



Image Industries Data Sheet

CLC44287-44150

0.446 X 2-7/8 with 0.44 X 1-1/2 Extension, Carbon Steel, Collar Weld Stud

Properties

Ferrule: 50C
Welding Process: Arc
Material: C1008-C1018 (C1008-C1018 Carbon Steel)
Annealed: No
Nickel Plate: No
Weight: 206.76 lbs/1000
Grade: 2

General Attributes

Extension Diameter: 0.44
Weld Base Diameter: 0.446
Collar Diameter: 0.75
Base Length: 2-7/8
Base Length (Decimal): 2.875
Thread Length: 1-1/2
Thread Length (Decimal): 1.5
Overall Length: 4.375
Collar Thickness: 0.156
Flash Diameter: 0.58
Flash Height: 0.17
Flash Clearance: 0.66
After Weld Length Reduction (approx.): 0.125

Mechanical Properties

Fastener Dimensional Properties

Nominal Diameter (in): 0.500
Threads per Inch: 13.00
Calculated Pitch Diameter (in): 0.45
Calculated Minor Diameter (in): 0.4
Effective Weldbase Diameter: N/A
(SAF) Calculated Stress Area Full Body: N/A
(SAP) Calculated Stress Area Pitch: N/A
(SAT) Calculated Stress Area Threads (in): 0.1419 (a)

Material Properties

(UTM) Ultimate Tensile Strength Min (PSI)/(MPa): 61,000 (b)
(YTM) Yield Tensile Strength Min (PSI)/(MPa): 49,000 (b)
(PTM) Proof Tensile Strength Min(PSI)/(MPa) 90% YTM: 44,100 (c)
(YSM) Yield Shearing Stress Min (PSI)/(MPa): 28,273 (c)

Fastener Body Mechanical Properties

Tensile

Full Diameter Yield Tensile Strength Min (YTM*SAF): N/A
Pitch Diameter Yield Tensile Strength Min (YTM*SAP): N/A

Shear

Full Diameter Yield Shear Min (YSM*SAF): N/A
Pitch Diameter Yield Shear Min (YSM*SAP): N/A

Thread Mechanical Properties

Tensile

Ultimate Tensile Strength Min (UTM*SAT): 8,656
Yield Tensile Strength Min (YTM*SAT): 6,953
Proof Load Tensile Strength (PTM*SAT): 6,258
Preload Reused Tensile (75% PL): 4,693 (d)
Preload Permanent (90% PL): 5,632 (e)

Torque

Friction Coefficient: 3.2 (f)
Torque Reused (FC*PR*ND): 7509.3
Torque Permanent (FC*PP*ND): 9011.2
Torque Ultimate (FC*UTS*ND): 13849.4 (g)

Shear

Yield Shear Min (YSM*SAT): 4011.9 (h)

a) Stress area for the threads is calculated on an area approximately half way between the root diameter and pitch diameter. This more closely reflects actual results versus using root diameter for stress area calculations.

b) Data provided by our suppliers.

c) Proof Tensile is estimated to be 90% of Yield Tensile when Proof Tensile data is not readily available.

d) Preload for reuse of threaded fastener is 75% of Proof Load. Fastener may be rebolted multiple times with no degradation.

e) Preload for permanent installation of fastener is 90% of Proof Load. Fastener is permanently stretched and will not achieve the same clamping force on reuse.

f) Friction Coefficient will vary greatly depending on bolting conditions including lubrication. 0.2 is standard when bolt condition is plain finish or unknown.

g) Ultimate Torque is not useful in designing a bolted joint. Preloaded torque is more practical. This data is provided as a reference only.

h) Using the distortion-energy theory; Maximum Shear Stress equals .577 times the Maximum Tensile.

CAUTION:

Fasteners should not be used at their tensile or shear limits. A safety factor must be applied to engineering calculations. The particular safety factor will vary depending on the application.

Customers should always evaluate fasteners for suitability of their own applications.

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