STAINLESSSTEEL WELD-SEALED SINGLEPOINT BEAMLOAD CELL

LCB05 Series

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1. INTRODUCTION

- The LCB05 series stainless steel weld-sealed single point beam load cells are ideally suited for a wide range of weighing, from ordinary weighing, platforms for weighing, mixing and filling, to weighing system requiring washing as is. Being of a single point design allows for simplified a weighing system construction.
- To install the load cell properly, the static conditions, as well as dynamic factors (i.e., shock and vibration) must be considered. To obtain the best performance from the load cell, read this instruction manual before installation.

2. SPECIFICATIONS

Rated capacities	300 N, 600 N, 1.5 kN
Rated output	2 mV/V +15% -0
Maximum safe overload	150 % of rated output
Combined error	0.03 % of rated output
Zero balance	±5 % of rated output
Compensated temperature range	-10 to 40 °C
Maximum excitation voltage	15 V
Input terminal resistance	Approx. 390 Ω
Output terminal resistance	350 Ω ±5 Ω
Insulation resistance	500 MΩ or over at 50 VDC
Temperature effect on zero	0.04 % of rated output / 10 °C
Temperature effect on span	0.014 % of LOAD / 10 °C
Cable thickness/length	ϕ5.6 × 3 m
Maximum loading area	400 mm × 400 mm
Maximum torsional moment during weighing	30 N·m (300 N), 60 N·m (600 kN), 150 N·m (1.5 kN)

3. NOTES ON INSTALLATION

⚠ NOTE

Deformation of the sealed portion will adversely affect the load cell performance. Do not apply excessive force or shock to the sealed portion.

3-1 INSTALLING ON A BASE

(1) The base should be rigid to prevent it from slanting or curving under normal operating conditions. If the base yields, the platform will bend and adversely affect the load cell.
(2) Insert a spacer with 6 mm or greater between the load cell and the base.
(3) Use a highly rigid base. The mounting surface for the load cell and the spacer requires a surface finish of 100S (JIS*) or more.
*JIS=Japan Industrial Standard
(4) Use hexagon socket head bolts (tensile strength Class 10.9-JIS or over) or high-tension hexagon head bolts (tensile strength Class 10.9-JIS or over) to attach the load cell on the base. Table 1 shows the applicable clamping torque. Be sure to avoid using ordinary bolts (of a lower tensile strength) available on the market.

Table 1

	Bolt diameter	Clamping torque
LCB05K030	M6	12 N·m
LCB05K060	M6	12 N·m
LCB05K150	M8	28 N·m

(5) Make sure that the attaching surface is clean and free from foreign matter. Tighten the bolts while holding the securing end of the load cell.

3-2 ATTACHING THE PLATFORM

(1) The tare and the platform should be as light as possible to prolong the service life and excellent performance of the load cell.
(2) Insert a spacer with 10 mm or greater between the load cell and the platform.
(3) Use a platform fixture with high rigidity. The mounting surface for the load cell and the spacer requires a surface finish of 100S (JIS) or more.
(4) Use hexagon socket head bolts (tensile strength Class 10.9-JIS or over) or high-tension hexagon head bolts (tensile strength Class 10.9-JIS or over) to attach the platform fixture to the load cell. Table 1 shows the applicable clamping torque. Avoid using ordinary bolts (of low tensile strength) available on the market.
(5) Make sure that the attaching surface is clean and free from foreign matter. Tighten the bolts while using much care not to apply unnecessary force (torsion or lateral load) to the load cell.
(6) For the allowable dimensions of the platform, see Figure 1. Also, when designing a platform, see the "OVERLOAD PRECAUTIONS" on the next page.

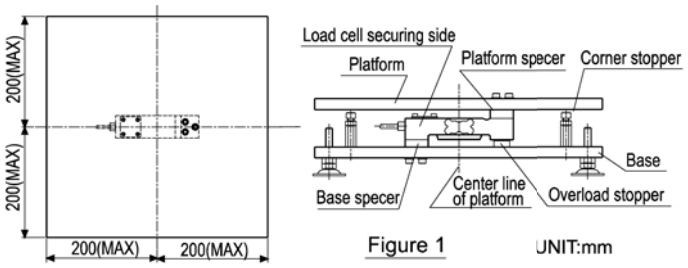


Figure 1 UNIT:mm

3-3 OVERLOAD PRECAUTIONS

(1) Mechanical strength of the load cell When a load is applied to the center of the load cell, a load of less than 150% of the rated capacity will not cause any trouble. However, the allowance range of the overload is reduced as the loading point shifts from the center of the load cell. Therefore, the allowable limit at the corner load points of the platform should be 100% of the rated capacity. Repeated overloading, exceeding the allowable limit, may shorten the service life of the load cell, and may even destroy it in extreme cases. Where there is a possibility that a load may exceed the allowable limit, attach an overload stopper to protect the load cell as described below.

(2) Overload stopper
If excessive shock is applied when positioning an object on the platform, the load may exceed the allowable limit. Therefore, be sure to attach an overload stopper just below the load end of the load cell. (See Figure 2.)
Attach the overload stopper so that the stopper comes into contact with the load cell with as wide an area as possible when 150% of full scale load (load plus weighing platform) is applied to the center of the load cell.

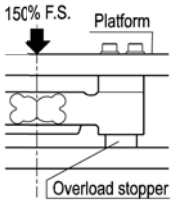


Figure 2

(3) Corner stopper
Although the overload stopper is properly adjusted, if an overload is applied to the corners of the platform, it may exceed the allowable limit due to the flexibility of the base. Therefore, be sure to attach corner stoppers. (See Figure 3.)
Attach the corner stoppers so that the stoppers come into contact with the load cell with as wide an area as possible when 100% of full scale load is applied to the four corners of the platform.

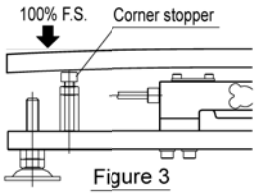


Figure 3

(4) If an overload or excessive shock force is likely to occur, overlay the platform with a shock absorber or select a load cell with a rated capacity that is double or triple the overall weight (the platform weight plus the measurement weight).
(5) If a torsional moment greater than the specified maximum value is applied to the axis of the load cell, the load cell may not function properly. Especially when a load is over one-half of the rated capacity, it may cause the torsional moment to exceed the specified maximum value, even within the maximum loading area. Under such a condition, place the object to be weighed on the platform with its center of gravity directly above the center of the loading area so that the maximum torsional moment will not be exceeded. The torsional moment applied to the load cell can be obtained as follows:
(Torsional moment)=(Shortest distance from the center of gravity of the object to the load cell axis)x(mass of the object)x10

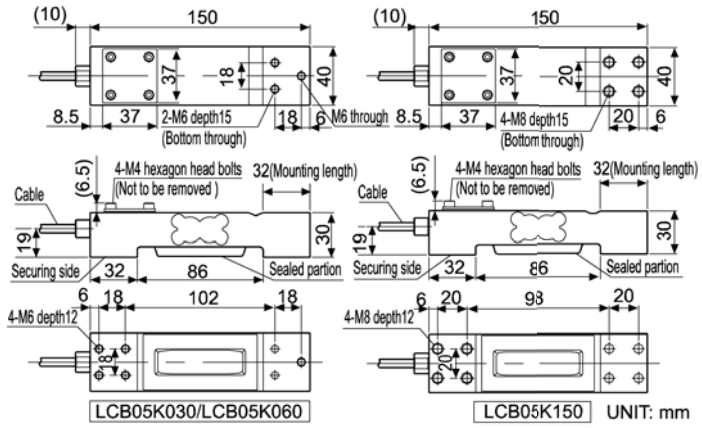
3-4 CABLE COLOR CODE / TREMINAL TYPE

RED	EXC +	WHITE	EXC −
GREEN	SIG +	BLUE	SIG −
YELLOW	SHIELD		

4. MAINTENANCE

(1) Remove all dirt and dust from the load cell, and always use it in a clean environment.
(2) The load cell can be washed using water. After washing, be sure to blow the moisture away using a blower.
(3) Periodically inspect the overload stopper and corner stoppers.

5. DIMENSION



LCB05K030/LCB05K060 LCB05K150 UNIT: mm