# General Specifications



## InSitu™ /CSL High Overload Tolerant Sensor
For In-Die Force/Measurement Applications

The Signature Technologies "CSL" series cells are unique in that they have extremely high overload capabilities compared to the normal load cell offerings by instrumentation companies. **ONLY** the "CSL" is designed for in-die usage where 200 and 300% overloads are common and loads to 900% need to be tolerated.

Signature Technologies is a supplier of a several lines of standard load cells, which can be used to monitor the force profiles of punches and forming tools. The "CSL" series is a sealed compression column type load cell with a tool steel load bearing element, and a stainless steel cover.

The "CSL" cells are uni-directional load cells used for compression applications only. The cable exits the cells axially in the center of the body, and can be bored through the backup details, and run out through slots in their back surface.

## Benefits of Using ST CSL Load Cells

**Rugged and Specially Designed for In-tool Applications**

- Conventional load cells have only 150% over-range protection, therefore they are not suited to in-die or high overload conditions since they will have permanent damage if this load is exceeded. High overloads are common in tooling as a result of slugs, scrap, varying material properties, etc.
- O-ring sealed cover seals out dirt and debris and facilitates lower cost repairs.
- Special epoxies not common in most load cell manufacturing are used to prevent attack by all industrial fluids used as lubricants or cleaning agents.
- Rugged teflon cable resists rough handling.

**Flexible Sizing Range**

- High over-range protection allows for smaller cells to fit in larger load applications.
- Uncertainty in knowing exact loads expected can be tolerated since cells have overlapping load ranges.
- Six sizes cover a range from 1200 to 20,000 lbs, much higher if over-range is utilized.

**Highly Standardized**

- CSL cells are well suited for **high volume applications** where dies are large and cannot be easily removed for maintenance.
- No custom designed sensors needed nor modification of tooling (except die shoe) to accept sensors.
- Each sensor is calibrated so sensors can be replaced using only new calibration factors.
- Calibration factors are so similar that cells can be replaced using old factors for a rough fit.

**Mass Produced**

- Short lead times.
- Lower cost- about twice the price of standard cells with minimal overload protection and about half the price of having a custom made load cell.



SIGNATURE TECHNOLOGIES
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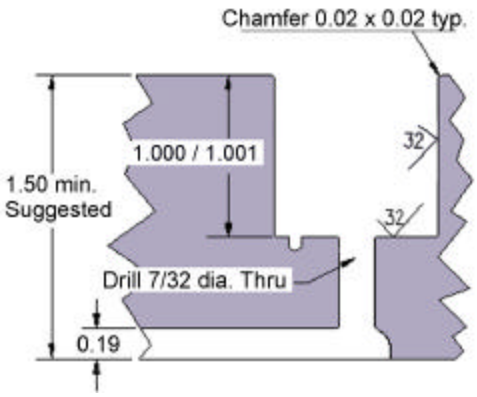
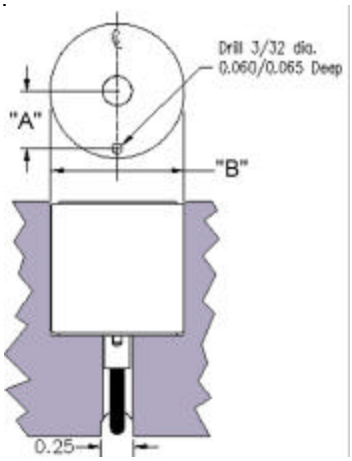
## Installation Details




Dimensional Data




## Size Selection Table

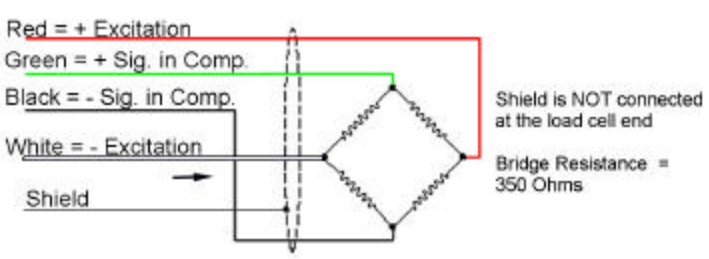
| Part # | "B" Dimension | "A" Dimension | Rated Load |
|---|---|---|---|
| CSL-0500 | 0.510/0.506 | NONE | 1200 |
| CSL-0625 | 0.635/0.631 | 0.190 | 2500 |
| CSL-0750 | 0.760/0.756 | 0.250 | 4000 |
| CSL-1000 | 1.010/1.006 | 0.375 | 8500 |
| CSL-1250 | 1.260/1.256 | 0.375 | 13,000 |
| CSL-1500 | 1.515/1.511 | 0.500 | 20,000 |

## Electrical Details

All ST cylindrical cells are equipped with full Whetstone bridge gage circuits, and have a 350 ohm (approx.) input and output resistance. Higher levels of excitation will result in some thermal drift of the DC offset values for the cells, but the ST instrumentation compensates for this so that it does not affect the measurements.

When using the CSL series load cells in conjunction with instrumentation from other sources, the relatively low signal output of the cells must be taken into consideration. Typically the signal output will be in the 0.3 millivolt per volt of excitation at rated load. Exact calibration factors are provided with each cell.

Schematic Diagram/Cable Color Codes




## Ordering Instructions

Select part number from table above and order "Part #"-000

(where "000" is cable length, 6' standard)
( i.e. CSL -0625 for 6' cable and CSL-0625-036 for 36 foot cable)



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