

Mechanical Load Pin – General Installation Guidelines

1. Safety considerations

- These force transducers (load pins) are not intended to be used other than for the application for which they were purchased by the buyer, or determined by Interface.
- These force transducers have been manufactured to specific specifications and should not be abused or utilized outside or beyond these specifications.

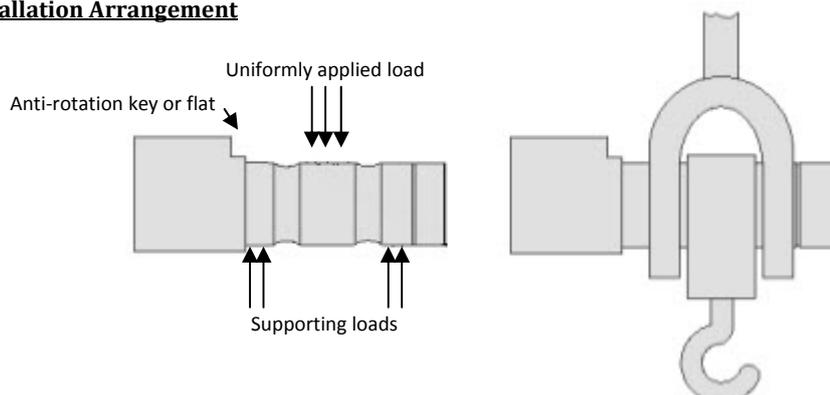
2. Application Considerations

- The loads acting upon the force transducer should be in the load direction, with side loads at the absolute minimum.
- Torsion and lateral force should be avoided.
- Torsion moments, off-center loads, and lateral loads (side forces) cause measurement errors and can permanently damage the transducers.
- The axle bracket grooves can serve as a reference for aligning the measuring axle.
- The introduction of force in the center should be consistently aligned, with the load pin force transducer installed so that axial shifts are prevented.
- Note that environment forces such as vibrations, impact, and temperatures can create poor measurement results – or even destroy load pin.
- Load pins are typically designed to fit existing structures. Usually each design is dependent on the size and constraints of that structure. If a pin is subjected to a high load, in relation to its diameter, it usually does not perform as well as a pin that is designed with a larger diameter for the same load.
- A rigid support structure is required to minimize the bending forces directed onto the load pin force transducer, as it works by sensing the shear and bending stresses. Extraneous forces degrade its accuracy.
- The fit of the pin within its mating holes is important in the overall performance of the load pin. For an "optimum" range pin, an H7, g6 fit is recommended. However, if not possible a looser fit will be tolerated, but can lend to poorer accuracy, measurements, and life expectancy of the load pin transducer.
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3. Installation of the Load Pin Force Transducer

- Loading should be applied evenly to the load pin force transducer, center section
- The two outer sections provide the restraining loading
- Anti-rotation is created by a toggle/stay/mechanical feature in the structure.

Typical Installation Arrangement



4. Load Pin Transducer Nomenclature

A	Length of contact between clevis eye/sheave and load pin	S	Average bearing stress between load pin & clevis or lug, psi
B	Length of contact at each end of the load pin by clevis	Sc	Peak stress applied by clevis or lug, psi
Dp	Exact diameter of load pin	P	Total force applied by the lug
Dc	Exact diameter of bored hole, clevis and lug	Sc	Depends upon ratio e/D_p and ratio B/D_p
e	$D_c - D_p =$ diameter clearance between load pin & clevis		

