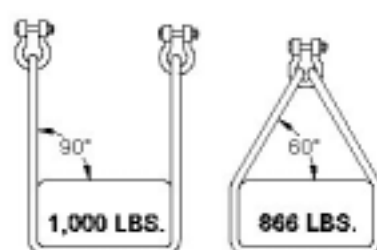


## EFFECT OF ANGLE

When slings are used at an angle, sling capacity is reduced. Multiply the sling's capacity by the Factor below (for the angle used) to determine the reduced rating.

Angle	Factor
90°	1.000
85°	0.996
80°	0.985
75°	0.966
70°	0.940
65°	0.906
60°	0.866
55°	0.819
50°	0.766
45°	0.707
40°	0.643
35°	0.574
30°	0.500

Sling Capacity decreases as the angle decreases. A sling capable of lifting 1,000 lbs. in a 90° vertical basket hitch can only lift 866 lbs. at a 60° angle lift.

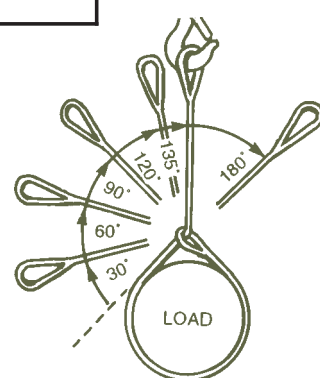


## CHOKER HITCH ANGLES

When lifting and turning a load using a choker hitch, it is not uncommon to bend the body rope around the choker loop and have a severe bend occur in the rope body at this point. For choker angles less than 120°, the choker rating must be reduced by multiplying the corresponding factor times the slings standard choker rating.

Angle of Choke in Degrees	Factor
120° - 180°	1.00
90° - 119°	.87
60° - 89°	.74
30° - 59°	.62
0° - 29°	.49

Sling capacity decreases as the choke angle decreases.



Wire Rope Class	Rope Dia. (in.)	Standard Eye Size (in.) W x L	SINGLE LEG			2-LEG BRIDLE				Oblong Link Stock Dia.	3-LEG BRIDLE			Oblong Link Stock Dia.	4-LEG BRIDLE			Oblong Link Stock Dia.		
			Vertical	Choker	Vertical Basket	Rated Capacities (Tons)			60°		45°	30°	Rated Capacities (Tons)			60°	45°		30°	
						60°	45°	30°					60°		45°					30°
6x19 EIP, IWRC	1/4	2 x 4	.65	.48	1.3	1.1	.91	.65	1/2	1.7	1.4	.97	1/2	2.2	1.8	1.3	1/2			
	5/16	2 1/2 x 5	1.0	.74	2.0	1.7	1.4	1.0	1/2	2.6	2.1	1.5	3/4	3.5	2.8	2.0	3/4			
	3/8	3 x 6	1.4	1.1	2.9	2.5	2.0	1.4	1/2	3.7	3.0	2.2	3/4	5.0	4.1	2.9	1			
	7/16	3 1/2 x 7	1.9	1.4	3.9	3.4	2.7	1.9	3/4	5.0	4.1	2.9	1	6.7	5.5	3.9	1			
	1/2	4 x 8	2.5	1.9	5.1	4.4	3.6	2.5	3/4	6.6	5.4	3.8	1	8.8	7.1	5.1	1 1/4			
	9/16	4 1/2 x 9	3.2	2.4	6.4	5.5	4.5	3.2	1	8.3	6.8	4.8	1	11	9.0	6.4	1 1/4			
	5/8	5 x 10	3.9	2.9	7.8	6.8	5.5	3.9	1	10	8.3	5.9	1 1/4	14	11	7.8	1 1/4			
	3/4	6 x 12	5.6	4.1	11	9.7	7.9	5.6	1 1/4	15	12	8.4	1 1/2	19	16	11	1 3/4			
	7/8	7 x 14	7.6	5.6	15	13	11	7.6	1 1/4	20	16	11	1 1/2	26	21	15	1 3/4			
	1	8 x 16	9.8	7.2	20	17	14	9.8	1 1/2	26	21	15	1 3/4	34	28	20	2 1/4			
1 1/8	9 x 18	12	9.1	24	21	17	12	1 3/4	31	26	18	2	42	34	24	2 3/4				
6x37 EIP, IWRC	1 1/4	10 x 20	15	11	30	26	21	15	1 3/4	38	31	22	2 1/4	51	42	30	2 3/4			
	1 3/8	11 x 22	18	13	36	31	25	18	2	46	38	27	2 3/4	-	-	-	-			
	1 1/2	12 x 24	21	16	42	37	30	21	2 1/4	55	45	32	2 3/4	-	-	-	-			
	1 3/4	14 x 28	28	21	57	49	40	28	2 3/4	-	-	-	-	-	-	-	-			
	2	16 x 32	37	28	73	63	52	37	2 3/4	-	-	-	-	-	-	-	-			
2 1/4	18 x 36	44	35	89	-	-	-	-	-	-	-	-	-	-	-	-	-			
2 1/2	20 x 40	54	42	109	-	-	-	-	-	-	-	-	-	-	-	-	-			

Larger diameter slings available.

## OPERATING PRACTICES

- Slings shall not be loaded in excess of the rated capacity. Consideration shall be given to the effect of angles.
- Select slings having suitable characteristics for the type of load, hitch and environment.
- Slings shall not be shortened by twisting, knotting or using wire rope clips.
- Slings shall not be lengthened by knotting, choking or basketing slings together or by any other unapproved method. Suitable fittings must interconnect slings.
- Slings shall be hitched in a manner providing control of the load.
- Sharp edges in contact with slings should be padded.
- Keep all portions of the human body from between the sling and the load, and from between the sling and the lifting hook.
- Personnel should stand clear of the suspended load.
- Personnel shall not ride the sling or a load suspended by a sling.
- Shock loading shall be avoided.
- Slings should not be pulled from under a load when the load is resting on them. Where practicable, use blocking to allow for easy sling removal.
- Slings should be stored in an area where they will not be subject to mechanical damage, moisture, or extreme heat.
- Twisting and kinking slings shall be avoided.
- Loads applied to a hook should be centered in the base of the hook to prevent point loading on the hook.
- Before lifting, make certain that the sling, attachments, or load shall not snag. Personnel shall be continuously alert to avoid snagging or bumping.
- Single leg slings with hand tucked splices shall not be allowed to rotate.
- In a basket hitch, proper slippage must be selected to balance the load and restrict slippage in order to prevent the load from falling out of the sling.
- In a choker hitch, slings shall be long enough so that the choker fitting chokes onto the sling eye or body and never onto any fittings.
- Do not inspect a sling by passing bare hands over the wire rope. Broken wires, if present, may puncture the skin.
- Do not expose to chemicals that are not compatible with all of the sling materials.
- Do not expose to temperatures in excess of 180° F for fiber core wire rope or 400° F for any other grade of wire rope.
- Slings should not be used at angles of less than 30 degrees from horizontal.
- Slings should not be dragged on the floor or over an abrasive surface.
- When the sling body is bent around D/d ratios smaller than 25, the sling rated capacity may be decreased. See the WRTB Wire Rope Sling Users Manual.
- When lifting points are below the center of gravity, loads tend to be unstable. Proper rigging must restrict load rotation to avoid tipping and loss of load control.
- For lifts of non-symmetrical loads using multiple sling legs, an analysis should be performed by a qualified person to prevent the overloading of any leg.

## INSPECTION

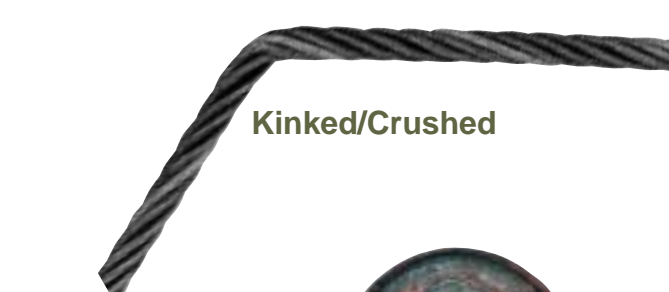
### ALWAYS INSPECT SLINGS BEFORE EACH USE

#### INSPECTION CRITERIA

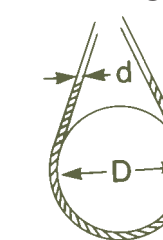
- The rated capacity tag is missing or illegible.
- Ten broken wires in 1 rope lay or 5 broken wires in 1 strand in 1 rope lay.
- Kinking, crushing, bird caging, knotting, or any other damage resulting in distortion of the rope structure.
- Wear or other loss of one-third of the original diameter of the individual wires.
- Any evidence of heat or chemical damage on any part of the sling, including melting or charring.
- Metal fittings that are cracked, deformed, pitted, corroded or excessively worn.
- Hooks with throat openings increased by more than 15 percent or twisted out of plane by more than 10 degrees.
- Any other visible damage which causes doubt as to the sling strength.

#### DAMAGE EXAMPLES

Remove from service if any of the following are visible:



#### D/d - BASKET HITCH EFFECT



Tests have shown that whenever wire rope is bent around a diameter, the strength of the rope is decreased.

D/d ratio is the ratio of the diameter around which the sling is bent divided by the body diameter of the sling. Basket ratings are based on a minimum D/d of 25.

#### PIN/HOOK EFFECT ON EYE

Damage to slings can occur if the wrong size pin or hook is used. The width of the pin/hook should never exceed the natural inside width of the eye, nor should it be less than the diameter of the rope itself.



Thimbles are recommended to extend sling life and to protect the sling eye if pin/hook diameter is less than 2X the rope diameter.

If your pin/hook is large, request an oversized eye for your sling.



**WARNING**  
FAILURE TO READ, UNDERSTAND AND FOLLOW THE USE AND INSPECTION INSTRUCTIONS FURNISHED WITH EACH SLING MAY RESULT IN SEVERE PERSONAL INJURY OR DEATH.