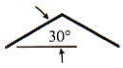
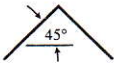
Rated Capacity Tables
1-Part Slings/Mechanical Splice/Stainless Steel

1 PART MECHANICAL SPLICE
EXTRA IMPROVED PLOW STEEL IWRC
RATED CAPACITY IN TONS

ROPE DIAMETER (INCHES)	VERTICAL	2 LEG CHOKER 30 DEGREE 	45 DEGREE 	60 DEGREE 
1/4	0.95	0.48	0.67	0.82
5/16	1.5	0.74	1.0	1.3
3/8	2.1	1.1	1.5	1.8
7/16	2.9	1.4	2.0	2.5
1/2	3.7	1.9	2.6	3.2
9/16	4.7	2.4	3.3	4.1
5/8	5.8	2.9	4.1	5.0
3/4	8.2	4.1	5.8	7.1
7/8	11	5.6	7.9	9.7
1	14	7.2	10	13
1 1/8	18	9.1	13	16
1 1/4	22	11	16	19
1 3/8	27	13	19	23
1 1/2	32	16	23	28
1 5/8	37	18	26	32
1 3/4	43	21	30	37
1 7/8	49	24	34	42
2	55	28	39	48
2 1/8	62	31	44	54
2 1/4	69	35	49	60
2 3/8	77	38	54	66
2 1/2	85	42	60	73
2 5/8	93	46	66	80
2 3/4	101	51	71	88
2 7/8	110	55	78	95
3	119	60	84	103
3 1/8	128	64	91	111
3 1/4	138	69	97	119
3 3/8	148	74	105	128
3 1/2	158	79	112	137

RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 25

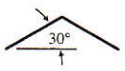
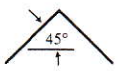
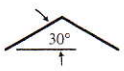
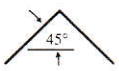
RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER

RATED CAPACITIES BASED ON DESIGN FACTOR OF 5

HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

Rated Capacities shown apply only to 6x19 and 6x37 classification wire rope.

1 PART MECHANICAL SPLICE
EXTRA IMPROVED PLOW STEEL IWRC
RATED CAPACITY IN TONS

ROPE DIAMETER (INCHES)	3 LEG BRIDLE VERTICAL	3 LEG BRIDLE 30 DEGREE	3 LEG BRIDLE 45 DEGREE	3 LEG BRIDLE 60 DEGREE	4 LEG BRIDLE VERTICAL	4 LEG BRIDLE 30 DEGREE	4 LEG BRIDLE 45 DEGREE	4 LEG BRIDLE 60 DEGREE
								
1/4	1.9	0.97	1.4	1.7	2.6	1.3	1.8	2.2
5/16	3.0	1.5	2.1	2.6	4.0	2.0	2.8	3.5
3/8	4.3	2.2	3.0	3.7	5.7	2.9	4.1	5.0
7/16	5.8	2.9	4.1	5.0	7.8	3.9	5.5	6.7
1/2	7.6	3.8	5.4	6.6	10	5.1	7.1	8.8
9/16	9.6	4.8	6.8	8.3	13	6.4	9.0	11
5/8	12	5.9	8.3	10	16	7.8	11	14
3/4	17	8.4	12	15	22	11	16	19
7/8	23	11	16	20	30	15	21	26
1	29	15	21	26	39	20	28	34
1 1/8	36	18	26	31	48	24	34	42
1 1/4	44	22	31	38	59	30	42	51
1 3/8	53	27	38	46	71	36	50	62
1 1/2	63	32	45	55	84	42	60	73
1 5/8	73	37	52	63	98	49	69	85
1 3/4	85	42	60	74	113	57	80	98
1 7/8	97	48	68	84	129	64	91	112
2	110	55	78	95	147	73	104	127
2 1/8	119	60	84	103	159	80	112	138
2 1/4	133	67	94	116	178	89	126	154
2 3/8	148	74	105	128	197	99	139	171
2 1/2	163	82	115	141	217	109	154	188
2 5/8	179	89	126	155	238	119	168	206
2 3/4	195	97	138	169	260	130	184	225
2 7/8	212	106	150	183	282	141	200	244
3	230	115	162	199	306	153	216	265
3 1/8	247	124	175	214	330	165	233	286
3 1/4	266	133	188	230	354	177	250	307
3 3/8	286	143	202	247	381	190	269	330
3 1/2	305	152	215	264	406	203	287	352

RATED CAPACITIES BASKET HITCH BASED ON D/d RATIO OF 25

RATED CAPACITIES BASED ON PIN DIAMETER NO LARGER THAN NATURAL EYE WIDTH OR LESS THAN THE NOMINAL SLING DIAMETER

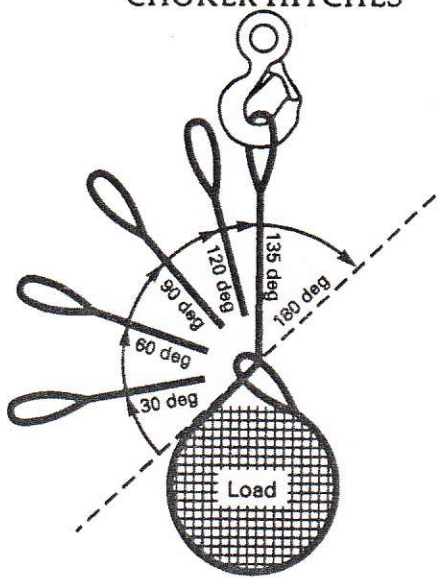
RATED CAPACITIES BASED ON DESIGN FACTOR OF 5

HORIZONTAL SLING ANGLES LESS THAN 30 DEGREES SHALL NOT BE USED

Rated Capacities shown apply only to 6x19 and 6x37 classification wire rope.

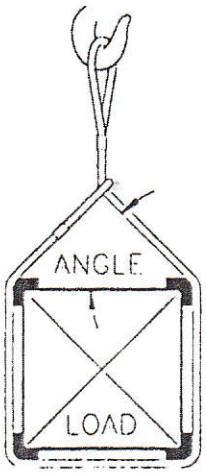
RIGGING CONSIDERATIONS

CHOKER HITCHES



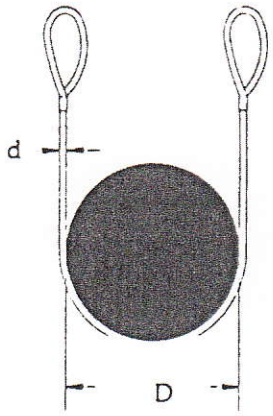
Angle of Choke, deg	Rated Capacity, % [Note (1)]
Over 120	100
90–120	87
60–89	74
30–59	62
0–29	49

CHOKER HITCHES WIRE ROPE, CHAIN, AND SYNTHETIC SLINGS



A choker hitch has 75% (80% for Webbing Slings) of the capacity of a single leg only if the corners are softened and the horizontal angle is greater than 30 degrees. Use blocks to prevent angles less than 30 degrees.

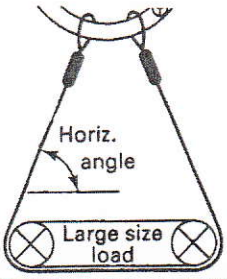
BASKET HITCHES WIRE ROPE SLINGS



A basket hitch has twice the capacity of a single leg only if D/d Ratio is 25/1 and it is vertical.

D/d> 25/1 per ANSI B30.9

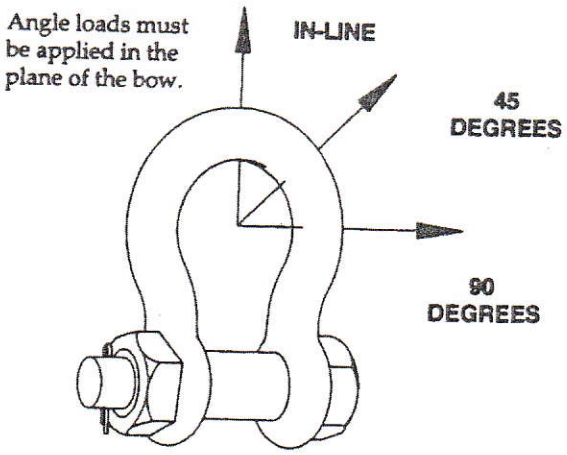
WIRE ROPE, CHAIN AND SYNTHETICS



Angle Degrees	Percentage of Single Leg Capacity
90	200%
60	170%
45	140%
30	100%

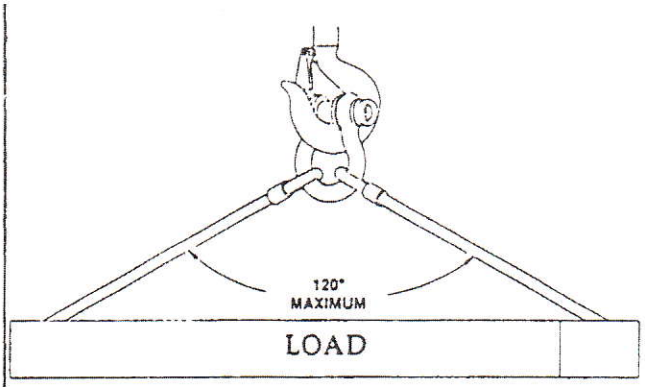
A basket hitch has twice the capacity of a single leg only if legs of sling are vertical.

RIGGING CONSIDERATIONS



Side-Loading Reduction Chart for Cotter Pin and Bolt Type Shackles Only+	
0° In-Line *	100% of Rated Working Load Limit
45° from In-Line *	70% of Rated Working Load Limit
90° from In-Line *	50% of Rated Working Load Limit

* In-Line load is applied perpendicular to pin.
† DO NOT SIDE LOAD ROUND PIN SHACKLES

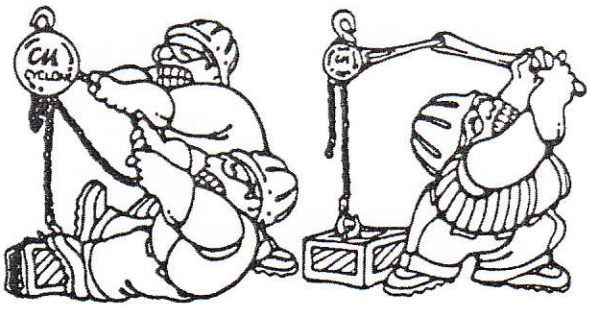


Shackles symmetrically loaded with two leg slings having a maximum included angle of 120° can be utilized to full Working Load Limit.

Never Exceed 120° included angle.
Use Bolt Type and Screw Pin Shackles ONLY.

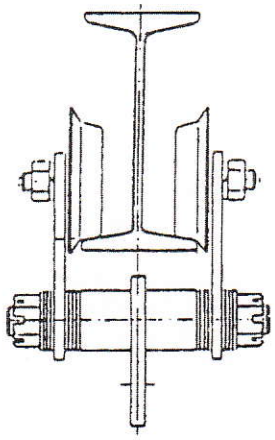
DON'T CHEAT

1 2



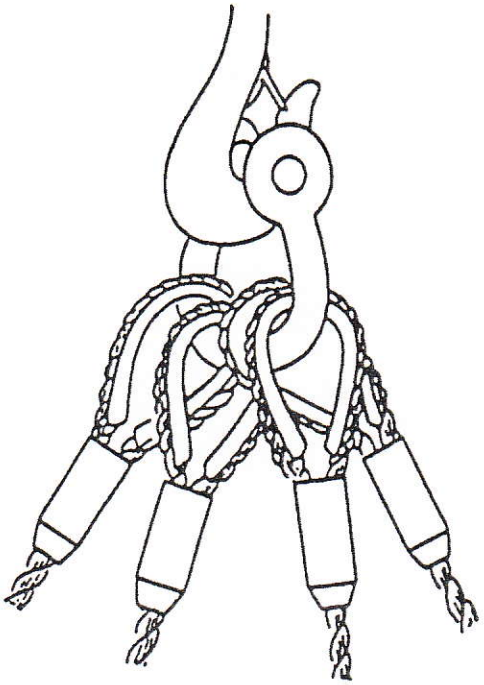
1. IF IT TAKES TWO, THE CHAINFALL IS OVERLOADED.
2. DON'T USE A CHEATER. COME-A-LONG IS OVERLOADED.

TROLLEY INSTALLATION

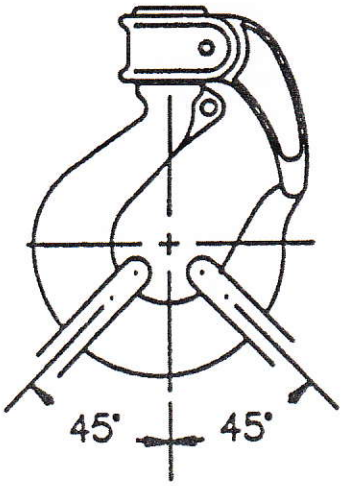


1. ASSURE BEAM CAPACITY IS ADEQUATE FOR TROLLEY.
2. ADJUST TROLLEY FOR MINIMUM WHEEL FLANGE CLEARANCE.
3. ADJUST LOAD LUG IN LINE WITH WEB OF BEAM.
4. DON'T SIDE LOAD TROLLEY.

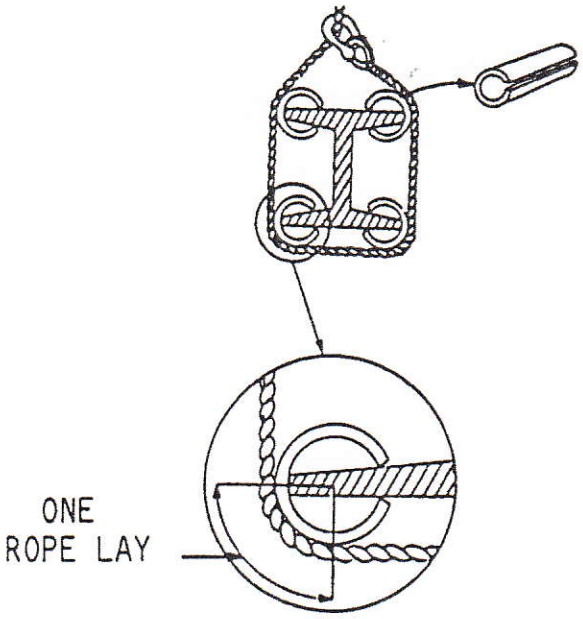
RIGGING CONSIDERATIONS



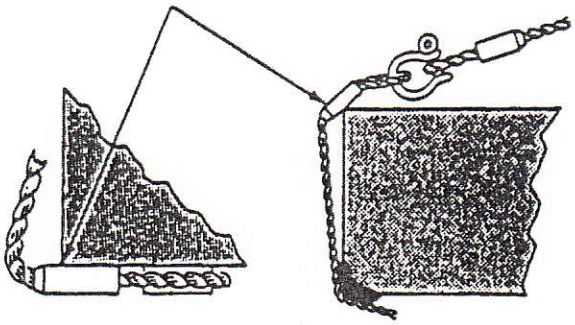
WHENEVER MORE THAN 2 SLINGS - USE A SHACKLE



When placing two (2) sling legs in hook, make sure the angle from the vertical to the outermost leg is not greater than 45 degrees, and the included angle between the legs does not exceed 90 degrees.



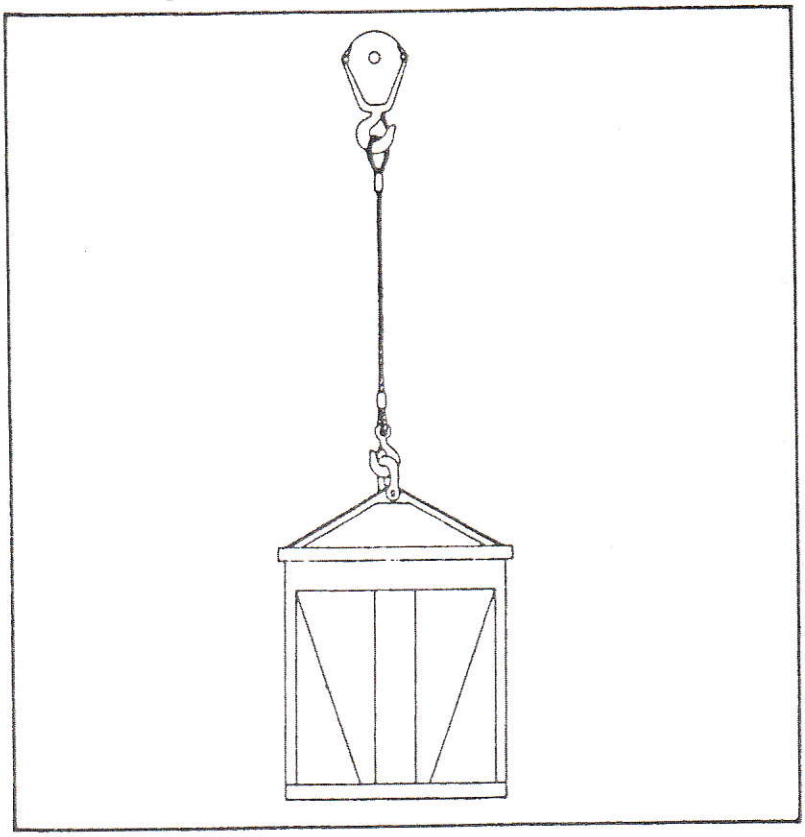
PROTECT SLINGS FROM SHARP CORNERS



DO NOT PERMIT BENDING NEAR SPLICE OR FITTING

RIGGING HITCHES

Single Vertical Hitch



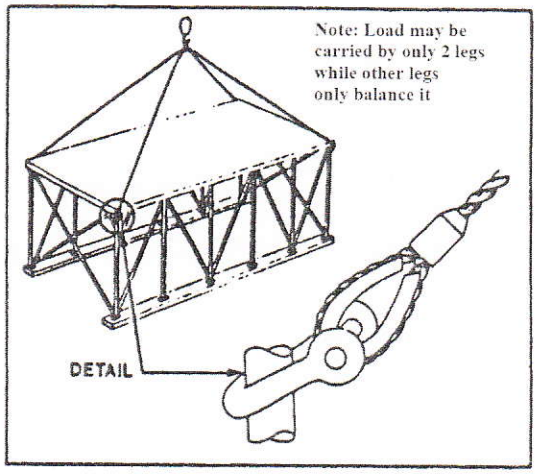
Single Vertical Hitch is a method of supporting a load by a single vertical part or leg of the sling. The total weight of the load is carried by a single leg, the angle of the lift is 90° and the weight of the load can equal the maximum safe working load of the sling and fittings. The end fittings of the sling can vary but thimbles should be used in the eyes. Also, the eye splices on wire ropes should be Mechanical-Flemish Splices for best security. This sling configuration must not be used for lifting loose material, lengthy material or anything that will be difficult to balance. Use them only on items equipped with lifting eye bolts or shackles such as concrete buckets. They provide absolutely no control over the load because they permit rotation.

RIGGING HITCHES

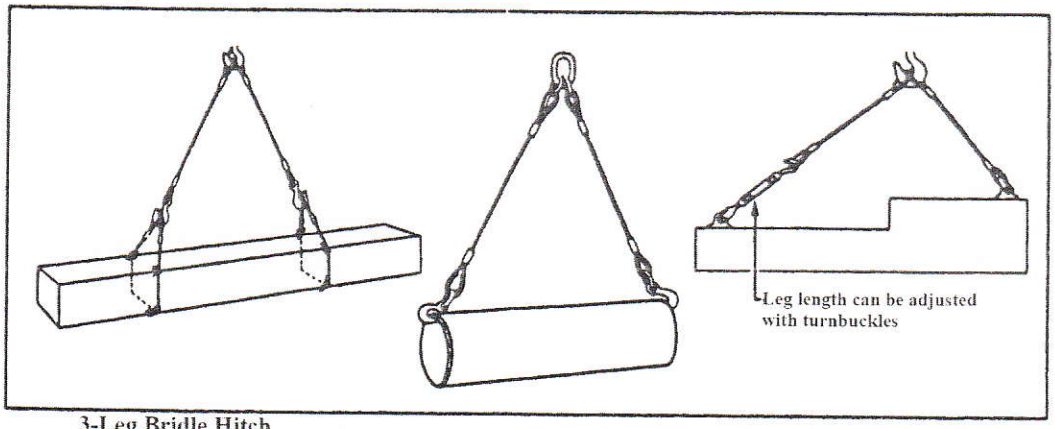
Bridle Hitch Two, three or four single hitches can be used together to form a bridle hitch for hoisting an object that has the necessary lifting lugs or attachments. They can be used with a wide assortment of end fittings. They provide excellent load stability when the load is distributed equally among the legs, when the hook is directly over the center of gravity of the load and the load is raised level. In order to distribute the load equally it may be necessary to adjust the leg lengths with turnbuckles. The use of a bridle sling requires that the sling angles be carefully determined to ensure that the individual legs are not overloaded.

Unless the load is flexible, it is wrong to assume that a 3 or 4 leg hitch will safely lift a load equal to the safe load on one leg multiplied by the number of legs because there is no way of knowing that each leg is carrying its share of the load. With slings having more than 2 legs and a rigid load, it is possible for two of the legs to take practically the full load while the others only balance it.

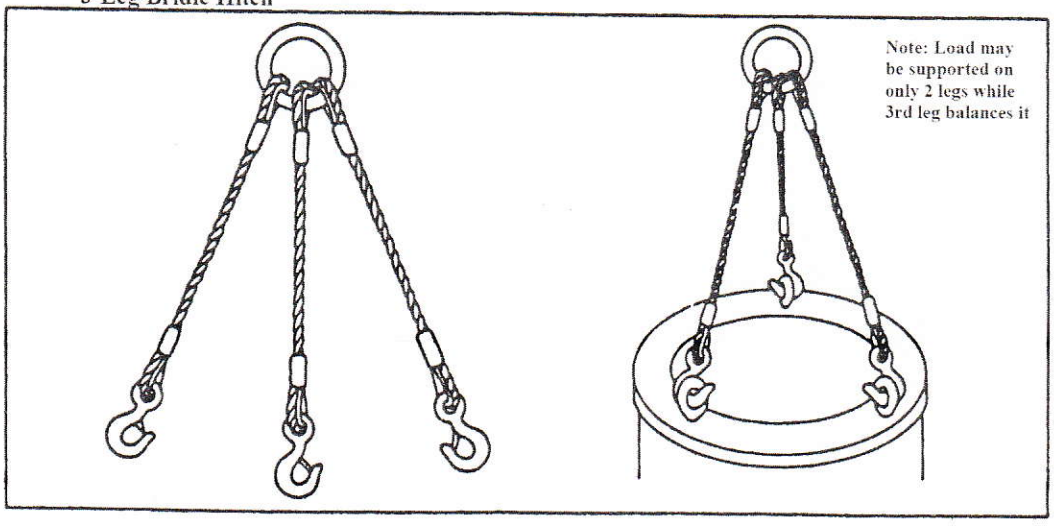
4-Leg Bridle Hitch



2-Leg Bridle Hitches



3-Leg Bridle Hitch

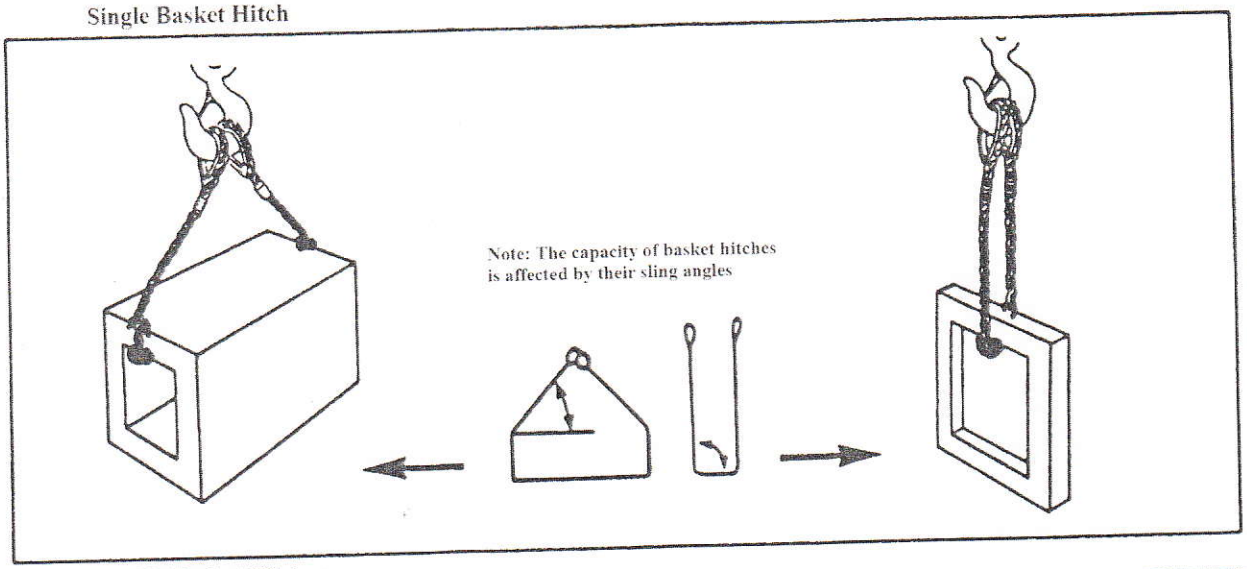


RIGGING HITCHES

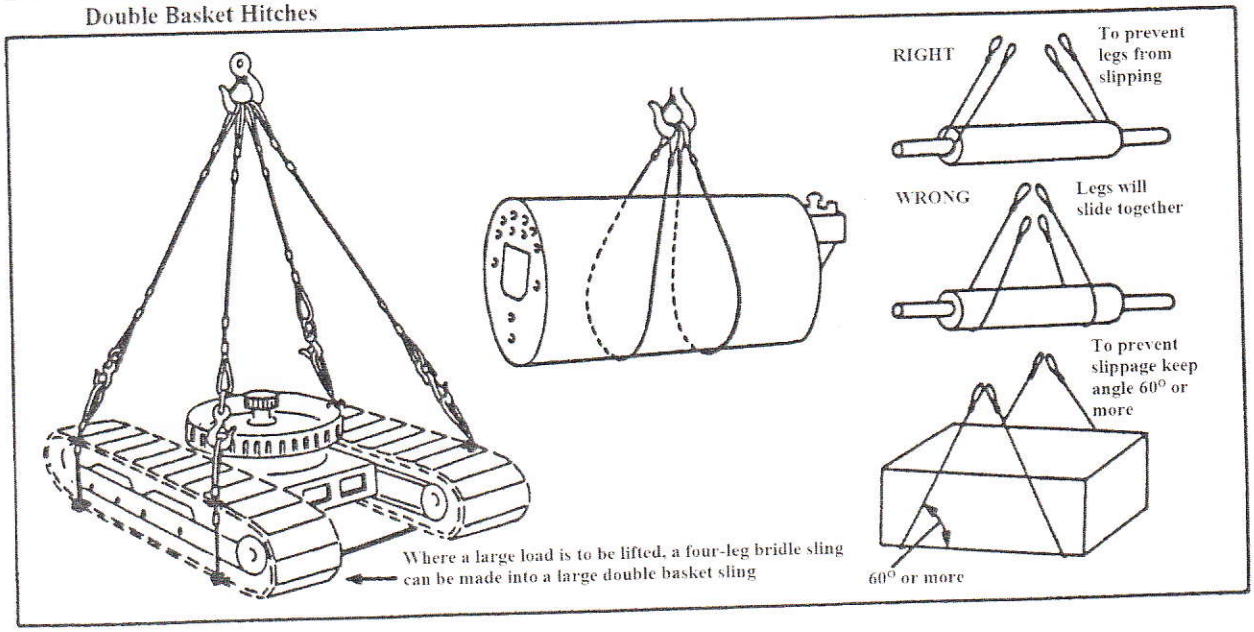
Single Basket Hitch is a method of supporting a load by hooking one end of a sling to a hook, wrapping it around the load and securing the other end to the hook. It cannot be used on any load that is difficult to balance because the load can tilt and slip out of the sling. On loads having inherent stabilizing characteristics the load on the sling will be automatically equalized with each leg supporting half the load. Ensure that the load does not turn or slide along the rope during a lift because both the load and rope will become damaged.

Double Basket Hitch consists of two single basket hitches passed under the load. They must be placed under the load so that it is properly balanced. The legs of the hitches must be kept far enough apart to provide balance but not so far apart that excessive angles are developed or to create a tendency for the legs to be pulled in toward the center. On smooth surfaces, both sides of the hitches should be snubbed against a step or change of contour to prevent the rope from slipping as load is applied. The angle between the load and the sling should be approximately 60° or greater to avoid slippage.

Single Basket Hitch



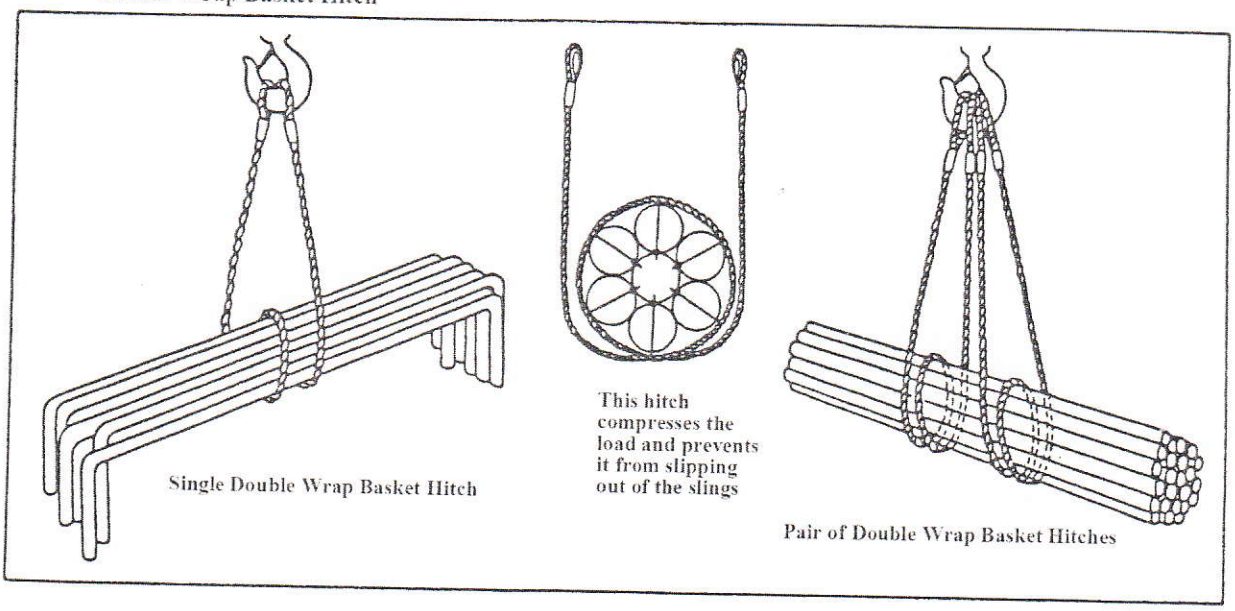
Double Basket Hitches



RIGGING HITCHES

Double Wrap Basket Hitch is a basket hitch that is wrapped completely around the load rather than just supporting as does the ordinary basket hitch. The double wrap basket hitch can be used in pairs like the double basket hitch. This method is excellent for handling loose material, pipe, rod or smooth cylindrical loads because the rope or chain exerts a full 360° contact with the load and tends to draw it together.

Double Wrap Basket Hitch



NOTE

ADJUSTMENT OF SLING LEGS IS REQUIRED WHILE TAKING UP, TO EQUALIZE LOAD ON EACH LEG.

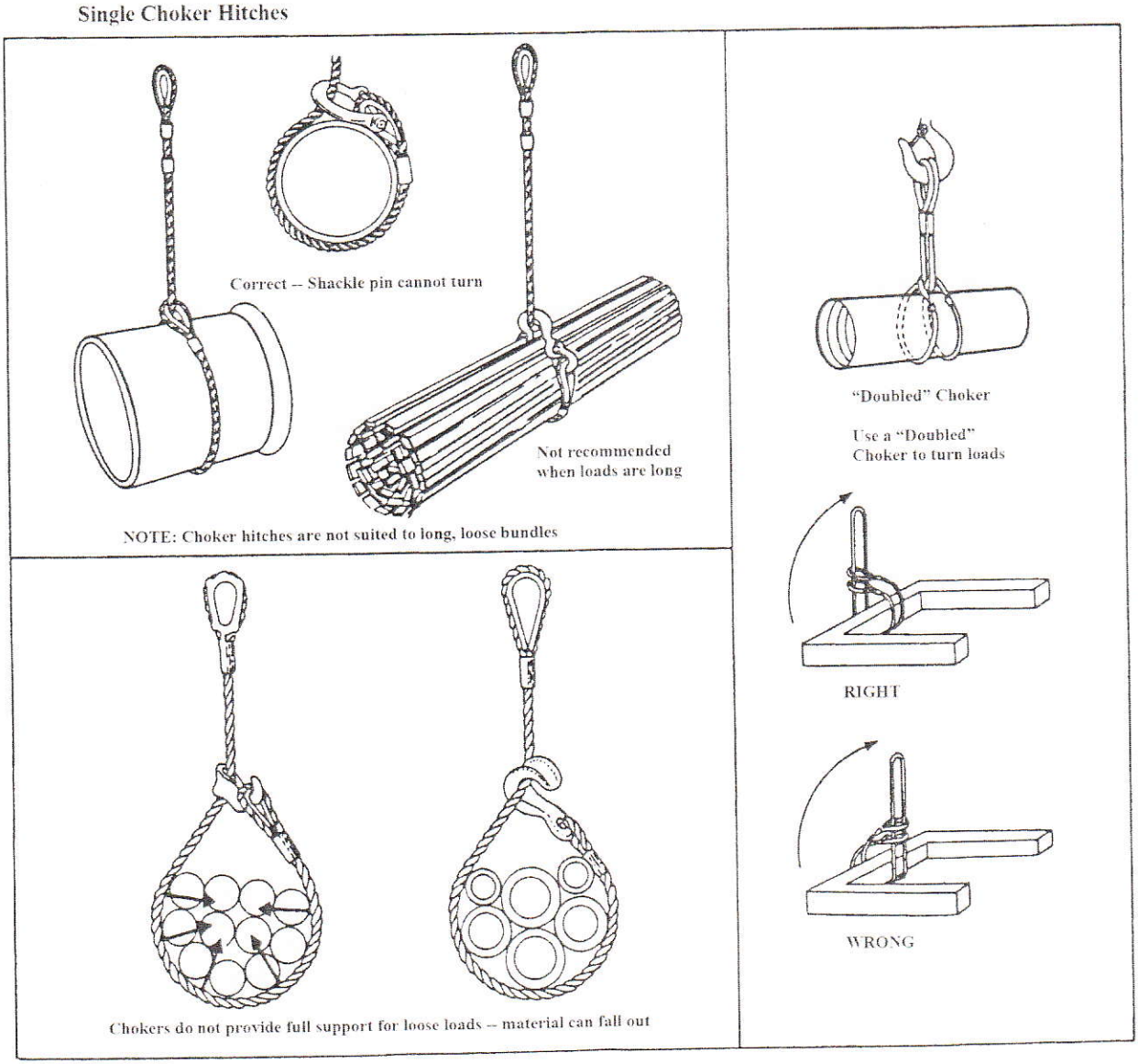
FAILURE TO DO SO CAN RESULT IN OVERLOAD OF ONE LEG IN SINGLE DOUBLE, OR OVERLOAD OF TWO LEGS IN PAIR OF DOUBLE WRAPS.

THIS ALSO APPLIES TO ANY TYPE BASKET HITCH.

RIGGING HITCHES

Single Choker Hitch forms a noose in the rope that tightens as the load is lifted. It does not provide full 360° contact with the load, however, and because of this it should not be used to lift loose bundles from which material can fall or loads that are difficult to balance. The single choker can also be doubled up (not to be confused with double choker hitch) as shown to provide twice the capacity or to turn a load. When it is necessary to turn a load, the choker is made by placing both eyes of the sling on top of the load with the eyes pointing in the direction opposite to the direction of turn. The center of the sling is passed around the load, through both eyes and up to the hook. This hitch provides complete control over the load during the entire turning operation, and the load automatically equalizes between the two supporting legs of the sling. Because the load is turned into a tight sling, there is no movement between the load and the sling. If it is incorrectly made and the two eyes are placed on the crane hook — the supporting legs of the sling may not be equal in length and the load may be imposed on one leg only.

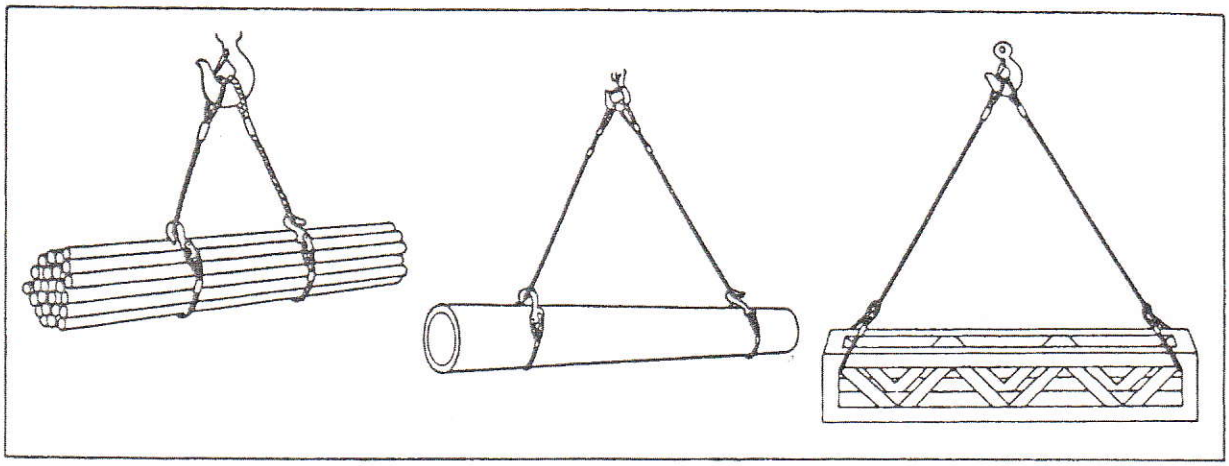
Single Choker Hitches



RIGGING HITCHES

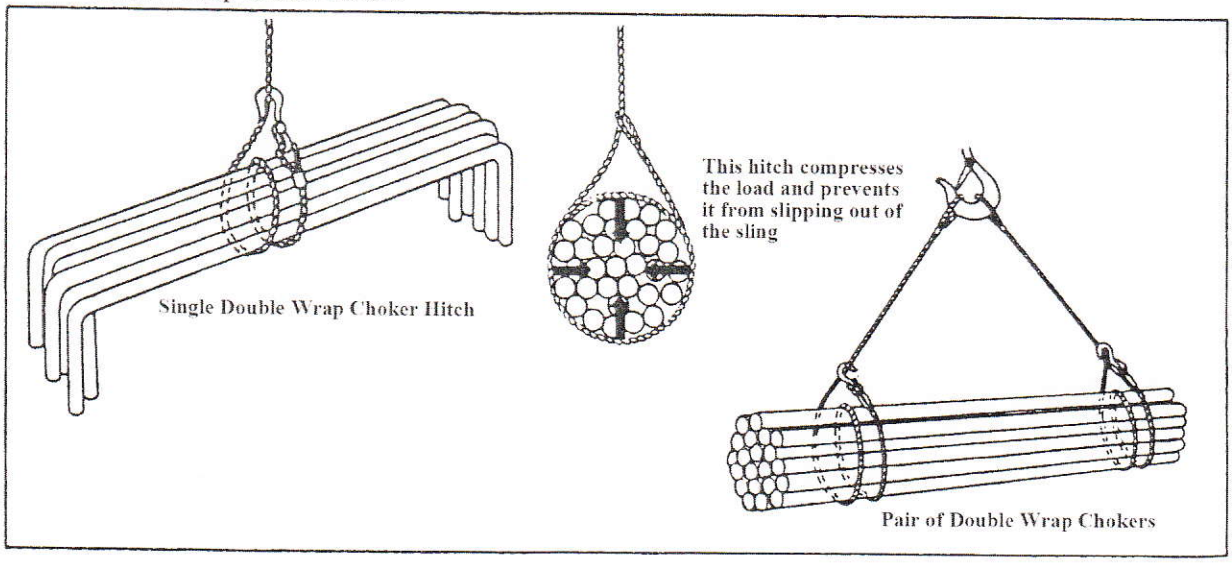
Double Choker Hitch consists of two single chokers attached to the load and spread to provide load stability. They, like the single choker, do not completely grip the load but because the load is less likely to tip they are better suited for handling loose bundles, pipes, rods, etc.

Double Choker Hitches



Double Wrap Choker Hitch is one in which the rope or chain is wrapped completely around the load before being hooked into the vertical part of the sling. This hitch is in full contact with the load and tends to draw it tightly together. It can be used either singly on short, easily balanced loads or in pairs on longer loads.

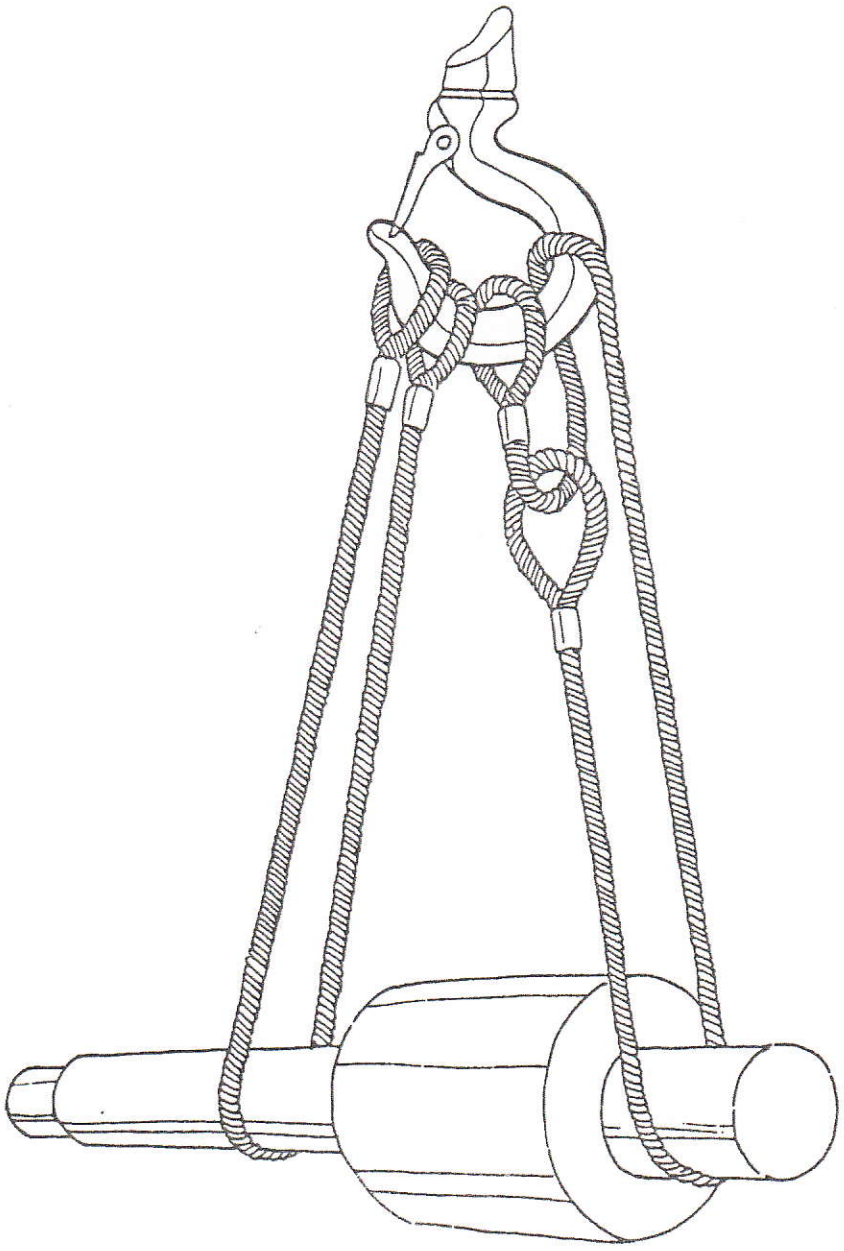
Double Wrap Choker Hitches



RIGGING HITCHES

ADJUSTING HITCH

This is a very useful hitch, especially when a load of unequal load distribution is to be lifted. To lift such a load level and under control requires a shorter Wire Rope Sling on the heavy end. The adjusting hitch will adjust itself to the required shortened length but will not slip after equalization is reached. One word of caution. In this hitch, the sling is forced to bend around its own diameter. This can cause a permanent kink and serious damage to the sling.



How To Inspect WIRE ROPE SLINGS

WIRE ROPE SLINGS are used in a multitude of applications for material handling. To promote safe working conditions and to comply with specifications set forth by ANSI B30.9 and OSHA. Union Wire Rope engineers have established the following suggested inspection program for wire rope slings.

All slings, including end fittings and attachments, should be given a visual inspection for damage each day before being used. Additional inspections should be performed during sling use when service conditions warrant. Damaged or defective slings should be immediately removed from service. Obvisously a qualified and competent person is needed to conduct these inspections.

To avoid any possible failure in service, a sling should be immediately removed from service when it exhibits any of the following conditions:

– Ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one lay. (A rope lay is defined as the axial length along the rope it takes one strand to make one circumferential revolution.)

– Wear or scraping of one-third the original diameter of outside individual wires.

– Kinking, crushing, birdcaging or any other damage resulting in distortion of the wire rope structure.

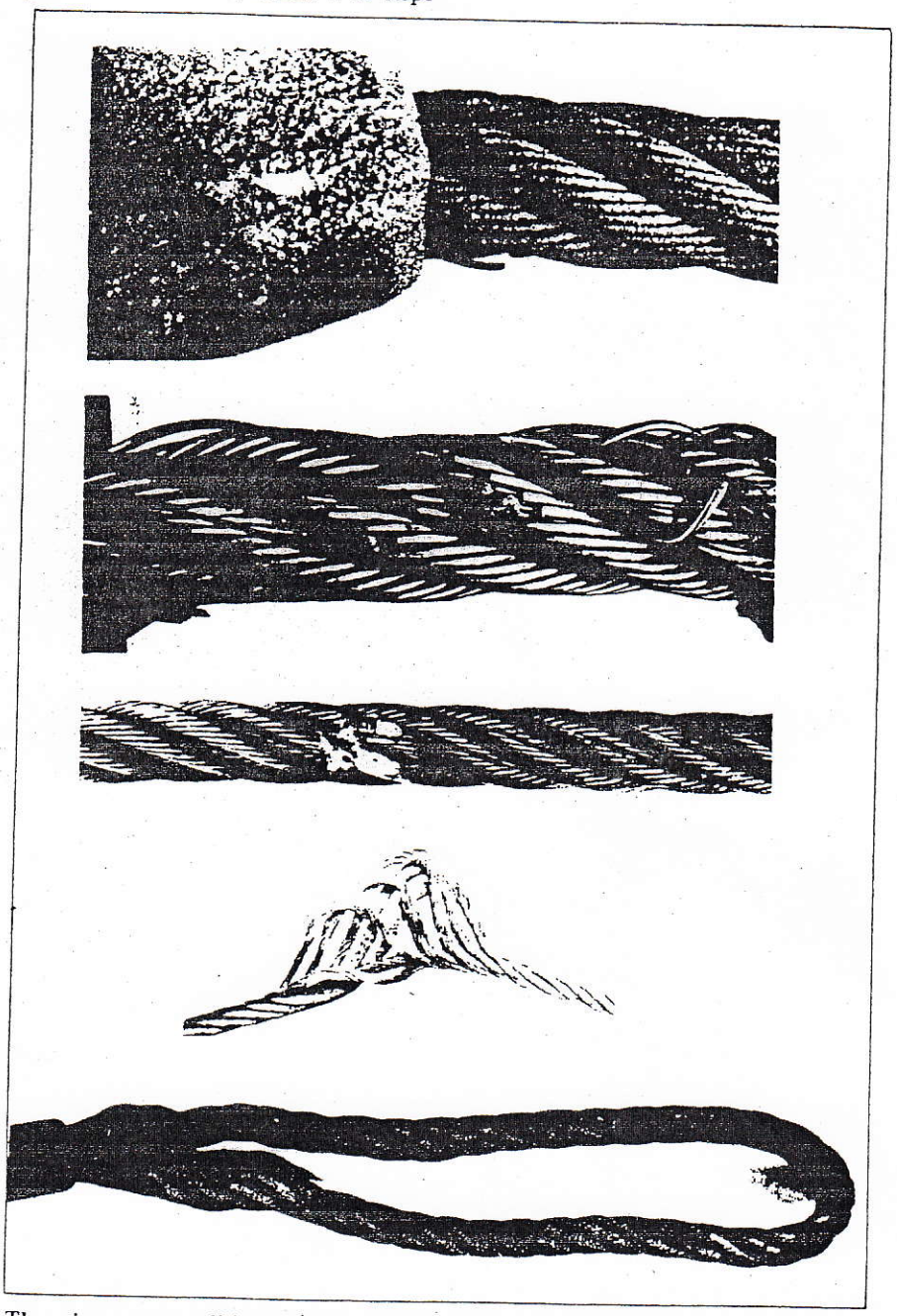
– Evidence of heat damage.

– Hooks that are opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 deg from the plane of the unbent hook.

– Corrosion of the rope or end attachments. Light surface rust can be wiped off with a rag or metal wire brush and does not require sling replacement. This kind of rust should be wiped off and the rope relubricated.

– Extreme eye elongation. This indicates the sling has been loaded beyond its rated capacity.

By following these suggested quidelines you can help improve the safety of your wire rope slings. If you have particular problems or concerns, Union Wire Rope engineers will be glad to give you their advice. They are located in Kansas City, Missouri.



The wire rope conditions shown here all require immediate sling replacement for proper safety. The conditions, from top to bottom are: broken wires caused by fatigue at ferrule and severe wire corrosion; broken wires in body of sling; evidence of heat damage; birdcaging due to sudden releane of sling load; overloading and twisting.

Division of Wire Rope Corporation of America, Incorporated

WRCA

Basic Inspection Criteria For Wire Rope Slings

The goal of a sling inspection is to evaluate remaining strength in a sling which has been used previously to determine if it is suitable for continued use.

Specific inspection intervals and procedures are required by the Occupational Safety and Health Act (OSHA) and by ANSI B30.9 Regulations, and the responsibility for performance of inspections is placed squarely upon the sling user by Federal Legislation.

As a starting point, the same work practices which apply to all "working" wire ropes apply to wire rope which has been fabricated into a sling. Therefore, a good working knowledge of wire rope design and construction will be not only useful but essential in conducting a wire rope sling inspection.

But because wire rope is a rather complex machine, no precise rules can be given to determine exactly when a wire rope sling should be replaced. There are many variables, and all must be considered.

OSHA specifies that a wire rope sling shall be removed from service immediately if ANY of the following conditions are present:

1. **Broken Wires:** For single-part slings, 10 randomly distributed broken wires in one rope lay, or five broken wires in one strand of one rope lay. For multi-part slings these same criteria apply to each of the component ropes. For this inspection, a broken wire shall only be counted once; that is, each break should have two ends.
2. **Metal Loss:** Wear or scraping of one-third the original diameter of outside individual wires. This is quite difficult to determine on slings and experience should be gained by the inspector bv taking apart old slings and actually measuring wire diameters.
3. **Distortion:** Kinking, crushing, birdcaging or other damage which distorts the rope structure. The main thing to look for is wires or strands that are pushed out of their original positions in the rope. Slight bends in a rope where wires or strands are still relatively in their original positions would not be considered serious damage. But good judgment is indicated.
4. **Heat Damage:** Any metallic discoloration or loss of internal lubricant caused by exposure to heat.
5. **Bad End Attachments:** Cracked, bent or broken end fittings caused by abuse, wear or accident.
6. **Bent Hooks:** No more than 15 percent over the normal throat openings, measured at the narrowest point, or twisting of more than 10 degrees is permissable.
7. **Metal Corrosion:** Severe corrosion of the rope or end attachments which has caused pitting or binding of wires should be cause for replacing the sling. Light rusting usually does not affect strength of a sling, however.

In addition to these seven conditions specified by OSHA, the following are also important:

8. **Pulled Eye Splices:** Any evidence that eye splices have slipped, tucked strands have moved, or pressed sleeves show serious damage may be sufficient cause to reject a sling.
9. **Unbalance:** A very common cause of damage is the kink which results from pulling through a loop while using a sling, thus causing wires and strands to be deformed and pushed out of their original position. This unbalances the sling, reducing its strength.

Disposition of Retired Slings: the best inspection program available is of no value if slings which are worn out and have been retired are not disposed of properly. When it is determined by the inspector that a sling is worn out or damaged beyond use, it should be tagged immediately *DO NOT USE*. This sling should then be destroyed as soon as possible by cutting the eye and fittings from the rope with a torch. This will help assure that an employee will not mistakenly use a sling which has been retired from service.

It should also be obvious that a good inspection program will not only provide safer lifting conditions, but will also extend the life of slings and thereby reduce lifting costs.

Federal Work Rules Require Specific Inspection Intervals

Government regulations are also specific on WHEN to inspect.

Both ANSI Standard B30.9 and OSHA require that wire rope slings receive two types of inspections: a DAILY visual inspection, and additional inspections where service conditions warrant.

Daily visual inspections are intended to detect serious damage or deterioration which would weaken the sling. This inspection is usually performed by the person using the sling in a day-to-day job. He should look for obvious things, such as broken wires, kinks, crushing, broken attachments, severe corrosion, etc.

Additional inspections should be performed at regular intervals based on, (1) frequency of sling use, (2) severity of service conditions, (3) nature of lifts, and (4) prior experience based on service life of slings used in similar circumstances.

It is required that these additional inspections be carried out by a designated person who must have good knowledge of wire rope. An accurate WRITTEN and dated record of all conditions observed should be kept. Any deterioration of the sling which could result in appreciable loss of original strength should be carefully noted, and determination made on whether further use would constitute a safety hazard.

How to Inspect

Precisely how to make proper, adequate inspections is not detailed by OSHA—yet it is in the HOW of inspection that the big difference between a good inspection and something less become apparent.

Inspection should follow a systematic procedure:

(1) First, it is necessary that all parts of the sling are readily visible. The sling should be laid out so every part is accessible.

(2) Next, the sling should be sufficiently cleaned of dirt and grease so wires and fittings are easily seen. This can usually be accomplished with a wire brush or rags.

(3) The sling should then be given a thorough, systematic examination throughout its entire length, paying particular attention to sections showing the most wear.

(4) Special attention should also be paid to fittings and end attachments, and areas of the sling adjacent to these fittings.

(5) When the worst section of a sling has been located, this area should then be carefully checked against the OSHA criteria.

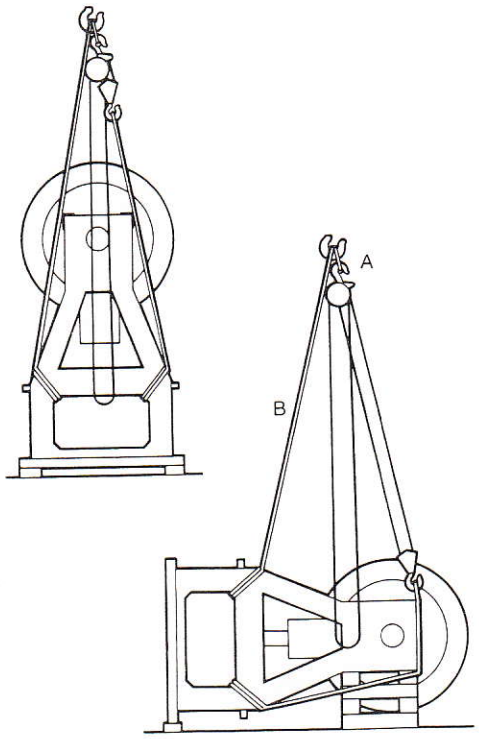
(6) Label or identify slings that are inspected.

(7) Keep records of inspections that include dates and corresponding conditions of slings.

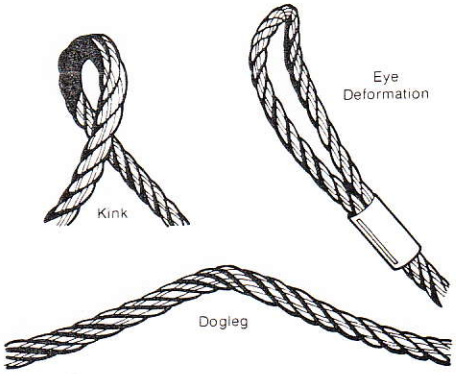
(8) Dispose immediately of slings that are rejected.

A knowledgeable inspector will also insist on proper storage for out-of-use slings—to make his job easier if not for the good of the slings. Inspections are much easier—and probably more thorough—when slings are available for inspection in an orderly arrangement, out of the weather, away from heat and dirt.

Overturning a heavy object onto cribbing, using one lifting hook and chainblock. To upend the object, chainblock "A" and the sling "B" should exchange positions.



Doglegs, Sets and Kinks



When a loop is "pulled through," it forms a kink which permanently deforms a wire rope by freezing or locking wires and strands. This prevents them from sliding and adjusting, and reduces rope strength.

A dogleg is a "set" which occurs when a wire rope sling is pulled down snug against a load. A dogleg usually can be "rolled back" or turned inside out, and usefulness of the sling restored, since strands can still adjust.

Eye deformation is ordinarily not deterimental to sling strength as long as there are no broken wires or gross distortion of the lay of strands. An eye has two legs, so has adequate strength for the load the body can carry. A sling should be retired when distortion locks the strands or flattens the rope in the eye so strands cannot move and adjust.

Rigger's Check List

1. Analyze and Measure—Determine the total weight to be moved as well as exactly how far it is to move and how high it must be lifted.

2. Determine the Hitch—Decide how the load is to be connected to the lifting hook and how the sling will grip, or be attached to, the load.

3. Select the Sling—In addition to adequate Rated Capacity for the angles and hitch involved, the sling body should be of the type and style best suited to handling this specific load. Select a sling with proper end attachments or eye protection, as well as attachment hardware such as clevises.

4. Inspect the Sling—Make a good visual check of the sling you select to determine if it is in good condition and capable of making the lift. Refer to prevailing OSHA and ANSI regulations for inspection criteria.

5. Rig Up, Not Down—Always attach the sling to the load first, then attach it to the hook.

6. Check Everything—Before attempting a lift, take a light strain on the rigging, checking to see that blocking, sling and load protection and all safety devices are in place.

7. Stand Clear and Lift—Let the lifting device and rigging do the job—don't use brute strength to prevent swinging or movement. Use a tagline, or tether, to control any movement. Keep all hands and toes out from under the load when it is suspended.

8. Don't Jerk!—Lift slowly and with a steady application of power.

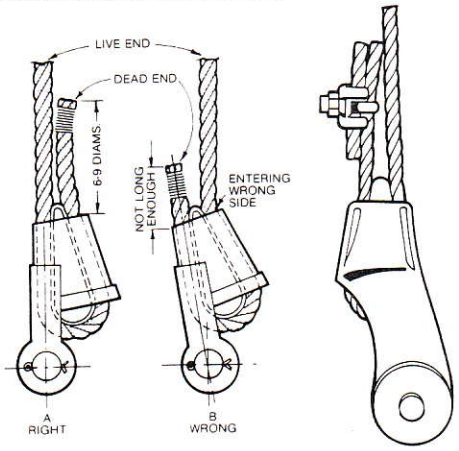
9. Put It Away!—After you've completed the job, check the sling for any damage (If it's damaged, red tag it immediately or advise the sling inspector.), then return it to the sling storage rack for safekeeping until next usage.

Wedge Socket Installation

When the end of a rope has been welded, or fused during torch cutting, the end should be cut off prior to inserting it into the socket so individual wires and strands may slide and adjust when the rope is bent in the socket. If wires and strands cannot move, distortions will be forced back along the rope and may result in high strands and wavy rope.

The "dead" end should extend out of the socket at least NINE rope diameters. Clamp a short piece of rope to the tail; DO NOT CLAMP to "live" part of rope. The U-bolt should bear against the tail and the saddle against the short piece.

After final pin connections are made, increase loads gradually until wedge is properly seated. Avoid sudden or shock loading.



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 procedure is simple:

1) Inspect the wedge and socket; all rough edges or burrs, that might damage the rope, should be removed.
2) If the end of the rope is welded, the welded end should be cut off. This will allow the distortions of the rope strands, caused by the sharp bend around the wedge, to adjust themselves at the end of the line. If the weld is not cut off, the distortions will be forced up the working line. This may result in the development of high strands and wavy rope.
3) Place the socket in an upright position and bring the rope around in a large, easy to handle, loop. Care must be taken to make certain that the live-loaded-side of the rope is in line with the ears (Fig. 25).
4) The dead end of the rope should extend from the socket for a distance approximately nine times the rope diameter. The wedge is now placed in the socket, and a wire rope clip is placed around the dead end by clamping a short, extra piece of rope to the tail. *(Do not clamp to the live part.)* The *U-bolt* should bear against the tail; the saddle of the clip should bear against the short extra piece.
5) Secure the ears of the socket to a sturdy support and carefully take a strain on the live side of the rope. Pull the wedge and rope into position with tension sufficiently tight to hold them in place.
6) After final pin connections are made, increase the loads *gradually* until the wedge is properly seated. Avoid sudden shock loads.

The foregoing is the recommended procedure. If variations are made to suit special conditions, they should be carefully evaluated beforehand.

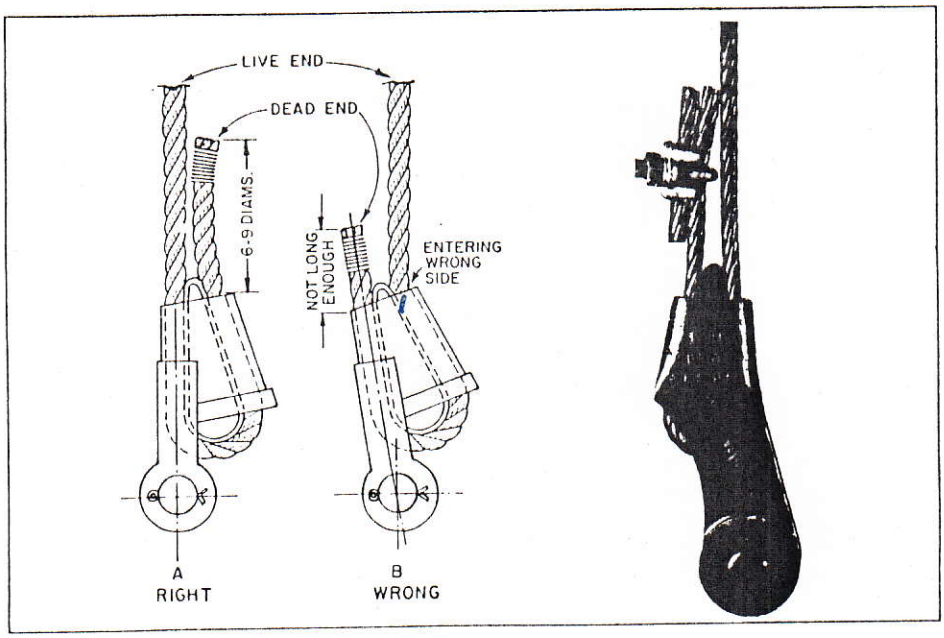


Figure 25. The *wedge socket* is a very popular end attachment; it is easily installed and quickly dismantled. But it must be applied correctly (A).

ASME/ANSI B30.10

Hook Replacement

1. *Deformation.* any bending or twisting exceeding 10 deg (or as recommended by the manufacturer) from the plane of the unbent hook.

2. *Throat Opening.* Any distortion causing an increase in throat opening exceeding 15% (or as recommended by the manufacturer).

3. *Wear.* Any wear exceeding 10% (or as recommended by the manufacturer) of the original section dimension of the hook or its load pin.

4. *Inability to Lock.* Any self-locking hook that does not lock.

5. *Inoperative Latch.* Any latch that does not close the hook's throat.