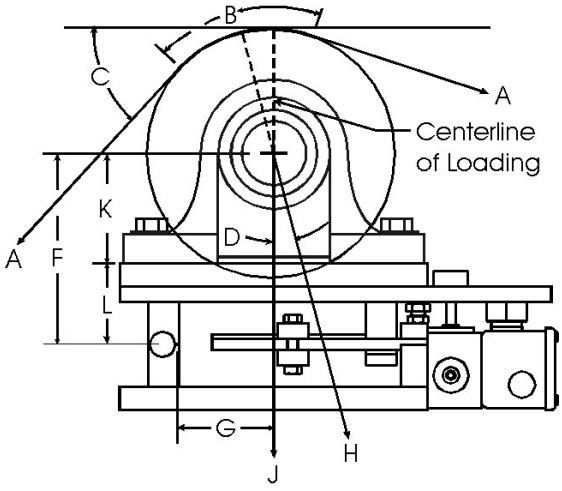
COMPTROL SUPERLOADCELL

SIZING & SELECTION

Comptrol Superloadcells are normally installed in matching pairs, - one mounted under the pillow block bearing at each end of the tension measuring roll. (See Figure 5.) Thus, all resultant forces created by the Strip Tension (A) and the Total Tare Weight (TW) of the roll and bearings are divided between the two Superloadcells.

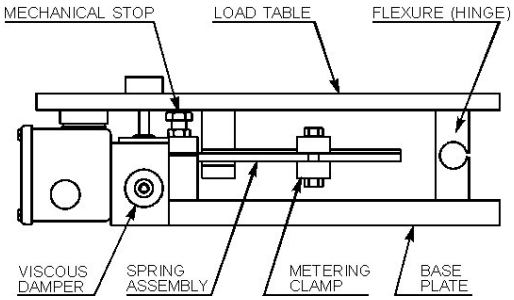


1. The resultant load per cell (J) is calculated by resolving all vector forces acting upon the loadcell, with respect to its Centerline of Loading.

2. The Total Tare Weight (TW) and the Resultant Force of Strip Tension (H) can act in opposite directions. If in an application this condition exists, it is suggested that the Tare Component (W) should exceed the maximum Tension Component (H).

3. Comptrol Superloadcells are designed to measure Strip Tension (A) as a function of the amplitude of applied force along the Centerline of Loading

4. The diameter of the tension measuring roll has no effect upon the calculation of resultant forces of strip tension (H) or Total Tare Weight (TW).



While all Comptrol Single Range Superloadcells are provided with mechanical and electrical adjustments to "zero-out" Total Tare Weight (TW), these adjustments have practical limitations. When calculations indicate that the Tare Component (W) is greater than TWICE the Tension Component (J), the range of these adjustments has been exceeded.

Care should be exercized in the selection and mounting of the pillow block bearings to the adapter plates. The bearings should offer a minimum of friction, and be mounted in a manner that will avoid any interference between the bearing seals and the shaft. Of prime importance, the centerline of the pillow block bearings must coincide with the Centerline of Loading ($) of the Superloadcells.

1. This situation must be remedied by increasing the Tension Component (J), and/or decreasing the Tare Component (W).
2. The Tension Component may be increased by increasing the Wrap Angle (B).
3. The Tare Component (W) may be decreased by reducing the weight of the measuring roll and bearings.
4. The Tare Component (W) may be decreased by mounting the Superloadcell on an inclined plane. Such mounting will alter the direction of the Tare force vector, with respect to the Superloadcell Centerline of Loading, <£, thereby reducing its effective amplitude, (as seen by the Superloadcells). Force calculations for inclined plane mounting are explained on page 14 of this section.
5. An effective alternative approach would be to use Model DHT - High Tare (Low Deflection) Superloadcells. Model DHT Superloadcells are especially designed for applications in which the Tare Component can exceed the Tension Component by a ratio of fifteen to one.
6. For applications where sensitivity to both high and low Tension loads are required, Comptrol offers Models HHT and KHT — Dual Range Superloadcells. These Models incorporate a unique mechanical (straight lever) multiplier with ranges of 3:1, 4:1 and 6:1. These provide total tension ranges of 60:1, 80:1 and 120:1. Contact Comptrol Incorporated.

Comptrol Superloadcells are designed to operate equally well in either the Compression, or Tension Mode.

The Inclination of the Passline (C) on the entry side of the measuring roll does not have to be equal to the inclination on the exit side of the roll.

Superloadcells are supplied with standard "Type C" DC LVDT's, which operate with a nominal input of 24 Volts DC, at 0.040 Ampere current drain.With this input voltage,the output voltage will be 5.5 Volts DC, when measured across a resistance of not less than 25,000 Ohms.

While acceptable performance may be obtained over an input range of 12 to 30 Volts DC, the LVDT output voltage will vary in direct proportion to the input voltage. For this reason, a well regulated, constant voltage power supply is essential to assure accurate and repeatable tension measurements.