

STRAINsert

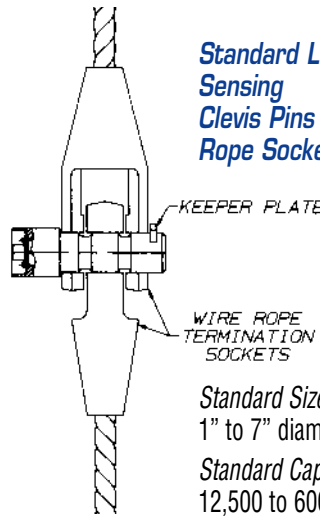
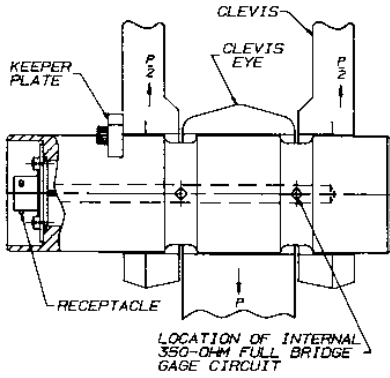


Internally Gaged Force Transducers



FORCE SENSING CLEVIS PINS

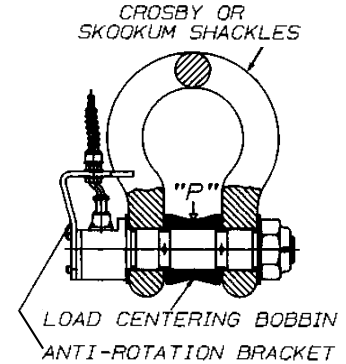
Custom and Standard Load Sensing Clevis Pins and Clevis Bolts:
 1/4" to 8" diameter & larger
 100 to 1,000,000 lb. capacities and higher



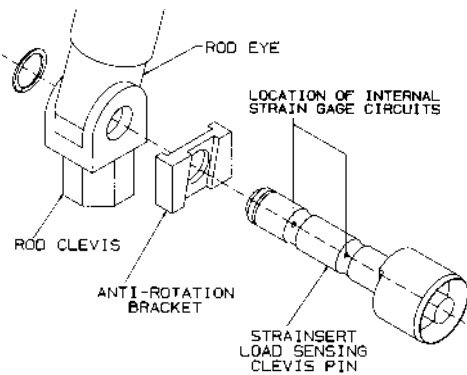
Standard Load Sensing Clevis Pins for Wire Rope Sockets:

Standard Sizes – 1" to 7" diameter
 Standard Capacities – 12,500 to 600,000 lbs.

Shackle Load Pins:
 Standard Sizes – 3/4" to 4" Diameter
 Standard Capacities – 2,000 to 350,000 lbs.



Load Sensing Clevis Pins for Hydraulic Cylinders/Actuators:
 Standard Sizes – 1/2" to 5" Diameter
 Standard Capacities – 3,500 to 300,000 lbs.

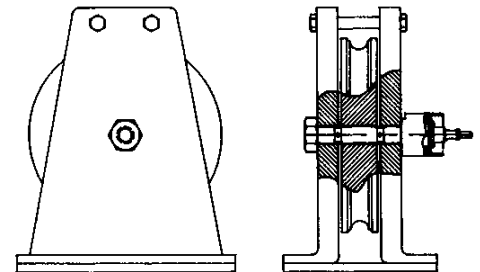


Performance & Specifications

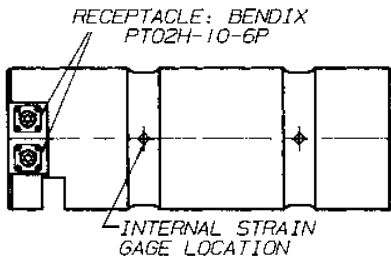
- Overload: 150% without zero shift
300% without failure
- Bridge: Full bridge 350 ohm
- Excitation: 12 V AC or DC
- Output Signal: 2-mv/V
- Non-Repeatability: ± 0.15% FS
- Non-Linearity: ± 0.50% FS } nominal
- Hysteresis: ± 0.50% FS
- Service Temp Range: -20 to 150°F
- Temp Effects: ≤ 0.003% FS/°F on zero
≤ 0.008% of load/°F on output
- Zero Balance: ± 2% FS
- Material: 17 - 4 stainless steel
- Electrical Connection: Bendix Receptacle or built-in cable

Sheave/Pulley Load Pins:

Standard Sizes – 1/4" to 10" Diameter
 Standard Capacities – 1,500 to 800,000 lbs.



CLEVIS PIN OPTIONAL FEATURES

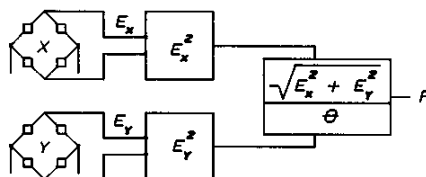
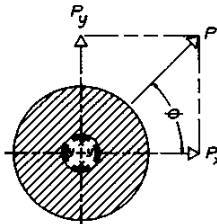


Dual Bridge Circuits

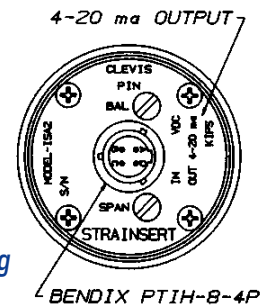
Dual bridge gaging provides two independent strain gage circuits. This option is advantageous for controlling multiple feedback systems as well as providing redundant force-measuring capability.

Bi-axial Pins

Bi-axial gaging provides two strain gage bridges oriented 90° apart along longitudinal axis. This option allows force measurement when both the magnitude and direction of the load are unknown.



Built-in Signal Conditioning



Integral signal conditioning, built into the pin, provides a high level 4 - 20 ma output, while maintaining pin ruggedness and durability. This option is ideal for noisy environments or where long cable lengths are required.

APPLICATION:

- Aircraft Wing Joints
- Landing Gear Clevis Joints
- Crane, Winch Cargo Hook Attachments

- Crane Cable Terminal Attachments
- Hydraulic Cylinders
- Conveyor Belt Idler-Axle

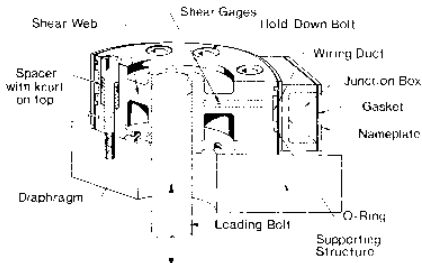
- Sprocket, Pulley Axles
- Tow Bar Connections
- Weighing Beams and Platforms
- Connecting Rods

- Testing Machine Equipment
- Cargo Loading Equipment
- And many other areas

For Your Specific Application; Call Or Fax Us For Complete Engineering Support.

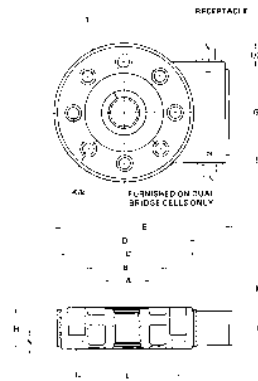


FLAT LOAD CELLS®



Compression and Universal

High accuracy, compression and universal (tension and compression) flat load cells. Ideal for static and dynamic load sensing from 250 to 2 million pounds. Compact, rugged and highly resistant to unwanted extraneous loading including; high bending, torsional, and side loading.

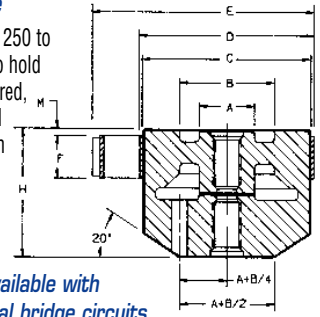


Fatigue Rated

One billion cycle (10⁹) fatigue rated universal flat load cells. Reversed fatigue load ratings ± 1,200 lbs. to ± 200,000 lbs. at ± 2-mv/V Uni-directional fatigue load rating 1,800 lbs to 300,000 lbs at 3-mv/V.

Integral Base

Capacities from 250 to 500,000 lbs., no hold down bolt required, central threaded loading holes on both ends.

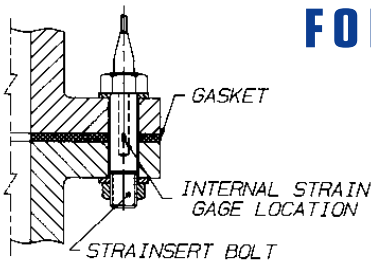


All load cells available with independent dual bridge circuits

PERFORMANCE AND SPECIFICATIONS

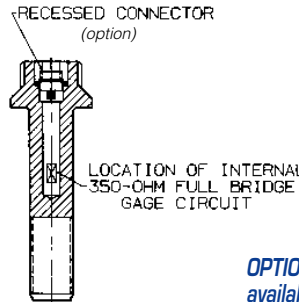
Overload: 200% without zero shift, 250% without failure	Non-Repeatability: ± 0.05% FS (P) (GP)	Temp. Effect: ≤ 0.0025% (GP) 0.0015% (P) FS/°F on zero
Bridge: Full bridge 350 ohm strain gages	Non-Linearity: ± 0.10% FS (P), ± 0.25% FS (GP)	≤ 0.0025% (GP) 0.0015% (P) of load/°F on output
Excitation: 15V AC or DC	Hysteresis: ± 0.10% FS (P), ± 0.15% FS (GP)	Zero Balance: ± 1% FS
Output Signal: 2-mv/V or 3-mv/V	Service Temp. Range: -20°F to 150°F	Electrical Connection: Bendix receptacle or built-in cable

FORCE SENSING BOLTS & STUDS



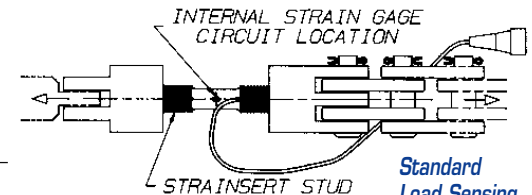
Standard Load Sensing Hex Head Cap Screws

(Also available in aluminum) Fine and course thread, 1/4" dia. to 1-1/2" dia. up to 12" long.



Standard Load Sensing 12 pt Cap Screws

Interchangeable with socket head cap screws. Fine and course thread, 1/4" dia. to 1-1/2" dia. up to 9" long.



Standard Load Sensing Studs

Course threads only, 1/4" dia. to 1" dia. up to 20" long.

Custom Load Sensing Bolts & Studs

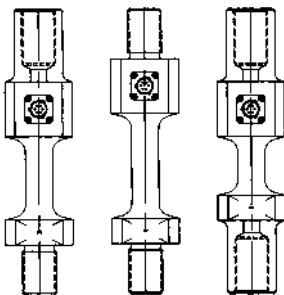
Custom internal strain gage installations in bolts and studs either furnished or specified by customer, or designed and manufactured to order for specific applications.

OPTIONS: All load sensing bolts and studs are available in both quarter bridge and full bridge installations. Temperature compensation and output signal trim are also available.

PERFORMANCE AND SPECIFICATIONS

Gages: Metal Foil	Linearity: ± 1% Guaranteed, ± 0.25% FS Typical	Bridge: 120 or 350 ohm
Configuration: QB or FB	Repetition: ± 0.1% FS	Electrical Connection: Connector, Header or built-in cable
Service Temp.: 150°F or 300°F		

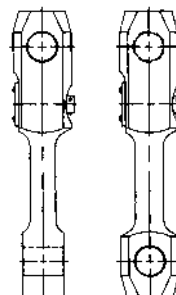
FORCE SENSING TENSION LINKS



Threaded Ends (TE)

External, Internal, Internal/external Threads

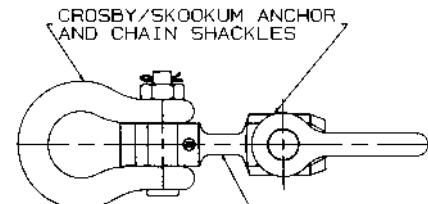
Standard Capacities: 1,000 lb. to 400,000 lbs.



Pivot Ends

Pivot Ends, 90° Pivot Ends, In-Line

Standard Capacities: 1,000 to 400,000 lbs.



Anchor & Chain Shackles

Compatible with standard anchor and chain shackles. Standard Capacities: 1,500 lb. to 350,000 lbs.

PERFORMANCE AND SPECIFICATIONS

Overload: 150% FS without zero shift	Non-Linearity: ± 0.10% FS, .25% FS (TE)	Temp. Effect: 0.003% FS/°F on zero
Bridge: Full bridge 350 ohm	Non-Repeatability: ± 0.05% FS, 0.10% FS (TE)	0.003% of load/°F on output
Excitation: 12V AC or DC	Hysteresis: ± 0.05% FS, 0.15% FS (TE)	± 2% FS
		Electrical Connection: Bendix receptacle or built-in cable



In 1960, Strainsert originated the Internal Strain Gage installation process, bonding and hermetically sealing strain gages inside small holes. These internal gagings provide robust, accurate transducers which are relatively insensitive to unwanted bending, torsion and other extraneous loading conditions common in force measurement applications. These self protecting, rugged internal gagings are routinely installed in diameters as small as .104 inches.

Strainsert's first internal gaging application to accurately measure bolt and stud loads, took these products from the confines of laboratories, where they have been externally gaged delicate items, out to rough industrial applications with routine success.

Flat load cells and fatigue rated flat load cells, with similar internal gaging demonstrated not only superior ruggedness and stay-on-the-job capabilities, but also that they were totally insensitive to barometric and hydrostatic pressures.

Internally gaged load sensing clevis pins, axles, shear pins, etc. also proved to be stay-on-the-job rugged, and equally insensitive to changing barometric and hydrostatic pressures.

Strainsert's internally gaged transducers, load indicators and signal conditioners have solved many seemingly unsolvable problems.

Strainsert's products are operating everywhere from typical industrial applications to the depths of the oceans, and into the far reaches of outer space.

For Superior Internally Gaged Force Transducers...



STRAINSERT

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