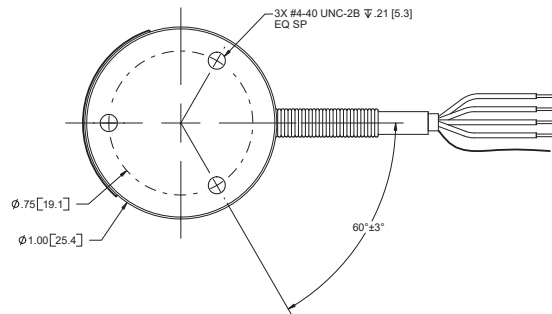
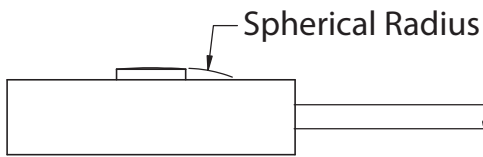
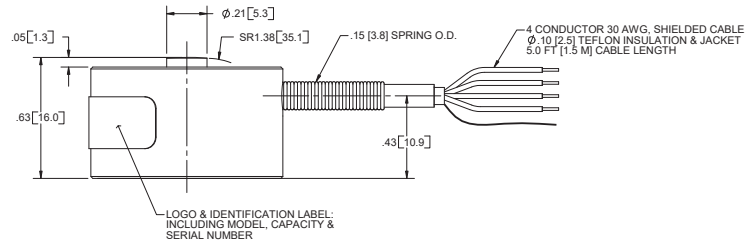
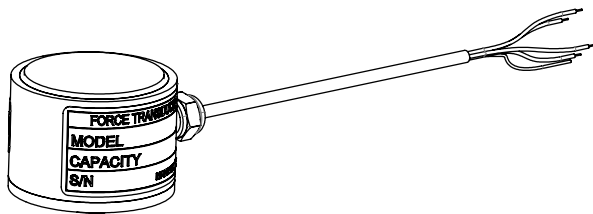
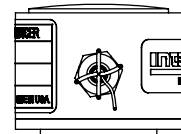
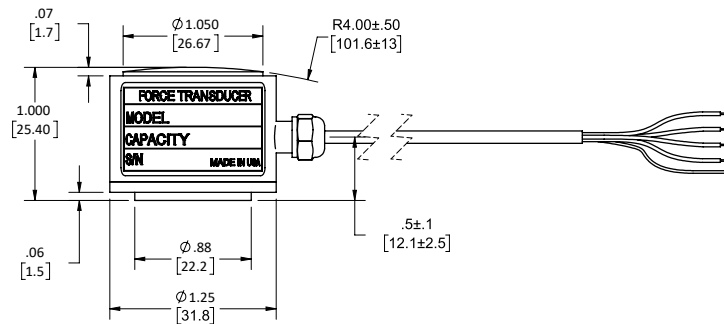
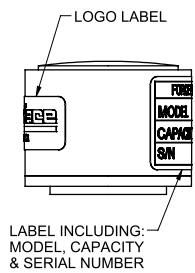
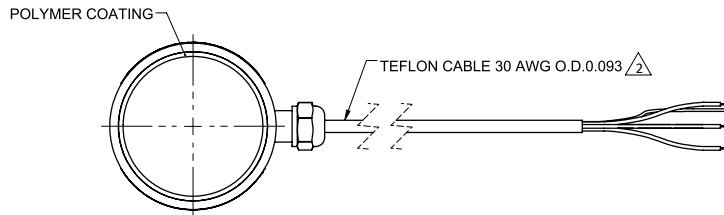


# Interface

## Load Button Load Cells



Load Button Load Cells v1.0 04-20-2020



# Interface Load Button Load Cells are designed for customers who require the measurement of forces in a very confined space.

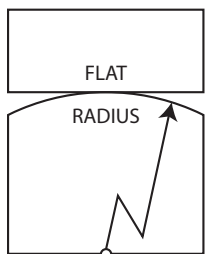
They are designed to provide the most accuracy in as little space as possible. The smaller LBM or LBS can fulfill the need for force measurements at a very respectable precision level that is enough for most applications. Diameters range from 1 inch to 3 inches, with heights from 0.39 inch to 1.5 inches. The shaped load button load cell has a spherical radius to help confine misaligned loads to the primary axis of the cell.

## Load Button Load Cells

Many applications require the measurement of forces in limited or small areas. The smaller LBM or LBS can fulfill the need for force measurements at a very respectable precision level that is sufficient for most cases.

These miniature compression cells range in capacities from 10 lbf to 50,000 lbf. Diameters range from 1 inch to 3 inches, with heights from 0.39 inch to 1.5 inches. The shaped load button has a spherical radius to help confine misaligned loads to the primary axis of the cell.

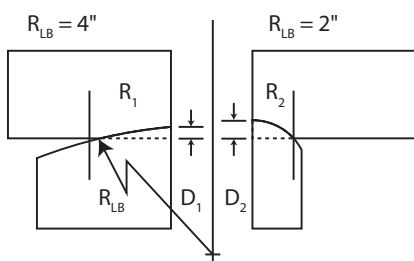
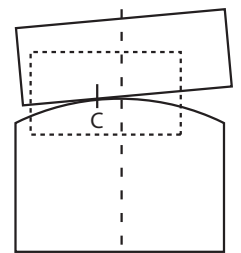
## Compression Loading



The application of compression loads on load button load cells require an understanding of the distribution of forces between surfaces of various shapes and finishes.

The first and most important rule is this always avoid applying a compression load flat-to-flat from a plate to the top surface of a load button hub. The reason for this is simple, it is impossible to maintain two surfaces parallel enough to guarantee that the force will end up being centered on the primary axis of the load button load cell. Any slight misalignment, even by a few micro-inches, could move the contact point off to one edge of the hub, thus inducing a large moment into the measurement.

Minor misalignments merely shift the contact point slightly off the centerline. In addition to compensating for misalignment, the use of a load button load cell of the correct spherical radius is absolutely necessary to confine the stresses at the contact point within the limits of the materials. Generally, load button load cells and bearing plates are made from hardened tool steel, and the contacting surfaces are ground to a finish of 32micro-inch RMS.



Use of too small of a radius will cause failure of the material at the contact point, and a rough finish will result in galling and wear of the loading surfaces. The half sections (in exaggerated form) the indentation radius ( $R_1$ ) on a flat plate caused by a load button having a 4-inch spherical radius and the corresponding indentation ( $D_1$ ). The strains transmitted into the flat plate by a 10,000 lbf load are well within the specs for hardened steel. Compare that with the indentation radius ( $R_2$ ) and the corresponding indentation ( $D_2$ ). In this case, the strains could actually cause the steel to fracture.



**LBM Compression Load Button Load Cell**  
25 lbf to 50K lbf  
0.11 kN to 0.22 kN



**LBMP Overload Protected Compression Load Button Load Cell**  
2.25 lbf to 22.5 lbf  
0.01 kN to 100 kN



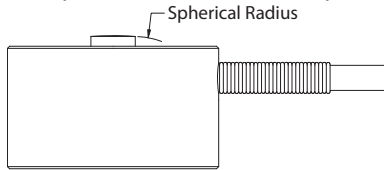
**LBMU Ultra Precision Compression Load Button Load Cell**  
100 lbf to 1K lbf  
0.5 kN to 5 kN



**LBS Miniature Compression Load Button Load Cell**  
5 lbf to 1K lbf  
0.02 kN to 4.45 kN

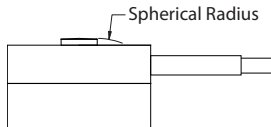
## LBM Compression Load Button Load Cell

The LBM Compression is constructed from stainless steel and has a small size. This product is available capacities range from 25 lbf up to 50K lbf.



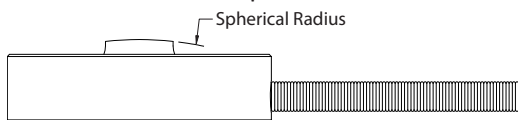
## LBMP Overload Protected Compression Load Button Load Cell

The LBMP Overload Protected Compression is stainless steel overload protected compression load button load cell. This product is available in capacities ranging from 0.01kN to 100kN (2.25 lbf to 22.5K lbf).



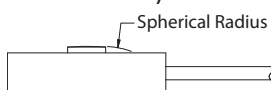
## LBMU Ultra Precision Compression Load Button Load Cell

The LBMU Ultra Precision Compression has a nonlinearity specification of +/- 0.15%FS. This product has all of the benefits of a standard load button load cell but with better performance. Model LBMU is constructed from stainless steel and is available in capacities from 100 lbf to 1K lbf (0.45kN to 4.45kN).



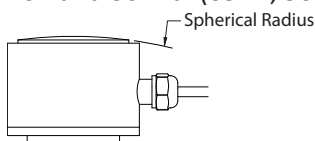
## LBS Miniature Compression Load Button Load Cell

The LBS Miniature Compression is constructed from stainless steel and has a small size. This product is available capacities range from 5 lbf up to 1K lbf (22.2 N to 4.45 kN).



## MSC Miniature Column Compression Load Button Load Cell

The MSC Miniature Column Compression is a very small compression button-style load cell that has a relatively high capacity. This product is available in 15K, 20K and 30K lbf (65kN, 90kN, 130kN) Capacities.



# Interface Load Buttons

- Compression
- Overload Protected
- Ultra Precision
- Miniature
- Mini Column

*Interface force measurement load button load cells are available in many design configurations for project designs requiring the highest performance.*

**To learn more about the Interface products or force measurement solutions call 480-948-5555.**



**MSC Mini Column  
Compression Load  
Button Load Cell**

15K lbf to 30K lbf  
65 kN to 130 kN

**Interface is the world's trusted leader in technology, design and manufacturing of force measurement solutions.**

**Our clients include a "who's who" of the aerospace, automotive and vehicle, medical device, energy, industrial manufacturing, test and measurement industries.**

Interface engineers around the world are empowered to create high-level tools and solutions that deliver consistent, high quality performance. These products include load cells, torque transducers, multi-axis sensors, wireless telemetry, instrumentation and calibration equipment.

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