

# Operator Manual

## Load and Pressure Calculations

All Hydraulic Nuts regardless of Manufacturer or design exhibit a loss of Bolt Load as the Load is transferred from the hydraulic area Of the Nut to the load retaining Collar. This loss of load is a result of pure Loss of bolt elongation due to various factors, such has thread deflection and Joint Compression. Hydraulic Nut load transfer can be accurately calculated by applying the following formula:-

### Load Transfer Factor =

$$= 1.03 + (0.85 \times (D/G))$$

Where :-

D = Bolt Diameter

G = Joint Clamp Length

*This formula has been derived from extensive on-site test work, involving the use of Ultrasonic Bolt Load Measuring Equipment,*

### Example Calculation

#### Joint Details:

Thread Size	=2.1/2"
Clamped Length	=16"
Required Bolt Load	=336000lbs
Hydraulic Area of Hydraulic Nut	=18.14In <sup>2</sup>

#### Load Transfer Factor (LTF) =

$$= 1.03 + (0.85 \times (D/G))$$

$$= 1.03 + (0.85 \times (2.5 / 16))$$

$$= 1.16$$

#### Applied Load = Required Load x LTF

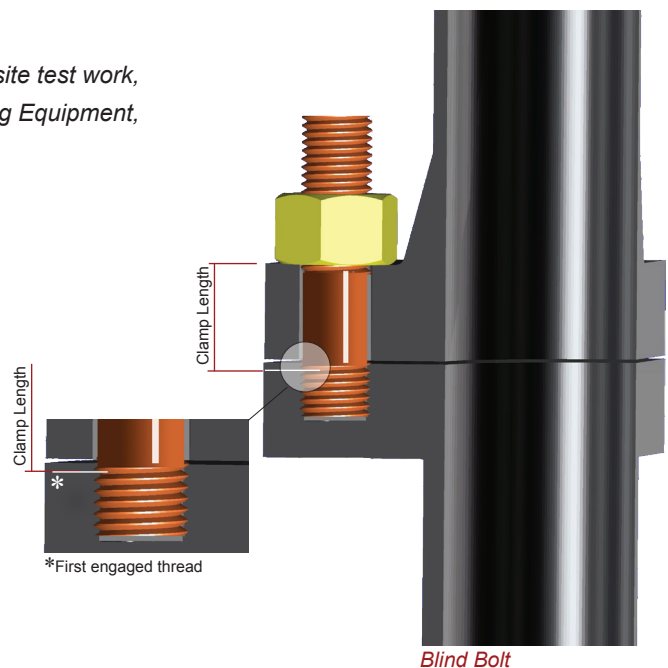
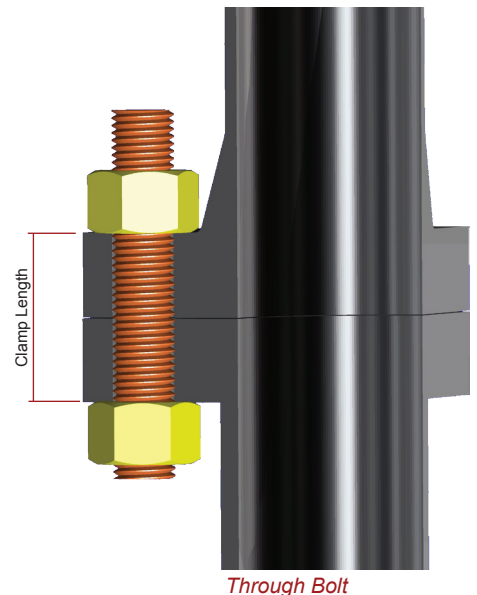
$$= 336000 \times 1.16$$

$$= 389760 \text{ lbs}$$

#### Pump Pressure = Applied Load / Hydraulic Area

$$= 389760 / 18.14$$

$$= 21486 \text{ lbs/In}^2$$



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