

# Model 1415 Column Compression Load Cells

## Description

Model 1415 load cell is a canister-type load cell which is developed to measure high compression loads up to 500t. It features a single semispherical-ended structure which allows a certain inclination of loading from the vertical loading axis.

The 1415 load cell possesses a robust design, and its compression beam is made from mild steel and treated with nickel plating, while its housing and sitting-bottom are made from stainless steel. Its environmental protection can meet up to IP67 which allows it to be used under all weather conditions. These features make this model widely used in tank, silo, hopper, and truck weighing applications.

Thanks to the advanced strain gauge technology from BCM SENSOR, the non-linearity of 1415 load cell is limited down to 0.05%fs (fs = full scale). Thanks to its unique structure, a sensor signal conditioner can be integrated into this load cell so that its output signal of load cell can be conditioned from millivolt to 4~20mA, 1~5V, or digital ones.



## Features

- single-semispherical-ended canister structure
- capacity: 0.5t, ..., 500t
- non-linearity down to 0.05%fs
- environment protection up to IP67
- a loading cap and/or a mounting base available on request

## Applications

- tank, silo, and hopper scales
- truck weighing bridges
- rocket weighing station
- compression force calibration

## Dimensions

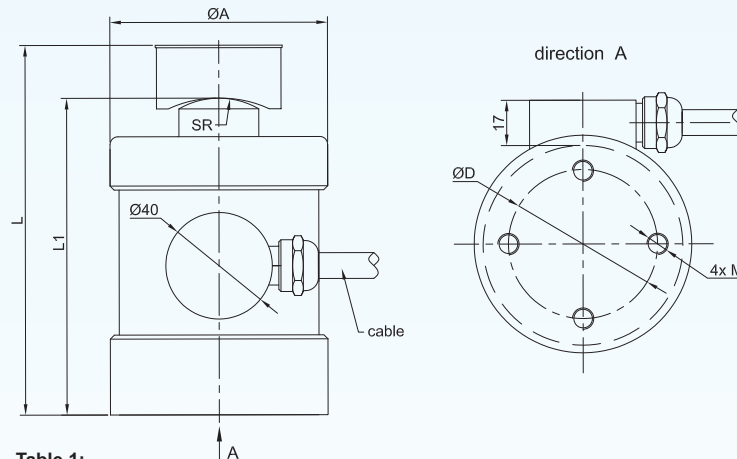


Table 1:

capacity (t)	L	L1	L2	SR	A	D	M	cable length (m)
0.5, 0.7, 1, 2	108	88	33	15	65	38	4xM6	6
3, 5, 7	123	97	45	15	60	38	4xM6	6
10	159	108	50	15	60	40	4xM8	8
20	159	120	56	30	75	56	4xM8	8
30	228	130	61	30	75	56	4xM8	10
50, 70	228	178	70	80	126	90	4xM10	10
100	228	178	70	60	136	90	4xM10	12
200, 300	310	255	125	200	183	110	4xM16	12
500	310	255	125	200	193	120	4xM24	12

Note: All dimensions are in mm, unless otherwise specified.

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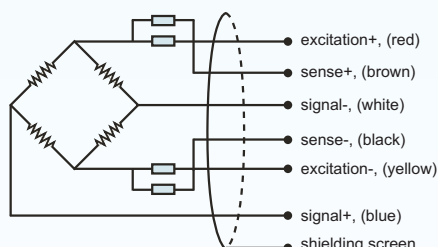
## Column Compression Load Cells

### Technical Data

Parameters	Units	Specifications	Notes
capacity	t	0.5, 0.7, 1, 2, 3, 5, 7, 10, 20   30, 50, 70   100, 200, 300, 500	
safe load limit	%fs	150	1
ultimate overload	%fs	200	
output sensitivity@full scale	mV/V	1.0, ..., 2.0	2
zero unbalance	%fso	±1	
non-linearity	%fs	better than ±0.05   better than ±0.1   better than ±0.2	
hysteresis	%fs	better than ±0.03   better than ±0.1   better than ±0.2	
repeatability	%fs	better than ±0.01   better than ±0.05   better than ±0.1	
creep error (30 min.)	%fs	±0.03   ±0.1   ±0.2	
excitation (supply voltage)	Vdc	10 (recommended), 6, ..., 15	
max. excitation voltage	Vdc	16	
input resistance	Ω	550±20, 750±30 (standard), 1100±30	
output resistance	Ω	502±5, 702±5 (standard), 1000±5	
insulation resistance	MΩ	≥ 5000@50 Vdc	
storage temp. range	°C	-40 ~ +80	
operating temp. range	°C	-20 ~ +65	
compensated temp. range	°C	-10 ~ +40	
temp. coefficient of zero	%fso/°C	±0.003   ±0.005	
temp. coefficient of span	%fso/°C	±0.003   ±0.005	
load cell body material		mild steel	
sealing		potted	
mechanical interface		refer to the dimensions on the datasheets*	
electrical interface		Φ6.2mm, 6-core shielded PVC cable	3
		Φ5.7mm, 4-core shielded PVC cable	3
environment protection		IP66 (standard), IP67	
unit weight	kg	to be confirmed after ordering	

- Notes: 1. "fs" refers to full scale pressure.  
 2. mV output can be conditioned to 4~20mA, 1~5Vdc, or digital output (e.g., I2C or SPI) on request.  
 3. Refer standard cable length to the dimension in Table-1. The cable length can be customized on request.

### Electrical Connection



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### Ordering Information

<b>position (pos.) 1: model</b>									
1415: made from mild steel									
<b>pos. 2: capacities</b>									
0.5 t		1 t		10 t		100 t			
0.7 t		2 t		20 t		200 t			
		3 t		30 t		300 t			
		5 t		50 t		500 t			
		7 t		70 t					
<b>pos. 3: output sensitivity</b>									
1 mV/V, ..., 2 mV/V (to be confirmed in case of order)									
<b>pos. 4: non-linearity or accuracy class</b>									
0.05%fs (cap. ≤ 20t) 0.1%fs (cap. ≤ 70t) 0.2%fs (cap. > 70t)									
<b>pos. 5: bridge resistance</b>									
500Ω (Rin = 550 Ω, Rout = 502 Ω) 700Ω (Rin = 750 Ω, Rout = 702 Ω), standard 1000Ω (Rin = 1100 Ω, Rout = 1000 Ω)									
<b>pos. 6: threads</b>									
4xMd (for value d, refer to the dimension in Table-1 on the datasheet)									
<b>pos. 7: electrical interface</b>									
cable, code = diameter(Φ)/number of conductors/cable jacket/cable length 6.2/6/PVC/L = Φ6.2 mm,6-conductors shielded, PVC, length = L m(#) (standard) 5.7/4/PVC/L = Φ5.7 mm,4-conductors shielded, PVC, length = L m(#) (#): Refer standard cable length to the dimension in Table-1. The cable length can be customized on request.									
<b>pos. 8: environment protection</b>									
IP66 (standard) IP67									
<b>pos. 9: accessories for installation</b>									
NA = no accessory Cap = loading cap Base = mounting base C&B = loading cap and mounting base									
<b>pos. 10: customized spec's</b>									
“(*)” is necessary only if any customized parameter is required, otherwise it is neglectable.									
pos.1	pos. 2	pos. 3	pos. 4	pos. 5	pos. 6	pos. 7	pos. 8	pos. 9	pos. 10

### Example of Ordering Code

- standard load cell:  
**1415-20t-2mV/V-0.05%fs-700Ω-6.2/6/PVC/8-IP66**
- customized load cell:  
**1415-20t-2mV/V-0.05%fs-2000Ω-5.7/4/PVC/10-IP66-(\*)**  
(\*): Customized bridge resistance = 2000Ω.

The listed dimensions, specifications, and ordering information are subject to change without prior notice.

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