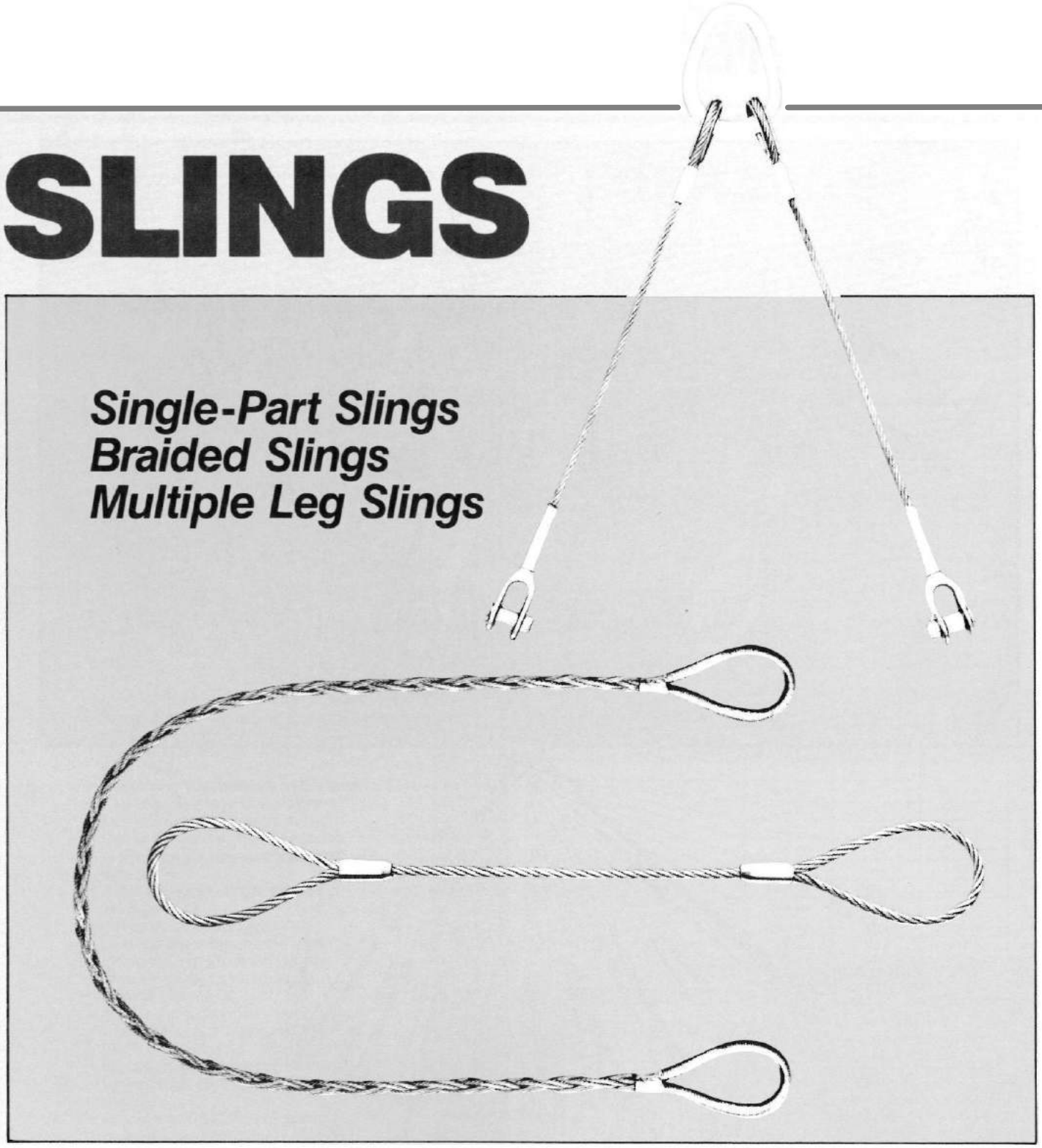
SLINGS

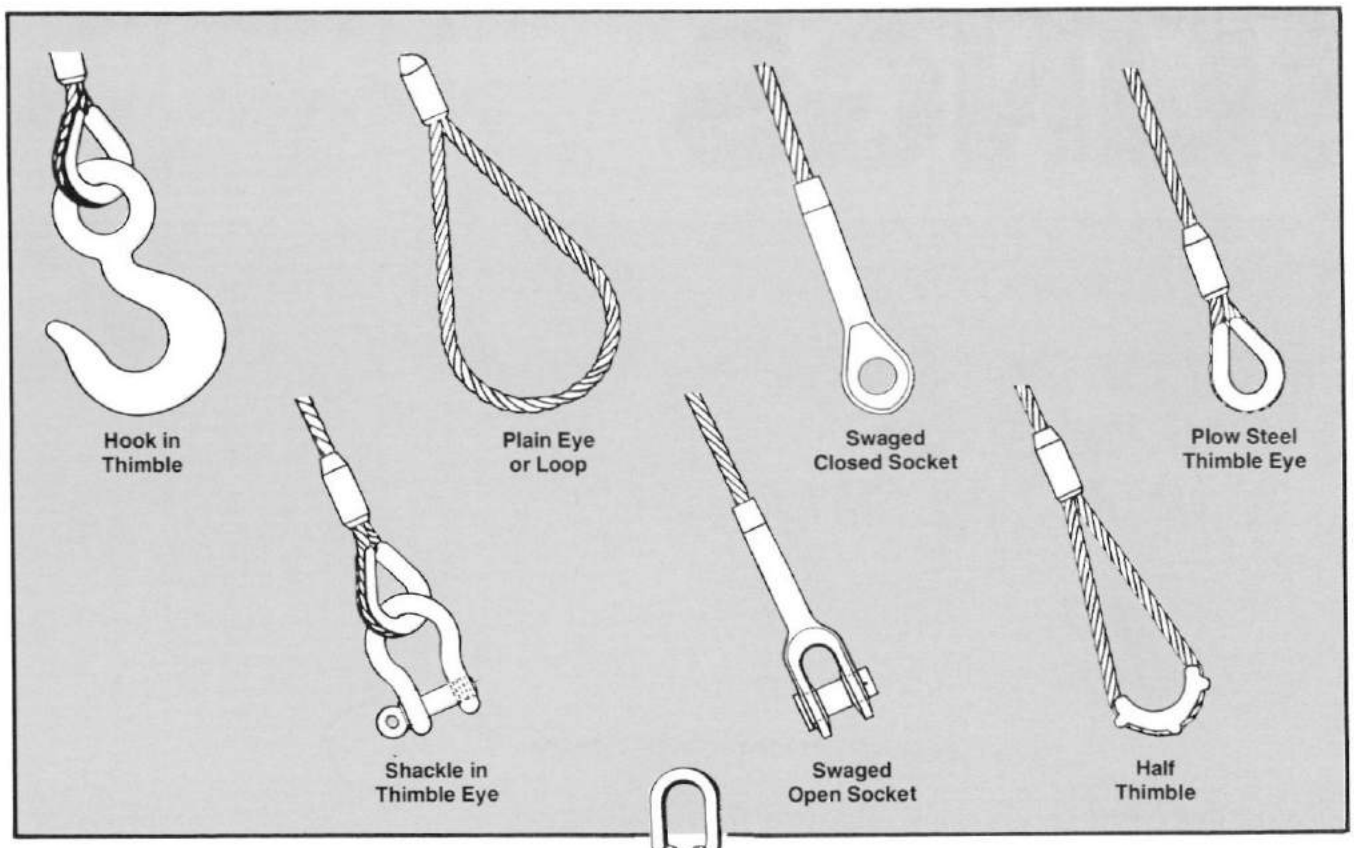


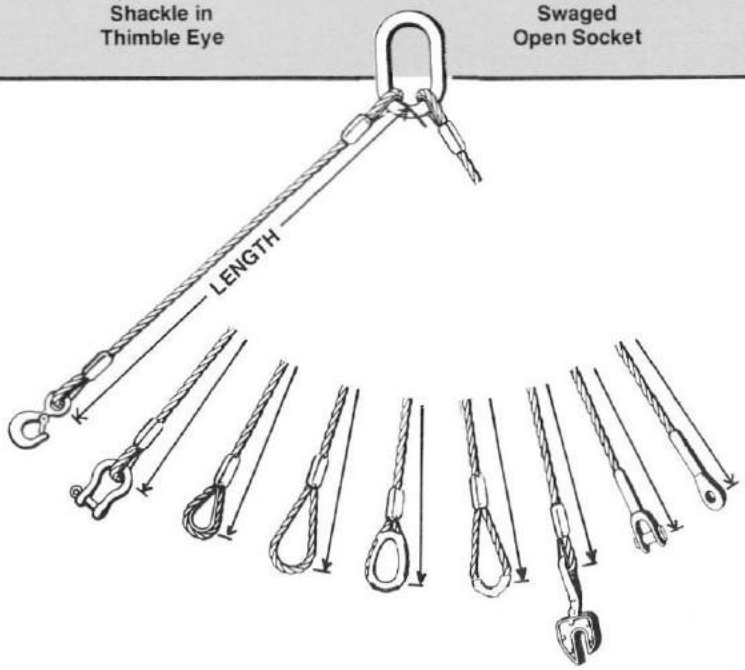
Single-Part Slings
Braided Slings
Multiple Leg Slings

STEEL WIRE ROPE MADE IN USA

HOLLAND EQUIPMENT CO.
2870 W. 2100 S.
SALT LAKE CITY, UT 84119
HOLLANDEQ.COM

FLEMISH EYE





SAFETY REQUIREMENTS FOR WIRE ROPE SLINGS

WARNING: Consult industry recommendations and OSHA standards for proper application.

DO NOT exceed rated capacity of sling. Rated capacity of sling applies to a new and unused sling. Inspect sling before each use. Tensile strength of sling may decrease with each use.

DO NOT allow sling to rotate at either end. Sling may fail if damaged, abused, misused, overused or improperly maintained.

1. Determine weight of load.
2. Select a sling of suitable capacity.
3. When in doubt use a larger capacity sling.
4. **DO NOT** run a sling around sharp corners without corner guards.
5. **DO NOT** attach sling to fittings with diameters smaller than sling rope size.
6. Avoid formation of kinks, loops or twists in the legs or sling body.
7. Examine sling for damage and worn areas.
8. Take up slack slowly to avoid shockloading the sling.
9. Use a tag line on the load if necessary to prevent sling rotation.
10. **DO NOT** use sling with hand tucked splices where rotationwill allow unlaying of rope and splice.
11. **DO NOT** shorten sling using knots, clips or other means.
12. Keep sling well lubricated to resist corrosion.
13. **DO NOT** use old or used ropes for slings.
14. Discard sling if it is damaged, worn, corroded or exposed to a corrosive environment.

RATED CAPACITIES • SLINGS

ROUND BODY
8-part slings

SIZE	FINISHED BODY DIA.	AVE. WT. PER FOOT IN POUNDS	RATED CAPACITY—TONS† 1 SLING VERTICAL	1 SLING CHOKER HITCH	1 SLING BASKET HITCH	2 SLINGS 30°	2 SLINGS 45°	2 SLINGS 60°
3/32" 8-part	7/16"	.17	.44	.37	.60	.74	.60	.44
1/8 8-part	9/16	.19	.79	.68	1.1	1.4	1.1	.79
3/16 8-part	13/16	.47	1.7	1.5	2.5	3.0	2.5	1.7
1/4 8-part	1 1/8	.86	3.2	2.7	4.5	5.5	4.5	3.2
5/16 8-part	1 3/8	1.4	4.8	4.2	6.8	8.3	6.8	4.8
3/8 8-part	1 11/16	2.0	6.8	6.0	9.6	12.0	10.0	6.8
7/16 8-part	2	2.7	9.3	8.1	14.0	17.0	14.0	9.3
1/2 8-part	2 1/4	3.7	12.0	12.0	18.0	21.0	18.0	12.0
9/16 8-part	2 1/2	4.7	16.0	13.0	22.0	27.0	22.0	16.0
5/8 8-part	2 13/16	5.6	19.0	17.0	27.0	34.0	27.0	19.0
3/4 8-part	3 3/8	8.0	28.0	24.0	39.0	48.0	39.0	28.0
7/8 8-part	4	11.0	37.0	32.0	51.0	62.0	51.0	37.0
1 8-part	4 1/2	14.0	49.0	41.0	66.0	81.0	66.0	47

FLAT BODY
6-part slings

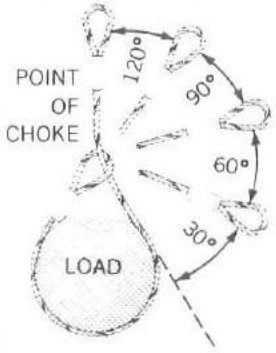
SIZE	WIDTH	THICKNESS						
3/32" 6-part	7/16"	1/4"	.12	.32	.28	.45	.55	.45	.32
1/8 6-part	9/16	3/8	.14	.57	.51	.83	1.01	.83	.57
3/16 6-part	13/16	1/2	.34	1.3	1.1	1.8	2.2	1.8	1.3
1/4 6-part	1 1/8	11/16	.63	2.3	2.0	3.2	4.0	3.2	2.3
5/16 6-part	1 3/8	7/8	1.0	3.6	3.2	5.0	6.2	5.0	3.6
3/8 6-part	1 11/16	1	1.5	5.1	4.5	7.2	8.7	7.2	5.1
7/16 6-part	2	1 3/16	2.0	6.9	6.0	9.8	12.0	9.8	6.9
1/2 6-part	2 1/4	1 5/16	2.7	9.0	7.9	13.0	15.0	13.0	9.0
9/16 6-part	2 1/2	1 1/2	3.5	11.0	9.6	16.0	20.0	16.0	11.0
5/8 6-part	2 13/16	1 11/16	4.1	14.0	12.0	20.0	24.0	20.0	14.0
3/4 6-part	3 3/8	2	6.0	20.0	18.0	28.0	35.0	28.0	20.0
7/8 6-part	4	2 5/16	8.2	27.0	24.0	38.0	47.0	38.0	27.0
1 6-part	4 1/2	2 11/16	10.3	35.0	31.0	50.0	61.0	50.0	35.0

Braided Slings refer to Component Rope Size when ordering.

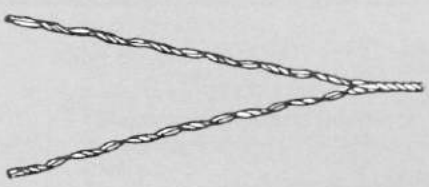
† Based on an approximate Design Factor of 5 with 6 × 19 one-operation Improved Plow PFC Component ropes. For IPS IWRC, increase by 7½% and for PREmium IWRC, increase by 23%

✻ These values apply only when the choker angle = 135° or larger. For choke angles less than 135° the following reduction factors apply.

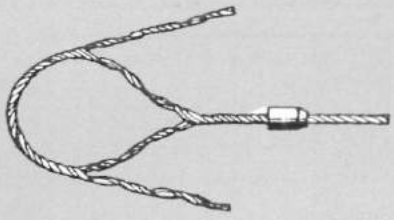
Choke Angle	Reduction Factor
90 - 120°	.87
60 - 90°	.74
30 - 60°	.62
0 - 30°	.49



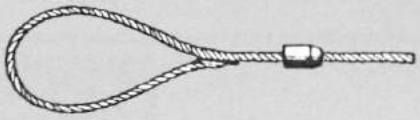
FLEMISH EYE SPLICE — SINGLE PART SLINGS



Strands of rope are divided



Ends are positioned ready for sleeve

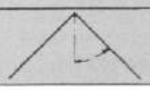


Rope is reformed with strands

Sleeve is pressed securely in place

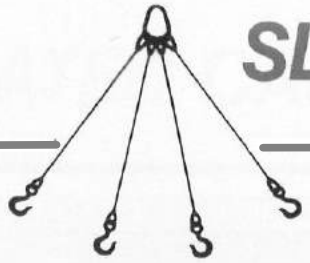
MECHANICAL SPLICE SLINGS
General Specifications

SLINGS TABLE

SIZE	AVE. WT. PER FT. IN LBS.	MIN. SLING LENGTHS		RATED CAPACITY—TONS					
				1 SLING VERTICAL	1 SLING CHOKER *	1 SLING (45°) BASKET HITCH	2 SLINGS 30°	2 SLINGS 45°	2 SLINGS 60°
		TYPE 1 STD. LOOP EYES EA. END	TYPE 5 STD. THIMBLE EYES						
6 × 19 PREFORMED IPS-IWRC (one operation)									
1/4"	.116	1'-1"	0'-9"	.56	.41	.79	.97	.79	.56
5/16	.18	1'-4"	0'-11"	.87	.64	1.2	1.5	1.2	.87
3/8	.26	1'-8"	1'-1"	1.2	.92	1.8	2.1	1.8	1.2
7/16	.35	1'-11"	1'-3"	1.7	1.2	2.4	2.9	2.4	1.7
1/2	.46	2'-2"	1'-4"	2.2	1.6	3.1	3.8	3.1	2.2
9/16	.59	2'-5"	1'-5"	2.7	2.0	3.9	4.8	3.9	2.7
5/8	.72	2'-9"	1'-8"	3.4	2.5	4.8	5.9	4.8	3.4
3/4	1.04	3'-3"	1'-11"	4.9	3.6	6.9	8.4	6.9	4.9
7/8	1.44	3'-10"	2'-3"	6.6	4.8	9.3	11.0	9.3	6.6
1	1.85	4'-4"	2'-6"	8.5	6.3	12.0	15.0	12.0	8.5
6 × 37 PREFORMED IPS-IWRC (one operation)									
1 1/8"	2.34	4' - 11"	2' - 10"	10.0	7.9	14.0	17.0	14.0	10.0
1 1/4	2.89	5' - 5"	3' - 0"	13.0	9.7	18.0	23.0	18.0	13.0
1 3/8	3.5	6' - 0"	3' - 6"	15.0	12.0	21.0	26.0	21.0	15.0
1 1/2	4.16	6' - 6"	3' - 9"	18.0	14.0	25.0	31.0	25.0	18.0
1 3/4	5.67	7' - 7"	4' - 7"	25.0	19.0	35.0	43.0	35.0	25.0
2	7.39	8' - 8"	5' - 6"	31.0	23.0	44.0	54.0	44.0	31.0
2 1/4	9.36	9' - 9"	6' - 3"	39.0	29.0	55.0	68.0	55.0	39.0
2 1/2	11.6	10' - 10"	—	47.0	35.0	66.0	81.0	66.0	47.0
2 3/4	14.0	11' - 11"	—	56.0	42.0	79.0	97.0	79.0	56.0
3	16.6	13' - 0"	—	67.0	50.0	95.0	116.0	95.0	67.0

FITTINGS TABLE

SIZE	HOOKS TONS	SHACKLES	TURNBUCKLES	LINKS			
				1 LEG	2 LEGS	3 LEGS	4 LEGS
6 × 19 PREFORMED IPS-IWRC							
1/4"	1	5/16"	1/2"	1/2"	5/8"	3/4"	7/8"
5/16	1	3/8	5/8	5/8	3/4	7/8	1 1/8
3/8	1 1/2	7/16	5/8	5/8	7/8	1 1/8	1 1/4
7/16	2	1/2	3/4	3/4	1 1/8	1 1/4	1 1/2
1/2	3	5/8	7/8	7/8	1 1/4	1 1/2	1 3/4
9/16	3	5/8	7/8	1	1 3/8	1 5/8	1 7/8
5/8	4 1/2	3/4	1	1 1/8	1 1/2	1 7/8	2 1/8
3/4	4 1/2	7/8	1 1/4	1 1/4	1 3/4	2 1/8	2 1/2
7/8	7	1	1 1/2	1 1/2	2 1/8	2 1/2	2 7/8
1	11	1 1/8	1 1/2	1 3/4	2 1/4	2 7/8	3 1/4
6 × 37 PREFORMED IPS-IWRC							
1 1/8	11	1 1/4	1 3/4	1 7/8	2 1/2	3 1/8	3 1/2
1 1/4	15	1 3/8	2	2	2 7/8	3 3/8	4
1 3/8	15	1 1/2	2	2 1/4	3	3 3/4	—
1 1/2	22	1 3/4	2 1/2	2 3/8	3 3/8	4	—



SLING CARE AND USE

SLING CARE

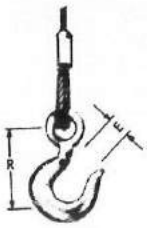
Proper care and usage are essential for maximum service and safety. Wire Rope Slings should be protected from sharp bends and cutting edges by means of corner saddles, burlap padding, or wood blocking. Heavy or continuous over-loading should be avoided as well as sudden jerks which can build up a momentary over-load sufficient to break the sling. Slings should be lubricated to prevent rust, and hung up when not in use.

SLING USE

SAFE OPERATING PRACTICES

Personnel using Wire Rope Slings should be instructed in and apply these practices:

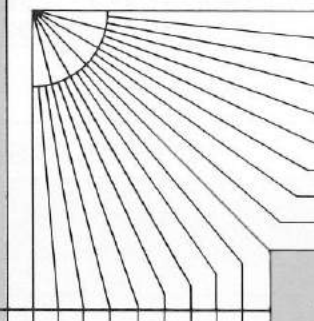
- Determine weight of load
- Select a sling of suitable rated capacity
- Use the proper hitch
- Guide loads with a tag line when practical
- When using multiple leg slings select the longest sling possible so as to reduce the tension in the sling legs
- Examine the sling for damaged or worn area
- Attach the sling securely to the load
- Pad or protect any sharp corners with which the sling is in contact.
- Center the load in the base (bowl) of the hook to prevent hook point loading
- Avoid any kinks, loops, or twist in the legs
- Keep hands and fingers from between the sling and the load
- Stand clear of the attached load
- Start lift slowly to avoid shock loading of the sling
- Do not pull a sling from under a load when the load is resting on the sling. Block the load up to remove the sling
- Do not shorten a sling by knotting, by wire rope clips, or any other means
- Do not inspect a sling by passing bare hands over the body. Broken wires, if present, may puncture the hands
- Keep the sling well lubricated in order to prevent corrosion



FOUR LEGS

SIZE	SAFELOAD—TONS 4 LEGS 30°	4 LEGS 45°	4 LEGS 60°	LINK A	LINK B	LINK D	ALLOY HOOK Tons	ALLOY HOOK E	ALLOY HOOK R
									
6 × 19 CONSTRUCTION IWRC									
1/4"	1.9	1.6	1.1	1 3/4"	5 1/4"	7/8"	1	15/16"	3 7/32"
5/16	3.0	2.5	1.7	2	6	1 1/8	1	15/16	3 7/32
3/8	4.3	3.5	2.5	2 1/2	7 1/2	1 1/4	1 1/2	1 1/32	3 21/32
7/16	5.8	4.8	3.4	2 3/4	8 1/4	1 1/2	2	1 1/16	4 3/32
1/2	7.6	6.2	4.4	3	9	1 3/4	3	1 7/32	4 11/16
9/16	9.5	7.8	5.5	3 1/2	10 1/2	1 7/8	3	1 7/32	4 11/16
5/8	12.	9.6	6.8	4	12	2 1/8	4 1/2	1 1/2	5 3/4
3/4	17.	14.	9.7	4 1/2	13 1/2	2 1/2	4 1/2	1 1/2	5 3/4
7/8	23.	18.	13.	5	15	2 7/8	7	1 7/8	7 3/8
1	29.	24.	17.	5 1/2	16 1/2	3 1/4	11	2 1/4	9 1/16
1 1/8	36.	29.	21.	6	18	3 1/2	11	2 1/4	9 1/16
1 1/4	44.	36.	26.	7	21	4	15	2 1/2	10 1/16
1 3/8	53.	44.	31.	7 1/2	22 1/2	4 1/2	15	2 1/2	10 1/16
1 1/2	63.	52.	36.	8	24	4 1/2	22	3 3/8	12 1/2

LOAD CHART of Sling Stresses at Various Sling Angles



ANGLE	VERTICAL LOAD ON ONE LEG	INCREASE IN STRESS DUE TO SLING ANGLE	TOTAL SLING STRESS
0°	1000 lbs.	0 %	1000 lbs.
5°	1000 lbs.	0.3%	1003 lbs.
10°	1000 lbs.	1.5%	1015 lbs.
15°	1000 lbs.	3.5%	1035 lbs.
20°	1000 lbs.	6.4%	1064 lbs.
25°	1000 lbs.	10.3%	1103 lbs.
30°	1000 lbs.	15.4%	1154 lbs.
35°	1000 lbs.	22.0%	1220 lbs.
40°	1000 lbs.	30.5%	1305 lbs.
45°	1000 lbs.	41.4%	1414 lbs.

ANGLE	VERTICAL LOAD ON ONE LEG	INCREASE IN STRESS DUE TO SLING ANGLE	TOTAL SLING STRESS
90°			
85°	1000 lbs.	1,047. %	11473 lbs.
80°	1000 lbs.	476. %	5759 lbs.
75°	1000 lbs.	286. %	3863 lbs.
70°	1000 lbs.	192. %	2924 lbs.
65°	1000 lbs.	136. %	2366 lbs.
60°	1000 lbs.	100. %	2000 lbs.
55°	1000 lbs.	74.3%	1743 lbs.
50°	1000 lbs.	55.5%	1555 lbs.
45°	1000 lbs.	41.4%	1414 lbs.

EXAMPLE

This chart illustrates how the stress in a sling varies with the sling angle.

For example, when one sling leg lifts 1,000 pounds at 0°, the sling stress is also 1,000 pounds. If the sling angle is changed to 45°, the sling stress would be 1,414 pounds, or an increase of 41.4%. If further changed to 30°, the stress would be 2,000 pounds, or a 100% increase. This illustrates the importance of sling angles when selecting slings and why the rated capacity of a sling decreases as the angle decreases.

AIRCRAFT AND MARINE TERMINALS FOR SWAGING

Cable Assemblies

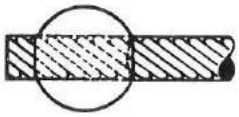
MS21259 STUD END THREADED

MS20667 FORK END

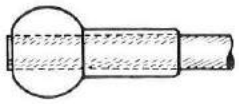
MS20668 EYE END

MS21260 AND AN669
TURN BUCKLE END THREADED

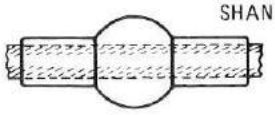
SA110 BALL



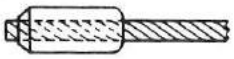
MS20664C BALL AND SHANK



MS20663C BALL AND DOUBLE SHANK



SA160 SLEEVE



OPEN SWAGED SOCKET
SA163

CLOSED SWAGED SOCKET
SA164

PIN EYE
SA154

STANDARD FORK
SA152

LARGE RING EYE
SA149

THREADED STUD
SA156

SMALL RING EYE
SA153

THREADED SLEEVE
SA155

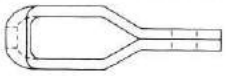
OVAL EYE
SA158

STANDARD HOOK
SA150

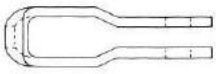
STANDARD SLEEVE
SA157

SAFETY HOOK
SA151

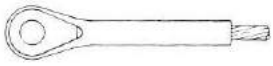
SA161 EYE SOCKETYPE



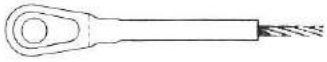
SA162 FORK SOCKETYPE



EYE SA 104



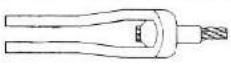
JAW SA107



STRAP END SA361 EYE

MARINE CABLE TERMINALS
STUD SA106

STRAP END SA362 FORK



Above cable terminals are diagrammed and illustrated in CORROSION RESISTING TERMINAL CATALOG. Write for your copy

STEEL WIRE ROPE
MADE IN USA

HOLLAND EQUIPMENT CO.
2870 W. 2100 S.
SALT LAKE CITY, UT 84119
HOLLANDEQ.COM