

**NMB**  
MINEBEA CO.,LTD.

Object Type CCP1(A)- ,CCS1- ,CCR1B/CCR1-  
TCP1(A)- ,TCR1A- , UCG1(A)-  
CCQ1- ,CC03-

## OPERATION MANUAL

( For Canister Type Load Cells )

Read this operation manual with care before using this product .  
Be sure to observe the important points mentioned in this manual . Keep this manual in custody near by in such a way that you may refer thereto anytime , if required .

The symbols used in this manual are as follows and have the following meanings .

Matters which you must not do absolutely or pay full attention to or keep in mind are marked with the following symbols . Read the sentences marked with these symbols without fail .

	<b>NOTE</b> : If this rule is not complied with , a trouble of injury or accident will be , caused , resulting in endangering human body . What is explained here must not be done absolutely .
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	This shows an important point or limitation when carrying out operation or doing work . Be sure to read without fail in order to avoid doing in a wrong way .
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1 . Preface

Thank you very much for your purchase of Minebea type load cell .  
To begin with , check whether or not the delivered load cell has been damaged in transit or its type is correct as specified . If found defective , be sure to contact the agent from which you purchased this product or sales office . Refer to the catalogue or specification for the details of specification of the respective types .

2 . Outline

Canister type load cell is suited for measuring systems of hopper , tank etc .

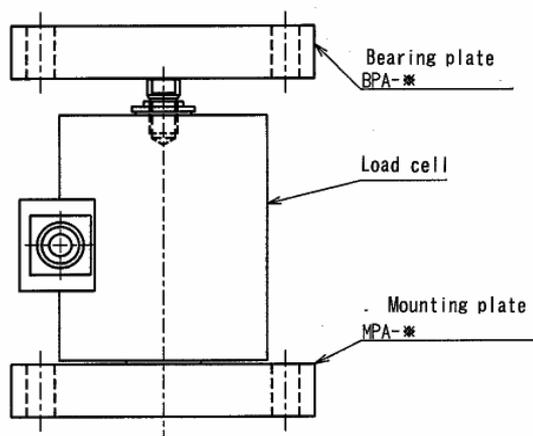
	<b>NOTE</b>	<ul style="list-style-type: none"> <li>• In case of static loads , use the load cell within the range of rated capacities . In case of dynamic loads , use it less than 70% of the rated capacity .</li> <li>• Do not apply a voltage exceeding the max . applying voltage to the input terminal .</li> <li>• Fit this load cell with hexagonal (holed) bolts . The bolt sizes to be used are mentioned in the catalogue and specification . Select bolts higher than strength class10.9 of JIS B 1051.</li> <li>• Under such circumstances that screws tend to loosen , be sure to retighten them periodically or provide detent if required .</li> <li>• When fitting it to medical machines or apparatuses involving human life , be sure to provide a protective circuit in preparation for functional failure of load cell .</li> <li>• If used under special operating circumstances , be sure to consult with us once before starting use .</li> <li>• Please handle with great caution, since this is a heavy subject.</li> </ul>
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3 . Fitting method

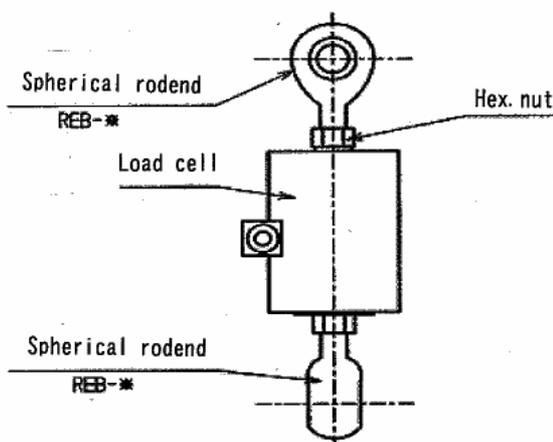
Using hexagonal bolts (holed) , fit the load cell as illustrated hereunder .  
 Use spring washers for prevention of loosening .  
 Select fitting bolts higher than strength class 10.9 of JIS B 1051 .  
 If stainless steel bolts are used , use bolts of strength class 80 of JIS B1054 .  
 As for the fitting length of screws , it shall be longer than the nominal diameter of screw .The pedestal must have full rigidity and flat, higher than 25s in surface finish .  
 Fit it in such a way that no dust or foreign matter is not held between .  
 The bolt sizes to be used shall be those mentioned in the catalogue and specification .  
 The proper tightening torques shall be adopted , referring to the following table .

NOMINAL DIA .OF BOLT	PROPER TIGHTENING TORQUE(N-m)	
	(N·m)	(kgf·cm)
6	13.7	140
8	33.3	340
10	65.7	670
12	115	1170
16	279	2850
18	382	3900
20	539	5500
22	686	7000
24	784	8000

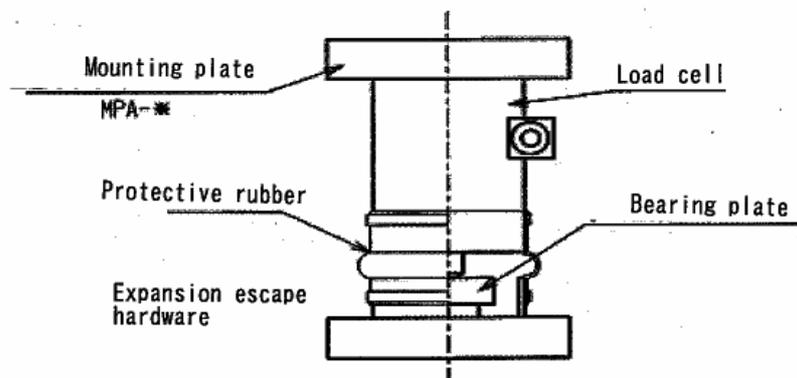
Compression



Tension



## Expansion escape hardware



## Accessories

Mounting plate , bearing plate , expansion escape hardware and spherical rod ends etc , are available at separate prices .



## 4 . Important points for use

In case of static loads , use it within the range of rated capacities .

In case of dynamic loads , use it less than 70% of rated capacities .

If there should be an impact load or vibration , a dynamic load calculated by multiplying static load by acceleration will act on the load cell .

Therefore , take a measure to prevent the value calculated by taking into consideration acceleration from exceeding the rated capacity of load cell .

If there is a possibility that an overload will act on load cell , provide a safety device against damage .

The installing place must have full strength .

Use it in an ambient temperature within the range temperature compensation range .

Be sure to avoid a rapid change in temperature and direct heat .

Checking protecting class , use it in such an environmental condition free from formation of dew .

Under such circumstances where electric and magnetic fields are very strong , noise is generated sometimes .Therefore , avoid using it at such circumstances .

Do not bend the cable lead hole extremely or pull strongly . When carrying it from place to place , do not hold the cable to suspend the load cell .

Under vibrating circumstances , fix the cord in the vicinity of cable lead hole and provide a means for prevention of vibration thereto .

Under such circumstances where screws tend to be loosened , retighten periodically and provide a detent means thereto , if required .

When fitting it to medical treatment machines and other apparatuses involving human life , be sure to provide a protective circuit thereto , in preparation for functional failure of load cell .

Do not disassemble the load cell .

Do not drop any thing on the load cell or give a shock thereto .

When discarded , dispose of it , taking into full consideration the environmental condition .

When discarded , dispose of it , taking into full consideration the environmental condition .

Please handle with great caution, since this is a heavy subject.

## 5 . Wirings

Connect the lead wires with the specified terminals of gauges .

	INPUT		OUTPUT		SHIELD
	( + )	( - )	( + )	( - )	
COLOR OF CABLE LEAD	Red	white	Green	Blue	Yellow
STD CONNECTOR WIRING	A	C	D	B	E

Refer to the operation manual of gauge the terminals of gauges .

## 6 . Troubl shooting

If an overload exceeding the allowable value is applied or if an overload other than center load is applied , be sure to make calibration again in order to check whether it can be used normally .If indication is unstable or abnormal , check whether or not connection with gauge is made correctly and reliably or the important matters in use in item 2 sre used properly .

Check whether or not the input/output resistance is within the range of specified values with a tester etc .

Check whether or not the insulation resistance of load cell body and core wires of cord is within the specified range of values .

Check whether or not the output (zero balance) without load is within the range of specified value .

If the values of the abovementioned measurement are abnormal , be sure to contact our company at once .

If there should be an unknown point in connection method etc ., contact our company .

Understand the text of the this manual is subject to change without notice .