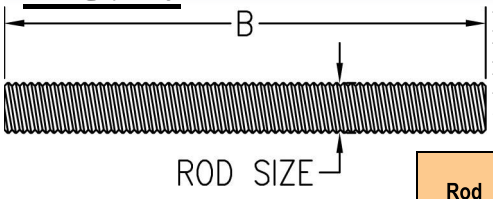
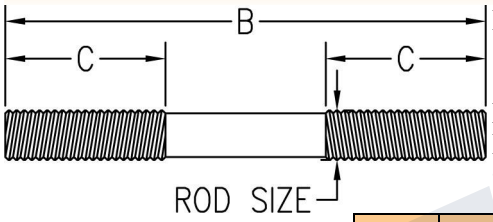
## FIG. 10 THREADED STUDS




**Function:** Designed for use in pipe hanger assemblies.
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, rod size, length (B), material, and finish.

| Rod Size | Max. Rec. Load 650°F (343°C) lbs. | kN | 750°F (399°C) lbs. | kN | Wt. Per Inch lbs. | kg |
|---|---|---|---|---|---|---|
| 3/8 x B | 730 | (3.25) | 572 | (2.54) | .02 | (.01) |
| 1/2 x B | 1350 | (6.01) | 1057 | (4.70) | .04 | (.02) |
| 5/8 x B | 2160 | (9.61) | 1692 | (7.52) | .07 | (.03) |
| 3/4 x B | 3230 | (14.37) | 2530 | (11.25) | .11 | (.05) |
| 7/8 x B | 4480 | (19.93) | 3508 | (15.61) | .14 | (.06) |

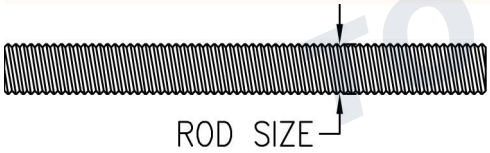
## FIG. 15 & 15L MACHINE THREAD HANGER ROD




**Function:** Designed for use in pipe hanger assemblies. Right-Hand Threads **(Fig. 15)** or Right and Left-Hand Threads **(Fig. 15L).**
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, rod size, length (B), material, and finish.

| Rod Size | Thread Length C | | Max. Rec. Load 650°F (343°C) lbs. | kN | 750°F (399°C) lbs. | kN | Wt. Per Inch lbs. | kg |
|---|---|---|---|---|---|---|---|---|
| 3/8 x B | 2 1/2 | (63.5) | 730 | (3.25) | 572 | (2.54) | .03 | (.01) |
| 1/2 x B | 2 1/2 | (63.5) | 1350 | (6.01) | 1057 | (4.70) | .06 | (.03) |
| 5/8 x B | 2 1/2 | (63.5) | 2160 | (9.61) | 1692 | (7.52) | .09 | (.04) |
| 3/4 x B | 3 | (76.2) | 3230 | (14.37) | 2530 | (11.25) | .13 | (.06) |
| 7/8 x B | 3 1/2 | (88.9) | 4480 | (19.93) | 3508 | (15.61) | .17 | (.08) |
| 1 x B | 4 | (101.6) | 5900 | (26.24) | 4620 | (20.55) | .22 | (.10) |

## FIG. 20 & 21 CONTINUOUS THREADED ROD



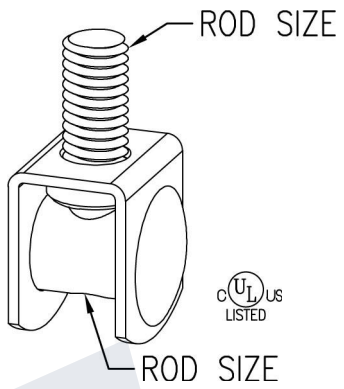

**Function:** Useful in applications where stud lengths cannot be predetermined.
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain **(Fig. 20)** or electro-galvanized Finish **(Fig. 21)** (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, rod size, length, material, and finish.

| Rod Size | Packaging Feet Per Bundle 6ft. | (1.83) | 10ft. | (3.05) | 12ft. | (3.66) | Max. Rec. Load 650°F (343°C) lbs. | kN | 750°F (399°C) lbs. | kN | Wt. Per Foot lbs. | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/4-20 | 300 | (91.44) | 500 | (152.4) | 600 | (182.88) | 240 | (1.07) | 188 | (0.84) | .12 | (.05) |
| 3/8-16 | 150 | (45.72) | 250 | (76.2) | 240 | (73.15) | 730 | (3.25) | 572 | (2.54) | .29 | (.13) |
| 1/2-13 | 72 | (21.95) | 120 | (36.58) | 144 | (43.90) | 1350 | (6.01) | 1057 | (4.70) | .54 | (.25) |
| 5/8-11 | 48 | (14.63) | 80 | (24.38) | 96 | (29.26) | 2160 | (9.61) | 1692 | (7.52) | .83 | (.38) |
| 3/4-10 | 30 | (9.14) | 50 | (15.24) | 60 | (18.29) | 3230 | (14.37) | 2530 | (11.25) | 1.25 | (.57) |
| 7/8-9 | 24 | (7.32) | 40 | (12.19) | 48 | (14.63) | 4480 | (19.93) | 3508 | (15.61) | 1.65 | (.75) |
| 1-8 | 12 | (3.66) | 20 | (6.10) | 24 | (7.32) | 5900 | (26.24) | 4620 | (20.55) | 2.25 | (1.02) |

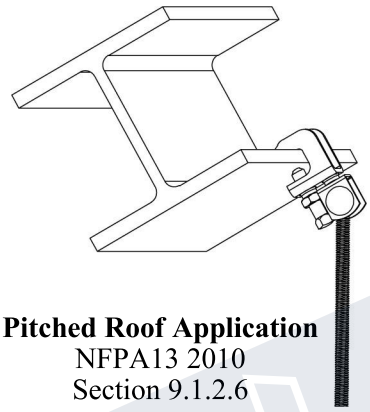
Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

## ROD SWIVEL ATTACHMENT — FIG. 020

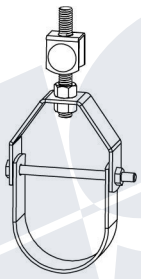
**Function:** May be used as a branch line restraint for structural attachment. May be used in a pitched or sloped roof application, to meet requirements of NFPA 13, or may be used as an upper attachment with short hanger rod to omit seismic bracing.
**Size:** $^{3}/_{8}$”
**Material:** Carbon steel
**Finish:** Electro-galvanized
**Install:** Insert a #2 screwdriver through the tapped hole to access the head of attachment fastener. Tighten attachment fastener to desired attachment point, then remove screwdriver and thread $^{3}/_{8}$-16 threaded rod into Fig. 020.
**Approvals:** Underwriters’ Laboratories Listed in the U.S. (UL) and Canada (CUL).
**Ordering:** Specify figure number.



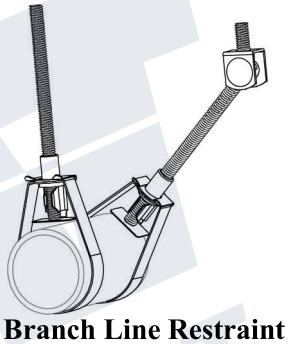

| Rod Size | Max. Pipe Size | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|
| | | | lbs. | kN | lbs. | kg |
| $^{3}/_{8}$ | 4 | (100) | 730 | (3.25) | .10 | (.05) |



**Pitched Roof Application**
NFPA13 2010
Section 9.1.2.6



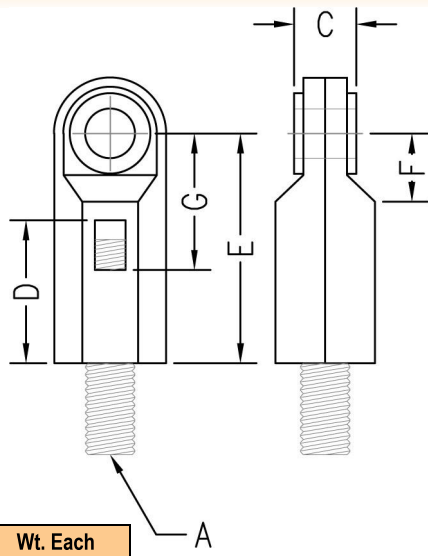
Used as an upper attachment with a short hanger rod to omit seismic bracing



**Branch Line Restraint**
NFPA13 2010
Section A.9.3.6.1(5)

## EXTENSION PIECE — FIG. 25

**Function:** Designed for attaching hanger rod to various types of attachments. Allows for vertical adjustment of the rod. Frequently used in conjunction with Fig. 630 malleable iron beam clamp.
**Material:** Malleable iron
**Finish:** Plain or electro-galvanized
**Ordering:** Specify figure number, rod size, and finish.

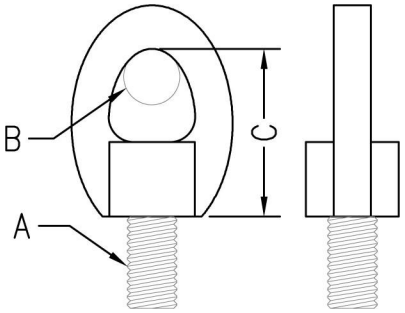



| Rod Size A | For Pipe Sizes | | B | | C | | D | |
|---|---|---|---|---|---|---|---|---|
| $^{3}/_{8}$ | $^{1}/_{2}$ to 2 | (15 to 50) | $^{1}/_{2}$ | (12.7) | $^{1}/_{2}$ | (12.7) | $1^{1}/_{4}$ | (31.75) |
| $^{1}/_{2}$ | $2^{1}/_{2}$ to $3^{1}/_{2}$ | (65 to 90) | $^{1}/_{2}$ | (12.7) | $^{5}/_{8}$ | (15.88) | $1^{3}/_{8}$ | (34.93) |
| $^{5}/_{8}$ | 4 & 5 | (100 & 125) | $^{1}/_{2}$ | (12.7) | $^{5}/_{8}$ | (15.88) | $1^{1}/_{2}$ | (38.1) |
| $^{3}/_{4}$ | 6 & 8 | (150 & 200) | $^{1}/_{2}$ | (12.7) | $^{5}/_{8}$ | (15.88) | $1^{3}/_{4}$ | (44.45) |
| $^{7}/_{8}$ | 10 & 12 | (250 & 300) | $^{9}/_{16}$ | (14.29) | $^{3}/_{4}$ | (19.05) | $1^{7}/_{8}$ | (47.63) |

| Rod Size A | E | | F | | G | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | lbs. | kN | lbs. | kg |
| $^{3}/_{8}$ | $2^{1}/_{16}$ | (52.39) | $^{9}/_{16}$ | (14.29) | $1^{1}/_{4}$ | (31.75) | 730 | (3.25) | .20 | (.09) |
| $^{1}/_{2}$ | $2^{5}/_{16}$ | (58.74) | $^{11}/_{16}$ | (17.46) | $1^{3}/_{8}$ | (34.93) | 1350 | (6.01) | .43 | (.20) |
| $^{5}/_{8}$ | $2^{7}/_{16}$ | (61.91) | $^{3}/_{4}$ | (19.05) | $1^{7}/_{16}$ | (36.51) | 1550 | (6.89) | .46 | (.21) |
| $^{3}/_{4}$ | $2^{7}/_{8}$ | (73.03) | $^{7}/_{8}$ | (22.23) | $1^{11}/_{16}$ | (42.86) | 2100 | (9.34) | .63 | (.29) |
| $^{7}/_{8}$ | 3 | (76.2) | $^{7}/_{8}$ | (22.23) | $1^{3}/_{4}$ | (44.45) | 2350 | (10.45) | .67 | (.30) |

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

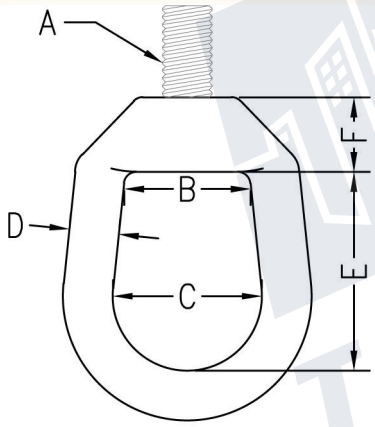
## FIG. 30 EYE SOCKET




**Function:** Designed for attaching hanger rod to various types of hanger attachments.
**Material:** Malleable iron
**Finish:** Plain or electro-galvanized
**Approvals:** Complies with Federal Specifications A-A-1192A (Type 16) and Manufacturers' Standardization Society ANSI/MSS SP-58 (Type 16) which supersedes ANSI/MSS SP-69.
**Ordering:** Specify figure number, rod size, and finish.

| Rod Size A | For Pipe Sizes | | Max. Bolt Size B | | C | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | lbs. | kN | lbs. | kg |
| 1/4 | 3/8 | (10) | 1/4 | (6.35) | 1 3/8 | (34.93) | 240 | (1.07) | .08 | (.04) |
| 3/8 | 1/2 to 2 | (15 to 50) | 1/4 | (6.35) | 1 3/8 | (34.93) | 610 | (2.71) | .08 | (.04) |
| 1/2 | 2 1/2 to 3 1/2 | (65 to 90) | 1/4 | (6.35) | 1 9/16 | (39.69) | 1000 | (4.45) | .11 | (.05) |
| 5/8 | 4 & 5 | (100 & 125) | 3/8 | (9.53) | 1 3/4 | (44.45) | 1400 | (6.23) | .22 | (.10) |
| 3/4 | 6 & 8 | (150 & 200) | 1/2 | (12.7) | 2 1/4 | (57.15) | 2200 | (9.79) | .30 | (.14) |
| 7/8 | 10 & 12 | (250 & 300) | 1/2 | (12.7) | 2 7/16 | (61.91) | 2300 | (10.23) | .32 | (.15) |

## FIG. 35 & 35L WELDLESS EYE NUT




**Function:** Designed for use in high strength and high temperature piping applications. Fig. 35L is designed to be used in conjunction with Fig. 960 forged steel turnbuckle, in applications where a vertical adjustment may be necessary.
Right-Hand Threads **(Fig. 35)** or Left-Hand Threads **(Fig. 35L).**
**Material:** Forged steel (Type 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Approvals:** Complies with Federal Specifications A-A-1192A (Type 17) and Manufacturers' Standardization Society ANSI/MSS SP-58 (Type 17) which supersedes ANSI/MSS SP-69.
**Ordering:** Specify figure number, rod size, material, and finish.

*NOTE: Supports loads equal to the full limitation of the hanger rod.*

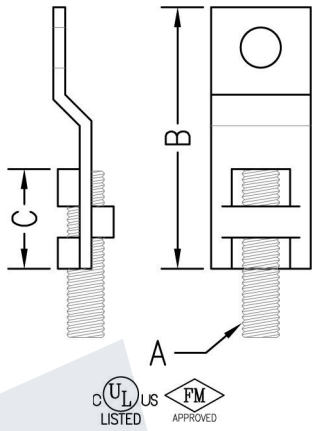
| Rod Size A | B | | C | | D | | E | | F | | Max. Rec. Load 650°F (343°C) | | Max. Rec. Load 750°F (399°C) | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | lbs. | kN | lbs. | kN | lbs. | kg |
| 3/8 | 1 1/4 | (31.75) | 1 1/2 | (38.1) | 1/2 | (12.7) | 2 | (50.8) | 11/16 | (17.46) | 730 | (3.25) | 572 | (2.54) | .64 | (.29) |
| 1/2 | 1 1/4 | (31.75) | 1 1/2 | (38.1) | 1/2 | (12.7) | 2 | (50.8) | 11/16 | (17.46) | 1350 | (6.01) | 1057 | (4.70) | .61 | (.28) |
| 5/8 | 1 1/4 | (31.75) | 1 1/2 | (38.1) | 1/2 | (12.7) | 2 | (50.8) | 11/16 | (17.46) | 2160 | (9.61) | 1692 | (7.52) | .59 | (.27) |
| 3/4 | 1 1/4 | (31.75) | 1 1/2 | (38.1) | 1/2 | (12.7) | 2 | (50.8) | 11/16 | (17.46) | 3230 | (14.37) | 2530 | (11.25) | .57 | (.26) |
| 7/8 | 1 11/16 | (42.86) | 2 | (50.8) | 3/4 | (19.05) | 2 5/8 | (66.68) | 1 | (25.4) | 4480 | (19.93) | 3508 | (15.61) | 1.67 | (.76) |
| 1 | 1 11/16 | (42.86) | 2 | (50.8) | 3/4 | (19.05) | 2 5/8 | (66.68) | 1 | (25.4) | 5900 | (26.24) | 4620 | (20.55) | 1.65 | (.75) |
| 1 1/8 | 2 1/4 | (57.15) | 2 1/2 | (63.5) | 1 | (25.4) | 3 3/8 | (85.73) | 1 1/4 | (31.75) | 7450 | (33.14) | 5834 | (25.95) | 3.68 | (1.67) |
| 1 1/4 | 2 1/4 | (57.15) | 2 1/2 | (63.5) | 1 | (25.4) | 3 3/8 | (85.73) | 1 1/4 | (31.75) | 9500 | (42.26) | 7440 | (33.09) | 3.57 | (1.62) |
| 1 1/2 | 2 1/4 | (57.15) | 2 1/2 | (63.5) | 1 | (25.4) | 3 3/8 | (75.73) | 1 1/4 | (31.75) | 13800 | (61.39) | 10807 | (48.07) | 3.43 | (1.56) |

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

## STEEL EYE SOCKET

**FIG. 36**

**Function:** Designed for attaching hanger rod to structures. Secured with listed fasteners.
**Material:** Carbon steel
**Finish:** Electro-galvanized
**Approvals:** Underwriters' Laboratories Listed in the U.S. (UL), Canada (CUL), and Factory Mutual Approved.
**Ordering:** Specify figure number and rod size.



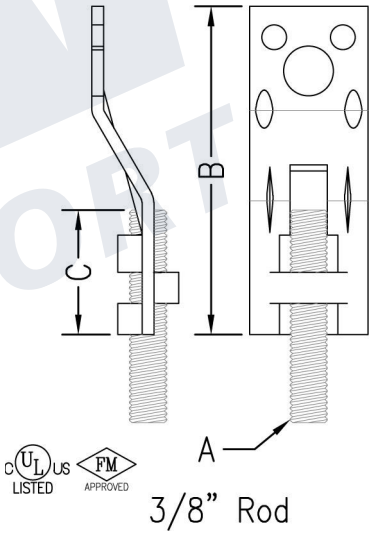

| Rod Size A | Max. Pipe Size | | Screw Size | B | | C | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | lbs. | kN | lbs. | kg |
| 3/8 | 2 | (50) | 3/8 X 2 1/2 Lag | 2 5/8 | (66.68) | 1 1/16 | (26.99) | 400 | (1.78) | .08 | (.04) |
| 3/8 | 4 | (100) | 3/8 Bolt | 2 5/8 | (66.68) | 1 1/16 | (26.99) | 730 | (3.25) | .08 | (.04) |

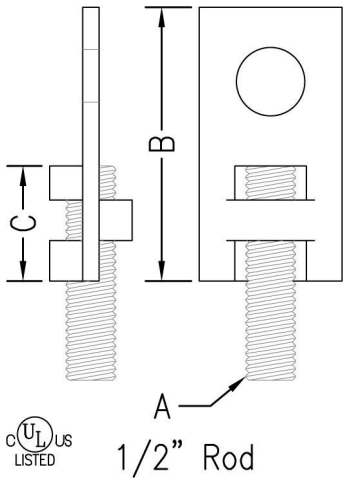
## STEEL EYE SOCKET

**FIG. 37**

**Function:** Designed for attaching hanger rod to wood structures. Secured with Fig. 45 lag screw or two Fig. 48 wood drive screws, see chart.
**Material:** Carbon steel
**Finish:** Electro-galvanized
**Approvals:** Underwriters' Laboratories Listed in the U.S. (UL) and Canada (CUL) for 3/8" and 1/2" rod sizes. Factory Mutual Approved for 3/8" rod size only.
**Ordering:** Specify figure number and rod size.

*NOTE: The 3/8" offset design provides full vertical rod adjustment.*




| Rod Size A | Max. Pipe Size | | Screw Size | B | | C | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | lbs. | kN | lbs. | kg |
| 3/8 | 2 | (50) | (2) #16 x 2 | 3 1/4 | (82.55) | 1 1/4 | (31.75) | 400 | (1.78) | .11 | (.05) |
| 3/8 | 4 | (100) | 1/2 x 2 1/2 | 3 1/4 | (82.55) | 1 1/4 | (31.75) | 730 | (3.25) | .11 | (.05) |
| 1/2 | 8 | (200) | 5/8 x 3 | 2 3/4 | (69.85) | 1 3/16 | (30.16) | 1350 | (6.01) | .15 | (.07) |

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

# FIG. 38 FORGED STEEL CLEVIS

**Function:** Designed for use as a convenient method of connecting hanger rods to pipe lugs, angles, etc. As a structural attachment it is most commonly used in conjunction with Fig. 935 welding lug.
Right-Hand Threads **(Fig. 38)** or Left-Hand Threads (**Fig. 38L).**

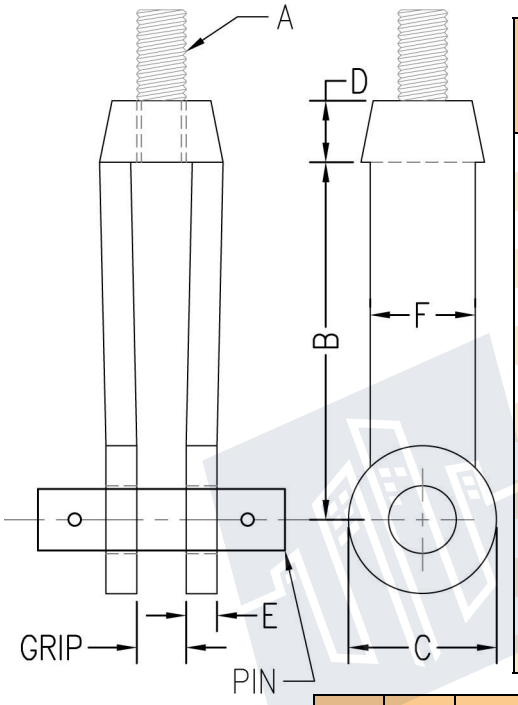
**Material:** Forged steel (Type 316 Stainless Steel upon request)

**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)

**Approvals:** Complies with Federal Specifications A-A-1192A (Type 14) and Manufacturers' Standardization Society ANSI/MSS SP-58 (Type 14) which supersedes ANSI/MSS SP-69.

**Ordering:** Specify figure number, size number, rod size, with or without pin, and finish. If other than standard combination is required, specify size number, rod size, pin size and grip.

*NOTE: Regularly furnished with pin and cotter pins, unless specified otherwise.*




| Size No. | Rod Size A | Pin Size | | Grip | | B | | C | | D | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 3/8 | 1/2 | (12.70) | 1/2 | (12.70) | 3 5/8 | (92.08) | 1 1/2 | (38.10) | 5/8 | (15.88) |
| 2 | 1/2 | 5/8 | (15.88) | 1/2 | (12.70) | 3 5/8 | (92.08) | 1 1/2 | (38.10) | 5/8 | (15.88) |
| 2 | 5/8 | 3/4 | (19.05) | 5/8 | (15.88) | 3 5/8 | (92.08) | 1 1/2 | (38.10) | 5/8 | (15.88) |
| 2 1/2 | 3/4 | 7/8 | (22.23) | 3/4 | (19.05) | 5 | (127.00) | 2 | (50.80) | 7/8 | (22.23) |
| 2 1/2 | 7/8 | 1 | (25.40) | 7/8 | (22.23) | 5 | (127.00) | 2 | (50.80) | 7/8 | (22.23) |
| 3 | 1 | 1 1/8 | (28.58) | 1 | (25.40) | 5 | (127.00) | 3 | (76.20) | 1 5/16 | (33.34) |
| 3 | 1 1/4 | 1 3/8 | (34.93) | 1 1/4 | (31.75) | 5 | (127.00) | 3 | (76.20) | 1 5/16 | (33.34) |
| 3 1/2 | 1 1/2 | 1 5/8 | (41.28) | 1 1/2 | (38.10) | 6 | (152.40) | 3 1/2 | (88.90) | 1 5/8 | (41.28) |
| 4 | 1 3/4 | 1 7/8 | (47.63) | 1 1/2 | (38.10) | 6 | (152.40) | 4 | (101.60) | 1 3/4 | (44.45) |
| 5 | 2 | 2 1/4 | (57.15) | 2 1/2 | (63.50) | 7 | (177.80) | 5 | (127.00) | 2 1/4 | (57.15) |
| 6 | 2 1/4 | 2 1/2 | (63.50) | 2 1/2 | (63.50) | 8 | (203.20) | 6 | (152.40) | 2 3/4 | (69.85) |
| 6 | 2 1/2 | 2 3/4 | (69.85) | 2 1/2 | (63.50) | 8 | (203.20) | 6 | (152.40) | 2 3/4 | (69.85) |
| 7 | 2 3/4 | 3 | (76.20) | 2 1/2 | (63.50) | 8 | (203.20) | 7 | (177.80) | 3 | (76.20) |
| 7 | 3 | 3 1/4 | (82.55) | 2 1/2 | (63.50) | 9 | (228.60) | 7 | (177.80) | 3 | (76.20) |

Supports loads equal to the full limitation of the hanger rod.

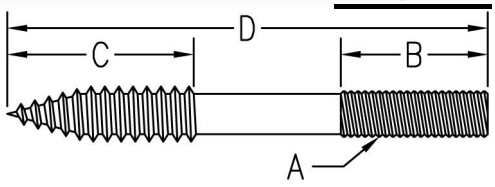
| Size No. | Rod Size A | E | | F | | Max Rec. Load 650°F (343°C) | | Max Rec. Load 750°F (399°C) | | Wt. Each w/o pin | | Wt. Each with pin | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | lbs. | kN | lbs. | kN | lbs. | kg | lbs. | kg |
| 2 | 3/8 | 5/16 | (7.94) | 1 1/16 | (26.99) | 730 | (3.25) | 572 | (2.54) | .9 | (0.41) | 1.0 | (.45) |
| 2 | 1/2 | 5/16 | (7.94) | 1 1/16 | (26.99) | 1350 | (6.01) | 1057 | (4.70) | .7 | (0.32) | .9 | (.41) |
| 2 | 5/8 | 5/16 | (7.94) | 1 1/16 | (26.99) | 2160 | (9.61) | 1692 | (7.52) | .7 | (0.32) | .9 | (.41) |
| 2 1/2 | 3/4 | 3/8 | (9.53) | 1 1/4 | (31.75) | 3230 | (14.37) | 2530 | (11.25) | 2.5 | (1.13) | 3.0 | (1.36) |
| 2 1/2 | 7/8 | 3/8 | (9.53) | 1 1/4 | (31.75) | 4480 | (19.93) | 3508 | (15.61) | 2.5 | (1.13) | 3.4 | (1.54) |
| 3 | 1 | 1/2 | (12.70) | 1 1/2 | (38.10) | 5900 | (26.24) | 4620 | (20.55) | 4.0 | (1.81) | 5.1 | (2.31) |
| 3 | 1 1/4 | 1/2 | (12.70) | 1 1/2 | (38.10) | 9500 | (42.26) | 7440 | (33.09) | 3.8 | (1.72) | 5.5 | (2.49) |
| 3 1/2 | 1 1/2 | 1/2 | (12.70) | 1 3/4 | (44.45) | 13800 | (61.39) | 10807 | (48.07) | 6.0 | (2.72) | 8.5 | (3.86) |
| 4 | 1 3/4 | 1/2 | (12.70) | 2 | (50.80) | 18600 | (82.74) | 14566 | (64.79) | 8.0 | (3.63) | 12.9 | (5.85) |
| 5 | 2 | 5/8 | (15.88) | 2 1/2 | (63.50) | 24600 | (109.43) | 19265 | (85.70) | 16.0 | (7.26) | 23.3 | (10.57) |
| 6 | 2 1/4 | 3/4 | (19.05) | 3 | (76.20) | 32300 | (143.68) | 25295 | (112.52) | 26.0 | (11.79) | 35.1 | (15.92) |
| 6 | 2 1/2 | 3/4 | (19.05) | 3 | (76.20) | 39800 | (177.04) | 31169 | (138.65) | 25.5 | (11.57) | 36.0 | (16.33) |
| 7 | 2 3/4 | 7/8 | (22.23) | 3 1/2 | (88.90) | 49400 | (219.74) | 38687 | (172.09) | 36.0 | (16.33) | 50.0 | (22.68) |
| 7 | 3 | 7/8 | (22.23) | 3 1/2 | (88.90) | 60100 | (267.34) | 47066 | (209.36) | 35.0 | (15.88) | 51.5 | (23.36) |

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

## COACH SCREW ROD

FIG. 40

**Function:** Designed for use as a vertical hanger attachment to wood structures.
**Material:** Carbon steel
**Finish:** Plain or electro-galvanized
**Ordering:** Specify figure number, rod size, length (D), and finish.



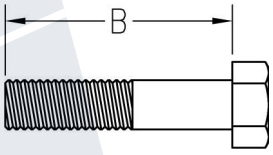

| Rod Size A | Minimum Length | | | | Max. Rec Load | | Wt. Each | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Machine B | | Coach C | | | | Length D | | | | | | | | | |
| | | | | | lbs. | kN | 4 (101.6) | | 6 (152.4) | | 8 (203.2) | | 10 (254.0) | | 12 (304.8) | |
| | | | | | | | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg |
| 3/8 | 2 | (50.80) | 2 | (50.80) | 390 | (1.73) | .12 | (0.05) | .19 | (0.09) | .25 | (0.11) | .31 | (0.14) | .37 | (0.17) |
| 1/2 | 2 | (50.80) | 2 1/2 | (63.50) | 640 | (2.85) | .22 | (0.10) | .34 | (0.15) | .44 | (0.20) | .56 | (0.25) | .67 | (0.30) |

## HEX HEAD BOLT

FIG. 41

**Function:** Designed for use as a fastening device.
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, diameter, length (B), material, and finish. If nuts are required, refer to Fig. 110 or 110H.

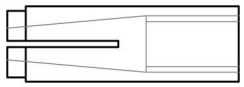
*NOTE: Regularly furnished without nut.*




| Length B | | Wt. Each | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 5/8" Dia. | | 3/4" Dia. | | 7/8" Dia. | | 1" Dia. | |
| | | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg |
| 2 | (50.80) | .23 | (0.10) | .35 | (0.16) | -- | -- | -- | -- |
| 2 1/4 | (57.15) | .25 | (0.11) | .39 | (0.18) | -- | -- | -- | -- |
| 2 1/2 | (63.50) | .27 | (0.12) | .42 | (0.19) | .60 | (0.27) | -- | -- |
| 2 3/4 | (69.85) | .29 | (0.13) | .45 | (0.20) | .64 | (0.29) | .85 | (0.39) |
| 3 | (76.20) | .32 | (0.15) | .48 | (0.22) | .68 | (0.31) | .92 | (0.42) |
| 3 1/4 | (82.55) | .34 | (0.15) | .51 | (0.23) | .72 | (0.33) | .94 | (0.43) |
| 3 1/2 | (88.90) | .36 | (0.16) | .54 | (0.24) | .76 | (0.34) | .96 | (0.44) |
| 3 3/4 | (95.25) | .38 | (0.17) | .57 | (0.26) | .80 | (0.36) | 1.10 | (0.50) |
| 4 | (101.60) | .40 | (0.18) | .60 | (0.27) | .85 | (0.39) | 1.11 | (0.50) |

## FIG. 47 CONCRETE ANCHORS

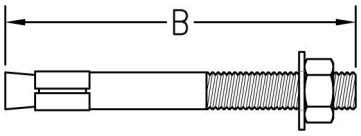
### Fig. 47S
STEEL DROP-IN



**Function:** Designed to be inserted into a pre-drilled hole and set into place by means of a setting tool.
**Material:** Carbon steel
**Finish:** Electro-galvanized
**Ordering:** Specify figure number and rod size.

| Rod Size | Hole Size | | Anchor Length | | Thread Length | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | lbs. | kg |
| 3/8 | 1/2 | (12.70) | 19/16 | (39.69) | 5/8 | (15.88) | .07 | (.03) |
| 1/2 | 5/8 | (15.88) | 2 | (50.80) | 3/4 | (19.05) | .13 | (.06) |
| 5/8 | 3/4 | (19.05) | 2 1/2 | (63.50) | 1 | (25.40) | .28 | (.13) |

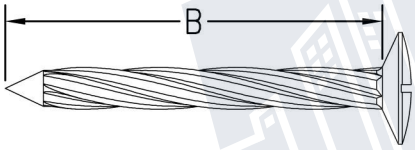
### Fig. 47W
WEDGE




**Function:** Designed to be driven into a pre-drilled hole. The expansion of the case is controlled by the tightening of the nut, this eliminates the need for an exact hole size. Useful in applications where a high resistance to vibratory loads is desired.
**Material:** Carbon steel
**Finish:** Electro-galvanized
**Ordering:** Specify figure number, length (B), and rod size.

| Rod Size | Thread Length | | Minimum Embedment | | Wt. Each | |
|---|---|---|---|---|---|---|
| | | | | | lbs. | kg |
| 3/8 x B | 1 1/8 | (28.58) | 1 5/8 | (41.28) | .03 | (.01) |
| 1/2 x B | 1 1/4 | (31.75) | 2 1/4 | (57.15) | .06 | (.03) |
| 5/8 x B | 1 1/2 | (38.10) | 2 3/4 | (69.85) | .11 | (.05) |

## FIG. 48 WOOD DRIVE SCREW




**Function:** Designed for use as a fastening device to wood structures.
**Material:** Carbon steel
**Finish:** Plain or electro-galvanized
**Ordering:** Specify figure number, size number, length (B), and finish.

| Size No. | Length B | | Wt. Each | |
|---|---|---|---|---|
| | | | lbs. | kg |
| 14 | 1 1/2 | (38.10) | .016 | (.007) |
| 16 | 2 | (50.80) | .025 | (.011) |

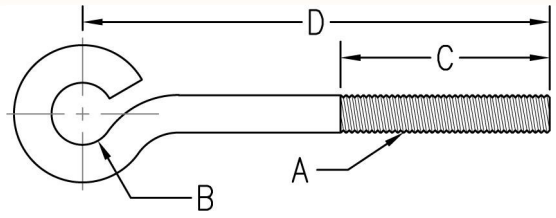
Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

# EYE RODS

## FIG. 50 - 55L

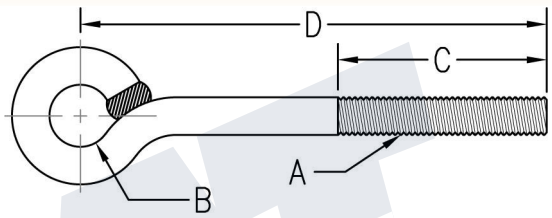
**Function:** Designed for use in hanger assemblies. The welded design allows the eye to develop the full strength of the rod.
Right-Hand Threads **(Fig. 50 & 55)** or Left-Hand Threads **(Fig. 50L & 55L).**
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, length (D), rod size, material, and finish.

### Fig. 50 & 50L
EYE ROD




| Rod Size A | B | | | Thread Length C | | Max. Rec. Load 650°F (343°C) | |
|---|---|---|---|---|---|---|---|
| | | | | | | lbs. | kN |
| 3/8 | 5/8 | (15.88) | 2 1/2 | (63.50) | | 240 | (1.07) |
| 1/2 | 3/4 | (19.05) | 2 1/2 | (63.50) | | 440 | (1.96) |
| 5/8 | 7/8 | (22.23) | 2 1/2 | (63.50) | | 705 | (3.14) |
| 3/4 | 1 | (25.40) | 3 | (76.20) | | 1050 | (4.67) |
| 7/8 | 1 1/8 | (28.58) | 3 1/2 | (88.90) | | 1470 | (6.54) |
| 1 | 1 1/4 | (31.75) | 4 | (101.60) | | 1940 | (8.63) |

### Fig. 55 & 55L
WELDED EYE ROD



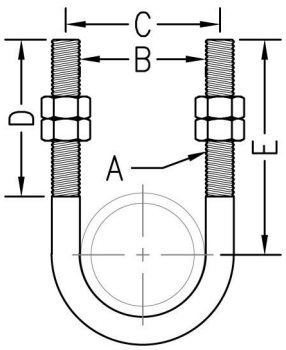

| Rod Size A | B | | | Thread Length C | | Max. Rec. Load 650°F (343°C) | | 750°F (399°C) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | lbs. | kN | lbs. | kN |
| 3/8 | 5/8 | (15.88) | 2 1/2 | (63.50) | | 730 | (3.25) | 572 | (2.54) |
| 1/2 | 3/4 | (19.05) | 2 1/2 | (63.50) | | 1350 | (6.01) | 1057 | (4.70) |
| 5/8 | 7/8 | (22.23) | 2 1/2 | (63.50) | | 2160 | (9.61) | 1692 | (7.52) |
| 3/4 | 1 | (25.40) | 3 | (76.20) | | 3230 | (14.37) | 2530 | (11.25) |
| 7/8 | 1 1/8 | (28.58) | 3 1/2 | (88.90) | | 4480 | (19.93) | 3508 | (15.61) |
| 1 | 1 1/4 | (31.75) | 4 | (101.60) | | 5900 | (26.24) | 4620 | (20.55) |

| Rod Size A | Wt. Each Length D | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8 (203.2) | | 10 (254.0) | | 12 (304.8) | | 14 (355.6) | | 18 (457.2) | | 24 (609.6) | | 30 (762.0) | |
| | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg |
| 3/8 | .32 | (0.15) | .38 | (0.17) | .44 | (0.20) | .50 | (0.23) | .63 | (0.29) | .80 | (0.36) | 1.00 | (0.45) |
| 1/2 | .60 | (0.27) | .70 | (0.32) | .82 | (0.37) | .94 | (0.43) | 1.16 | (0.53) | 1.50 | (0.68) | 1.83 | (0.83) |
| 5/8 | .97 | (0.44) | 1.14 | (0.52) | 1.31 | (0.59) | 1.49 | (0.68) | 1.84 | (0.83) | 2.36 | (1.07) | 2.88 | (1.31) |
| 3/4 | 1.44 | (0.65) | 1.68 | (0.76) | 1.94 | (0.88) | 2.19 | (0.99) | 2.68 | (1.22) | 3.44 | (1.56) | 4.19 | (1.90) |
| 7/8 | 2.04 | (0.93) | 2.32 | (1.05) | 2.68 | (1.22) | 3.02 | (1.37) | 3.73 | (1.69) | 4.72 | (2.14) | 5.74 | (2.60) |
| 1 | 2.67 | (1.21) | 3.11 | (1.41) | 3.56 | (1.61) | 4.00 | (1.81) | 4.89 | (2.22) | 6.78 | (3.08) | 8.18 | (3.71) |

| Rod Size A | Wt. Each Length D | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 36 (914.4) | | 42 (1066.8) | | 48 (1219.2) | | 54 (1371.6) | | 60 (1524.0) | | 66 (1676.4) | | 72 (1828.8) | |
| | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg |
| 3/8 | 1.18 | (0.54) | 1.39 | (0.63) | 1.58 | (0.72) | 1.76 | (0.80) | 1.95 | (0.88) | 2.14 | (0.97) | 2.33 | (1.06) |
| 1/2 | 2.17 | (0.98) | 2.49 | (1.13) | 2.83 | (1.28) | 3.16 | (1.43) | 3.49 | (1.58) | 3.83 | (1.74) | 4.06 | (1.84) |
| 5/8 | 3.40 | (1.54) | 3.92 | (1.78) | 4.44 | (2.01) | 4.96 | (2.25) | 5.48 | (2.49) | 6.00 | (2.72) | 6.52 | (2.96) |
| 3/4 | 4.94 | (2.24) | 5.70 | (2.59) | 6.45 | (2.93) | 7.20 | (3.27) | 7.95 | (3.61) | 8.70 | (3.95) | 9.45 | (4.29) |
| 7/8 | 6.76 | (3.07) | 7.81 | (3.54) | 8.83 | (4.01) | 9.85 | (4.47) | 10.87 | (4.93) | 11.89 | (5.39) | 12.91 | (5.86) |
| 1 | 8.89 | (4.03) | 10.48 | (4.75) | 11.87 | (5.38) | 13.19 | (5.98) | 14.51 | (6.58) | 15.91 | (7.22) | 17.25 | (7.82) |

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

# FIG. 90, 91, 93, 94, & 90S STANDARD U-BOLT




**Function:** Designed for use as a support, anchor, or guide for various types of pipe. The PVC coating on Fig. 93 protects the surface of the pipe from contact with the metal surface of the U-Bolt.

**Material:** Carbon steel or Type 304 & 316 Stainless Steel **(Fig. 94)**

**Finish:** Plain **(Fig. 90),** Electro-Galvanized **(Fig. 91)**, or PVC **(Fig. 93)** (Hot dipped galvanized upon request)

**Approvals:** Complies with Federal Specifications A-A-1192A (Type 24) and Manufacturers' Standardization Society ANSI/MSS SP-58 (Type 24) which supersedes ANSI/MSS SP-69.

**Ordering:** Specify figure number, pipe size, material, and finish.

*NOTE: Regularly furnished with nuts.*

| Pipe Size | | Rod Size A | B | | C | | D | | Tangent E | | Max. Rec. Load 650°F (343°C) | | Max. Rec. Load 750°F (399°C) | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | lbs. | kN | lbs. | kN | lbs. | kg |
| 1/2 | (15) | 1/4 | 15/16 | (23.81) | 1 3/16 | (30.16) | 2 3/8 | (60.33) | 2 3/4 | (69.85) | 580 | (2.58) | 454 | (2.02) | .11 | (.05) |
| 3/4 | (20) | 1/4 | 1 1/8 | (28.58) | 1 3/8 | (34.93) | 2 3/8 | (60.33) | 2 3/4 | (69.85) | 580 | (2.58) | 454 | (2.02) | .12 | (.05) |
| 1 | (25) | 1/4 | 1 3/8 | (34.93) | 1 5/8 | (41.28) | 2 3/8 | (60.33) | 2 3/4 | (69.85) | 580 | (2.58) | 454 | (2.02) | .12 | (.05) |
| 1 1/4 | (32) | 3/8 | 1 11/16 | (42.86) | 2 1/16 | (52.39) | 2 3/8 | (60.33) | 2 7/8 | (73.03) | 1460 | (6.49) | 1143 | (5.09) | .28 | (.13) |
| 1 1/2 | (40) | 3/8 | 2 | (50.80) | 2 3/8 | (60.33) | 2 1/2 | (63.50) | 3 | (76.20) | 1460 | (6.49) | 1143 | (5.09) | .30 | (.14) |
| 2 | (50) | 3/8 | 2 7/16 | (61.91) | 2 13/16 | (71.44) | 2 1/2 | (63.50) | 3 1/4 | (82.55) | 1460 | (6.49) | 1143 | (5.09) | .33 | (.15) |
| 2 1/2 | (65) | 1/2 | 2 15/16 | (74.61) | 3 7/16 | (87.31) | 3 | (76.20) | 3 3/4 | (95.25) | 2700 | (12.01) | 2114 | (9.41) | .73 | (.33) |
| 3 | (80) | 1/2 | 3 9/16 | (90.49) | 4 1/16 | (103.19) | 3 | (76.20) | 4 | (101.60) | 2700 | (12.01) | 2114 | (9.41) | .78 | (.35) |
| 3 1/2 | (90) | 1/2 | 4 1/16 | (103.19) | 4 9/16 | (115.89) | 3 | (76.20) | 4 1/4 | (107.95) | 2700 | (12.01) | 2114 | (9.41) | .84 | (.38) |
| 4 | (100) | 1/2 | 4 9/16 | (115.89) | 5 1/16 | (128.59) | 3 | (76.20) | 4 1/2 | (114.30) | 2700 | (12.01) | 2114 | (9.41) | .90 | (.41) |
| 5 | (125) | 1/2 | 5 5/8 | (142.88) | 6 1/8 | (155.58) | 3 | (76.20) | 5 | (127.00) | 2700 | (12.01) | 2114 | (9.41) | 1.01 | (.46) |
| 6 | (150) | 5/8 | 6 3/4 | (171.45) | 7 3/8 | (187.33) | 3 3/4 | (95.25) | 6 1/8 | (155.58) | 4320 | (19.22) | 3383 | (15.05) | 2.00 | (.91) |
| 8 | (200) | 5/8 | 8 3/4 | (222.25) | 9 3/8 | (238.13) | 3 3/4 | (95.25) | 7 1/8 | (180.98) | 4320 | (19.22) | 3383 | (15.05) | 2.33 | (1.06) |
| 10 | (250) | 3/4 | 10 7/8 | (276.23) | 11 5/8 | (295.28) | 4 | (101.60) | 8 3/8 | (212.73) | 6460 | (28.74) | 5059 | (22.50) | 4.91 | (2.23) |
| 12 | (300) | 7/8 | 12 7/8 | (327.03) | 13 3/4 | (349.25) | 4 1/4 | (107.95) | 9 5/8 | (244.48) | 8960 | (39.86) | 7017 | (31.21) | 7.73 | (3.51) |
| 14 | (350) | 7/8 | 14 1/8 | (358.78) | 15 | (381.00) | 4 1/4 | (107.95) | 10 1/4 | (260.35) | 8960 | (39.86) | 7017 | (31.21) | 8.30 | (3.76) |
| 16 | (400) | 7/8 | 16 1/8 | (409.58) | 17 | (431.80) | 4 1/4 | (107.95) | 11 1/4 | (285.75) | 8960 | (39.86) | 7017 | (31.21) | 9.20 | (4.17) |
| 18 | (450) | 1 | 18 1/8 | (460.38) | 19 1/8 | (485.78) | 4 3/4 | (120.65) | 12 5/8 | (320.68) | 11800 | (52.49) | 9241 | (41.11) | 13.5 | (6.12) |
| 20 | (500) | 1 | 20 1/8 | (511.18) | 21 1/8 | (536.58) | 4 3/4 | (120.65) | 13 5/8 | (346.08) | 11800 | (52.49) | 9241 | (41.11) | 14.6 | (6.62) |
| 24 | (600) | 1 | 24 1/8 | (612.78) | 25 1/8 | (638.18) | 4 3/4 | (120.65) | 15 5/8 | (396.88) | 11800 | (52.49) | 9241 | (41.11) | 16.9 | (7.67) |
| 30 | (750) | 1 | 30 1/8 | (765.18) | 31 1/8 | (790.58) | 4 3/4 | (120.65) | 18 5/8 | (473.08) | 11800 | (52.49) | 9241 | (41.11) | 19.1 | (8.66) |
| 36 | (900) | 1 | 36 1/8 | (917.58) | 37 1/8 | (942.98) | 4 3/4 | (120.65) | 21 5/8 | (549.28) | 11800 | (52.49) | 9241 | (41.11) | 23.2 | (10.52) |

## Fig. 90S
SPECIAL U-BOLT

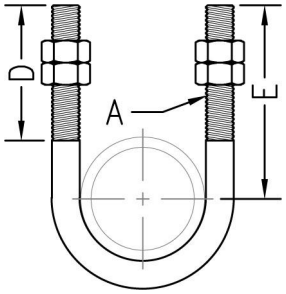



Fig. 90S Special U-Bolts are available upon request. Please specify:

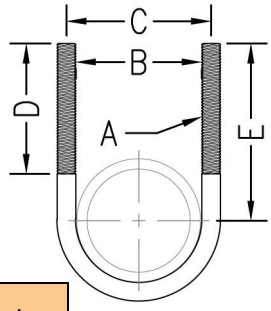
- Figure Number
- Pipe Size
- Rod Size "A"
- Length of Threads "D"
- Tangent "E"
- Material
- Finish

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

## LIGHT DUTY U-BOLT — FIG. 95

**Function:** Designed for use as a support, anchor, or guide for various types of pipe in light duty applications.
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, pipe size, material, and finish. If nuts are required, order Fig. 110 separately.

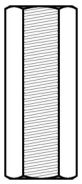
*NOTE: Regularly furnished without nuts unless specified otherwise.*




| Pipe Size | | Rod Size A | B | | C | | D | | Tangent E | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | lbs. | kN | lbs. | kg |
| 1/2 | (15) | 1/4 | 15/16 | (23.81) | 1 3/16 | (30.16) | 1 3/4 | (44.45) | 1 15/16 | (49.21) | 580 | (2.58) | .06 | (0.03) |
| 3/4 | (20) | 1/4 | 1 1/8 | (28.58) | 1 3/8 | (34.93) | 1 3/4 | (44.45) | 2 1/16 | (52.39) | 580 | (2.58) | .07 | (0.03) |
| 1 | (25) | 1/4 | 1 3/8 | (34.93) | 1 5/8 | (41.28) | 1 3/4 | (44.45) | 2 3/16 | (55.56) | 580 | (2.58) | .07 | (0.03) |
| 1 1/4 | (32) | 1/4 | 1 11/16 | (42.86) | 1 15/16 | (49.21) | 1 3/4 | (44.45) | 2 3/8 | (60.33) | 580 | (2.58) | .08 | (0.04) |
| 1 1/2 | (40) | 1/4 | 2 | (50.80) | 2 1/4 | (57.15) | 1 3/4 | (44.45) | 2 7/16 | (61.91) | 580 | (2.58) | .09 | (0.04) |
| 2 | (50) | 1/4 | 2 7/16 | (61.91) | 2 11/16 | (68.26) | 1 3/4 | (44.45) | 2 11/16 | (68.26) | 580 | (2.58) | .10 | (0.05) |
| 2 1/2 | (65) | 3/8 | 2 15/16 | (74.61) | 3 5/16 | (84.14) | 2 | (50.80) | 3 1/16 | (77.79) | 1460 | (6.49) | .28 | (0.13) |
| 3 | (80) | 3/8 | 3 9/16 | (90.49) | 3 15/16 | (100.01) | 2 | (50.80) | 3 3/8 | (85.73) | 1460 | (6.49) | .31 | (0.14) |
| 3 1/2 | (90) | 3/8 | 4 1/16 | (103.19) | 4 7/16 | (112.71) | 2 | (50.80) | 3 5/8 | (92.08) | 1460 | (6.49) | .35 | (0.16) |
| 4 | (100) | 3/8 | 4 9/16 | (115.89) | 4 15/16 | (125.41) | 2 | (50.80) | 3 7/8 | (98.43) | 1460 | (6.49) | .38 | (0.17) |
| 5 | (125) | 3/8 | 5 5/8 | (142.88) | 6 | (152.40) | 2 1/4 | (57.15) | 4 9/16 | (115.89) | 1460 | (6.49) | .45 | (0.20) |
| 6 | (150) | 1/2 | 6 3/4 | (171.45) | 7 1/4 | (184.15) | 2 1/4 | (57.15) | 5 1/16 | (128.59) | 2700 | (12.01) | .95 | (0.43) |
| 8 | (200) | 1/2 | 8 3/4 | (222.25) | 9 1/4 | (234.95) | 2 1/4 | (57.15) | 6 1/16 | (153.99) | 2700 | (12.01) | 1.20 | (0.54) |
| 10 | (250) | 5/8 | 10 7/8 | (276.23) | 11 1/2 | (292.10) | 2 1/2 | (63.50) | 7 1/4 | (184.15) | 4320 | (19.22) | 2.30 | (1.04) |

## STANDARD ROD COUPLING — FIG. 100

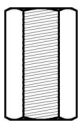
**Function:** Designed to provide a means of connecting two lengths of threaded rod with equal diameters.
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized
**Ordering:** Specify figure number, rod size, material, and finish.



| Rod Size | Length | | Hex Width | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|
| | | | | | lbs. | kN | lbs. | kg |
| 1/4 | 7/8 | (22.23) | 3/8 | (9.53) | 240 | (1.07) | .06 | (0.03) |
| 3/8 | 1 3/4 | (44.45) | 5/8 | (15.88) | 730 | (3.25) | .11 | (0.05) |
| 1/2 | 1 3/4 | (44.45) | 11/16 | (17.46) | 1350 | (6.01) | .11 | (0.05) |
| 5/8 | 2 1/8 | (53.98) | 13/16 | (20.64) | 2160 | (9.61) | .17 | (0.08) |
| 3/4 | 2 1/4 | (31.75) | 1 | (25.40) | 3230 | (14.37) | .28 | (0.13) |
| 7/8 | 2 1/2 | (63.50) | 1 1/4 | (31.75) | 4480 | (19.93) | .56 | (0.25) |
| 1 | 2 3/4 | (69.85) | 1 3/8 | (34.93) | 5900 | (26.24) | .72 | (0.33) |

## SHORT PATTERN ROD COUPLING — FIG. 104

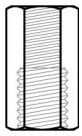
**Function:** Designed to provide a means of connecting two lengths of threaded rod with equal diameters.
**Material:** Carbon steel
**Finish:** Plain or electro-galvanized
**Ordering:** Specify figure number, rod size, and finish.



| Rod Size | Length | | Hex Width | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|
| | | | | | lbs. | kN | lbs. | kg |
| 3/8 | 1 1/8 | (28.58) | 1/2 | (12.70) | 730 | (3.25) | .04 | (0.02) |
| 1/2 | 1 1/4 | (31.75) | 5/8 | (15.88) | 1350 | (6.01) | .06 | (0.03) |

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

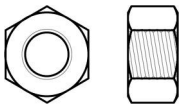
## FIG. 105 REDUCING ROD COUPLING



**Function:** Designed to provide a means of connecting two lengths of threaded rod with different diameters.
**Material:** Carbon steel
**Finish:** Plain or electro-galvanized
**Ordering:** Specify figure number, rod size, and finish.

| Rod Size | Length | | Hex Width | | Max. Rec. Load | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|
| | | | | | lbs. | kN | lbs. | kg |
| 3/8 x 1/4 | 1 | (25.40) | 1/2 | (12.70) | 240 | (1.07) | .04 | (0.02) |
| 1/2 x 3/8 | 1 1/4 | (31.75) | 5/8 | (15.88) | 730 | (3.25) | .07 | (0.03) |
| 5/8 x 1/2 | 1 1/4 | (31.75) | 13/16 | (20.64) | 1350 | (6.01) | .14 | (0.06) |
| 3/4 x 5/8 | 1 1/2 | (38.10) | 1 | (25.40) | 2160 | (9.61) | .13 | (0.06) |
| 7/8 x 3/4 | 1 3/4 | (44.45) | 1 1/4 | (31.75) | 3230 | (14.37) | .26 | (0.12) |

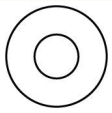
## FIG. 110 & 110H HEX NUT



**Function:** Designed for use as a fastening device.
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, rod size, material, and finish.
Standard Hex Nut **(Fig. 110)** or Heavy Hex Nut **(Fig. 110H)**.

| Rod Size | Wt. Each | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1/4 | | 5/16 | | 3/8 | | 1/2 | | 5/8 | | 3/4 | | 7/8 | | 1 | | 1 1/8 | | 1 1/4 | | 1 1/2 | |
| | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg | lbs. | kg |
| Fig. 110 | .01 | (.01) | .01 | (.01) | .02 | (.01) | .04 | (.02) | .07 | (.03) | .12 | (.05) | .19 | (.09) | .28 | (.13) | .40 | (.18) | .54 | (.24) | .94 | (.43) |
| Fig. 110H | -- | -- | -- | -- | .03 | (.01) | .07 | (.03) | .12 | (.05) | .19 | (.09) | .30 | (.14) | .43 | (.20) | .59 | (.27) | .79 | (.36) | 1.31 | (.59) |

## FIG. 130 FLAT WASHER



**Function:** Designed to provide a greater bearing surface diameter.
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, rod size, material, and finish.

| Rod Size | | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | 7/8 | 1 | 1 1/8 | 1 1/4 | 1 1/2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I.D. | | 5/16 (7.94) | 7/16 (11.11) | 9/16 (14.29) | 11/16 (17.46) | 13/16 (20.64) | 15/16 (23.81) | 1 1/16 (26.99) | 1 1/4 (31.75) | 1 3/8 (34.93) | 1 5/8 (41.28) |
| O.D. | | 3/4 (19.05) | 1 (25.40) | 1 3/8 (34.93) | 1 3/4 (44.45) | 2 (50.80) | 2 1/4 (57.15) | 2 1/2 (63.50) | 2 3/4 (69.85) | 3 (76.20) | 3 1/2 (88.90) |
| Wt. Each | lbs. | .01 | .02 | .04 | .08 | .11 | .15 | .19 | .22 | .26 | .38 |
| | kg | (.01) | (.01) | (.02) | (.04) | (.05) | (.07) | (.09) | (.10) | (.12) | (.17) |

## FIG. 134 LOCK WASHER

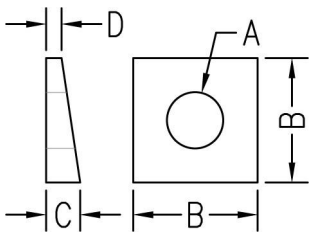
**Function:** Designed to prevent threaded fasteners from un-threading over time.
**Material:** Carbon steel (Type 304 or 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Ordering:** Specify figure number, rod size, material, and finish.

| Rod Size | I.D. | | O.D. | | Wt. Each | |
|---|---|---|---|---|---|---|
| | | | | | lbs. | kg |
| 3/8 | 7/16 | (11.11) | 11/16 | (17.46) | .007 | (.003) |
| 1/2 | 9/16 | (14.29) | 7/8 | (22.23) | .015 | (.007) |
| 5/8 | 11/16 | (17.46) | 1 1/16 | (26.99) | .026 | (.012) |
| 3/4 | 13/16 | (20.64) | 1 1/4 | (31.75) | .043 | (.020) |

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.

## BEVEL WASHER — FIG. 135

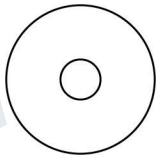
**Function:** Designed to be used on a tapered surface to permit the fastening of a bolt at a right angle.
**Material:** Malleable iron
**Finish:** Plain or electro-galvanized
**Ordering:** Specify figure number, rod size, and finish.




| Rod Size | B | | C | | D | | Wt. Each | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | lbs. | kg |
| 3/8 | 1 1/4 | (31.75) | 11/32 | (8.73) | 5/32 | (3.97) | .09 | (.04) |
| 1/2 | 1 1/4 | (31.75) | 11/32 | (8.73) | 5/32 | (3.97) | .09 | (.04) |
| 5/8 | 1 3/4 | (44.45) | 13/32 | (10.32) | 5/32 | (3.97) | .14 | (.06) |
| 3/4 | 1 1/2 | (38.10) | 15/32 | (11.91) | 7/32 | (5.56) | .16 | (.07) |
| 7/8 | 2 | (50.80) | 9/16 | (14.29) | 7/32 | (5.56) | .33 | (.15) |

## FENDER WASHER — FIG. 136

**Function:** Designed to provide a greater bearing surface diameter.
**Material:** Carbon steel
**Finish:** Electro-galvanized
**Ordering:** Specify figure number and rod size.

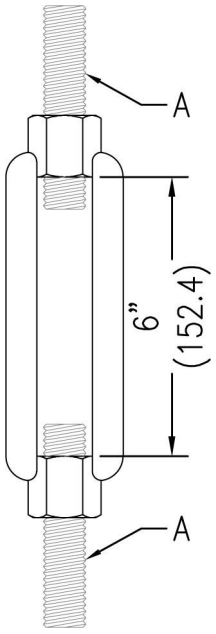


| Rod Size | I.D. | | O.D. | | Wt. Each | |
|---|---|---|---|---|---|---|
| | | | | | lbs. | kg |
| 3/8 | 13/32 | (10.32) | 1 1/2 | (38.10) | .03 | (.01) |
| 1/2 | 17/32 | (13.49) | 2 | (50.80) | .03 | (.01) |

## TURNBUCKLE — FIG. 960

**Function:** Designed for use as a hanger rod connection on heavy loads when an adjustment of up to 6 (152.4) inches is required.
**Material:** Forged steel (Type 316 Stainless Steel upon request)
**Finish:** Plain or electro-galvanized (Hot dipped galvanized upon request)
**Approvals:** Complies with Federal Specification A-A-1192A (Type 13) and Manufacturers' Standardization Society ANSI/MSS SP-58 (Type 13) which supersedes ANSI/MSS SP-69.
**Ordering:** Specify figure number, rod size, and finish.

*NOTE: Openings of 3" (76.2), 9" (228.6) and 12" (304.8) are available upon request.*




| Rod Size A | Max. Rec. Load | | | | Wt. Each | |
|---|---|---|---|---|---|---|
| | 650°F (343°C) | | 750°F (399°C) | | | |
| | lbs. | kN | lbs. | kN | lbs. | kg |
| 3/8 | 730 | (3.25) | 572 | (2.54) | .50 | (.23) |
| 1/2 | 1350 | (6.01) | 1057 | (4.70) | .75 | (.34) |
| 5/8 | 2160 | (9.61) | 1692 | (7.52) | 1.12 | (.51) |
| 3/4 | 3230 | (14.37) | 2530 | (11.25) | 1.75 | (.79) |
| 7/8 | 4480 | (19.93) | 3508 | (15.61) | 1.83 | (.83) |
| 1 | 5900 | (26.24) | 4620 | (20.55) | 2.60 | (1.18) |
| 1 1/8 | 7450 | (33.14) | 5834 | (25.95) | 3.68 | (1.67) |
| 1 1/4 | 9500 | (42.26) | 7440 | (33.09) | 4.75 | (2.15) |
| 1 1/2 | 13800 | (61.39) | 10807 | (48.07) | 6.25 | (2.83) |

Unless otherwise specified, all dimensions on drawings and in charts are in inches and dimensions shown in parentheses are in millimeters.