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Handling and Storing - Clips & Wedge Sockets

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Handling and Storing - Clips & Wedge Sockets

Wire rope clips are widely used for making end terminations. Clips are available in two basic designs; the U-bolt and fist grip. The efficiency of both types is the same.

When using U-bolt clips, extreme care must be exercised to make certain that they are attached correctly; i.e., the U-bolt must be applied so that the "U" section is in contact with the dead end of the rope. Also, the tightening and retightening of the nuts must be accomplished as required.

Use only forged clips for critical, heavy-duty, overhead loads, such as support lines, guy lines, towing lines, tie downs, scaffolds, etc.

Malleable clips are to be used for making eye termination assemblies only with right regular lay wire rope and only for light duty uses with small applied loads, such as hand rails, fencing, guard rails, etc.

How to Apply U-Bolt Clips

Recommended method of applying U-Bolt clips to get maximum holding power of the clip. The following is based on the use of proper size U-Bolt clips on new rope.

1. Refer to the table in following these instructions. Turn back specified amount of rope from thimble or loop. Apply first clip one base width from dead end of rope. Apply U-Bolt over dead end of wire rope with live end resting in saddle. Tighten nuts evenly, alternating from one nut to the other until reaching the recommended torque.
2. When two clips are required, apply the second clip as near the loop or thimble as possible. Tighten nuts evenly, alternating until reaching the recommended torque. When more than two clips are required, apply the second clip as near the loop or thimble as possible, turn nuts on second clip firmly, but do not tighten. Proceed to Step 3.
3. When three or more clips are required, space additional clips equally between first two-take up rope slack-tighten nuts on each U-Bolt evenly, alternating from one nut to the other until reaching recommended torque.
4. Apply first load to test the assembly. This load should be of equal or greater weight than loads expected in use. Next, check and retighten nuts to recommended torque.

In accordance with good rigging and maintenance practices, the wire rope and termination should be inspected periodically for wear, abuse, and general adequacy.

Inspect periodically and retighten to recommended torque.



U-Bolt Clips

Dimensions in inches

Clip size	A	B	C	D	E	F	G	H	Min. No. of Clips	Amount of Rope to Turn Back	Torque in Lbs. Ft.	Weight Pounds Per 100
1/8	0.22	0.72	0.44	0.47	0.37	0.38	0.81	0.99	2	3 1/4	5	6
3/16	0.25	0.97	0.56	0.59	0.50	0.44	0.94	1.18	2	3 3/4	8	10
1/4	0.31	1.03	0.50	0.75	0.66	0.56	1.19	1.43	2	4 3/4	15	19
5/16	0.38	1.38	0.75	0.88	0.73	0.69	1.31	1.66	2	5 1/4	30	28
3/8	0.44	1.50	0.75	1.00	0.91	0.75	1.63	1.94	2	6 1/2	45	48
7/16	0.50	1.88	1.00	1.19	1.13	0.88	1.91	2.28	2	7	65	78
1/2	0.50	1.88	1.00	1.19	1.13	0.88	1.91	2.28	3	11 1/2	65	80
9/16	0.56	2.25	1.25	1.31	1.34	0.94	2.06	2.50	3	12	95	109
5/8	0.56	2.25	1.25	1.31	1.34	0.94	2.06	2.50	3	12	95	110
3/4	0.62	2.75	1.44	1.50	1.39	1.06	2.25	2.84	4	18	130	142
7/8	0.75	3.12	1.62	1.75	1.58	1.25	2.44	3.16	4	19	225	212
1	0.75	3.50	1.81	1.88	1.77	1.25	2.63	3.47	5	26	225	252
1 1/8	0.75	3.88	2.00	2.00	1.91	1.25	2.81	3.59	6	34	225	283
1 1/4	0.88	4.44	2.22	2.31	2.17	1.44	3.13	4.13	7	44	360	438
1 3/8	0.88	4.44	2.22	2.38	2.31	1.44	3.13	4.19	7	44	360	442
1 1/2	0.88	4.94	2.38	2.59	2.44	1.44	3.41	4.44	8	54	360	544
1 5/8	1.00	5.31	2.62	2.75	2.66	1.63	3.63	4.75	8	58	430	704
1 3/4	1.13	5.75	2.75	3.06	2.92	1.81	3.81	5.24	8	61	590	934
2	1.25	6.44	3.00	3.38	3.28	2.00	4.44	5.88	8	71	750	1300
2 1/4	1.25	7.13	3.19	3.88	3.19	2.00	4.56	6.38	8	73	750	1600
2 1/2	1.25	7.69	3.44	4.13	3.69	2.00	4.05	6.63	9	84	750	1900
2 3/4	1.25	8.31	3.56	4.38	4.88	2.00	5.00	6.88	10	100	750	2300
3	1.50	9.19	3.88	4.75	4.44	2.38	5.31	7.61	10	106	1200	3100
3 1/2	1.50	10.75	4.50	5.50	6.00	2.38	6.19	8.38	12	149	1200	4000

If a pulley (sheave) is used for turning back the wire rope, add one additional clip. If a greater number of clips are used than shown in the table, the amount of turnback should be increased proportionally. The tightening torque values shown are based upon the threads being clean, dry, and free of lubrication. Above values do not apply to plastic coated wire rope.

A termination made in accordance with the above instructions, and using the number of clips shown, has an approximate 80% efficiency rating. This rating is based upon the minimum breaking force of wire rope. If a pulley is used in place of a thimble for turning back the rope, add one additional clip.

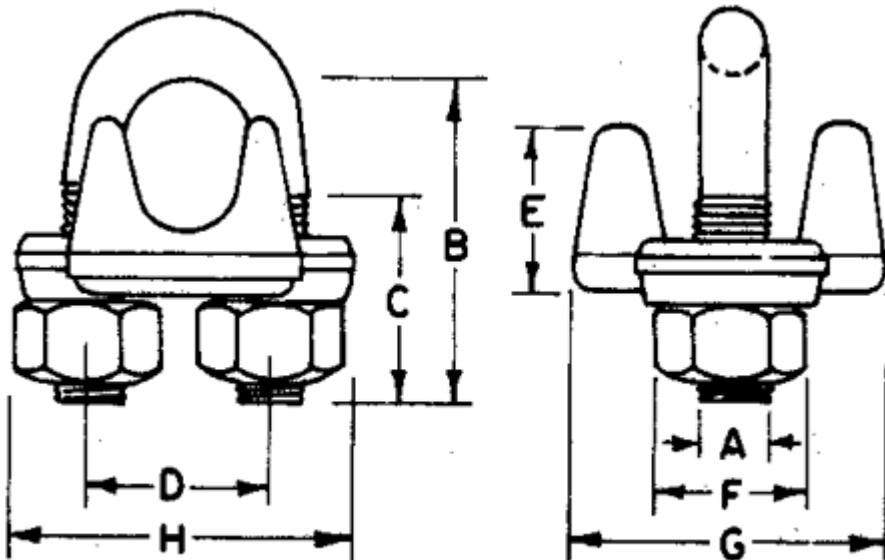
The number of clips shown is based upon using right regular or lang lay wire rope, 6x19 classification or 6x36 classification, fiber core or IWRC, IPS or XIP®. If Seale construction or similar large outer wire type construction in the 6x19 classification is to be used for sizes 1 inch and larger, add one additional clip.

The number of clips shown also applies to right regular lay wire rope, 8x19 classification, fiber core, IPS, sizes 1-1/2 inch and smaller; and right regular lay wire rope, 19x7 classification, IPS or XIP, sizes 1-3/4 inch and smaller.

For other classifications of wire rope not mentioned above, it may be necessary to add additional clips to the number shown.

If a greater number of clips are used than shown in the table, the amount of rope turnback should be increased proportionately. **ABOVE BASED ON USE OF PROPER SIZE U-BOLT CLIPS ON NEW ROPE.**

IMPORTANT: *Failure to make a termination in accordance with aforementioned instructions, or failure to periodically check and retighten to the recommended torque, may cause a reduction in efficiency rating.*



The correct way to attach U-Bolts is shown at the top; the "U" section is in contact with the dead end of the rope and is clear of the thimble.

Wedge Sockets

One of the more popular end attachments for wire rope is the wedge socket. For field, or on the job attachment, it is easily installed and quickly dismantled. The following procedures are important for safe application of wedge sockets:

Inspection/Maintenance Safety

- Always inspect socket, wedge and pin for correct size and condition before using.
- Do not use part showing cracks.
- Do not use modified or substitute parts.

- Repair minor nicks or gouges to socket or pin by lightly grinding until surfaces are smooth. Do not reduce original dimension more than 10%. Do not repair by welding.
- Inspect permanent assemblies annually, or more often in severe operating conditions.

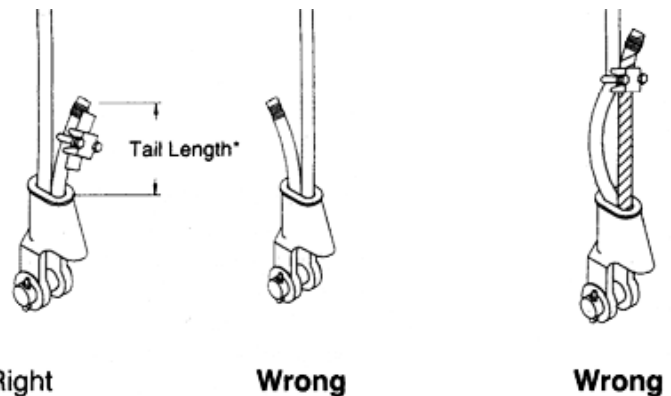
Consult the socket manufacturer for recommendations regarding the specific use and reapplication of wedge sockets.

Assembly Safety

- Use only with standard 6 to 8 strand wire rope of designated size. For intermediate size rope, 9/16" diameter and larger, use next larger size socket. For example: When using 9/16" diameter wire rope, use a 5/8" wedge socket assembly. Welding of the tail on standard wire rope is not recommended. The tail length of the dead end should be a minimum of 6 rope diameters.
- Align live end of rope, with center line of pin (see illustration).
- Secure dead end section of rope. (See illustration).
- DO NOT ATTACH DEAD END TO LIVE END. (See illustration).
- Use a hammer to seat Wedge and Rope as deep into socket as possible before applying first load.
- To use with Rotation Resistant wire rope (special wire rope constructions with 8 or more outer strands) ensure that the dead end is seized, welded or brazed before inserting the wire rope into the wedge socket to prevent core slippage or loss of rope lay. The tail length of the dead end should be a minimum of 20 rope diameters but not less than 6" (see illustration).

Operating Safety

- Apply first load to fully seat the wedge and wire rope in the socket. This load should be of equal or greater weight than loads expected in use.
- Efficiency rating of the wedge socket termination is based upon the minimum breaking force of wire rope. The efficiency of a properly assembled wedge socket is 80%.
- During use, do not strike the dead end section with any other elements of the rigging (*called two blocking*).
- Do not *shock load*.



*** Tail Length**
Standard 6 to 8 strand wire rope
 A minimum of 6 rope diameters, but not less than 6".
 (i.e. - For 1" rope: Tail Length = 1"x6=6")

Rotation Resistant Wire Rope
 A minimum of 20 rope diameters, but not less than 6".
 (i.d. - For 1" rope: Tail Length = 1"x20=20")