

2. Wire Rope & Strand Terminations

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2.0 NOBLES CHOICE OF WIRE ROPE TERMINATIONS



General Information















CHOICE OF WIRE ROPE TERMINATIONS

The choice of the correct wire rope termination is second in importance only to the selection of the most suitable wire rope for a particular application. In addition, the attachment of terminations to ropes should be carried out with the necessary skill and equipment to ensure that the load can be effectively transferred from the rope to the termination. When ropes are being replaced the terminations should be checked to ensure they are in good mechanical order before re-use.



WARNING

- Wire Rope Terminations must be applied to the correct size and construction of wire rope.
- Wire Rope Terminations must always be fitted in accordance with any manufacturers recommendations.
- Incorrect use or application of Wire Rope Terminations can result in an unsafe condition, which could lead to property damage, serious injury or death.
- Special purpose or high technology wire ropes such as Casar may exceed the capacity of standard terminations.
- Swage Fittings must always be swaged by a competent person using a suitable wire rope press and dies in accordance with the manufacturers recommendations.

Type of Wire Rope Termination	Typical Tensile Efficiency (%)	Resistance to Vibration & Impact	Ease of Fitting in Field
 Nobles Stud-End Swage Fittings	Up to 100	Good	-
 Nobles Crane Rope End Fittings	Up to 100	Good	-
 Crosby Open Swage Sockets	Up to 100	Good	-
 Crosby Closed Swage Sockets	Up to 100	Good	-
 Nobles Open Swage Sockets	Up to 100	Good	-
 Nobles Closed Swage Sockets	Up to 100	Good	-
 Crosby Open Spelter Sockets	100	Fair	Good
 Crosby Closed Spelter Sockets	100	Fair	Good
 Rope Block Snub Nosed Spelter Sockets	100	Fair	Good
 Rope Block Closed Wedge Sockets	80	Fair	Very Good
 Wirelock Socket Capping Compound	100	Fair	Very Good
 Crosby "Terminator" Wedge Sockets	80	Fair	Very Good
 Crosby "Super Terminator" Wedge Sockets	75-90	Fair	Excellent
 Wire Rope Grips	80-85	Good	Very Good

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2.1 Crosby Wedge Sockets



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Wedge Sockets

Wedge socket terminations have an efficiency rating of 80% based on the catalog strength of XXIP wire rope.

Meets or exceeds all requirements including identification, ductility, design factor, proof load and temperature requirements.

These sockets also meet other critical performance requirements including fatigue life, impact properties and material traceability.

Basket is cast steel and individually magnetic particle inspected.

Pin diameter and jaw opening allows wedge and socket to be used in conjunction with closed swage and spelter sockets.

Secures the tail or "dead end" of the wire rope to the wedge, thus eliminates loss or "Punch out" of the wedge.

Eliminates the need for an extra piece of rope, and is easily installed.

The TERMINATOR wedge eliminates the potential breaking off of the tail due to fatigue.

The tail, which is secured by the base of the clip and the wedge, is left undeformed and available for reuse.

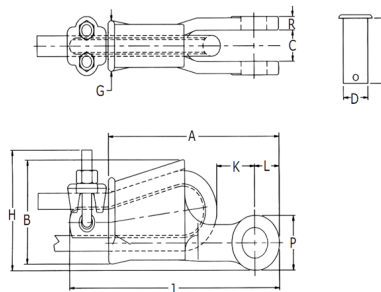
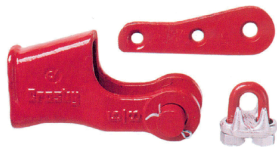
Incorporates Crosby's patented QUIC-CHECK® "Go" and "No-Go" feature cast into the wedge. The proper size rope is determined when the following criteria are met:

- 1) The wire rope should pass thru the "Go" hole in the wedge.
- 2) The wire rope should NOT pass thru the "No-Go" hole in the wedge.

Utilizes standard Crosby Red-U-Bolt® wire rope clip.

The 10- 32mm standard S-421 wedge socket can be retrofitted with the new style TERMINATOR wedge.

Available with Bolt, Nut, and Cotter Pin.



Product Specifications

Name	ITEM #	Suits Wire Size (mm)	J (mm)	K (mm)	L (mm)	P (mm)	R (mm)	A (mm)	B (mm)	C (mm)	D (mm)	G (mm)	H (mm)	S (mm)	Weight (kg)
Wedge Socket Crosby S-421T Open 3/8in (10mm)	18016	10	187	41	22	40	11.2	143	71	20.6	20.6	35	79	54	1.44
Wedge Socket Crosby S-421T Open 1/2in (13mm)	10161	13	222	31	27	49	12.7	173	90	25.4	25.4	41	98	62	2.79
Wedge Socket Crosby Open 5/8in (16mm)	12923	16	263	42	31	57	14.2	207	111	31.8	30.2	540	116	80	4.4
Wedge Socket Crosby S-421T Open 3/4in (20mm)	14343	20	306	55	36	67	16.8	248	122	38.1	35.1	62	136	92	6.58
Wedge Socket Crosby S-421T Open 7/8in (22mm)	15483	22	356	57	42	79	19.1	283	118	44.5	41.4	67	160	106	9.75
Wedge Socket Crosby S-421T Open 1in (26mm)	10150	26	403	69	51	96	22.4	324	129	51	51	65	178	118	13.9
Wedge Socket Crosby S-421T Open 1 1/8in (28mm)	12332	28	450	64	57	108	25.4	365	140	57	57	84	197	137	20.5
Wedge Socket Crosby S-421T Open 1 1/4in (32mm)	11857	32	0	86	64	121	26.9	406	202	66.5	63.5	91	0	148	26.1

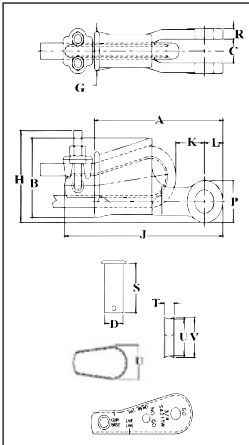
Uncontrolled version printed 08-Mar-2018 .See www.nobles.com.au for latest up-to-date product information.



S-421T

Wedge sockets meet the performance requirements of Federal Specification RR-S-550E, Type C, except those provisions required of the contractor. For additional information, see page 452.

- Wedge socket terminations have an efficiency rating of 80% based on the catalog strength of XXIP wire rope.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these sockets meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- Type Approval certification in accordance with ABS 2007 Steel Vessel Rules 1-11-17.7 and ABS Guide for Certification on Cranes available. Certificates available when requested at time of order and may include additional charges.
- Basket is cast steel and individually magnetic particle inspected.
- Pin diameter and jaw opening allows wedge and socket to be used in conjunction with closed swage and spelter sockets.
- Secures the tail or "dead end" of the wire rope to the wedge, thus eliminates loss or "Punch out" of the wedge.
- Eliminates the need for an extra piece of rope, and is easily installed.
- The TERMINATOR™ wedge eliminates the potential breaking off of the tail due to fatigue.
- The tail, which is secured by the base of the clip and the wedge, is left undeformed and available for reuse.
- Incorporates Crosby's patented QUIC-CHECK® "Go" and "No-Go" feature cast into the wedge. The proper size rope is determined when the following criteria are met:
 - 1) The wire rope should pass thru the "Go" hole in the wedge.
 - 2) The wire rope should NOT pass thru the "No-Go" hole in the wedge.
- Utilizes standard Crosby Red-U-Bolt® wire rope clip.
- The 3/8 through 1-1/8 standard S-421 wedge socket can be retrofitted with the new style TERMINATOR wedge.
- **Available with Bolt, Nut, and Cotter Pin.**
- U.S. patent 5,553,360, Canada patent 2,217,004 and foreign equivalents.
- Meets the performance requirements of EN 13411-6: 2003.



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S-421T WEDGE SOCKETS (Assembly includes Socket, Wedge, Pin and Wire Rope Clip)

Wire Rope Dia.		S-421T Stock No.	API 2C S-421T Stock No.	Weight Each (lbs.)	S-421TW Wedge Only Stock No.	Wedge Only Weight Each (lbs.)	API 2C S-421TW Wedge Only Stock No.	Optional G-4082 API 2C Bolt, Nut & Cotter		API 2C S-421TW Wedge Only Stock No.	Optional G-4082 Bolt, Nut & Cotter	
(in.)	(mm)							G-4082 Stock No.	Weight Each (lbs.)		G-4082 Stock No.	Weight Each (lbs.)
3/8	9-10	1035000	1035005	3.18	1035555	.50	1092230	1092227	.38	1092230	1092227	.38
1/2	11-13	1035009	1035014	6.15	1035564	1.05	1092248	1092236	.69	1092248	1092236	.69
5/8	14-16	1035018	1035023	9.70	1035573	1.79	1092257	1092254	1.15	1092257	1092254	1.15
3/4	18-19	1035027	1035032	14.50	1035582	2.60	1092293	1092281	1.91	1092293	1092281	1.91
7/8	20-22	1035036	1035041	21.50	1035591	4.00	1092319	1092307	3.23	1092319	1092307	3.23
1	24-26	1035045	1035050	30.75	1035600	5.37	1092337	1092325	5.40	1092337	1092325	5.40
1-1/8	28	1035054	1035059	45.30	1035609	7.30	1092364	1092343	7.50	1092364	1092343	7.50
1-1/4	30-32	1035063	1035068	64.90	1035618	10.60	1092375	1092372	10.34	1092375	1092372	10.34

Wire Rope Dia.		S-421T Stock No.	API 2C S-421T Stock No.	Dimensions (in.)															
(in.)	(mm)			A	B	C +/- .09	D	G	H	J*	K*	L	P	R	S	T	U	V	
3/8	9-10	1035000	1035005	5.69	2.72	.81	.81	1.38	3.06	7.80	1.88	.88	1.56	.44	2.13	.44	1.25	1.38	
1/2	11-13	1035009	1035014	6.88	3.47	1.00	1.00	1.62	3.76	8.91	1.26	1.06	1.94	.50	2.56	.53	1.75	1.88	
5/8	14-16	1035018	1035023	8.25	4.30	1.25	1.19	2.12	4.47	10.75	1.99	1.22	2.25	.56	3.25	.69	2.00	2.19	
3/4	18-19	1035027	1035032	9.88	5.12	1.50	1.38	2.44	5.28	12.36	2.41	1.40	2.63	.66	3.63	.78	2.34	2.56	
7/8	20-22	1035036	1035041	11.25	5.85	1.75	1.63	2.69	6.16	14.37	2.48	1.67	3.13	.75	4.31	.88	2.69	2.94	
1	24-26	1035045	1035050	12.81	6.32	2.00	2.00	2.94	6.96	16.29	3.04	2.00	3.75	.88	4.70	1.03	2.88	3.28	
1-1/8	28	1035054	1035059	14.38	6.92	2.25	2.25	3.31	7.62	18.34	2.56	2.25	4.25	1.00	5.44	1.10	3.25	3.56	
1-1/4	30-32	1035063	1035068	16.34	8.73	2.62	2.50	3.56	9.39	20.48	2.94	2.34	4.50	1.06	6.13	1.19	4.62	4.94	

* Nominal **NOTE:** For intermediate wire rope sizes, use next larger size socket. The S-423T Super TERMINATOR wedge is designed to be assembled only into the Crosby S-421T TERMINATOR socket body. **IMPORTANT:** The S-423TW for sizes 5/8" through 1-1/8" (14mm through 28mm) will fit respective size standard Crosby S-421T basket. The 1-1/4" (30-32mm) S-423TW will only fit the Crosby S-421T 1-1/4" basket marked with TERMINATOR.



Super Wedge Sockets

The Crosby 423T wedge socket terminations have a minimum efficiency rating on most high performance, high strength, compacted strand, rotation resistant wire ropes of 80% based on the catalog breaking strength of the various ropes.**

Design eliminates the difficulty of properly seating the wedge with high performance wire rope into a wedge socket termination.

Proper application of the Super TERMINATOR eliminates the "first load" requirement of conventional wedge socket terminations.

S-423TW Wedge Kit can be retrofitted onto existing Crosby S-421T TERMINATOR wedge sockets.

Wedge and accessories provided with a zinc finish.

These sockets meet critical performance requirements including fatigue life, impact properties and material traceability.

Basket is cast steel and individually magnetic particle inspected.

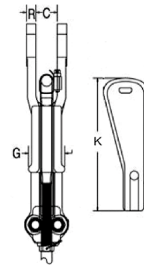
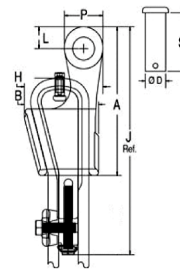
Pin diameter and jaw opening allows wedge and socket to be used in conjunction with closed swage and spelter sockets.

Secures the tail or "dead end" of the wire rope to the wedge, thus eliminates loss or "punch out" of the wedge.

Eliminates the need for an extra piece of rope, and is easily installed.

The TERMINATOR® wedge eliminates the potential breaking off of the tail due to fatigue. The tail, which is secured by the base of the clip and the tension device, is left undeformed and available for reuse.

Available with Bolt, Nut, and Cotter Pin.



Product Specifications

Name	ITEM #	Suits Wire Size (mm)	J (mm)	K (mm)	L (mm)	P (mm)	R (mm)	A (mm)	B (mm)	C (mm)	D (mm)	G (mm)	H (mm)	S (mm)	Weight (kg)
Wedge Socket Crosby S-423T Super Terminator 5/8in	10259	16	313	175	31	57.2	14.2	210	114	31.8	30.2	54.1	117	82.6	5.8
Wedge Socket Crosby S-423T Super Terminator 3/4in	14936	19	373	194	35.6	66.5	16.8	251	132	38.1	35.1	62	136	92.2	8.8
Wedge Socket Crosby S-423T Super Terminator 7/8in	13608	22	431	241	42.4	79.5	19.1	286	149	44.5	41.4	68.3	156	109	13.1
Wedge Socket Crosby S-423T Super Terminator 1in	15906	26	471	264	51.1	95.3	22.4	325	167	50.8	50.8	74.7	179	119	17.8
Wedge Socket Crosby S-423T Super Terminator 1 1/8in	12046	28	539	300	57.4	108	25.4	365	176	57.2	57.2	85.9	198	138	25.9
Wedge Socket Crosby S-423T Super Terminator 1 1/4in	18957	32	612	352	59.4	114	26.9	415	219	66.5	63.5	907	238	168	40.2

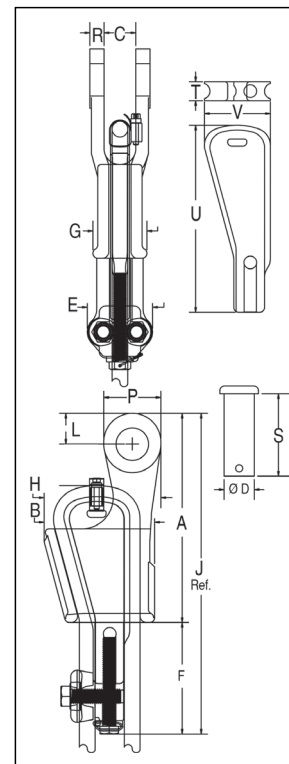
S-423T Super Terminator



S-423T

Wedge sockets meet the performance requirements of Federal Specification RR-S-550E, Type C, except those provisions required of the contractor. Meets the performance requirements of EN13411-6:2003. For additional information, see page 452 of General Catalog.

- The 423T wedge socket terminations have a minimum efficiency rating on most high performance, high strength, compacted strand, rotation resistant wire ropes of 80% based on the catalog breaking strength of the various ropes.**
- Design eliminates the difficulty of properly seating the wedge with high performance wire rope into a wedge socket termination.
- Proper application of the Super TERMINATOR eliminates the "first load" requirement of conventional wedge socket terminations.
- S-423TW Wedge Kit can be retrofitted onto existing Crosby S-421T TERMINATOR wedge sockets.
- Wedge and accessories provided with a zinc finish.
- Meets the performance requirements of EN13411-6:2003.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these sockets meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- US Patent 8,375,527 B1.
- Basket is cast steel and individually magnetic particle inspected.
- Pin diameter and jaw opening allows wedge and socket to be used in conjunction with closed swage and spelter sockets.
- Secures the tail or "dead end" of the wire rope to the wedge, thus eliminates loss or "punch out" of the wedge.
- Eliminates the need for an extra piece of rope, and is easily installed.
- The TERMINATOR® wedge eliminates the potential breaking off of the tail due to fatigue.
- The tail, which is secured by the base of the clip and the tension device, is left undeformed and available for reuse.
- **Available with Bolt, Nut, and Cotter Pin.**



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****Due to the unique construction of various ropes, Crosby cannot make a broad general statement that all current and future design of ropes, when properly assembled with the Super TERMINATOR, will achieve a minimum 80% termination efficiency. Contact wire rope manufacturer or Crosby engineering (918-834-4611) to determine efficiency rating for a specific rope.**



S-423T WEDGE SOCKETS Assembly includes Socket, Wedge, Pin, Wire Rope Clip, Tensioner, Bolts and Secondary Retention Wire.

Wire Rope Dia.	S-423T Assembly with Round Pin and Cotter Pin						S-423TB Assembly with Bolt, Nut and Cotter Pin				S-423TW** Wedge Kit		
	(in.)	(mm)	S-423T	API 2C	S-423T Weight Each		S-423TB	API 2C	S-423TB Weight Each		S-423TW	S423TW Weight Each	
			Stock No.	Stock No.	(lbs.)	(kg)	Stock No.	Stock No.	(lbs.)	(kg)		Stock No.	(lbs.)
5/8	14-16	1035123	1035128	12.7	5.8	1035218	1035223	13.1	5.9	1034018	5.2	2.4	
3/4	18-19	1035132	1035137	19.4	8.8	1035227	1035232	19.1	8.7	1034027	7.2	3.3	
7/8	20-22	1035141	1035146	28.8	13.1	1035236	1035241	27.8	12.6	1034036	10.3	4.7	
1	24-26	1035150	1035155	39.2	17.8	1035245	1035250	37.3	16.9	1034045	11.9	5.4	
1-1/8	28	1035169	1035174	57.1	25.9	1035254	1035259	57.9	25.9	1034054	19.9	9.0	
1-1/4	30-32	1035178	1035183	88.6	40.2	1035272	1035277	88.1	39.9	1034063	33.8	15.3	

**Kit contains Wedge, Wire Rope Clip and Bolts, Tensioner Bolt and Secondary Retention Wire.

Wire Rope Dia.	S-423T Stock No.		Dimensions (in.)															
	(in.)	(mm)	A	B	C	D	E	F	G	H	J*	L	P	R	S	T	U	V
5/8	14-16	1035123	8.25	4.50	1.25	1.19	3.00	4.06	2.13	4.61	12.31	1.22	2.25	.56	3.25	.75	6.88	2.60
3/4	18-19	1035132	9.88	5.20	1.50	1.38	3.25	4.81	2.44	5.37	14.69	1.40	2.62	.66	3.63	.88	7.65	3.02
7/8	20-22	1035141	11.25	5.88	1.75	1.63	3.81	5.73	2.69	6.16	16.98	1.67	3.13	.75	4.31	1.00	9.47	3.47
1	24-26	1035150	12.81	6.56	2.00	2.00	3.81	5.73	2.94	7.05	18.54	2.01	3.75	.88	4.70	1.13	10.41	3.82
1-1/8	28	1035169	14.38	6.94	2.25	2.25	4.00	6.85	3.38	7.81	21.23	2.26	4.25	1.00	5.44	1.25	11.83	4.22
1-1/4	30-32	1035178	16.34	8.63	2.62	2.50	4.50	7.76	3.57	9.38	24.10	2.34	4.50	1.06	6.62	1.38	13.87	5.82

* Nominal NOTE: For intermediate wire rope sizes, use next larger size socket. The S-423T Super TERMINATOR wedge is designed to be assembled only into the Crosby S-421T TERMINATOR socket body. IMPORTANT: The S-423TW for sizes 5/8" through 1-1/8" will fit respective size standard Crosby S-421T basket. The 1-1/4" S-423TW will only fit the Crosby S-421T 1-1/4" basket marked with TERMINATOR.

2.2 Crosby Spelter Sockets



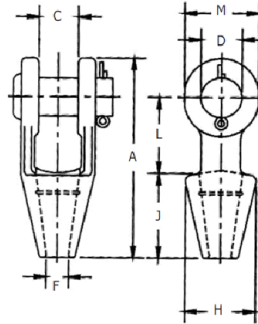
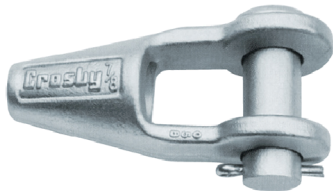
the **Crosby** group

Open Spelter Sockets

Forged Steel Sockets up to 38mm, cast alloy steel from 40mm to 100mm.

Spelter socket terminations have an efficiency rating of 100%, based on the catalogue strength of the wire rope. Ratings are based on recommended use with 6 x 19 - 6 x 41, 1770 or 1960 grade FC or IWRC wire rope.

NOTE: All cast steel sockets 40mm and larger are magnetic particle and ultrasonic inspected.



Product Specifications

Name	ITEM #	Wire Rope Size (mm)	J (mm)	L (mm)	M (mm)	A (mm)	C (mm)	D (mm)	F (mm)	H (mm)	Weight (kg)
Spelter Socket Crosby G-416 Open 5/16 - 3/8" (10mm)	12539	10	57	45	38	123	21	21	13	43	0.59
Spelter Socket Crosby G-416 Open 1/2" (13mm)	11729	13	64	51	48	141	25	25	14	48	1.02
Spelter Socket Crosby G-416 Open 5/8" (16mm)	12470	16	76	64	57	171	32	30	18	57	1.63
Pear Socket Nemag Size 10		18	89	76	67	202	38	35	21	67	2.64
Spelter Socket Crosby G-416 Open 7.8" (22mm)	12925	22	102	89	80	235	45	41	24	83	4.38
Spelter Socket Crosby G-416 Open 1in (26mm)	14484	26	114	102	96	268	51	51	29	96	7.03
Spelter Socket Crosby G-416 Open 1 1/8" (28mm)	10607	30	127	117	105	300	57	57	32	105	9.75
Spelter Socket Crosby G-416 Open 1 1/4" (32mm)	15935	32	140	127	121	335	64	64	38	121	14.1
Spelter Socket Crosby G-416 Open 1 1/2in (38mm)	15517	38	152	152	137	384	76	70	41	133	21.4
Spelter Socket Crosby G-416 Open 1 5/8" (40-42mm)	21113	42	165	165	146	413	76	76	45	140	24.9
Spelter Socket Crosby G-416 Open 1 3/4in (44mm)	14840	44	191	178	165	464	89	89	51	162	37.2
2" CROSBY OPEN SOCKETGROOVED & GALVANISED	24174	52	216	229	178	546	102	96	57	187	59

Open Spelter Sockets



G-416 / S-416

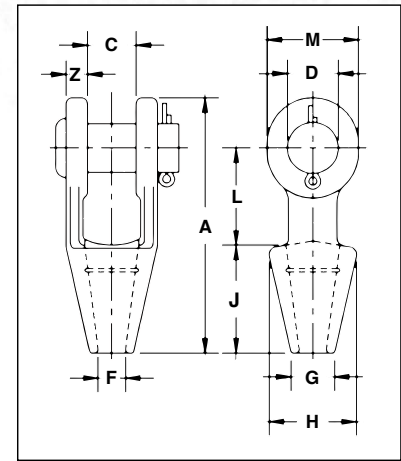
Open Grooved Sockets meet the performance requirements of Federal Specification RR-S-550E, Type A, except for those provisions required of the contractor. For additional information, see page 452.

- Forged Steel Sockets through 38mm, cast alloy steel 40mm through 102mm.
- Spelter socket terminations have an efficiency rating of 100%, based on the catalog strength of wire rope.
- Ratings are based on recommended use with 6 x 7, 6 x 19, or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC, or IWRC wire rope.
- Strand constructed with minimal number of wires (e.g. 1 x 7) requires special consideration that socket basket length be five (5) times the strand diameter or fifty (50) times the wire diameter, whichever is the greater.



NOTICE: All cast steel sockets 40mm and larger are magnetic particle inspected and ultrasonic inspected. Proof testing available on special order.

Drawing illustrates one groove used on sockets 6mm through 18mm. Sizes 20mm through 38mm use 2 grooves. Sizes 40mm and larger use 3 grooves.



G-416 / S-416 Open Spelter Sockets

Rope Dia.		Structural Strand Dia. (mm)	Ultimate Load (t)	Stock No.		Weight Each (kg)	Dimensions (mm)										Tolerance +/-
(mm)	(in.)			G-416 Galv.	S-416 S.C.		A	C	D	F	G	H	J	L	M	N	
6-7	1/4	-	4.50	1039619	1039628	.50	116	19.1	17.5	9.65	17.5	39.6	57.0	39.6	33.3	9.1	1.52
8-10	5/16-3/8	-	12.0	1039637	1039646	.59	123	20.6	20.6	12.7	20.6	42.9	57.0	44.5	38.1	11.2	1.52
11-13	7/16-1/2	-	20.0	1039655	1039664	1.02	141	25.4	25.4	14.2	23.9	47.8	63.5	51.0	47.8	12.7	1.52
14-16	9/16-5/8	12-13	27.0	1039673	1039682	1.63	171	31.8	30.2	17.5	28.7	57.0	76.0	63.5	57.0	14.2	1.52
18	3/4	14-16	43.0	1039691	1039708	2.64	202	38.1	35.1	20.6	31.8	66.5	89.0	76.0	66.5	15.7	1.52
20-22	7/8	18-19	55.0	1039717	1039726	4.38	235	44.5	41.4	23.9	38.1	82.5	102	89.0	79.5	20.3	1.52
24-26	1	20-22	78.0	1039735	1039744	7.03	268	51.0	51.0	28.7	44.5	95.5	114	102	95.5	22.4	1.52
28-30	1-1/8	24-26	92.0	1039753	1039762	9.75	300	57.0	57.0	31.8	51.0	105	127	117	105	25.4	3.05
32-35	1-1/4 - 1-3/8	28	136	1039771	1039780	14.1	335	63.5	63.5	38.1	57.0	121	140	127	121	28.7	3.05
38	1-1/2	30-32	170	1039799	1039806	21.4	384	76.0	70.0	41.4	70.0	133	152	152	137	30.2	3.05
* 40-42	* 1-5/8	33-35	188	1039815	1039824	24.9	413	76.0	76.0	44.5	76.0	140	165	165	146	33.3	3.05
* 44-48	* 1-3/4 - 1-7/8	36-40	268	1039833	1039842	37.2	464	89.0	89.0	51.0	79.5	162	191	178	165	39.6	3.05
* 50-54	* 2 - 2-1/8	42-45	291	1039851	1039860	59	546	102	95.5	57.0	95.5	187	216	229	178	46.0	3.05
* 56-60	* 2-1/4 - 2-3/8	46-48	360	1039879	1039888	76	597	114	108	63.5	102	210	229	254	197	54.0	3.05
* 64-67	* 2-1/2 - 2-5/8	50-54	424	1041633	1041642	114	648	127	121	73.0	114	235	248	274	216	60.5	3.05
* 70-73	* 2-3/4 - 2-7/8	56-62	511	1041651	1041660	143	692	133	127	79.0	124	267	279	279	229	73.0	6.35
* 75-80	* 3 - 3-1/8	64-67	563	1041679	1041688	172	737	146	133	86.0	133	282	305	287	241	76.0	6.35
* 82-86	* 3-1/4 - 3-3/8	70-73	722	1041697	1041704	197	784	159	140	92.0	146	302	330	300	254	79.0	6.35
* 88-92	* 3-1/2 - 3-5/8	76-80	779	1041713	1041722	255	845	171	152	98.5	165	314	356	318	274	82.5	6.35
* 94-102	* 3-3/4 - 4	-	875	1041731	1041740	355	921	191	178	108	184	346	381	343	318	89.0	6.35

* Cast Alloy Steel. **NOTE: AVAILABLE WITH BOLT NUT AND COTTER. CONTACT CROSBY FOR MORE INFORMATION.**

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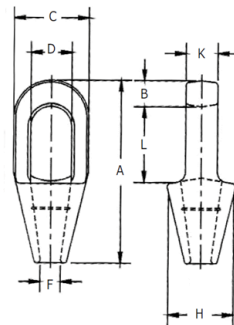
the **Crosby** group

Closed Spelter Sockets

Forged Steel Sockets up to 38mm, cast alloy steel from 40mm to 100mm.

Spelter socket terminations have an efficiency rating of 100%, based on the catalogue strength of the wire rope. Ratings are based on recommended use with 6 x 19 - 6 x 41, 1770 or 1960 grade FC or IWRC wire rope.

NOTE: All cast steel sockets 40mm and larger are magnetic particle and ultrasonic inspected.



Product Specifications

Name	ITEM #	Wire Rope Size (mm)	K (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)	F (mm)	H (mm)	Weight (kg)
Spelter Socket Crosby G-417 Closed 3/8in (10mm)	12013	10	18	52	125	16	43	25	13	43	0.34
Spelter Socket Crosby G-417 Closed 1/2in (13mm)	19474	13	22	59	140	18	51	30	14	51	0.68
Spelter Socket Crosby G-417 Closed 5/8in (16mm)	12733	16	25	65	162	21	67	36	18	67	1.13
Spelter Socket Crosby g-417 Closed 3/4in (20mm)	13902	20	32	78	194	27	76	42	22	70	1.92
Spelter Socket Crosby G-417 Closed 7/8in (22mm)	15557	22	38	91	226	33	92	49	25	83	3.28
Spelter Socket Crosby G-417 Closed 1in (26mm)	13848	26	45	103	254	37	105	59	29	96	4.76
Round Sling 10t 6m NoblOtech	14619	30	51	116	283	40	114	65	32	105	6.46
Spelter Socket Crosby G-417 Closed 1 1/4in (32mm)	18471	32	57	129	309	41	127	71	38	119	8.95
Spelter Socket Crosby G-412 Closed 1 1/2in (38mm)	17422	38	63	155	355	49	137	81	41	132	13.24
Spelter Socket Crosby G-417 Closed 1 3/4in (44mm)	13925	44	76	198	445	56	171	96	51	162	25.96
Spelter Socket Crosby G-417 Closed 2in (52mm)	12891	52	83	224	505	62	194	111	57	187	35.83



the **Crosby** group

Mooring Spelter Sockets

Wide range of sizes available: 32mm through 102mm Wireline

"M-Line socket terminations have a 100% efficiency rating, based on the catalog strength of the wire rope. Ratings are based on recommended use with 6 x 7, 6 x 19, or 6 x 37, 1770 or 1960 Grade, FC, or IWRC wire rope. Strand constructed with minimal number of wires (e.g. 1 x 7) requires special consideration that socket basket length be five (5) times the strand diameter or fifty (50) times the wire diameter, whichever is the greater.

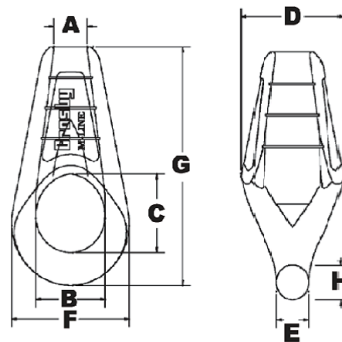
Galvanized finish.

Designed for today's higher strength classes of wire rope.

Design of bail allows for easy connection to shackles and other connecting links.

Socket design utilizes features to keep cone from rotating.

Type approved and Certification in accordance with DNV's Rules for Certifications of Lifting Appliances, 2011 - DNV's Offshore Standard DNV-OS-E101, Drilling Plant, October 2009.



Product Specifications

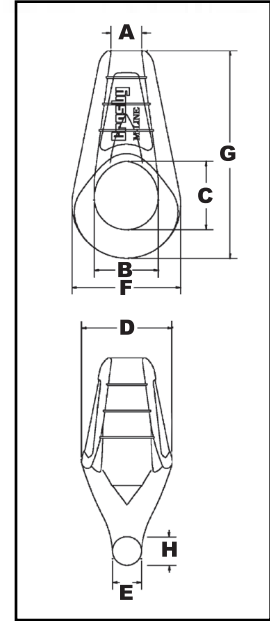
Name	ITEM #	Suits Wire Size (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Weight (kg)
Spelter Socket Mooring Crosby G-517 Closed 37-42mm	11284	42	162	103	38	44	92	147	300	9
Crosby Mooring Spelter Socket		48	188	120	42	51	112	178	348	15
Crosby Mooring Spelter Socket		54	204	132	54	57	1207	200	390	22
Crosby Mooring Spelter Socket		60	230	148	62	63	135	220	440	27
Spelter Socket Ropeblock Snub Nosed Closed 61-68mm Galvanised	12286	68	235	165	68	73	150	250	468	40
Spelter Socket Ropeblock Snub Nosed Closed 69-75mm	13162	75	287	178	75	79	164	274	540	54
Spelter Socket Ropeblock Snub Nosed Closed 3 1/8in (duplicate code 29957)	11422	80	314	195	76	86	175	295	585	75
Crosby Mooring Spelter Socket		86	327	216	82	92	194	320	625	81
Crosby Mooring Spelter Socket		93	358	220	92	99	202	350	670	115
Crosby Mooring Spelter Socket		102	365	235	100	105	215	375	700	130
Crosby Mooring Spelter Socket		115	420	270	110	115	240	410	800	180

Mooring Spelter Sockets



**G-517
Mooring
Spelter Socket**

- Wide range of sizes available:
 - 32mm through 102mm Wireline
- “M-Line” socket terminations have a 100% efficiency rating, based on the catalog strength of the wire rope. Ratings are based on recommended use with 6 x 7, 6 x 19, or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC, or IWRC wire rope. Strand constructed with minimal number of wires (e.g. 1 x 7) requires special consideration that socket basket length be five (5) times the strand diameter or fifty (50) times the wire diameter, whichever is the greater.
- Galvanized finish.
- Designed for today’s higher strength classes of wire rope.
- Design of bail allows for easy connection to shackles and other connecting links.
- Socket design utilizes features to keep cone from rotating.
- Type approved and Certification in accordance with DNV’s Rules for Certifications of Lifting Appliances, 2011 - DNV’s Offshore Standard DNV-OS-E101, Drilling Plant, October 2009.



All Cast Mooring Sockets are Individually Magnetic Particle Inspected and Ultrasonic Inspected.



G-517 “M-Line” Mooring Sockets

Wire Rope Size		Ultimate Load (t)	G-517 Stock No.	Weight Each (kg)	Dimensions (mm)							
(mm)	(in.)				A	B	C	D	E	F	G	H
32-35	1-1/4 - 1-3/8	113	1004943	7.7	41.4	78.5	92.2	113	36.6	130	277	38.9
38-41	1-1/2 - 1-5/8	136	1004961	13.6	49.5	93.7	110	138	40.6	160	330	46.0
44-48	1-3/4 - 1-7/8	181	1004989	19.5	56.6	106	115	160	46.7	183	358	53.1
50-54	2 - 2-1/8	227	1005002	25.9	63.5	121	134	178	53.1	210	407	56.9
57-60	2-1/4 - 2-3/8	277	1005020	34.5	70.6	133	146	196	58.7	233	455	66.6
64-67	2-1/2 - 2-5/8	363	1005048	48.1	77.5	149	170	217	68.3	257	505	67.6
70-73	2-3/4 - 2-7/8	454	1005066	62.6	84.6	165	181	237	76.2	282	549	63.0
76-79	3 - 3-1/8	544	1005084	87.5	89.9	184	197	262	82.6	313	597	82.3
82-86	3-1/4 - 3-3/8	635	1005105	104	96.8	194	224	278	88.9	334	654	87.1
88-92	3-1/2 - 3-5/8	735	1005123	127	105	203	230	298	93.7	355	703	105
95-102	3-3/4 - 4	907	1005141	174	112	222	267	328	93.7	403	765	113

WIRE ROPE END FITTINGS



WIRELOCK®

Wirelock

100% termination efficiency.

Temperature operating range is -54°C to +116°C.

Ideal for on-site applications.

No hazardous molten metal.

Improved fatigue life.

Pouring temperature without booster pack is 7°C to 43°C.

One booster pack if pouring temperature is 2°C to 9°C.

Two booster packs if pouring temperature is -2°C to 2°C.

Refer to instructions that come with pack for more information.



Product Specifications

Name	ITEM #	Weight (kg)
Wirelock (100cc set) C/W MSDS	23618	0.28
Wirelock (250cc set) C/W MSDS	24340	0.57
Wirelock (500cc set) C/W MSDS	23805	1.15
Wirelock (1000cc set) C/W MSDS	24687	2.08

RESIN FOR SPELTER SOCKETS NOT AVAILABLE IN CANADA

Note: For use on 416, 417, 427 and 517 spelter sockets only.



- 100% termination efficiency.
- Temperature operating range is -65° F to +240° F (-54°C to +116°C).
- Ideal for on-site applications.
- No hazardous molten metal.
- Improved fatigue life.
- Pouring temperature without booster pack is 48° F to 110° F (6.67°C to 43.3°C).
- One booster pack if pouring temperature is 35° F to 48° F (1.67°C to 8.89°C).
- Two booster packs if pouring temperature is 27° F to 35° F (-2.78°C to +1.67°C).
- Refer to Wire Rope End Terminations Manual for more information.



APPROVALS:

Lloyds Register of Shipping

Det Norske Veritas (DNV)

United States Coast Guard

Registro Italiano Navale

Germanischer Lloyd

United States Navy

American Bureau of Shipping

ISO 17.558

DNV-OS-E304



U.S. Department of Transportation
United States Coast Guard

NATO Numbers:

- 100cc 8030-21-902-1823
- 250cc 8030-21-902-1824
- 500cc 8030-21-902-1825
- 1000cc 8030-21-902-1826

Witnessed and tested by American Bureau of Shipping. (ABS)

Approximate U.S. Measurements:

250cc's Kit 1 Cup

WIRELOCK® W416-7 Socket Compound

W416-7 Kits				Booster Pak Stock No.
Kit Size	Kit Per Case	Stock No.	Weight Each (kg)	
100	20	1039602	.28	1039603
250	12	1039604	.57	1039605
500	12	1039606	1.15	1039607
1000	12	1039608	2.08	1039609
2000	12	1039610	4.08	1039611

Guide to amount WIRELOCK® Required

Wire Rope Size		WIRELOCK® Required (cc)	Wire Rope Size		WIRELOCK® Required (cc)
(mm)	(in.)		(mm)	(in.)	
6-7	1/4	9	44	1-3/4	700
8	5/16	17	48	1-7/8	700
9-10	3/8	17	51	2	1265
11	7/16	35	54	2-1/8	1265
13	1/2	35	56	2-1/4	1410
14	9/16	52	60	2-3/8	1410
16	5/8	52	64	2-1/2	1830
20	3/4	86	67	2-5/8	1830
22	7/8	125	70	2-3/4	2250
26	1	160	76	3	3160
28	1-1/8	210	82	3-1/4	3795
32	1-1/4	350	88	3-1/2	4920
36	1-3/8	350	94	3-3/4	5980
40	1-1/2	420	102	4	7730
42	1-5/8	495	—	—	—

Wirelock is a hazardous material regulated by US DOT, ICAO/IATA and IMO for transportation.



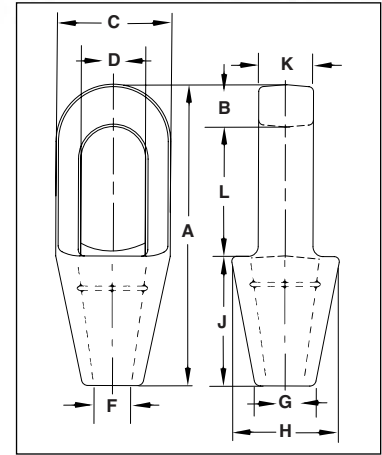
Closed Spelter Sockets



G-417 / S-417

Closed Grooved Sockets meet the performance requirements of Federal Specification RR-S-550E, Type A, except for those provisions required of the contractor. For additional information, see page 452.

- Forged Steel Sockets through 38mm, cast alloy steel 40mm through 102mm.
- Spelter socket terminations have an efficiency rating of 100%, based on the catalog strength of wire rope.
- Ratings are based on recommended use with 6 x 7, 6 x 19, or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC, or IWRC wire rope.
- Strand constructed with minimal number of wires (e.g. 1 x 7) requires special consideration that socket basket length be five (5) times the strand diameter or fifty (50) times the wire diameter, whichever is the greater.



NOTICE: All cast steel sockets 40mm and larger are magnetic particle inspected and ultrasonic inspected. Proof testing available on special order.

Drawing illustrates one groove used on sockets 6mm through 18mm. Sizes 20mm through 38mm use 2 grooves. Sizes 40mm and larger use 3 grooves.

G-417 / S-417 Closed Spelter Sockets

Rope Dia.		Structural Strand Dia. (mm)	Ultimate Load (t)	Stock No.		Weight Each (kg)	Dimensions (mm)									
(mm)	(in.)			G-417 Galv.	S-417 S.C.		A	B	C	D*	F	G	H	J	K	L
6-7	1/4	-	4.50	1039897	1039904	.23	116	12.7	39.6	22.4	9.65	17.5	39.6	57.2	12.7	46.0
8-10	5/16 - 3/8	-	12.0	1039913	1039922	.34	125	15.8	42.9	24.6	12.7	20.6	42.9	57.2	17.5	52.3
11-13	7/16 - 1/2	-	20.0	1039931	1039940	.68	140	17.5	51.0	29.5	14.2	23.9	51.0	63.5	22.4	58.7
14-16	9/16 - 5/8	12-13	30.8	1039959	1039968	1.13	162	20.6	67.0	35.8	17.5	30.2	67.0	76.2	25.4	65.0
18	3/4	14-16	43.5	1039977	1039986	1.92	194	26.9	76.2	42.2	22.4	33.3	70.0	89.0	31.8	77.7
20-22	7/8	18-19	65.3	1039995	1040000	3.28	226	33.3	92.0	49.3	25.4	38.1	82.5	102	38.1	90.5
24-26	1	20-22	81.6	1040019	1040028	4.76	254	36.6	105	58.5	28.7	44.5	95.5	114	44.5	103
28-30	1-1/8	24-26	100	1040037	1040046	6.46	283	39.6	114	65.0	31.8	51.0	105	127	51.0	116
32-35	1-1/4 - 1-3/8	28	136	1040055	1040064	8.95	309	41.4	127	71.0	38.1	58.5	119	138	56.5	129
38	1-1/2	30-32	170	1040073	1040082	13.24	355	49.3	137	81.0	41.4	70.5	132	151	62.5	155
† 40-42	† 1-5/8	33-35	188	1040091	1040108	16.32	390	54.0	146	82.5	44.5	76.2	140	165	70.0	171
† 44-48	† 1-3/4 - 1-7/8	36-40	268	1040117	1040126	25.96	445	55.5	171	95.5	51.0	79.5	162	191	76.2	198
† 50-54	† 2 - 2-1/8	42-45	309	1040135	1040144	35.83	505	62.0	194	111	57.2	95.5	187	216	82.5	224
† 56-60	† 2-1/4 - 2-3/8	46-48	360	1040153	1040162	47.62	546	70.0	216	127	66.8	105	210	229	92.0	248
† 64-67	† 2-1/2 - 2-5/8	50-54	424	1041759	1041768	63.50	597	79.5	241	140	74.5	114	235	248	102	270
† 70-73	† 2-3/4 - 2-7/8	56-62	549	1041777	1041786	99.79	645	79.5	273	159	79.5	124	259	279	124	286
† 75-80	† 3 - 3-1/8	64-67	656	1041795	1041802	125	689	85.6	292	171	86.0	133	292	305	133	298
† 82-86	† 3-1/4 - 3-3/8	70-73	750	1041811	1041820	142	743	102	311	184	92.0	146	311	330	146	311
† 88-92	† 3-1/2 - 3-5/8	76-80	820	1041839	1041848	181	787	102	330	197	98.5	160	330	356	159	330
† 94 - 102	† 3-3/4 - 4	-	1005	1041857	1041866	246	845	108	362	216	108	184	362	381	178	356

* Diameter of pin must not exceed pin used on companion 416 socket. Reference adjacent page "D" dimension. † Cast Alloy Steel.

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2.3 Crosby Swage Sockets



the **Crosby** group

Open Swage Sockets

Forged from special bar quality carbon steel, suitable for cold forming.

Hardness controlled by spheroidize annealing.

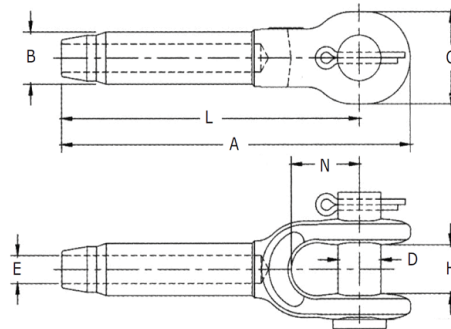
Swage Socket terminations have an efficiency rating of 100% based on the catalogue strength of wire rope.

Stamp for identification after swaging without concern for fractures.

Crosby swage sockets incorporate a reduced machined area of the shank, which is equivalent to the proper after swage dimension.

Before, swaging, this provides for an obvious visual difference in the shank diameter. After swaging, a uniform shank diameter is created allowing for a QUIC-CHECK® and permanent visual inspection opportunity. Designed to quickly determine whether the socket has been through the swaging operation and assist in field inspections, it does not eliminate the need to perform standard production inspections which include gauging for the proper after swage dimensions or proof load testing.

Crosby S-501 Swage Sockets are recommended for use on 6 x 19 - 6 x 41 IWRC 1770 or 1960 grade wire rope. Before using on any other construction or grade of rope the termination should be destruction tested to determine the adequacy of the assembly to be manufactured.



Product Specifications

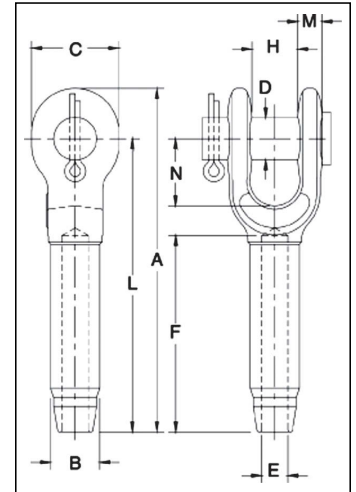
Name	ITEM #	Suits Wire Size (mm)	L (mm)	N (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	H (mm)	Weight (kg)
Swage Socket Crosby S-501 Open 7/16in (11mm)	18539	11	170	51	198	25	51	25	12	25	0.94
Swage Socket Crosby S-501 Open 1/2in (13mm)	14068	13	170	51	198	25	51	25	14	25	0.94
Swage Socket Crosby S-501 Open 5/8in (16mm)	17306	16	207	57	241	32	61	30	17	32	2.05
Swage Socket Crosby S-501 Open 3/4in (20mm)	12550	20	254	70	294	39	70	35	20	38	3.62
Swage Socket Crosby S-501 Open 7/8in (22mm)	17241	22	295	83	341	43	80	41	24	45	5.23
Swage Socket Crosby S-501 Open 1in (25mm)	12888	25	340	96	393	51	94	51	27	51	8.07
Swage Socket Crosby S-501 Open 1 1/8in (28mm)	11596	28	381	108	440	57	103	57	30	57	11.5
Swage Socket Crosby S-501 Open 1 1/4in (32mm)	16120	32	419	121	484	65	114	64	34	64	16.1
Swage Socket Crosby S-501 Open 1 3/8in (35mm)	15174	35	461	133	532	71	127	64	37	64	19.8
Swage Socket Crosby S-501 Open 1 1/2in (38mm)	10693	38	502	146	581	78	140	70	40	76	26.5

Open Swage Sockets



**S-501
Open Swage
Sockets**

- Forged from special bar quality carbon steel, suitable for cold forming.
- Swage Socket terminations have an efficiency rating of 100% based on the catalog strength of wire rope.
- Hardness controlled by spheroidize annealing.
- Stamp for identification after swaging without concern for fractures (as per directions in Wire Rope End Terminations User's Manual).
- Swage sockets incorporate a reduced machined area of the shank which is equivalent to the proper "After Swage" dimension. Before swaging, this provides for an obvious visual difference in the shank diameter. After swaging, a uniform shank diameter is created allowing for a QUIC-CHECK® and permanent visual inspection opportunity.
- Designed to quickly determine whether the socket has been through the swaging operation and assist in field inspections, it does not eliminate the need to perform standard production inspections which include gauging for the proper "After Swage" dimensions or proof loading.



NOTE: S-501 Swage Sockets are recommended for use with 6 x 19 or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC or IWRC wire rope. Before using any National Swage fitting with any other type lay, construction or grade of wire rope, it is recommended that the termination be destructive tested and documented to prove the adequacy of the assembly to be manufactured. In accordance with ASME B30.9, all slings terminated with swage sockets shall be proof loaded.*



S-501 Open Swage Sockets

S-501 and S-501B Open Socket Specifications																	Swager / Die Data					
S-501 Stock No.	S-501B Stock No. †	Rope Size		Wt. Each (kg)	Ultimate Load** (t)	Before Swage Dimensions (mm)										Tolerance +/-	Max. After Swage Dim. (mm)	Die Description	Stock No.		Side Load	
		(mm)	(in.)			A	B	C	D	E	F	H	L	M	N				H	500 1000 1500 Ton 5 x 7	1500 3000 Ton 6 x 12	1500 Ton 6 x 12
1039021	1054001	6	1/4	0.24	5.4	122	12.7	35.1	17.5	6.85	54.0	17.5	102	9.65	38.1	1.52	11.7	1/4 Socket	1192845	-	-	-
1039049	1054010	8	5/16	0.51	11.8	159	19.6	41.1	20.6	8.65	81.0	20.6	135	11.9	44.5	1.52	18.0	5/16-3/8 Socket	1192863	-	-	-
1039067	1054029	9-10	3/8	0.59	13.6	159	19.6	41.1	20.6	10.4	81.0	20.6	135	11.9	44.5	1.52	18.0	5/16-3/8 Socket	1192863	-	-	-
1039085	1054038	11-12	7/16	0.94	18.1	198	24.9	51.0	25.4	12.2	108	25.4	170	14.2	51.0	1.52	23.1	7/16-1/2 Socket	1192881	-	-	-
1039101	1054047	13	1/2	0.94	21.3	198	24.9	51.0	25.4	14.0	108	25.4	170	14.2	51.0	1.52	23.1	7/16-1/2 Socket	1192881	-	-	-
1039129	1054056	14	9/16	2.12	31.8	241	31.8	60.5	30.2	15.5	135	31.8	207	17.3	57.0	1.52	29.5	9/16-5/8 Socket	1192907	-	-	-
1039147	1054065	16	5/8	2.05	34.9	241	31.8	60.5	30.2	17.0	135	31.8	207	17.3	57.0	1.52	29.5	9/16-5/8 Socket	1192907	-	-	-
1039165	1054074	18-20	3/4	3.62	43.5	294	39.4	70.0	35.1	20.3	162	38.1	254	20.3	70.0	1.52	36.1	3/4 Socket	1192925	-	-	-
1039183	1054083	22	7/8	5.23	51.5	341	43.2	79.5	41.1	23.9	189	44.5	295	23.9	82.5	1.78	39.4	7/8 Socket	1192943	-	-	-
1039209	1054092	24-26	1	8.07	71.4	393	50.5	93.5	51.0	26.9	216	51.0	340	26.9	95.5	2.03	45.7	1 Socket	1192961	-	-	-
1039227	1054104	28	1-1/8	11.5	83.3	440	57.0	105	57.0	30.2	245	57.0	381	30.2	108	2.54	52.0	1-1/8 Socket	1192989	-	-	-
1039245	1054113	32	1-1/4	16.1	109	484	64.5	117	63.5	33.8	272	63.5	419	31.0	119	2.54	58.5	1-1/4 Socket	1193005	-	-	-
1039263	1054122	34-36	1-3/8	19.8	136	532	71.0	127	63.5	36.8	297	63.5	461	35.1	133	2.07	65.0	1-3/8 Socket	1193023	-	-	-
1039281	1054131	38-40	1-1/2	26.5	181	589	78.0	140	70.0	40.1	325	76.0	502	43.2	145	2.54	71.5	1-1/2 Socket	1193041	1191267	1195355	1195192
1039307	1054140	44	1-3/4	40.3	228	676	86.0	170	89.0	47.2	378	89.0	584	53.6	171	2.54	77.5	1-3/4 Socket	1193069	1191276	1195367	1195209
1042767	1054159	48-52	2	66	272	799	100	203	95.5	53.5	432	102	683	60.0	203	2.54	90.5	2 Socket	1193087	1191294	1195379	1195218

*Maximum Proof Load shall not exceed 50% of XXIP rope catalog breaking strength. ** The Ultimate Loads of 18 mm through 32 mm sizes have been increased to meet the requirements for 8 strand 2160 Grade pendants. † Assembly with bolt, nut and cotter pin.

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the **Crosby** group

Closed Swage Sockets

Forged from special bar quality carbon steel, suitable for cold forming.

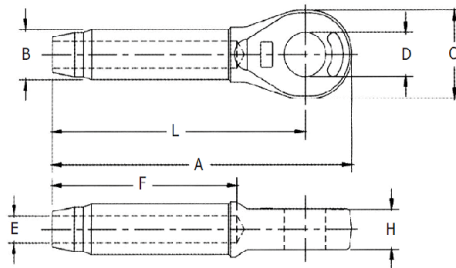
Hardness controlled by spheroidize annealing.

Swage Socket terminations have an efficiency rating of 100% based on the catalogue strength of wire rope.

Stamp for identification after swaging without concern for fractures.

Crosby swage sockets incorporate a reduced machined area of the shank, which is equivalent to the proper after swage dimension. Before, swaging, this provides for an obvious visual difference in the shank diameter. After swaging, a uniform shank diameter is created allowing for a QUIC-CHECK® and permanent visual inspection opportunity. Designed to quickly determine whether the socket has been through the swaging operation and assist in field inspections, it does not eliminate the need to perform standard production inspections which include gauging for the proper after swage dimensions or proof load testing.

Crosby S-501 Swage Sockets are recommended for use on 6 x 19 - 6 x 41 IWRC 1770 or 1960 grade wire rope. Before using on any other construction or grade of rope the termination should be destruction tested to determine the adequacy of the assembly to be manufactured.



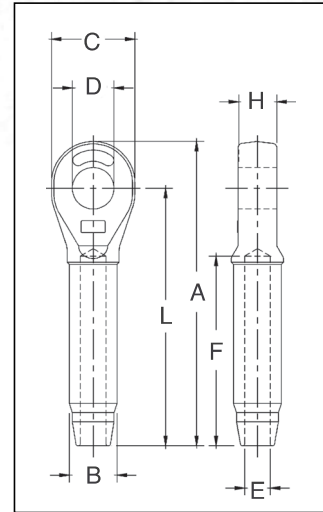
Product Specifications

Name	ITEM #	Suits Wire Size (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	H (mm)	Weight (kg)
Swage Socket Crosby S-502 Closed 9/16in (14mm)	14167	14	184	220	32	61	32	16	135	29	1.32
Swage Socket Crosby S-502 Closed 5/8in (16mm)	13766	16	184	220	32	61	32	20	135	29	1.29
Swage Socket Crosby S-502 Closed 3/4in (20mm)	11681	20	219	261	39	73	37	20	162	33	2.27
Swage Socket Crosby S-502 Closed 7/8in (22mm)	11455	22	257	303	43	79	43	24	189	38	3.08
Swage Socket Crosby S-502 Closed 1in (25mm)	17499	25	292	344	51	92	53	27	216	45	4.72
Swage Socket Crosby S-502 Closed 1 1/8in (28mm)	11781	28	324	382	57	102	59	30	243	51	6.72
Swage Socket Crosby S-502 Closed 1 1/4in (32mm)	14687	32	365	430	65	114	65	34	270	57	9.78
Swage Socket Crosby S-502 Closed 1 3/8in (35mm)	14942	35	400	473	71	127	65	37	297	57	12.9
Swage Socket Crosby S-502 Closed 1 1/2in (38mm)	11686	38	432	511	78	140	72	40	324	64	17.3
Swage Socket Crosby S-502 Closed 1 3/4in (44mm)	11637	44	508	598	86	159	91	47	378	76	23.1



S-502
Closed Swage
Sockets

- Forged from special bar quality carbon steel, suitable for cold forming.
- Swage Socket terminations have an efficiency rating of 100% based on the catalog strength of wire rope.
- Hardness controlled by spheroidize annealing.
- Stamp for identification after swaging without concern for fractures (as per directions in Wire Rope End Terminations User's Manual).
- Swage sockets incorporate a reduced machined area of the shank which is equivalent to the proper "After Swage" dimension. Before swaging, this provides for an obvious visual difference in the shank diameter. After swaging, a uniform shank diameter is created allowing for a **QUIC-CHECK®** and permanent visual inspection opportunity.
- Designed to quickly determine whether the socket has been through the swaging operation and assist in field inspections, it does not eliminate the need to perform standard production inspections which include gauging for the proper "After Swage" dimensions or proof loading.



NOTE: S-502 Swage Sockets are recommended for use with 6 x 19 or 6 x 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC or IWRC wire rope. Before using any National Swage fitting with any other type lay, construction or grade of wire rope, it is recommended that the termination be destructive tested and documented to prove the adequacy of the assembly to be manufactured. In accordance with ASME B30.9, all slings terminated with swage sockets shall be proof loaded.*



S-502 Closed Swage Sockets

S-502 Closed Socket Specifications													Swager / Die Data					
S-502 Stock No.	Rope Size		Wt. Each (kg)	Ultimate Load** (t)	Before Swage Dimensions (mm)								Max. After Swage Dim. (mm)	Die Description	Stock No.		Side Load	
	(mm)	(in.)			A	B	C	D	E	F	H	L			500 1000 1500 Ton 5 x 7	1500 3000 Ton 6 x 12	1500 Ton 6 x 12	3000 Ton 6 x 12
	1039325	6			1/4	.15	5.4	109	12.7	35.1	19.1	6.85			54.0	12.7	89.0	11.7
1039343	8	5/16	.34	11.8	138	19.6	41.1	22.4	8.65	81.0	17.0	114	18.0	5/16-3/8 Socket	1192863	-	-	-
1039361	9-10	3/8	.33	13.6	138	19.6	41.1	22.4	10.4	81.0	17.0	114	18.0	5/16-3/8 Socket	1192863	-	-	-
1039389	11-12	7/16	.64	18.1	176	24.9	51.0	26.9	12.2	108	21.8	146	23.1	7/16-1/2 Socket	1192881	-	-	-
1039405	13	1/2	.64	21.3	176	24.9	51.0	26.9	14.0	108	21.8	146	23.1	7/16-1/2 Socket	1192881	-	-	-
1039423	14	9/16	1.32	31.8	220	31.8	60.5	31.8	15.5	135	28.7	184	29.5	9/16-5/8 Socket	1192907	-	-	-
1039441	16	5/8	1.29	34.9	220	31.8	60.5	32.5	17.0	135	28.7	184	29.5	9/16-5/8 Socket	1192907	-	-	-
1039469	18-20	3/4	2.27	43.5	261	39.4	73.0	36.6	20.3	162	33.3	219	36.1	3/4 Socket	1192925	-	-	-
1039487	22	7/8	3.08	51.5	303	43.2	79.0	42.9	23.9	189	38.1	257	39.4	7/8 Socket	1192943	-	-	-
1039502	24-26	1	4.72	71.4	344	50.5	92.0	52.5	26.9	216	44.5	292	45.7	1 Socket	1192961	-	-	-
1039520	28	1-1/8	6.72	83.3	382	57.0	102	58.5	30.2	243	51.0	324	52.0	1-1/8 Socket	1192989	-	-	-
1039548	32	1-1/4	9.78	109	430	64.5	114	65.0	33.8	270	57.0	365	58.5	1-1/4 Socket	1193005	-	-	-
1039566	34-36	1-3/8	12.9	136	473	71.0	127	65.0	36.8	297	57.0	400	65.0	1-3/8 Socket	1193023	-	-	-
1039584	38-40	1-1/2	17.3	181	511	78.0	137	71.5	40.1	325	65.0	432	71.5	1-1/2 Socket	1193041	1191267	1195355	1195192
1039600	44	1-3/4	23.1	228	598	86.0	159	90.5	47.2	378	76.0	508	77.5	1-3/4 Socket	1193069	1191276	1195367	1195209
1042589	48-52	2	40.5	272	702	100	184	96.5	53.5	432	82.5	584	90.5	2 Socket	1193087	1191294	1195379	1195218

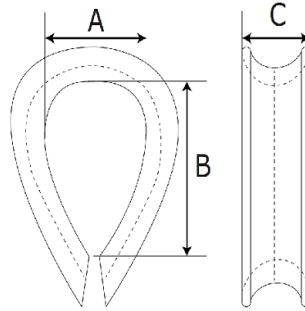
* Maximum Proof Load shall not exceed 50% of XXIP rope catalog breaking strength. **The Ultimate Loads of 18 mm through 32 mm sizes have been increased to meet the requirements for 8 strand 2160 Grade pendants.

2.4 Thimbles



AS Thimbles

Nobles ordinary thimbles are supplied generally to AS 1138, are from mild steel and are hot dip galvanised.



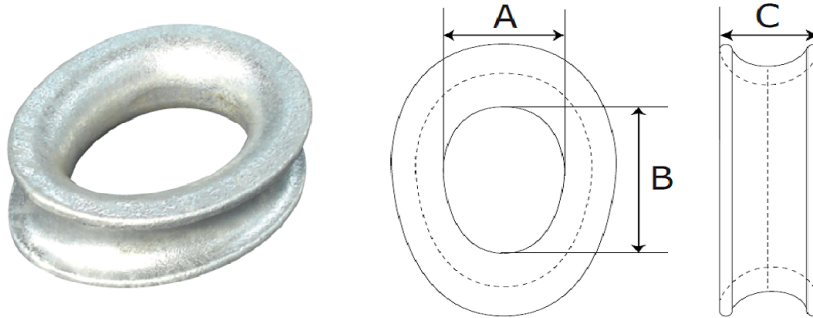
Product Specifications

Name	ITEM #	Suits Wire Size (mm)	A (mm)	B (mm)	C (mm)	Weight (kg)
Heart Thimble AS 8mm	12633	8	22	34	12.5	0.052
Heart Thimble AS 10mm	17898	10	26	38	14.3	0.098
Heart Thimble AS 13mm	17292	13	31	45	19	0.148
Heart Thimble AS 16mm	17710	16	41	62	22	0.25
Heart Thimble AS 18-20mm	16728	20	50	75	28	0.55
Heart Thimble AS 22mm	12169	22	55	88	30	0.93
Heart Thimble AS 24mm	10872	24	70	108	35	1.2
Heart Thimble AS 28mm	18898	28	75	112	38	1.5
Heart Thimble AS 32mm	13125	32	95	133	41	1.61
Heart Thimble AS 36mm	14600	36	105	152	48	3.63
Heart Thimble AS 44mm	15507	44	126	180	60	6.08
Heart Thimble AS 48mm	14511	48	130	190	67	9.6
Heart Thimble AS 52mm	17055	52	140	240	70	14



Heavy Duty Thimbles

Nobles manufacture a range of Heavy Duty Galvanised Thimbles. They are forged in our factory from carbon steel and are suited to high cycle, high load applications such as crane ropes.



Product Specifications

Name	ITEM #	Suits Wire Size (mm)	A (mm)	B (mm)	C (mm)	Weight (kg)
22MM A.S. GALV H/DUTY THIMBLE;	27551	22	58	98	33	0.81
26MM A.S. GALV H/DUTY THIMBLE;	27553	26	68	102	37	1.42
28MM H/DUTY THIMBLE-DRG SD2;A.S. GALV.	27525	28	71	106	43	1.81
Thimble Heavy Duty Heart Shaped 32mm Galvanised Drawing #SD1	27218	32	73	125	49	4.02

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Solid Heart Thimbles

Manufactured in Australia in accordance with AS1138

Cast Steel

Available for rope sizes 8mm - 75mm

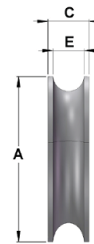
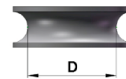
Holes Drilled to order

Surface finish options include:

Black self colour

Galvanized

Painted



Product Specifications

Name	ITEM #	Suits Wire Size (mm)	A_mm	B_mm	C_mm	D_mm	E_mm	Weight_kg
Thimble AS Solid 8mm	17869	8	48	36	13	27	8	0.2
Thimble AS Solid 10mm	16171	10	58	45	16	33	10	0.4
Thimble AS Solid 13mm	14845	13	84	60	23	39	14	0.6
Thimble AS Solid 16mm	16617	16	96	71	27	52	17	0.7
Thimble AS Solid 20mm	10351	20	117	84	29	63	22	1
Thimble AS Solid 22mm	15288	22	130	95	34	69	24	1.5
Thimble AS Solid 24mm	18874	24	140	105	36	76	26	1.8
Thimble AS Solid 26mm	14477	26	155	115	40	82	27	2.5
Thimble AS Solid 28mm	15620	28	170	125	44	90	30	3
Thimble AS Solid 32mm	17516	32	192	140	46	100	33	5
Thimble AS Solid 36mm	17297	36	205	150	50	110	37	6.7
Thimble AS Solid 38mm	11728	38	235	175	62	130	41	10

Thimble AS Solid 42mm	10689	42	235	170	56	125	44	11.4
Thimble AS Solid 44mm	17762	44	260	198	64	135	47	11.4
Thimble AS Solid 48mm	10825	48	275	200	66	148	51	12
Thimble AS Solid 52mm	12576	52	300	225	72	163	55	20

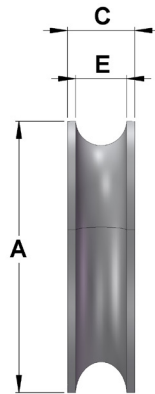
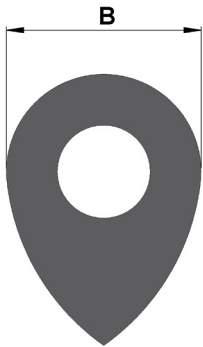
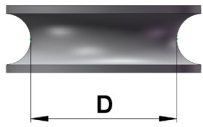
Uncontrolled version printed 08-Mar-2018 .See www.nobles.com.au for latest up-to-date product information.



Solid Heart Thimbles



- Manufactured in Australia in accordance with AS1138
- Cast Steel
- Available for rope sizes 8mm to 75mm
- Holes drilled on request



Surface finish options include:

- Black self colour
- Galvanized
- Painted

Rope Diameter	A	B	C	D	E	Weight (kg)	Product code
8	48	36	13	27	8	0.2	FDT-SHT08
10	58	45	16	33	10	0.4	FDT-SHT10
11	71	52	20	39	11	0.5	FDT-SHT11
13	84	60	23	47	14	0.6	FDT-SHT13
14 to 16	96	71	27	52	17	0.7	FDT-SHT14-16
18 to 20	117	84	29	63	22	1.0	FDT-SHT18-20
22	130	95	34	69	24	1.5	FDT-SHT22
24	140	105	36	76	26	1.8	FDT-SHT24
26	155	115	40	82	27	2.5	FDT-SHT26
28	170	125	44	90	30	3.0	FDT-SHT28
32	192	140	46	100	33	5.0	FDT-SHT32
36	205	150	50	110	37	6.7	FDT-SHT36
38	235	175	62	130	41	10	FDT-SHT38



Solid Heart Thimbles



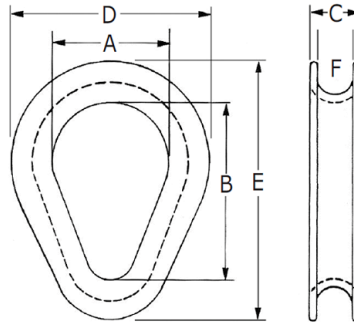
Rope Diameter	A	B	C	D	E	Weight (kg)	Product code
38 to 42	235	170	56	125	44	11.4	FDT-SHT38-42
44	260	198	64	135	47	11.4	FDT-SHT44
48	275	200	66	148	51	12	FDT-SHT48
52 to 54	300	225	72	163	55	20	FDT-SHT52-54
58	330	245	82	174	61	28	FDT-SHT58
64	375	275	92	200	67	44	FDT-SHT64
70 to 75	405	310	105	223	77	52	FDT-SHT70-75

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Hawser Thimbles

Nobles Cast Hawser Thimbles are an ideal solution for big-lift slings and heavy rigging required in the construction, mining and offshore industries.



Product Specifications

Name	ITEM #	Suits Wire Size (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Weight (kg)
40-45mm Hawser Thimble	26704	45	120	185	62	202	270	48	10.2
48-52mm Hawser Thimble	26673	52	152	241	68	273	370	54	14.5
54-58mm Hawser Thimble	26686	58	180	300	82	318	435	63	24
60-64mm Hawser Thimble	26707	64	200	350	95	350	500	75	43.1
Thimble Cast Hawser 75mm	26934	75	214	419	100	410	510	80	65

2.5 Nobles Swage Sockets



Nobles Swage Sockets

Nobles can manufacture custom Threaded Swage Fittings for wire ropes.

Threaded swage fittings should be specified as follows:

Thread size and series

Wrench grips

Locking holes

Surface finish

Thread length

Capacity suitability for the wire rope to be used



2.6 Wire Rope Grips



Wire Rope Grips

When properly applied, wire rope grips afford a simple mechanical means of securing the end of a wire rope. They are appropriate for temporarily securing the end of a wire rope that may need to be shortened from the gripped end.

Inspection

A termination made with wire rope grips is to be inspected at regular intervals. The nuts may require further adjustment.

Live Running Ropes

Wire rope grips shall not be used for making terminations on live running ropes (i.e. One that applies force to a moving object) nor where the rope is required to support persons or dangerous or substantial loads.

Rope Lengthening

Wire rope grips should not be used where there is a likelihood of the rope having to be lengthened at that end. Lengthening would bring at least part of the rope on which the grip had been fastened into a position now subject to full load. The danger is that this part of the rope may have been damaged by the effects of fatigue or by pressure exerted by the grip.

Method of Application

The efficiency of a wire rope termination made with wire rope grips depends on the number per connection, the correct placement on the rope, and the care and skill in the fitting and tightening of the grips.

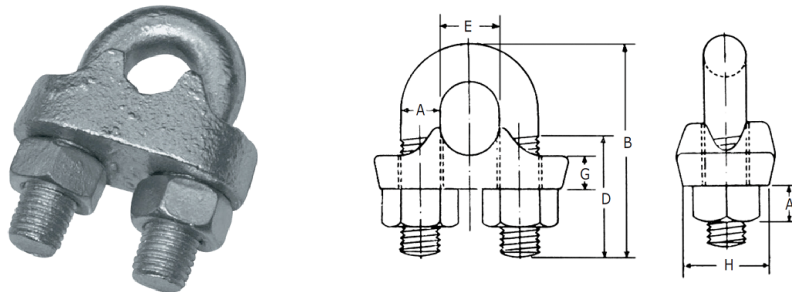
The number of wire rope grips per connection should not be less than the minimum specified in the table.

The grips in a connection should be spaced along the wire rope at distances between adjacent grips of approximately six rope diameters.

WARNING:

Wire rope grips shall not be used for lifting purposes and are not intended for the permanent fastening of a rope that is subject to high dynamic loading

Where wire rope grips are fitted to wire ropes that are higher than 1770 grade tensile, the wire rope assembly may need to be derated or additional grips may be required



Product Specifications

Name	ITEM #	Size (mm)	A (mm)	B (mm)	D (mm)	E (mm)	G (mm)	H (mm)	Weight (kg)
Wire Rope Grip Australian Standard 8mm	15623	8	8	41	22	9	8	19	0.13
Wire Rope Grip Australian Standard 10mm	18600	10	10	49	27	10	10	23	0.19
Wire Rope Grip Australian Standard 14mm	11723	13	12	59	32	12	12	28	0.34
Wire Rope Grip Australian Standard 16mm	11548	16	14	77	41	17	14	32	0.45
Wire Rope Grip Australian Standard 20mm	13687	20	16	89	47	20	16	37	0.68
Wire Rope Grip Australian Standard 22mm	13828	22	20	108	58	23	20	46	1.08
Wire Rope Grip Australian Standard 26mm	17651	26	20	117	61	28	20	46	1.13
Wire Rope Grip Australian Standard 28mm	10770	28	22	127	66	30	22	51	1.4
Wire Rope Grip Australian Standard 32mm	15076	32	22	136	70	34	22	51	2.07



General Information

WIRE ROPE GRIPS - Not to be used for lifting

TO AS 2076

When properly applied, wire rope grips afford a simple mechanical means of securing the end of a wire rope. They are appropriate for temporarily securing the end of a wire rope that may need to be shortened from the gripped end.

Inspection: A termination made with wire rope grips is to be inspected at regular intervals. The nuts may require further adjustment.

Live Running Ropes: Wire rope grips shall not be used for making terminations on live running ropes (i.e. One that applies force to a moving object) nor where the rope is required to support persons or dangerous or substantial loads.

Rope Lengthening: Wire rope grips should not be used where there is a likelihood of the rope having to be lengthened at that end. Lengthening would bring at least part of the rope on which the grip had been fastened into a position now subject to full load. The danger is that this part of the rope may have been damaged by the effects of fatigue or by pressure exerted by the grip.

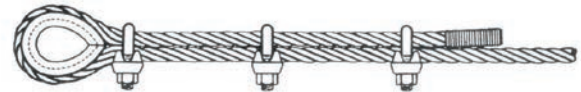
Method of Application: The efficiency of a wire rope termination made with wire rope grips depends on the number per connection, the correct placement on the rope, and the care and skill in the fitting and tightening of the grips.

The number of wire rope grips per connection should not be less than the minimum specified in the table.

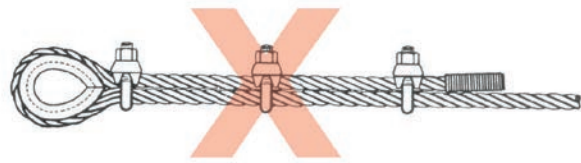


The grips in a connection should be spaced along the wire rope at distances between adjacent grips of approximately six rope diameters, with the position of the grip nearest the end connection as shown.

The sequence of tightening an assembly of wire rope grips on a wire rope connection after they have been correctly positioned is from the thimble outwards.



Correct method of fitting wire rope grips



Incorrect method of fitting wire rope grips

The tightening torque applied to the nuts should always comply with any recommendations provided by the manufacturer; however, where recommendations are not provided by the manufacturer, the tightening torque applied to the nuts should comply with recommendations given in the table.

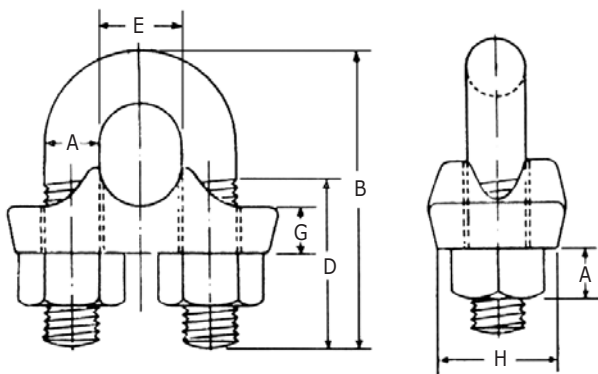
Tightening Torque for Wire Rope Grips

Wire Rope Grip Size (mm)	Size of Bolt Thread (mm)	Min. Tightening Torque (Nm)	Recommended No. of Grips
8	8	6	3
10	10	16	3
12	12	24	3
14	12	35	4
16	16	50	4
18	16	65	4
22	16	100	4
26	20	135	5
28	20	160	5
32	20	210	6



WARNING

- Wire rope grips should not be used for lifting purposes and are not intended for the permanent fastening of a rope that is subject to high dynamic loading.
- Where wire rope grips are fitted to rope constructed of higher grade wire than 1770 MPa IWRC, the assembly may need to be derated or additional grips may be required.



Typical Dimensions of Wire Rope Grips

Item#	Nominal Size (mm)	Thread Size A (mm)	B (mm)	D (mm)	E (mm)	G (mm)	H (mm)
15623	8	M8	41	22	9	8	19
18600	10	M10	49	27	10	10	23
11723	13	M12	59	32	12	12	28
11548	16	M14	77	41	17	14	32
13687	20	M16	89	47	20	16	37
13828	22	M20	108	58	23	20	46
17651	26	M20	117	61	28	20	46
10770	28	M22	127	66	30	22	51
15076	32	M22	136	70	34	22	51