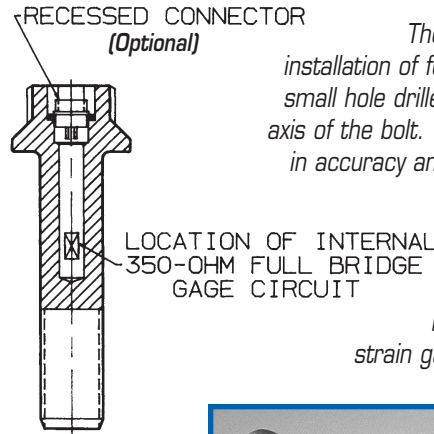
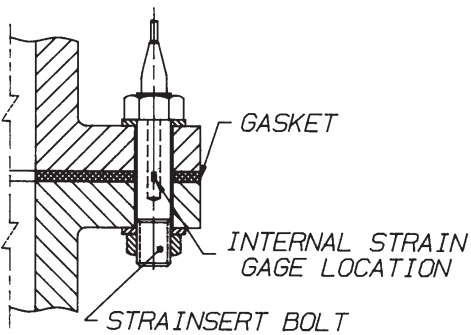




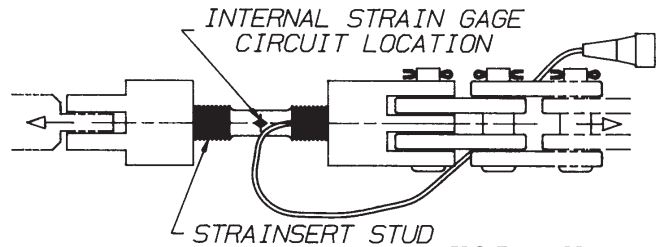
FORCE SENSING BOLTS & STUDS

Strainsert fasteners utilize an exclusive internal gaging method (U.S. Patent #2,873,341) to indicate bolt tension due to preload and subsequent service loads with strain gage accuracy. They are the first fasteners to provide a means for accurate, independent inspection of an assembled bolt for preload, thereby enhancing the structural integrity and reliability of both the bolt and the assembly.



The gaging process consists of the installation of foil type bonded strain gages in a small hole drilled along the longitudinal neutral axis of the bolt. This method compares favorably in accuracy and stability with the best external gage installations, but is vastly superior to external gage installations in mechanical and environmental ruggedness and miniaturization since the internal strain gage installation is self-protecting.

In most bolts, neither the gage or the drilled hole reduce the allowable bolt load in a Strainsert fastener. The hole depth is confined to the shank of the bolt, and the hole diameter is controlled so that the bolt cross-section through the threads is smaller than the section through the shank with the gage hole. Therefore, the gage installation will withstand and accurately indicate load in high strength bolts.



U.S. Patent No. 2,873,341

FEATURES

- Measurement of preload induced in fasteners
- Accurate tightening of fasteners within 1% of induced load
- Uniform tightening of fasteners in a bolt pattern
- Overload detection in bolted machinery
- Use of fasteners as load-link transducers
- Quarter, and full-bridge configurations

PERFORMANCE & SPECIFICATIONS

Gages	Metal Foil	Configuration	Quarter-Bridge (QB), or Full-Bridge (FB)
Gage Factor	2.00	Output Signal	FB: 3.5 to 4mV/V QB: 1.3 to 1.5mV/V
Service Temperature	150°F or 300°F	Excitation	350-ohm FB: 12V (Maximum)
Non-Linearity	±1% of Allowable Load FS		350-ohm QB: 6V (Maximum)
Non-Repetition	±0.1% FS		120-ohm FB: 3V (Maximum)
Bridge Resistance	350 or 120 Ohms (Nominal)		