



Sling Saver® Products

**Accessories
for Web Slings,
Round Slings
and High
Performance
Slings**



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... LIFTING THE WORLD INTO THE FUTURE!

When you're connecting synthetic slings, either webbing or round sling, to pad eyes, other hardware, chain or to another synthetic sling, Crosby now has the fittings you need.

Crosby's new Sling Saver® line is the first broad line of fittings developed exclusively for use with synthetic slings. Combined with additional Crosby products currently offered, a complete system has now been developed.

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Application Information

WITH CROSBY'S NEW SLING SAVER® LINE OF HARDWARE, YOU WILL GET THE FULL RATED STRENGTH OF THE SLING AND EXTEND ITS LIFE.

Recommended Application Chart		
Application	Use	Comments
Web Slings, connect to Pad Eye, Eye Bolt, or Lifting Lug.	S-281 Sling Saver Web Sling Shackle – page 5	Always insure rated Working Load Limits are greater than the load placed on the fitting.
Web Slings or Roundslings, connecting to Pad Eye, Eye Bolt, or Lifting Lug.	S-253 or S-252 Sling Saver Shackle – page 6	
Connect two S-252 or S-253 Sling Saver shackles together.	S-256 Link Plate – page 7	
To keep the load centered on the Pin, thus keeping the sling positioned correctly in the shackle bow.	S-255 Spool – page 7	
Web Slings or Roundslings connecting to Master Links, Rings, or Crosby 320N Eye Hooks.	S-280 Sling Saver Web Connector with spool – page 4	
Web Slings or Roundslings connecting to Grade 8 Chain.	S-282 Sling Saver Chain Connector with spool – page 9	
High Strength, High Capacity Web or Roundslings.	WSL-320A Web Sling Hook – page 8	
Choking with Web Slings or Roundslings.	S-287 Sliding Choker Hook – page 9	
Master Links or Master Link Assembly to be sewn into eye of Web Sling or attached utilizing web connector.	Welded Master Link A-344 and Master Link Assembly A-347 – page 11	
Web Sling being used to lift die blocks, or other equipment where standard Hoist Rings are used.	HR-125W – See Crosby General Catalog	
Connecting High Performance slings to master links or eye hooks and to other High Performance slings.	S-237 or S-238 High Performance Connectors – page 12	
Wide Body Shackles greatly improve wearability of wire rope slings.	S/G-2160 “Wide Body” bolt type Shackles – page 10	
Crosby Sling Saver® hardware meets the requirements for minimum stock diameter or thickness and effective contact width shown in the recommended standard specification for synthetic Polyester Round Slings by the Web Sling and Tie Down Association. WSTDA-RS1 (revised 2010).		

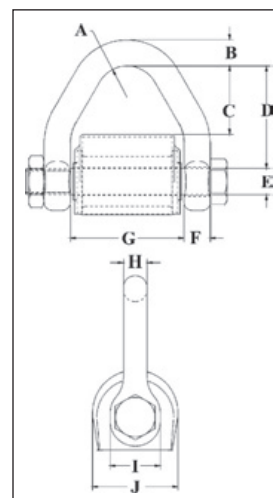
Sling Saver® Web Connector

Sling Saver® Load Rated **"QT"**
QUENCHED & TEMPERED

S-280



- All Alloy construction.
- Durable vinyl cover that:
 - Protects sling at eye
 - Keeps sling positioned correctly on spool.
- Design Factor of 5 to 1.
- Connects Synthetic Web and Synthetic Round Slings to conventional Crosby hardware including:
 - 320N Eye Hook
 - Additional Crosby Grade 8 Fittings
 - Master Links
 - Rings
 - Shackles
- Makes a field assembled bridle quick and easy.
- No cotter pin to snag sling material.
- Increased radius of spool gives wider sling bearing surface resulting in an increased area for load distribution, thus:
 - Increasing Synthetic Sling efficiency as compared to standard anchor and chain shackle bows and conventional eye hooks. This allows 100% of the slings rated Working Load Limit to be achieved.
 - Allowing better load distribution on internal fibers.
- Replacement kit for spool and web cover available.
- Designed for use with Type III (Eye & Eye), Class 7, 2 ply webbing & Synthetic Round Slings. Also accommodates single ply and endless slings.



S-280 Web Connector

Round Sling Size (No.)	Web Slings*			Working Load Limit (Tons)†	S-280 Stock No.	Weight Each (lbs.)	Dimensions (in.)									
	Webbing Width (in.)	Eye Width (in.)	Ply				A	B	C	D	E	F	G	H	I	J
1 & 2	2	2	2	3-1/4	1021681	1.5	.75	.62	1.63	2.44	.63	.62	2.69	.56	1.19	2.02
3	3	1.5	2	4-1/2	1021690	1.9	.75	.69	1.10	2.01	.75	.69	2.19	.60	1.38	2.34
4	4	2	2	6-1/4	1021700	2.9	.75	.81	1.66	2.56	.88	.75	2.69	.69	1.62	2.46
5 & 6	6	3	2	8-1/2	1021709	5.1	1.00	.94	2.47	3.50	1.00	.88	3.69	.88	1.88	2.84

* Designed for use with Type III, (Eye & Eye), Class 7, 2 Ply web slings. For 3" and larger webbing width, tapered eye is required.

† Maximum Proof Load is 2-1/2 times the Working Load Limit. Minimum Ultimate strength is 5 times the Working Load Limit.

Crosby Sling Saver® hardware meets the requirements for minimum stock diameter or thickness, and effective contact width shown in the Recommended Standards Specification for Synthetic Polyester Round Slings by the Web Sling & Tie Down Association. WSTDA-RS1 (revised 2010)

Sling Saver® Web Sling Shackles



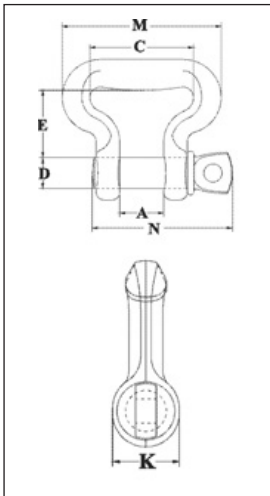
S-281



Web Sling Shackle is designed to connect Synthetic Web Slings and Synthetic Round Slings to eyebolts, pad eyes, and lifting lugs.

- All Alloy Construction.
- Design Factor of 5 to 1.
- Each shackle has a Product Identification Code (PIC) for material traceability along with a Working Load Limit and the name Crosby forged into it.
- Incorporates same ear spread and pin dimensions as conventional Crosby Shackles. Allows easy connection to pad eyes, eye bolts, and lifting lugs.
- Increased radius of bow gives wider sling bearing surface resulting in an increased area for load distribution, thus:
 - Increasing Synthetic Sling efficiency as compared to standard anchor and chain shackle bows and conventional eye hooks. This allows 100% of the slings rated Working Load Limit to be achieved.
 - Allows better load distribution on internal fibers.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these shackles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- Look for the Red Pin® ... The mark of genuine Crosby Quality.

S-281 Web Sling Shackle



Round Sling Size (No.)	Web Slings*			Working Load Limit (Tons)†	S-281 Stock No.	Weight Each (lbs.)	Dimensions (in.)						
	Webbing Width (in.)	Eye Width (in.)	Ply				A	C	D	E	K	M	N
1 & 2	2	2	2	3-1/4	1021048	1.2	1.06	2.50	.75	1.62	1.22	3.84	3.34
3	3	1.5	2	4-1/2	1021057	1.5	1.25	2.00	.88	1.50	1.41	3.38	3.97
4	4	2	2	6-1/4	1021066	2.5	1.44	2.50	1.00	2.00	1.62	4.22	4.50
5 & 6	6	3	2	8-1/2	1021075	4.3	1.69	3.62	1.13	2.75	1.84	5.64	5.13

* NOTE: Designed for use with Type III, (Eye & Eye), Class 7, 2 Ply web slings. For 3" and larger webbing width, tapered eye is required.

† Maximum Proof Load is 2-1/2 times the Working Load Limit. Minimum Ultimate strength is 5 times the Working Load Limit.

Crosby Sling Saver® hardware meets the requirements for minimum stock diameter or thickness, and effective contact width shown in the Recommended Standards Specification for Synthetic Polyester Round Slings by the Web Sling & Tie Down Association. WSTDA-RS1 (revised 2010)

Sling Saver® Web Sling Shackles

Sling Saver® Fatigue Rated® Load Rated® "QT" QUENCHED & TEMPERED

S-252 BOLT TYPE SLING SHACKLE

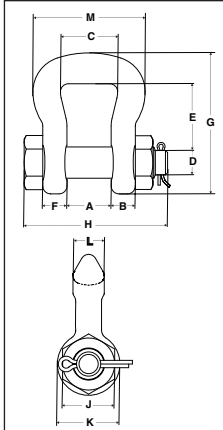


S-253 SCREW PIN SLING SHACKLE



- Shackles available in size 3-1/4 to 50 metric tons.
- All Alloy construction.
- Design factor of 5 to 1.
- Each shackle has a Product Identification Code (PIC) for material traceability along with a Working Load Limit and the name Crosby forged into it.
- Increased radius of bow gives wider sling bearing surface resulting in an increased area for load distribution, thus:
 - Increasing Synthetic Sling efficiency as compared to standard anchor and chain shackle bows and conventional hooks. This allows 100% of the slings rated Working Load Limit to be achieved.
 - Allows better load distribution on internal fibers.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these shackles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- Shackles available in both a Screw Pin and Bolt, Nut and cotter pin configuration.
- Bolt (Pin) has a larger diameter that provides better load distribution.
- Look for the Red Pin®... the mark of Genuine Crosby quality.

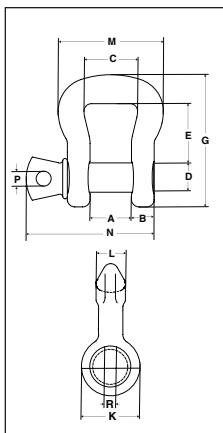
S-252 Bolt Type Sling Shackle



Web Sling Eye Width (in.)	Round Sling Size (No.)	Working Load Limit (t)*	S-252 Stock No.	Weight Each (lbs.)	Dimensions (in.)												
					A	B	C	D	E	F	G	H	J	K	L	M	
1	1 & 2	3-1/4	1020485	1.4	1.06	.58	1.38	.75	1.50	.44	3.38	3.68	1.12	1.50	.75	2.69	
1.5	3 & 4	6-1/2	1020496	2.4	1.25	.75	1.75	.88	1.88	.50	4.15	4.25	1.31	1.81	1.00	3.38	
2	5 & 6	8-3/4	1020507	4.1	1.38	.88	2.25	1.00	2.81	.56	5.50	4.72	1.50	2.09	1.12	4.19	
3	7 & 8	12-1/2	1020518	8.0	1.62	1.12	3.25	1.25	3.06	.75	6.34	5.88	1.88	2.62	1.38	5.62	
4	9 & 10	20-1/2	1020529	16.9	2.12	1.38	4.50	1.50	5.25	.88	9.45	7.19	2.25	3.12	1.75	7.50	
5	11 & 12	35	1020540	35.0	2.50	1.75	5.50	2.00	6.34	1.12	11.50	9.31	3.00	4.19	2.25	9.19	
6	13	50	1020551	57.5	3.00	2.12	6.50	2.25	7.70	1.25	13.75	10.38	3.38	4.75	2.75	11.00	

* Maximum Proof Load is 2.5 times the Working Load Limit. Minimum Ultimate strength is 5 times the Working Load Limit.

S-253 Screw Pin Sling Shackle



Web Sling Eye Width (in.)	Round Sling Size (No.)	Working Load Limit (t)*	S-253 Stock No.	Weight Each (lbs.)	Dimensions (in.)											
					A	B	C	D	E	G	K	L	M	N	P	R
1	1 & 2	3-1/4	1020575	1.4	.88	.62	1.38	.75	1.50	3.38	1.50	.75	2.69	3.22	.44	1.00
1.5	3 & 4	6-1/2	1020584	2.2	1.25	.75	1.75	.88	1.88	4.15	1.81	1.00	3.38	4.03	.50	1.19
2	5 & 6	8-3/4	1020593	3.8	1.38	.88	2.25	1.00	2.81	5.50	2.09	1.12	4.19	4.50	.50	1.44
3	7 & 8	12-1/2	1020602	7.3	1.62	1.12	3.25	1.25	3.06	6.34	2.62	1.38	5.62	5.59	.62	1.81
4	9 & 10	20-1/2	1020611	15.2	2.12	1.38	4.50	1.50	5.25	9.45	3.12	1.75	7.50	6.88	.75	2.13
5	11 & 12	35	1020620	30.8	2.50	1.75	5.50	2.00	6.34	11.50	4.19	2.25	9.19	8.66	1.00	2.88
6	13	50	1020629	52.0	3.00	2.12	6.50	2.25	7.70	13.75	4.75	2.75	11.00	10.22	1.22	3.19

* Maximum Proof Load is 2.5 times the Working Load Limit. Minimum Ultimate strength is 5 times the Working Load Limit.

Crosby Sling Saver® hardware meets the requirements for minimum stock diameter or thickness, and effective contact width shown in the Recommended Standards Specification for Synthetic Polyester Round Slings by the Web Sling & Tie Down Association. WSTDA-RS1 (revised 2010)

Sling Saver® Shackle Accessories

Sling Saver®

**S-255
SPOOL**

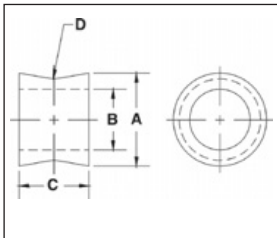


**S-256
LINK PLATE**



S-255 Spool

- The “Spool” is designed to keep the load centered on the pin, thus keeping the sling positioned correctly in the shackle bow.

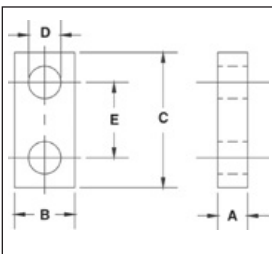


Working Load Limit (t)*	S-255 Stock No.	Weight Each (lbs.)	Dimensions (in.)			
			A	B	C	D
3-1/4	1020903	.33	1.25	.81	.75	.19
6-1/2	1020912	.57	1.50	.94	1.00	.25
8-3/4	1020921	.89	1.75	1.05	1.19	.31
12-1/2	1020930	1.45	2.00	1.31	1.50	.38
20-1/2	1020939	2.79	2.50	1.63	1.88	.44
35	1020948	2.40	3.25	2.13	2.25	.50
50	1020957	4.06	3.75	2.38	2.75	.62

* Maximum Proof Load is 2.5 times the Working Load Limit. Minimum Ultimate strength is 5 times the Working Load Limit.

S-256 Link Plate

- The “Link Plate” is designed to connect two (2) S-252 or S-253 “Sling Saver®” Shackles together.



Working Load Limit (t)*	S-256 Stock No.	Weight Each (lbs.)	Dimensions (in.)				
			A	B	C	D	E
3-1/4	1020785	.83	.75	1.50	3.38	.81	1.88
6-1/2	1020796	1.62	1.00	1.75	4.12	.94	2.25
8-3/4	1020807	2.71	1.25	2.00	4.75	1.06	2.62
12-1/2	1020818	5.18	1.50	2.50	6.00	1.31	3.37
20-1/2	1020829	8.19	1.75	3.00	7.00	1.62	3.75
35	1020840	17.19	2.00	4.00	9.25	2.12	5.00
50	1020851	37.40	2.88	5.00	10.50	2.38	5.75

* Maximum Proof Load is 2.5 times the Working Load Limit. Minimum Ultimate strength is 5 times the Working Load Limit.

Sling Saver® Synthetic Sling Hooks

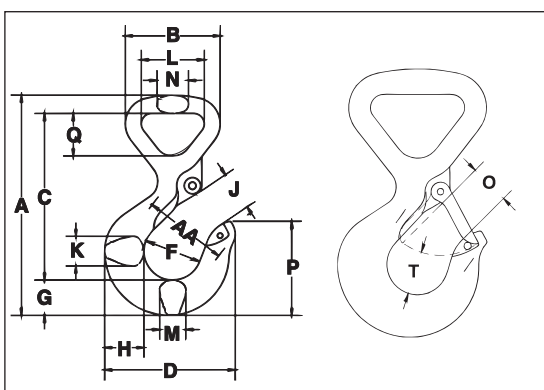


SEE APPLICATION AND WARNING INFORMATION
 Para Español: www.thecrosbygroup.com *in General Catalog*

WSL-320A SYNTHETIC SLING HOOK



- Hook capacities available: 1-1/2, 3, and 5 metric tons.
- All Alloy construction.
- Design factor of 5 to 1.
- Each hook has a Product Identification Code (PIC) for material traceability along with a working load limit and the name Crosby forged into it.
- Originally designed for 2-Ply Web slings, the Crosby Web Sling hook can also be used with Round Slings as long as the Working Load Limit ratings are compatible. The new hook incorporates the following features:
- Eye is designed with a wide beam surface which:
 - Eliminates bunching effects.
 - Reduces sling tendency to slide.
 - Allows a better load distribution on internal fibers.
- All hooks feature Crosby's patented **QUIC-CHECK®** indicators.
- Hook Web Sling Eye width available: 1", 2", and 3".
- Fatigue rated to 20,000 cycles at 1-1/2 times the Working Load Limit.



WSL-320A Synthetic Sling Hook

Web Sling Eye Width (in.)	Round Sling Size (No.)	Working Load Limit (t)	WSL-320A Stock No.	WSL-320A with Latch	Weight Each (lbs.)	Hook I.D. Code	S-4320 Rep. Latch
1"	1	1-1/2	1022701	1022706	1.10	FA	1096374
2"	2	3	1022712	1022717	2.86	HA	1096468
3"	3	5	1022723	1022728	6.60	IA	1096515

Hook ID Code	Working Load Limit (t)*	Dimensions (in.)																
		A	B	C	D	F	G	H	J	K	L	M	N	O	P	Q	T	AA
FA	1-1/2	5.25	2.26	3.98	3.11	1.38	.84	.94	.93	.71	1.50	.63	.75	.91	2.24	1.01	.98	2.00
HA	3	7.11	3.66	5.31	3.97	1.63	1.13	1.32	1.13	.94	2.50	.85	1.13	1.09	2.82	1.69	1.16	2.00
IA	5	9.33	5.13	7.06	4.81	2.00	1.44	1.63	1.47	1.31	3.75	1.13	1.63	1.36	3.51	2.59	1.53	2.50

* Maximum Proof Load is 2-1/2 times the Working Load Limit. Average straightening load (ultimate load) is 5 times the Working Load Limit.

Crosby Sling Saver® hardware meets the requirements for minimum stock diameter or thickness, and effective contact width shown in the Recommended Standards Specification for Synthetic Polyester Round Slings by the Web Sling & Tie Down Association. WSTDA-RS1 (revised 2010)

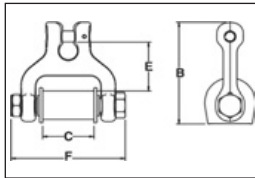
Sling Saver® Fittings / Accessories

Sling Saver® Load Rated "QT" QUENCHED & TEMPERED

S-282 WEB / CHAIN CONNECTOR



Designed around the same concept as our S-280 Web Connector, the S-282 Chain Connector makes the connection from your web sling to existing chain quick and easy.



- Available in three sizes:
 - 3-1/4 ton Working Load Limit - 2" Webbing to 3/8" (10mm) chain.
 - 4-1/2 ton Working Load Limit - 1-1/2" (3" Tapered Webbing) to 1/2" (13mm) chain.
 - 6-1/4 ton Working Load Limit - 2" (4" Tapered Webbing) to 5/8" (16mm) chain.
- Alloy Steel (Quenched and Tempered).
- Each Connector has a Product Identification Code (PIC) for material traceability along with a Working Load Limit and the name Crosby forged into it.
- Uses same spool and cover as S-280 Web Connector.
 - Replacement Kit for Spool and Web Cover available.

S-282 Web / Chain Connector

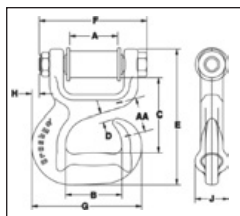
Round Sling Size (No.)	Web Slings*			Chain Size	Working Load Limit (Tons) †	S-282 Stock No.	Weight Each (lbs.)	Dimensions (in.)			
	Webbing Width (in.)	Eye Width (in.)	Ply					B	C	E	F
1 & 2	2	2	2	3/8	3-1/4	1021084	1.9	4.33	2.13	2.11	4.77
3	3	1.5	2	1/2	4-1/2	1021093	2.8	5.04	1.63	2.44	4.54
4	4	2	2	5/8	6-1/4	1021100	4.3	5.69	2.13	2.54	5.31

* NOTE: Designed for use with Type III, (Eye & Eye), Class 7, 2 Ply web slings.

† Maximum Proof Load is 2-1/2 times the Working Load Limit. Minimum Ultimate Strength is 5 times the Working Load Limit.

Sling Saver® Load Rated "QT" QUENCHED & TEMPERED QUIC-CHECK®

S-287 CHOKER HOOK



- Available in 2 sizes: 3-1/4 tons (2" webbing) and 4-1/2 tons (3" webbing)
- Forged Alloy steel – Quenched & Tempered
- Design factor of 5 to 1.
- Each Connector has a Product Identification Code (PIC) for material traceability along with a Working Load Limit and the name Crosby forged into it.
- Special design of hook protects the synthetic sling when dropped or dragged.
- Designed to reduce friction, abrasion, and fraying in choker area.
- Uses same spool and cover as S-280 Web Connector.
 - Replacement Kit for Spool and Web Cover available.

S-287 Sliding Choker Hook

Round Sling Size (No.)	Web Slings*			Working Load Limit (Tons) †	S-287 Stock No.	Weight Each (lbs.)	Dimensions (in.)									
	Webbing Width (in.)	Eye Width (in.)	Ply				A	B	C	D	E	F	G	H	J	AA
1 & 2	2	2	2	3-1/4	1021909	3.7	2.13	2.50	3.32	.38	6.03	4.77	4.88	.34	1.50	1.50
3	3	1.5	2	4-1/2	1021918	6.1	1.63	3.50	3.67	.38	7.06	4.53	6.51	1.36	1.88	—

* NOTE: Designed for use with Type III, (Eye & Eye), Class 7, 2 Ply web slings.

† Maximum Proof Load is 2-1/2 times the Working Load Limit. Average straightening load (ultimate load) is 5 times the Working Load Limit.

Crosby Sling Saver® hardware meets the requirements for minimum stock diameter or thickness, and effective contact width shown in the Recommended Standards Specification for Synthetic Polyester Round Slings by the Web Sling & Tie Down Association. WSTDAR-1 (revised 2010)

Crosby® Wide Body Shackles

Load Rated®



APPLICATION INSTRUCTIONS
SEE PAGE 92 OF THE GENERAL CATALOG

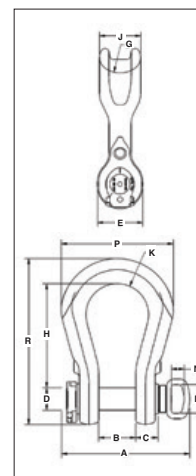
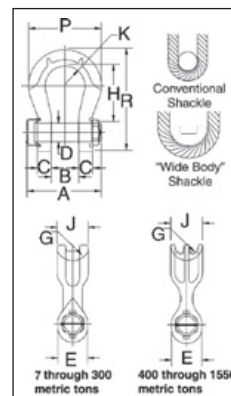


G-2160 / S-2160



G-2160E

- All sizes Quenched and Tempered for maximum strength.
- Forged alloy steel from 7 thru 300 metric tons.
- Cast alloy steel from 400 thru 1550 metric tons.
- Proof tested as follows:
 - 7 thru 75 metric tons and 200 thru 300 metric tons: 2 x WLL.
 - 125 metric tons: 1.6 x WLL.
 - 400 metric tons and higher: 1.33 x WLL.
- All ratings are in metric tons, embossed on side of bow.
- G-2160, (7 thru 55t), are Hot Dip Galvanized and pins are painted red.
- G-2160/G-2160E, (75t and larger), bows are furnished Dimetcoated, and pins are Dimetcoated, then painted red.
- S-2160 bows and pins are painted red.
- Shackles, 30t and larger, are **RFID EQUIPPED**.
- Can be used to connect Synthetic Web Slings, Synthetic Round Slings or Wire Rope Slings.
- Increase in shackle bow radius provides minimum 58% gain in sling bearing surface and eliminates need for a thimble.
- Increases usable sling strength minimum of 15% and greatly improves life of wire rope slings.
- Approved for use at -40 degrees C (-40 degrees F) to 204 degrees C (400 degrees F).
- Bow and bolt are certified to meet charpy impact testing of 42 joules (31 ft.-lbs.) min. avg. at -20 degree C (-4 degree F).
- All 2160 shackles are individually proof tested and magnetic particle inspected. Crosby certification available at time of order.
- Shackles requiring ABS, Lloyds and other certifications are available upon special request and must be specified at time of order.
- Type approved and certification to DNV Rules for Certification of Lifting Appliances, and are produced in accordance with DNV MSA requirements. Databook is provided that includes required documents.
 - Serialization / Identification
 - Material Testing (Physical / Chemical / Charpy)
 - Proof Testing
- Look for the Red Pin® . . . the mark of genuine Crosby quality.



G-2160E Crosby® Easy-Loc “Wide Body” Shackles

Working Load Limit (t)*	Stock No.		Weight Each (lbs.)	Dimensions (in.)														Effective Body Diameter
	G-2160E	S-2160E		A	B +/- .25	C	D +/- .02	E	G	H	J	K	M	N	P	R		
75	1021500	—	110	15.04	4.13	2.39	2.75	5.34	3.75	11.54	5.00	3.64	4.00	1.80	12.64	18.66	6.3	
125	1021509	—	190	17.70	5.12	3.10	3.15	6.50	3.75	14.37	5.91	4.33	4.00	1.80	15.47	23.00	6.8	
200	1021518	—	408	19.35	5.91	3.39	4.12	8.41	5.25	18.91	8.56	5.42	4.00	1.80	20.47	30.44	9.5	
300	1021527	—	787	22.61	7.38	4.30	5.25	10.50	6.13	23.63	10.38	6.31	4.00	1.80	23.93	37.51	11.4	

G-2160 / S-2160 Crosby® “Wide Body” Shackles

WWL (t)*	Stock No.		Weight Each (lbs.)	Dimensions (in.)														Effective Body Diameter
	G-2160	S-2160		A	B +/- .25	C	D +/- .02	E	G	H	J	K	M	N	P	R		
7	1021256	1021548	4.0	4.14	1.25	.69	.88	1.82	1.25	3.56	1.60	1.25	—	—	4.10	5.87	2.1	
12.5	1021265	1021557	8.80	5.38	1.69	.92	1.13	2.38	1.37	4.63	2.13	1.63	—	—	5.51	7.63	2.4	
18	1021274	1021566	14.90	6.69	2.03	1.16	1.38	2.69	1.50	5.81	2.50	2.00	—	—	6.76	9.38	2.8	
30	1021283	1021575	26.50	7.69	2.37	1.38	1.63	3.50	2.50	6.94	3.13	2.50	—	—	8.50	11.38	4.1	
40	1021285	1021584	46.00	9.28	2.88	1.69	2.00	4.00	1.75	8.06	3.75	3.00	—	—	10.62	13.62	3.6	
55	1021287	1021593	68.00	10.36	3.25	2.00	2.25	4.63	2.00	9.36	4.50	3.50	—	—	12.26	15.63	4.3	
75	1022101	—	112	15.04	4.13	2.12	2.75	5.34	3.75	11.53	5.00	3.64	4.00	1.80	12.28	18.66	6.3	
125	1022110	—	193	17.70	5.12	2.66	3.15	6.50	3.75	14.37	5.91	4.33	4.00	1.80	15.47	23.00	6.8	
200	1022118	—	420	19.35	5.91	2.94	4.12	8.41	5.25	18.91	8.56	5.42	4.00	1.80	20.47	30.44	9.5	
300	1022127	—	805	22.61	7.38	3.84	5.25	10.50	6.13	23.63	10.38	6.31	4.00	1.80	24.00	37.66	11.4	
400	1021334	—	1143	30.27	8.66	5.16	6.30	12.56	7.99	22.64	12.60	7.28	4.00	1.80	27.17	38.78	14.3	
500	1021343	—	1439	33.35	9.84	5.73	7.09	13.39	8.09	24.81	13.39	8.86	4.00	1.80	31.10	42.72	14.8	
600	1021352	—	2132	36.02	10.83	6.23	7.87	15.50	13.00	27.56	14.57	9.74	5.75	2.25	34.05	47.24	20.3	
700	1021361	—	2579	38.91	11.81	6.59	8.46	17.03	8.87	28.94	15.75	10.63	5.75	2.25	37.01	50.18	16.6	
800	1021254	—	3025	41.66	12.80	7.30	9.06	17.69	9.76	29.53	16.54	10.92	5.75	2.25	38.39	52.09	18.0	
900	1021389	—	3678	43.73	13.78	7.78	9.84	18.81	13.00	29.82	18.81	11.52	5.75	2.25	40.35	54.59	22.4	
1000	1021370	—	4079	45.98	14.96	8.33	10.63	20.00	10.26	29.92	18.11	12.11	5.75	2.25	42.32	55.31	19.3	
1250	1021272	—	5320	49.86	16.99	9.16	11.81	22.56	13.92	36.61	20.87	12.70	—	—	46.26	65.35	24.4	
1550	1021281	—	8302	54.89	18.31	11.10	12.60	24.25	12.52	42.32	22.82	13.29	—	—	51.81	74.63	23.9	

*Note: Maximum Proof Load is 2.0 times the Working Load Limit on 7 thru 300 metric tons (except for 125 metric tons which is proof tested to 1.6 times the Working Load Limit). Minimum Ultimate Load is 5 times the Working Load Limit on 7 thru 300 metric tons. Maximum Proof Load is 1.33 times the Working Load Limit on 400 thru 1550 metric tons. Minimum Ultimate Load is 4.5 times the Working Load Limit on 400 thru 1250 metric tons and 4.5 times the Working Load Limit for 1550 metric tons. For Working Load Limit reduction due to side loading applications, see page 94.

Welded Master Links



A-344



7/16" through 1-7/32"
have Engineered Flat

A-347

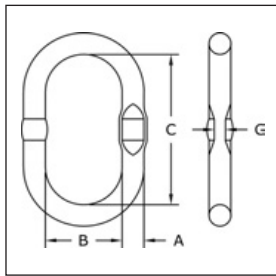


11/16" through 1-7/32"
have Engineered Flat

- Alloy Steel - Quenched and Tempered.
- Individually Proof Tested to values shown, with certification.
- Proof Tested with 60% inside width special fixtures sized to prevent localized point loading per ASME A-952 , reference page 269.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these links meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- Each link has a Product Identification Code (PIC) for material traceability, along with the size and the name Crosby® or "CG".
- Large inside width and length to allow additional room for sling hardware and crane hook.
- Engineered Flat for use with S-1325A coupler link.
- Master links are type approved to DNV Certification Notes 2.7-1-Offshore Containers. These Crosby master links are 100% proof tested, MPI and impact tested. The tests are conducted by Crosby and 3.1 test certification is available upon request. Refer to page 161 for Crosby COLD TUFF® master links that meet the additional requirements of DNV rules for certification of lifting applications - Loose Gear.

A-344

Welded Master Link with Engineered Flat



Size		A-344 Stock No	Weight Each (lbs.)	Working Load Limit (lbs.)*	Proof Load (lbs.)**	Dimensions (in.)				Engineered Flat Size for S-1325A (in.)
(in.)	(mm)					A	B	C	G	
7/16	12	1256862	0.66	3500	8800	.47	2.36	4.72	.24	1/4
1/2	13	1256932	0.79	5500	14000	.51	2.36	4.72	.26	1/4
11/16	17	1257002	1.85	9000	22700	.67	3.54	6.30	.33	3/8
3/4	19	1257072	2.36	14700	36800	.75	3.54	6.30	.33	3/8
7/8	22	1257212	3.55	18700	46800	.87	3.94	7.10	.41	1/2
1	26	1257282	5.22	25300	63400	.98	4.53	8.10	.53	1/2
1-1/8	28	1257382	8.33	28600	71700	1.10	5.71	10.83	.53	1/2
1-7/32	31	1257422	10.3	37400	93700	1.22	5.71	10.83	.61	5/8
1-7/16	36	1257492	15.1	52900	132200	1.42	6.10	11.20	—	—
1-9/16	40	1257532	19.6	61900	154900	1.57	6.30	11.80	—	—
1-3/4	45	1257562	28.1	84400	211100	1.77	7.10	13.40	—	—
2	51	1257632	38.1	99200	248000	2.00	8.50	15.30	—	—

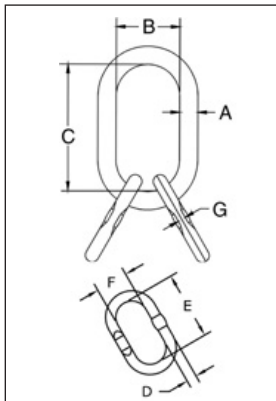
*Ultimate Load is 5 times the Working Load Limit. Applications with wire rope and synthetic sling generally require a design factor of 5. Based on single leg sling (in-line load), or resultant load on multiple legs with an included angle less than or equal to 120 degrees.

**Proof Test Load equals or exceeds the requirement of ASTM A952(8.1) and ASME B30.9.

For use with chain slings, refer to page 238 for sling ratings and page 234 for proper master link selection.

A-347

Welded Master Link Assembly with Engineered Flat



Size		A-347 Stock No	Weight Each (lbs.)	Working Load Limit (lbs.)*	Proof Load (lbs.)**	Dimensions (in.)							Engineered Flat Size for S-1325 (in.)
(in.)	(mm)					A	B	C	D	E	F	G	
1/2	13/12	1257692	1.80	5300	13200	.51	2.36	4.72	.47	3.35	1.77	.24	—
11/16	17/13	1257762	3.40	9000	22700	.67	3.54	6.30	.51	4.72	2.36	.26	1/4
3/4	19/13	1257832	4.00	9300	23400	.75	3.54	6.30	.51	4.72	2.36	.26	1/4
7/8	22/17	1257972	7.20	17600	44100	.87	3.94	7.10	.67	6.30	3.54	.33	5/16
1-1/8	28/22	1258142	15.4	31900	79800	1.10	5.71	10.83	.87	7.10	3.94	.41	3/8
1-7/32	31/25	1258182	20.8	37500	93700	1.22	5.71	10.83	.98	8.10	4.53	.53	1/2
1-9/16	40/31	1258332	40.5	61900	154900	1.57	6.30	11.80	1.22	10.63	5.50	—	—
1-3/4	45/36	1258402	58.2	84400	211100	1.77	7.10	13.40	1.42	11.20	6.10	—	—
2	51/45	1258462	95.0	99200	248000	2.00	7.50	13.80	1.80	13.40	7.10	—	—

*Ultimate Load is 5 times the Working Load Limit. Applications with wire rope and synthetic sling generally require a design factor of 5. The maximum individual sublink working load limit is 75% of the assembly working load limit.

**Proof Test Load equals or exceeds the requirement of ASTM A952(8.1) and ASME B30.9.

For use with chain slings, refer to page 238 for sling ratings and page 234 for proper master link selection.

High Performance Sling Connector



S-237

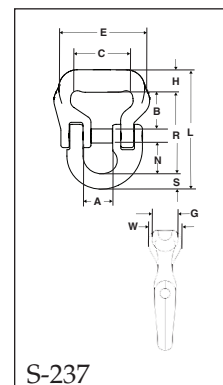


S-238

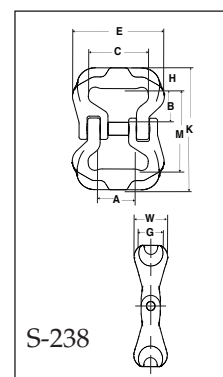


High Performance Sling Connector is designed to connect High Performance Synthetic Slings of all materials.

- Capacities available:
 - Working Load Limit (5 to 1): 5,000 through 60,000 lbs.
 - Sling Body Widths: 2" through 6".
- Allows easy connection to master links or eye hooks, and is ideal for bridles.
- Increased radius of bow gives wider sling bearing surface resulting in an increased area for load distribution, thus:
 - Increasing Synthetic Sling efficiency as compared to master links, shackle bows and conventional eye hooks. This allows 100% of the slings rated Working Load Limit to be achieved.
 - Allows better load distribution on internal fibers.
- All Alloy Construction
- Design Factor of 5 to 1.
- Individually Proof Tested at 2.5 times the Working Load Limit.
- Each connector has a Product Identification Code (PIC) for material traceability, along with a frame size, and the name Crosby and USA in raised letters.



S-237



S-238

S-237 High Performance Sling Connector

Working Load Limit		S-237 Web to Lok-A-Loy Assy. Stock No.	Frame No.	Nominal Sling Body Width (in.)	Lok-A-Loy Size (in.)	Weight Each (lbs.)	Dimensions (in.)										
4:1 (lbs.)*	5:1 (lbs.)						A	B	C	E	G	H	L	N	R	S	W
6250	5000	1020695	5	2	3/8	1.14	.88	1.42	2.00	3.18	1.00	.80	4.20	1.04	2.92	.48	1.38
12500	10000	1020704	10	3	5/8	2.96	1.42	1.52	2.75	4.13	1.25	.98	5.68	1.71	3.94	.75	1.75
18750	15000	1020713	15	3	3/4	4.75	1.63	1.58	2.75	4.37	1.38	1.10	6.49	2.04	4.46	.93	1.88
31250	25000	1020722	25	4	7/8	8.59	2.00	2.33	3.75	6.00	1.75	1.41	7.97	2.27	5.51	1.06	2.25
37500	30000	1020731	30	4	7/8	9.24	2.00	2.20	3.75	6.19	1.75	1.41	7.84	2.27	5.38	1.06	2.38
50000	40000	1020740	40	5	1	15.7	2.25	2.91	4.75	7.25	2.25	1.78	9.45	2.44	6.45	1.22	3.09
75000	60000	1020759	60	6	1-1/4	26.0	2.56	3.36	5.75	9.13	2.31	1.86	11.08	3.07	7.72	1.50	3.16

* Maximum Proof Load is 2 times the Working Load Limit at 4:1 design factor. Minimum Ultimate strength is 5 times the Working Load Limit.

Crosby Sling Saver® hardware meets the requirements for minimum stock diameter or thickness, and effective contact width shown in the Recommended Standards Specification for Synthetic Polyester Round Slings by the Web Sling & Tie Down Association. WSTDA-RS1 (revised 2010)

S-238 High Performance Sling Connector

Working Load Limit (lbs.)	S-238 Web to Web Assembly Stock No.	Frame No.	Nominal Sling Body Width (in.)	Lok-A-Loy Size (in.)	Weight Each (lbs.)	Dimensions (in.)										
						A	B	C	E	G	H	K	M	W		
5000	1020415	5	2	3/8	1.6	.88	1.42	2.00	3.18	1.00	.80	4.90	3.30	1.38		
10000	1020423	10	3	5/8	3.3	1.42	1.52	2.75	4.13	1.25	.98	5.72	3.76	1.75		
15000	1020432	15	3	3/4	4.9	1.63	1.58	2.75	4.37	1.38	1.10	6.16	3.96	1.88		
25000	1020441	25	4	7/8	10.1	2.00	2.33	3.75	6.00	1.75	1.41	8.40	5.58	2.25		
30000	1020450	30	4	7/8	11.4	2.00	2.20	3.75	6.19	1.75	1.41	8.14	5.32	2.38		
40000	1020469	40	5	1	20.7	2.25	2.91	4.75	7.25	2.25	1.78	10.48	6.92	3.09		
60000	1020478	60	6	1-1/4	32.0	2.56	3.36	5.75	9.13	2.31	1.86	11.72	8.00	3.16		

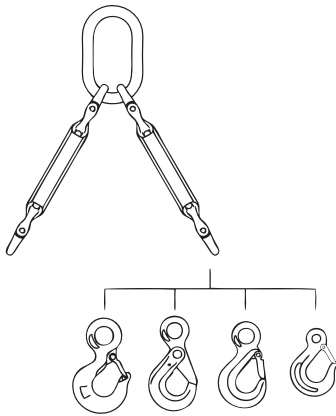
* Maximum Proof Load is 2.5 times the Working Load Limit. Minimum Ultimate strength is 5 times the Working Load Limit.

Crosby Sling Saver® hardware meets the requirements for minimum stock diameter or thickness, and effective contact width shown in the Recommended Standards Specification for Synthetic Polyester Round Slings by the Web Sling & Tie Down Association. WSTDA-RS1 (revised 2010).

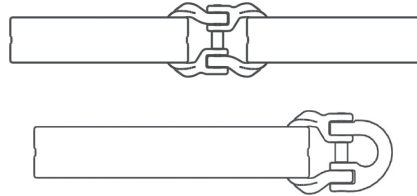
High Performance Sling System

Typical Application

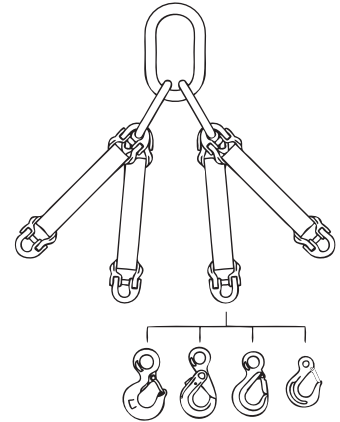
The S-237 and S-238 connectors have been designed to easily adapt to other Crosby fittings to develop complete systems for high performance Synthetic Slings.



Join two slings










Connect to other hardware

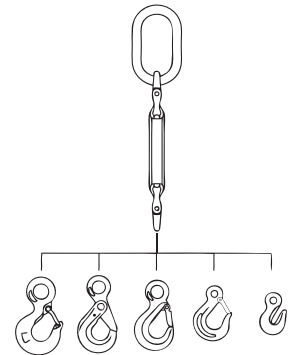


These easy-to-use charts are designed to allow you to quickly determine the Crosby Fitting required for your high performance sling.








Single Leg Sling

S-237 Frame	Working Load Limit (lbs.)*								
		A-1337 Lok-A-Loy (in.)	A-342 (in.)	A-344 (in.)	L-320A L-320AN†		S-1316 (in.)	S-315A (in.)	L-1327 (in.)
					(t)	Frame			
5	5000	3/8	1	7/8	†7	JA	5/8	5/8	5/8
10	10000	5/8	1	7/8	†7	JA	5/8	5/8	5/8
15	15000	3/4	1-1/4	1	†11	KA	3/4	—	3/4
25	25000	7/8	1-1/2	1-1/4	†15	LA	7/8	—	7/8
30	30000	7/8	1-1/2	1-1/4	†15	LA	7/8	—	7/8
40	40000	1	1-3/4	—	†22	NA	1	—	—
60	60000	1-1/4	2	—	30	OA	—	—	—

* Ultimate load is 5 times the Working Load Limit. † L-320AN Style Hook.

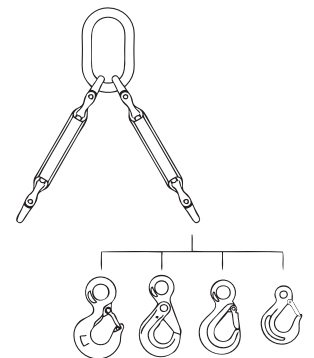


Double Leg Sling

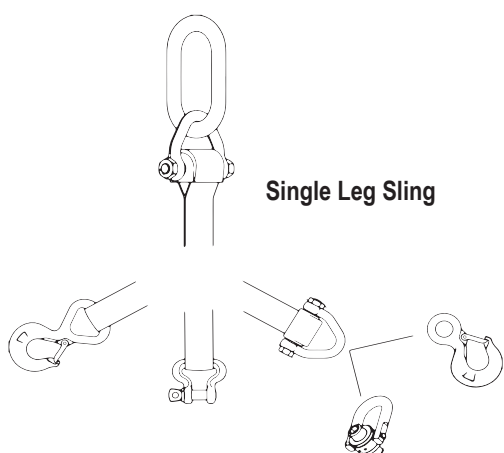
S-237 Frame	Working Load Limit (lbs.)*								
		A-1337 Lok-A-Loy (in.)	A-342 (in.)	A-344 (in.)	L-320A L-320AN†		S-1316 (in.)	S-315A (in.)	L-1327 (in.)
					(t)	Frame			
5	5000	3/8	1-1/4	1-1/4	†7	JA	5/8	5/8	5/8
10	10000	5/8	1-1/4	1-1/4	†7	JA	5/8	5/8	5/8
15	15000	3/4	1-1/2	—	†11	KA	3/4	—	3/4
25	25000	7/8	1-3/4	—	†15	LA	7/8	—	7/8
30	30000	7/8	1-3/4	—	†15	LA	7/8	—	7/8
40	40000	1	2	—	†22	NA	1	—	—
60	60000	1-1/4	2-1/4	—	30	OA	—	—	—

* Ultimate load is 5 times the Working Load Limit. † L-320AN Style Hook.

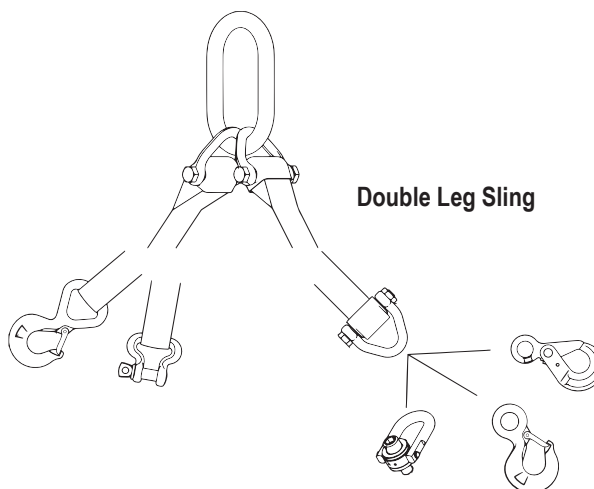
For Triple and Quad leg slings, contact Crosby Engineering at (918) 834-4611



Sling Saver® Web Sling System



Single Leg Sling



Double Leg Sling



These easy-to-use charts are designed to allow you to quickly determine the fitting required to create the Web Sling or Round Sling you need.

Single and Double Leg Slings Component Recommendations based on Type III, (Eye & Eye), Class 7, 2 Ply web slings.

S-280 Web Connector S-281 Web Sling Shackle					S-280 Web Connector					
Web Sling										
Round Sling Size (No.)	Web Width (in.)	Eye Width (in.)	Ply.	S-280 S-281 Working Load Limit (tons)	Web Sling Hook WSL-320 (t)	Eye Hoist Hook L-320AN (t)	Eye SHUR-LOC® S-1316A (in.)	Swivel Hoist Ring HR-125 (lbs.)	Master Link A-342 Single Leg (in.)	Master Link A-342 Double Leg (in.)
1 & 2	2	2	2	3-1/4	3	3	1/2	7,000	5/8	3/4
3	3	1.5	2	4-1/2	5	5	5/8	10,000	3/4	1
4	4	2	2	6-1/2	—	7	5/8	15,000	1	1
5 & 6	6	3	2	8-1/2	—	11	—	24,000	1	1-1/4

Triple and Quad Leg Slings Component Recommendations based on Type III, (Eye & Eye), Class 7, 2 Ply web slings.

S-280 Web Connector S-281 Web Sling Shackle					S-280 Web Connector					
Web Sling										
Round Sling Size (No.)	Web Width (in.)	Eye Width (in.)	Ply.	S-280 S-281 Working Load Limit (tons)	Web Sling Hook WSL-320 (t)	Eye Hoist Hook L-320AN (t)	Eye SHUR-LOC® S-1316 (in.)	Swivel Hoist Ring HR-125 (lbs.)	Master Link A-342 Triple Leg (in.)	Master Link A-342 Quad Leg (in.)
1 & 2	2	2	2	3-1/4	3	3	1/2	7,000	1	1
3	3	1.5	2	4-1/2	5	5	5/8	10,000	1	1-1/4
4	4	2	2	6-1/2	—	7	5/8	15,000	1-1/4	1-1/2
5 & 6	6	3	2	8-1/2	—	11	—	24,000	1-1/2	1-3/4

Sling Saver® Inspection Information

WEB SLING

WEB SLINGS SHALL NOT BE CONSTRICTED OR BUNCHED BETWEEN THE EARS OF A CLEVIS OR SHACKLE, OR IN A HOOK.

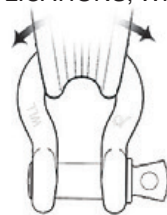
ROUND SLINGS

THE ROUND SLING SHALL NOT BE CONSTRICTED OR BUNCHED BETWEEN THE EARS OF A CLEVIS OR SHACKLE, OR IN A HOOK.

THE OPENING OF FITTINGS SHALL BE PROPER SHAPE AND SIZE TO ENSURE THAT THE FITTING WILL SEAT PROPERLY ON THE ROUND SLING.

SYNTHETIC SLINGS RATED LOAD

FOLDING BUNCHING OR PINCHING OF SYNTHETIC SLINGS, WHICH OCCURS WHEN USED WITH SHACKLES, HOOKS OR OTHER APPLICATIONS, WILL REDUCE THE RATED LOAD.



BUNCHING



PINCHING

The Round Sling shall not be constricted or bunched between the ears of a clevis or shackle, or in a hook. When a Round Sling is used with a shackle, it is recommended that it be used (rigged) in the bow of the shackle.

When connecting web or round slings, use conventional fittings with:

1. Large Radius.
2. Straight Pins.
3. Pads or use special fittings designed for synthetic slings.

SYNTHETIC SLING CONNECTIONS AND HITCHES

WEB SLING IDENTIFICATION INCLUDES:

SLING TYPE:

TC – TRIANGLE CHOKER
TT – TRIANGLE TRIANGLE
EE – EYE AND EYE
EN – ENDLESS

NUMBER OF PLIES: 1 OR 2

WEBBING GRADE: 9 OR 6

SLING WIDTH (MM)

EE 2-9 100 x 305 ← SLING LENGTH (MM)

ROUND SLING IDENTIFICATION INCLUDES:

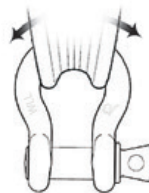
SLING NUMBER: 1-13

SLING NUMBERS ARE FOR REFERENCE ONLY. SOME ROUNDSLINGS HAVE DIFFERENT RATINGS.

SLING COLOR: PURPLE, GREEN, YELLOW, TAN, RED, WHITE, BLUE, ORANGE

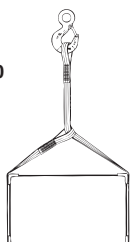
SLING COLOR IS NOT FOLLOWED BY ALL MANUFACTURERS, AND SOME COLORS HAVE MORE THAN ONE RATED LOAD.

FOLDING, BUNCHING OR PINCHING OF SYNTHETIC SLINGS, WHICH OCCURS WHEN USED WITH SHACKLES, HOOKS OR OTHER APPLICATION WILL REDUCE THE RATED LOAD.



CHOKER CAPACITY

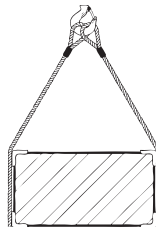
A CHOKER HITCH HAS 80% OF THE CAPACITY OF A SINGLE LEG SLING ONLY IF THE ANGLE OF CHOKE IS 120 DEGREES OR GREATER. A CHOKE ANGLE LESS THAN 120 DEGREES WILL RESULT IN A CAPACITY AS LOW AS 40% OF THE SINGLE LEG.



BASKET HITCH CAPACITY

HORIZONTAL ANGLE	CAPACITY % OF SINGLE LEG
90	200%
60	170%
45	140%
30	100%

A TRUE BASKET HITCH HAS TWICE THE CAPACITY OF A SINGLE LEG ONLY IF THE LEGS ARE VERTICAL.



MULTIPLE LEG SLINGS

TRIPLE LEG SLINGS HAVE 50% MORE CAPACITY THAN DOUBLE LEG SLINGS (AT SAME SLING ANGLE) ONLY IF THE CENTER OF GRAVITY IS IN CENTER OF CONNECTION POINTS AND LEGS ADJUSTED PROPERLY (THEY MUST HAVE AN EQUAL SHARE OF THE LOAD).

QUAD (4-LEG) SLINGS OFFER IMPROVED STABILITY BUT PROVIDE INCREASED CAPACITY ONLY IF ALL LEGS SHARE AN EQUAL SHARE OF THE LOAD.

ALWAYS SELECT AND USE WEB SLINGS AND ROUND SLINGS BY THE RATED LOAD SHOWN ON THE SLING IDENTIFICATION, NEVER BY WIDTH, COLOR OR SLING NUMBER.

Sling Saver® Inspection of Fittings

INSPECTION OF FITTINGS

- WEAR
- DEFORMATION
- CRACKS OR SHARP NICKS
- MODIFICATION
- WIRE ROPE AT TERMINATION



The inspection of fittings:

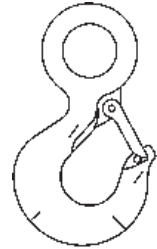
1. Initial, upon purchase
2. Frequent, Prior to each use
3. Periodic, at least annually

INSPECTION OF FITTINGS DEFORMATION



ANY SIGNIFICANT PERMANENT DEFORMATION, OR CHANGE IN SHAPE, INDICATES IT HAS BEEN OVERLOADED AND MUST BE REMOVED FROM SERVICE.

More frequent inspection is required if type of service requires it. Records are not required by federal OSHA unless fittings are part of chain sling.



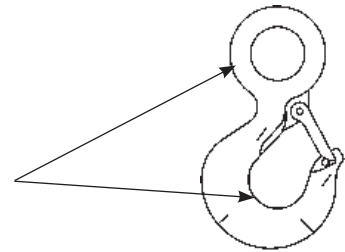
ASME B30.10 allows 5% increase in throat openings of hooks. However Crosby recommends that hooks be removed from service if any significant deformation exists.

INSPECTION OF FITTINGS WEAR



NO MORE THAN 10% WEAR OF ANY SECTIONAL DIMENSION. MEASURE BY COMPARING TO A SECTION OF FITTING THAT HAS NO WEAR, OR TO THE CATALOG DIMENSIONS.

Wear of hook is limited to 5% in the two critical areas shown.



INSPECTION OF HARDWARE CRACKS AND SHARP NICKS



ANY CRACK, SHARP NICK OR GOUGE IN THE SURFACE OF ANY FITTING CAN CAUSE STRESS CONCENTRATION AND IS CAUSE FOR REMOVAL FROM SERVICE

Cracks can form if a properly made fitting is repeatedly overloaded. A crack can form if heat treated fittings are used in frequently cycled loads that are within the Working Load Limit.

INSPECTION OF FITTINGS MODIFICATION



BOLT
SUBSTITUTION



ANY MODIFICATION OF ANY FITTING IS CAUSE FOR REMOVAL FROM SERVICE:
WELDING OR HEATING
NO SUBSTITUTION OF PARTS
NO BENDING

Never modify a shackle by substituting the shackle pin. Use only genuine Crosby shackle pins with Crosby Shackles. All alloy shackles must have pins that are marked with HT.

Any modification will mean that the Working Load Limit is no longer valid. The person modifying the fitting is responsible.

Sling Saver® Inspection of Round Slings

INSPECTION OF POLYESTER ROUND SLINGS: WEB SLING AND TIE DOWN ASSOCIATION

Type of Inspection

- a. **Initial Inspection** – Before any polyester round sling is placed into service it shall be inspected by a designated person to ensure that the correct round sling is being used, as well as to determine that the round sling meets the requirements of this specification.
- b. **Frequent Inspection** – This inspection shall be made by a qualified person handling the polyester round sling each time the round sling is used.
- c. **Periodic Inspection** – This inspection shall be conducted by a designated person.
- d. **Frequency of inspection should be based on:**
 1. *Frequency of use.*
 2. *Severity of service conditions.*
 3. *Experience gained on service life of polyester round sling used in similar applications.*
 4. *Periodic inspection should be conducted at least monthly.*

Removal from Service

A polyester round sling shall be removed from service if any of the following is visible:

- a. If polyester round sling identification is missing or unreadable.
- b. Melting, charring or weld spatter on any part of the polyester round sling.
- c. Holes, tears, cuts, embedded particles, abrasive wear, or snags that expose the core fibers of the polyester round sling.
- d. Broken or worn stitching in the cover which exposes the core fibers.
- e. Fittings when damaged, stretched or distorted in any way.
- f. Polyester round sling that is knotted.
- g. Acid or alkali burns of the polyester round sling.
- h. Any conditions which cause doubt as to the strength of the polyester round sling.

OPERATION OF POLYESTER ROUND SLINGS: WEB SLING AND TIE DOWN ASSOCIATION

- ✓ Determine weight of the load. The weight of the load shall be within the rated capacity of the polyester round slings(s).
- ✓ Select a polyester round sling having suitable characteristics for the type of load, hitch and environment.
- ✓ Polyester round slings shall not be loaded in excess of the rated capacity. Consideration shall be given to the round sling to load angle which affects rated capacities. (See WSTDA-RS1 Section 2.10.5)
- ✓ Polyester round slings with fittings which are used in a choking hitch shall be sufficient length to assure that the choking action is on the round sling, and never on the fittings.
- ✓ Polyester round slings used in a basket hitch shall have the load balanced to prevent slippage.
- ✓ The opening in fittings shall be the proper shape and size to ensure that the fittings will seat properly in the polyester round sling, crane hook, or other attachments.
- ✓ Polyester round slings shall always be protected from being cut by sharp corners, sharp edges and edges that are not adequately rounded to a suitable radius, protrusions, or abrasive surfaces.
- ✓ Polyester round slings shall not be dragged on the floor or over an abrasive surface.
- ✓ Polyester round slings shall not be twisted, shortened, lengthened, tied into knots, or joined by knotting.
- ✓ Polyester round slings shall not be pulled from under loads when the load is resting on the polyester round sling.
- ✓ Do not drop polyester round slings equipped with metal fittings.
- ✓ Polyester round slings that appear to be damaged shall not be used unless inspected and accepted as useable under WSTDA-RS1 Section 4.4 and 4.5
- ✓ The polyester round sling shall be hitched in a manner providing control of the load.
- ✓ Personnel, including all portions of the human body, shall be kept from between the polyester round sling and the load, and from between the polyester round sling and the crane hook or hoist hook. Personnel shall stand clear of the suspended load.
- ✓ Personnel shall not ride the polyester round sling.
- ✓ Shock loading shall be avoided.
- ✓ Twisting the leg (branches) shall be avoided.
- ✓ Load applied to a hook shall be centered in the bowl of the hook to prevent point loading.
- ✓ During lifting, with or without the load, personnel shall be alert for possible snagging of the polyester round sling.
- ✓ The polyester round slings shall be long enough so the rated capacity is adequate when the sling to load angle is taken into consideration. (See WSTDA-RS1 Section 2.10.5)
- ✓ Only Polyester round slings with legible identification tags shall be used.
- ✓ Tags and labels should be kept away from the load, hook and point of choke.
- ✓ The polyester round sling shall not be constricted or bunched between the ears of the clevis or shackle, or in a hook. When a polyester round sling is used with a shackle, it is recommended that it be used (rigged) in the bow of the shackle.
- ✓ Place blocks under load prior to setting down the load, to allow removal of the polyester round slings, if applicable.

Sling Saver® Inspection of Web Slings

INSPECTION, OPERATION, REMOVAL, AND REPAIR – ASME B30.9-2010

SECTION 9-5.9: INSPECTION, REMOVAL AND REPAIR

Initial Inspection

Prior to use, all new, altered, modified, or repaired slings shall be inspected by a designated person to verify compliance with the applicable provisions of this chapter.

Frequent Inspection

(a) A visual inspection for damage shall be performed by the user or other designated person each day or shift the sling is used.

(b) Conditions such as those listed in para. 9-5.9.4 or any other condition that may result in a hazard shall cause the sling to be removed from service. Slings shall not be returned to service until approved by a qualified person.

(c) Written records are not required for frequent inspections.

Periodic Inspection

(a) A complete inspection for damage to the sling shall be periodically performed by a designated person. Each sling and component shall be examined individually, taking care to expose and examine all surfaces. The sling shall be examined for conditions such as those listed in para. 9-5.9.4 and a determination made as to whether they constitute a hazard.

(b) Periodic Inspection Frequency. Periodic inspection intervals shall not exceed 1 yr. The frequency of periodic inspections should be based on

- (1) frequency of sling use
- (2) severity of service conditions
- (3) nature of lifts being made
- (4) experience gained on the service life of slings used in similar circumstances

(c) Guidelines for the time intervals are

- (1) normal service – yearly
- (2) severe service – monthly to quarterly
- (3) special service – as recommended by a qualified person

(d) Documentation that the most recent periodic inspection was performed shall be maintained.

(e) Inspection records of individual slings are not required.

Removal Criteria

A synthetic webbing sling shall be removed from service if conditions such as the following are present:

- (a) missing or illegible sling identification (see Section 9-5.7)
- (b) acid or caustic burns
- (c) melting or charring of any part of the sling
- (d) holes, tears, cuts, or snags
- (e) broken or worn stitching in load bearing splices
- (f) excessive abrasive wear
- (g) knots in any part of the sling
- (h) discoloration and brittle or stiff areas on any part of the sling, which may mean chemical or ultraviolet/sunlight damage
- (i) fittings that are pitted, corroded, cracked, bent, twisted, gouged, or broken
- (j) for hooks, removal criteria as stated in ASME B30.10
- (k) for rigging hardware, removal criteria as stated in ASME B30.26
- (l) other conditions, including visible damage, that cause doubt as to the continued use of the sling

OPERATING PRACTICES

Sling Selection

(a) Slings that appear to be damaged shall not be used unless inspected and accepted as usable under Section 9-5.9.

(b) Slings having suitable characteristics for the type of load, hitch, and environment shall be selected in accordance with the requirements of Sections 9-5.5 and 9-5.8.

(c) The rated load of the sling shall not be exceeded.

(d) For multiple-leg slings used with nonsymmetrical loads, an analysis by a qualified person should be performed to prevent overloading of any leg.

(e) Multiple-leg slings shall be selected according to Tables 9-5.5.2-1 through 9-5.5.2-5 when used at the specific angles given in the table. Operation at other angles shall be limited to rated loads of the next lower angle given in the table or calculated by a qualified person.

(f) Pin diameters smaller than those shown in WSTDA-WS-I may reduce the rated load of the sling.

(g) The fitting shall be of the proper shape and size to ensure that it is seated properly in the hook or lifting device.

Effects of Environment

(a) Slings should be stored in an area where they will not be subjected to mechanical, chemical, or ultraviolet damage or extreme temperatures (see Section 9-5.8).

(b) When used at or in contact with extreme temperatures the guidance provided in Section 9-5.8 shall be followed.

(c) When extensive exposure to sunlight or ultraviolet light is experienced by nylon or polyester webbing slings, the sling manufacturer should be consulted for recommended inspection procedure.

Rigging Practices

(a) Slings shall be shortened or adjusted only by methods approved by the sling manufacturer or a qualified person.

(b) Slings shall not be shortened or lengthened by knotting or twisting.

(c) The sling shall be hitched in a manner providing control of the load.

(d) Slings in contact with edges, corners, protrusions, or abrasive surfaces shall be protected with a material of sufficient strength, thickness, and construction to prevent damage.

(e) Shock loading should be avoided.

(f) Loads should not be rested on the sling.

(g) Slings should not be pulled from under a load when the load is resting on the sling.

(h) Twisting shall be avoided.

(i) During lifting, with or without load, personnel shall be alert for possible snagging.

(j) When using multiple basket or choker hitches, the load should be rigged to prevent the sling from slipping or sliding along the load.

(k) When using a basket hitch, the legs of the sling should contain or support the load from the sides, above the center of gravity, so that the load remains under control.

(l) Slings should not be dragged on the floor or over an abrasive surface.

(m) In a choker hitch, the choke point should only be on the sling body, not on a load-bearing splice or fitting.

(n) In a choker hitch, an angle of choke less than 120 deg should not be used without reducing the rated load (see para. 9-5.5.5).

(o) Slings should not be constricted, bunched, or pinched by the load, hook, or any fitting.

(p) The load applied to the hook should be centered in the base (bowl) of the hook to prevent point loading on the hook, unless the hook is designed for point loading.

(q) An object in the eye of a sling should not be wider than one-third the length of the eye.

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