

Double-Ended Beam Load Cell

FEATURES

- Capacities: 5k to 250k lbs
- Low profile construction
- Nickel-plated alloy steel construction
- Certified to OIML R60 3000d, NTEP CoC-10000d
- Sealing: IP67 (DIN 40.050)
- Optional
 - o FM approved for use in hazardous locations
 - ATEX versions are available for use in potentially explosive atmospheres

APPLICATIONS

- · Platform scales
- · On-board weighing
- Weighbridges
- Silo hopper weighing

DESCRIPTION

5103 transducers are double-ended, center-loaded shear beam load cells. The 5103 is constructed of nickel-plated alloy steel.

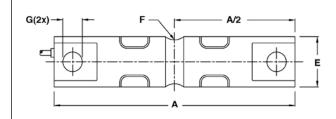


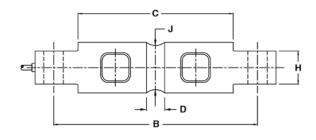
These products are suitable for tank weighing systems, low cost weighbridges, and axle weighers.

A reliable sealing is ensured by the proprietary TRANSEAL potting compound and additional mechanical protection of the strain gage area.

A specially designed mounting arrangement is available, providing the ideal solution for vessel / tank weighing.

OUTLINE DIMENSIONS in millimeters





Capacity (lbs)	5k, 10k	20k	30k- 60k	100k	150k	200k, 250k
А	206.2	206.2	260.4	285.8	285.8	406.9
В	174.6	174.6	215.9	241.3	241.3	330.2
С	133.1	133.1	165.1	190.5	190.5	254.0
D	15.7	21.3	25.4	31.8	31.8	33.0
E	43.2	49.5	76.2	88.9	99.1	136.5
F	12.7	12.7	25.4	38.1	38.1	50.8
G	16.7	16.7	26.9	26.9	26.9	39.6
Н	28.4	28.4	60.2	63.5	71.1	116.8
J	37.6	37.6	69.3	82.3	92.5	131.4

Cable specifications

Cable length 10 m (6 m for 5k-20k)

Excitation + Red
Excitation - Black
Output + Green
Output - White
Shield Transparent



Double-Ended Beam Load Cell

PARAMETER UNIT VALUE Standard capacities (E _{mum}) 2.3°, 4.5°, 9.1, 13.6°, 18.2; 22.7, 27.2, 45.46, 68°, 91°, 113° t Standard capacities (E _{mum}) 5k°, 10k°, 20k, 30k, 40k, 50k, 60k, 100k, 150k°, 200k°, 250k° Ibs Accuracy class according to OIML / NTEP NTEP Non-Approved C3 Max. number of verification intervals (n _{mim}) IIIL 10000 D3 3000 Minimum verification interval (v _{mim}) IIIL 10000 D3 3000 Rated output (= S) 3.0 mV/V Rated output tolerance 0.0030 ±mV/V Zero balance 1.0 ±% FSO Combined error 0.0200 0.0300 0.0200 ±% FSO Non-repeatability 0.0100 0.0100 ±% FSO Minimum dead load output return 0.0250 0.0300 0.0245 ±% applied load Creep error (30 minutes) 0.030 0.0450 ±% applied load Temperature effect on min. dead load output (0.001) 0.0140 0.0070 ±% FSO/5°C (*F) Minimum dead load 0 0 2	SPECIFICATIONS									
Standard capacities (E _{max}) 5k*, 10k*, 20k, 30k, 40k, 50k, 60k, 100k, 150k*, 200k*, 250k* Ibs Accuracy class according to OIML / NTEP NTEP Non-Approved C3 Max. number of verification intervals (n _m) IIII 10000 D3 3000 Minimum verification interval (v _{min}) IIII 10000 D3 3000 Rated output (= S) 3.0 mV/V Rated output tolerance 0.003 ±mV/V Zero balance 1.0 ±% FSO Combined error 0.0200 0.0300 0.0200 ±% FSO Non-repeatability 0.0100 0.0100 ±% spolled load Cree perror (30 minutes) 0.0250 0.0300 0.0245 ±% applied load Creep error (20 minutes) 0.030 0.0450 0.0053 ±% applied load Temperature effect on min. dead load output (0.001) 0.0140 0.0070 ±% applied load Temperature effect on sensitivity (0.0008) 0.0070 0.0050 ±% repol/s (**)* Maximum safe overload 150 % E _{max} Maximum safe side load	PARAMETER		VALUE							
Salinatura Capacitics (E _{max}) NTEP Non-Approved C3	Standard capacities (E _{max})	2.3*, 4.5*, 9.1, 13	t							
Max. number of verification intervals (n₀) IIII 10000 D3 3000 Minimum verification interval (ν₀₀) 3.0 mV/V Rated output (= S) 3.0 mV/V Rated output tolerance 0.003 ±mV/V Zero balance 1.0 ±% FSO Combined error 0.0200 0.0300 0.0200 ±% FSO Non-repeatability 0.0100 0.0100 0.0100 ±% FSO Minimum dead load output return 0.0250 0.0300 0.0245 ±% applied load Creep error (20 minutes) 0.030 0.0450 0.0053 ±% applied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% applied load Temperature effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load/s°C (°F) Maximum safe overload 150 % E _{max} Maximum safe side load 100 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.5/0.5/0.5/0.9/0.9/0.9 mm	Standard capacities (E _{max})				lbs					
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Rated output (= S) 3.0 mV/V Rate doutput tolerance 0.003 ±mV/V Zero balance 1.0 ±% FSO Combined error 0.0200 0.0300 0.0200 ±% FSO Mon-repeatability 0.0100 0.0100 0.0100 ±% FSO Minimum dead load output return 0.0250 0.0300 0.0167 ±% applied load Creep error (30 minutes) 0.0300 0.0450 0.0053 ±% applied load Creep error (20 minutes) 0.030 0.0450 0.0053 ±% applied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% FSO/5°C (°F) Minimum dead load 0 0.0070 0.0053 ±% applied load *% FSO/5°C (°F) Maximum safe overload 150 % E _{max} ** applied load/5°C (°F) ** applied load/5°C (°F) Maximum safe side load 150 % E _{max} ** applied load/5°C (°F) ** applied load/5°C (°F) Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.5/0.5/0.5/0.5/0.9/0.9 mm ** E _{max} Maximum	Max. number of verification intervals (n _{Ic})	IIIL 10000	D3	3000						
Rated output tolerance 0.003 ±mV/V Zero balance 1.0 ±% FSO Combined error 0.0200 0.0300 0.0200 ±% FSO Non-repeatability 0.0100 0.0100 0.0100 ±% FSO Minimum dead load output return 0.0250 0.0300 0.0167 ±% applied load Creep error (30 minutes) 0.0300 0.0450 0.0053 ±% applied load Creep error (20 minutes) 0.030 0.0450 0.0053 ±% applied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% applied load Temp. effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load Maximum safe overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.5/0.9/0.9 mm Excitation vol	Minimum verification interval (v _{min})			E _{max} /10,000						
Zero balance 1.0 ±% FSO Combined error 0.0200 0.0300 0.0200 ±% FSO Non-repeatability 0.0100 0.0100 0.0100 ±% FSO Minimum dead load output return 0.0250 0.0300 0.0167 ±% applied load Creep error (30 minutes) 0.030 0.0450 ±% applied load Creep error (20 minutes) 0.030 0.0450 0.0053 ±% spolied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% spolied load Temperature effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load/5°C (°F) Imperature effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load/5°C (°F) Maximum safe overload 0 % E _{max} Maximum safe side load % E _{max} Maximum safe side load 150 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.5/0.9/0.9 mm Excitation voltage 15 V Maximum excitation voltage 15 V	Rated output (= S)		3.0							
Combined error 0.0200 0.0300 0.0200 ±% FSO Non-repeatability 0.0100 0.0100 0.0100 ±% FSO Minimum dead load output return 0.0250 0.0300 0.0167 ±% applied load Creep error (30 minutes) 0.030 0.0450 0.0053 ±% applied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% applied load Tempe. effect on min. dead load output (0.001) 0.0140 0.0070 ±% applied load Minimum dead load 0.0070 0.0050 ±% applied load ±% applied load Maximum safe overload 0.0070 0.0050 ±% applied load *% FSO/5°C (°F) Maximum safe side load 150 % E _{max} ** Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.5/0.6/0.5/0.5/0.9/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resi	Rated output tolerance		±mV/V							
Non-repeatability 0.0100 0.0100 0.0100 ±% FSO Minimum dead load output return 0.0250 0.0300 0.0167 ±% applied load Creep error (30 minutes) 0.0300 0.0450 ±% applied load Creep error (20 minutes) 0.030 0.0450 0.0053 ±% applied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% FSO/5°C (°F) Temperature effect on sensitivity (0.0008) 0.0070 0.050 ±% applied load Maximum dead load 0 % E _{max} ±% applied load/5°C (°F) Minimum dead load 0 % E _{max} Ultimate overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.5/0.9/0.9 mm Excitation voltage 15 V Input resistance 700±7 Ω Output resistance ≥5000	Zero balance		±% FSO							
Minimum dead load output return 0.0250 0.0300 0.0167 ±% applied load Creep error (30 minutes) 0.030 0.0450 0.0053 ±% applied load Creep error (20 minutes) 0.030 0.0450 0.0053 ±% applied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% applied load/5°C (°F) Temperature effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load/5°C (°F) Minimum dead load 0 % E _{max} 4% applied load/5°C (°F) Minimum dead load 0 % E _{max} Maximum safe overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.5/0.5/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance ≥5000 MΩ Compensated temperature range -10 to +40 <th>Combined error</th> <th>0.0200</th> <th>0.0300</th> <th>0.0200</th> <th>±% FSO</th>	Combined error	0.0200	0.0300	0.0200	±% FSO					
Creep error (30 minutes) 0.0300 0.0245 ±% applied load Creep error (20 minutes) 0.030 0.0450 0.0053 ±% applied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% applied load/5°C (°F) Temperature effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load/5°C (°F) Minimum dead load 0 % E _{max} Maximum safe overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.5/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance >5000 MΩ Insulation resistance ≥5000 MΩ Compensated temperature range -10 to +40 °C Operating temperature range -40 to +90 °C Storage temperature range -40 to +90 °C<	Non-repeatability	0.0100	0.0100	0.0100	±% FSO					
Creep error (20 minutes) 0.030 0.0450 0.0053 ±% applied load Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% FSO/5°C (/°F) Temperature effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load/5°C (/°F) Minimum dead load 0 % E _{max} Maximum safe overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance ≥5000 MΩ Insulation resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing	Minimum dead load output return	0.0250	0.0300	0.0167	±% applied load					
Temp. effect on min. dead load output (0.001) 0.0140 0.0070 ±% FSO/5°C (/°F) Temp. effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load/5°C (/°F) Minimum dead load 0 % E _{max} Maximum safe overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.5/0.5/0.9/0.9 mm Excitation voltage 15 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Creep error (30 minutes)		0.0300	0.0245	±% applied load					
Temperature effect on sensitivity (0.0008) 0.0070 0.0050 ±% applied load/5°C (/°F) Minimum dead load 0 % E _{max} Maximum safe overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Creep error (20 minutes)	0.030	0.0450	0.0053	±% applied load					
Minimum dead load 0 % E _{max} Maximum safe overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance 700±7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range -10 to +40 °C Operating temperature range -40 to +80 °C Storage temperature range -40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Temp. effect on min. dead load output	(0.001)	0.0140	0.0070	±% FSO/5°C (/°F)					
Maximum safe overload 150 % E _{max} Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.5/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance 700±7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range -10 to +40 °C Operating temperature range -40 to +80 °C Storage temperature range -40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Temperature effect on sensitivity	(0.0008)	0.0070	0.0050	±% applied load/5°C (/°F)					
Ultimate overload 300 % E _{max} Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance 700±7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Minimum dead load		% E _{max}							
Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance 700±7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Maximum safe overload		150							
Maximum safe side load 100 % E _{max} Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance 700±7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Ultimate overload	300			% E _{max}					
Deflection at E _{max} 0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.9/0.9 mm Excitation voltage 5 to 12 V Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance 700±7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Maximum safe side load	100			% E _{max}					
Maximum excitation voltage 15 V Input resistance 700±7 Ω Output resistance 700±7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Deflection at E _{max}	0.5/0.6/1.1/0.5/0.5/0.5/0.6/0.5/0.5/0.9/0.9								
Input resistance 700 ± 7 Ω Output resistance 700 ± 7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range $-10 \text{ to } +40$ °C Operating temperature range $-40 \text{ to } +80$ °C Storage temperature range $-40 \text{ to } +90$ °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Excitation voltage	5 to 12		V						
Output resistance 700 ± 7 Ω Insulation resistance ≥5000 MΩ Compensated temperature range −10 to +40 °C Operating temperature range −40 to +80 °C Storage temperature range −40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Maximum excitation voltage	15			V					
Insulation resistance ≥5000 MΩ Compensated temperature range -10 to +40 °C Operating temperature range -40 to +80 °C Storage temperature range -40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Input resistance	700±7			Ω					
Compensated temperature range -10 to +40 °C Operating temperature range -40 to +80 °C Storage temperature range -40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Output resistance		Ω							
Operating temperature range -40 to +80 °C Storage temperature range -40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Insulation resistance		ΜΩ							
Storage temperature range -40 to +90 °C Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Compensated temperature range		°C							
Element material (DIN) Nickel-plated alloy steel Sealing (DIN 40.050 / EN 60.529) IP67	Operating temperature range		°C							
Sealing (DIN 40.050 / EN 60.529) IP67	Storage temperature range	-40 to +90			°C					
	Element material (DIN)	1								
Recommended torque on fixation bolts 12 to 14 N [⋆] m	Sealing (DIN 40.050 / EN 60.529)									
	Recommended torque on fixation bolts		N*m							

^{*} Only 20k-100k lbs (9.1-45.4 t) capacities are OIML approved.

FSO-Full Scale Output

All specifications subject to change without notice.



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