							
Safe overload	150% R.C. 150% R.C.			150%	6 R.C.	150% R.C.								150% R.C.								
Input terminal resistance	Approx. 350 Ω 35		350 Ω ±10 Ω		350 Ω	±10 Ω	420 Ω ±40 Ω									350 to 800 Ω						
Output terminal resistance	Approx. 350 Ω		350 Ω ±10 Ω		350 Ω	±10 Ω	350 Ω ±5 Ω							350 to 800 Ω								
Body material	P	Aluminium Aluminium Stainless steel Stainless steel Stainless steel									Special a	alloy steel										

# **Tension and Compression**

LCCT-1...5

Female threaded for easy mounting

LCCT-10, 20 Female threaded for easy mounting

High accuracy

LCCT-50...500, 1K

LCCT-2K, 5K (\*4)







#### Beam type **Tension**

LCB-10...100 LCT-20K...200K (\*4)

> Most suitable for traction and rope tension measurement



Ultra compact size



Image: LCT-200K

Rated capacity (not a converted value)	1 N 102 gf	2 N 204 gf		5 N 510 gf	10 N 1.02 kgf	20 N 2.04 kgf	50 N 5.1 kgf	100 N 10.2 kgf	200 N 20.4 kgf		500 N 51 kgf	1 kN 102 kgf	2 kN 204 kgf	5 kN 510 kgf	10 kN 1.02 tf	
Rated output (*5)	0.5 mV/V to 2.5 mV/V				0.7 mV/V	1 mV/V		2 mV/V						2 mV/V		
Non-linearity	±0.2% R.O.				±0.29	±0.2% R.O. ±0.03% R.O.						±0.5% R.O.	±0.15% R.O.	±0.5% R.O.		
Hysteresis	±0.2% R.O.				±0.2% R.O. ±0.03% R.O.					±0.5% R.O.	±0.15% R.O.	±0.5% R.O.				
Compensated temperature range	-10 to +50°C				-10 to	+60°C	-10 to +60°C						-10 to	-10 to +60°C		
Safe overload	200% R.C.				150%	R.C.	150% R.C.						150%	150% R.C.		
Input terminal resistance	Approx. 1000 Ω			Approx	. 350 Ω	410 Ω ±10 Ω						Approx. 500 Ω	425 Ω ±50 Ω	Approx. 350 Ω		
Output terminal resistance	Approx. 1000 Ω			Approx	. 350 Ω	350 Ω ±5 Ω					Approx. 500 Ω	Approx. 350 Ω				
Body material	Beryllium copper Stainless steel				Alum	inium		Aluminium					Stainle	Stainless steel		

R.O.: Rated Output R.C.: Rated Capacity (\*4) Shape and size may differ depending on model variations. Refer to the specification sheets.

Rated capacity 10 N 20 N not a converted value) 1.02 kgf 2.04 kgf 5.1 kgf 10.2 kgf Rated output 1.5 mV/V ±20% ±0.2% R.O. Non-linearity ±0.2% R.O. Hysteresis -10 to +60°C Safe overload 150% R.C. Approx. 350  $\Omega$ Approx. 350 Ω Aluminium

10 N 20 N

Rated capacity (not a converted value)	20 kN 30 kN 50 kN 100 kN 2.04 tf 3.06 tf 5.1 tf 10.2 tf 2										
Rated output	1 mV/V ±10%										
Non-linearity	±0.2% R.O.										
Hysteresis	±0.2% R.O.										
Compensated temperature range	-10 to +60°C										
Safe overload	150% R.C.										
Input terminal resistance	380 Ω ±50 Ω										
Output terminal resistance		350	Ω ±10 Ω	!							
Body material		Specia	l alloy st	eel							

(\*5) Rated output and rated output error may differ depending on model variations. Refer to the specification sheets.

50 N 100 N

2