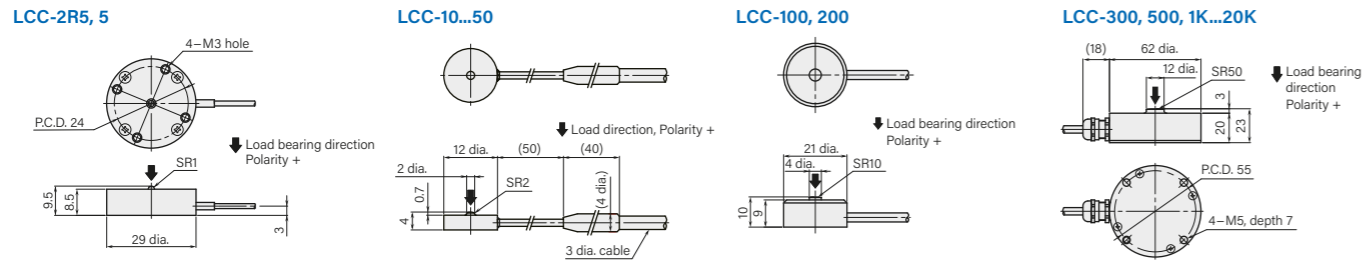
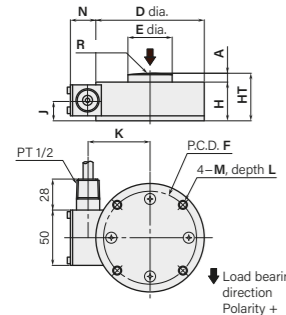


Compression type

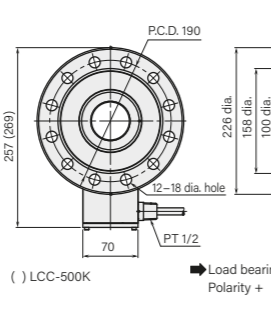


LCC-30K...200K

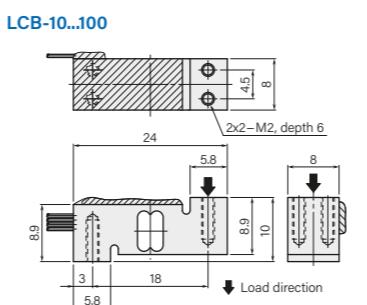


Rated Capacity	30 kN	50 kN	100 kN	200 kN
A	5	8	10	
D dia.	98		138	
E dia.	30	40	50	
H	33	35	43	
HT	38	43	53	
F	84		110	
M	M6		M8	
L	7		8	
R	SR100	SR150	SR200	
J	16.5	18.5	21	
K	56		77	
N	23		24	

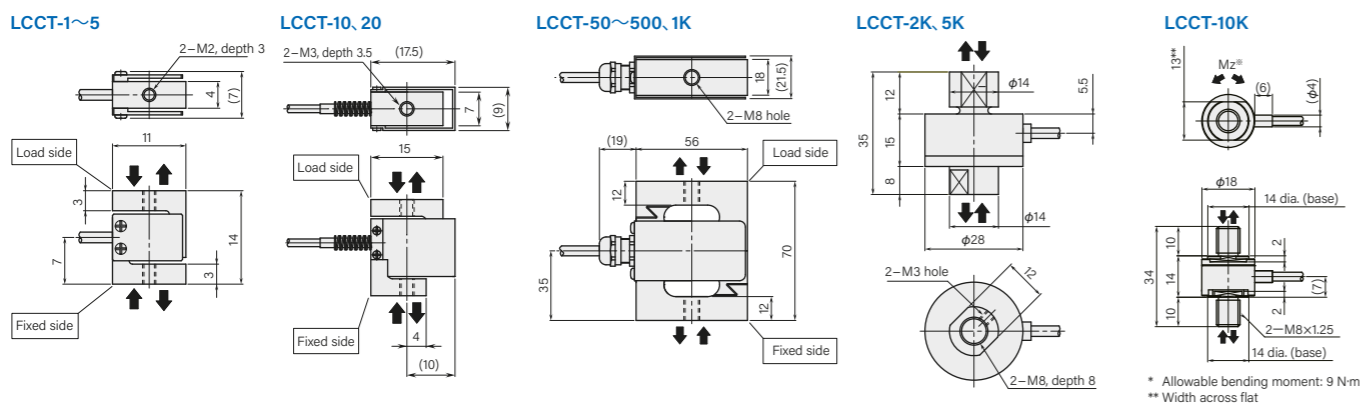
LCC-300K, 500K



Beam type

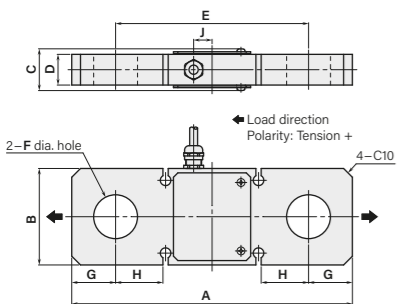


Tension and Compression type



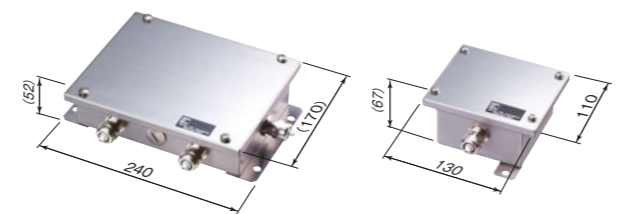
Tension type

LCT-20K...200K



Rated Capacity	20 kN	30 kN	50 kN	100 kN	200 kN
A	220	240	250	320	380
B	70	80	90	110	130
C	(30.8)	(35.8)	(40.8)	(50)	(65)
D	20	25	30	35	50
E	160	168	178	220	250
F dia.	28	38	38	50	61
G	30	36	36	50	65
H	33	35	40	54	64
J	19	19.5	20	21	23

RELATED PRODUCTS (unit: mm)



- NEW SUMMING BOX LCBX-4**
  - Dustproof and waterproof type
  - Stainless steel
  - Up to 4 load cells can be connected
- NEW JUNCTION BOX LCBX-1**
  - Dustproof and waterproof type
  - Stainless steel



Your local representative:

STRAIN GAUGE LOAD CELL

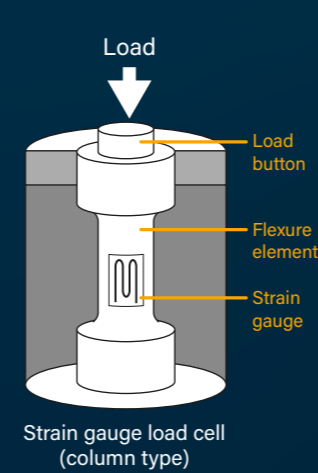
# New Products Launch: STRAIN GAUGE LOAD CELL



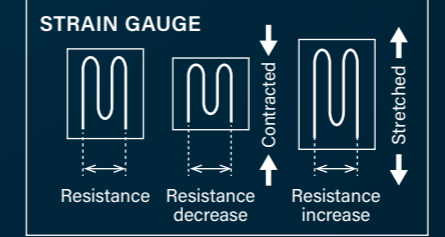
## 'One-Stop Shop' for Strain Gauge Load Cells and Interface Devices

We have been offering a wide range of interface devices for strain gauge load cells, from strain gauge transmitters to digital panel meters, limit alarms, remote I/O, and weighing indicators. From now on, you can order strain gauge load cells and interface devices in a single step.

### Principles of strain gauge load cells

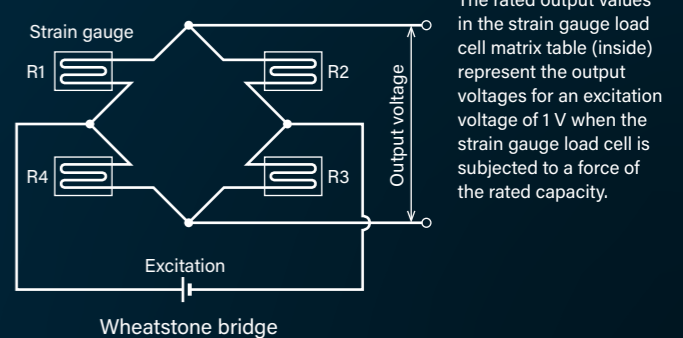


A strain gauge load cell consists of a combination of a metal that deforms when a force is applied, and a sensor whose resistance changes when it deforms. Metals that deform when a force is applied are called flexure elements, while sensors whose resistance changes when they deform are called strain gauges. 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  $R1 \times R3$  and  $R2 \times R4$  are equal, the output voltage of the Wheatstone bridge circuit is 0 V. When the resistance values are not equal, the output voltage changes accordingly.

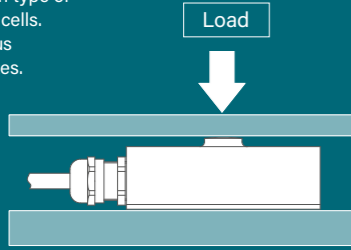


The rated output values in the strain gauge load cell matrix table (inside) represent the output voltages for an excitation voltage of 1 V when the strain gauge load cell is subjected to a force of the rated capacity.

## Types of strain gauge load cells

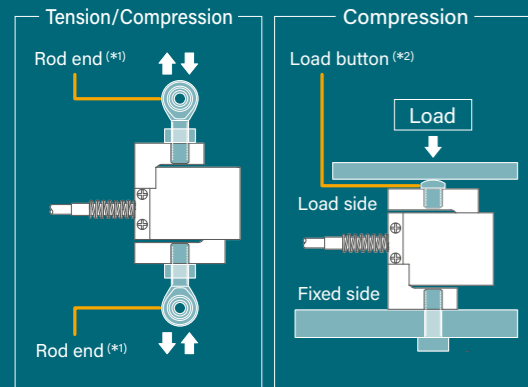
### Compression type

The most common type of strain gauge load cells. Available in various 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.

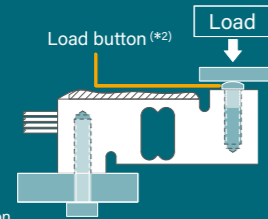


Rod end: A type of bearing consisting of a spherical ball enclosed within a housing. This construction allows for complex movement.

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

### Beam type

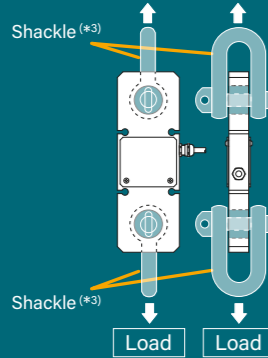
The beam type is used when the strain gauge load cell extends from the frame or housing. Typically, a set of three to four beams is used for weighing or the like.



(\*2) Consult us for more information.

### Tension type

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



Shackle: A metal fitting used to connect a wire rope or a sling with a load.  
(\*3) Prepared by user

## Compression

### LCC-2R5, 5

Mechanical stopper incorporated

### LCC-10...50

Fit in a limited space

### LCC-100, 200

Suitable for a variety of weight testing

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

Wide range

### LCC-300K, 500K (\*4)

Customization available

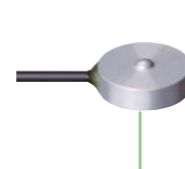


Image: LCC-5K



Image: LCC-500K

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 mV/V or more			1 mV/V ±30%			1 mV/V ±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% R.C.			150% R.C.						150% R.C.						
Input terminal resistance	Approx. 350 Ω			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	Aluminium			Aluminium		Stainless steel		Stainless steel		Stainless steel						Special alloy steel						

## Tension and Compression

### LCCT-1...5

Female threaded for easy mounting

### LCCT-10, 20

Female threaded for easy mounting

### LCCT-50...500, 1K

High accuracy

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

Wide range

### LCCT-10K

Double-end male threads

### LCB-10...100

Ultra compact size

## Tension

### LCT-20K...200K (\*4)

Most suitable for traction and rope tension measurement

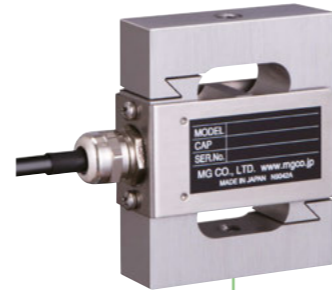


Image: LCCT-2K

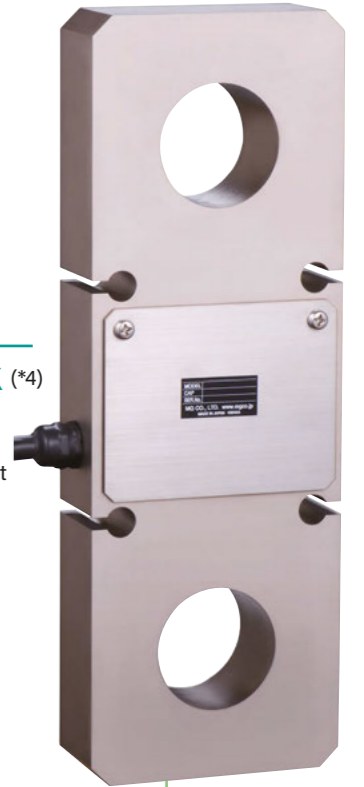


Image: LCT-200K

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 capacity (not a converted value)	10 N 1.02 kgf	20 N 2.04 kgf	---	50 N 5.1 kgf	100 N 10.2 kgf	Rated capacity (not a converted value)	20 kN 2.04 tf	30 kN 3.06 tf	50 kN 5.1 tf	100 kN 10.2 tf	200 kN 20.4 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		---	500 N 51 kgf	1 kN 102 kgf	2 mV/V		1.5 mV/V ±10%	Rated output	1.5 mV/V ±20%					Rated output	1 mV/V ±10%				
Non-linearity	±0.2% R.O.		---	±0.2% R.O.	±0.2% R.O.	±0.03% R.O.		±0.5% R.O.		±0.15% R.O.	±0.5% R.O.	±0.5% R.O.		±0.5% R.O.	±0.5% R.O.	Non-linearity	±0.2% R.O.					Non-linearity	±0.2% R.O.				
Hysteresis	±0.2% R.O.		---	±0.2% R.O.	±0.2% R.O.	±0.03% R.O.		±0.5% R.O.		±0.15% R.O.	±0.5% R.O.	±0.5% R.O.		±0.5% R.O.	±0.5% R.O.	Hysteresis	±0.2% R.O.					Hysteresis	±0.2% R.O.				
Compensated temperature range	-10 to +50°C		---	-10 to +50°C	-10 to +60°C	-10 to +60°C		-10 to +60°C		---	-10 to +60°C	1 kN 102 kgf	-10 to +60°C		-10 to +60°C	Compensated temperature range	-10 to +60°C					Compensated temperature range	-10 to +60°C				
Safe overload	200% R.C.		---	150% R.C.	150% R.C.	150% R.C.		150% R.C.		---	150% R.C.	1 kN 102 kgf	150% R.C.		150% R.C.	Safe overload	150% R.C.					Safe overload	150% R.C.				
Input terminal resistance	Approx. 1000 Ω		---	Approx. 350 Ω	Approx. 350 Ω	410 Ω ±10 Ω		Approx. 500 Ω		425 Ω ±50 Ω	Approx. 350 Ω	Approx. 500 Ω		350 Ω ±5 Ω	Approx. 350 Ω	Input terminal resistance	Approx. 350 Ω					Input terminal resistance	380 Ω ±50 Ω				
Output terminal resistance	Approx. 1000 Ω		---	Approx. 350 Ω	Approx. 350 Ω	350 Ω ±5 Ω		Approx. 500 Ω		350 Ω ±5 Ω	Approx. 350 Ω	Approx. 500 Ω		350 Ω ±5 Ω	Approx. 350 Ω	Output terminal resistance	Approx. 350 Ω					Output terminal resistance	350 Ω ±10 Ω				
Body material	Beryllium copper		---	Stainless steel	Aluminium		Aluminium		Stainless steel		1 kN 102 kgf	Stainless steel		Stainless steel	Stainless steel	Body material	Aluminium					Body material	Special alloy steel				

R.O.: Rated Output R.C.: Rated Capacity

(\*4) Shape and size may differ depending on model variations. Refer to the specification sheets.

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