SLINGS

WORKING LOAD LIMIT POCKET GUIDE

SAFETY CREW INDIA

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Flemish Eye Wire Rope Slings

IWRC EIP Flemish Mechanical Spliced
(6 x 19, 6 x 36 Class)

	Rope Diameter (in.)	Rated Capacity in Tons (2,000 lbs.) *						Standard Eye Size (in.) W x L
		Vertical	Choker	Basket Hitches				
					60° 	45° 	30° 	
6 x 19 IWRC	1/4	.65	.48	1.3	1.1	.91	.65	2 x 4
	5/16	1	.74	2	1.7	1.4	1	2-1/2 x 5
	3/8	1.4	1.1	2.9	2.5	2	1.4	3 x 6
	7/16	1.9	1.4	3.9	3.4	2.7	1.9	3-1/2 x 7
	1/2	2.5	1.9	5.1	4.4	3.6	2.5	4 x 8
	9/16	3.2	2.4	6.4	5.5	4.5	3.2	4-1/2 x 9
	5/8	3.9	2.9	7.8	6.8	5.5	3.9	5 x 10
	3/4	5.6	4.1	11	9.7	7.9	5.6	6 x 12
	7/8	7.6	5.6	15	13	11	7.6	7 x 14
	1	9.8	7.2	20	17	14	9.8	8 x 16
	1-1/8	12	9.1	24	21	17	12	9 x 18
6 x 36 IWRC	1-1/4	15	11	30	26	21	15	10 x 20
	1-3/8	18	13	36	31	25	18	11 x 22
	1-1/2	21	16	42	37	30	21	12 x 24
	1-5/8	24	18	48	42	35	24	13 x 26
	1-3/4	28	21	57	49	40	28	14 x 28
	2	37	28	73	63	52	37	16 x 32
	2-1/4	44	35	89	77	63	44	18 x 36
	2-1/2	54	42	109	94	77	54	20 x 40
	2-3/4	65	51	130	113	92	65	22 x 44
	3	77	60	153	133	108	77	24 x 48

⚠ WARNING

* **Do not exceed rated capacities.**

- Rated capacities basket hitch based on D/d ratio of 25.
- Rated capacities based on pin diameter no larger that 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.

Mazzella 7-Part™ Sling

Component Rope Diameter (in.)	Approx. Finished Sling Diameter (in.)	Rated Capacity in Tons (2,000 lbs.) *						Standard Eye Dimension (in.)	
		Vertical Capacity	Choker Capacity	Basket Hitch ***					
				Vertical	60°	45°	30°	Width	Length
** 1/8	3/8	1.2	1	2.4	2	1.6	1.2	3	6
** 3/16	9/16	2.4	2.1	4.8	4.2	3.4	2.4	4	8
** 1/4	3/4	4	3.5	8	6.9	5.7	4	5	10
5/16	1	5.6	4.9	11.2	9.7	8	5.6	6	12
3/8	1-1/8	8.7	7.6	17.4	15	12.3	8.7	7-1/2	15
7/16	1-5/16	11.7	10.3	23.4	20.3	16.5	11.7	9	18
1/2	1-1/2	15.3	13.4	30.6	26.5	21.6	15.3	10	20
9/16	1-3/4	19.3	16.9	38.6	33.4	27.3	19.3	12	24
5/8	1-7/8	23.7	20.7	47.4	41	33.5	23.7	12	24
3/4	2-1/4	33.8	29.5	67.5	58.5	47.7	33.8	15	30
7/8	2-5/8	45.7	40	91.4	79.2	64.6	45.7	17	34
1	3	59.4	52	118.7	102.8	83.9	59.4	20	40
1-1/8	3-3/8	75	65	149	129	105	75	22	44
1-1/4	3-3/4	92	80	184	159	130	92	25	50
1-3/8	4-1/8	110	96	220	190	156	110	27	54
1-1/2	4-1/2	131	115	262	227	185	131	30	60
1-3/4	5-1/4	176	154	351	304	248	176	35	70
2	6	227	199	455	394	321	227	40	80
2-1/4	6-3/4	284	248	567	491	401	284	45	90
2-1/2	7-1/2	347	303	693	600	490	347	50	100
2-3/4	8-1/4	414	363	828	717	585	414	55	110

⚠ WARNING

* **Do not exceed rated capacities.**

- Rated capacities based on pin diameter no larger than the natural eye width or no less than 5 times the component rope diameter.
- Rated capacity of basket hitch based on D/d ratio in the body of 10 times the component rope diameter.
- Rated capacities based on design factor of 5 when new.
- Horizontal sling angles less than 30 degrees shall not be used.

** **Sling capacities for rope diameters 1/8″ through 1/4″ are based on using 7 x 19 G.A.C. wire rope.**

*** **Sling Angles** in this guide depart from the traditional method of vertical angles measured at the sling hook. It has long been the opinion of sling users that it is easier to measure a sling angle relative to the ground or horizontal. The method is the same whichever angle is used. When the horizontal angle is used you must use the trigonometric side of the horizontal angle. When the vertical angle is used you must use the trigonometric cosine of the vertical angle.

Alloy Grade 100 Chain Slings

Chain Size (in.)	Working Load Limit (lbs.) *						
	Single (1 Leg)	Double (2 Legs)			Triple (3 Legs) & Quad (4 Legs)		
							
	90°	60°	45°	30°	60°	45°	30°
7/32	2,700	4,700	3,800	2,700	7,000	5,700	4,000
9/32	4,300	7,400	6,100	4,300	11,200	9,100	6,400
3/8	8,800	15,200	12,400	8,800	22,900	18,700	13,200
1/2	15,000	26,000	21,200	15,000	39,000	31,800	22,500
5/8	22,600	39,100	32,000	22,600	58,700	47,900	33,900
3/4	35,300	61,100	49,900	35,300	91,700	74,900	52,950
7/8	42,700	74,000	60,400	42,700	110,900	90,600	64,000
1	59,700	103,400	84,400	59,700	155,100	126,000	89,550
1-1/4	90,400	156,600	127,800	90,400	234,900	191,700	135,600

Alloy Grade 80 Chain Slings

Chain Size (in.)	Working Load Limit (lbs.) *						
	Single (1 Leg)	Double (2 Legs)			Triple (3 Legs) & Quad (4 Legs)		
							
	90°	60°	45°	30°	60°	45°	30°
7/32	2,100	3,600	3,000	2,100	5,500	4,400	3,200
9/32	3,500	6,100	4,900	3,500	9,100	7,400	5,200
3/8	7,100	12,300	10,000	7,100	18,400	15,100	10,600
1/2	12,000	20,800	17,000	12,000	31,200	25,500	18,000
5/8	18,100	31,300	25,600	18,100	47,000	38,400	27,100
3/4	28,300	49,000	40,000	28,300	73,500	60,000	42,400
7/8	34,200	59,200	48,400	34,200	88,900	72,500	51,300
1	47,700	82,600	67,400	47,700	123,900	101,200	71,500
1-1/4	72,300	125,200	102,200	72,300	187,800	153,400	108,400

⚠ WARNING

* **Do not exceed working load limit.**

- Do not use angles smaller than 30 degrees horizontally.
- Always inspect sling before each use.
- Do not impact load or jerk the sling.
- Protect chain from corners and objects.
- Protect slings from corrosion.

Nylon or Polyester Slings

Flat Eye

Twisted Eye

Endless

Red Core Yarns Warning System

All standard Mazzella nylon and polyester web slings have red warning yarns. Red core yarns become exposed when the sling surface is cut or worn through the woven face yarns. This is one criteria, but not the only one for removal from service!

Flat Eye & Twisted Eye

Flat Eye or Twisted Eye	Rated Capacities (lbs.) *		
	Vertical	Choker	Basket
EE1-801	1,600	1,250	3,200
EE1-802	3,200	2,560	6,400
EE1-804	6,400	5,120	12,800
EE1-806	9,600	7,680	19,200
EE2-801	3,200	2,560	6,400
EE2-802	6,400	5,120	12,800
EE2-804	11,500	9,200	23,000
EE2-806	16,500	13,200	33,000
EE4-801	6,200	4,960	12,400
EE4-802	12,400	9,920	24,800
EE4-804	22,000	17,600	44,000
EE4-806	33,000	26,400	66,000

Endless

Endless	Rated Capacities (lbs.) *		
	Vertical	Choker	Basket
EN1-801	3,200	2,500	6,400
EN1-802	6,400	5,000	12,800
EN1-804	11,500	9,200	23,000
EN1-806	16,300	13,000	32,600
EN2-801	6,200	4,900	12,400
EN2-802	12,200	9,800	24,400
EN2-804	20,700	16,500	41,400
EN2-806	28,600	23,000	57,200

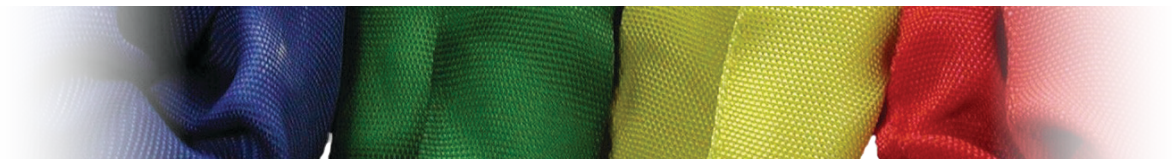
⚠ WARNING

* **Do not exceed rated capacities.**

- Nylon and polyester slings shall not be used at temperatures in excess of 194°F (90°C); however, they may be used in temperatures as low as -40°F (-40°C).
- Slings shall always be protected from being cut by corners, edges, protrusions or abrasive surfaces.
- Environments in which synthetic web slings are continuously exposed to ultra-violet light (sunlight) can affect the strength of synthetic webbing in varying degrees, ranging from slight to total degradation. The degradation is also cumulative.

Single-Path Roundslings

Part Number	Color	Rated Capacity (lbs.) *				
		Vertical	Choker	Basket Hitches		
				90° 	60° 	45° 
SP30	Purple	2,650	2,120	5,300	4,500	3,676
SP50	Black	4,000	3,200	8,000	6,900	5,600
SP60	Green	5,300	4,240	10,600	9,180	7,494
SP90	Yellow	8,400	6,720	16,800	14,550	11,877
SP120	Tan	10,600	8,500	21,200	18,360	14,988
SP150	Red	13,200	10,560	26,400	22,860	18,665
SP180	White	16,800	13,440	33,600	29,100	23,755
SP240	Blue	21,200	17,000	42,400	36,700	29,977
SP360	Gray	31,700	25,300	63,400	54,900	44,800
SP600	Brown	52,900	42,300	105,800	91,796	74,924
SP800	Olive	66,100	52,880	132,600	114,312	93,324
SP1000	Black	90,000	72,000	180,000	155,880	127,260



⚠ WARNING

* **Do not exceed rated capacities.**

- Sling angles are measured relative to horizontal angles.
- Single-Path slings can be cut by contact with unprotected load edges, padding must be used to protect the slings.

Twin-Path® Extra Slings (TPXCF)

Twin-Path® Extra Covermax Part Number	Rated Capacity (lbs.) *					Approx. Body Width (in.)	Approx. Weight Lbs./Ft. Bearing to Bearing
	Vertical	Choker	Basket Hitches				
			90° 	60° 	45° 		
TPXCF 1000	10,000	8,000	20,000	17,320	14,140	1.5 - 3	.40
TPXCF 1500	15,000	12,000	30,000	25,980	21,210	1.5 - 3	.45
TPXCF 2000	20,000	16,000	40,000	34,640	28,280	1.5 - 3	.51
TPXCF 2500	25,000	20,000	50,000	43,300	35,350	2.0 - 4	.57
TPXCF 3000	30,000	24,000	60,000	51,960	42,420	2.0 - 4	.71
TPXCF 4000	40,000	32,000	80,000	69,280	56,560	2.0 - 4	.83
TPXCF 5000	50,000	40,000	100,000	86,139	70,700	2.5 - 5	1.14
TPXCF 6000	60,000	48,000	120,000	103,920	84,840	2.5 - 5	1.27
TPXCF 7000	70,000	56,000	140,000	121,240	98,980	2.5 - 5	1.39
TPXCF 8500	85,000	68,000	170,000	147,220	120,190	3.0 - 6	1.65
TPXCF 10000	100,000	80,000	200,000	173,200	141,400	3.0 - 6	1.84
TPXCF 12500	125,000	100,000	250,000	216,500	176,750	4.0 - 8	2.35
TPXCF 15000	150,000	120,000	300,000	259,800	212,100	4.0 - 8	2.66
TPXCF 17500	175,000	140,000	350,000	303,100	247,450	4.0 - 8	3.14
TPXCF 20000	200,000	160,000	400,000	346,400	282,800	5.0 - 10	3.45
TPXCF 25000	250,000	200,000	500,000	433,000	353,500	5.0 - 10	4.07
TPXCF 27500	275,000	220,000	550,000	476,300	388,850	6.0 - 12	4.61
TPXCF 30000	300,000	240,000	600,000	519,600	424,200	6.0 - 12	4.92

⚠ WARNING

* **Do not exceed rated capacities.**

Can fail if damaged, misused or overloaded. Inspect before use. Use only if trained. Observe rated capacity. Avoid edges and exposure to acid, alkali, sunlight and temperatures over 180°F. Death or injury can occur from improper use or maintenance.

- **For slings with Tell-Tails—**remove the sling from service if tails are not at least 1/2″ long.
- **For slings with Check-Fast™ System—**remove sling from service if the External Warning Indicator (EWI) is missing.

⚠ WARNING

- Failure to **READ, UNDERSTAND & FOLLOW** these warnings may result in death or serious injury.
- Always inspect for damage before each use.
- Personnel must be trained and approved for using slings.
- **REMOVE from service if ANY of the following exist:**

Twin-Path® & Single-Path Slings

1. Missing or illegible sling identification.
2. Melting or charring of any part of the sling or fitting.
3. Holes, tears, cuts, abrasive wears or snags that expose the core yarns.
4. Broken or worn stitching in the cover that expose the core yarns.
5. Fittings that are damaged, distorted, worn, cracked or pitted.
6. Slings that are knotted.
7. Other conditions, including visible damage that cause doubt as to the continued use of the sling.
8. For slings with Tell-Tails—remove the sling from service if tails are not at least 1/2" long.
9. For slings with Check-Fast™ System—remove sling from service if the External Warning Indicator (EWI) is missing.

The use and inspection of slings are covered under ASME B30.9 standards and governed under the OSHA regulation of 29 CFR 1926.184. Safe usage of any sling must be followed at all times. Inspection must be conducted prior to each use; and if the sling does pass inspection criteria, then the following practices should be followed:

A. Protect slings from sharp, unyielding surfaces and abrasive surfaces that could cut or damage the sling surfaces

B. Do **NOT** exceed the Rated Capacity or Working Load Limit

C. All slings have temperature limitations, as noted:

Wire Rope Slings — For steel core slings, do not expose to temperatures greater than 400° F; for fiber core slings, do not expose to temperatures greater than 180°F.

Alloy Chain Slings — Grade 80 slings can be used up to 600°F without de-rating, and for Grade 100, the maximum is 400°F; above these temperatures, consult the manufacturer for de-rated capacity.

Synthetic Web Slings — Do not expose to temperatures greater than 194°F.

Single-Path Slings — Consult the manufacturer for temperature limitations of synthetic yarns; for slings made from polyester, do not expose to temperatures greater than 194°F.

D. Before exposing slings to chemical environment, consult the manufacturer.

E. Slings shall not be shortened by knotting.

F. Shock loading should be avoided.

⚠ WARNING

- Failure to **READ, UNDERSTAND & FOLLOW** these warnings may result in death or serious injury.
- Always inspect for damage before each use.
- Personnel must be trained and approved for using slings.
- **REMOVE from service if ANY of the following exist:**

Wire Rope Slings

1. Missing or illegible sling identification.
2. Broken Wires: For single-part slings, ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one rope lay. For multi-part, cable-laid and braided slings:

Sling Body	Lay or One Braid Allowable Broken Per Wire	Allowable Strands Per Sling Length
Less than 8-Part Braid	20	1
Cable-Laid	20	1
8-Part & Greater Braid	40	1

   Either the broken wire count or the broken strand count shall apply separately to the one braid length or one lay length in cable-laid body.
3. Severe localized abrasion or scraping.
4. Kinking, crushing, birdcaging or any other damage resulting in distortion of rope structure.
5. Evidence of heat damage.
6. End attachments that are cracked, deformed or worn to the extent that the strength of the sling is substantially affected.
7. Hooks shall lie inspected in accordance with ASME B30.10
8. Severe corrosion of the rope or end attachments.

Alloy Chain Slings

1. Missing or illegible sling identification.
2. Excessive wear.
3. Twisted, bent or cut links.
4. Cracks in any area of the links.
5. Severe nicks or gouges.
6. Excessively stretched links.
7. Severe corrosion.
8. Worn or damaged master links.
9. Hook throat opening—any distortion causing an increase in throat opening of 5% not to exceed 1/4" (6 mm) or as recommended by the manufacturer.

Synthetic Web Slings

1. Missing or illegible sling identification.
2. Acid or caustic burns.
3. Holes, tears, cuts or snags.
4. Broken or worn stitching in load bearing splices.
5. Excessive abrasive wear.
6. Knots in part of the sling.
7. Excessive pitting or corrosion, or cracked, distorted or broken fittings.
8. Other visible damage that causes doubt as to the strength of the sling.
9. Ultraviolet degradation.
10. Melting, charring and weld splatter on any part of the sling.
11. All standard Mazzella nylon and polyester web slings have **RED WARNING YARNS**. Red core yarns may become exposed when the sling surface is cut or worn through the woven face yarns. This is one criteria, but not the only one for removal from service!