

## Compression Load Cells



### FEATURES

- Capacity Range 20K to 500K Pounds
- Compact - Rugged
- Operational: -30° to +175°F
- Low Deflection
- Environmentally Sealed
- NTEP Certificate of Conformance for Class III L Scale Applications (20K to 200K)
- FM and CSA Approved

### DESCRIPTION

C2P1 load cells are designed for various types of weighing and force measurement. Construction of C2P1 load cells utilizes all of the advantages of SR-4® strain gages. C2P1 load cells meet or exceed NIST Handbook 44 requirements and are Factory Mutual approved. Also, the National Type Evaluation Program (NTEP) has issued Certificate of Conformance number 87-060 for C2P1 20K to 200K pound capacities.

Double diaphragm fabrication and gage linearizing combine to offer precision performance and long term reliability. Low deflection and superior sealing guarantee trouble-free operation. Relatively low mass and small deflection under load, produce excellent frequency response. Overall, C2P1 cells perform superbly in many services where other transducers cannot.

### APPLICATIONS

- Coal Silos
- Rail Car Weighing
- Truck Scales
- Force Measurement



### SPECIFICATIONS

#### PERFORMANCE

Capacities 20K, 30K, 50K, 100K, 200K, 300K, and 500K lb

	20K - 300K	500K
Rated Output (RO)	2.0 mV/V (+/-0.1%)	(+/- 0.25%)
Repeatability	0.01% RO	0.02% RO
Combined Error	0.05% RO	0.08% RO
Zero Balance	1.0% RO	1.0% RO
Creep (20 minutes)	0.02% RO	0.03% RO
Temperature Effects:		
On Zero Balance	0.0015%/RO/°F all capacities	
On Rated Output	0.0008%/Load/°F all capacities	

#### ELECTRICAL

Recommended Excitation 10 Vac-dc  
 Input Resistance 350 ohms (+/-3.5)  
 Output Resistance 350 ohms (+/-3.5)  
 Cable Length 10 or 35 foot cable

#### TEMPERATURE

Safe Temperature -30 to +175°F  
 Compensated Range +30 to +130°F

#### ADVERSE LOAD RATINGS

Safe Overload 150% Rated Capacity  
 Ultimate Overload 300% Rated Capacity

#### MATERIAL

Element high grade tool steel  
 Cannister low carbon steel, painted\*

#### SEALING

Environmental Class IP67

#### DEFLECTION

20K lb	0.0075 inches
30K lb	0.0075 inches
50K lb	0.0065 inches
100K lb	0.0075 inches
200K lb	0.007 inches
300K lb	0.012 inches
500K lb	0.020 inches

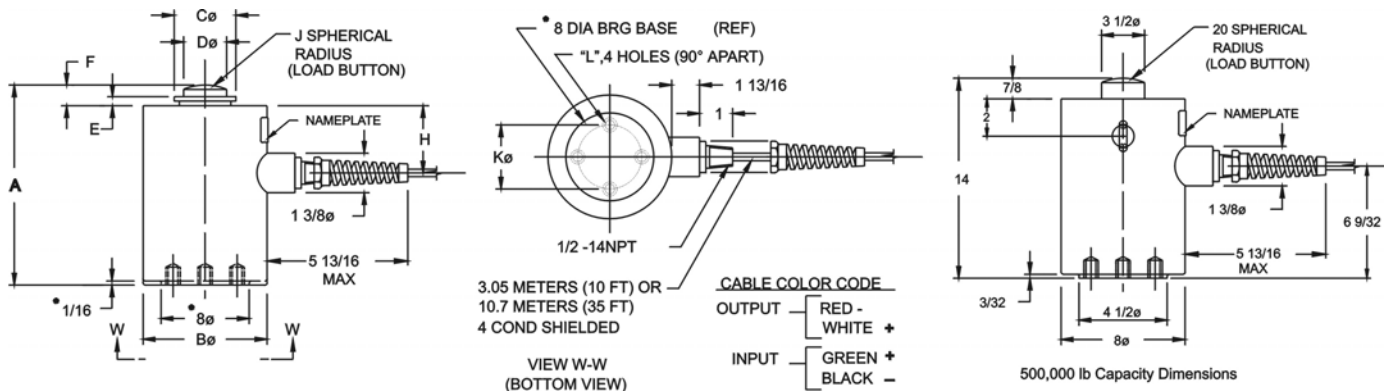
#### APPROVALS

NTEP Class III, 4,500 divisions  
 FM/CSA Intrinsically Safe Class I, II, III; Division 1, Groups A-G  
 FM/CSA Nonincendive Class I, Division 2, Groups A-D

Vishay BLH is continually seeking to improve product quality and performance. Specifications may change accordingly.

\*single component, waterborne polyurethane copolymer - high gloss

### OUTLINE DIMENSIONS



CAP.	KILOGRAMS (POUNDS)	A	Bø	Cø	Dø	E	F	H	J	Kø B.C.	L (TAPPED)
9072 (20,000)	22,680 (50,000)	190.50 (7 1/2)	114.30 (4 1/2)	57.15 (2 1/4)	31.75 (1 1/4)	12.70 (1/2)	19.05 (3/4)	63.50 (2 1/2)	152.40 (6)	60.33 (2 3/8)	3/8 - 24UNF - 2B X 3/8 DP
45359 (100,000)	231.78 (500)	231.78 (9 1/8)	152.40 (6)	79.38 (3 1/8)	44.45 (1 3/4)	15.88 (5/8)	26.98 (1 1/16)	64.29 (2 17/32)	304.80 (12)	101.60 (4)	1/2 - 20UNF - 2B X 3/4 DP
90718 (200,000)	295.28 (650)	295.28 (11 5/8)	203.20 (8)	114.30 (4 1/2)	63.50 (2 1/2)			89.69 (3 17/32)		139.70 (5 1/2)	5/8 - 18UNF - 2B X 1 DP
136077 (300,000)	355.60 (780)	355.60 (14)	254 (10)	127 (5)	76.2 (3)	19.05 (3/4)	33.34 (1 5/16)	109.54 (4 5/16)	381 (15)		3/4 - 16UNF - 2B X 1 1/4 DP
500,000		SEE RIGHT HAND DRAWING ABOVE FOR 500,000 LB DIMENSIONS								3 1/2	1/2 - 20UNF - 2B X 3/4 DP

\*NOTE: CONFIGURATION & DIM'S (\*) ARE FOR 136077 Kg/(300,000 LB) CAP. ONLY 20K - 200K lb capacities have NTEP CoC

## Compression Load Cells



### FEATURES

- Capacities 500 to 100K Pounds
- Environmentally Sealed
- Operational -30° to +175°F
- Low Deflection
- Compact Rugged
- FM and CSA Approved

### DESCRIPTION

C3P1 and C3P2 cells are fabricated with high strength 'ring' type elements to provide an output signal of 3 mV/V at rated capacity. Each cell is designed for minimum deflection and 150% safe overload without damage. C3P2 cells contain a second bridge. The second bridge can be used simultaneously with the first bridge for dual output or be reserved as a backup in case of failure in the first bridge. Double diaphragm fabrication offers precision performance and long term reliability. Low deflection and superior sealing guarantee trouble-free operation.

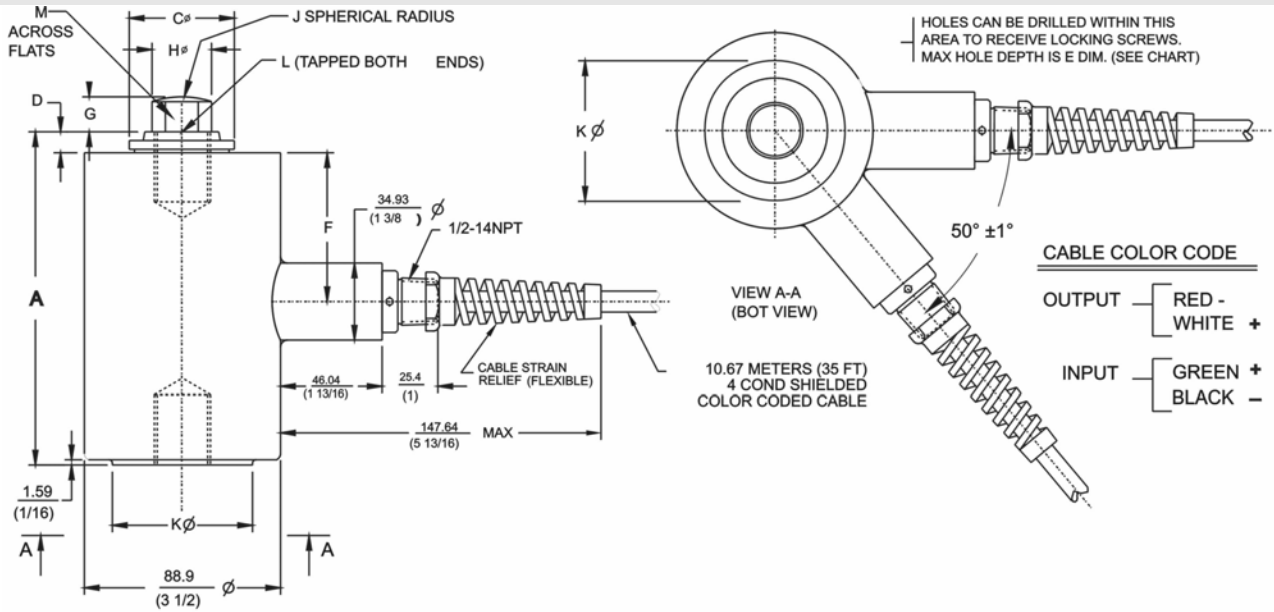
Relatively low mass and small deflection under load, produce excellent frequency response. Overall, C3P1/C3P2 cells perform superbly in many environments where other transducers cannot.

### APPLICATIONS

- Test and Measurement
- Calibration Standards
- Redundant Weighing Systems



## OUTLINE DIMENSIONS - DOUBLE BRIDGE - 500 TO 10K POUNDS

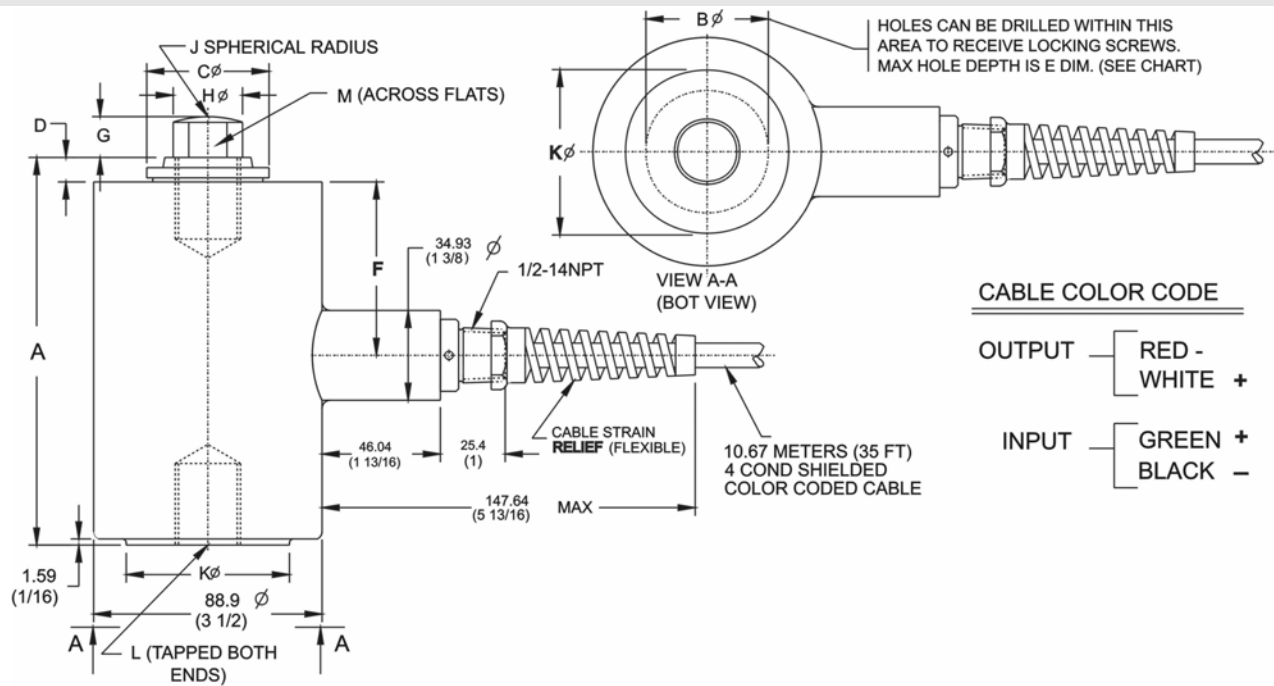


**CABLE COLOR CODE**

- OUTPUT — RED - WHITE +
- INPUT — GREEN + BLACK -

CAP.	KILOGRAMS (POUNDS)	A	B $\phi$	C $\phi$	D	E	F	G	H $\phi$	J	K $\phi$	L (TAPPED)	M
227 THRU (500)	1361 (3000)	115.89 (4 9/16)	—	26.99 (1 1/16)	6.35 (1/4)	—	57.15 (2 1/4)	9.53 (3/8)	16 (5/8)	50.8 (2)	31.75 (1 1/4)	1/2-20UNF-2B X 1/2 DP	9.53 (3/8)
2268 & (5000)	4536 (10000)	150.81 (5 15/16)	44.45 (1 3/4)	47.63 (1 7/8)	9.53 (3/8)	12.7 (1/2)	67.47 (2 21/32)	16 (5/8)	26.99 (1 1/16)	101.6 (4)	63.5 (2 1/2)	1-14UNS-2B X 1 1/4 DP	22.35 (7/8)

## OUTLINE DIMENSIONS - SINGLE BRIDGE - 500 TO 10K POUNDS



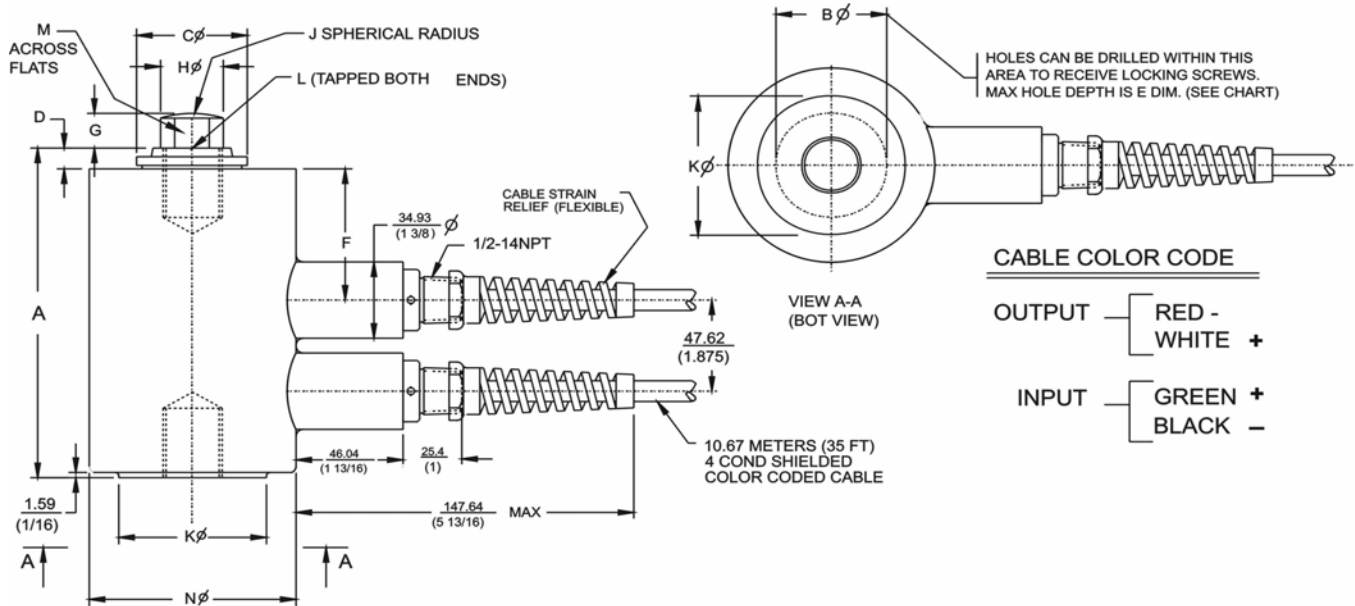
**CABLE COLOR CODE**

- OUTPUT — RED - WHITE +
- INPUT — GREEN + BLACK -

CAP.	KILOGRAMS (POUNDS)	A	B $\phi$	C $\phi$	D	E	F $\phi$	G	H $\phi$	J	K $\phi$	L (TAPPED)	M
227 THRU (500)	1361 (3000)	115.89 (4 9/16)	—	26.99 (1 1/16)	6.35 (1/4)	—	57.15 (2 1/4)	9.53 (3/8)	16 (5/8)	50.8 (2)	31.75 (1 1/4)	1/2-20UNF-2B X 1/2 DP	9.53 (3/8)
2268 & (5000)	4536 (10000)	150.81 (5 15/16)	44.45 (1 3/4)	47.63 (1 7/8)	9.53 (3/8)	12.7 (1/2)	67.47 (2 21/32)	16 (5/8)	26.99 (1 1/16)	101.6 (4)	63.5 (2 1/2)	1-14UNS-2B X 1 1/4 DP	22.35 (7/8)

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### OUTLINE DIMENSIONS - DOUBLE BRIDGE - 20K TO 50K POUNDS

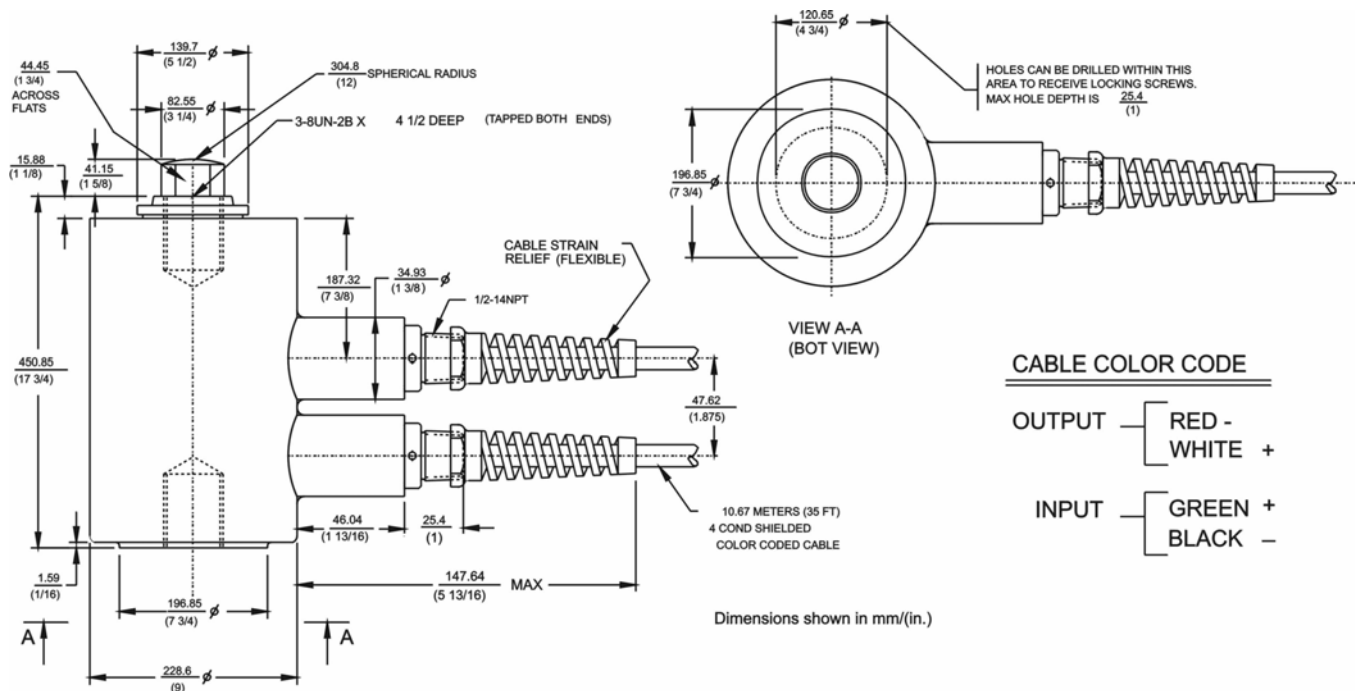


#### CABLE COLOR CODE

OUTPUT — RED - WHITE +  
INPUT — GREEN + BLACK -

CAP.	KILOGRAMS (POUNDS)	A	B $\phi$	C $\phi$	D	E	F	G	H $\phi$	J	K $\phi$	L (TAPPED)	M	N $\phi$
9072 (20,000)	THRU 13608 (30,000)	215.9 (8 1/2)	66.68 (2 5/8)	69.85 (2 3/4)	12.7 (1/2)	25.4 (1)	86.52 (3 13/32)	25.00 (63/64)	41.28 (1 5/8)	203.2 (8)	101.6 (4)	1 1/2-12UNF-2B X 1 3/4 DEEP	31.75 (1 1/4)	127.0 (5)
22680 (50,000)		290.51 (11 7/16)	95.25 (3 3/4)	101.6 (4)	15.88 (5/8)	25.4 (1)	113.50 (4 15/32)	25.00 (63/64)	57.15 (2 1/4)	203.2 (8)	146.05 (5 3/4)	2-12UN-2B X 2 1/4 DEEP	44.45 (1 3/4)	165.1 (6 1/2)

### OUTLINE DIMENSIONS - DOUBLE BRIDGE - 100K POUNDS



#### CABLE COLOR CODE

OUTPUT — RED - WHITE +  
INPUT — GREEN + BLACK -

Dimensions shown in mm/(in.)



### SPECIFICATIONS

#### PERFORMANCE

Capacities	500, 1K, 2K, 3K, 5K, 10K, 20K, 30K, 50K, & 100K lb
Rated Output (RO)	3.0 mV/V (+/-0.10%)
Repeatability	0.02% RO
Combined Error	0.10% RO - 500 lb 0.07% RO (1K - 100K lb)
Zero Balance	1.0% RO
Creep (20 minutes)	0.03% RO
Temperature Effects:	
On Zero Balance	0.0015%RO/°F
On Rated Output	0.0008%Load/°F

#### ELECTRICAL

Recommended Excitation	10 Vac-dc
Input Resistance	350 ohms (+/-3.5)
Output Resistance	350 ohms (+/-3.5)
Cable Length	35 feet
Number of Bridges	single or double

#### TEMPERATURE

Safe Temperature	-30 to +175°F
Compensated Range	+30 to +130°F

#### ADVERSE LOAD RATINGS

Safe Overload	150% Rated Capacity
Ultimate Overload	300% Rated Capacity

#### MATERIAL

Element	high grade tool steel
Cannister	low carbon steel, painted*

#### SEALING

Environmental Class	IP67
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#### DEFLECTION

500 lb	0.007 inches
1K lb	0.006 inches
2K, 3K lb	0.005 inches
5K lb	0.007 inches
10K lb	0.005 inches
20K, 30K lb	0.007 inches
50K lb	0.010 inches
100K lb	0.013 inches

#### APPROVALS

FM/CSA Intrinsically Safe	Class I, II, III; Division 1, Groups A-G
FM/CSA Nonincendive	Class I, Division 2, Groups A-D

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