

# PRODUCTS FOR THE WIRE ROPE AND WIRE ROPE SLING INDUSTRY

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# **OUR HISTORY**

American Wire Rope and Sling (AWRS) is part of ECP American Steel, LLC and its Family of Companies. Based in Fort Wayne, Indiana, AWRS has a long history of service to Indiana's professional contractors and manufacturers that dates back to 1933.

Through quality service, American Wire Rope and Sling continues this tradition of providing name brand products for the rigging industry. Proudly, AWRS has grown from its original home in Fort Wayne to now being one of the largest rigging houses in Indiana with branches in Indianapolis and Mishawaka.

As part of a continuing effort to strengthen and diversify the quality of services, American Steel, LLC expanded by acquiring a full-service crane company, and a specialized design and fabrication shop.

American Steel, LLC has expanded its offering of custom rigging, lifting and material handling products with the implementation of their Engineered Products Division (EPD), a design and engineering division providing custom solutions for all sorts of material handling needs, including conveyor systems and loading docks. Over the years we have been the first in Indiana to: manufacture Single-Path & Twin-Path® round slings; manufacture and private-label our own line of nylon and polyester web slings; manufacture SLINGMAX® High Performance Fiber (HPF) slings and other products; patent a load-leveling device and HPF bridle slings; implement electronic sling inspections; operate six wire rope swaggers; operate five test beds including the largest in Indiana; operate 12 sewing machines; and operate two round sling machines.

AWRS is the only Indiana rigging house to hold membership in the leading industrial associations: Associated Wire Rope Fabricators (AWRF) and the Web Sling and Tie-Down Association (WSTDA). Individuals on our executive staff have served on the board and chaired various committees of these industry-leading associations.

Looking to the future, through acquisitions, expanded services and product lines, American Steel, LLC plans to become a national distributor of our product and service lines. For further information regarding our corporation please visit our website: www.ECPAmericanSteel.com



## **OSHA PART 1910.184 SLINGS** SAFE OPERATING PRACTICES

Whenever any sling is used, the following practices shall be observed:

- 1. Slings that are damaged or defective shall not be used.
- 2. Slings shall not be shortened with knots or bolts or other makeshift devices.
- 3. Sling legs shall not be kinked.
- 4. Slings shall not be loaded in excess of their rated capacities.
- 5. Slings used in a basket hitch shall have the loads balanced to prevent slippage.
- 6. Slings shall be securely attached to their loads.

- 7. Slings shall be padded or protected from the sharp edges of their loads.
- 8. Suspended loads shall be kept clear of all obstruction.
- 9. All employees shall be kept clear of loads about to be lifted and of suspended loads.
- 10. Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
- 11. Shock loading is prohibited.
- 12. A sling shall not be pulled from under a load when the load is resting on the sling.



# **B30.9 SLING MARKING** REQUIREMENTS

Wire rope slings shall be marked in the following way:

- 1. Name or trademark of manufacturer.
- 2. Rated loads for at least a single hitch and angle upon which it is based.
- 3. Diameter or size.
- 4. Number of legs if more than one.

# **INSPECTIONS**

- Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer.
- 2. Additional inspections shall be performed during sling use where service conditions warrant.
- 3. Damaged or defective slings shall be immediately removed from service.
- 4. Slings found with missing tags shall be taken out of service.



# **WIRE ROPE - SPECIFICS**

#### **MEASUREMENT**

#### How to measure wire rope diameter

The correct diameter of a wire rope is the diameter of a circumscribed circle which will enclose all the strands. It is the largest cross sectional measurement as illustrated on the right.

The measurement should be made carefully with calipers. The illustration shows the correct and incorrect methods of measuring the diameter of wire rope.

#### CERTIFICATION

Safety is the prime consideration in all wire rope applications. American Wire Rope & Sling proof tests each standard sling. All tested slings and/or fittings are permanently stamped with a serial number and recorded in our office. In addition, if requested by a customer, we will furnish a formal certificate of test for each sling produced. These tests meet all current federal, state and industry safety standards for wire rope slings.

#### **FLEMISH EYE SPLICE**

All sling eyes shown throughout this catalog are flemish eye splices. The flemish eye splice is fabricated by opening or unlaying the rope body into two parts, one having three strands and the other having the remaining three strands and the core. The rope is unlayed far enough back to allow the loop or eye to be formed by looping one part in one direction and the other part in the other direction and laying the rope back together. The strands are rolled back around the rope body. A metal sleeve is then slipped over the ends of the splice and pressed (swaged) to secure the ends to the body of the sling.





Serial numbers are stamped permanently into the steel sleeve and are recorded in our office.



# **BASIC HITCHES**

**Vertical** or straight, attachment is simply using a sling to connect a lifting hook to a load. Full rated lifting capacity of the sling may be utilized, but must not be exceeded. A tagline should be used to prevent load rotation which may damage the sling.

When two or more slings are attached to the same lifting hook, the total hitch becomes, in effect, a lifting bridle, and the load is distributed equally among the individual slings.

**Choker** hitches reduce lifting capability of a sling, since this method of rigging affects the ability of the wire rope components to adjust during the lift. A choker is used when the load will not be seriously damaged by the sling body, or the sling damaged by the load, and when the lift requires the sling to snug up against the load.

The diameter of the bend where the sling contacts the load should keep the point of the choke against the sling body, never against a splice or the base of the eye. When a choke is used at an angle of less than 120 degrees, the sling rated capacity must be decreased.

A choker hitch should be pulled tight before a lift is made, **not pulled down during the lift.** It also is dangerous to use only one choker hitch to lift a load which might shift or slide out of the choke.

**Basket** hitches distribute a load equally between the two legs of a sling , within limitations described below. Capacity of a sling used in a basket is affected by the bend, or curvature, where the sling body comes in contact with the load, just as any wire rope is affected and limited by bending action, as over a sheave.







# **CALCULATING SLING LOAD**

These calculations assume that the center of gravity is equidistant from all of the lifting points, and the sling angles are the same. If not, more complicated engineering calculations are needed.

- Divide the weight of your total load by the number of legs you are using. This gives you the load per leg if the lift were being made with all legs lifting vertically.
- 2. Measure the angle between the legs of the sling and the horizontal plane.
- 3. Multiply the load per leg that you calculated in step 1 by the load factor for the leg angle you are using. Use the load factor guidelines table below to determine the load factor. The result is the resultant load on each leg of the sling for this lift and angle. The resultant load must never exceed the sling's vertical rated capacity.

Angle Degrees	Factor	Angle Degrees	Factor	Angle Degrees	Factor
85	.99	60	.86	35	0.57
80	.98	55	.81	30	.50
75	.96	50	.76	65	.42
70	.93	45	.70	20	.34
65	.90	40	.64	15	.25



Example: A sling with a vertical rated capacity of 1000 lbs. will have a reduced capacity of 860 lbs. (1000 x .86) when used at 60 degrees.



# **EFFECT OF SLING ANGLES**

#### EFFECT OF ANGLE ON RATED CAPACITY

In general, the rated capacities for the specific slings shown in this catalog are listed for vertical use of the sling. However, the vertical rated sling capacity is reduced when the slings are used in a basket hitch and/or at angles when two slings are attached to one crane hook to lift a load.

The reduced capacity rating depends upon the angle between the sling leg and the horizontal plane to which the sling is attached. Once you have determined this angle, multiply the sling's vertical rated capacity as shown in this catalog by the appropriate factor found in the table below. This will give you the sling's reduced rated capacity.

Angle Degrees	Factor	Angle Degrees	Factor	Angle Degrees	Factor
85	.99	60	.86	35	0.57
80	.98	55	.81	30	.50
75	.96	50	.76	65	.42
70	.93	445	.70	20	.34
65	.90	40	.64	15	.25
1000 lbs capacity	1000 lbs capacity	50 11 <sup>12</sup> 10	6.00 th.	500 <sup>105</sup> capacity <b>30</b>	500 lb

Example: A sling with a vertical rated capacity of 1000 lbs. will have a reduced capacity of 860 lbs. (1000 x .86) when used at 60 degrees.

#### SAFE SLING PRACTICES

Do: Protect the sling against sharp corners Don't: Kink a sling on a small radius Don't: Jerk the load when lifting

Do: Hang up sling when not in use

# EFFECT OF BENDS ON BASKET RATED CAPACITIES

**For Cable-Laid Slings -** Basket rated capacities are based on sling use around bends of no less than 10 times the rope diameter (for 1/2" wire rope, 10 times 1/2" equals 5" minimum diameter of bend).

**For Strand-Laid Slings -** Basket rated capacities are based on sling use around bends of no less than 25 times the rope diameter (for 1/2" wire rope, 25 times 1/2" equals 12-1/2" minimum diameter of bend).

**For Six-Part Braided Slings -** Basket rated capacities are based on sling use around bends of no less than 25 times the component rope diameter. For eight-part braided slings — basket rated capacities are based on sling use around bends of no less than 25 times the component rope diameter.



# WIRE ROPE SLINGS

STRAND-LAID

#### 2D1-L - Plain Loop Each End

Recommended for general lifting where high strength and abrasion resistance is required. Ideal for basket or pendant use.

			Rated Capacity - Tons *									
	Wire	Wire			Basket Hitch			Eye Dimensions (in)				
Shing No.	Const.	Dia.	Vert.	Choker Hitch	Ϋ́	$\wedge$						
					$\cup$	60°	45°	30°	Α	В		
8	6x19	1/4	0.65	0.48	1.3	1.1	0.91	0.65	2	4		
10	6x19	5/16	1.0	0.74	2.0	1.7	1.4	1.0	2-1/2	5		
12	6x19	3/8	1.4	1.1	2.9	2.5	2.0	1.4	3	6		
14	6x19	7/16	1.9	1.4	3.9	3.4	2.7	1.9	3-1/2	7		
16	6x19	1/2	2.5	1.9	5.1	4.4	3.6	2.5	4	8		
18	6x19	9/16	3.2	2.4	6.4	5.5	4.5	3.2	4-1/2	9		
20	6x19	5/8	3.9	2.9	7.8	6.8	5.5	3.9	5	10		
24	6x37	3/4	5.6	4.1	11.0	9.7	7.9	5.6	6	12		
28	6x37	7/8	7.6	5.6	15.0	13.0	11.0	7.6	7	14		
32	6x37	1	9.8	7.2	20.0	17.0	14.0	9.8	8	15		
36	6x37	1-1/8	12.0	9.1	24.0	21.0	17.0	12.0	9	18		
40	6x37	1-1/4	15.0	11.0	30.0	26.0	21.0	15.0	10	20		
44	6x37	1-3/8	18.0	13.0	36.0	31.0	25.0	18.0	11	22		
48	6x37	1-1/2	21.0	16.0	42.0	37.0	30.0	21.0	12	24		
56	6x37	1-3/4	28.0	21.0	57.0	49.0	40.0	28.0	14	28		
64	6x37	2	37.0	28.0	73.0	63.0	52.0	37.0	16	32		



#### 2D1-T - Thimble Loop Each End

For use where both sling ends are subjected to wear and abrasion from links, hooks, rings, pins, etc. Heavy-duty thimbles protect against concentrated wear.

				Rated (					
	Wire	Wire			Baske	t Hitch		Eye Dim	ensions n)
Shing No.	Const.	Dia.	Vert.	የየ		$\wedge$			
				$\cup$	60°	45°	30°	Α	В
8	6x19	1/4	0.65	1.3	1.1	0.91	0.65	7/8	1-518
10	6x19	5/16	1.0	2.0	1.7	1.4	1.0	1-1/16	1-7/8
12	6x19	3/8	1.4	2.9	2.5	2.0	1.4	1-1/8	2-1/8
14	6x19	7/16	1.9	3.9	3.4	2.7	1.9	1-1/4	2-1/4
16	6x19	1/2	2.5	5.1	4.4	3.6	2.5	1-1/2	2-3/4
18	6x19	9/16	3.2	6.4	5.5	4.8	3.2	1-1/2	2-3/4
20	6x19	5/8	3.9	7.8	6.8	5.5	3.9	1-3/4	3-1/4
24	6x37	3/4	5.6	11.0	9.7	7.9	5.6	2	3-3/4
28	6x37	7/8	7.6	15.0	13.0	11.0	7.6	2-1/4	4-1/4
32	6x37	1	9.8	20.0	17.0	14.0	9.8	2-1/2	4-1/2
36	6x37	1-1/8	12.0	24.0	21.0	17.0	12.0	2-7/8	5-1/8
40	6x37	1-1/4	15.0	30.0	26.0	21.0	15.0	2-7/8	5-1/8
44	6x37	1-3/8	18.0	36.0	31.0	25.0	18.0	3-1/2	6-1/4
48	6x37	1-1/2	21.0	42.0	37.0	30.0	21.0	3-1/2	6-1/4



\*Rated capacities for unprotected eyes apply only when attachment is made over an object narrower than the natural width of the eye, and apply for basket hitches only when the D/d ratio is 25 or greater, where D = Diameter of curvature around which the body of the sling is bent, and d = nominal diameter of the sling body. All capacities are in tons of 2,000 lbs. All eye and fitting dimensions are in inches. All capacities are for Extra Improved Plow Steel IWRC.

#### 2D1-L-H - Single Leg with Plain Loop and Hook

Designed for use as a bridle sling unit, this sling may also be used in different lengths for handling unbalanced loads. Hook is furnished for easy attachment to loads having suitable lifting eye or lugs.

			Ra	ted Capa	city - Ton	s *	Eye				
Sling	Sling			Hitch Ca	apacity fo	or 2 Legs	Dime	nsions		Hook (in	)
No.	Rope	Rope	Vert.	~		$\sim$	(i	n)			
	const.	Dia.		<u>60°</u>	<u>45</u> °	<u>30°</u>	Α	В	WLL (tons)	E	R
8	6x19	1/4	0.65	1.1	0.91	0.65	2	4	3/4	29/32	3-11/32
10	6x19	5/16	1.0	1.7	1.4	1.0	2-1/2	5	1	15/16	3-13/16
12	6x19	3/8	1.4	2.5	2.0	1.4	3	6	1-1/2	1	4-1/8
14	6x19	7/16	1.9	3.4	2.7	1.9	3-1/2	7	2	1-1/8	4-11/16
16	6x19	1/2	2.5	4.4	3.6	2.5	4	8	3A	1-1/8	4-11/16
18	6x19	9/16	3.2	5.5	4.5	3.2	4-1/2	9	5A	1-15/32	5-3/4
20	6x19	5/8	3.9	6.8	5.5	3.9	5	10	5A	1-15/32	5-3/4
24	6x37	3/4	5.6	9.7	7.9	5.6	6	12	7A	1-3/4	7-3/8
28	6x37	7/8	7.6	13.0	11.0	7.6	7	14	11A	2-1/4	9-1/16
32	6x37	1	9.8	17.0	14.0	9.8	8	15	11A	2-1/4	9-1/16
36	6x37	1-1/8	12.0	21.0	17.0	12.0	9	18	15A	2-1/2	10-1/16
40	6x37	1-1/4	15.0	26.0	21.0	15.0	10	20	15A	2-1/2	10-1/16
44	6x37	1-3/8	18.0	31.0	25.0	18.0	11	22	22A	3-5/16	12-1/2
48	6x37	1-1/2	21.0	37.0	30.0	21.0	12	24	22A	3-5/16	12-1/2



#### 2D1 B-H - Single Leg with Oval Link and Hook

For use as a bridle unit or single leg sling. The alloy oval link is readily adaptable to crane hooks. Hook is furnished for easy attachment to loads having suitable lifting eye or lugs.

			Ra	ted Capa	city - Ton	s *	_					
Sling		Wire		Hitch Ca	apacity fo	or 2 Legs	Ov	al Link (	(in)		Hook (in	)
No.	Rope Rope Const. Dia.		Vert.	60°	45°	30°	A	В	С	WLL (tons)	E	R
8	6x19	1/4	0.65	1.1	0.91	0.65	1/2	6.0	3.0	3/4	29/32	3 11/32
10	6x19	5/16	1.0	1.7	1.4	1.3	1/2	6.0	3.0	1	15/16	3 13/16
12	6x19	3/8	1.4	2.5	2.0	1.8	1/2	6.0	3.0	1-1/2	1	4-1/8
14	6x19	7/16	1.9	3.4	2.7	2.5	5/8	6.38	3.75	2	1-1/8	4-11/16
16	6x19	1/2	2.5	4.4	3.6	3.2	5/8	6.38	3.75	3A	1-1/8	4/11/16
18	6x19	9/16	3.2	5.5	4.5	4.1	3/4	6.38	3.75	5A	1 15/32	5-3/4
20	6x19	5/8	3.9	6.8	5.5	5.0	3/4	7.50	4.30	5A	1 15/32	5-3/4
24	6x37	3/4	5.6	9.7	7.9	7.1	1	7.50	4.30	7A	1-3/4	7-3/8
28	6x37	7/8	7.6	13.0	11.0	9.7	1	9.50	5.50	11A	2-1/4	9 1/16
32	6x37	1	9.8	17.0	14.0	12.0	1	9.50	5.50	11A	2-1/4	9 1/16
36	6x37	1-1/8	12.0	21.0	17.0	15.0	1-1/4	9.50	5.50	15A	2-1/2	10 1/16
40	6x37	1-1/4	15.0	26.0	21.0	18.0	1-1/4	10.50	5.90	15A	2-1/2	10 1/16
44	6x37	1-3/8	18.0	31.0	25.0	21.0	1-1/2	12.00	6.00	22A	3 5/16	12-1/2
48	6x37	1-1/2	21.0	37.0	30.0	24.0	1-1/2	12.00	6.00	22A	3 5/16	12-1/2

\*Rated capacities for unprotected eyes apply only when attachment is made over an object narrower than the natural width of the eye. All capacities are in tons of 2,000 lbs. All eye and fitting dimensions are in inches.

#### STRAND-LAID

# DOE NOT HAVE BASKET RATING CAN NOT USE IN CHOKE

#### 2D1 -CT - Slip through Thimble Each End

Recommended where complete loop protection is required. Quickly adaptable for basket or choker hitch, the slip thru thimbles pass through each other.

					Rated Capacity - Tons *				
	Wire	Wire	Mant	Ch - L	Hitch Ca	apacity fo	or 2 Legs	Thimble Dim	nensions (in)
Sling No.	Const.	Dia.	vert.	Cnoker	$\land$	$\wedge$			
					60°	45°	30°	А	В
8	6x19	1/4	0.65	.48	1.1	0.91	0.65	1-3/4	3-1/4
10	6x19	5/16	1.0	.74	1.7	1.4	1.3	1-3/4	3-1/4
12	6x19	3/8	1.4	1.1	2.5	2.0	1.8	1-3/4	3-1/4
14	6x19	7/16	1.9	1.4	3.4	2.7	2.5	2-1/4	4-5/16
16	6x19	1/2	2.5	1.9	4.4	3.6	3.2	2-1/4	4-5/16
18	6x19	9/16	3.2	2.4	5.5	4.5	4.1	2-1/4	4-5/16
20	6x19	5/8	3.9	2.9	6.8	5.5	5.0	2-3/4	5-3/8
24	6x19	3/4	5.6	4.1	9.7	7.9	7.1	2-3/4	5-3/8
28	6x19	7/8	7.6	5.6	13.0	11.0	9.7	3-5/16	6-1/2
32	6x19	1	9.8	7.2	17.0	14.0	12.0	3-5/16	6-1/2
36	6x19	1-1/8	12.0	9.1	21.0	17.0	15.0	3-3/16	7-9/16
40	6x37	1-1/4	15.0	11.0	26.0	21.0	18.0	4-3/8	8-11/16
44	6x37	1-3/8	18.0	13.0	31.0	25.0	21.0	4-3/8	8-11/16
48	6x37	1-1/2	21.0	16.0	37.0	30.0	24.0	4-7/8	9-13/16



#### 2D1 D-L - Choker with Plain Loop Each End 2D1 D-L-T - Choker with Loop and Thimble

Specially designed for choker use. Choker hook reduces shearing action on sling body, reduces wear and permits fast, efficient hook-up.

# Never attempt to make a lift by attaching choker hook to the load.

	Wire	Wire	Rated Capacity	Eye Dimensions (in)		
Sling No.	Rope Const.	Rope Dia.	Tons * (Choker)	А	В	
12	6x19	3/8	1.1	3	6	
14	6x19	7/16	1.4	3-1/2	7	
16	6x19	1/2	1.9	4	8	
18	6x19	9/16	2.4	4-1/2	9	
20	6x19	5/8	2.9	5	10	
24	6x19	3/4	4.1	6	12	
28	6x19	7/8	5.6	6-1/2	13	
32	6x19	1	7.2	7	14	

\*All capacities are in tons of 2,000 lbs. All eye and fitting dimensions are in inches.





#### 2D2B-DT - Two-Leg Bridle Choker Sling

For use as a special choker sling where the load requires two points of attachment. Choker hook lowers shearing action on sling body, reduces wear, and permits quicker hook-up.

	Wire	Wire		Rated	Capacity ·	Tons *	0	val Link (i	in)
Sling No.	Rope Const.	Rope Dia.	Vert. Choke	60°	45°	30°	D	w	L
8	6x19	1/4	.95	0.82	0.67	0.48	1/2	2-1/2	5
10	6x19	5/16	1.5	1.3	1.0	0.74	1/2	2-1/2	5
12	6x19	3/8	2.1	1.8	1.5	1.1	5/8	3	6
14	6x19	7/16	2.9	2.5	2.0	1.4	3/4	2-3/4	5-1/2
16	6x19	1/2	3.7	3.2	2.6	1.9	3/4	2-3/4	5-1/2
18	6x19	9/16	4.7	4.1	3.3	2.4	1	3-1/2	7
20	6x19	5/8	5.8	5.0	4.1	2.9	1	3-1/2	7
24	6x37	3/4	8.2	7.1	5.8	4.1	1-1/4	4-3/8	8-3/4
28	6x37	7/8	11	9.7	7.9	5.6	1-1/4	4-3/8	8-3/4
32	6x37	1	14.0	13.0	10	7.2	1-1/2	5-1/4	10-1/2
36	6x37	1-1/8	18.0	16.0	13.0	9.1	1-1/2	5-1/4	10-1/2
40	6x37	1-1/4	22.0	19.0	16	11.0	1-3/4	6	12

Never attempt to make a lift by attaching choker hook to the load.

#### 2D2B-H - Two-Leg Bridle with Oval Link and Hooks

Recommended for use where load provides a means of attaching the hooks and where two legs are required.

			Rated	Capacity -	Tons *	Oval Link (in)		(in)			
Sling	Rope	Wire Rope			~		ai Link	(IN)		HOOK (IN	)
No.	Const.	Dia.	<u>60°</u>	<u>45</u> °	<u>30°</u>	D	w	L	WLL (tons)	E	R
8	6x19	1/4	1.1	0.91	0.65	0.5	3	6	3/4	29/32	3-11/32
10	6x19	5/16	1.7	1.4	1.0	0.5	3	6	1	15/16	3-13/16
12	6x19	3/8	2.5	2.0	1.4	0.625	3	6	1-1/2	1	4-1/8
14	6x19	7/16	3.4	2.7	1.9	0.75	3.75	6.38	2	1-1/8	4-11/16
16	6x19	1/2	4.4	3.6	2.5	0.75	3.75	6.38	3A	1-1/8	4-11/16
18	6x19	9/16	5.5	4.5	3.2	1.0	3.75	6.38	5A	1-15/16	5-3/4
28	6x19	5/8	6.8	5.5	3.9	1.0	4.3	7.5	5A	1-15/16	5-3/4
24	6x37	3/4	9.7	7.9	5.6	1.25	4.3	7.5	7A	1-3/4	7-3/8
28	6x37	7/8	13.0	11.0	7.6	1.25	5.5	9.5	11A	2-1/4	9-1/16
32	6x37	1	17.0	14.0	9.8	1.5	5.5	9.5	11A	2-1/4	9-1/16
36	6x37	1-1/8	21.0	17.0	12.0	1.5	5.5	9.5	15A	2-1/2	10-1/16
40	6x37	1-1/4	26.0	21.0	15.0	1.75	5.9	10.5	15A	2-1/2	10-1/16
44	6x37	1-3/8	31.0	25.0	18.0	2.0	6	12	22A	3-5/16	12-1/2
48	6x37	1-1/2	37.0	30.0	21.0	2.0	6	12	22A	3-5/16	12-1/2



\*All capacities are in tons of 2,000 lbs All fitting dimensions are in inches.

#### **STRAND-LAID**

	Wire	Rated	Capacity ·	Tons *	Allow					
Sling No.	Wire Rope	$\wedge$			Alloy		nk (in)		HOOK (IN	)
	Const.	60°	45°	30°	Α	В	С	WLL (tons)	E	R
8	1/4	1.7	1.4	0.97	1/2	6	3	3/4	29/32	3-8/23
10	5/16	2.6	2.1	1.5	5/8	6	3	1	15/16	3-13/16
12	3/8	3.7	3.0	2.2	3/4	6	3	1-1/2	1	4-1/8
14	7/16	5.0	4.1	2.9	1	6.38	3.75	2	1-1/8	4-11/16
16	1/2	6.6	5.4	3.8	1	6.38	3.75	3A	1-1/8	4-11/16
18	9/16	8.3	6.8	4.8	1	6.38	3.75	5A	1-15/32	5-3/4
20	5/8	10.0	8.3	5.9	1-1/4	7.5	4.3	5A	1-15/32	5-3/4
24	3/4	15.0	12.0	8.4	1-1/2	7.5	4.3	7A	1-3/4	7-3/8
28	7/8	20.0	16.0	11.0	1-1/2	9.5	5.5	11A	2-1/4	9-1/16
32	1	26.0	21.0	15.0	1-3/4	9.5	5.5	11A	2-1/4	9-1/16
36	1-1/8	31.0	26.0	18.0	2	9.5	5.5	15A	2-1/2	10-1/16
40	1-1/4	38.0	31.0	22.0	2	10.5	5.9	15A	2-1/2	10-1/16

#### 2D3B-H - Three-Leg Bridle with Oval Link and Hooks

For use where three legs are required for level lifting or to control the load.

#### 2D4B-H - Four-Leg Bridle with Oval Link and Hooks

For use where four legs are required to control the load or permit level lifting. Four legs combined in a single sling afford greater stability with wide angles or lift.

	14/1	Rated	Capacity	- Tons *	Allow	Ovaltin	ale (in)	Hook (in)			
Sling No.	Rope Const.	60°	45°	30°	Alloy	B	с	WLL (tons)	E E	R	
8	1/4	2.2	1.8	1.3	5/8	6	3	3/4	29/32	3-11/32	
10	5/16	3.5	2.8	2.0	3/4	5-1/2	2-3/4	1	15/16	3-13/16	
12	3/8	5.0	4.1	2.9	1	7	3-1/2	1-1/2	1	4-1/8	
14	7/16	6.7	5.5	3.9	1	7	3-1/2	2	1-1/8	4-11/16	
16	1/2	8.8	7.1	5.1	1-1/4	8-3/4	4-3/8	3A	1-1/8	4-11/16	
18	9/16	11.0	9.0	6.4	1-1/4	8-3/4	4-3/8	5A	1-15/32	5-3/4	
20	5/8	14.0	11.0	7.8	1-1/4	8-3/4	4-3/8	5A	1-15/32	5-3/4	
24	3/4	19.0	16.0	11.0	1-1/2	10-1/2	5-1/4	7A	1-3/4	7-3/8	
28	7/8	26.0	21.0	15.0	1-3/4	12	6	11A	2-1/4	9-1/16	
32	1	34.0	28.0	20.0	2	14	7	11A	2-1/4	9-1/16	
36	1-1/8	42.0	34.0	24.0	2-1/4	16	8	15A	2-1/2	10-1/16	
40	1-1/4	51.0	42.0	30.0	2-1/2	16	8	15A	2-1/2	10-1/16	

\*All capacities are in tons of 2,000 lbs. All fitting dimensions are in inches.

B

B

#### **BOOM PENDANTS WITH SWAGED FITTINGS**

#### 6 x 19 and 6 x 37 Extra Improved Plow IWRC



Rated Capacities D/f 5					Open Swaged Socket				Closed Swaged Socket			
Dia. of Length Rope (L) of Inch Sling		Single	Two Slin Us	gs When ed	В	с	Е	Weight	D	G	Weight	
(A)	(ft-in)	Part Vertical	60°	45°	(in)	(in)	(in)	(lbs)	(in)	(in)	(lbs)	
1/4	0' 11"	0.65	1.1	0.91	1-5/32	11/16	11/16	0.62	1/2	3/4	0.31	
5/16	1′ 3″	1.0	1.7	1.4	1-11/32	13/16	13/16	1.12	11/16	7/8	0.77	
3/8	1′ 3″	1.4	2.5	2.0	1-11/32	13/16	13/16	1.25	11/16	7/8	0.75	
7/16	1′ 8″	1.9	3.4	2.7	1-1/2	1	1	2.1	7/8	1-1/16	1.4	
1/2	1′ 8″	2.5	4.4	3.6	1-1/2	1	1	2.1	7/8	1-1/16	1.4	
9116	2' 0"	3.2	5.5	4.5	1-21/32	1 3/16	1-1/4	4.5	1-1/8	1-1/4	2.9	
5/8	2' 0"	3.9	6.8	5.5	1-21/32	1 3/16	1-1/4	4.5	1-1/8	1-1/4	2.7	
3/4	2′ 5″	5.6	9.7	7.9	2-1/16	1-3/8	1-1/2	7.7	1 5/16	1-15/32	5.0	
7/8	2' 10"	7.6	13.0	11.0	2-7/16	1-5/8	1-3/4	10.9	1-1/2	1-23/32	7.1	
1	3′ 2″	9.8	17.0	14.0	2-3/4	2	2	19.5	1-3/4	2-1/16	11.0	
1-1/8	3′ 7″	12.0	21.0	17.0	3-1/8	2-1/4	2-1/4	27.6	2	2-5/16	15.6	
1-1/4	4' 0"	15.0	26.0	21.0	3-1/2	2-1/2	2-1/2	37.0	2-1/4	2-19/32	22.9	
1-3/8	4' 5"	18.0	31.0	25.0	4	2-1/2	2-1/2	48.0	2-1/4	2-19/32	30.0	
1-1/2	4' 9"	21.0	37.0	30.0	4-3/8	2-3/4	3	59.6	2-1/2	2-27/32	38.0	

\*Rated capacities are in tons of 2,000 lbs. based on design factor of 5.





**Gator-Flex<sup>™</sup> -** This sling has it all. Easy to handle, easy to store and comes with only one small sleeve per loop.

**Large Gator-Flex**<sup>™</sup> slings are used in vertical basket or inverted basket hitches to lift large components with mobile, tower or offshore cranes.

T & D Ultra-Flex <sup>™</sup> and Gator-Flex <sup>™</sup> Sling										
Finished Diameter	Component Wire Rope	Standard Eye Size	Vertical RC	Choker RC	Basket RC	Min. Length Gator-Flex <sup>™</sup>				
1/2	1/8	8	1.3	0.9	2.6	-				
5/8	5/32	10	1.7	1.3	3.4	-				
3/4	3/16	12	2.6	1.9	5.2	-				
7/8	7/32	14	3.5	2.6	7.0	-				
1	1/4	16	4.6	3.4	9.2	-				
1-1/4	5/16	18	7.0	5.2	14.0	-				
1-1/2	3/8	20	10.0	7.5	20.0	-				
1-3/4	7/16	22	13.8	10.3	27.6	10.5′				
2	1/2	24	18.0	13.5	38.0	12.2′				
2-1/4	9/16	26	22.7	18.1	45.4	14′				
2-1/2	5/8	28	27.8	20.8	55.6	15′				
3	3/4	30	39.7	29.8	79.4	17.5′				
3-1/2	7/8	35	53.7	40.3	107.4	19′				



## **WIRE ROPE ASSEMBLIES**

STEEL SWAGED BUTTON ENDS



Material is mild carbon steel. Length is measured from outside end of terminal. This standard sleeve can also be attached at any point in the assembly as well as at the end. Special sizes available on request.

Button Endings Wire Sizes	Button Finished After Swaging Diameter (A)	Dimension Length (L)
1/8	0.40	0.61
3/16	0.52	0.84
1/4	0.58	1.41
5/16	0.77	1.33
3/8	0.77	1.69
7/16	1.03	1.94
1/2	1.16	2.17
9/16	1.29	2.41
5/8	1.42	2.89
3/4	1.55	3.25
7/8	1.80	3.86
1	2.05	4.36
1-1/8	2.30	4.81
1-1/4	2.56	5.42

Note: For developing 100% button strength, we recommend attaching to IWRC wire rope.



## AIRCRAFT CABLE FOR NON-AIRCRAFT USE ONLY

#### 7x7

Galvanized or Stainless Steel				
Dia.	Approximate	Breaking Strength in Pounds		
Inches	in Pounds	Galvanized	Stainless	
* 1/32	0.17	110	110	
3/64	0.42	270	270	
1/16	0.75	480	480	
5/64	1.1	650	650	
3/32	1.6	920	920	
1/8	2.8	1700	1700	
5/32	4.3	2600	2400	
3/16	6.2	3700	3700	
7/32	8.3	4800	4800	
1/4	10.6	6100	6100	



\* 1/32 is made in 3 x 7 construction.

#### 7x19

Galvanized or Stainless Steel				
Dia.	Approximate	Breaking Strength in Pounds		
Inches.	in Pounds	Galvanized	Stainless	
1/16	0.7	_	480	
3/32	1.7	1000	920	
1/8	2.9	2000	1760	
5/32	4.5	2800	2400	
3/16	6.5	4200	3700	
7/32	8.6	5600	5000	
1/4	11.0	7000	6400	
9/32	13.9	8000	7800	
5/16	17.3	9800	9000	
3/8	24.3	14400	12000	



#### Aircraft cables are available with various coatings.

Note: Nominal strengths shown for aircraft cable and wire rope are for reference purpose for use in determining design factor which will vary with various types of applications.

# **STANDARD WIRE ROPE**

#### 6 x 19 Class Bright

Nominal Strength in Tons		Approx. Wt./Ft., Lb.	
Dia. Inches	EIPS - IWRC	IWRC	Fiber Core
1/4	3.40	0.116	0.105
5/16	5.27	0.18	0.164
3/8	7.55	0.26	0.236
7/16	10.2	0.35	0.32
1/2	13.3	0.48	0.42
9/16	16.8	0.59	0.53
5/8	20.6	0.72	0.66
3/4	29.4	1.04	0.95
7/8	39.8	1.42	1.29
1	51.7	1.85	1.68
1-1/8	65.0	2.34	2.13
1-1/4	79.9	2.89	2.63
1-3/8	96.0	3.50	3.18
1-1/2	114.0	4.16	3.78
1-5/8	132.0	4.88	4.44
1-3/4	153.0	5.67	5.15
1-7/8	174.0	6.50	5.91
2	198.0	7.39	6.72



#### 6 x 37 Class Bright

Nominal Strength in Tons		Approx. Wt./Ft., Lb.	
Dia. Inches	EIPS - IWRC	IWRC	Fiber Core
1/4	3.40	0.116	0.105
5/16	5.27	0.18	0.164
3/8	7.55	0.26	0.236
7/16	10.2	0.35	0.32
1/2	13.3	0.46	0.42
9/16	16.8	0.59	0.53
5/8	20.6	0.72	0.66
3/4	29.4	1.04	0.95
7/8	39.8	1.42	1.29
1	51.7	1.85	1.68
1-1/8	65.0	2.34	2.13
1-1/4	79.9	2.89	2.63
1-3/8	96.0	3.50	3.18
1-1/2	114.0	4.16	3.78
1-5/8	132.0	4.88	4.44
1-3/4	153.0	5.67	5.15
1-7/8	174.0	6.50	5.91
2	198.0	7.39	6.72



#### Available galvanized at 10% lower strengths. Available drawn galvanized at regular strength.

Note: Nominal strengths shown for aircraft cable and wire rope are for reference purposes for use in determining design factor which will vary with various types of applications.

### **ROTATION-RESISTANT** WIRE ROPE

#### **19x7** Classification

Extra Improved Plow Steel				
Dia. Inches	Approx. Weight Per Foot (lbs)	Nominal Strength* Tons of 2000 lbs		
3/16	0.064	1.57		
1/4	0.113	2.77		
5/16	0.177	4.30		
3/8	0.25	6.15		
7/16	0.35	8.33		
1/2	0.45	10.8		
9/16	0.58	13.6		
5/8	0.71	16.8		
3/4	1.02	24.0		
7/8	1.39	32.5		
1	1.82	42.2		
1-1/8	2.30	53.1		
1-1/4	2.83	65.1		
1-3/8	3.43	78.4		
1-1/2	4.08	92.8		



#### **8x19 Class Bright**

Extra Improved Plow Steel				
Dia. Inches	Approx. Weight Per Foot (lbs)	Nominal Strength, * Tons of 2000 lbs		
3/16	0.26	6.63		
7/16	0.36	8.97		
1/2	0.47	11.6		
9/16	0.60	14.7		
5/8	0.73	18.1		
3/4	1.06	25.9		
7/8	1.44	35.0		
1	1.88	45.5		



\* These strengths apply only when a test is conducted with both ends fixed. When in use, the strength of these ropes may be significantly reduced if one end is free to rotate. Nominal strengths shown for aircraft cable and wire rope are for reference purposes for use in determining design factor which will vary with various types of applications.



# **SPECIALTY ROPE**

#### 7-Flex<sup>®</sup> Premium Grade IWRC

Dia. Inches	Approx. Weight Per Foot (lbs)	Nominal Strength* Tons of 2000 lbs
5/16	0.18	5.27
3/8	0.26	7.55
7/16	0.35	10.20
1/2	0.46	13.30
9/16	0.59	16.80
5/8	0.72	20.60
3/4	1.04	29.40
7/8	1.42	39.80
1	1.85	51.70
1-1/16	2.34	65.00
1-1/4	2.89	79.90
1-3/16	3.50	96.00
1-1/2	4.16	114.00



#### **PFV® Wire Rope**

PFV® Wire Rope With Plastic Filled Valley Wire Rope Center

	Premium Grade					
Dia.	6x19 IWRC		6x37 IWRC		7-Flex IWRC	
interies	N.S.	WT.	N.S.	WT.	N.S.	WT.
5/16	-	-	-	-	5.27	0.19
3/8	7.55	0.28	7.55	0.28	7.55	0.27
7/16	10.2	0.37	10.2	0.37	10.2	0.37
1/2	13.3	0.49	13.3	0.49	13.3	0.49
9/16	16.8	0.63	16.8	0.63	16.8	0.61
5/8	20.6	0.76	20.6	0.76	20.6	0.76
3/4	29.4	1.10	29.4	1.10	29.4	1.09
7/8	39.8	1.51	39.8	1.51	39.8	1.49
1	51.7	1.96	51.7	1.96	51.7	1.94
1-1/8	65.0	2.48	65.0	2.48	65.0	2.46
1-1/4	79.9	3.06	79.9	3.06	79.9	3.03
1-3/8	96.0	3.71	96.0	3.71	96.0	3.67
1-1/2	114.0	4.41	114.0	4.41	114.0	4.37



Note: Nominal strengths shown for aircraft cable and wire rope are for reference purposes for use in determining design factor which will vary with various types of applications.

#### **SPECIALTY ROPE**

Extra Improved Plow Steel			
Dia. Inches.	Approx. Weight Per Foot (lbs)	Nominal Strength* Tons of 2000 lbs	
3/8	0.31	8.3	
7/16	0.40	11.2	
1/2	0.54	14.6	
9/16	0.69	18.6	
5/8	0.85	22.7	
3/4	1.25	32.4	
7/8	1.68	43.8	
1	2.17	56.9	
1-1/8	2.75	71.5	
1-1/4	3.45	87.9	
1-3/8	4.33	106.0	
1-1/2	5 11	125.0	

#### 19 x 19 Compacted Strand Rotation Resistant



\*Manufactured by Wire Rope Corporation of America. These strengths apply only when a test is conducted with both ends fixed. When in use, the strength of these ropes may be significantly reduced if one end is free to rotate.

Dia. Inches.	Approx. Weight Per Foot (lbs)	Nominal Strength* Tons of 2000 lbs
3/8	0.32	8.80
7/16	0.41	11.9
1/2	0.55	15.3
9/16	0.70	19.3
5/8	0.86	22.7
3/4	1.25	32.4
7/8	1.67	43.8
1	2.18	56.9
1-1/8	2.71	71.5
1-1/4	3.43	87.9
1-3/8	4.25	106.0
1-1/2	5.01	125.0

#### 6 x 26 Compacted Strand Ropes - Class Bright



\*FLEX-X<sup>®</sup> is a registered trademark of Wire Rope Corporation of America. NOTE: Nominal strengths shown for aircraft cable and wire rope are for reference purposes for use in determining design factor which will vary with various types of applications.

## **PRODUCTS**

#### **BLADES & CUTTING EDGES FOR GRADERS, SNOW PLOWS &** CONSTRUCTION

Bucyrus

#### **BLOCKS - WIRE ROPE & SYNTHETIC**

- Crosby
- lohnson
- McKissick
- Miller

#### **CHAIN**

- Peerless
- Campbell
- Columbus McKinnon
- . Crosby

#### **CLAMPS - BEAMS & PLATE IP**

- Merrill
- Renfroe
- Terrier
- U.S. Crane Superclamp
- . Crosby

#### **CLIPS - WIRE ROPE**

- Crosby
- M & G Forged Clips

#### **COIL HANDLING**

- Bushman
- Cady
- Caldwell
- American Steel, LLC Engineered Products Division

#### **CRANES - OVERHEAD**

- Ace
- Gorbel
- Demag
- EMH Abus
- Harrington
- Spanco Met-Track

#### **CRANES - JIB & GANTRY**

- American Steel, LLC Engineered Products Division
- Bushman
- Spanco
- Caldwell .

#### **CRANE ELECTRIFICATION**

- Conductix
- Duct-O-Wire
- Howell Saf-T-Bar

#### **CUSTOM LIFTING DEVICES**

American Steel, LLC -Engineered Products Division

#### **EYEBOLTS & SWIVEL HOST RING**

- Actek
- Chicago Hardware
- Crosby
- lergens

#### FALL PROTECTION

- DBI/SALA
- Spanco Rigid Lifelines .

#### **FITTINGS - WIRE ROPE & CHAIN**

- Campbell
- Chicago Hardware
- Columbus McKinnon
- Crosby
- Midland (CM)
- Muncy Machine/Upson Walton
- M&G

#### **HOISTS - CHAIN & WIRE ROPE**

- EMH
- Budget
- . Coffing
- Abus
- Chester
- CM Lodestar
- Harrington Peerless
- . Demag

#### HOOKS - LOAD

- Bullard
- Campbell
  - Columbus McKinnon
- Crosby

#### LIFTING EQUIPMENT / SPREADER BEAMS

- American Steel, LLC Engineered
- Products Division
- Bushman
- Cady CM . Caldwell
- •
- ITNAC (Fliprite) Positurner

#### **LOADBINDERS - CHAIN**

- Crosby Lebus
- Columbus McKinnon
- Durabilt
- Campbell .

#### LOGGING CHOKERS

Esco

#### METAL MESH SLINGS

- Cambridge
- PAC-FLEX

#### MAGNET

IMI Magnets

## ADDITIONAL SERVICES

- Hoist & Crane Inspection & Repair
- Load Testing

#### **Rigging Seminars**

Sling Inspection

American Wire Rope and Sling

#### **PULLER / COMEALONGS** Columbus McKinnon

American Power Pull

Coffing

Lincoln

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