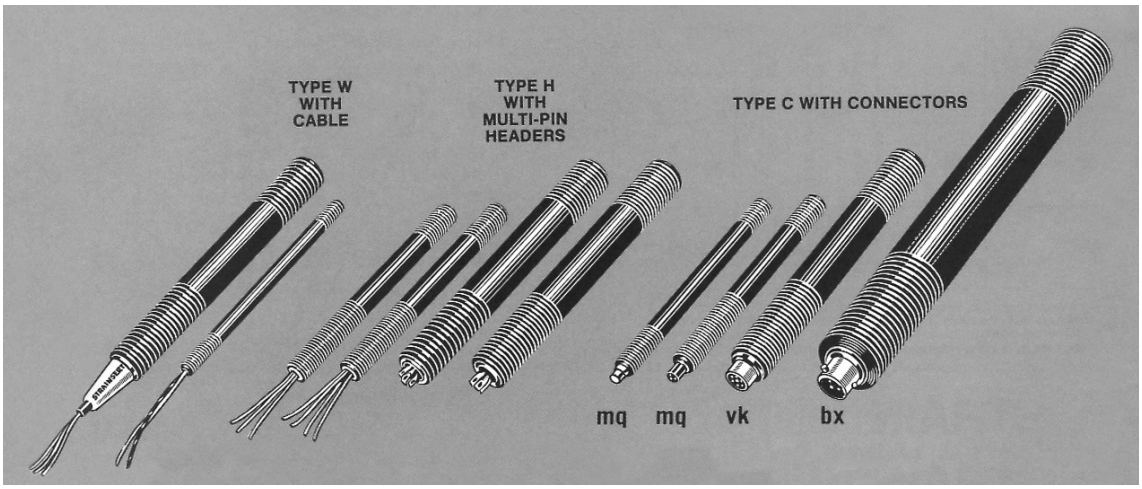
Standard Internally Gaged Studs, ST Series

Steel Alloy



Accurately Senses Loads Induced in Studs

Detects Overloads in Assembled Equipment

Inexpensive Force Link Transducer

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

MECHANICAL SPECIFICATIONS

Material	Stressproof, La Salle Steel Co.
Hardness	Rockwell C22 to C30
Ultimate Tensile Strength	125,000 psi approx. ultimate
Yield Strength	100,000 psi
Threads	Class 2A, machined
Finish	Black Oxide

ELECTRICAL SPECIFICATIONS

ITEM	CHARACTERISTIC
Gages Type	Metal Foil
Gage Factor	2.00
Service Temperature	150°F or 300°F
Non-Linearity	±1% of Allowable Load
Non-Repetition	±0.1% F.S.
Bridge Resistance	350 or 120 Ohms (Nominal)
Configuration	Quarter-Bridge (QB) or
	Full-Bridge (FB)
Excitation	350-ohm FB: 12V (Maximum)
	350-ohm QB: 6V (Maximum)
	120-ohm FB: 3V (Maximum)

STRAINSERT ST Series Standard Studs employs an exclusive internal gaging technique* to detect the loads induced in them. This technique consists of the installation of foil type strain gages inside a small hole drilled along the longitudinal neutral axis of the Stud. This is far superior to the usual external gage installations both in mechanical and environmental ruggedness. Furthermore, a neatly miniaturized packaging is achieved by using the Stud itself to protect and seal the strain gage circuit. Still, this arrangement compares very favorably with the best external gage installations in accuracy and stability. Strainsert Studs, along with other internally gaged fasteners, were the first to provide the means for direct, accurate, and independent inspection of assembled structures under simulated or actual service conditions. Vibration and Shock loads, as well as static loads, on such assemblies can be easily measured to determine their structural reliability and integrity.

The ST Studs can also be used as inexpensive force transducers in many instances.

Type C – screw type miniature connector, requires mating cable assembly.

Type H – multi-pin header for soldered lead wire connections

Type W – factory installed cable

Over 90 different STRAINSERT Series ST Studs are stocked, ready for gaging.

***U.S. Patent #2,873,341**

ST SERIES STUD SIZES AND RATED LOADS

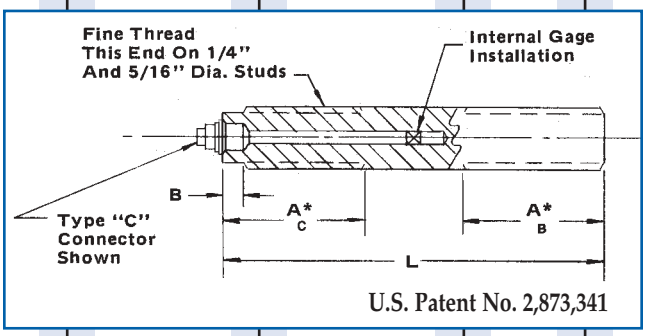
THREAD SIZE T	A_C A_B*	B	AVAILABLE STUD LENGTH (INCHES)														RATED LOAD LBS
Cable End: 1/4"-28NF Stud End: 1/4"-20NC	1	1/8	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7					950
Cable End: 5/16"-24NF Stud End: 5/16"-18NC	1-1/8	3/16	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2							2,500
3/8"-16	1-1/4	7/32	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2						4,500
1/2"-13	1-1/2 2	9/32 9/32	4 9	4-1/2 10	5 12	5-1/2 14	6	6-1/2	7	7-1/2	8						9,000
5/8"-11	1-3/4 2	5/16 5/16	5 9	5-1/2 10	6 12	6-1/2 14	7	7-1/2	8								15,000
3/4"-10	2	3/8	5-1/2	6	6-1/2	7	7-1/2	8	9	10	12	14	16	18	20		24,000
7/8"-9	2-1/4	7/16	6	6-1/2	7	7-1/2	8	9	10	12	14	16	18	20			33,000
1"-8	2-1/2	9/16	7	7-1/2	8	9	10	12	14	16	18	20					45,000

* Thread lengths may optionally be specified shorter.

OUTPUT SIGNALS (mv/V)								
Thread Size	(QB)	(FB)	Thread Size	(QB)	(FB)	Thread Size	(QB)	(FB)
1/4"-20/ 1/4"-28	0.53	1.38	1/2"-13	0.85	2.20	7/8"-9	0.96	2.50
5/16"-18/ 5/16"-24	0.72	1.88	5/8"-11	0.87	2.26	1"-8	1.00	2.60
3/8"-16	0.82	2.14	3/4"-10	0.95	2.46			

ORDERING INFORMATION

ST - FB 1/2-13NCx4-1/2 (350Ω / 150°F) C T3 K(LO) So



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S = Signal Trimmed to Specific Endpoint † ***So*** = No Signal Trim

K(LO) = Load Only Calibration, ***K(LU)*** = Load & Unload Calibration, ***Ko*** = No Calibration, Proof Load Only **

To = No Temperature Compensation † ***T1*** = Temperature Compensation to 150°F ***T3*** = Temperature Compensation to 300°F

C = Connector ***W*** = Permanently Attached Cable ***H*** = Header Style

150°F or 300°F Service Temperature (Max.)

350Ω or 120Ω

Stud Thread Size (Diameter – Threads per Inch X Length)

FB = Full Bridge Strain Gage Circuit ***QB*** = Quarter Bridge Strain Gage Circuit

ST = Standard Stud Series

** See Strainsert Calibration Services (Page 94)

† Not Available for Quarter-Bridge Bolts.

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