Fig. 135 and 135i: Straight with Sight-Hole Rod Coupling
Fig. 135E: Straight without Sight-Hole
Fig. 135R: Reducing

Size Range: 1/4" through 1"
Material: Carbon steel
Finish: Fig. 135: Plain; Fig.135E and Fig.135R: Zinc Plated
Service: For connecting rods to accommodate up to 1" diameter and support up to 5,900 pounds.
Ordering: Specify rod size, figure number and name.

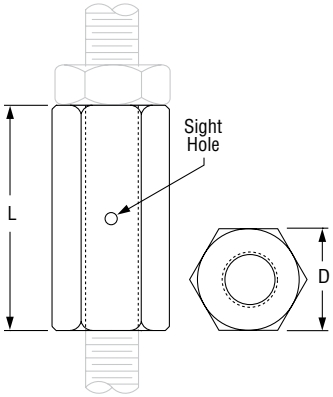


FIG 135, 135i, 135E, 135R: DIMENSIONS (IN) • LOADS (LBS) • WEIGHTS (LBS)

Rod Size A	Max Load	Weight	D	L
Fig. 135 & 135i: Straight With Sight-Hole				
3/8	730	0.09	9/16	1 1/8
1/2	1,350	0.12	3/4	1 1/2
5/8	2,160	0.24	15/16	1 7/8
3/4	3,230	0.42	1 1/8	2 1/4
7/8	4,480	0.66	1 5/16	2 5/8
1	5,900	1.00	1 1/2	3
Fig. 135E: Straight Less Sight-Hole				
1/4	240	0.03	3/8	7/8
3/8	730	0.09	5/8	1 1/8
1/2	1,350	0.14	11/16	1 3/4
5/8	2,160	0.26	13/16	2 1/8
3/4	3,230	0.34	1	2 1/4
7/8	4,480	0.55	1 1/4	2 1/2
1	5,900	0.75	1 3/8	2 3/4
Fig. 135R: Reducing				
3/8 x 1/4	240	0.13	5/8	1 1/2
1/2 x 3/8	730	0.13	11/16	1 1/4
5/8 x 1/2	1,350	0.19	13/16	1 1/4
3/4 x 5/8	2,160	0.26	1	1 1/2
7/8 x 3/4	3,230	0.41	1 1/4	1 3/4

Fig. 136: Straight
Fig. 136R: Reducing
Rod Coupling

Size Range: 1/4" through 1"
Material: Malleable iron
Finish: Plain or Zinc Plated
Service: For connecting rod lengths within limitation.
Approvals: Fig. 136: UL, ULC Listed (3/8" - 7/8" rod size) and FM Approved (3/8" and 1/2" rod size). Fig. 136R: UL Listed (1/2" and 3/8" rod size).
Features:

- Available in reducing sizes.
- Provides visual inspection of thread engagement.
- Uniform strength; good appearance.

Ordering: Specify rod tapping size, figure number and name. Furnished with right-hand UNC threads only.

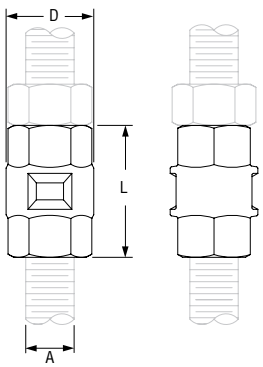


FIG. 136, 136R: DIMENSIONS (IN) • LOADS (LBS) • WEIGHTS (LBS)

Rod Size A	Max Load	Weight	L	D
Straight: Fig. 136				
1/4	230	0.06	1 3/8	5/8
3/8	730	0.10	1 5/8	11/16
1/2	1,350	0.20	2 1/8	15/16
5/8	2,160	0.33	2 1/2	1 1/8
3/4	3,230	0.44	2 5/8	1 1/4
7/8	4,480	0.96	3 3/16	1 5/8
1	5,900	0.94	2 3/4	1 13/16
Reducing: Fig. 136R				
3/8 x 1/4	230	0.10	1 5/8	1 5/8
1/2 x 3/8	730	0.21	2 1/8	2 1/8

Fig. 114

Turnbuckle Adjuster

Size Range: 1/4" through 3/4"
Material: Malleable iron
Finish: Plain
Installation: Normally used with split pipe ring, Fig. 108, see page 40.
Approvals: Complies with Federal Specification A-A-1192A (Type 15), *WW-H-171-E (Type 15)*, ANSI/MSS SP-69 and MSS SP-58 (Type 15).
Maximum Temperature: 450° F
Features:

- An economical and simple means of obtaining vertical adjustment and flexibility at the pipe connection.
- Permits adjustment after pipe is in place.

Ordering: Specify rod size, figure number and name.

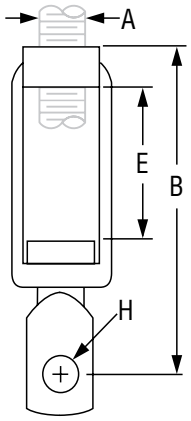


FIG. 114: DIMENSIONS (IN) • LOADS (LBS) • WEIGHTS (LBS)					
Rod Size A	Max Load	Weight	B	E	H
1/4	230	0.09	2 1/2	1 1/4	7/32
3/8	730	0.28	3 7/8	1 7/8	13/32
1/2		0.31		1 13/16	
5/8		0.72	4 7/8	2 5/16	1/2
3/4	860	0.70			9/16

Fig. 230

Turnbuckle

Size Range: 3/8" through 2 1/2"
Material: Forged steel
Finish: Plain or Zinc Plated (Hot-Dip Galvanized optional)
Service: Provides adjustment up to 6" for 12" Fig. 230 and 3" for 6" Fig. 230.
Approvals: Complies with Federal Specification A-A-1192A (Type 13), *WW-H-171-E (Type 13)*, ANSI/MSS SP-69 and MSS SP-58 (Type 13).
Ordering: Specify rod size, figure number, name and finish.
Note: The acceptability of galvanized coatings at temperatures above 450°F is at the discretion of the end user.

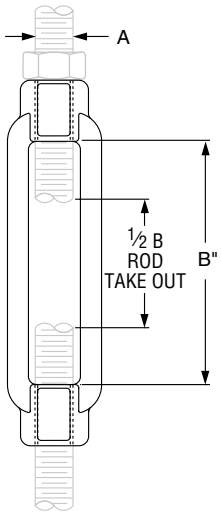


FIG. 230: DIMENSIONS (IN) • LOADS (LBS) • WEIGHTS (LBS)

Rod Size A •	Max Load		Weight	
	650°F	750°F	B= 6" Opening	B=12" Opening
3/8	730	572	0.42	–
1/2	1,350	1,057	0.65	1.20
5/8	2,160	1,692	0.98	1.58
3/4	3,230	2,530	1.50	2.35
7/8	4,480	3,508	1.90	4.05
1	5,900	4,620	2.60	4.02
1 1/4	9,500	7,440	4.50	–
1 1/2	13,800	10,807	6.40	–
1 3/4	18,600	14,566	11.00	–
2	24,600	19,265	14.90	–
2 1/4	32,300	25,295	19.60	–
2 1/2	39,800	31,169	26.90	–

• Tapped right hand and left hand thread. Larger rod sizes or openings available upon request

Fig. 233

Turnbuckle

Size Range: 1 1/4" through 5"
Material: Carbon steel
Finish: Plain or Zinc Plated (Hot-Dip Galvanized optional)
Services: Provides adjustments up to 12" with loads up thru 184,000 pounds.
Approvals: Complies with Federal Specification A-A-1192A (Type 13), *WW-H-171-E (Type 13)*, ANSI/MSS SP-69 and MSS SP-58 (Type 13).
Ordering: Specify rod size, figure number, name, finish and opening dimension.

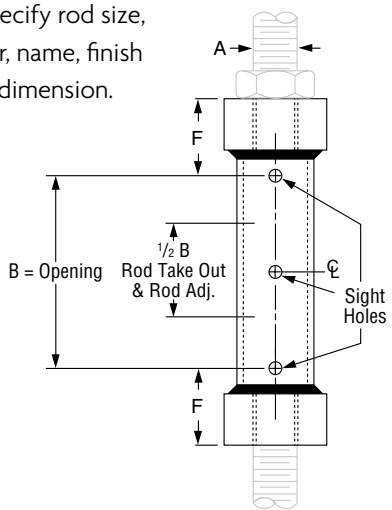


FIG. 233: DIMENSIONS (IN) • LOADS (LBS) • WEIGHTS (LBS)

Rod Size* A	Max Load	Weight/Opening				F
		B= 6"	B=12"	B=18"	B=24"	
1 1/4	9,500	–	9.0	10.8	12.6	2 1/8
1 1/2	13,800	–	12.4	14.9	17.4	2 3/8
1 3/4	18,600	–	11.7	14.2	16.7	
2	24,600	–	20.9	24.7	28.5	3 3/16
2 1/4	32,300	–	29.5	34.6	39.7	3 1/4
2 1/2	39,800	–	28.3	33.4	38.5	
2 3/4	49,400	35.6	41.8	48.1	54.3	3 1/2
3	60,100	41.6	49.1	56.6	64.1	3 13/16
3 1/4•	71,900	39.6	47.0	54.5	62.0	
3 1/2•	84,700	72.5	82.9	93.3	103.7	4 7/16
3 3/4•	98,500	69.6	80.0	90.4	107.30	
4•	113,400	110.7	125.1	139.4	153.6	5
4 1/4•	129,400	107.1	121.5	135.7	150.0	
4 1/2•	146,600	233.5	255.2	276.9	298.6	6 13/16
4 3/4•	164,700	227.6	249.3	271.0	292.7	
5•	184,000	221.4	243.1	264.8	286.5	

• Furnished with 4 UN series threads. *Tapped right hand and left hand thread.

Fig. 299

Forged Steel Clevis

Size Range: 3/8" through 4"
Material: Forged steel
Finish: Plain or Zinc Plated (Hot-Dip Galvanized optional)
Service: For use on high temperature piping installations.
Approvals: Complies with Federal Specification A-A-1192A (Type 14), *WW-H-171-E (Type 14)*, ANSI/MSS SP-69 and MSS SP-58 (Type 14).
Features:

- Available with pin and cotter pins, if required.

Ordering: Specify rod size, figure number, name and finish. If pin and cotter pins are required, specify "with pin". If other than standard combination of clevis number and rod size is required, specify clevis number, special rod tapping size, pin size, grip.
Note: The acceptability of galvanized coatings at temperatures above 450°F is at the discretion of the end user.

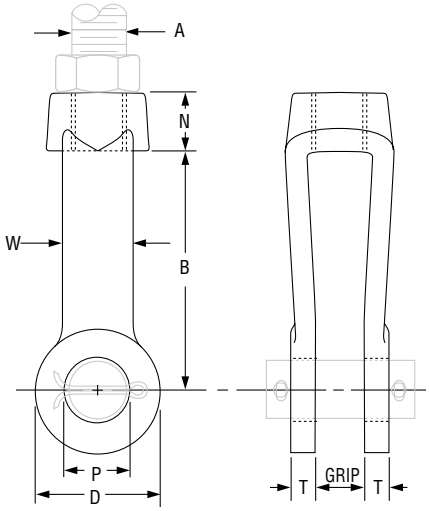


FIG. 299: DIMENSIONS (IN) • LOADS (LBS) • WEIGHTS (LBS)

Rod Size A	Max Load 650° F	Max Load 750° F	Weight Without Pin	Weight With Pin	Rod Take Out – B	D	N	Pin Dia. P	T	W	Grip	Clevis No.
3/8	730	572	0.9	1.0	3 11/16	1 7/16	5/8	1/2	5/16	1 1/16	1/2	2
1/2	1,350	1,057	0.7	0.9				5/8				
5/8	2,160	1,692	0.7	0.9				3/4			5/8	
3/4	3,230	2,530	2.5	3.0	4	2 1/2	1	7/8	5/16	1 5/16	3/4	2 1/2
7/8	4,480	3,508	2.5	3.4				1			7/8	
1	5,900	4,620	4.0	5.1	5	3	1 5/16	1 1/8	1/2	1 1/2	1	3
1 1/4	9,500	7,440	3.8	5.5				1 3/8			1 1/4	
1 1/2	13,800	10,807	6.0	8.5	6	3 1/2	1 5/8	1 5/8		1 3/4	1 1/2	3 1/2
1 3/4	18,600	14,566	8.0	12.9		4	1 3/4	1 7/8		2		4
2	24,600	19,265	16.0	23.3	7	5	2 1/4	2 1/4	5/8	2 1/2	2 1/2	5
2 1/4	32,300	25,295	26.0	35.1	8	6	2 3/4	2 1/2	3/4	3		6
2 1/2	39,800	31,169	25.5	36.0				2 3/4				
2 3/4	49,400	38,687	36.0	50.0	9	7	3	3	7/8	3 1/2		7
3	60,100	47,066	35.0	51.5				3 1/4				
3 1/4 •	71,900	56,307	90.0	116.0	10	8	4	3 1/2	1 1/2	4	4	8
3 1/2 •	84,700	66,331	88.0	118.0				3 3/4				
3 3/4 •	98,500	77,139	86.0	120.0				4				
4 •	113,400	88,807	84.0	122.0				4 1/4				

• Furnished with 4 UN series threads.

Fig. 291

Clevis Pin with Cotters

Size Range: 1/2" through 4"
Material: Carbon steel
Finish: Plain or Zinc Plated (Hot-Dip Galvanized optional)
Maximum Temperature: 650° F
Service: For use with type C variable spring hanger, type C constant support (Fig. 81-H only) and Fig. 66 welded beam attachment.
Ordering: Specify pin diameter, figure number, name, finish and if cotter pins are required.
Note: The acceptability of galvanized coatings at temperatures above 450°F is at the discretion of the end user.

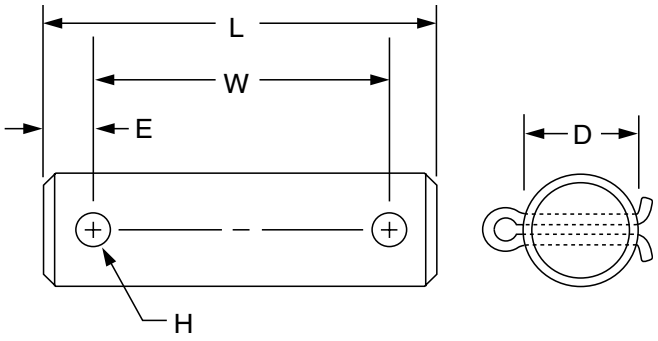
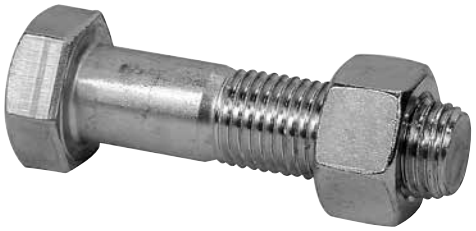


FIG. 291: DIMENSIONS (IN) • LOADS (LBS) • WEIGHTS (LBS)

Pin Dia. D	Max Load 650° F	Max Load 750° F	Weight	L	W	E	H	Cotter Pin Size
1/2	730	572	0.12	2 7/8	2 1/8	3/8	5/32	1/8 x 1 1/4
5/8	1,350	1,057	0.18	3 1/8	2 3/8			
3/4	2,160	1,691	0.29	3 5/8	2 7/8		7/32	3/16 x 1 1/2
7/8	3,230	2,529	0.47	4 1/4	3 1/2			
1	4,480	3,508	0.67	4	3 1/4			3/16 x 2
1 1/8	5,900	4,620	1.00	4 3/4	4			
1 3/8	9,500	7,439	2.10	5 3/8	4 3/8	1/2	9/32	1/4 x 2 1/2
1 5/8	13,800	10,805	3.30	6	5			1/4 x 3
1 7/8	18,600	14,564	4.80	7 1/8	5 7/8	5/8	3/8	3/8 x 3
2 1/4	24,600	19,262	7.20					3/8 x 3 1/4
2 1/2	32,300	25,291	9.30	7 5/8	6 3/8			3/8 x 3 3/4
2 3/4	39,800	31,163	12.50	7 7/8	6 5/8			3/8 x 4
3	49,400	38,680	16.60	8 1/4	6 3/4	3/4	1/2	1/2 x 5
3 1/4	60,100	47,058	20.00	8 1/2	7			
3 1/2	71,900	56,298	23.90	8 3/4	7 1/4			1/2 x 6
3 3/4	84,700	66,320	25.10	9 1/2	8			
4	98,500	77,125	34.80	9 3/4	8 1/4			

Machine Bolts

Size Range: American Standard hexagon head bolts with American Standard hexagon nuts are stocked in sizes 3/8" through 1 1/8" UNC thread series. Other sizes are available upon request. Lengths of bolts are measured from under head to extreme point.
Finish: Plain or Electroplated
Ordering: Specify bolt size, name and length.



Hexagon Nuts

Size Range:

- American Standard hexagon nuts - sizes 1/4" thru 1 1/2".
- American Standard heavy hexagon flat nuts - sizes 1 3/4" thru 3 3/4".

Finish: Plain or Electroplated
Ordering: Specify bolt or rod size and name.

HEX NUTS: DIMENSIONS (IN)		
Bolt /Rod Size	Width	Thickness
1/4	7/16	15/64
3/8	9/16	11/32
1/2	3/4	29/64
5/8	15/16	9/16
3/4	1 1/8	43/64
7/8	1 5/16	25/32
1	1 1/2	57/64
1 1/4	1 7/8	1 3/32
1 3/8	2 1/16	1 13/64
1 1/2	2 1/4	1 5/16

HEAVY HEX NUTS: DIMENSIONS (IN)		
Bolt /Rod Size	Width	Thickness
1 3/4	2 3/4	1 25/32
2	3 1/8	2 1/32
2 1/4	3 1/2	2 19/64
2 1/2	3 7/8	2 35/64
2 3/4	4 1/4	2 13/16
3	4 5/8	3 1/16
3 1/4 ■	5	3 5/16
3 1/2 ■	5 3/8	3 9/16
3 3/4 ■	5 3/4	3 13/16

■ Furnished with 8 UN or 4 UN threads as required.