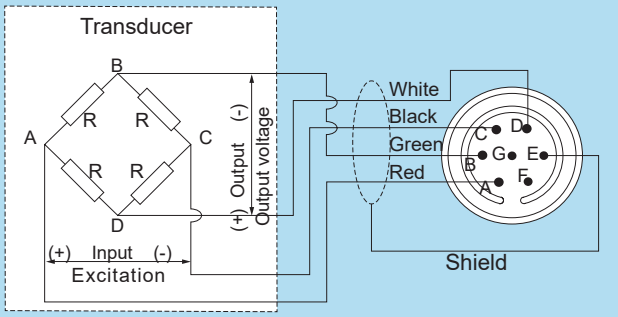
LOAD CELLS

TML load cells are used to convert force and load to electrical signals. The detecting element for force and load is a strain gauge that TML developed especially for load cells. With our extensive field-proven record and experience applied to structures and materials in all load cell areas, our cells have earned widespread trust as high-precision products offering excellent consistency and durability. Our line includes a number of compression, tension and tension/compression universal models with high to low capacities. Since our load cells are so widely used, we also offer all types of products related to load cells that allow customers to choose exactly what they need for their particular purpose. In addition to load cells, we also carry a line of products for measuring torque, such as torque transducers for socket wrenches, etc.

OUTPUT POLARITY WITH A LOAD

The measured value changes in negative (-) direction with increase of compressive force. It changes in positive (+) direction with increase of tensile force. (This does not apply to KCK-NA load cell.)

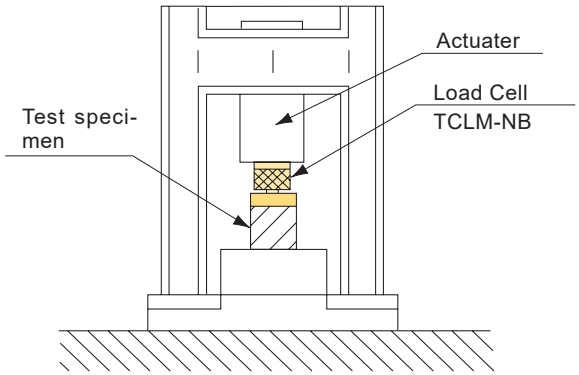


Not applicable to some products.

HOW TO USE

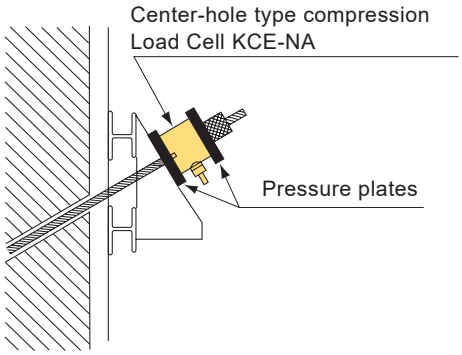
Fatigue test

Measuring a load in material fatigue testing using load or displacement parameters



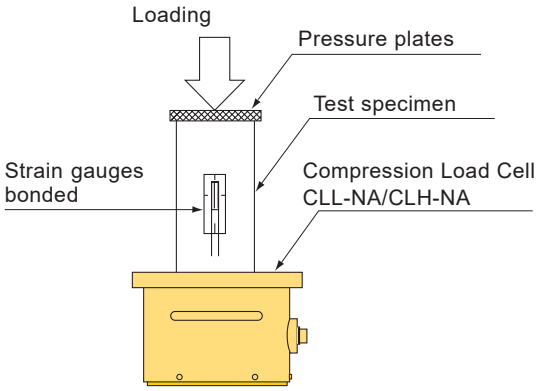
Ground and Rock anchors

Measuring force on steel bar or wire for PC -Pre-stressed concrete - like ground anchors and rock anchors



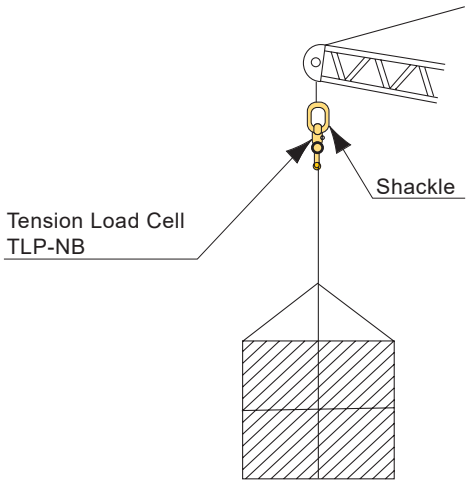
Loading test

A load test on concrete column specimen



Suspension force

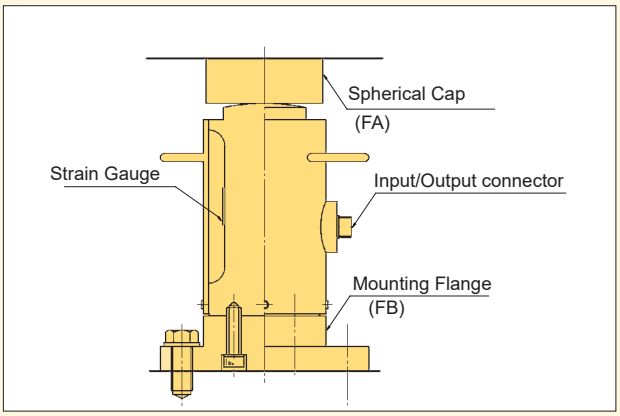
Measuring weight with a load suspended by crane



Important Points

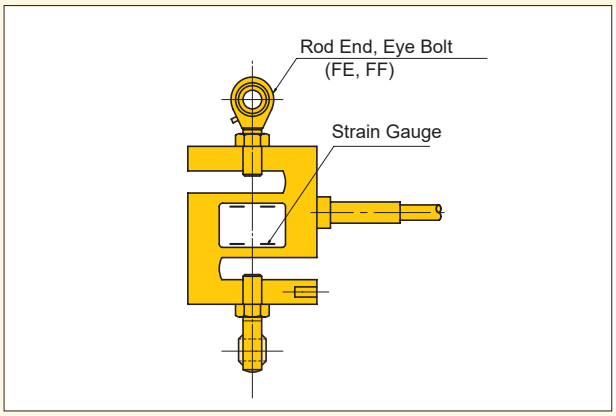
The load cell is a transducer to detect the load which is directly applied to the load cell itself. Therefore, the load cell itself has to be treated as part of the structure. The load cell is calibrated to vertical load in the sensing direction. Eccentric load, transverse load, bending or shearing force may deteriorate accuracy and in the worst case cause damage.

■ In case of compression use



- A structure where a load cell is installed must sufficiently withstand loading. The base must be deformation or deflection free due to loading. In addition, the contact pressure of the bottom of load cell should be noted.
- The load cell should be installed so that the load can be applied vertically to the load cell. The top of load cell is so spherical that bending moment or distortion is not applied to the load cell. The use of a spherical cap is recommended.
- As the need arises, set up a safety device for breaking of the load cell.
- Load cell accessories such as spherical cap and mounting flange are available.
- In case the load cell is used for impact testing, larger capacity load cell has to be selected considering its shock acceleration component. In case of cyclic loading such as fatigue life test, the applied load should be 1/2 or less of the load cell capacity.
- All load cells are self-temperature-compensated, but a sharp temperature variation makes the output instable. Take note not to receive direct sunlight.

■ In case of tension use



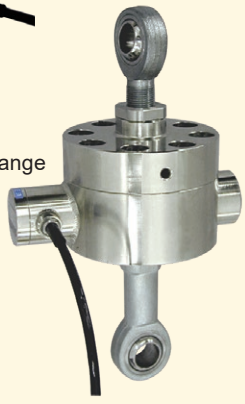
- In case the tension/compression load cell is used for tension, force is received by the screw thread. The strength of the thread is very important, and if fully loaded up to the rated capacity, stress at the thread becomes high. Therefore, a screw thread with 8 to 10 in strength gets necessary.
- For lifting load measurement, a measure for preventing the screw from rotating should be taken. In addition to high safety ratio, some safety device in case of breaking of the load cell should be also taken into account.
- Load Cell accessories such as Rod End and Eye Bolt are available.

- The load cell has hermetically sealed structure but the use in adverse environments may badly influence its water-proofness and corrosion resistance. Please consult us.
- The shield of the load cell cable is not connected to the load cell body. For noise protection, connect the shield to the E (earth) terminal of a measuring instrument.

Load Cells for Material Testing Machine JIS B 7728

The force measuring system used for the calibration is this load cell. The load cell has to be calibrated in accordance with Japanese standard JIS B 7728 "Calibration of force-proving instruments used for the verification of uniaxial testing machines". The load cell conforms to JIS B 7728 and meets its requirement in accuracy, and has rod end and bearing plate as loading jigs. The load cell is produced according to the capacity, accuracy class and shape of a testing machine for calibration.

Compression load cell
CLJ-20KNA, 20kN range



Tension load cell
TLJ-50KNA 50kN range

FEATURES

►Conforms to JIS B 7728:2013
►JIS B-7728 is based on ISO376:2011, Metallic materials - Calibration of force-proving insturments used for the verifiation of uniaxial testing machines (MOD), and thus it conforms to ISO376.
►For compression and tension
►Capacity at your option
►With loading jigs
►Remote sensing available

LOAD CELLS

Load Cell selection

Type \ Capacity	N								kN										MN						Page
	2	5	10	20	50	100	200	500	1	2	5	10	20	30	50	100	200	300	500	1	1.5	2	3	5	10	
COMPRESSION TYPE																										
CLS-NA	●	●	●	●	●	●																				7
CLS-NB							●	●	●	●	●	●														7
CLA-NA								●	●	●	●	●	●													8
CLG-NB												●	●		●	●	●									9
CLP-NB												●	●	●	●	●	●	●	●	●		●	●	●	●	10
CLU-NA												●	●		●	●	●		●	●						11
CLM-NB												●	●		●	●	●		●							12
CLJ-NA											●	●	●	●												13
CLJ-NB															●	●	●	●	●	●		●	●	●	●	14
CLF-NA																			●	●	●	●				15
CLF-NA																							●	●	●	15
CLR-NAH								●	●	●	●	●	●		●	●	●									16
CLC-NA															●	●	●	●	●	●		●	●	●		17
KCM-NA												●	●		●	●	●	●	●	●		●	●	●		18
KCE-NA																			●	●	●	●				19
KCH-NA																			●	●	●	●				20
KCC-NA																	●		●	●						21
KCG-NA																	●									21
KCK-NA																			●	●						22
CLL-NA																			●	●						23
CLH-NA																				●	●	●				23
TENSION/COMPRESSION UNIVERSAL TYPE																										
TCLZ-NA			●	●	●	●	●	●	●	●	●	●														24
TCLB-NA					●	●	●																			25
TCLA-NB								●	●	●	●	●	●													25
TCLY-NA																		●	●	●	●	●		●	●	26
TCLN-NA								●	●	●	●															26
TCLK-NA											●	●	●		●											27
TCLU-NA												●	●		●	●	●									28
TCLM-NB												●	●		●	●	●									29
TCLP-NB												●	●	●	●	●	●	●	●	●	●	●				30
TENSION TYPE																										
TLJ-NA												●	●		●	●										31
TLP-NB												●	●	●	●	●	●	●	●	●						32
3-Component Load Cell																										
SLP-NA-T						●	●	●	●																	33

Load Cell Fitting accessory

Fitting accessory	Applicable load cells		Accessory page
Spherical Cap FA	Compression Load Cell	CLA-NA, CLP-NB, CLG-NB, CLM-NB, CLU-NA, CLR-NAH	35
	Tension/Compression Universal Load Cell	TCLN-NA, TCLB-NA, TCLA-NB, TCLP-NB, TCLK-NA, TCLZ-NA, TCLU-NA, TCLM-NB	
Mounting Flange FB	Compression Load Cell	CLA-NA, CLP-NB, CLG-NB, CLM-NB, CLU-NA, CLR-NAH	36
	Tension/Compression Universal Load Cell	TCLB-NA, TCLM-NB	
Slide Support FC	Compression Load Cell	CLA-NA, CLP-NB, CLG-NB, CLM-NB, CLU-NA, CLR-NAH	37
Rotary Attachment FD	Tension/Compression Universal Load Cell	TCLB-NA, TCLZ-NA TCLU-NA, TCLM-NB	37
Rod End FE	Tension/Compression Universal Load Cell	TCLN-NA, TCLB-NA, TCLA-NB, TCLA-NB, TCLP-NB, TCLK-NA, TCLZ-NA, TCLU-NA, TCLM-NB	38
	Tension Load Cell	TLJ-NA	
Eye Bolt FF	Tension/Compression Universal Load Cell	TCLP-NB, TCLZ-NA, TCLU-NA, TCLM-NB	38
Load Button FG	Tension/Compression Universal Load Cell	TCLB-NA, TCLP-NB, TCLK-NA, TCLZ-NA, TCLU-NA, TCLM-NB	38
Sackle FH	Tension/Compression Universal Load Cell	TCLP-NB, TCLZ-NA, TCLU-NA, TCLM-NB	38
	Tension Load Cell	TLP-NB,	

Torque transducer selection

Type \ Capacity	N·m								kN·m	Page
	10	20	30	50	100	200	300	500	1	
LTA-NA				●	●	●		●		34
LTB-NA	●	●	●	●	●	●	●	●	●	34