



RIGGING ACCESSORIES

With Product Warnings and Application Information



Crosby

"There is No Equal"

The Market Leader: Yesterday Today and Tomorrow



Rigging Accessories

DESIGN

The theoretical reserve capability of turnbuckles should be five times the Working Load Limit (FF-T-791). Known as the DESIGN FACTOR, it is usually computed by dividing the catalog ultimate load by the Working Load Limit. The ultimate load is the average load or force at which the product fails or no longer supports the load. The Working Load Limit is the maximum mass or force which the product is authorized to support in general service. The design factor is generally expressed as a ratio, such as 5 to 1.

THE COMPETITION

Ask: *What is the design factor?*

Most competitors do not provide turnbuckle assemblies that exceed Crosby's Working Load Limits with a design factor of 5 to 1.

Crosby

All turnbuckles are designed with a design factor of at least 5 to 1. Crosby turnbuckles have the highest Working Load Limits in the industry. Crosby working load limits and design factors are based on extensive testing.

HEAT TREATMENT

Heat treatment assures the uniformity of performance and maximizes the properties of the steel. This assures that each turnbuckle will meet its rated strength. The requirements of your job demand this reliability and consistency. All turnbuckle bodies should be normalized and end fittings should be normalized or quenched and tempered in order to assure uniformity. These heat treat processes develop a tough material that reduces the risk of a brittle, catastrophic failure, and assures the performance of the turnbuckle assembly.

THE COMPETITION

Ask: *Do they utilize the combination of heat treatment that assures the performance of the turnbuckle assembly?*

Most normalize both the turnbuckle body and end fittings. Some provide turnbuckles in an "as forged" condition.

Crosby

All turnbuckles are heat treated. Bodies are normalized, and end fittings are quenched and tempered or normalized. These heat treat processes provide a turnbuckle assembly that has superior impact and fatigue qualities and assures performance.



GALVANIZE AND THREAD FORM

Galvanizing provides the best resistance to corrosion. Turnbuckle ends are the most highly stressed part of the assembly. This stress is at its peak at the root of the threaded shank. The turnbuckle ends should be threaded with a modified thread that minimizes the stress at the root of the thread.

THE COMPETITION

Ask: *Do they use the modified UNJ thread*

Most galvanize their turnbuckles but do not utilize the modified thread.

Crosby

All turnbuckles are available galvanized. Turnbuckle ends are threaded with a modified UNJ thread. This thread form, in conjunction with quench and tempering, gives Crosby turnbuckles their superior impact and fatigue performance.

FULL LINE AND IDENTIFICATION

The proper application of turnbuckles requires that the correct type and size of turnbuckle be used. The turnbuckle size, the manufacturer's logo, and a product identification code should be clearly and boldly marked in the end fittings as well as in the turnbuckle body. Traceability of the material chemistry is essential for total confidence in the manufacturer of the product. Availability over the full range of sizes of hook, eye, and jaw type turnbuckle assemblies is essential for flexibility in the design of a total system

THE COMPETITION

Ask: *Do they have a traceability system?*

Ask: *Is the full range of type and size turnbuckles offered?*

Most competitors do not have the full line that Crosby produces, or a traceability system.

Crosby

Crosby forges its logo, sizes, and the Product Identification Code (PIC) into each component of its full line of hook, jaw, and eye type turnbuckles.

Remember: "When buying Crosby, you're buying more than product, you're buying Quality."

- **Charpy Impact Properties:** Crosby's quenched, tempered and normalized end fittings and normalized bodies have enhanced impact properties for greater toughness at all temperatures. If requested at the time of order, Crosby can provide Charpy impact properties.
- **Fatigue Properties:** Typical fatigue properties are available for selected sizes. Crosby turnbuckles are designed with quenched, tempered or normalized end fittings and modified UNJ threads for improved fatigue properties.
- **Typical Hardness Levels, Tensile Strengths and Ductility Properties:** These properties are available for all sizes.
- **Inspection:** If requested at the time of order, turnbuckles can be furnished proof tested or magnaflux inspected with certificates.
- **Full Line:** Turnbuckle assembly combinations include: Eye and Eye, Hook and Hook, Hook and Eye, Jaw and Jaw, Jaw and Eye.
- **Hot Dip Galvanize:** Turnbuckle components have a high quality "hot dip" galvanize finish. Self colored turnbuckle bodies are available upon request.
- **Jaw Ends:** Jaw ends are fitted with bolts and nuts (7mm through 16mm), or pins and cotters (19mm through 70mm).
- **Turnbuckle Eyes:** Eyes are elongated by design, maximizing easy attachment in system and minimizing stress in the eye. For turnbuckle sizes 7mm through 63.5, shackles one size smaller can be reeved through the eye.
- **Turnbuckle Hooks:** Crosby forges its turnbuckle hooks with a greater cross sectional area that results in a stronger hook with better fatigue properties.
- **Material Analysis:** Crosby can provide certified material (mill) analysis for each production lot, traceable by the Product Identification Code (PIC). Crosby, through its own laboratory, verifies the analysis of each heat of steel. Crosby purchases only special bar forging quality steel with specific cleanliness requirements and guaranteed hardenability.

HG-223

HOOK & HOOK

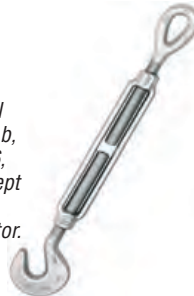
Meets the performance requirements of Federal Specifications FF-791b, Type 1, Form 1, Class 5, and ASTM F-1145, except for those provisions required of the contractor.



HG-225

HOOK & EYE

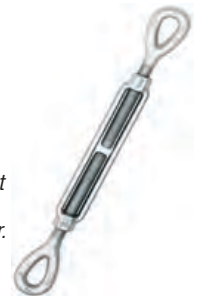
Meets the performance requirements of Federal Specifications FF-791b, Type 1, Form 1, Class 6, and ASTM F-1145, except for those provisions required of the contractor.



HG-226

EYE & EYE

Meets the performance requirements of Federal Specifications FF-791b, Type 1, Form 1, Class 4, and ASTM F-1145, except for those provisions required of the contractor.



HG-227

JAW & EYE

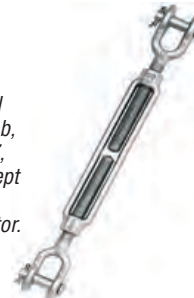
Meets the performance requirements of Federal Specifications FF-791b, Type 1, Form 1, Class 8, and ASTM F-1145, except for those provisions required of the contractor.



HG-228

JAW & JAW

Meets the performance requirements of Federal Specifications FF-791b, Type 1, Form 1, Class 7, and ASTM F-1145, except for those provisions required of the contractor.



HG-251

STUB END

Meets the performance requirements of Federal Specifications FF-791b, Type 1, Form 1, Class 3, and ASTM F-1145, except for those provisions required of the contractor.

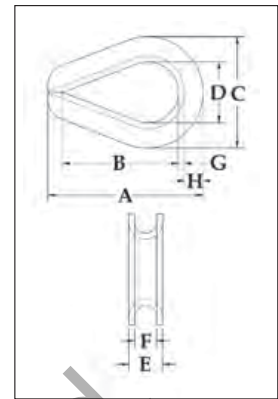




G-414

G-414 meets the performance requirements of Federal Specification FF-T-276b Type III, except for those provisions required of the contractor. For additional information, see page 444.

- Available in Hot Dip galvanized or Stainless Steel (Type 304).
- Stainless steel recommended for more corrosive environments where greater protection is required.
- Greater protection against wear and deformation of the wire rope eye.
- Longer service life.
- Meets the performance requirements of EN13411-1:2002.



Extra heavy Wire Rope Thimbles

Rope Dia.		Stock No.		Weight Per 100 (kg)	Dimensions (mm)							
(mm)	(in)	G-414 Galv.	SS-414 Stainless		A	B	C	D	E	F	G	H
6-7	1/4	1037639	1037960	2.95	55.5	41.4	38.1	22.4	11.2	7.10	1.50	5.85
* 8	5/16	1037657	1037988	5.35	63.5	47.8	46.0	26.9	14.0	8.65	2.05	7.10
* 9-10	3/8	1037675	1038004	9.80	73.0	54.0	54.0	28.7	16.8	10.4	2.80	8.65
11-12	7/16	1037693	-	15.7	82.5	60.5	60.5	31.8	18.8	11.9	3.30	9.65
* 13-15	1/2 - 9/16	1037719	1038022	23.1	92.0	70.0	70.0	38.1	23.4	13.5	3.55	10.4
* 16	5/8	1037755	1038040	34.3	108	82.5	79.5	44.5	26.2	16.8	4.05	12.7
* 18-20	3/4	1037773	1038068	72	127	95.5	96.5	51.0	33.0	19.8	5.60	16.8
22	7/8	1037791	-	81	140	108	108	57.0	37.3	23.9	5.60	19.1
24-26	1	1037817	-	142	156	114	125	63.5	44.5	26.9	6.35	22.4
28-32	1-1/8 - 1-1/4	1037835	-	181	178	130	149	73.0	47.8	33.3	6.35	28.7
32-35	1-1/4 - 1-3/8	1037853	-	402	230	165	173	89.0	57.2	36.6	9.65	28.7
35-38	1-3/8 - 1-1/2	1037871	-	587	229	159	181	89.0	66.5	39.6	12.7	28.7
40	1-5/8	1037899	-	771	286	203	207	102	76.2	43.7	12.7	35.1
44	1-3/4	1037915	-	805	310	229	216	114	77.7	46.7	12.7	33.3
48-52	1-7/8 - 2	1037933	-	1259	384	305	264	152	85.9	53.0	12.7	38.1
56	2-1/4	1037951	-	1792	435	356	302	178	98.6	60.5	16.0	41.4

*SS-414 sizes available in stainless steel type 304

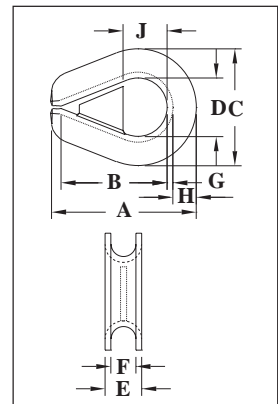


G-414 SL

G-414 SL meets the performance requirements of Federal Specification FF-T-276b Type III, except for those provisions required of the contractor. For additional information, see page 452.

- Prevents the shackle from being removed and replaced in the field, which could compromise the certified integrity of the sling assembly.
- Available in Hot Dip galvanized. Crosby's shackle locking thimbles are galvanized after the welding of the wedge has been completed.
- Greater protection against wear and deformation of the wire rope eye.
- Longer service life.
- Meets the performance requirements of EN13411-1:2002

Scan our QR code with your smart device to visit the online flyer.



Extra Heavy Wire Rope Thimbles (Shackle-Loc)

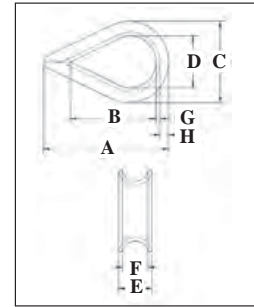
Rope Dia.		Stock No.		Weight Per 100 (kg)	Dimensions (mm)								
(mm)	(in)	G-414 Galv.			A	B	C	D	E	F	G	H	J
* 9-10	3/8	1036800		9.80	73.0	54.0	54.0	28.7	16.8	10.4	2.80	8.65	20.5
* 13-15	1/2 - 9/16	1036808		23.1	92.0	70.0	70.0	38.1	23.4	13.5	3.55	10.4	28.4
* 16	5/8	1036817		34.3	108	82.5	79.5	44.5	26.2	16.8	4.05	12.7	31.7
* 18-20	3/4	1036826		72	127	95.5	96.5	51.0	33.0	19.8	5.60	16.8	38.1
22	7/8	1036835		81	140	108	108	57.0	37.3	23.9	5.60	19.1	41.4
24-26	1	1036844		142	156	114	125	63.5	44.5	26.9	6.35	22.4	47.7
28-32	1-1/8 - 1-1/4	1036853		181	178	130	149	73.0	47.8	33.3	6.35	28.7	54.1
35-38	1-3/8 - 1-1/2	1036862		587	229	159	181	89.0	66.5	39.6	12.7	28.7	63.5

Wire Rope Thimbles



G-411

- Hot Dip galvanized steel.
- The standard choice for light duty applications and loading conditions.
- Meets the performance requirements of EN13411-1:2002.



Standard Wire Rope Thimbles

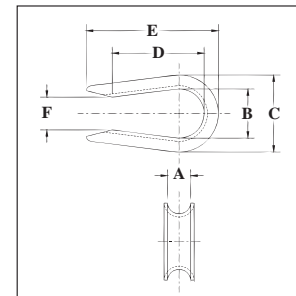
Rope Dia.		G-411 Stock No	Weight Per 100 (kg)	Dimensions (mm)							
(mm)	(in)			A	B	C	D	E	F	G	H
3-4	1/8	1037256	1.59	49.3	33.3	26.9	17.5	6.35	4.05	1.25	3.30
5	3/16	1037274	1.59	49.3	33.3	26.9	17.5	7.85	5.60	1.25	3.30
6-7	1/4	1037292	1.59	49.3	33.3	26.9	17.5	9.65	7.10	1.25	3.30
8	5/16	1037318	1.81	54.0	38.1	31.8	20.6	11.2	8.65	1.25	3.30
9-10	3/8	1037336	3.04	60.5	41.4	37.3	23.9	13.5	10.4	1.50	4.06
11-13	1/2	1037354	5.67	70.0	47.8	44.5	28.7	17.5	13.5	2.05	4.83
16	5/8	1037372	15.7	89.0	57.0	60.5	35.1	23.1	16.8	3.30	8.64
18-20	3/4	1037390	21.4	95.5	63.5	68.5	41.4	27.4	19.8	3.55	8.64
22	7/8	1037416	38.4	127	89.0	81.0	47.8	32.3	23.9	4.05	11.2
24-26	1	1037434	44.2	145	108	95.5	63.5	35.3	26.9	4.05	10.4
28-32	1-1/8 - 1-1/4	1037452	79	159	114	109	70.0	44.5	33.3	5.60	12.7

G-411 meets the performance requirements of Federal Specification FF- 276b Type II, except for those provisions required of the contractor. For additional information, see page 444.



G-408
(Open Pattern)

- Hot Dip galvanized Steel.
- Meets the performance requirements of EN13411-1:2002.
- Recommended for light duty applications in which it is being assembled into another fitting (i.e., shackle or master link).



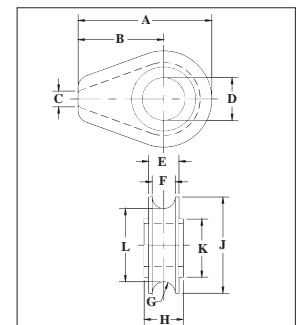
Open Pattern Thimbles

Rope Dia.		G-408 Stock No.	Weight Per 100 (kg)	Dimensions (mm)					
(mm)	(in)			A	B	C	D	E	F
6-7	1/4	1037531	1.36	7.10	17.5	26.9	35.8	51.5	9.65
8	5/16	1037559	1.72	8.65	20.6	31.8	38.9	55.0	12.7
9-10	3/8	1037577	3.18	11.2	23.9	37.3	43.7	62.5	15.7
11-13	1/2	1037595	5.67	13.5	28.4	44.5	37.3	72.0	19.1
16	5/8	1037611	11.3	16.8	35.1	60.5	59.5	91.0	25.4



S-412

- Cast Ductile Iron.
- Fits pin for open wire rope socket, boom pendant clevis and wedge socket.



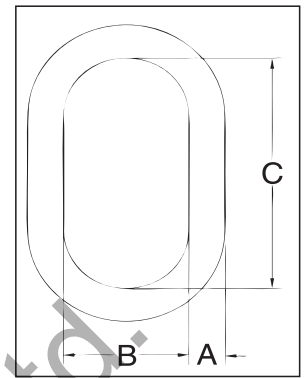
Solid Wire Rope Thimbles

Rope Dia.		S-412 Stock No.	Weight Each Per 100 (kg)	Dimensions (mm)										
(mm)	(in)			A	B	C	D	E	F	G	H	J	K	L
13	1/2	1037121	.28	71.5	44.5	6.35	26.9	19.1	14.2	7.10	22.4	54.0	41.4	39.6
16	5/8	1037149	1.00	119	76.0	9.65	33.3	26.9	20.6	10.4	28.7	86.0	57.0	65.0
18-20	3/4	1037167	1.05	119	76.0	9.65	38.1	26.9	20.6	10.4	35.1	86.0	57.0	65.0
22	7/8	1037185	2.47	154	97.0	12.7	44.5	35.1	26.9	13.5	41.4	114	82.5	87.5
24-26	1	1037201	2.38	154	97.0	12.7	54.0	35.1	26.9	13.5	46.0	114	82.5	87.5
28-30	1-1/8	1037229	4.21	184	116	16.0	60.5	44.5	33.3	16.8	52.5	137	98.5	103
32-35	1-1/4 - 1-3/8	1037247	4.45	184	116	16.0	67.0	49.3	38.9	19.8	58.5	137	98.5	105



A-342
Alloy Master
Links

- Alloy Steel — Quenched and Tempered.
- Individually Proof Tested to values shown, with certification
- Proof Tested with special fixtures sized to prevent localized point loading. See foot notes, and reference page 276.
- Forgings have a Product Identification Code (PIC) for material traceability, along with the size, the name Crosby and USA in raised lettering.
- Selected sizes designated with “W” in the size column have enlarged inside dimensions to allow additional room for sling hardware and crane hook.
- Crosby 7/8” to 2” 342 master links are type approved to DNV GL-ST-E271-2.7-1 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 pag 164 for Crosby COLD TUFF® master links that meet the additional requirements of DNV rules for certification of lifting appliances - Loose Gea .
- Incorporates patented **QUIC-CHECK®** deformation indicators.
- 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.



Load Rated

Fatigue Rated



A-342 Alloy Master Links

Size		A-342 Stock No.	Weight Each (kg)	WLL S.F.= 5/1 for Rope (t)*	Proof Load (kN)**	Dimensions (mm)			Deformation Indicator
(mm)	(in)					A	B	C	
13W	1/2W	1014266	0.59	3.40	77	13	71.1	127	89
16	5/8	1014280	0.69	4.00	80	16	76.2	152	89
19W	3/4W	1014285	0.91	5.60	126	19	81.3	152	102
22W	7/8W	3522213	1.50	6.90	†169	22	95.3	162	114
26W	1W	3522214	2.77	11.8	†289	26	109	191	140
32W	1-1/4W	3522215	5.44	17.7	†435	32	140	241	178
38W	1-1/2W	3522216	8.44	27.7	†680	38	150	267	191
44	1-3/4	3522217	11.4	38.5	†944	44	152	305	191
51	2	3522218	16.8	46.5	†1141	51	178	356	229
57	2-1/4	1014422	24.5	64.9	1287	57	203	406	254
63	2-1/2	1014468	31.1	72.6	1423	63	213	406	279
70	2-3/4	1014440	42.6	98.4	1930	70	251	457	318
76	3	1014486	52.0	103	2029	76	251	457	330
83	3-1/4	1014501	66.0	119	2332	83	254	508	343
89	3-1/2	1014529	91.0	126	2483	89	305	610	394
95	3-3/4	1015051	90.0	152	2990	95	254	508	343
102	4	1015060	120	169	3319	102	305	610	406
†† 108	†† 4-1/4	1015067	137	160	3150	108	305	610	-
†† 114	†† 4-1/2	1015079	156	163	3202	114	356	711	-
†† 121	†† 4-3/4	1015088	198	176	3460	121	356	711	-
†† 127	†† 5	1015094	234	179	3515	127	381	762	-

*Ultimate Load is 5 times the Working Load Limit. 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. Applications with wire rope and synthetic sling generally require a design factor of 5. **Proof Test Load equals or exceeds the requirement of ASTM A952(8.1) and ASME B30.9. †Offshore Container Master Links Proof Tested to 2.5 times the Working Load Limit with 70 percent fixtures †† Welded Master Link.



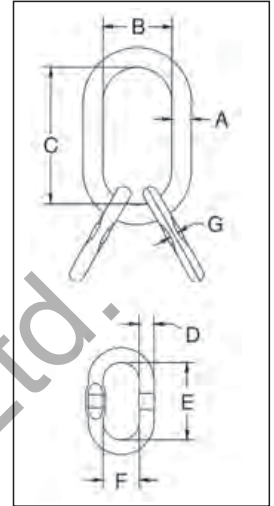
For use with chain slings, refer to page 243 for sling ratings and page 240 for proper master link selection.

Alloy Master Links with Engineered Flat



A-345
Alloy Master
Links

- 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 ASTM A952 , reference page 276.
- Forgings have a Product Identification Code (PIC) for material traceability , along with the size, the name Crosby and USA in raised lettering.
- Selected sizes designated with “W” in the size column have enlarged inside dimensions to allow additional room for sling hardware and crane hook.
- Incorporates patented **QUIC-CHECK**® deformation indicators.
- 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.



Load Rated

Fatigue Rated

OT

QUIC-CHECK

MAXTOUGH

CE

A-345 Master Link Assembly with Engineered Flat for use with S-1325A coupler link.

Size		A-345 Stock No.	Weight Each (kg)	Working Load Limit Based on 5:1 Design Factor (t)*	Proof Load (kN)**	Dimensions (mm)							Deformation Indicator
(mm)	(in)					A	B	C	D	E	F	G	
19W	3/4W	1014739	1.59	5.6	126	19	81.3	152	14.2	85.1	45.0	7.62	102
22W	7/8W	1014742	2.18	6.9	157	22	95.3	162	14.2	85.1	45.0	7.62	114
26W	1W	1014766	4.22	11.8	267	26	109	191	19.1	100	59.9	8.38	140
32W	1-1/4W	1014779	7.17	17.7	402	32	140	241	25.4	160	89.9	13.0	178
38W	1-1/2W	1014807	15.47	27.7	628	38	150	267	31.8	180	100	16.5	191
44	1-3/4	1014814	20.9	38.5	944	44	152	305	35.1	203	127	18.5	191
† 44	† 1-3/4	1262621	33.7	† 38.5	944	44	152	305	44	305	152	-	191
51	2	1014832	30.4	46.5	1141	51	178	356	38.1	229	146	-	229
64	2-1/2	1014855	93.4	72.6	1423	64	213	406	63.5	406	213	-	279
70	2-3/4	1014864	128	98.4	1929	70	251	457	69.9	457	251	-	318
102	4	1014999	303	169	3319	102	305	610	89.0	610	305	-	394***

* Ultimate Load is 5 times the Working Load Limit. The maximum individual sublink working load limit is 75% of the assembly working load limit except for 2-1/2" and 2-3/4", which are 100% of assembly working load limit. Applications with wire rope and synthetic sling generally require a design factor of 5. **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 244 for sling ratings and page 240 for proper master link selection.

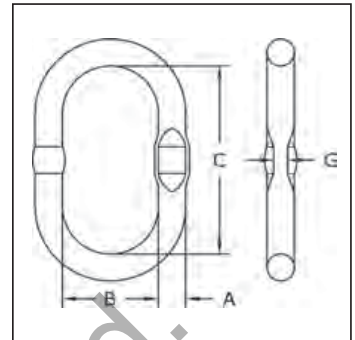
Welded Master Links with Engineered Flat



A-344
Welded Master Links

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 245 for sling ratings and page 240 for proper master link selection.

- 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 276.
- Forgings have a Product Identification Code (PIC) for material traceability, along with the size, the name Crosby and USA in raised lettering.
- Selected sizes designated with "W" in the size column have enlarged inside dimensions to allow additional room for sling hardware and crane hook.
- Crosby 12mm to 57mm 344/347 master links are type approved to DNV Certification Notes 2.7-1- O fshore 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 164 for Crosby COLD TUFF® master links that meet the additional requirements of DNV rules for certification of lifting appliances - Loose Ge r.
- Incorporates patented **QUIC-CHECK®** deformation indicators.
- 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.



A-344 Welded Master Links with Engineered Flat

Size		A-344 Stock No.	Weight Each (kg)*	Working Load Limit (t)*	Proof Load (kN)**	Dimensions (mm)				Engineered Flat Size for S-1325A (mm)
(mm)	(in)					A	B	C	G	
12	7/16	1256862	.30	1.60	39	12.0	60.0	120	6.50	6
13	1/2	1256932	.36	2.50	61	13.0	60.0	120	6.50	7-8
17	11/16	1257002	.86	4.10	101	17.0	90.0	160	8.50	10
19	3/4	1257072	1.08	6.70	164	19.0	90.0	160	8.50	10
20	3/4	1257082	1.17	6.70	164	20.0	80.0	150	—	—
22	7/8	1257214	1.59	8.50	208	22.0	90.0	170	—	—
22	7/8	1257212	1.63	8.50	208	22.0	100	180	10.5	13
22	7/8	1257215	2.39	6.30	154	22.0	145	275	—	—
25	1	1257282	2.43	11.5	282	25.0	115	210	13.5	16
25	1	1257302	2.31	11.5	282	25.0	100	190	—	—
25	1	1257332	3.35	8.90	218	25.0	145	275	—	—
28	1-1/8	1257352	3.22	12.9	316	28.0	110	210	—	—
28	1-1/8	1257382	3.91	13.0	319	28.0	145	275	13.5	16
31	1-7/32	1257422	4.86	17.0	417	31.0	145	275	15.5	—
32	1-1/4	1257442	5.30	17.0	417	32.0	140	270	—	—
36	1-7/16	1257492	6.87	24.0	588	36.0	155	285	—	—
38	1-1/2	1257502	7.63	31.5	772	38.0	140	270	—	—
40	1-9/16	1257532	8.96	28.1	689	40.0	160	300	—	—
45	1-3/4	1257569	10.31	32.0	785	45.0	140	250	—	—
45	1-3/4	1257564	12.70	38.3	939	45.0	170	320	—	—
45	1-3/4	1257562	12.82	38.3	939	45.0	180	340	—	—
50	1-31/32	1257582	17.60	45.0	1103	50.0	200	380	—	—
51	2	1257632	18.72	45.0	1103	51.0	215	390	—	—
57	2-1/4	1257652	24.5	65.3	1601	57.0	203	406	—	—

*Ultimate Load is 5 times the Working Load Limit. The maximum individual sublink working load limit is 75% of the assembly working load limit except for 63.5 and 70mm, which are 100% of assembly working load limit. Applications with wire rope and synthetic sling generally require a design factor of 5. *There are no manufactured flats on links over 31mm (24.4). **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 245 for sling ratings and page 243 for proper master link selection.

Welded Master Links with Engineered Flat

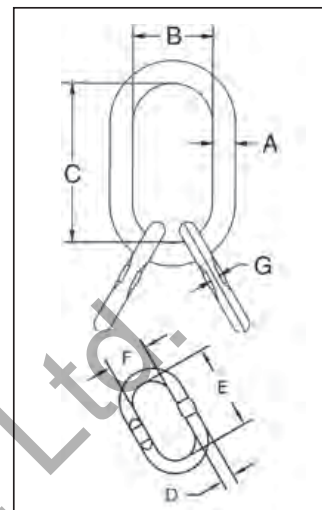


A-347

Welded Master Links

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 245 for sling ratings and page 240 for proper master link selection.

- 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 276.
- Forgings have a Product Identification Code (PIC) for material traceability, along with the size, the name Crosby and USA in raised lettering.
- Selected sizes designated with "W" in the size column have enlarged inside dimensions to allow additional room for sling hardware and crane hook.
- Crosby 12mm to 57mm 344/347 master links are type approved to DNV Certification Notes 2.7-1- O fshore 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 164 for Crosby COLD TUFF® master links that meet the additional requirements of DNV rules for certification of lifting appliances - Loose Gear.
- Engineered Flat for use with S-1325A coupler link.
- 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.



A-347 Welded Master Link with Engineered Flat

Size		A-347 Stock No.	Weight Each (kg)	Working Load Limit (t)*	Proof Load (kN)**	Dimensions (mm)							Engineered Flat Size for S-1325A (mm)
(mm)	(in)					A	B	C	D	E	F	G	
13/12	1/2	1257692	.81	2.40	59	13.0	60.0	120	12.0	85.0	45.0	6.00	6
17/13	11/16	1257762	1.56	4.10	101	17.0	90.0	160	13.0	120	60.0	6.50	7
19/13	3/4	1257832	1.80	4.25	104	19.0	90.0	160	13.0	120	60.0	6.50	8
22/20	7/8	1257977	3.93	8.50	208	22.0	90.0	170	20.0	150	80.0	—	—
22/17	7/8	1257972	3.35	6.7	164	22.0	100	180	17.0	160	90.0	8.50	10
22/16	7/8	1257979	3.53	5.80	142	22.0	145	275	16.0	120	60.0	—	—
25/20	1	1258122	4.65	10.7	262	25.0	100	190	20.0	150	80.0	—	—
25/19	1	1258102	5.51	8.90	218	25.0	145	275	19.0	160	90.0	—	—
28/22	1-1/8	1258162	6.40	12.9	316	28.0	110	210	22.0	170	90.0	—	—
28/22	1-1/8	1258142	7.17	14.5	355	28.0	145	275	22.0	180	100	10.5	13
31/25	1-7/32	1258182	9.72	17.0	417	31.0	145	275	25.0	210	115	13.5	16
32/25	1-1/4	1258202	9.92	17.0	417	32.0	140	270	25.0	190	100	—	—
36/28	1-3/8	1258222	12.20	23.6	579	36.0	145	275	28.0	190	100	—	—
38/32	1-1/2	1258224	18.23	28.1	689	38.0	140	270	32.0	270	140	—	—
40/31	1-9/16	1258332	18.68	28.1	689	40.0	160	300	31.0	275	145	—	—
45/38	1-3/4	1258422	27.96	38.3	939	45.0	170	320	38.0	270	140	—	—
45/36	1-3/4	1258402	26.56	38.3	939	45.0	180	340	36.0	285	155	—	—
50/38	2	1258442	32.86	45.0	1103	50.0	200	380	38.0	270	140	—	—
51/45	2	1258462	42.92	45.0	1103	51.0	190	350	45.0	340	180	—	—
57/50	2-1/4	1258482	59.70	67.0	1643	57.0	203	406	50.0	380	200	—	—

*Ultimate Load is 5 times the Working Load Limit. The maximum individual sublink working load limit is 75% of the assembly working load limit except for 63.5 and 70mm, which are 100% of assembly working load limit. Applications with wire rope and synthetic sling generally require a design factor of 5. **Proof Test Load equals or exceeds the requirement of ASTM A952(8.1) and ASME B30.9.*** Sublink only.



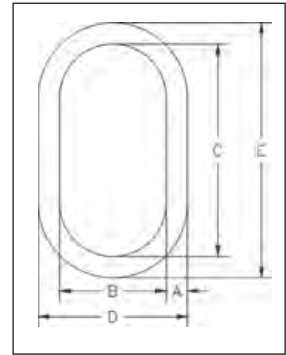
For use with chain slings, refer to page 246 for sling ratings and page 240 for proper master link selection.

Rigging Accessories



A-342CT
Master Links

- Alloy Steel - Quenched and Tempered
- Individually proof tested at 2 times Working Load Limit with certification
- Finish is Inorganic Zinc Primer.
- Certified to meet charpy impact testing of 42J. min. avg. at -20° C.
- Individually serialized and all certification shipped with each link
- COLD TUFF® master links are suitable for use at -46° C.
- Type Approval and certification in accordance with DNV 2.7-1 O fshore Containers, DNV-OS-E101, and Rules for Certification of Lifting Appliances, and are produced in accordance with DNV MSA requirements, including required documents.
- Refer to page 88 for COLD TUFF® Shackles.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these fittings meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



QUIC-CHECK®



A-342CT Master Links

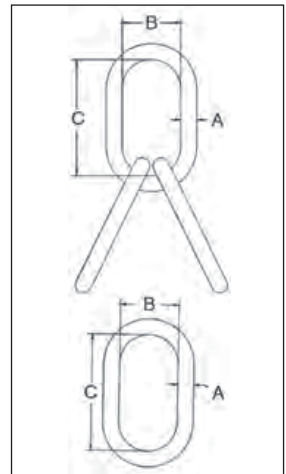
Size (mm)	A-342CT Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)					Deformation Indicator
				A	B	C	D	E	
31.8W	1261407	15.9	5.44	33.8	140	241	207	309	178
38.1W	1261418	27.7	8.44	40.9	149	267	231	348	191
44.5	1261423	28.3	11.4	44.5	152	305	241	394	191
51.0	1261433	44.3	16.8	51.0	178	356	279	457	229

*Minimum Ultimate Load is 5 times the Working Load Limit.



A-345CT
Master Links
Assembly

- Alloy Steel - Quenched and Tempered
- Individually proof tested at 2 times Working Load Limit with certification
- Finish is Inorganic Zinc Primer.
- Certified to meet charpy impact testing of 42J. min. avg. at -20° C
- COLD TUFF® master links are suitable for use at -46° C.
- Type Approval and certification in accordance with DNV 2.7-1 O fshore Containers, DNV-OS-E101, and Rules for Certification of Lifting Appliances, and are produced in accordance with DNV MSA requirements, including required documents.
- Refer to page 88 for COLD TUFF® Shackles.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these fittings meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



QUIC-CHECK®



A-345CT Master Link Assembly

Size (mm)	A-345CT Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)		
				A	B	C
31.8	1261609	15.9	13.6	31.8	111	222
38.1	1261620	21.7	23.1	38.1	133	267
44.5	1261631	28.3	35.4	44.5	152	305
51.0	1261642	44.3	56	51.0	178	356

*Minimum Ultimate Load is 5 times the Working Load Limit.

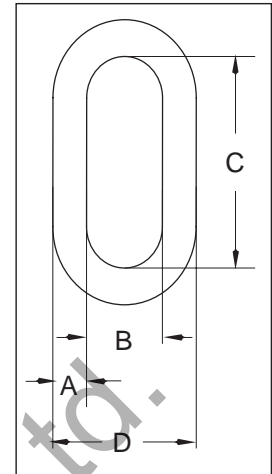
End Links and Weldless Rings



G-340 / S-340
Weldless End Link

- Forged carbon steel - Quenched and Tempered
- Self Colored or Hot Dip galvanized.

G-340 from 16 mm thru 22mm meet the performance requirements of Federal Specification RR-C-271 , Type XV, except for those provisions required of the contractor. For additional information, see page 450.



G-340/S-340 Weldless End Links

Stock No.		Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)			
G-340 Galv.	S-340 S.C.			A	B	C	D
1014057	1014066	1.13	.07	8	12.7	44.5	30.0
1014075	1014084	1.72	.10	10	14.2	47.8	35.1
1014093	1014100	2.95	.22	13	19.1	60.5	46.0
1014119	1014128	4.22	.44	16	25.4	82.5	59.0
1014137	1014146	6.35	.68	19	28.7	89.0	68.0
1014155	1014164	5.44	1.17	22	51.0	130	95.5
1014173	1014182	6.89	1.79	25	57.0	146	108
1014191	1014208	11.97	3.31	32	63.5	178	127
1014217	1014226	13.61	4.71	35	70.0	197	140

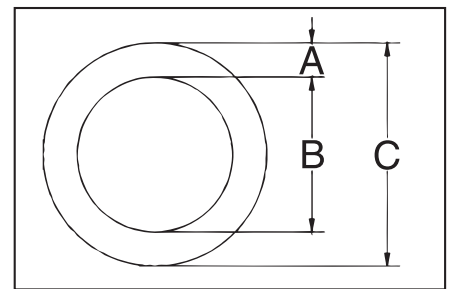
*Ultimate Load is 5 times the Working Load Limit. Based on single leg sling (in-line load), or resultant load on multiple legs with an included angle less than or equal to 120°.



S-643
Weldless Rings

- Forged carbon steel - Quenched and Tempered.
- Self Colored

Weldless Rings meet the performance requirements of Federal Specification RR-C-271F Type VI, except for those provisions required of the contractor. For additional information, see page 450.



S-643 Weldless Rings

Size (mm)	S-643 Stock No	Working Load Limit Single Pull (t)*	WeightEach (kg)	Dimensions (mm)		
				A	B	C
22.2 x 102	1013780	3.27	1.23	22.2 x 102	102	146
22.2 x 140	1013806	2.54	1.57	22.2 x 140	140	184
25.4 x 102	1013824	4.90	1.67	25.4 x 102	102	152
28.6 x 152	1013842	4.72	2.99	28.6 x 152	152	210
31.8 x 127	1013860	7.71	3.09	31.8 x 127	127	191
34.9 x 152	1013888	8.62	4.59	34.9 x 152	152	222

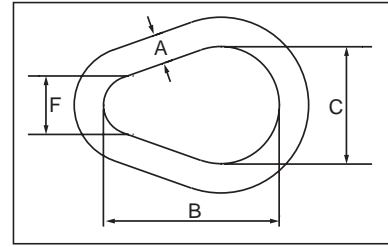
*Ultimate Load is 6 times the Working Load Limit.

Pear Shaped Links



A-341
Alloy Pear Shaped Links

- Alloy Steel - Quenched and Tempered
- Individually Proof Tested at 2 times Working Load Limit with certification.
- Proof Test certification shipped with each link.
- Sizes 13mm, 16mm, 19mm, 22mm, 25mm, 32mm and 35mm are forged.



A-341 Alloy Pear Shaped Links

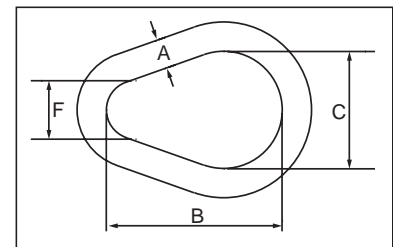
Stock Size (A) (mm)	A-341 Stock No	Working Load Limit		Weight Each (kg)	Dimensions (mm)		
		(t)*	(lb)		B	C	F
13	1013575	3.15	7000	.25	76.2	50.8	25.4
16	1013584	4.09	9000	.50	95.3	63.5	31.8
19	1013595	5.59	12300	.80	114	76.2	38.1
22	1013604	6.81	15000	1.28	133	88.9	44.5
25	1013613	11.0	24360	1.91	152	102	51.0
28	1013622	13.9	30600	2.83	171	114	57.0
32	1013631	16.4	36000	3.74	191	127	63.5
35	1013640	19.5	43000	5.10	210	140	70.0
†† 38	1013649	24.7	54300	6.46	229	152	76.0
†† 42	1013658	28.4	62600	8.39	248	165	82.5
†† 44	1013667	38.6	84900	10.2	267	178	89.0
†† 48	1013676	43.5	95800	13.2	286	191	95.5
†† 51	1013685	46.6	102600	15.4	305	203	102
†† 57	1013694	65.0	143100	21.8	343	229	114
†† 64	1013703	66.9	147300	29.9	381	254	127
†† 70	1013712	98.6	216900	39.9	419	279	140
†† 76	1013721	103	228000	52	457	305	152
†† 83	1013730	119	262200	66	495	330	165
†† 89	1013739	126	279000	82	533	356	178
†† 102	1013748	169	373000	123	610	406	203

*Based on single leg sling (in-line load), or resultant load on multiple legs with an included angle less than or equal to 120°. Minimum Ultimate load is 5 times the Working Load Limit. †† Welded Link.



G-341 / S-341
Weldless Sling Link

- Forged carbon steel - Quenched and Tempered.
- Self Colored or Hot Dip Galvanized.



G-341 / S-341 Weldless Sling Links

Size (A) (mm)	Stock No.		Working Load Limit Single Pull (t.)*	Weight Each (kg)	Dimensions (mm)		
	G-341 Galv.	S-341 S.C.			B	C	F
10	1013897	1013904	.82	0.10	57.2	38.1	19.1
13	1013913	1013922	1.32	.25	76.2	50.8	25.4
16	1013931	1013940	1.91	.48	95.5	63.5	31.8
19	1013959	1013968	2.72	.85	114	76.2	38.1
22	1013977	1013986	3.76	1.25	133	88.9	44.5
25	1013995	1014002	4.90	1.97	152	102	51.0
32	1014011	1014020	7.60	3.45	197	127	63.5
35	1014039	1014048	9.30	5.13	210	140	70.0

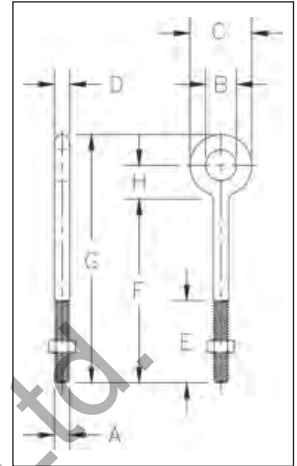
*Ultimate Load is 6 times the Working Load Limit. Based on single leg sling (in-line load), or resultant load on multiple legs with an included angle less than or equal to 120°.

Forged Eye Bolts



G-291
Regular Nut
Eye Bolt

- Forged Steel - Quenched and Tempered.
- Fatigue rated at 1-1/2 times the Working Load Limit at 20,000 cycles.
- All Bolts Hot Dip galvanized after threading (UNC).
- Furnished with standard Hot Dip galvanized hex nuts.
- Recommended for in-line pull.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these bolts meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



Fatigue Rated



Rigging
Accessories

G-291 Regular Nut Eye Bolts

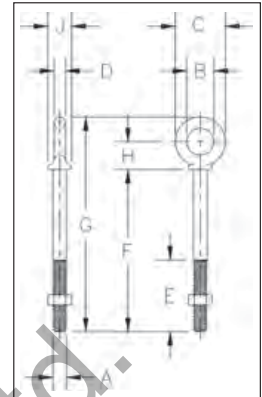
Shank Dia. & Length (mm)	G-291 Stock No.	Working Load Limit (t)*	Weight Per 100 (kg)	Dimensions (mm)							
				A	B	C	D	E	F	G	H
9.53 x 114	1043338	.70	13.4	9.65	19.1	38.1	9.65	63.5	114	155	22.4
12.7 x 82.5	1043374	1.18	22.8	12.7	25.4	51.0	12.7	38.1	82.5	137	28.4
12.7 x 152	1043392	1.18	30.0	12.7	25.4	51.0	12.7	76.0	152	206	28.4
12.7 x 203	1043418	1.18	37	12.7	25.4	51.0	12.7	76.0	203	257	28.4
12.7 x 254	1043436	1.18	40	12.7	25.4	51.0	12.7	76.0	254	308	28.4
12.7 x 305	1043454	1.18	52	12.7	25.4	51.0	12.7	76.0	305	359	28.4
15.9 x 102	1043472	2.35	47	15.7	31.8	63.5	15.7	51.0	102	170	36.6
15.9 x 152	1043490	2.35	54	15.7	31.8	63.5	15.7	76.0	152	221	36.6
15.9 x 203	1043515	2.35	61	15.7	31.8	63.5	15.7	76.0	203	272	36.6
15.9 x 254	1043533	2.35	70	15.7	31.8	63.5	15.7	76.0	254	322	36.6
15.9 x 305	1043551	2.35	76	15.7	31.8	63.5	15.7	102	305	373	36.6
19.1 x 114	1043579	3.26	76	19.1	38.1	76.0	19.1	51.0	114	195	42.9
19.1 x 152	1043597	3.26	84	19.1	38.1	76.0	19.1	76.0	152	233	42.9
19.1 x 203	1043613	3.26	94	19.1	38.1	76.0	19.1	76.0	203	284	42.9
19.1 x 254	1043631	3.26	107	19.1	38.1	76.0	19.1	76.0	254	335	42.9
19.1 x 305	1043659	3.26	117	19.1	38.1	76.0	19.1	102	305	386	42.9
19.1 x 381	1043677	3.26	135	19.1	38.1	76.0	19.1	127	381	462	42.9
22.2 x 127	1043695	4.80	122	22.4	44.5	89.0	22.4	63.5	127	222	51.0
22.2 x 203	1043711	4.80	140	22.4	44.5	89.0	22.4	102	203	298	51.0
22.2 x 305	1043739	4.80	181	22.4	44.5	89.0	22.4	102	305	400	51.0
25.4 x 152	1043757	6.03	191	25.4	51.0	102	25.4	76.0	152	262	58.5
25.4 x 229	1043775	6.03	213	25.4	51.0	102	25.4	102	229	338	58.5
25.4 x 305	1043793	6.03	245	25.4	51.0	102	25.4	102	305	414	58.5
25.4 x 457	1043819	6.03	295	25.4	51.0	102	25.4	178	457	567	58.5
31.8 x 203	1043837	9.52	340	31.8	63.5	127	31.8	102	203	340	73.0
31.8 x 305	1043855	9.52	408	31.8	63.5	127	31.8	102	305	441	73.0
31.8 x 508	1043873	9.52	549	31.8	63.5	127	31.8	152	508	645	73.0

*Ultimate Load is 5 times the Working Load Limit. Working Load Limit shown is for in-line pull. Maximum Proof Load is 2 times the Working Load Limit.



G-277
Shoulder Nut
Eye Bolts

- Forged Steel - Quenched and Tempered.
- Fatigue rated at 1-1/2 times the Working Load Limit at 20,000 cycles.
- Working Load Limits shown are for in-line pull. For angle loading, see page 202.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these bolts meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- All Bolts Hot Dip galvanized after threading (UNC).
- Furnished with standard Hot Dip galvanized, heavy hex nuts.



Fatigue Rated

SEE APPLICATION AND WARNING INFORMATION
On Pages 200-201
Para Español: www.thecrosbygroup.com

G-277 Shoulder Nut Eye Bolts

Shank Diameter & Length (mm)	G-277 Stock No.	Working Load Limit (t)*	Weight Per 100 (kg.)	Dimensions (mm)									
				A	B	C	D	E	F	G	H	J	
7.94 x 57.0	1045050	.54	5.67	7.85	15.7	28.4	6.35	38.1	57.0	89.0	17.5	14.2	
7.94 x 108	1045078	.54	8.53	7.85	15.7	28.4	6.35	63.5	108	140	17.5	14.2	
9.53 x 63.5	1045096	.70	9.71	9.65	19.1	35.1	7.85	38.1	63.5	101	19.8	16.8	
9.53 x 114	1045112	.70	11.5	9.65	19.1	35.1	7.85	63.5	114	152	19.8	16.8	
12.7 x 82.5	1045130	1.18	19.3	12.7	25.4	44.5	9.65	38.1	82.5	130	25.4	23.1	
12.7 x 152	1045158	1.18	25.8	12.7	25.4	44.5	9.65	76.0	152	200	25.4	23.1	
15.9 x 102	1045176	2.35	31.1	15.7	31.8	57.0	12.7	51.0	102	164	33.3	28.4	
15.9 x 152	1045194	2.35	46.4	15.7	31.8	57.0	12.7	76.0	152	214	33.3	28.4	
19.1 x 114	1045210	3.26	66	19.1	38.1	70.0	15.7	51.0	114	189	39.6	35.1	
22.2 x 127	1045256	4.80	102	22.4	44.5	82.5	19.1	63.5	127	215	46.7	39.6	
25.4 x 152	1045292	6.03	166	25.4	51.0	95.5	22.4	76.0	152	253	53.0	46.0	
25.4 x 229	1045318	6.03	192	25.4	51.0	95.5	22.4	102	229	329	53.0	46.0	
31.8 x 203	1045336	9.52	295	31.8	63.5	114	25.4	102	203	323	62.5	58.0	
31.8 x 305	1045354	9.52	361	31.8	63.5	114	25.4	102	305	425	62.5	58.0	
38.1 x 381	1045372	10.8	646	38.1	76.0	140	31.8	152	381	527	76.0	70.0	

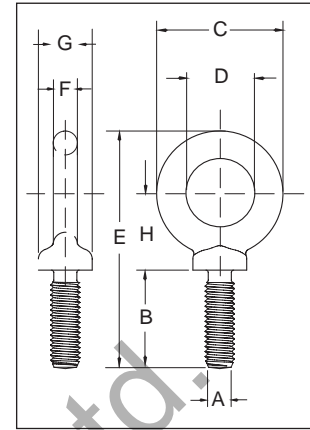
*Ultimate Load is 5 times the Working Load Limit. Maximum Proof Load is 2 times the Working Load Limit.

Forged Machinery Eye Bolts



S-279 / M-279
Shoulder Type
Machinery Eye Bolts

- Forged Steel - Quenched & Tempered.
- Working Load Limits shown are for in-line pull. For angle loading, see page 202.
- Fatigue rated at 1-1/2 times the Working Load Limit at 20,000 cycles. traceability, not addressed by ASME B30.26.
- Recommended for in-line pull.
- S-279 threaded UNC.
- M-279 metric threaded.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these bolts meet other critical performance requirements including fatigue life, impact properties and material



Fatigue Rated



S-279 UNC Shoulder Type Machinery Eye Bolts

Size (mm)	S-279 Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)							
				A** Thread	B	C	D	E	F	G	H
6.35 x 25.4	9900182	.29	.02	1/4 - 20	25.9	28.7	19.1	58.0	4.85	13.5	19.6
7.94 x 28.6	9900191	.54	.04	5/16 - 18	29.2	35.1	22.4	69.5	6.35	15.0	24.1
9.53 x 31.8	9900208	.70	.06	3/8 - 16	32.3	41.1	25.4	78.0	7.85	17.5	26.7
12.7 x 38.1	9900217	1.18	.12	1/2 - 13	38.9	49.5	30.2	94.0	9.65	23.1	32.3
15.9 x 44.5	9900226	2.35	.24	5/8 - 11	45.5	60.5	35.1	113	12.7	28.7	38.9
19.1 x 51.0	9900235	3.26	.43	3/4 - 10	52.0	70.0	38.1	129	16.0	35.1	43.4
22.2 x 57.0	9900244	4.80	.70	7/8 - 9	58.5	82.5	44.5	149	19.1	39.6	50.8
25.4 x 63.5	9900253	6.03	1.1	1 - 8	65.5	95.5	51.0	169	22.4	46.0	58.4
28.5 x 70.0	9900257	6.80	1.5	1-1/8 - 7	69.8	107	57.1	183	24.6	52.3	59.7
31.8 x 76.0	9900262	9.52	1.8	1-1/4 - 7	78.5	114	63.5	202	25.4	58.0	69.3
38.1 x 89.0	9900271	10.8	3.2	1-1/2 - 6	91.5	140	76.0	241	31.8	70.0	83.3
44.5 x 95.0	9900280	15.4	4.7	1-3/4 - 5	95.2	159	88.9	266	35.0	76.2	91.4
51 x 102	9900289	19.0	8.6	2 - 4-1/2	102	194	101	313	46.0	85.9	114
63.5 x 127	9900298	29.5	14.5	2-1/2 - 4	127	223	114	378	53.8	108	140

*Ultimate Load is 5 times the Working Load Limit. Maximum Proof Load is 2 times the Working Load Limit. ** All bolts threaded UNC.



M-279 Metric

Size (mm)	M-279 Stock No.	Working Load Limit (t)*	Weight Each (kg.)	Dimensions (mm)							
				A** Thread	B	C	D	E	F	G	H
M6 x 13	1045753	.20	.03	M6 x 1.0	13.0	28.7	19.1	47.0	4.9	13.5	19.6
M8 x 13	1045789	.40	.05	M8 x 1.25	13.0	35.1	22.4	54.6	6.4	15.0	24.1
M10 x 17	1045833	.64	.07	M10 x 1.5	17.0	41.1	25.4	64.3	7.9	17.5	26.5
M12 x 20.5	1045869	1.0	.11	M12 x 1.75	20.5	49.5	30.2	77.7	9.7	23.1	32.8
M16 x 27	1045913	1.8	.25	M16 x 2.0	27.0	60.5	35.1	96.0	12.7	28.7	38.9
M20 x 30	1045995	2.5	.42	M20 x 2.5	30.0	70.0	38.1	108	16.0	35.1	43.4
M24 x 36	1046029	4.0	1.05	M24 x 3.0	36.0	95.5	51.0	142	22.4	46.0	58.4
M27 x 69.8	1046038	5.0	1.42	M27 x 3.0	69.8	107	57.1	183	24.6	52.3	59.7
M30 x 45	1046075	6.0	1.77	M30 x 3.5	45.0	114	63.5	171	25.4	58.0	69.3
M36 x 54	1046109	8.5	3.12	M36 x 4.0	54.0	140	76.0	207	31.8	70.0	83.3
M42 x 95.2	1046118	14.0	4.58	M42 x 4.5	95.2	159	88.9	266	35.0	76.2	91.4
M48 x 102	1046127	17.3	8.71	M48 x 5.0	102	194	101	313	46.0	85.9	114
M64 x 127	1046136	29.5	14.74	M64 x 6.0	127	223	114	378	53.8	108	140

*Ultimate Load is 5 times the Working Load Limit. Maximum Proof Load is 2 times the Working Load Limit. ** On Request: Special threading or as forged bolts for customer conversion.

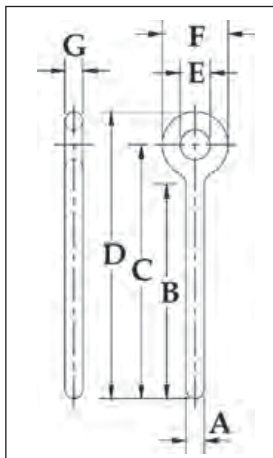


S-293
Rivet Eye Bolt

- Forged steel - Quenched and Tempered.



S-293 Rivet Eye Bolts



Shank Diameter & Length (mm)	S-293 Stock No.	Weight Per 100 (kg)	Dimensions (mm)						
			A	B	C	D	E	F	G
9.53 x 63.5	1043962	11.33	9.53	63.5	86.0	104	19.1	38.1	9.65
9.53 x 114	1043980	12.51	9.53	114	137	155	19.1	38.1	9.65
12.7 x 82.5	1044024	19.86	12.7	82.5	111	136	25.4	51.0	12.7
12.7 x 152	1044042	28.34	12.7	152	181	206	25.4	51.0	12.7
15.9 x 102	1044060	42.5	15.9	102	140	171	31.8	63.5	15.8
15.9 x 152	1044088	51.2	15.9	152	190	222	31.8	63.5	15.8
19.1 x 114	1044104	65.2	19.1	114	159	196	38.1	76.0	19.1
19.1 x 152	1044122	73.7	19.1	152	197	234	38.1	76.0	19.1
22.2 x 127	1044140	108	22.2	127	178	222	44.5	89.0	22.2
22.2 x 203	1044168	132	22.2	203	254	298	44.5	89.0	22.2
25.4 x 152	1044186	170	25.4	152	213	263	51.0	102	25.4
25.4 x 229	1044202	204	25.4	229	289	339	51.0	102	25.4
31.8 x 203	1044220	327	31.8	203	279	340	63.0	127	31.8
31.8 x 305	1044248	388	31.8	305	378	441	63.0	127	31.8

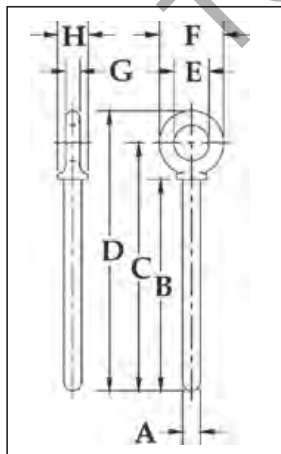


S-276
Shoulder Rivet Eye Bolt

- Forged steel - Quenched and Tempered.



S-276 Shoulder Rivet Eye Bolts



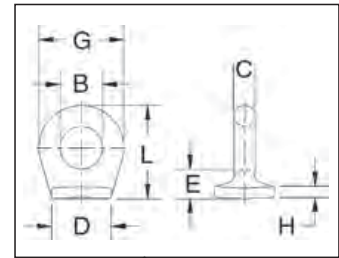
Shank Diameter & Length (mm)	S-276 Stock No.	Weight Per 100 (kg)	Dimensions (mm)							
			A	B	C	D	E	F	G	H
7.94 x 57.0	1045782	2.86	7.85	57.0	74.5	89.0	16.0	28.7	6.35	14.2
7.94 x 108	1045808	6.71	7.85	108	125	140	16.0	28.7	6.35	14.2
9.53 x 63.5	1045826	8.53	9.65	63.5	83.5	101	19.1	35.1	7.85	16.8
9.53 x 114	1045844	11.3	9.65	114	134	152	19.1	35.1	7.85	16.8
12.7 x 82.5	1045862	15.0	12.7	82.5	108	130	25.4	44.5	9.65	23.1
12.7 x 152	1045880	22.7	12.7	152	178	200	25.4	44.5	9.65	23.1
15.9 x 102	1045906	31.2	16.0	102	135	164	31.8	57.0	12.7	28.4
15.9 x 152	1045924	34.0	16.0	152	186	214	31.8	57.0	12.7	28.4
19.1 x 114	1045942	57	19.1	114	154	189	38.1	70.0	15.7	35.1
19.1 x 152	1045960	68	19.1	152	192	227	38.1	70.0	15.7	35.1
22.2 x 127	1045988	91	22.4	127	174	215	44.5	82.5	19.1	39.6
25.4 x 152	1046022	135	25.4	152	205	253	51.0	95.5	22.4	46.0
25.4 x 229	1046040	193	25.4	229	282	329	51.0	95.5	22.4	46.0
31.8 x 203	1046068	297	31.8	203	266	323	63.5	114	25.4	58.0
31.8 x 305	1046086	323	31.8	305	368	425	63.5	114	25.4	58.0
38.1 x 381	1046102	646	38.1	381	457	527	76.0	140	31.8	70.0

Pad Eyes



S-264
Pad Eye

- Forged Steel — Quenched and Tempered.
- Forged from 1035 Carbon Steel.
- Excellent welding qualities.
- Widely used on farm machinery, trucks, steel hulled marine vessels and material handling equipment.
- Reference American Welding Society specifications for proper welding procedures.



S-264 Pad Eyes

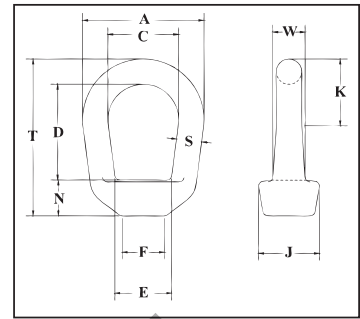
Size No.*	S-264 Stock No.	Weight Per 100 (kg)	Dimensions (mm)						
			B	C	D	E	G	H	L
* 0	1090722	1.27	6.35	4.85	16.0	7.85	16.0	2.30	19.1
* 1	1090740	2.95	9.65	6.35	22.4	10.4	22.4	3.30	26.2
* 1.5	1090768	4.72	16.0	6.35	25.4	11.2	28.7	4.05	33.3
2	1090786	9.57	19.1	9.65	26.9	12.7	38.1	4.85	41.4
4	1090802	23.7	25.4	14.2	36.6	19.8	54.0	5.60	59.5
5	1090820	37.4	31.8	17.5	44.5	20.6	67.0	6.35	70.0

*Meets the requirements of Military Specification MS-51930A



G-400
Eye Nut

- Forged Steel - Quenched and Tempered.
- Hot Dip galvanized.
- Tapped with standard UNC class 2 threads after galvanizing.
- Also available in blank (as forged) item (S-4028) or on request with metric threading (M-400).
- Recommended for In-Line pull.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these products meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



G-400 Eye Nuts

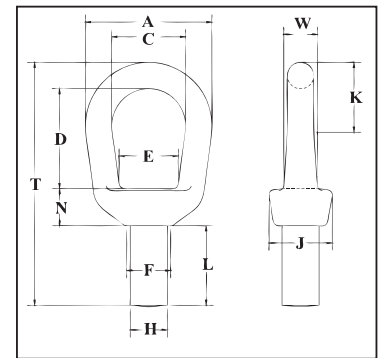
Size No.	"S" Stock Size (mm)	G-400 Stock No	Std. Tap Size (in)	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)									
						A	C	D	E	F	J	K	N	T	W
1	6.35	1090438	1/4	.24	.04	31.8	19.1	25.4	19.1	12.7	17.5	16.0	9.65	43.7	7.85
2	7.85	1090474	3/8	.57	.08	41.1	25.4	30.5	21.1	14.2	20.6	22.6	12.7	53	10.4
3A	9.65	1090517	1/2	1.02	.13	51.0	31.8	36.6	27.4	20.6	25.4	27.7	15.7	63.5	12.7
4	12.7	1090535	5/8	1.63	.27	63.5	38.1	48.8	34.3	25.4	33.3	33.3	17.5	82.5	17.5
5	16	1090553	3/4	2.36	.45	76.0	44.5	60.5	40.4	28.4	38.1	39.9	22.4	98.8	21.3
6	19.1	1090571	7/8	3.27	.75	89.0	51.0	66.8	49.8	35.1	47.8	45.0	23.9	110	25.4
7	22.4	1090599	1	4.54	1.22	102	57.0	77.7	56.0	39.6	54.0	51.5	27.2	127	30.2
8	25.4	1090633	1-1/4	7.03	1.98	114	63.5	88.9	62.5	47.8	60.5	57.5	31.8	147	35.1
9	28.7	1090651	1-3/8	8.39	2.27	127	70.0	102	68.5	51.0	65.0	64.5	35.1	165	38.1
10	31.8	1090679	1-1/2	10.21	3.08	143	79.0	109	78.5	57.0	76.0	71.5	38.1	179	42.2
11	38.1	1090697	2	18.14	6.62	181	104	157	104	79.5	95.5	93.5	52.3	252	49.3

*Working Load Limit shown is for In-Line pull. Ultimate Load is 5 times the Working Load Limit. Rating based on standard tap size.



S-405
Lifting Eye

- Forged Steel — Quenched and Tempered.
- On request: threaded to customer specification



S-405 Lifting Eyes

Size No.	S-405 Stock No.	Working Load Limit Threaded (t)*	Maximum Thread Diam. (mm)	Weight Each (kg)	Dimensions (mm)											
					A	C	D	E	F	H †	J	K	L	N	T	W
1	1090269	.39	7.85	.05	31.8	19.1	25.9	16.8	12.7	8.65	17.5	17.0	17.5	10.7	62.5	7.85
2	1090287	.57	9.65	.09	41.1	25.4	30.5	19.1	14.2	10.4	20.6	23.4	23.9	14.0	76	10.4
3	1090303	1.02	12.7	.23	51.0	31.8	36.6	25.4	20.6	13.5	28.7	28.7	31.8	17.3	93.5	12.7
4	1090321	1.63	16.0	.36	63.5	38.1	48.8	30.2	25.4	16.8	33.3	35.1	38.1	20.3	116	17.5
5	1090349	2.36	19.1	.57	76.0	44.5	58.0	35.1	28.4	19.8	38.1	42.2	44.5	24.9	140	21.3
6	1090367	3.27	22.4	1.02	89.0	51.0	63.5	41.4	35.1	23.1	47.8	48.5	47.8	26.9	156	25.4
7	1090385	4.54	25.4	1.47	102	57.0	74.0	47.8	39.6	26.2	54.0	55.0	52.5	30.5	179	30.2
8	1090401	5.67	28.7	2.13	114	63.5	85.0	49.3	47.8	29.5	60.5	62.5	63.5	35.6	207	35.1
10	1090410	8.16	38.1	4.23	143	79.0	97.0	70.0	57.0	38.9	76.0	75.5	81.5	42.9	252	42.2

*Ultimate Load is 5 times the Working Load Limit. Rating based on UNC thread size shown in Max Thread Diameter column. † Dimension before machining (as forged).

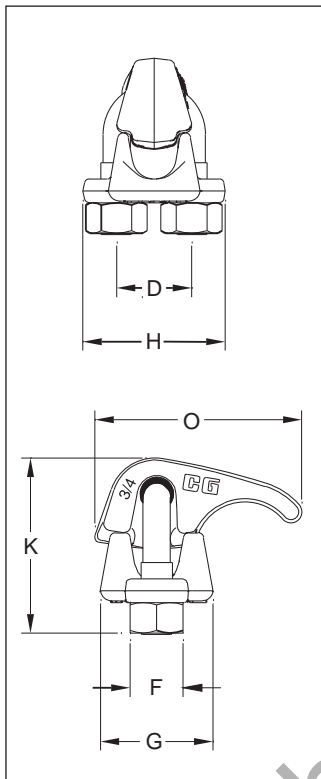
Crosby Bundle Clip



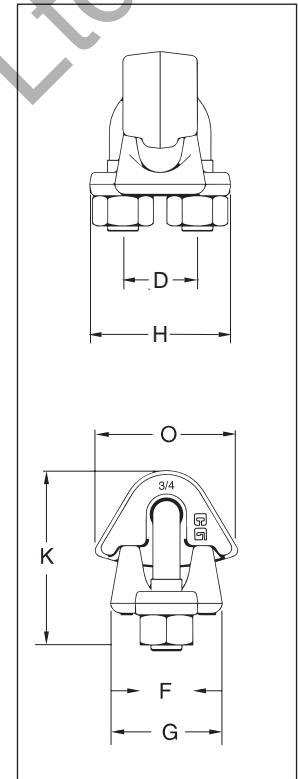
G-460
Soft Eye
Bundle Clip
(For use without Thimble)



G-461
Thimble
Eye Bundle Clip



- Each base and Bundle Clip adapter has a Product Identification Code (PIC) for material tracability, the name Crosby or CG, and a size forged into it.
- Entire clip galvanized to resist corrosive and rusting action.
- Forged bases and bundle clip adapters.
- All bundle clips are individually bagged or tagged with proper application instructions and warning information.
- Clips have rolled threads.
- Bundle Clip Adapter for Soft Eye (G4460) and for Thimble Eye (G4461) kits available.
- Look for the Red-U-Bolt, your assurance of Genuine Crosby Products.
- Meets or exceeds all requirements of ASME B30.26 including manufacturing I.D. and size requirements. Importantly, these wire rope bundle clips meet material traceability not addressed by ASME B30.26.



Rigging
Accessories

G-460 Soft Eye / G-461 Thimble Eye Bundle Clip

Rope Size		Bundle Clip Style	Stock No.	Dimensions (mm)						Weight each (kg)
(mm)	(in)			D	F	G	H	K	O	
18-20	3/4	G460	1010509	38.1	26.9	57.2	72.1	88.9	105	1.1
18-20	3/4	G461	1010619	38.1	26.9	57.2	72.1	88.9	72.4	1.1



Swivel Hoist Ring



HR-125M
Swivel Hoist Ring

Color coded to distinguish between UNC (Red) and Metric (Silver) thread types.



HR-125
Swivel Hoist Ring

- Available in UNC and Metric thread sizes.
 - UNC threads available in sizes from 800 pounds to 100,000 pounds Working Load Limit, with a design factor of 5 to 1.
 - Metric threads available in sizes from 400kg to 16,900kg and dual rated in both a 4 to 1 and 5 to 1 design factor.
- All Components are Alloy Steel - Quenched and Tempered.
- Designed to be used at full WLL within angular loading range.
- 100% individually proof tested to 2-1/2 times the Working Load Limit with certification and Statistically Magnetic Particle inspected. (Can be furnished 100% Magnetic Particle inspected when requested at time of order.)
- Each product has a Product Identification Code (PIC) for material traceability along with a Working Load Limit and the name Crosby or "CG" stamped into it.
- 360° swivel and 180° pivot action.
- Fatigue rated to 20,000 cycles at 1-1/2 times the Working Load Limit.
- Individually packaged along with proper application instructions and warning information.
- Bolt is secured with E-clip, threads are grooved. This method allows for easy disassembly and assembly of hoist ring for thorough examination of all components. Replacement kits are available.
- Bolts are individually Proof Tested.
- Multiple Bolt length available to meet specific application requirements
- Zinc Plated (Yellow Chromate) finish for increased corrosion protection thru 30,000 pound size
- Meets or exceeds all the requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these hoist rings meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



Fatigue Rated

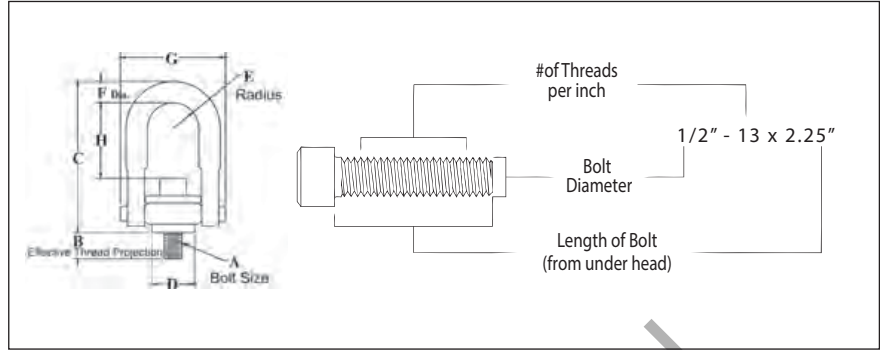


Load Rated

UNC Swivel Hoist Rings



HR-125
Swivel Hoist Ring



- Top washer has the following features:
 - The Working Load Limit and Recommended Torque value are permanently stamped into each washer.
 - Washer is color coded for easy identification: Red - UNC thread.
- Individually Proof Tested to 2-1/2 times Working Load Limit.
- Bolt specification is an Alloy socket head cap screw to ASTM A 574.
- All threads listed are UNC.
- **BOLT SIZE IDENTIFICATION:** The size of the bolt will be stated as in the drawing above. Illustration shows meaning of each dimension given.
- NOTE: For Special Applications, see page 481.
- Frame 2 and larger are **RFID EQUIPPED**.

Fatigue Rated  **Load Rated**



Rigging
Accessories

HR-125 UNC Threads

Frame Size (mm)	HR-125 Stock No.	Working Load Limit (kg)*	Torque (Nm)	Bolt Size A ‡ (in)	Dimensions (mm)								Weight Each (kg.)
					Effective Thread Projection Length B	C	D	Radius E	Diameter F	G	H		
1 †	1016887	363	10	5/16 - 18 x 1.50	14.7	69.1	24.6	11.7	8.60	47.5	28.4	.17	
1 †	1016898	454	16	3/8 - 16 x 1.50	14.7	69.1	24.6	11.7	8.60	47.5	26.7	.18	
2	1016909	1134	38	1/2 - 13 x 2.00	17.8	123	49.8	22.1	19.0	85.1	58.2	1.06	
2 †	1016912	1134	38	1/2 - 13 x 2.50	30.5	123	49.8	22.1	19.0	85.1	58.2	1.07	
2	1016920	1814	81	5/8 - 11 x 2.00	17.8	123	49.8	22.1	19.0	85.1	54.9	1.09	
2 †	1016924	1814	81	5/8 - 11 x 2.75	36.8	123	49.8	22.1	19.0	85.1	54.9	1.12	
2	1016931	2268	136	3/4 - 10 x 2.25	24.1	123	49.8	22.1	19.0	85.1	51.8	1.14	
2 †	1016935	2268	136	3/4 - 10 x 2.75	36.8	123	49.8	22.1	19.0	85.1	51.8	1.17	
3	1016942	3175**	136	3/4 - 10 x 2.75	22.6	167	75.2	34.5	23.9	124	75.4	3.05	
3 †	1016946	3175**	136	3/4 - 10 x 3.50	41.7	167	75.2	34.5	23.9	124	75.4	3.09	
3	1016953	3629	217	7/8 - 9 x 2.75	22.6	167	75.2	34.5	23.9	124	72.1	3.10	
3 †	1016957	3629	217	7/8 - 9 x 3.50	41.7	167	75.2	34.5	23.9	124	72.1	3.16	
3	1016964	4536	312	1 - 8 x 3.00	29.0	167	75.2	34.5	23.9	124	69.1	3.22	
3 †	1016969	4536	312	1 - 8 x 4.00	54.4	167	75.2	34.5	23.9	124	69.1	3.32	
4	1016975	6804	637	1-1/4 - 7 x 4.50	56.1	221	94.2	44.5	30.2	157	99.8	6.58	
5	1016986	10890	1085	1-1/2 - 6 x 6.75	3.0	315	120	60.7	44.5	215	143	17.1	
5	1016997	13610	1491	2 - 4-1/2 x 6.50	3.0	315	120	60.7	44.5	215	131	18.5	
6	1017001	22680	2847	2-1/2 - 4 x 8.0	102	429	146	76.2	57.2	279	204	39.9	
7	1017005	34020	5830	3 - 4 x 10.5	127	495	184	95.3	69.9	360	216	75.3	
8	1017009	45360	6915	3-1/2 - 4 x 13.0 #	178	561	197	102	82.6	404	236	120	

*Ultimate Load is 5 times the Working Load Limit.

** Ultimate Load is 4.5 times the Working Load Limit for 317.5 kg Hoist Ring when tested in 90 degree orientation.

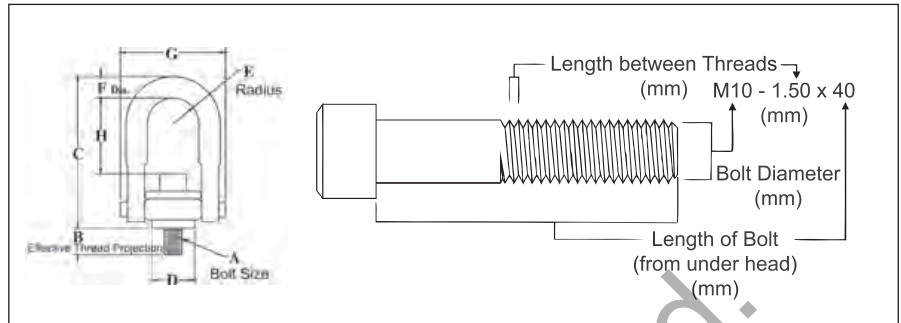
† Long Bolts are designed to be used with soft metal (i.e., aluminum) workpiece. While the long bolts may also be used with ferrous metal (i.e., steel & iron) workpiece, short bolts are designed for ferrous workpieces only.

‡ Bolt specification is an Alloy socket head cap screw to ASTM A 574.

Hex head bolt used on Frame 8 (100,000lb.) Hoist Ring.



HR-125M
Swivel Hoist Ring



- Top washer has the following features:
 - The Working Load Limit and Recommended Torque value are permanently stamped into each washer.
 - Washer is color coded for easy identification: Silver - Metric thread
- Individually Proof Tested to 2-1/2 times Working Load Limit.
- Bolt specification is a Grade 12.9 Alloy socket head cap screw to Din 912. All threads listed are metric (ASME B18.3.1m).
- Designed to be used with ferrous workpiece only.
- BOLT SIZE IDENTIFICATION: The size of the bolt will be stated as in the drawing above. Illustration shows meaning of each dimension given.
- NOTE: For Special Applications, see page 481.
- Frame 2 and larger RFID EQUIPPED.



Fatigue Rated



Load Rated



HR-125M Metric Threads

Frame Size No.	HR-125M Stock No.	Working Load Limit (kg)		Torque (Nm)*	Dimensions (mm)								Weight Each (kg)
		At a 5:1 Design Factor †	At a 4:1 Design Factor †		(A) Bolt Size ‡	(B) Effective Thread Projection Length	C	D	Radius E	Diameter F	G	H	
1	1016602	400	500	10	M8X1.25X40	16.9	69.9	24.6	11.8	8.5	47.5	29.9	.17
1	1016613	450	550	16	M10X1.50X40	16.9	69.9	24.6	11.8	8.5	47.5	28.1	.18
2	1016624	1050	1300	38	M12X1.75X50	16.9	123	49.8	22.3	17.5	85.1	60.4	1.05
2	1016635	1900	2400	81	M16X2.00X60	26.9	123	49.8	22.3	17.5	85.1	56.3	1.11
2	1016644	2150	2700	136	M20X2.50X65	31.9	123	49.8	22.3	17.5	85.1	52.3	1.17
3	1016657	3000	3750	136	M20X2.50X75	27.8	167	75.2	34.7	25.4	124	76.6	3.09
3	1016668	4200	5250	312	M24X3.00X80	32.8	167	75.2	34.7	25.4	124	70.5	3.21
4	1016679	7000	8750	637	M30X3.50X120	61.7	222	94.2	44.5	30.5	157	102	6.53
5	1016690	11000	13750	1005	M36X4.00X150	54.0	318	120	60.7	44.5	215	142	16.8
5	1016701	12500	15600	1005	M42X4.50X160	64.0	318	120	60.7	44.5	215	136	17.4
5	1016712	13500	16900	1350	M48X5.00X160	74.0	318	120	60.7	44.5	215	130	18.0

*The tightening torque values shown are based upon threads being clean, dry and free of lubrication.

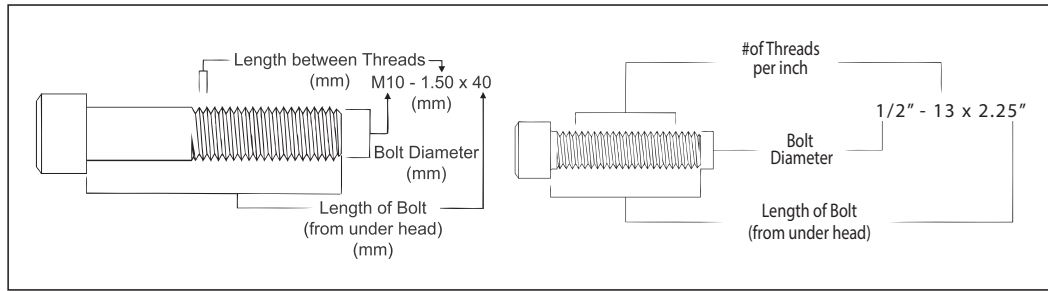
† Individually proof loaded to 2-1/2 times the Working Load Limit based on the 4:1 design factor.

‡ Bolt specification is a Grade 12.9 Alloy socket head cap screw to Din 912. All threads are metric (ASME/ANSI B18.3.1m).

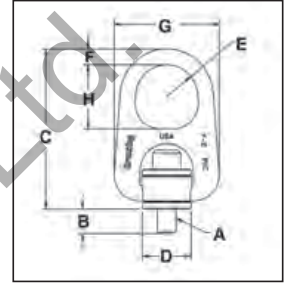
Heavy Lift Swivel Hoist Rings



HR-1000



- Forged bail provides the following:
 - Easily readable "Raised Lettering" showing the name Crosby or "CG" and PIC Code for material traceability.
 - Greater durability providing the increased "Toughness" desired in potentially abusive field conditions
 - Larger opening than standard Hoist Ring bail.
- Top washer is color coded for easy identification (Red for UNC threads and Silver for Metric threads)
- The Working Load Limit and Recommended Torque value are permanently stamped into each washer.
- Individually Proof Tested to 2-1/2 times Working Load Limit.
- Available in both UNC Thread and Metric Thread style.
- **BOLT SIZE IDENTIFICATION:** The size of the bolt will be stated as in the drawing below. Illustration shows meaning of each dimension given.
- **NOTE:** For Special Applications, see page 481.
- Frame 2 and larger are **RFID EQUIPPED**.



Fatigue Rated



Load Rated

SEE APPLICATION AND WARNING INFORMATION
On Pages 210-211
Para Español: www.thecrosbygroup.com

Rigging Accessories

HR-1000 UNC Threads

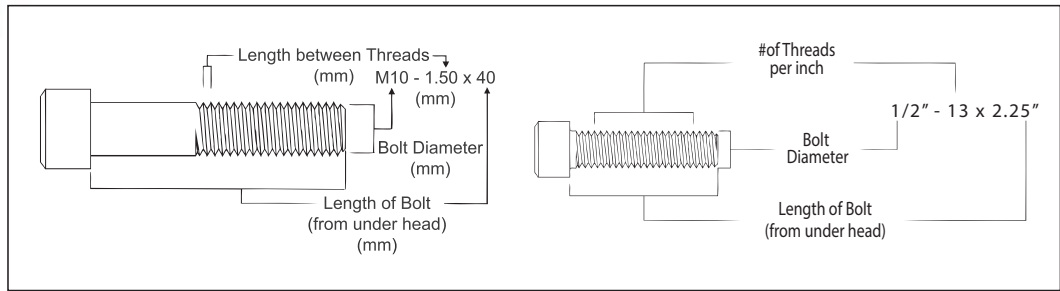
Frame Size No.	HR-1000 Stock No.	Working Load Limit (kg)*	Torque (Nm)	Bolt Size A ‡ (in)	Eff. Thread Projection Length B	Dimensions (mm)						Weight Each (kg.)
						C	D	Radius E	F	G	H	
1	1068002	363	10	5/16 - 18 x 1.50	13.2	93.7	24.6	15.7	11.2	57.7	35.1	.27
1	1068006	454	16	3/8 - 16 x 1.50	13.2	93.7	24.6	15.7	11.2	57.7	35.1	.28
2	1068010	1134	38	1/2 - 13 x 2.25	17.5	159	49.8	31.8	.75	107	63.5	1.38
2 †	1068014	1134	38	1/2 - 13 x 2.75	30.2	159	49.8	31.8	.75	107	63.5	1.39
2	1068018	1814	81	5/8 - 11 x 2.25	17.5	159	49.8	31.8	.75	107	63.5	1.41
2 †	1068022	1814	81	5/8 - 11 x 3.00	36.6	159	49.8	31.8	.75	107	63.5	1.44
2	1068026	2268	136	3/4 - 10 x 2.50	23.9	159	49.8	31.8	.75	107	63.5	1.47
2 †	1068030	2268	136	3/4 - 10 x 3.00	36.6	159	49.8	31.8	.75	107	63.5	1.50
3	1068034	3175**	136	3/4 - 10 x 3.00	21.6	220	75.2	41.4	25.4	159	82.6	4.58
3 †	1068038	3175**	136	3/4 - 10 x 3.50	34.3	220	75.2	41.4	25.4	159	82.6	4.63
3	1068042	3629	217	7/8 - 9 x 3.00	21.6	220	75.2	41.4	25.4	158	82.6	4.63
3 †	1068046	3629	217	7/8 - 9 x 3.50	34.3	220	75.2	41.4	25.4	158	82.6	4.71
3	1068050	4536	312	1 - 8 x 3.50	34.3	220	75.2	41.4	25.4	158	82.6	4.76
3 †	1068054	4536	312	1 - 8 x 4.50	59.7	220	75.2	41.4	25.4	158	82.6	4.86
4	1068058	6804	637	1-1/4 - 7 x 5.00	53.1	285	94.2	50.8	31.8	199	102	9.93
4	1068062	10890	1085	1-1/2 - 6 x 5.50	65.8	285	94.2	50.8	36.6	199	102	10.4

HR-1000M Metric Threads

Frame Size No.	HR-1000M Stock No.	Working Load Limit (kg)*			Torque (Nm)	Bolt Size A ‡ ‡	Eff. Thread Projection Length B	Dimensions (mm)						Weight Each (kg)
		At a 5:1 Design Factor***	At a 4:1 Design Factor***					C	D	Radius E	F	G	H	
1	1068307	400	500	10	M8 x 1.25 x 40	15.2	93.7	24.6	15.7	11.2	57.7	35.1	.3	
1	1068316	450	550	16	M10 x 1.50 x 40	15.2	93.7	24.6	15.7	11.2	57.7	35.1	.3	
2	1068325	1050	1300	38	M12 x 1.75 x 55	15.5	162	49.8	31.8	19.1	107	63.5	1.5	
2	1068334	1900	2400	81	M16 x 2.00 x 65	25.5	162	49.8	31.8	19.1	107	63.5	1.5	
2	1068343	2150	2700	136	M20 x 2.50 x 70	30.5	162	49.8	31.8	19.1	107	63.5	1.6	
3	1068352	3000	3750	136	M20 x 2.50 x 80	25.4	220	75.2	41.4	25.4	159	82.6	4.6	
3	1068361	4200	5250	312	M24 x 3.00 x 90	35.4	220	75.2	41.4	25.4	159	82.6	4.8	
4	1068370	7000	8750	637	M30 x 3.50 x 140	66.2	285	94.2	50.8	31.8	199	102	9.7	
4	1068389	11000	13750	1005	M36 x 4.00 x 130	56.2	285	94.2	50.8	31.8	199	102	10.2	

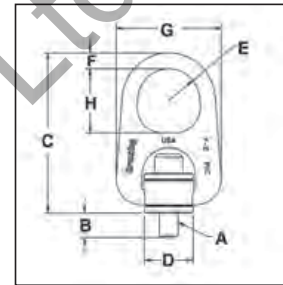
*Ultimate Load is 5 times the Working Load Limit. ** Ultimate Load is 4.5 times the Working Load Limit for 317.5 kg Hoist Ring when tested in 90 degree orientation. *** Individually proof loaded to 2-1/2 times the Working Load Limit based on the 4:1 design factor. † Long Bolts are designed to be used with soft metal (i.e., aluminum) workpiece. While the long bolts may also be used with ferrous metal (i.e., steel & iron) workpiece, short bolts are designed for ferrous workpieces only. ‡ Bolt specification is an Alloy socket head cap screw to ASTM A 574. ‡‡ Bolt specification is a Grade 12.9 Alloy socket head cap screw to DIN 912. NOTE: The tightening torque values shown are based upon threads being clean, dry and free of lubrication.

Heavy Lift Swivel Hoist Rings



HR-1000CT

- All load bearing components are heat treated, Quenched & Tempered alloy steel.
- All components, with the exception of the retaining ring, are produced with maximum material hardness of 34 HRC. All primary load bearing components have charpy impact testing. The body, bushing, washer and bail meet impact requirements of 31 ft-lbs min. avg. at -4°F. The bolt meets impact requirements of 20 ft-lbs min. avg. at -150°F.
- Individually Mag inspected with certification
- Forged bail provides the following:
 - Easily readable raised lettering showing the name Crosby or "CG" and PIC Code for material traceability.
 - Greater durability providing the increased "Toughness" desired in potentially abusive field conditions
 - Larger opening than standard Hoist Ring bail.
- Top washer is color coded for easy identification (blue for UN threads and grey for Metric threads)
- The Working Load Limit and Recommended Torque value are permanently stamped into each washer.
- Individually Proof Tested to 2 times Working Load Limit (90° and in-line).
- **BOLT SIZE IDENTIFICATION:** The size of the bolt will be stated as in the drawing above. Illustration shows meaning of each dimension given.
- **NOTE:** For Special Applications, see page 481.
- Type approval and certification in accordance with DNV O shore Standard DNV-OS-E101, Drilling Plant, October 2013 and Standard for Certification No. 2.22 Lifting Appliances.
- Frame 2 and larger are **RFID EQUIPPED**.
- Individually serialized.
- 100% MPI all primary load bearing components.
- Coating: Thermo-diffusion galvanized.
- Optional bolt sizes available upon request.



Fatigue Rated



Load Rated

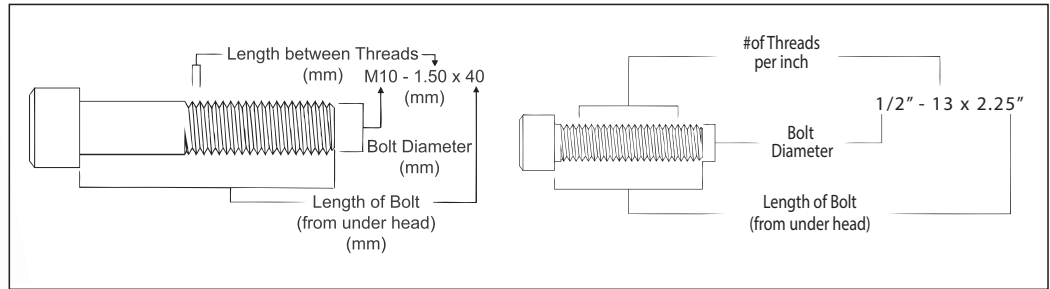


HR-1000CT UN Threads

Frame Size No.	HR-1000CT Stock No.	Working Load Limit (kg)*	Torque (Nm)	Dimensions (mm)								Mass Each (kg)
				Bolt Size A ‡	Eff. Thread Projection Length B	C	D	Radius E	Diameter F	G	H	
2	6608103	862	38	1/2 - 13 x 2.25	17.8	161	49.8	31.8	19.1	107	63.5	1
2	6608112	862	38	1/2 - 13 x 2.75	30.5	161	49.8	31.8	19.1	107	63.5	1
2	6608121	1361	81	5/8 - 11 x 2.25	17.8	161	49.8	31.8	19.1	107	63.5	1
3	6608130	2177	136	3/4 - 10 x 3.00	21.6	218	75.2	41.4	25.4	159	82.6	5
3	6608139	2812	217	7/8 - 9 x 3.00	21.6	218	75.2	41.4	25.4	159	82.6	5
3	6608148	3765	312	1 - 8 x 3.50	34.3	218	75.2	41.4	25.4	159	82.6	5
4	6608149	5670	637	1-1/4 - 7 x 5.00	53.3	287	94.2	50.8	36.6	207	102	11
4	6607669	9072	1085	1-1/2 - 6 x 5.50	66.0	287	94.2	50.8	36.6	207	102	12
4	6607727	9072	1085	1-1/2 - 8 x 5.50	66.0	287	94.2	50.8	36.6	207	102	12
5	6607670	12701	1491	2 - 4.5 x 7.50	81.3	385	102	68.3	44.5	296	127	31
6	6607671	20412	2847	2 1/2 - 4 x 9.50	94.7	506	146	76.2	69.9	368	143	71

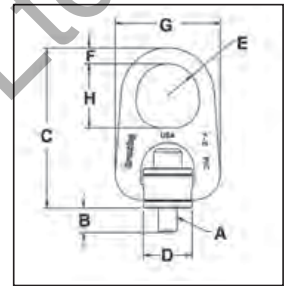
*Ultimate Load is 5 times the Working Load Limit. ‡ Bolt specification is an Alloy socket head cap screw to ASTM A320 Grade L7 or L43.
NOTE: The tightening torque values shown are based upon threads being clean, dry and free of lubrication.

Heavy Lift Swivel Hoist Rings



HR-1000MCT

- All load bearing components are heat treated, Quenched & Tempered alloy steel.
- All components, with the exception of the retaining ring, are produced with maximum material hardness of 34 HRC. All primary load bearing components have charpy impact testing. The body, bushing, washer and bail meet impact requirements of 31 ft-lbs min. avg. at -4°F. The bolt meets impact requirements of 20 ft-lbs min. avg. at -150°F.
- Individually Mag inspected with certification
- Forged bail provides the following:
 - Easily readable raised lettering showing the name Crosby or "CG" and PIC Code for material traceability.
 - Greater durability providing the increased "Toughness" desired in potentially abusive field conditions
 - Larger opening than standard Hoist Ring bail.
- Top washer is color coded for easy identification (blue for UNC threads and grey for Metric threads).
- The Working Load Limit and Recommended Torque value are permanently stamped into each washer.
- Individually Proof Tested to 2 times Working Load Limit (90° and in-line).
- BOLT SIZE IDENTIFICATION:** The size of the bolt will be stated as in the drawing above. Illustration shows meaning of each dimension given.
- NOTE:** For Special Applications, see page 481.
- Type approval and certification in accordance with DNV O fshore Standard DNV-OS-E101, Drilling Plant, October 2013 and Standard for Certification No. 2.22 Lifting Appliances.
- Frame 2 and larger are **RFID EQUIPPED**.
- Individually serialized.
- 100% MPI all primary load bearing components.
- Coating: Thermo-diffusion galvanized.
- Optional bolt sizes available upon request.



Rigging Accessories

Fatigue Rated



Load Rated



HR-1000MCT Metric Threads

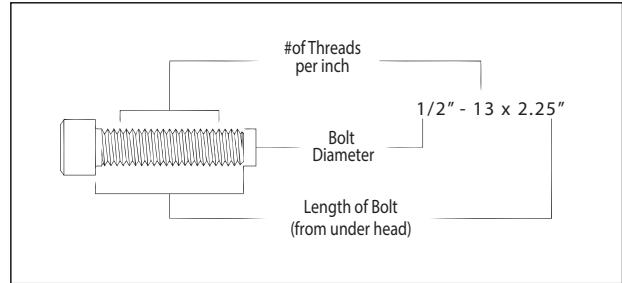
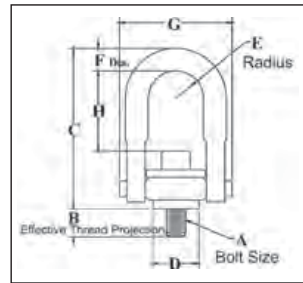
Frame Size No.	HR-1000MCT Stock No.	Working Load Limit (kg)*		Torque (Nm)	Dimensions (mm)								Mass Each (kg.)
		Design Factor 5:1	Design Factor 4:1		Bolt Size A ‡	Eff. Thread Projection Length B	C	D	Radius E	Diameter F	G	H	
2	6630058	825	1,030	38	M12 x 1.75 x 55	15.6	160.6	49.7	31.8	19.1	106.7	63.5	1
2	6630059	1,350	1,690	81	M16 x 2.00 x 65	25.5	160.6	49.7	31.8	19.1	106.7	63.5	1
3	6630060	2,250	2,810	136	M20 x 2.50 x 80	25.3	218.2	75.1	41.4	25.4	158.8	82.6	5
3	6630061	3,175	3,970	312	M24 x 3.00 x 90	35.4	218.2	75.1	41.4	25.4	158.8	82.6	5
4	6630062	5,450	6,810	637	M30 x 3.50 x 140	65.9	287.3	94.1	50.8	36.6	206.5	101.6	11
4	6630063	7,450	9,310	1,005	M36 x 4.00 x 130	56.3	287.3	94.1	50.8	36.6	206.5	101.6	12
5	6630064	13,250	16,560	1,350	M48 x 5.00 x 180	70.7	384.9	101.6	68.3	44.5	295.6	127.0	30

*Ultimate Load is 5 times the Working Load Limit. ‡ Bolt specification is an Alloy socket head cap screw to ASTM A320 Grade L7 or L43.
NOTE: The tightening torque values shown are based upon threads being clean, dry and free of lubrication.

Stainless Steel Swivel Hoist Rings



SS-125UNC



- All components are 316 stainless steel, except bolt retainers, which are made from 15-7 PH (UNS 15700) magnetic stainless steel.
- Available in capacities from 200 kg to 22,300 kg.
- Rated at 100 percent at 90 degree angle.
- Each product has a Product Identification Code (PIC) for material traceability, along with the Working Load Limit and the name Crosby or "CG" stamped into it.
- Individually proof tested to 2 times the Working Load Limit with certification
- Fatigue Rated to 20,000 cycles at 1-1/2 times the Working Load Limit.
- Washer is color coded for easy identification (Red - UNC thread)
- Bolt specification is 316 Stainless Steel socket head cap screw to ASTM F 837M (316).
- All threads listed are Metric (ASME/ANSI B18.3.1M).
- **BOLT SIZE IDENTIFICATION:** The size of the bolt will be stated as in the drawing above. Illustration shows meaning of each dimension given.
- **NOTE:** For Special Applications, see page 481.
- Frame 2 and larger are **RFID EQUIPPED**.

Fatigue Rated



Load Rated

SEE APPLICATION AND WARNING INFORMATION
On Pages 210 - 211
Para Español: www.thecrosbygroup.com

SS-125UNC Threads

Frame Size No.	SS-125UNC Stock No.	Working Load Limit (kg)*	Torque (Nm)	Bolt Size A ‡	Effective Thread Projection Length B	Dimensions (mm)						Weight Each (kg.)
						C	D	Radius E	Diameter F	G	H	
1	1065000	181	4.7	5/16 - 18 x 1.0	.29	2.67	.71	.43	.34	1.84	1.27	.30
1	1065004	181	4.7	5/16 - 18 x 1.25	.54	2.67	.71	.43	.34	1.84	1.27	.30
1	1065008	227	8	3/8 - 16 x 1.25	.54	2.67	.71	.43	.34	1.84	1.27	.30
2	1065016	567	19	1/2 - 13 x 2.0	.78	4.78	1.45	.88	.69	3.52	2.31	2.6
2	1065020	567	19	1/2 - 13 x 2.25	1.03	4.78	1.45	.88	.69	3.52	2.31	2.6
2	1065024	567	19	1/2 - 13 x 2.5	1.28	4.78	1.45	.88	.69	3.52	2.31	2.6
2	1065028	907	41	5/8 - 11 x 2.0	.78	4.78	1.45	.88	.69	3.52	2.18	2.6
2	1065032	907	41	5/8 - 11 x 2.25	1.03	4.78	1.45	.88	.69	3.52	2.18	2.6
2	1065036	907	41	5/8 - 11 x 2.5	1.28	4.78	1.45	.88	.69	3.52	2.18	2.6
2	1065040	1134	68	3/4 - 10 x 2.25	1.03	4.78	1.45	.88	.69	3.52	2.06	3.0
2	1065044	1134	68	3/4 - 10 x 2.75	1.53	4.78	1.45	.88	.69	3.52	2.06	3.0
3	1065048	1588	68	3/4 - 10 x 2.75	1.04	6.52	2.20	1.40	.94	5.14	3.06	7.0
3	1065052	1588	68	3/4 - 10 x 3.25	1.54	6.52	2.20	1.40	.94	5.14	3.06	7.0
3	1065056	1814	108	7/8 - 9 x 2.75	1.04	6.52	2.20	1.40	.94	5.14	2.93	7.0
3	1065060	1814	108	7/8 - 9 x 3.0	1.29	6.52	2.20	1.40	.94	5.14	2.93	7.0
3	1065068	2268	156	1 - 8 x 3.25	1.54	6.52	2.20	1.40	.94	5.14	2.81	7.5
3	1065072	2268	156	1 - 8 x 4.0	2.29	6.52	2.20	1.40	.94	5.14	2.81	7.5
4	1065080	2268	156	1-1/4 - 7 x 4.0	1.89	8.73	3.19	1.75	1.25	6.50	4.12	14.0
5	1065084	3402	319	1-1/2 - 6 x 5.5	2.70	12.47	4.87	2.25	1.75	8.55	6.41	34.0
5	1065088	5443	542	2 - 4.5 x 5.75	2.96	12.47	4.87	2.25	1.75	8.55	5.91	36.0
6	1065092	6804	746	2-1/2 - 4 x 8.0	4.00	16.87	6.52	3.00	2.25	11.67	8.03	88.0
6	1065096	11340	1424	2-1/2 - 8 x 8.0	4.00	16.87	6.52	3.00	2.25	11.67	8.03	88.0
7	1065100	11340	1424	3 - 4 x 10.25	5.00	19.50	8.10	3.75	2.75	14.15	8.48	166.0
8	1065104	17010	2915	3-1/2 - 4 x 13	7.00	22.09	8.60	4.00	3.25	15.90	9.28	265.0
8	1065263	22680	3457	1 - 8 x 3.0	177	561	216	102	83	404	235	118.0

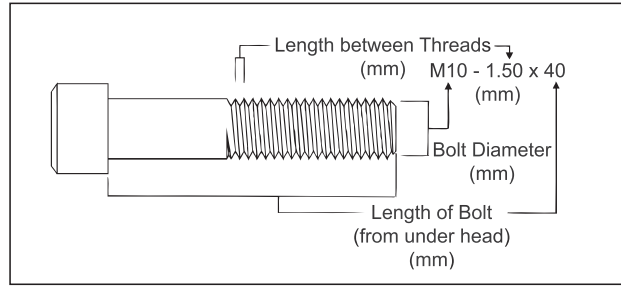
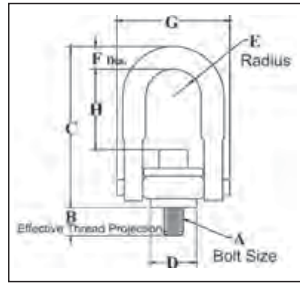
*Ultimate Load is 5 times the Working Load Limit.

‡ Bolt specification is 316 Stainless Steel socket head cap screw to ASTM F 837M Group 1 (316).

Stainless Steel Swivel Hoist Rings



SS-125M



- All components are 316 stainless steel, except bolt retainers, which are made from 15-7 PH (UNS 15700) magnetic stainless steel.
- Available in capacities from 200 kg to 22.300 kg.
- Rated at 100 percent at 90 degree angle.
- Each product has a Product Identification Code (PIC) for material traceability, along with the Working Load Limit and the name Crosby or "CG" stamped into it.
- Individually proof tested to 2 times the Working Load Limit with certification
- Fatigue Rated to 20,000 cycles at 1-1/2 times the Working Load Limit.
- Washer is color coded for easy identification (Silver - Metric thread)
- Bolt specification is 316 Stainless Steel socket head cap screw to ASTM F 837M (316).
- All threads listed are Metric (ASME/ANSI B18.3.1M).
- **BOLT SIZE IDENTIFICATION:** The size of the bolt will be stated as in the drawing above. Illustration shows meaning of each dimension given.
- **NOTE:** For Special Applications, see page 481.
- Frame 2 and larger are **RFID EQUIPPED**.

Fatigue Rated



Load Rated



SS-125M Metric Threads

Frame Size No.	SS-125M Stock No.	Working Load Limit (kg)*	Torque (Nm)	Bolt Size A ‡	Effective Thread Projection Length B	Dimensions (mm)						Weight Each (kg)
						C	D	Radius E	Diameter F	G	H	
1	1065203	200	4	M8 x 1.25	13	68	18	11	8.5	47	32	.17
1	1065207	250	8	M10 x 1.50	18	68	18	11	8.5	47	30	.17
2	1065211	525	18	M12 x 1.75	19	121	37	22	17.5	89	60	1.1
2	1065215	950	40	M16 x 2.00	29	121	37	22	17.5	89	56	1.1
2	1065219	1075	68	M20 x 2.50	34	121	37	22	17.5	89	52	1.2
3	1065223	1500	68	M20 x 2.50	32	166	56	36	25	131	78	3.0
3	1065227	2100	108	M24 x 3.00	37	166	56	36	25	131	74	3.1
3	1065231	2100	108	M30 x 3.50	58	206	56	36	25	131	108	3.1
4	1065235	3500	318	M30 x 3.50	42	222	81	45	31	165	106	6.3
4	1065239	3500	318	M30 x 3.50	62	222	81	45	31	165	106	6.4
5	1065243	5500	542	M36 x 4.00	64	317	124	57	43	217	166	15.5
5	1065247	6250	542	M42 x 4.50	82	317	124	57	43	217	160	16.0
5	1065251	6750	542	M48 x 5.00	82	317	124	57	43	217	154	16.8
6	1065255	11150	1423	M64 x 6.00	101	428	165	76	56	296	204	39.0
7	1065259	15750	2915	M72 x 6.00	132	495	206	95	69	359	220	74.0
8	1065263	22300	3459	M90 x 6.00	177	561	216	102	83	404	235	118.0

*Ultimate Load is 5 times the Working Load Limit.

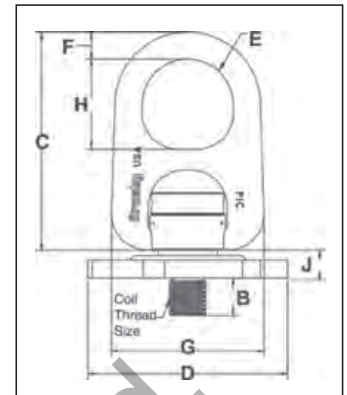
‡ Bolt specification is 316 Stainless Steel socket head cap screw to ASTM F 837 Group 1 (316).

Trench Cover Hoist Rings



HR-500

- Designed to simplify the lifting and placement of steel plates used to cover trenches in streets.
- Provides a standard fitting to be used in place of products not designed for trench cover applications.
- Capacities of 2.27, 4.54 & 6.82t for plate thicknesses of 19mm to 38mm.
- Detailed welding instructions included with every hoist ring.
- Forged bail provides the following:
 - Easily readable raised lettering showing the name Crosby or "CG" and PIC code for material traceability.
 - More durability provides the increased "Toughness" desired in potentially abusive field conditions
- 180 degree pivot and 360 degree rotation at full capacity.
- Design Factor of 5 to 1.
- Individually Proof Tested to 2-1/2 times Working Load Limit.
- All sizes are RFID EQUIPPED.



HR-500 Trench Cover Hoist Rings Coil Threads

HR-500 Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)								
			Coil Thread Size A	Effective Thread Projection Length B	C	D	Radius E	F	G	H	J
1017907	2.27	2.5	1" - 3.5	25.4	150	140	31.8	19.1	107	63.5	19.6
1017916	4.54	7.1	1-1/4" - 3.5	25.4	210	178	41.4	25.4	159	82.5	20.6
1017925	6.82	13.5	1-1/2" - 3.5	38.1	270	232	51.0	31.8	199	102.0	20.3

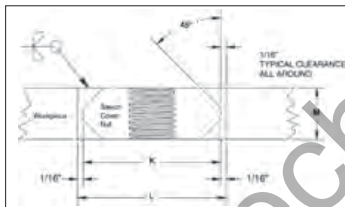
*Ultimate Load is 5 times the Working Load Limit.



HRN-500

HRN-500 Trench Cover Nuts

HRN-500 Stock No.	Working Load Limit (t)	Weight Each (kg)	Coil Thread Size	Dimensions (mm)		
				Nut Diam. K	Trench Cover Hole Diam. L	Nut Thickness M
1063405	2.27	.45	1" - 3.5	76.2	79.2	19.1
1063414	2.27	.64	1" - 3.5	76.2	79.2	22.4
1063423	2.27	.73	1" - 3.5	76.2	79.2	25.4
1063432	4.54	.50	1-1/4" - 3.5	76.2	79.2	19.1
1063441	4.54	.59	1-1/4" - 3.5	76.2	79.2	22.4
1063450	4.54	.68	1-1/4" - 3.5	76.2	79.2	25.4
1063454	4.54	.86	1-1/4" - 3.5	76.2	79.2	31.8
1063458	4.54	1.04	1-1/4" - 3.5	76.2	79.2	38.1
1063469	6.82	.91	1-1/2" - 3.5	88.9	91.9	25.4
1063478	6.82	1.18	1-1/2" - 3.5	88.9	91.9	31.8
1063487	6.82	1.41	1-1/2" - 3.5	88.9	91.9	38.1



Trench Cover Lifting Ring Tools and Accessories



HR-500HG Hole Gauge

Aids in determining when studs and plate nuts need replacing.

Coil Thread Size (in)	HR-500HG Stock No.	Weight Each (kg)
1.00 - 3.5	1064666	.27
1.25 - 3.5	1064675	.36
1.50 - 3.5	1064684	.45



HR-500TC Thread Clean-Up Tool

Cleans dirt and other material as from nut threads.

Coil Thread Size (in)	HR-500TC Stock No.	Weight Each (kg)
1.00 - 3.5	1064639	.27
1.25 - 3.5	1064648	.36
1.50 - 3.5	1064657	.45



HR-500WF Weld Fixture

Holds nut securely in place to ease in initial tack welding.

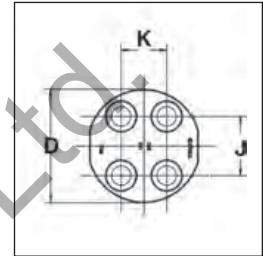
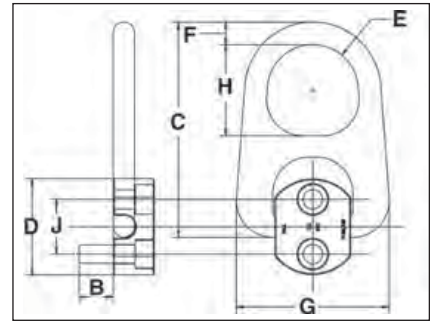
Coil Thread Size (in)	HR-500WF Stock No.	Weight Each (kg)
1.00 - 3.5	1064602	.27
1.25 - 3.5	1064611	.36
1.50 - 3.5	1064620	.45

Pivot Hoist Rings



HR-100 UNC

- Forged bail provides the following:
 - Easily readable raised lettering showing the name Crosby or "CG" and PIC code for material traceability.
 - More durability provides the increased "Toughness" desired in potentially abusive field conditions
 - Larger opening than standard Hoist Ring bails.
- 180 degree pivot action at full capacity.
- Bolts included as part of assembly.
- Design Factor of 5 to 1.
- Individually Proof Tested to 2-1/2 times Working Load Limit.
- UNC Bolt specification is a Grade 8 Alloy socket head cap screw to ASTM A 574.
- Frame 2 and larger are **RFID EQUIPPED**.



Load Rated



Rigging Accessories

HR-100 Pivot Hoist Rings Coil Threads

Frame Size No.	HR-100 Stock No.	Working Load Limit (kg)*	Torque (Nm)	No. of Bolts	Weight Each (kg)	Bolt Size A (in)	Dimensions (mm)									
							Effective Thread Projection Length B	C	Diameter D	Radius E	F	G	H	J	K	
1	1067408	907	10	2	.30	5/16-18 x 1.25	20.8	87.1	50.8	15.7	11.2	57.7	35.1	25.4	-	
2	1067417	1134	16	2	1.40	3/8-16 x 1.25	16.5	153	57.2	31.8	19.1	107	63.5	28.6	-	
2	1067426	2268	38	2	1.50	1/2-13 x 2.00	35.6	153	66.8	31.8	19.1	107	63.5	38.1	-	
3	1067435	5443	38	4	4.80	1/2-13 x 2.75	41.9	210	79.5	41.4	25.4	159	82.6	41.3	31.8	
4	1067444	9072	81	4	10.0	5/8-11 x 3.25	41.9	270	114	50.8	31.8	199	102	52.4	31.8	

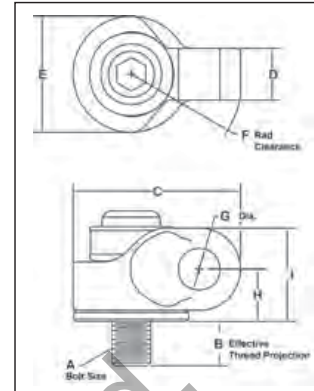
*Ultimate Load is 5 times the Working Load Limit.

HR-1200 Side Pull Hoist Rings



HR-1200

- Wide range of capacities available:
 - 650 lbs. to 29,000 lbs.
 - Metric sizes from 300 kg. to 13,000 kg.
- Body components are Alloy Steel - Quenched and Tempered.
- Rated at 100% of Working Load Limit for angles up to 90 degrees.
- Each product is stamped with a Product Identification Code (PIC) for material traceability, along with a Working Load Limit, and the name Crosby or "CG".
- Hoist Ring body is furnished with Yellow Chromate finish for improved corrosion resistance.
- Utilize standard Crosby Red Pin® Shackles to connect to wire rope or synthetic slings. (sold separately)
- Multiple bolt lengths available to meet specific application requirements.
- Individually Proof Tested to 2-1/2 times Working Load Limit.
- All sizes are RFID EQUIPPED.



Load Rated

SEE APPLICATION AND WARNING INFORMATION
On Page 206 -207
Para Español: www.thecrosbygroup.com

HR-1200 UNC Side Pull Hoist Rings

Weight Each (kg.)	Working Load Limit (lb)*	HR-1200 Stock No.	Hoist Ring Bolt Torque (ft•lbf)	A Bolt Size (mm)	B Eff. Thread Proj. (mm)	Dimensions (mm)							Recommended Shackles			
						C	D	E	F	G	H	I	Red Pin® Shackles 209,210,213, 215,2130,2150		Red Pin Web Shackles S-281	
													Nominal Size (in)	WLL (t)	Web Size (mm)	WLL (t)
.16	650	1067700	7	5/16-18x1.50	15.0	49.0	18.3	25.4	39.6	20.3	21.6	36.3	1/2, 5/8	2, 3-1/4	50	2.95
.16	800	1067704	12	3/8-16x1.50	15.0	49.0	18.3	25.4	39.6	20.3	21.6	36.3	1/2, 5/8	2, 3-1/4	50	2.95
.64	2000	1067708	28	1/2-13x2.00	18.0	75.4	24.6	50.8	54.1	23.6	27.2	45.5	5/8, 3/4	3-1/4, 4-3/4	50, 35	2.95, 4.08
.64	2000	1067712	28	1/2-13x2.50	30.7	75.4	24.6	50.8	54.1	23.6	27.2	45.5	5/8, 3/4	3-1/4, 4-3/4	50, 35	2.95, 4.08
.68	3000	1067716	60	5/8-11x2.00	18.0	75.4	24.6	50.8	54.1	23.6	27.2	45.5	5/8, 3/4	3-1/4, 4-3/4	50, 35	2.95, 4.08
.68	3000	1067720	60	5/8-11x2.75	37.1	75.4	24.6	50.8	54.1	23.6	27.2	45.5	5/8, 3/4	3-1/4, 4-3/4	50, 35	2.95, 4.08
2.04	5000	1067724	100	3/4-10x2.75	22.9	110	34.0	76.2	76.2	27.2	34.3	61.5	7/8	6-1/2	50	5.67
2.09	5000	1067728	100	3/4-10x3.50	41.9	110	34.0	76.2	76.2	27.2	34.3	61.5	7/8	6-1/2	50	5.67
2.09	6500	1067732	160	7/8-9x2.75	22.9	110	34.0	76.2	76.2	27.2	34.3	61.5	7/8	6-1/2	50	5.67
2.18	6500	1067736	160	7/8-9x3.50	41.9	110	34.0	76.2	76.2	27.2	34.3	61.5	7/8	6-1/2	50	5.67
2.18	8000	1067740	230	1-8x3.00	29.2	110	34.0	76.2	76.2	27.2	34.3	61.5	7/8	6-1/2	50	5.67
2.27	8000	1067744	230	1-8x4.00	54.6	110	34.0	76.2	76.2	27.2	34.3	61.5	7/8	6-1/2	50	5.67
4.63	14000	1067748	470	1-1/4-7x4.5	56.4	142	39.9	95.3	99.3	37.3	48.8	86.9	1, 1-1/8, 1-1/4	8-1/2, 9-1/2, 12	75	7.70
10.7	17200	1067756	800	1-1/2-6x6.5	75.7	186	52.3	121	132	53.6	61.2	109	1-3/8, 1-1/2, 1-3/4	13-1/2, 17, 25	-	-
11.5	29000	1067764	1100	2-4.5x6.5	75.7	186	52.3	121	132	53.6	61.2	109	1-3/8, 1-1/2, 1-3/4	13-1/2, 17, 25	-	-

*Ultimate Load is 5 times the Working Load Limit.

HR-1200M Metric Side Pull Hoist Rings

Weight Each (kg)	Working Load Limit (kg)*	HR-1200M Stock No.	Hoist Ring Bolt Torque (Nm)	(A) Bolt Size (mm)	(B) Eff. Thread Proj. (mm)	Dimensions (mm)							Recommended Shackles			
						C	D	E	F	G	H	I	Red Pin® Shackles 209,210,213, 215,2130,2150		Red Pin Web Shackles S-281	
													Nominal Size (in)	WLL (t)	Web Size (mm)	WLL (t)
.18	300	1067803	10	M8x1.25x40	16.9	49.0	18.3	25.4	39.6	20.3	21.6	36.3	1/2, 5/8	2, 3-1/4	50	2.95
.18	400	1067807	16	M10x1.50x40	16.9	49.0	18.3	25.4	39.6	20.3	21.6	36.3	1/2, 5/8	2, 3-1/4	50	2.95
.63	1000	1067811	38	M12x1.75x50	17.2	75.4	24.6	50.8	54.1	23.6	27.2	45.5	5/8, 3/4	3-1/4, 4-3/4	50, 35	2.95, 4.08
.68	1400	1067815	81	M16x2.0x60	27.2	75.4	24.6	50.8	54.1	23.6	27.2	45.5	5/8, 3/4	3-1/4, 4-3/4	50, 35	2.95, 4.08
2.0	2250	1067823	136	M20x2.5x75	28.1	110	34.0	76.2	76.2	27.2	34.4	61.5	7/8	6-1/2	50	5.67
2.2	3500	1067827	312	M24x3.0x80	33.1	110	34.0	76.2	76.2	27.2	34.4	61.5	7/8	6-1/2	50	5.67
4.5	6250	1067831	637	M30x3.5x120	65.1	142	39.9	95.3	99.3	37.3	48.8	86.9	1, 1-1/8,1-1/4	8-1/2, 9-1/2, 12	75	7.70
10.4	7750	1067835	1005	M36x4.0x150	60.6	186	52.3	121	132	53.6	61.2	109	1-3/8, 1-1/2,1-3/4	13-1/2, 17, 25	-	-
10.7	10000	1067839	1005	M42x4.5x160	70.6	186	52.3	121	132	53.6	61.2	109	1-3/8, 1-1/2,1-3/4	13-1/2, 17, 25	-	-
11.0	13000	1067843	1350	M48x5.0x160	70.6	186	52.3	121	132	53.6	61.2	109	1-3/8, 1-1/2,1-3/4	13-1/2, 17, 25	-	-

*Ultimate Load is 5 times the Working Load Limit.

Crosby Rig Safe, Rig Smart Truck



On-site safe rigging training

The Crosby Rig Safe, Rig Smart Truck brings safe, effective rigging training to your job site. Crosby trainers deliver 30–45 minute toolbox talks followed by live load cell and product load test presentations.

Rig Safe. Rig Smart. Rig Crosby.

Learn more at rigcrosby.com

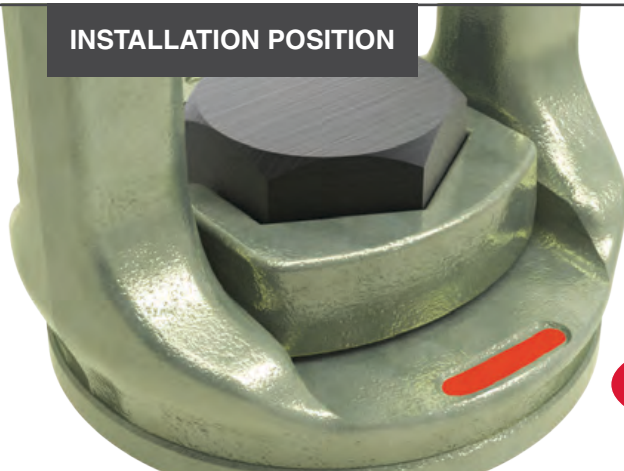


Crosby®

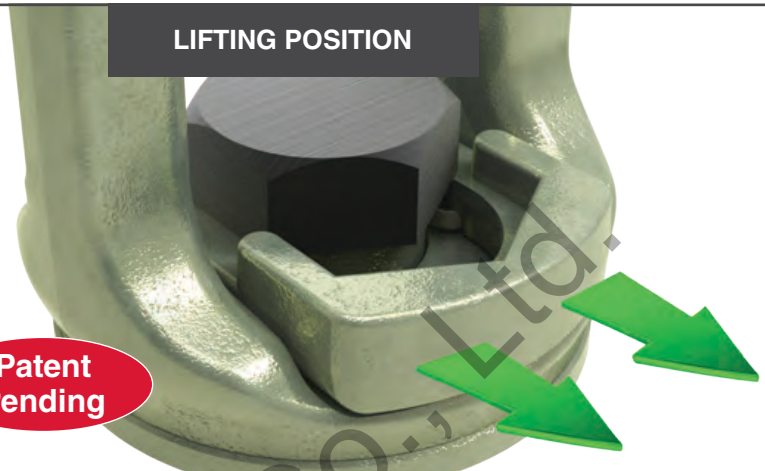


Crosby SL-150 Slide-Loc™

INSTALLATION POSITION



LIFTING POSITION



Patent Pending

The visible red QUIC-CHECK® mark indicates that the Crosby Slide-Loc™ is ready for installation but not for lifting.

QUIC-CHECK®

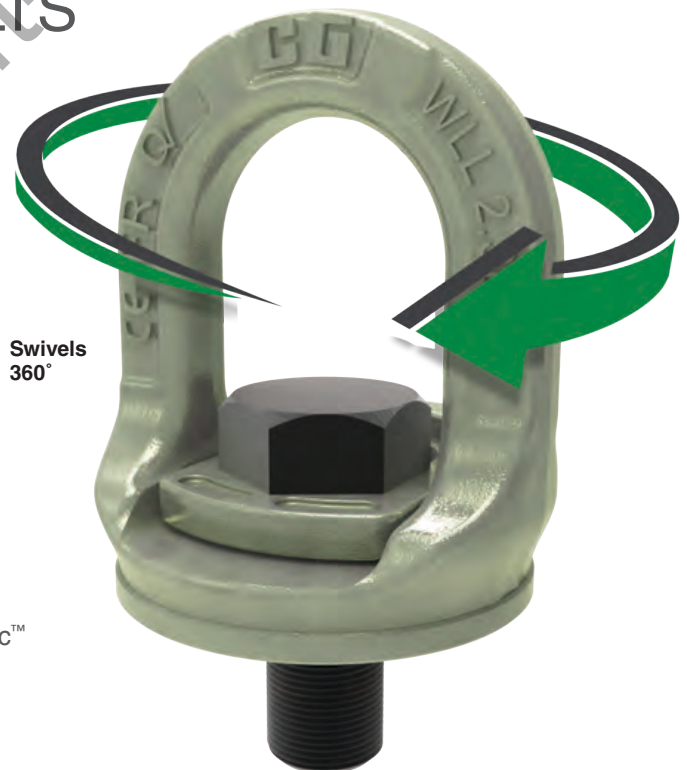


When the red QUIC-CHECK® mark is under the slide, the Crosby Slide-Loc™ is ready for lifting.

CROSBY'S INNOVATIVE ALTERNATIVE TO STANDARD EYE BOLTS

The new Crosby SL-150 Slide-Loc™ provides features not found on standard lifting eye bolts. At the center of the new design is the **patent pending locking mechanism** that slides to lock the bolt for faster installation, then slides back to make ready for lifting — *without the need for tools*.

- When compared to respective size eye bolts, the Crosby SL-150 Slide-Loc™:
 - Has a larger eye opening for easy access.
 - Utilizes a bail that swivels 360° to keep load aligned with the sling leg, and maintains full WLL at any angle.
- Fatigue Rated® to 20,000 cycles at 1-1/2 times the WLL.
- The patent pending locking mechanism provides quicker installation, without the need for tools.
- QUIC-CHECK® mark indicates if the Crosby SL-150 Slide-Loc™ is ready for the lift.
- Forged alloy steel and Quenched and Tempered bail provides toughness in potentially abusive field conditions.
- Meets the Machinery Directive 2006/42/EC guidelines and is marked with CE accordingly.



Swivels 360°

Fatigue Rated®



Load Rated®

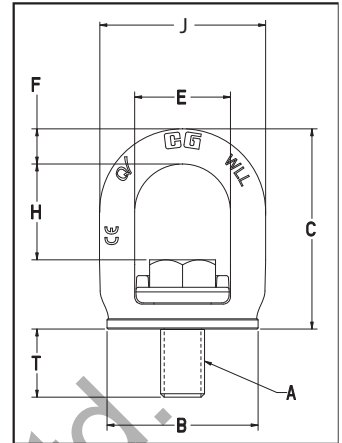


Lifting Points



SL-150
Slide-Loc
Lifting Point

- Available in capacities from .5 to 3.2 metric tons.
- Bail is Forged Alloy Steel – Quenched and Tempered.
- Bail swivels 360° degrees.
- Rated at 100% for 90 degree angle.
- Fatigue rated to 20,000 cycles at 1-1/2 times the Working Load Limit.
- Meets the Machinery Directive 2006/42/EC guidelines and is marked with CE accordingly.
- Bolt specification for metric bolt is Grade 10.9 alloy cap screw to SO 898-1.
- Unique locking mechanism makes the lifting point well suited for quick attachment to load surface. No need for tools.
- Features **QUIC-CHECK®** markings on bail to assist in knowing when device is ready for lifting.



Load Rated

Fatigue Rated

QUIC-CHECK



SEE APPLICATION AND WARNING INFORMATION
On Page 215 -216
Para Español: www.thecrosbygroup.com

Rigging
Accessories

SL-150 UNC SLIDE-LOC™ LIFT POINT

Weight Each (lb)	SL-150 Stock No.	Working Load Limit (t)*	Dimensions (in)							Effective Thread Projection Length
			Bolt Size A	B	C	E	F	H	J	T
0.30	1068407	0.50	3/8 - 16 x 1	1.40	2.09	1.10	0.33	1.11	1.77	0.60
0.53	1068416	0.75	1/2 - 13 x 1 - 1/4	1.67	2.47	1.30	0.41	1.30	2.13	0.79
1.10	1068425	1.50	5/8 - 11 x 1 - 5/8	2.17	2.98	1.46	0.52	1.46	2.50	1.01
2.05	1068434	2.30	3/4 - 10 x 2	2.71	3.59	1.72	0.63	1.72	2.98	1.26
2.16	1068443	2.30	7/8 - 9 x 2	2.71	3.61	1.72	0.63	1.72	2.98	1.23
3.73	1068452	3.20	1 - 8 x 2 - 1/2	3.25	4.33	2.08	0.76	1.93	3.59	1.59

*Ultimate load is 4 times the Working Load Limit.

SL-150 M Metric SLIDE-LOC™ LIFT POINT

Weight Each (kg)	SL-150M Stock No.	Working Load Limit (t)*	Dimensions (mm)							Effective Thread Projection Length
			Bolt Size A	B	C	E	F	H	J	T
.14	1068515	0.50	M10x1.5 X 25	35.5	53.0	28.0	8.5	27.8	45.0	14.6
.23	1068524	0.75	M12x1.75x30	42.5	62.6	33.0	10.5	32.9	54.0	18.3
.50	1068533	1.50	M16x2x40	55.0	75.7	37.0	13.2	37.0	63.4	24.5
.94	1068542	2.30	M20x2.5x50	68.8	91.1	43.9	16.0	43.6	75.6	31.0
1.60	1068551	3.20	M24x3x60	82.5	110.0	52.8	19.2	52.8	91.2	37.0

*Ultimate load is 4 times the Working Load Limit.

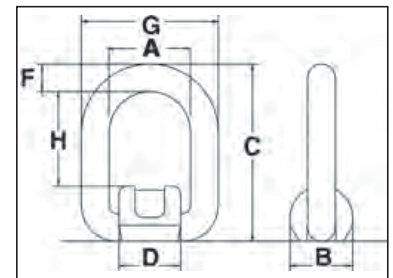


S-265
Weld-On Pivot Link

- Forged Steel — Quenched and Tempered.
- Excellent welding qualities.
- Widely used on farm machinery, trucks, steel hulled marine vessels and material handling equipment.
- Reference American Welding Society specifications for proper welding procedures.


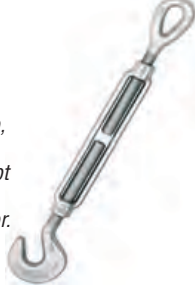



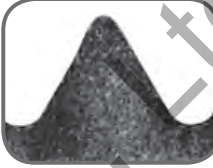
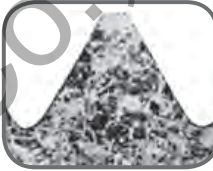


SEE APPLICATION AND WARNING INFORMATION
On Pages 218 -209
Para Español: www.thecrosbygroup.com



S-265 Weld-On Pivot Link

Working Load Limit (t)			S-265 Stock No	Weight Each (kg)	Dimensions (mm)						Minimum Fillet Weld Size (mm)	
Design Factor 5:1	Design Factor 4:1				A	B	C	D	F	G		H
1	1.2		1290740	.40	40	36	83	35	13	66	42	3
2.5	3.2		1290768	.60	45	44	99	42	18	81	48	3
4.2	5.3		1290786	1.20	55	50	123	49	22	99	57	6
6.4	8		1290802	2.40	70	64	144	64	26	122	67	6
12	15		1290820	5.90	97	90	193	86	34	165	94	8

<p>HG-223</p> <p>HOOK & HOOK Meets the performance requirements of Federal Specifications FF- 791b, Type 1, Form 1, Class 5, and ASTM F-1145, except for those provisions required of the contractor.</p> 	<p>HG-225</p> <p>HOOK & EYE Meets the performance requirements of Federal Specifications FF- 791b, Type 1, Form 1, Class 6, and ASTM F-1145, except for those provisions required of the contractor.</p> 	<p>HG-226</p> <p>EYE & EYE Meets the performance requirements of Federal Specifications FF- 791b, Type 1, Form 1, Class 4, and ASTM F-1145, except for those provisions required of the contractor.</p> 
<p>HG-227</p> <p>JAW & EYE Meets the performance requirements of Federal Specifications FF- 791b, Type 1, Form 1, Class 8, and ASTM F-1145, except for those provisions required of the contractor.</p> 	<p>HG-228</p> <p>JAW & JAW Meets the performance requirements of Federal Specifications FF- 791b, Type 1, Form 1, Class 7, and ASTM F-1145, except for those provisions required of the contractor.</p> 	 <p>Modified Thread Note stress relieving radii in this untouched photo enlargement of the supabuckle.</p>  <p>Standard Thread: Note stress building sharp "V" in this untouched photo enlargement.</p>



Turnbuckle Information

- Turnbuckle assembly combinations include: Eye and Eye, Hook and Hook, Hook and Eye, Jaw and Jaw & Jaw and Eye.
- End fittings are Quenched and Tempered or Normalized, bodies heat treated by normalizing.
- Crosby's Quenched and Tempered end fittings and normalized bodies ave enhanced impact properties for greater toughness at all temperatures.
- Hot Dip galvanized.
- Hooks are forged with a greater cross sectional area that results in a stronger hook with better fatigue properties.
- Modified UNJ thread on end fittings for improved fatigue properties. Body has UNC thread
- Turnbuckle eyes are forged elongated, by design, to maximize easy attachment in system and minimize stress in the eye. For turnbuckle sizes 6.35mm through 63.5mm, a shackle one size smaller can be reeved through eye.
- Forged jaw ends are fitted with bolts and nuts on size 6.35mm- 15.9mm, and pins and cotter on sizes 19.1mm - 70.0mm

TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.

- Lock Nuts available for all sizes.
- Typical hardness levels, tensile strengths and ductility properties are available for all sizes.
- Turnbuckles can be furnished proof tested or magnaflux inspected with certificates if requested at time of ord .
- Meets or exceeds all the requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these turnbuckles meet other critical performance requirements, including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.

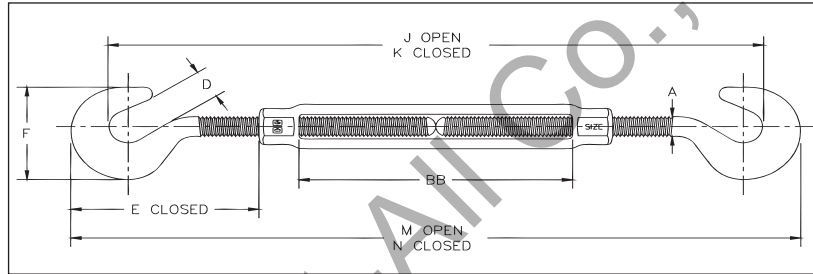
Hooks & Hook Turnbuckles



HG -223
Hook & Hook

- End fittings are Quenched and Tempered or Normalized, bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- Hooks are forged with a greater cross sectional area that results in a stronger hook with better fatigue properties.
- **TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.**
- Modified UNJ thread on end fittings for improved fatigue properties
- Body has UNC threads.
- Lock Nuts available for all sizes (see page 198).
- Comprehensive end fitting data provided on page 194.
- Fatigue Rated.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these turnbuckles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.

Meets the performance requirements of Federal Specifications FF-791b, Type 1 Form 1 - CLASS 5, and ASTM F-1145, except for those provisions required of the contractor. For additional information, see page 476.



HG-223 Hook & Hook

Thread Diameter & Take Up (mm)	HG-223 Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)								
				A	D	E Closed	F	J Open	K Closed	M Open	N Closed	BB
† 6.35 x 102	1030011	.18	.15	6.35	11.2	42.3	32.3	249	187	310	208	103
† 7.94 x 114	1030039	.32	.24	7.94	12.7	50.7	38.1	294	218	358	243	116
† 9.53 x 152	1030057	.45	.38	9.53	14.2	57.8	44.7	387	270	453	301	155
12.7 x 152	1030075	.68	.85	12.7	16.5	89.7	57.9	457	335	527	375	153
12.7 x 305	1030119	.68	1.26	12.7	16.5	89.2	57.9	769	495	839	535	314
15.9 x 305	1030137	1.02	1.46	15.9	22.9	108	71.4	495	368	572	419	153
15.9 x 305	1030173	1.02	2.08	15.9	22.9	107	71.4	809	529	885	580	315
19.1 x 152	1030191	1.36	1.91	19.1	24.9	129	84.6	538	406	620	467	156
19.1 x 305	1030235	1.36	3.14	19.1	24.9	128	84.6	853	568	935	630	320
19.1 x 457	1030253	1.36	3.92	19.1	24.9	129	84.6	1158	721	1240	782	471
22.2 x 305	1030271	1.81	4.47	22.2	28.7	148	96.0	886	597	972	667	309
25.4 x 305	1030333	2.27	6.70	25.4	31.8	167	108	929	637	1019	714	309

*Proof load is 2.5 times the Working Load Limit. Ultimate Load is 5 times the Working Load Limit. † Mechanical Galvanized

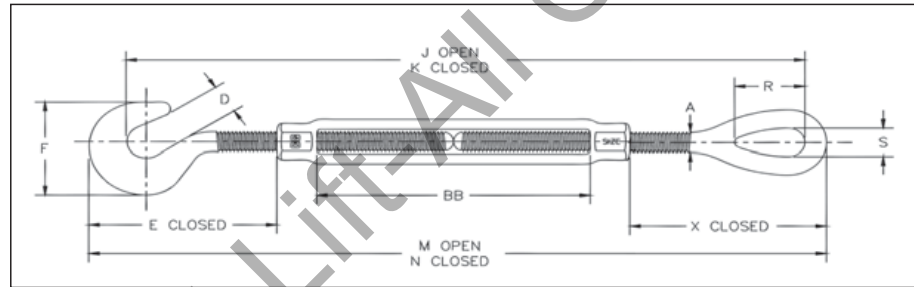
Rigging Accessories



HG -225
Hook & Eye

Meets the performance requirements of Federal Specifications FF-791b, Type 1 Form 1 - CLASS 4, and ASTM F-1145, except for those provisions required of the contractor. For additional information, see page 476.

- End fittings are Quenched and Tempered or Normalized, bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- Turnbuckle eyes are forged elongated, by design, to maximize easy attachment in system and minimize stress in the eye. For turnbuckles sizes 6mm through 25mm, a shackle one size smaller can be reeved through eye.
- Turnbuckle hooks are forged with a greater cross sectional area that results in a stronger hook with better fatigue properties.
- **TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.**
- Modified UNJ thread on end fittings for improved fatigue properties
- Body has UNC threads.
- Lock Nuts available for all sizes (see page 198).
- Comprehensive end fitting data provided on pages 195 & 196.
- Fatigue Rated.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these turnbuckles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26



HG-225 Hook & Eye

Thread Diameter & Take Up (mm)	HG-225 Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)											
				A	D	E Closed	F	J Open	K Closed	M Open	N Closed	R	S	X Closed	BB
† 6.35 x 102	1030636	.18	.14	6.35	11.2	42.3	32.3	296	195	312	211	20.6	8.64	44.6	103
† 7.94 x 114	1030654	.32	.23	7.94	12.7	50.7	38.1	343	229	363	248	24.1	11.2	55.8	116
† 9.53 x 152	1030672	.45	.36	9.53	14.2	57.8	44.7	434	282	458	306	28.7	13.5	62.9	155
12.7 x 152	1030690	.68	.82	12.7	16.5	89.7	57.9	497	345	528	376	35.8	18.0	90.4	153
12.7 x 305	1030734	.68	1.22	12.7	16.5	89.2	57.9	809	504	840	535	35.8	18.0	89.9	314
15.9 x 152	1030752	1.02	1.35	15.9	22.9	108	71.4	536	384	574	422	45.7	22.4	110	153
15.9 x 305	1030798	1.02	1.97	15.9	22.9	107	71.4	850	545	888	583	45.7	22.4	110	315
19.1 x 152	1030814	1.36	1.91	19.1	24.9	129	84.6	574	422	621	469	53.1	25.4	130	156
19.1 x 305	1030850	1.36	2.96	19.1	24.9	128	84.6	889	584	936	631	53.1	25.4	129	320
19.1 x 457	1030878	1.36	3.74	19.1	24.9	129	84.6	1194	737	1241	784	53.1	25.4	130	471
22.2 x 305	1030896	1.81	4.24	22.2	28.7	148	96.0	917	612	971	666	60.5	31.8	147	309
25.4 x 305	1030958	2.27	6.29	25.4	31.8	167	108	956	652	1018	713	76.2	36.3	165	309

*Proof Load is 2.5 times the Working Load Limit. Ultimate Load is 5 times the Working Load Limit. † Mechanical Galvanized

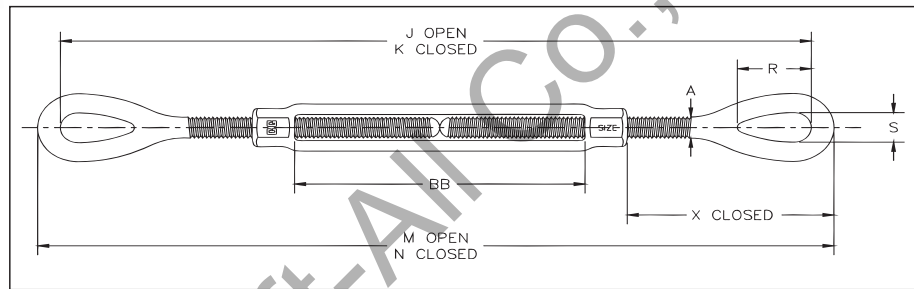
Eye & Eye Turnbuckles



HG -226
Eye & Eye

Meets the performance requirements of Federal Specifications FF-791b, Type 1 Form 1 - CLASS 4, and ASTM F-1145, except for those provisions required of the contractor. For additional information, see page 476.

- End fittings are Quenched and Tempered or Normalized, bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- Turnbuckle eyes are forged elongated, by design, to maximize easy attachment in system and minimize stress in the eye. For turnbuckle sizes 6 mm through 64 mm, a shackle one size smaller can be reeved through eye.
- Modified UNJ thread on end fittings for improved fatigue properties. Body has UNC thread
- **TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.**
- Lock Nuts available for all sizes (see page 198).
- Comprehensive end fitting data provided on page 195.
- Fatigue Rated.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these turnbuckles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



HG-226 Eye & Eye

Thread Diameter & Take Up (mm)	HG-226 Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)								
				A	J Open	K Closed	M Open	N Closed	R	S	X Closed	BB
† 6.35 x 102	1031252	.23	.13	6.35	303	202	314	213	20.6	8.64	44.6	103
† 7.94 x 114	1031270	.36	.22	7.94	354	239	368	253	24.1	11.2	55.8	116
† 9.53 x 152	1031298	.54	.34	9.53	446	294	463	311	28.7	13.5	62.9	155
12.7 x 152	1031314	1.00	.78	12.7	506	354	529	376	35.8	18.0	90.4	153
12.7 x 305	1031350	1.00	1.19	12.7	819	514	841	536	35.8	18.0	89.9	314
15.9 x 152	1031378	1.59	1.25	15.9	552	399	577	425	45.7	22.4	110	153
15.9 x 305	1031412	1.59	1.87	15.9	865	560	891	586	45.7	22.4	110	315
19.1 x 152	1031430	2.36	1.91	19.1	590	438	622	470	53.1	25.4	130	156
19.1 x 305	1031476	2.36	2.78	19.1	905	600	937	632	53.1	25.4	129	320
19.1 x 457	1031494	2.36	3.55	19.1	1210	753	1242	785	53.1	25.4	130	471
22.2 x 305	1031519	3.27	4.01	22.2	932	627	970	665	60.5	31.8	147	309
22.2 x 457	1031537	3.27	5.22	22.2	1249	792	1287	830	60.5	31.8	147	473
25.4 x 152	1031555	4.54	4.36	25.4	666	514	711	559	76.2	36.3	165	157
25.4 x 305	1031573	4.54	5.88	25.4	971	666	1016	711	76.2	36.3	165	309
25.4 x 457	1031591	4.54	7.40	25.4	1276	819	1321	864	76.2	36.3	165	462
25.4 x 610	1031617	4.54	9.14	25.4	1596	987	1641	1031	76.2	36.3	164	631
31.8 x 305	1031635	6.89	9.01	31.8	1070	766	1127	822	91.2	46.2	216	306
31.8 x 457	1031653	6.89	10.8	31.8	1375	918	1432	975	91.2	46.2	216	459
31.8 x 610	1031671	6.89	12.6	31.8	1694	1085	1751	1141	91.2	46.2	216	625
38.1 x 305	1031699	9.71	13.0	38.1	1124	819	1187	882	104	53.8	240	313
38.1 x 457	1031715	9.71	15.4	38.1	1428	971	1492	1035	104	53.8	240	465
38.1 x 610	1031733	9.71	17.9	38.1	1749	1139	1813	1203	104	53.8	240	633
44.5 x 457	1031779	12.7	23.0	44.5	1457	1000	1534	1076	118	60.5	253	467
44.5 x 610	1031797	12.7	26.4	44.5	1762	1153	1838	1229	118	60.5	253	619
51.0 x 610	1031813	16.8	37.9	50.8	1922	1313	2011	1402	148	68.3	331	622
63.5 x 610	1031831	27.2	67.4	63.5	2011	1402	2113	1503	165	79.2	350	625
70.0 x 610	1031859	34.0	79.1	69.9	2066	1456	2180	1571	178	82.6	383	626

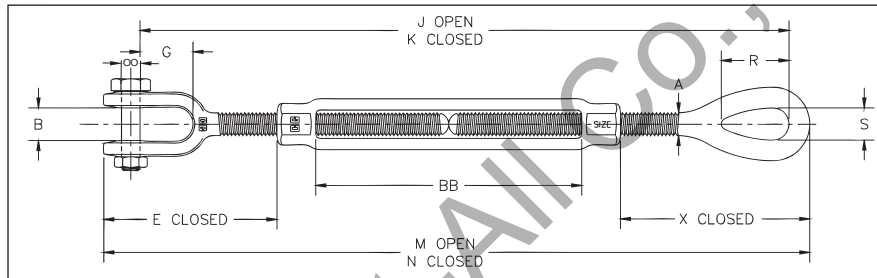
*Proof Load is 2.5 times the Working Load Limit. Ultimate Load is 5 times the Working Load Limit. † Mechanical Galvanized



HG-227
Jaw & Eye

- End fittings are Quenched and Tempered or Normalized, bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- Turnbuckles eyes are forged and elongated, by design, to maximize easy attachment in system and minimize stress in the eye. For turnbuckles size 6 mm through 64 mm, a shackle one size smaller can be reeved through eye.
- Forged jaw ends are fitted with bolts and nuts for 6mm through 16mm, and pins and cotters on 19 mm through 70 mm sizes.
- Modified UNJ thread on end fittings for improved fatigue properties
- Body has UNC threads.
- **TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.**
- Lock Nuts available for all sizes (see page 198).
- Comprehensive End fitting data on pages 195 & 196
- Fatigue Rated.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these turnbuckles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.

Meets the performance requirements of Federal Specifications FF-791b, Type 1 Form 1 - CLASS 8, and ASTM F-1145, except for those provisions required of the contractor. For additional information, see page 476.



HG-227 Jaw & Eye

Thread Diameter & Take Up (mm)	HG-227 Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)											
				A	B	E Closed	G	J Open	K Closed	M Open	N Closed	R	S	X Closed	BB
† 6.35 x 102	1031877	.23	.15	6.35	11.4	42.0	16.1	294	192	312	210	20.6	8.64	44.6	103
† 7.94 x 114	1031895	.36	.24	7.94	12.7	51.2	22.0	343	228	363	249	24.1	11.2	55.8	116
† 9.53 x 152	1031911	.54	.36	9.53	13.5	53.5	21.5	429	277	454	301	28.7	13.5	62.9	155
12.7 x 152	1031939	1.00	.80	12.7	16.3	81.8	27.1	490	338	520	368	35.8	18.0	90.4	153
12.7 x 229	1031957	1.00	1.02	12.7	16.3	81.3	27.1	650	421	680	451	35.8	18.0	89.9	238
12.7 x 305	1031975	1.00	1.21	12.7	16.3	81.3	27.1	802	497	832	528	35.8	18.0	89.9	314
15.9 x 152	1031993	1.59	1.35	15.9	20.1	99.1	33.5	527	374	566	413	45.7	22.4	110	153
15.9 x 229	1032019	1.59	1.69	15.9	20.1	98.8	33.5	688	459	727	498	45.7	22.4	110	239
15.9 x 305	1032037	1.59	1.97	15.9	20.1	98.8	33.5	840	535	879	574	45.7	22.4	110	315
19.1 x 152	1032055	2.36	2.05	19.1	24.6	120	38.5	563	411	612	459	53.1	25.4	130	156
19.1 x 229	1032073	2.36	2.52	19.1	24.6	119	38.5	726	497	774	546	53.1	25.4	129	244
19.1 x 305	1032091	2.36	2.91	19.1	24.6	119	38.5	878	573	927	622	53.1	25.4	129	320
19.1 x 457	1032117	2.36	3.69	19.1	24.6	120	38.5	1183	726	1232	774	53.1	25.4	130	471
22.2 x 305	1032135	3.27	4.13	22.2	29.5	140	44.8	906	601	963	658	60.5	31.8	147	309
22.2 x 457	1032153	3.27	5.28	22.2	29.5	140	44.8	1223	766	1280	822	60.5	31.8	147	473
25.4 x 152	1032171	4.54	4.55	25.4	34.0	155	52.1	636	483	701	548	76.2	36.3	165	157
25.4 x 305	1032199	4.54	6.06	25.4	34.0	155	52.1	941	636	1006	701	76.2	36.3	165	309
25.4 x 457	1032215	4.54	7.58	25.4	34.0	155	52.1	1245	788	1310	853	76.2	36.3	165	462
25.4 x 610	1032233	4.54	9.33	25.4	34.0	154	52.1	1565	956	1630	1021	76.2	36.3	164	631
31.8 x 305	1032251	6.89	9.48	31.8	46.7	205	71.5	1035	730	1117	812	91.2	46.2	216	306
31.8 x 457	1032279	6.89	11.3	31.8	46.7	205	71.5	1340	883	1422	965	91.2	46.2	216	459
31.8 x 610	1032297	6.89	13.1	31.8	46.7	205	71.5	1659	1050	1741	1131	91.2	46.2	216	625
38.1 x 305	1032313	9.71	13.9	38.1	52.3	227	71.4	1080	775	1174	869	104	53.8	240	313
38.1 x 457	1032331	9.71	16.3	38.1	52.3	227	71.4	1384	927	1479	1021	104	53.8	240	465
38.1 x 610	1032359	9.71	18.8	38.1	52.3	227	71.4	1705	1095	1799	1189	104	53.8	240	633
44.5 x 457	1032395	12.7	23.6	44.5	66.0	238	85.0	1406	949	1518	1061	118	60.5	253	467
44.5 x 610	1032411	12.7	27.1	44.5	66.0	238	85.0	1711	1101	1823	1213	118	60.5	253	619
51.0 x 610	1032439	16.8	40.8	50.8	66.5	300	95.0	1846	1236	1980	1370	148	68.3	331	622
63.5 x 610	1032457	27.2	71.7	63.5	77.7	337	113	1932	1323	2100	1490	165	79.2	350	625
70.0 x 610	1032475	34.0	84.6	69.9	93.7	379	106	1982	1373	2176	1566	178	82.6	383	626

*Proof Load is 2.5 times the Working Load Limit. Ultimate Load is 5 times the Working Load Limit. † Mechanical Galvanized

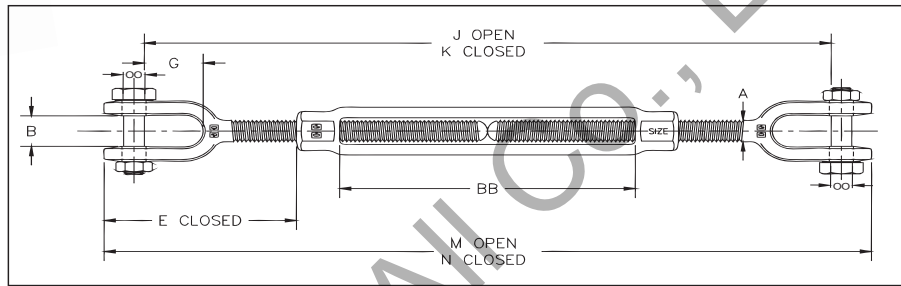
Jaw & Jaw Turnbuckles



HG -228
Jaw & Jaw

Meets the performance requirements of Federal Specifications FF-791b, Type 1 Form 1 - CLASS 7, and ASTM F-1145, except for those provisions required of the contractor. For additional information, see page 476.

- End fittings are Quenched and Tempered or Normalized, bodies heat treated by normalizing.
- Hot Dip galvanized steel.
- **TURNBUCKLES RECOMMENDED FOR STRAIGHT OR IN-LINE PULL ONLY.**
- Forged jaw ends are fitted with bolts and nuts for 6 mm through 16 mm, and pins and cotters on 19 mm through 70 mm sizes.
- Modified UNJ thread on end fittings for improved fatigue properties
- Body has UNC threads.
- Lock Nuts available for all sizes (see page 198).
- Comprehensive end fitting data provided on page 196.
- Fatigue Rated.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these turnbuckles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



Fatigue Rated

HG-228 Jaw & Jaw

Thread Diameter & Take Up (mm)	HG-228 Stock No.	Working Load Limit (t)*	Weight Each (kg)	Dimensions (mm)								
				A	B	E Closed	G	J Open	K Closed	M Open	N Closed	BB
† 6.35 x 102	1032493	.23	.17	6.35	11.4	42.0	16.1	284	183	309	208	103
† 7.94 x 114	1032518	.36	.25	7.94	12.7	51.2	22.0	332	218	359	244	116
† 9.53 x 152	1032536	.54	.39	9.53	13.5	53.5	21.5	413	260	445	292	155
12.7 x 152	1032554	1.00	.83	12.7	16.3	81.8	27.1	474	321	512	359	153
12.7 x 229	1032572	1.00	1.04	12.7	16.3	81.3	27.1	633	405	671	443	238
12.7 x 305	1032590	1.00	1.23	12.7	16.3	81.3	27.1	786	481	824	519	314
15.9 x 152	1032616	1.59	1.46	15.9	20.1	99.1	33.5	501	349	554	402	153
15.9 x 229	1032634	1.59	1.79	15.9	20.1	98.8	33.5	662	434	715	487	239
15.9 x 305	1032652	1.59	2.08	15.9	20.1	98.8	33.5	815	510	868	563	315
19.1 x 152	1032670	2.36	2.18	19.1	24.6	120	38.5	536	383	601	449	156
19.1 x 229	1032698	2.36	2.65	19.1	24.6	119	38.5	698	470	764	535	244
19.1 x 305	1032714	2.36	3.05	19.1	24.6	119	38.5	851	546	916	612	320
19.1 x 457	1032732	2.36	3.83	19.1	24.6	120	38.5	1155	698	1221	764	471
22.2 x 305	1032750	3.27	4.25	22.2	29.5	140	44.8	880	575	956	651	309
22.2 x 457	1032778	3.27	5.34	22.2	29.5	140	44.8	1197	740	1272	815	473
25.4 x 152	1032796	4.54	4.74	25.4	34.0	155	52.1	605	453	690	538	157
25.4 x 305	1032812	4.54	6.25	25.4	34.0	155	52.1	910	605	995	690	309
25.4 x 457	1032830	4.54	7.77	25.4	34.0	155	52.1	1215	757	1300	843	462
25.4 x 610	1032858	4.54	9.51	25.4	34.0	154	52.1	1535	925	1620	1010	631
31.8 x 305	1032876	6.89	9.94	31.8	46.7	205	71.5	1000	695	1107	802	306
31.8 x 457	1032894	6.89	11.7	31.8	46.7	205	71.5	1305	848	1412	955	459
31.8 x 610	1032910	6.89	13.5	31.8	46.7	205	71.5	1624	1014	1731	1121	625
38.1 x 305	1032938	9.71	14.8	38.1	52.3	227	71.4	1035	731	1160	855	313
38.1 x 457	1032956	9.71	17.2	38.1	52.3	227	71.4	1340	883	1465	1008	465
38.1 x 610	1032974	9.71	19.7	38.1	52.3	227	71.4	1661	1051	1786	1176	633
44.5 x 457	1033018	12.7	24.3	44.5	66.0	238	85.0	1355	898	1503	1045	467
44.5 x 610	1033036	12.7	27.7	44.5	66.0	238	85.0	1660	1050	1807	1198	619
51.0 x 610	1033054	16.8	43.7	50.8	66.5	300	95.0	1769	1159	1949	1339	622
63.5 x 610	1033072	27.2	75.9	63.5	77.7	337	113	1853	1244	2087	1478	625
70.0 x 610	1033090	34.0	90.1	69.9	93.7	379	106	1899	1289	2172	1562	626

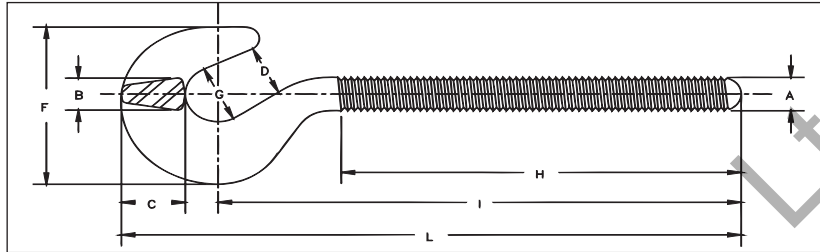
*Proof Load is 2.5 times the Working Load Limit. Ultimate Load is 5 times the Working Load Limit. † Mechanical Galvanized

Turnbuckles - Hook End Fittings



HG -4037
Hook End
Fitting

- Quenched and Tempered or Normalized.
- Hot Dip galvanized steel.
- Hooks are forged with a greater cross sectional area that results in a stronger hook with better fatigue properties.
- Modified UNJ thread for improved fatigue properties.
- Fatigue Rated.



Fatigue Rated

HG-4037 Hook End Fittings

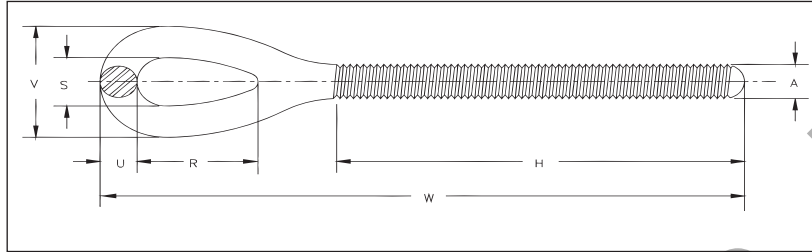
Shank Diameter & Take Up (mm)	RH Hook Stock No.	LH Hook Stock No.	Working Load Limit (t)	Weight Each (kg)	Dimensions (mm)									
					A	B	C	D	F	G	H	I	L	
* 6.35 x 102	1070012	1070539	.18	.04	6.35	6.35	10.4	11.2	32.3	12.7	65.8	87.4	104	
* 7.94 x 114	1070030	1070557	.32	.07	7.94	7.87	12.7	12.7	38.1	14.2	76.2	102	122	
* 9.53 x 152	1070058	1070575	.45	.12	9.53	9.65	15.5	14.2	44.7	15.7	98.6	127	150	
12.7 x 152	1070076	1070593	.68	.27	12.7	12.7	19.8	16.5	57.9	20.8	106	157	187	
12.7 x 305	1070110	1070637	.68	.34	12.7	12.7	19.8	16.5	57.9	20.8	183	233	264	
15.9 x 305	1070138	1070655	1.02	.48	15.9	16.0	25.4	22.9	71.4	25.4	113	171	210	
15.9 x 305	1070174	1070691	1.02	.59	15.9	16.0	25.4	22.9	71.4	25.4	189	248	286	
19.1 x 152	1070192	1070717	1.36	.61	19.1	19.1	30.7	24.9	84.6	28.4	116	189	234	
19.1 x 305	1070236	1070753	1.36	.97	19.1	19.1	30.7	24.9	84.6	28.4	192	265	310	
19.1 x 457	1070254	1070771	1.36	1.14	19.1	19.1	30.7	24.9	84.6	28.4	268	341	386	
22.2 x 305	1070272	1070799	1.81	1.42	22.2	22.4	34.8	28.7	96.0	32.0	198	283	334	
22.2 x 457	1070290	1070815	1.81	1.64	22.2	22.4	34.8	28.7	96.0	32.0	275	359	410	
25.4 x 152	1070316	1070833	2.27	1.80	25.4	25.4	38.9	31.8	108	35.1	129	225	281	
25.4 x 305	1070334	1070851	2.27	2.14	25.4	25.4	38.9	31.8	108	35.1	205	301	357	

* Mechanical Galvanized

Turnbuckles - Eye End Fittings



- Quenched and Tempered or Normalized.
- Hot Dip galvanized steel.
- Turnbuckle eyes are forged elongated, by design, to maximize easy attachment in system and minimize stress in the eye. For turnbuckle sizes 6 mm through 64 mm, a shackle one size smaller can be reeved through eye.
- Modified UNJ thread for improved fatigue properties.
- Fatigue Rated.



HG -4037
Eye End Fitting



Fatigue Rated

Rigging
Accessories

HG-4037 Eye End Fittings

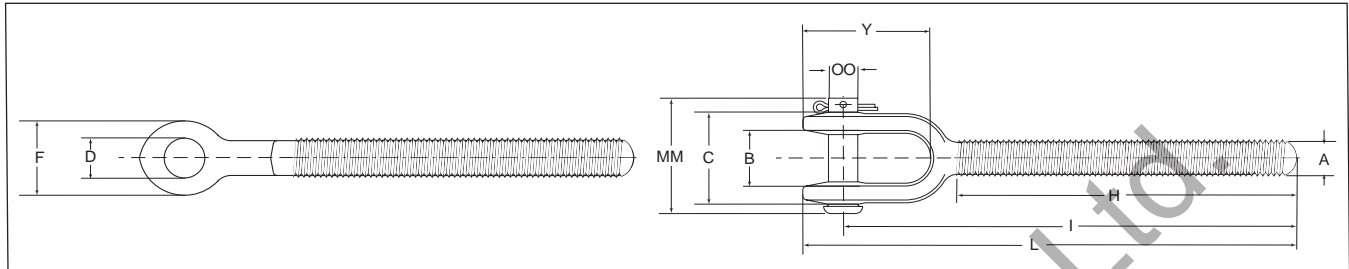
Shank Diameter & Take Up (mm)	RH Eye Stock No.	LH Eye Stock No.	Working Load Limit (t)	Weight Each (kg)	Dimensions (mm)						
					A	H	R	S	U	V	W
*6.35 x 102	1071057	1071672	.23	.03	6.35	65.8	20.6	8.64	5.59	19.8	106
* 7.94 x 114	1071075	1071690	.36	.06	7.94	76.2	24.1	11.2	7.11	25.4	127
* 9.53 x 152	1071093	1071716	.54	.10	9.53	98.6	28.7	13.5	8.64	30.7	155
12.7 x 152	1071119	1071734	1.00	.23	12.7	106	35.8	18.0	11.2	40.4	188
12.7 x 229	1071137	1071752	1.00	.27	12.7	145	35.8	18.0	11.2	40.4	226
12.7 x 305	1071155	1071770	1.00	.31	12.7	183	35.8	18.0	11.2	40.4	264
15.9 x 305	1071173	1071798	1.59	.37	15.9	113	45.7	22.4	12.7	47.8	212
15.9 x 229	1071191	1071814	1.59	.43	15.9	151	45.7	22.4	12.7	47.8	250
15.9 x 305	1071217	1071832	1.59	.49	15.9	189	45.7	22.4	12.7	47.8	289
19.1 x 152	1071235	1071850	2.36	.62	19.1	116	53.1	25.4	16.0	57.4	235
19.1 x 229	1071253	1071878	2.36	.70	19.1	154	53.1	25.4	16.0	57.4	273
19.1 x 305	1071271	1071896	2.36	.78	19.1	192	53.1	25.4	16.0	57.4	311
19.1 x 457	1071299	1071912	2.36	.95	19.1	268	53.1	25.4	16.0	57.4	387
22.2 x 305	1071315	1071930	3.27	1.18	22.2	198	60.5	31.8	19.1	69.9	333
22.2 x 457	1071333	1071958	3.27	1.42	22.2	275	60.5	31.8	19.1	69.9	409
25.4 x 152	1071351	1071976	4.54	1.43	25.4	129	76.2	36.3	22.4	81.0	279
25.4 x 305	1071379	1071994	4.54	1.73	25.4	205	76.2	36.3	22.4	81.0	356
25.4 x 457	1071397	1072010	4.54	2.03	25.4	281	76.2	36.3	22.4	81.0	432
25.4 x 610	1071413	1072038	4.54	2.34	25.4	357	76.2	36.3	22.4	81.0	508
31.8 x 305	1071431	1072056	6.89	3.21	31.8	213	91.2	46.2	28.4	103	411
31.8 x 457	1071459	1072074	6.89	3.68	31.8	289	91.2	46.2	28.4	103	487
31.8 x 610	1071477	1072092	6.89	4.15	31.8	365	91.2	46.2	28.4	103	564
38.1 x 305	1071495	1072118	9.71	4.68	38.1	222	104	53.8	31.8	117	441
38.1 x 457	1071510	1072136	9.71	5.37	38.1	298	104	53.8	31.8	117	517
38.1 x 610	1071538	1072154	9.71	6.05	38.1	375	104	53.8	31.8	117	594
44.5 x 457	1071574	1072190	12.7	7.93	44.5	309	118	60.5	38.1	137	538
44.5 x 610	1071592	1072216	12.7	8.85	44.5	385	118	60.5	38.1	137	614
51.0 x 610	1071618	1072234	16.8	13.1	50.8	396	148	68.3	44.5	157	701
63.5 x 610	1071636	1072252	27.2	21.0	63.5	446	165	79.2	50.8	181	752
70.0 x 610	1071654	1072270	34.0	27.3	69.9	449	178	82.6	57.2	197	785

* Mechanical Galvanized

Turnbuckles - Jaw End Fittings

HG-4037 Jaw End Fittings

- Quenched and Tempered or Normalized.
- Hot dip galvanized steel.
- Forged jaw ends are fitted with bolts and nuts on sizes 6 mm through 16 mm, and pins and cotters on sizes 19 mm through 70 mm.
- Modified UNJ thread for improved fatigue properties.
- Fatigue Rated.



Fatigue Rated

HG-4037 Jaw End Fittings

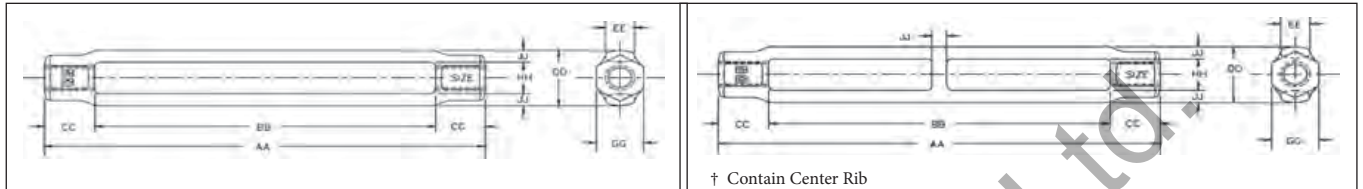
Shank Diameter & Take Up (mm)	RH Jaw Stock No.	LH Jaw Stock No.	Working Load Limit (t)	Weight Each (kg)	Dimensions (mm)										
					A	B	C	D	F	H	I Nom. Min.	L Nom. Min.	Y	MM	OO Bolt Pin
*6.35 x 102	1072298	1072911	.23	.05	6.35	11.4	23.1	7.62	16.0	65.8	94.5	104	28.7	35.8	6.35
*7.94 x 114	1072314	1072939	.36	.08	7.94	12.7	25.9	7.62	17.5	76.2	112	122	35.3	35.8	6.35
*9.53 x 152	1072332	1072957	.54	.13	9.53	13.5	29.2	9.14	20.6	98.6	134	146	37.3	40.1	7.87
12.7 x 152	1072350	1072975	1.00	.25	12.7	16.3	34.5	10.7	25.4	106	165	180	46.0	47.5	9.40
12.7 x 229	1072378	1072993	1.00	.29	12.7	16.3	34.5	10.7	25.4	145	203	218	46.0	47.5	9.40
12.7 x 305	1072396	1073019	1.00	.33	12.7	16.3	34.5	10.7	25.4	183	242	256	46.0	47.5	9.40
15.9 x 152	1072412	1073037	1.59	.48	15.9	20.1	44.5	14.0	33.3	109	181	201	59.9	62.0	12.7
15.9 x 229	1072430	1073055	1.59	.54	15.9	20.1	44.5	14.0	33.3	148	219	239	59.9	62.0	12.7
15.9 x 305	1072458	1073073	1.59	.59	15.9	20.1	44.5	14.0	33.3	186	257	277	59.9	62.0	12.7
19.1 x 152	1072476	1073091	2.36	.75	19.1	24.6	53.1	17.5	41.4	116	200	225	71.4	65.0	16.0
19.1 x 229	1072494	1073117	2.36	.83	19.1	24.6	53.1	17.5	41.4	154	238	263	71.4	65.0	16.0
19.1 x 305	1072519	1073135	2.36	.92	19.1	24.6	53.1	17.5	41.4	192	276	301	71.4	65.0	16.0
19.1 x 457	1072537	1073153	2.36	1.09	19.1	24.6	53.1	17.5	41.4	268	352	377	71.4	65.0	16.0
22.2 x 305	1072555	1073171	3.27	1.31	22.2	29.5	65.0	20.6	47.8	198	297	325	82.6	78.5	19.1
22.2 x 457	1072573	1073199	3.27	1.47	22.2	29.5	65.0	20.6	47.8	275	373	402	82.6	78.5	19.1
25.4 x 152	1072591	1073215	4.54	1.61	25.4	34.0	70.1	23.9	53.8	129	237	269	94.7	87.4	22.4
25.4 x 305	1072617	1073233	4.54	1.91	25.4	34.0	70.1	23.9	53.8	205	314	345	94.7	87.4	22.4
25.4 x 457	1072635	1073251	4.54	2.22	25.4	34.0	70.1	23.9	53.8	281	390	421	94.7	87.4	22.4
25.4 x 610	1072653	1073279	4.54	2.52	25.4	34.0	70.1	23.9	53.8	357	466	498	94.7	87.4	22.4
31.8 x 305	1072671	1073297	6.89	3.67	31.8	46.7	94.5	30.2	66.8	213	362	401	125	115	28.7
31.8 x 457	1072699	1073313	6.89	4.15	31.8	46.7	94.5	30.2	66.8	289	438	477	125	115	28.7
31.8 x 610	1072715	1073331	6.89	4.62	31.8	46.7	94.5	30.2	66.8	365	514	553	125	115	28.7
38.1 x 305	1072733	1073359	9.71	5.57	38.1	52.3	106	37.3	79.2	222	383	428	134	130	35.1
38.1 x 457	1072751	1073377	9.71	6.26	38.1	52.3	106	37.3	79.2	298	459	504	134	130	35.1
38.1 x 610	1072779	1073395	9.71	6.94	38.1	52.3	106	37.3	79.2	375	535	580	134	130	35.1
44.5 x 457	1072813	1073439	12.7	8.57	44.5	66.0	118	43.7	88.9	309	470	523	159	152	41.4
44.5 x 610	1072831	1073457	12.7	9.50	44.5	66.0	118	43.7	88.9	385	546	599	159	152	41.4
51.0 x 610	1072859	1073475	16.8	16.0	50.8	66.5	142	53.1	106	396	605	670	185	175	50.8
63.5 x 610	1072877	1073493	27.2	25.3	63.5	77.7	148	60.5	143	437	650	739	230	191	57.2
70.0 x 610	1072895	1073518	34.0	32.8	69.9	93.7	167	73.2	155	441	679	781	243	213	69.9

* Mechanical Galvanized

Turnbuckles - Body Only

HG-2510 BODY

- Heat treat by normalizing.
- Hot Dip galvanized.
- UNC threads
- Fatigue Rated.
- Meets the performance requirements of Federal Specifications FF- -791b, Type 1, Form 1 - Class 2, except for those provisions required by the contractor.



Fatigue Rated

HG-2510 Body

Shank Diameter & Take Up (mm)	HG-2510 Stock No.	Working Load Limit (t)	Weight Each (kg)	Dimensions (mm)							
				AA	BB	CC	DD	EE	GG	HH	JJ
* 7.94 x 114	1033919	.36	.10	142	116	12.7	20.8	9.65	14.2	11.2	4.83
* 9.53 x 152	1033937	.54	.13	185	155	15.0	22.4	9.65	16.0	12.7	4.83
12.7 x 152	1033955	1.00	.32	196	153	21.1	30.2	17.3	20.6	16.0	7.11
†12.7 x 229	1033973	1.00	.47	280	238	21.1	30.2	17.3	20.6	16.0	7.11
†12.7 x 305	1033991	1.00	.58	356	314	21.1	30.2	17.3	20.6	16.0	7.11
15.9 x 305	1034017	1.59	.50	204	153	25.1	36.3	21.1	25.4	19.1	8.64
†15.9 x 229	1034035	1.59	.72	289	239	25.1	36.3	21.1	25.4	19.1	8.64
†15.9 x 305	1034053	1.59	.89	365	315	25.1	36.3	21.1	25.4	19.1	8.64
19.1 x 152	1034071	2.36	.68	210	156	26.9	44.2	23.9	28.7	23.9	10.2
†19.1 x 229	1034099	2.36	.98	298	244	26.9	44.2	23.9	28.7	23.9	10.2
†19.1 x 305	1034115	2.36	1.21	374	320	26.9	44.2	23.9	28.7	23.9	10.2
†19.1 x 457	1034133	2.36	1.65	525	471	26.9	44.2	23.9	28.7	23.9	10.2
22.2 x 305	1034179	3.27	1.64	371	309	31.2	50.8	28.7	33.3	26.9	11.9
†22.2 x 457	1034197	3.27	2.39	536	473	31.2	50.8	28.7	33.3	26.9	11.9
25.4 x 152	1034213	4.54	1.51	229	157	35.8	62.2	31.8	38.1	31.8	15.2
25.4 x 305	1034231	4.54	2.42	381	309	35.8	62.2	31.8	38.1	31.8	15.2
†25.4 x 457	1034259	4.54	3.33	533	462	35.8	62.2	31.8	38.1	31.8	15.2
†25.4 x 610	1034277	4.54	4.47	703	631	35.8	62.2	31.8	38.1	31.8	15.2
31.8 x 305	1034339	6.89	2.59	391	306	42.4	66.5	31.8	47.8	38.1	14.2
31.8 x 457	1034357	6.89	3.44	544	459	42.4	66.5	31.8	47.8	38.1	14.2
†31.8 x 610	1034375	6.89	4.29	710	625	42.4	66.5	31.8	47.8	38.1	14.2
38.1 x 305	1034437	9.71	3.63	402	313	44.5	75.9	38.1	57.2	44.5	15.7
38.1 x 457	1034455	9.71	4.72	554	465	44.5	75.9	38.1	57.2	44.5	15.7
†38.1 x 610	1034473	9.71	5.85	723	633	44.5	75.9	38.1	57.2	44.5	15.7
44.5 x 457	1034552	12.7	7.12	570	467	51.6	91.9	44.5	66.5	53.8	19.1
44.5 x 610	1034570	12.7	8.71	722	619	51.6	91.9	44.5	66.5	53.8	19.1
51.0 x 610	1034632	16.8	11.7	740	622	58.9	105	50.8	76.2	60.5	22.4
63.5 x 610	1034678	27.2	25.4	804	625	89.7	143	69.9	98.6	79.3	31.8
70.0 x 610	1034696	34.0	24.5	804	626	88.9	143	69.9	98.6	114	31.8

* Mechanical Galvanized

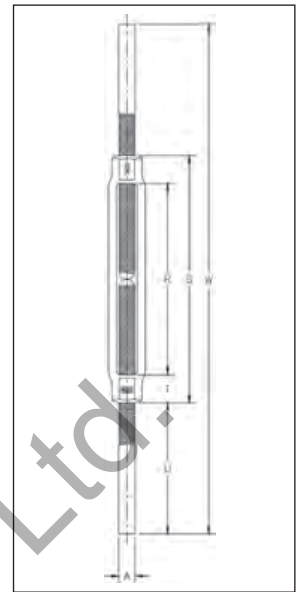
† Contains Center Rib for additional body support.

Rigging Accessories



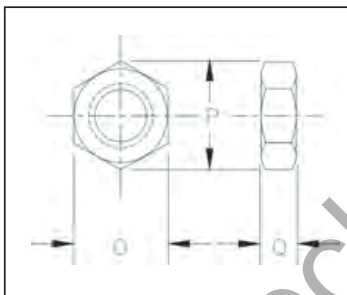
HS - 251
Stub End
Turnbuckles

- End fittings are Quenched and Tempered or Normalized, bodies heat treated by normalizing.
- Complete assembly is self colored.
- Reference American Welding Society Specifications for proper welding procedures
- Meets the performance requirements of Federal Specifications FF- -791b, Type 1 Form 1 - CLASS 3, and ASTM F-1145, except for those provisions required of the contractor.



HS-251 Stub End Turnbuckles

Shank Diameter & Take up (in)	Shank Diameter & Take Up (mm)	HS-251 Stock No.	Working Load Limit (t)	Weight Each (kg)	Dimensions (mm)					
					A	R	S	T	U	W
3/8 x 6	9.53 x 152	1033143	.54	.34	9.65	152	181	14.2	113	406
1/2 x 6	12.7 x 152	1033161	1.00	.57	12.7	152	190	19.1	108	406
5/8 x 6	15.9 x 152	1033223	1.59	.96	16.0	305	200	23.8	103	406
3/4 x 6	19.1 x 152	1033287	2.36	1.48	19.1	152	209	28.7	111	431
7/8 x 6	22.2 x 152	1033367	3.27	2.17	22.4	152	219	33.2	119	457
1 x 6	25.4 x 152	1033429	4.54	2.88	25.4	152	228	38.1	127	482
1 x 12	25.4 x 305	1033447	4.54	3.99	25.4	304	381	38.1	127	635
1-1/8 x 6	28.6 x 152	1033508	5.62	4.03	28.7	152	231	39.6	125	482
1-1/4 x 6	31.8 x 152	1033526	6.89	4.62	31.8	152	231	39.6	138	508
1-1/4 x 12	31.8 x 305	1033544	6.89	6.17	31.8	304	384	39.6	138	660
1-1/2 x 12	38.1 x 305	1033642	9.71	9.27	38.1	304	400	47.7	137	673



HG -4060/
HG -4061
Lock Nuts

HG-4060 / HG-4061 Lock Nuts

Thread Diameter (in)	Right Hand HG-4060 Stock No.	Left Hand HG-4061 Stock No.	Weight Per 100 (kg)	Dimensions (mm)		
				O	P	Q
1/4	1075115	1075491	.36	11.2	12.7	4.05
5/16	1075133	1075516	.59	12.7	14.2	4.85
3/8	1075151	1075534	.91	14.2	16.3	5.60
1/2	1075197	1075570	1.81	19.1	21.8	7.85
5/8	1075213	1075598	3.18	23.9	26.9	9.65
3/4	1075231	1075614	4.99	28.7	32.0	10.7
7/8	1075259	1075632	7.39	33.3	38.1	12.2
1	1075277	1075650	10.8	38.1	42.9	14.0
1-1/8	1075295	1075678	14.5	38.1	42.9	14.0
1-1/4	1075311	1075696	28.3	47.8	54.0	18.3
1-1/2	1075357	1075730	32.7	57.0	64.5	21.3
1-3/4	1075393	1075776	51	70.0	81.0	25.4
2	1075419	1075794	68	79.0	91.5	28.4
2-1/2	1075455	1075838	150	98.5	114	38.1
2-3/4	1075473	1075856	193	108	125	41.1

Vitalife® products are the preferred wire rope lubricants in the industry because of their ability to penetrate into wire rope and displace water and contaminants, thus reducing wear and corrosion throughout the rope.

- Available in a variety of container sizes.
- Provides inner strand preservation and lubricity.
- Allows for easy visual inspection of the ropes.
- Reduces the friction between the strands of the wire rope, thus extending rope life.
- Adheres to surface of strands, forming an outer film which provides excellent corrosive protection
- Non-tacky (will not attract dust)
- Vitalife® in aerosol form is a regulated dangerous good. See MSDS sheet for shipping instructions.
- Vitalife® Bio-Lube has been developed especially for environmentally friendly applications.
- Vitalife® 500 has been developed exclusively for ski lifts and tramways.



Vitalife® Type	Container Size	Vitalife® Stock No.	Weight Each (kg)
Vitalife® 400 (Standard)	340 grammes	1038946	0.45
	18.9 Litre	1038955	18.6
	208 Litre	1038964	191
Vitalife® 410 BIO-LUBE (Environmentally Friendly)	340 grammes	1039004	0.45
	18.9 Litre	1039013	18.6
	208 Litre	1039022	191
Vitalife® 500 (Ski Lifts and Tramways)	18.9 Litre	1038973	18.6
	208 Litre	1038982	191



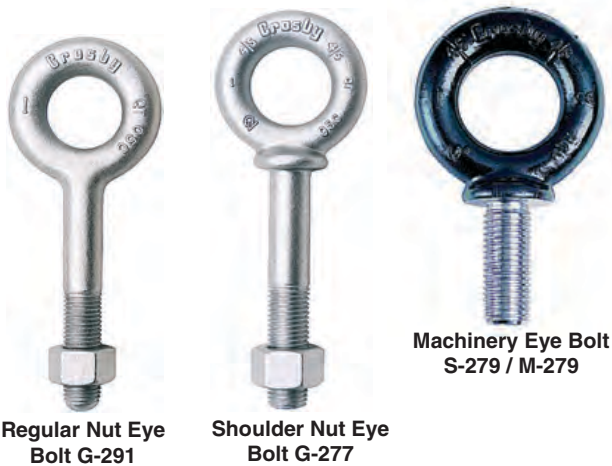
VSP Vitalife® Spray Applicators

- Designed and manufactured to work in the rugged field conditions of the construction industry.
- All applicator seals are specially designed to work with Vitalife® 400 and BIO-LUBE products.

Description	VSP Stock No.	Weight Each (kg)
15 Liter Backpack Sprayer	1039092	5.3

FORGED EYE BOLT

WARNINGS & APPLICATION INSTRUCTIONS



Regular Nut Eye Bolt G-291

Shoulder Nut Eye Bolt G-277

Machinery Eye Bolt S-279 / M-279

Important Safety Information - Read & Follow

Inspection/Maintenance Safety:

- Always inspect eye bolt before use.
- Never use eye bolt that shows signs of wear or damage.
- Never use eye bolt if eye or shank is bent or elongated.
- Always be sure threads on shank and receiving holes are clean.
- Never machine, grind, or cut eye bolt.
- Do not leave threaded end of machinery eye bolt in aluminum loads for long periods of time as it may cause corrosion.

Assembly Safety:

- Never exceed load limits specified in Table 1 & Table 2.
- Never use regular nut eye bolts for angular lifts.
- Always use shoulder nut eye bolts (or machinery eye bolts) for angular lifts.
- For angular lifts, adjust working load as follows:

ANGLE FROM "IN-LINE"	ADJUSTED WORKING LOAD LIMIT
5 degrees	100% of rated working load
15 degrees	80% of rated working load
30 degrees	65% of rated working load
45 degrees	30% of rated working load
90 degrees	25% of rated working load

- Never undercut eye bolt to seat shoulder against the load.
- Always countersink receiving hole or use washers with sufficient I.D. to seat shoulder.
- Always screw eye bolt down completely for proper seating.
- Always tighten nuts securely against the load.

Size (in)	Working Load Limit (kg)
1/4	295
5/16	544
3/8	703
1/2	1,179
5/8	2,359
3/4	3,266
7/8	4,808
1	6,033
1-1/8	6,804
1-1/4	9,525
1-1/2	10,890
1-3/4	15,420
2	19,050
2-1/2	29,480

⚠ WARNING

- Load may slip or fall if proper eye bolt assembly and lifting procedures are not used.
- A falling load can seriously injure or kill.
- Read and understand these instructions, and follow all eye bolt safety information presented here.
- Read, understand, and follow information in diagrams and charts below before using eye bolt assemblies.

Shoulder Nut Eye Bolt – Installation for Angular Loading

IN-LINE

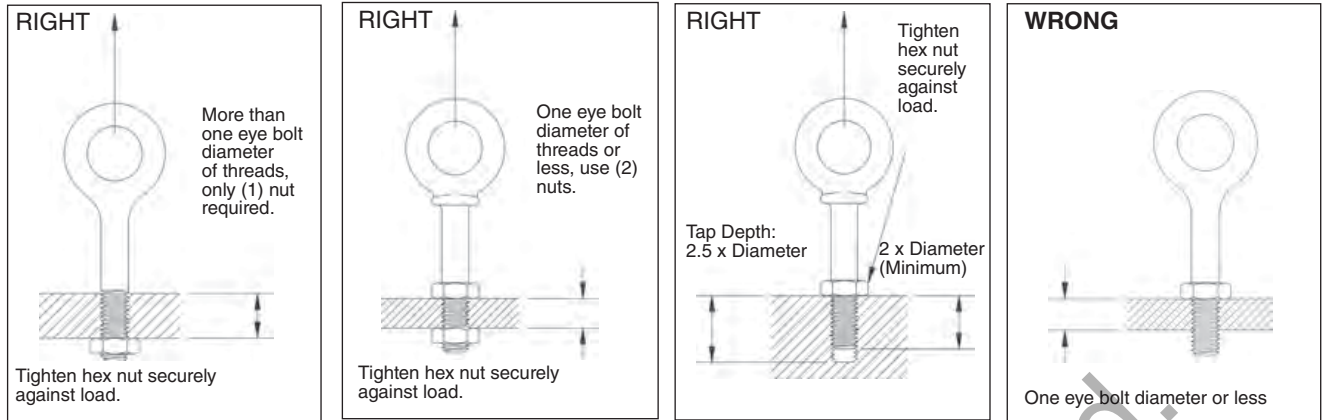
- The threaded shank must protrude through the load sufficiently to allow full engagement of the nut.
- If the eye bolt protrudes so far through the load that the nut cannot be tightened securely against the load, use properly sized washers to take up the excess space BETWEEN THE NUT AND THE LOAD.
- Thickness of spacers must exceed this distance between the bottom of the load and the last thread of the eye bolt.

90° 45° 30° 15° 5°

Figure 1

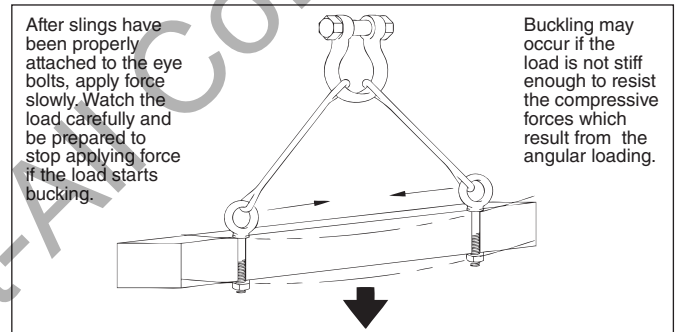
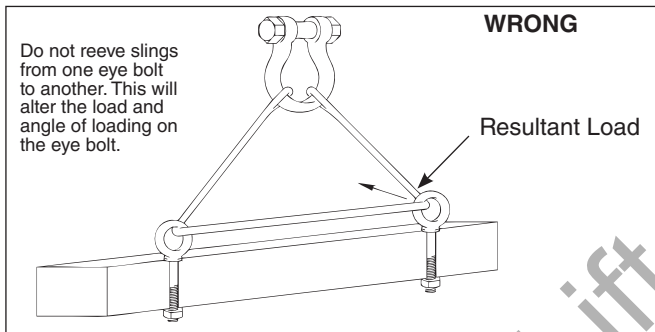
Metric Size	Working Load Limit - kg
m6	200
m8	400
m10	640
m12	1000
m16	1800
m20	2500
m24	4000
m27	5000
m30	6000
m36	8500
m42	14000
m48	17300
m64	29500

Important – Read and understand these instructions before using eye bolts. Regular Nut & Shoulder Nut Eye Bolt – Installation for In-Line Loading



Operating Safety

- Always stand clear of load.
- Always lift load with steady, even pull – do not jerk.
- Always apply load to eye bolt in the plane of the eye – not at an angle.
- Never exceed the capacity of the eye bolt—see Table 1 & 2.
- When using lifting slings of two or more legs, make sure the loads in the legs are calculated using the angle from the vertical sling angle to the leg and properly size the shoulder nut or machinery eye bolt for the angular load.



Machinery Eye Bolt - Installation for In-Line & Angular Loading

These eye bolts are primarily intended to be installed into tapped holes.

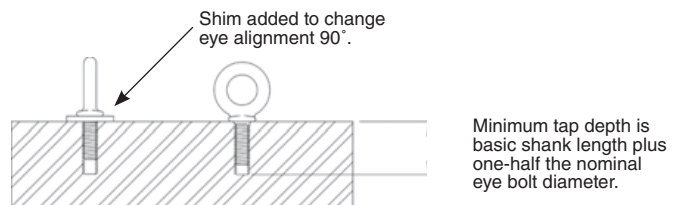
1. After the loads on the eye bolts have been calculated, select the proper size eye bolt for the job.

For angular lifts, adjust working load as follows:

Direction of Pull (from In-Line)	Adjusted Working Load
45 degrees	30% of rated working load
90 degrees	25% of rated working load

2. Drill and tap the load to the correct sizes to a minimum depth of one-half the eye bolt size beyond the shank length of the machinery eye bolt.
3. Thread the eye bolt into the load until the shoulder is flush and securely tightened against the load.
4. If the plane of the machinery eye bolt is not aligned with the sling line, estimate the amount of unthreading rotation necessary to align the plane of the eye properly.
5. Remove the machinery eye bolt from the load and add shims (washers) of proper thickness to adjust the angle of the plane of the eye to match the sling line. Use Table 3 to estimate the required shim thickness for the amount of unthreading rotation required.

Eye Bolt Size (in)	Shim Thickness Required to Change Rotation 90° (in)	Eye Bolt Size (mm)	Shim Thickness Required to change Rotation 90° (mm)
1/4	.0125	M6	.25
5/16	.0139	M8	.31
3/8	.0156	M10	.38
1/2	.0192	M12	.44
5/8	.0227	M16	.50
3/4	.0250	M20	.62
7/8	.0278	M24	.75
1	.0312	M27	.75
1-1/8	.0357	M30	.88
1-1/4	.0357	M36	1.00
1-1/2	.0417	M42	1.13
1-3/4	.0500	M48	1.25
2	.0556	M64	1.50
2-1/2	.0625	—	—



CROSBY® PIVOT HOIST RING

WARNINGS & APPLICATION INSTRUCTIONS



HR-100

Pivot Hoist Ring Application / Assembly Instructions

- Use pivot hoist ring only with ferrous metal (steel, iron) workpiece. Do not leave threaded end of hoist ring in aluminium for long periods of time due to corrosion.
- After determining the loads on each pivot hoist ring, select the proper size using the Working Load Limit (WLL) ratings in Table 1 for UNC threads.
- Drill and tap the workpiece to the correct size to a minimum depth of one-half the threaded bolt diameter plus the effective thread projection length (see Table 1, on next page). To select proper bolt and thread sizes see Table 1 on next page.
- Install the pivot hoist ring to recommended torque with a torque wrench making sure the pivot hoist ring body meets the load (workpiece) surface. See rated load limit and bolt torque requirements imprinted on top of the pivot hoist ring body (see Table 1, on next page).
- Never use spacers between the pivot hoist ring body and workpiece surface.
- Always select proper load rated lifting device for use with pivot hoist ring.
- Attach lifting device ensuring free fit to pivot hoist ring bail (lifting ring) (Figure 1).
- Apply partial load and check proper pivot. Ensure load alignment is in the direction of pivot (Figure 4). There should be no interference between load (workpiece) and pivot hoist ring bail (Figure 2).

⚠ WARNING

- Load may slip or fall if proper Hoist Ring assembly and lifting procedures are not used.
- A falling load can seriously injure or kill.
- Do not use with damaged slings or chain. For inspection criteria see ASME B30.9.
- Never apply load except in line with the pivot direction.
- Use only genuine Crosby bolts as replacements.
- Read and understand these warnings and application instructions

Pivot Hoist Ring Inspection / Maintenance

- Always inspect pivot hoist ring before use.
- Regularly inspect pivot hoist ring parts (Figure 3).
- Never use pivot hoist ring that shows signs of corrosion, wear or damage.
- Never use pivot hoist ring if bail is bent or elongated.
- Do not use parts showing cracks, nicks or gouges.
- Always be sure threads on bolts and receiving holes are clean, not damaged or worn, and fit properly.
- Always check with torque wrench before using an already installed pivot hoist ring.
- Always make sure there are no spacers (washers) used between pivot hoist ring body and the workpiece surface. Remove any spacers (washers) and retorque before use.
- Always ensure free movement of the bail. The bail should pivot 180 degrees (Figure 4).
- Always be sure total workpiece surface is in contact with the pivot hoist ring body mating surface. Drilled and tapped holes must be 90 degrees to load (workpiece) surface.
- Always make sure that the load is applied in the direction of pivot.

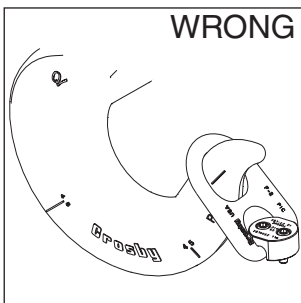


Figure 1

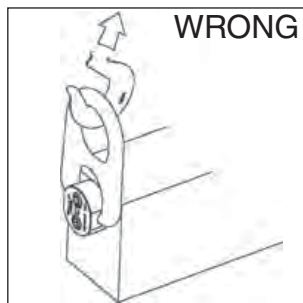


Figure 2

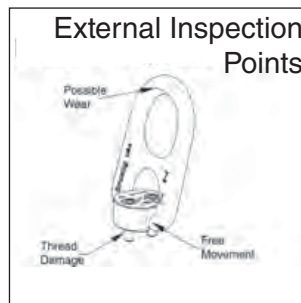


Figure 3

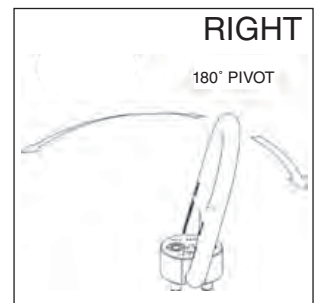


Figure 4

Operating Safety

- Never exceed the capacity (WLL) of the pivot hoist ring, See Table 1 for UNC threads.
- When using lifting slings of two or more legs, make sure the forces in the legs are calculated using the angle from the horizontal sling angle to the leg and select the proper size pivot hoist ring. When using a multi-leg lifting sling, the pivot hoist ring must be mounted so that the pivot direction is inline with the load applied.

**Table 1
HR-100M Pivot Hoist Rings****

Working Load Limit* (Kg)	Torque in (Nm) †	No. of Bolts	Dimensions (mm)	
			Bolt Size ††	Effective Thread Projection Length
900	10	2	M8 - 1.25	19.08
1,150	16	2	M10 - 1.50	14.76
2,150	38	2	M12 - 1.75	34.76
5,100	38	4	M12 - 1.75	42.06
9,000	81	4	M16 - 2.0	39.36

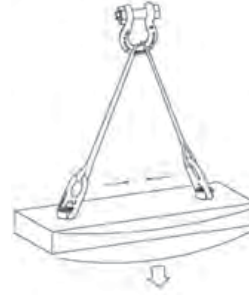
* Ultimate load is 5 times the working load limit. Individually proof tested to 2-1/2 times the working load limit.

† Tightening torque values shown are based upon threads being clean, dry and free of lubrication.

** Designed to be used with ferrous workpiece only.

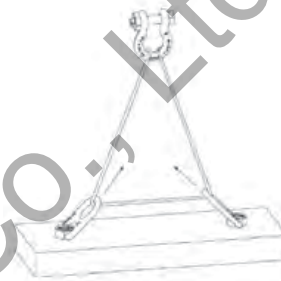
†† Only use Crosby high strength replacement bolts. Do not use any other bolts.

After slings have been properly attached to the hoist ring, apply force slowly. Watch the load and be prepared to stop applying force if the load starts buckling.



Buckling may occur if the load is not stiff enough to resist the compressive forces which result from the angular loading.

Do not reeve slings from one bail to another. This will alter the load and angle of loading on the hoist ring.



WRONG

CROSBY® TRENCH COVER HOIST RING
WARNINGS & APPLICATION INSTRUCTIONS



HR-500

Trench Cover Hoist Ring Application / Assembly Instructions

- Use trench cover hoist ring only with ferrous metal (steel, iron) workpiece.
- After determining the loads on each trench cover hoist ring, select the proper size using the Working Load Limit (WLL) ratings in Table 1 (see next page). For proper nut selection, reference trench cover nut welding guidelines (see next page). Nut thickness must equal workpiece thickness.
- For proper welding of nut, reference Nut Welding Guidelines on the following page.
- Always make sure the nut is free of dirt or contaminants before installation of the Trench Cover Hoist Ring. A clean out tool is available from Crosby.
- To install, spin base down flush with workpiece surface and tap one of the lugs on the base with a hammer to tighten; repeat procedure before each use.
- Never use spacers between the trench cover hoist ring base and workpiece surface.
- Always select proper load rated lifting device for use with trench cover hoist ring.
- Attach lifting device ensuring free fit to trench cover hoist ring bail (lifting ring) (Figure 1).
- Apply partial load and check proper rotation and alignment. There should be no interference between load (workpiece) and trench cover hoist ring bail (Figure 2).
- Always ensure free movement of bail. The bail should pivot 180 degrees and swivel 360 degrees (Figure 4).

⚠ WARNING

- Load may slip or fall if proper Trench Cover Hoist and lifting procedures are not used.
- A falling load can seriously injure or death.
- Do not use with damaged slings or chain. For inspection criteria see ASME B30.9.
- Never apply load except in line with the pivot direction.
- Use only genuine Crosby parts as replacements.
- Read and understand these warnings and application instructions.

Trench Cover Hoist Ring Inspection / Maintenance

- Always inspect trench cover hoist ring parts before use (Figure 3). Be sure threads on shank and receiving hole are clean, not damaged or worn, and fit properly. A thread gauge is available from Crosby.
- Never use trench cover hoist ring that shows signs of corrosion, wear or damage.
- Never use trench cover hoist ring if bail is bent or elongated.
- Do not use parts showing cracks, nicks or gouges. Always make sure there are no spacers (washers) used between trench cover hoist ring body and the workpiece surface. Remove any spacers (washers) and retighten before use.
- Always be sure total workpiece surface is in contact with the trench cover hoist ring body mating surface.
- Drilled and tapped hole in the weld-in nut must be 90 degrees to load (workpiece) surface. A welding fixture is available from Crosby.
- A visual periodic inspection of the nut to workpiece weld should be performed. Check the weld visually, or use a suitable NDE (Non-Destructive Examination) method if required.

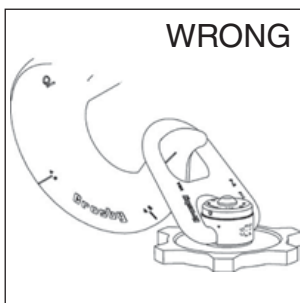


Figure 1

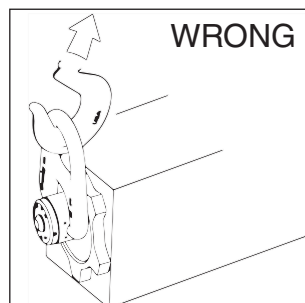


Figure 2

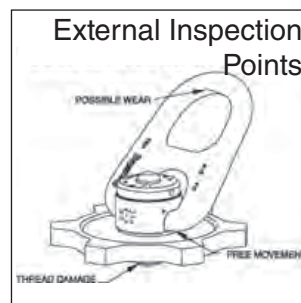


Figure 3

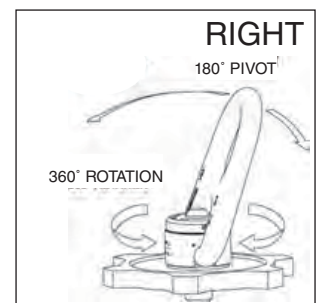


Figure 4

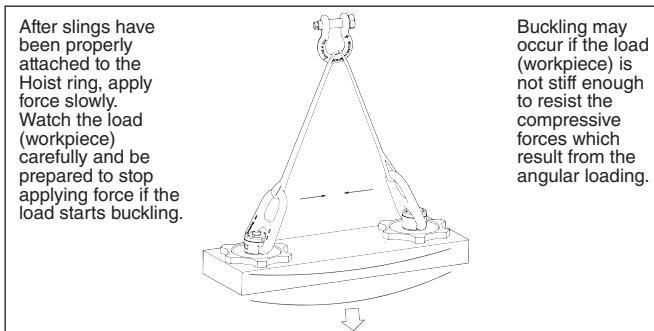
Operating Safety

- Never exceed the capacity (WLL) of the trench cover hoist ring, see Table 1.
- When using lifting slings of two or more legs, make sure the forces in the legs are calculated using the angle from the horizontal sling angle to the leg and select the proper size trench cover hoist ring.

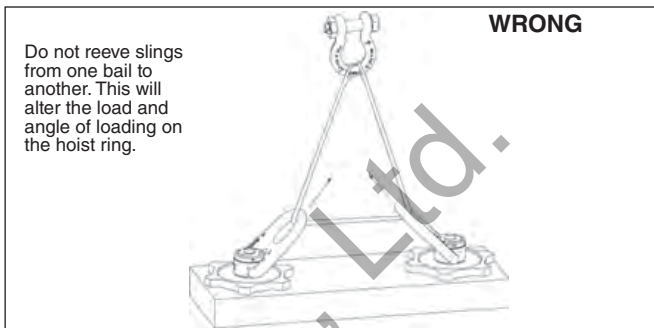
Working Load Limit (t)*	Dimensions		Weight Each (kg)
	Coil Thread Size (in) A	Effective Thread Projection Length (mm) B	
2.27	1" - 3.5	25.4	3.6
4.54	1-1/4" - 3.5	25.4	7.3
6.82	1-1/2" - 3.5	38.1	12.7

* Ultimate load is 5 times the working load limit. Individually proof tested to 2-1/2 times the working load limit.

** Designed to be used with ferrous workpiece only.



Buckling may occur if the load (workpiece) is not stiff enough to resist the compressive forces which result from the angular loading.



Trench Cover Nut Welding Guidelines

1. Select the correct size trench cover hoist ring to be used. Be sure to calculate the maximum load that will be applied to the trench cover hoist ring. The nut thickness should be equal to the workpiece thickness.
 2. Cut a hole in the workpiece per Table 2 below.
 3. Insert the trench cover nut into the hole. The trench cover nut should have 1/16" clearance around its outer edge. The surface of the trench cover nut must be parallel and even with the surface of the workpiece (See Figure 5).
 4. A welding fixture is available from Crosby for this.
 5. Welding is to be performed by a qualified welder using a qualified procedure in accordance with American Welding Society and/or American Society of Mechanical Engineers requirements.
6. When welding to low or medium carbon cover steel, the following suggestions should be included in the qualified procedure.
 - A. Before welding, all weld surfaces must be clean and free from rust, grease, paint, slag and any other contaminants.
 - B. Weld material is to have a minimum tensile strength of 70,000 PSI (such as AWS A5. 1E-7018). Observe the electrode manufacturer's recommendations.
 - C. Completely fill internal bevel created between trench cover nut and the workpiece.
 - D. Do not rapidly cool the weld.
 - E. The surface of the weld must be ground sufficiently so that the trench cover hoist ring will fit flush against the workpiece.
 - F. Using the same procedure, weld the opposite side.
 - G. A thorough inspection of the weld should be performed. No cracks, pitting, inclusions, notches or undercuts are allowed. If doubt exists, use a suitable NDE method, such as magnetic particle or liquid penetrant to verify.
 - H. If repair is required, grind out the defect and re-weld using the original qualified procedure.

Working Load Limit (t)*	Dimensions (mm)			Nut Thickness = Workpiece Thickness M
	Coil Thread Size (in)	Nut Diameter K	Trench Cover Hole Diameter L	
2.27	1" - 3.5	76.2	79.2	19
2.27	1" - 3.5	76.2	79.2	22
2.27	1" - 3.5	76.2	79.2	25
4.54	1-1/4" - 3.5	76.2	79.2	19
4.54	1-1/4" - 3.5	76.2	79.2	22
4.54	1-1/4" - 3.5	76.2	79.2	25
4.54	1-1/4" - 3.5	76.2	79.2	32
4.54	1-1/4" - 3.5	76.2	79.2	38
6.82	1-1/2" - 3.5	88.9	91.9	25
6.82	1-1/2" - 3.5	88.9	91.9	32
6.82	1-1/2" - 3.5	88.9	91.9	38

NOTE: For welding to other grades of steel, a qualified weld procedure must be developed.

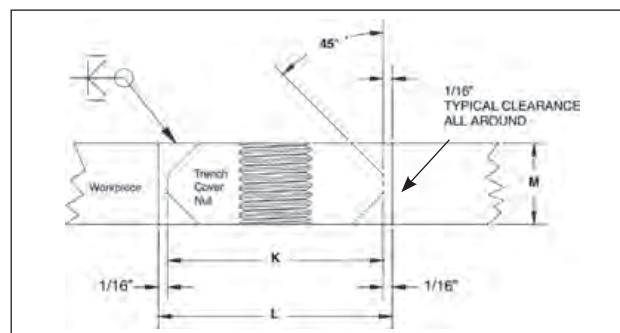


Figure 5

SIDE PULL HR-1200

WARNINGS & APPLICATION INSTRUCTIONS



HR-1200

Hoist Ring Application / Assembly Instruction

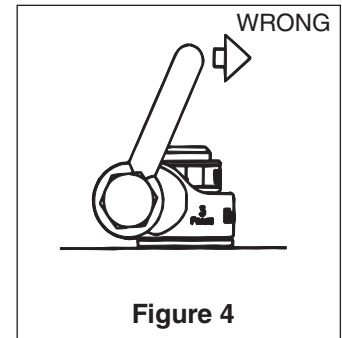
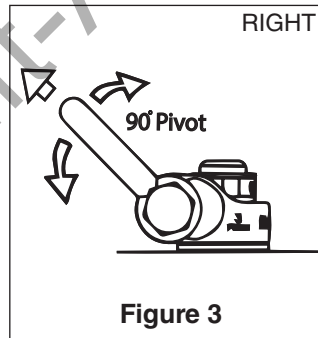
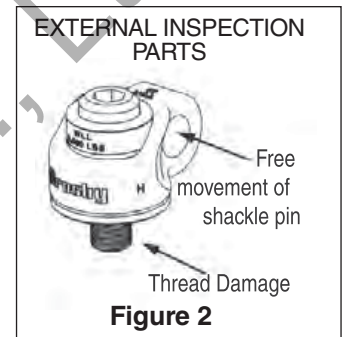
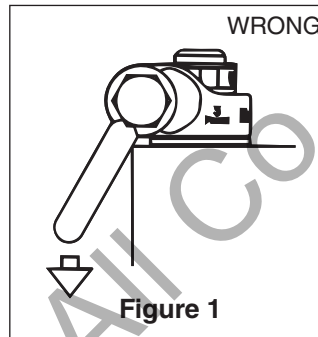
- The Crosby side pull swivel hoist ring is designed to accept standard Crosby fittings to facilitate wider slings and quick attachment. In order to use the larger fittings, the load rating on the (shackle) fitting may be greater than the hoist ring frame. **Never exceed the Working Load Limit of the hoist ring frame.**
- Use swivel hoist ring only with a ferrous metal (steel, iron) or non-ferrous (i.e., aluminum) loads (workpiece). Do not leave threaded end of hoist ring in aluminum loads for long time periods due to corrosion.
- After determining the loads on each hoist ring, select the proper size hoist ring using the Working Load Limit ratings in Table 1 for UNC threads and Table 2 for Metric threads (On next page.)
- For Subsea or Metric environment application, use the HR-1200 CT Series hoist ring only.
- Drill and tap the workpiece to the correct size to a minimum depth of one-half the threaded shank diameter plus the threaded shank length.
- Install hoist ring to recommended torque with a torque wrench making sure the bushing flange is fully supported by the load (workpiece) surface. See rated load limit and bolt torque requirements imprinted on hoist ring body (See Table 1 or Table 2).
- Never use spacers between bushing flange and mounting surface.
- Always select proper lifting device for use with Swivel Hoist Ring (See Tables 1 & 2 On next page).
- Attach lifting device ensuring free fit to hoist shackle (See Figure 3).
- Apply partial load and check proper rotation and alignment of shackle. There should be no interference between load (workpiece) and hoist shackle (See Figure 1 and Figure 3).
- The Hoist ring should rotate into normal operating position, with shackle aligned with load as shown in Figure 3. If shackle is oriented as shown in Figure 4, **DO NOT LIFT.**
- Special Note:** when a Hoist Ring is installed with a retention nut, the nut must have full thread engagement and must meet one of the following standards to develop the Working Load Limit (WLL).
 - ASTM A-563 (A) Grade D Hex Thick
 - (B) Grade DH Standard Hex
 - SAE Grade 8 - Standard Hex

Hoist Ring Inspection / Maintenance

- Always inspect hoist ring before use.
- Regularly inspect hoist ring parts (Figure 2).
- For hoist rings used in frequent load cycles or on pulsating loads, the bolt threads should be periodically inspected by magnetic particle or dye penetrant.
- Do not use part showing cracks, nicks or gouges.
- Repair minor nicks or gouges to hoist frame by lightly grinding until surfaces are smooth. Do not reduce original dimension more than 10%. Do not repair by welding.

WARNING

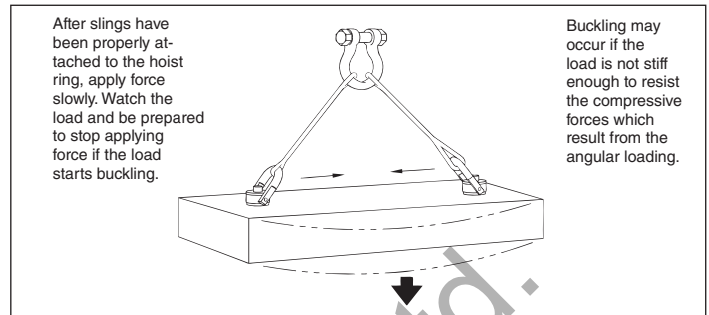
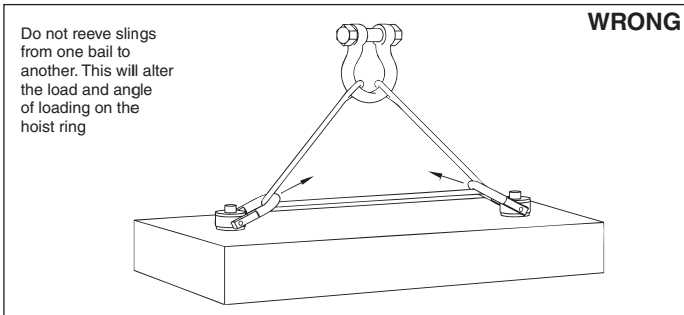
- Loads may slip or fall if proper Hoist Ring assembly and lifting procedures are not followed.
- A falling load may cause serious injury or death.
- Install hoist ring bolt to torque requirements listed in tables.
- The side pull hoist ring frame will be only one part of a lifting system with several components (i.e., shackles and slings). Never exceed the Working Load Limit of the hoist ring frame.
- Do not use damaged slings or chain. For inspection criteria, see ASME B30.9.
- Read and understand these instructions before using hoist ring.
- Use only genuine Crosby parts as replacements.



- Never use hoist ring that shows signs of corrosion, wear or damage.
- Never use hoist ring if components are bent or elongated.
- Always be sure threads on bolt and receiving tapped holes are clean, undamaged, and fit properly.
- Always check with torque wrench before using an already installed hoist ring.
- Always make sure there are no spacers (washers) used between bushing flange and the mounting surface. Remove any spacers (washers) and retorque before use.
- Always ensure free movement of shackle. The shackle should pivot 90° and the hoist ring should swivel 360° (See Figure 3).
- Always be sure total workpiece surface is in contact with hoist ring bushing mating surface. Drilled and tapped hole must be 90° to load (workpiece) surface.

OPERATING SAFETY

- Never exceed the capacity of the hoist ring, see Table 1 for UNC threads and Table 2 for Metric threads.
- When using lifting slings of two or more legs, make sure the forces in the legs are calculated using the angle from the horizontal sling angle to the leg and select the proper size swivel hoist ring to allow for the angular forces.



HR1200 UNC Threads

TABLE 1

Frame Size	Working Load Limit * (lb)	Hoist Ring Bolt Torque in (Nm) †	Bolt Size ‡ (in)	Effective Thread Projection Length (in)	Recommended Shackles	
					Red Pin® Shackles 209, 210, 213 215, 2130, 2150	Red Pin® Web Shackles S-281
1	650††	7	5/16 - 18 x 1.5	.59	1/2" - (2) 5/8" - (3-1/4)	2" - (3-1/4)
	800††	12	3/8 - 18 x 1.5	.59		
2	2000	28	1/2 - 13 x 2.0	.71	5/8" - (3-1/4) 3/4" - (4-3/4)	2" - (3-1/4) 1-1/2" - (4-1/2)
	2000††	28	1/2 - 13 x 2.5	1.21		
	3000	60	5/8 - 11 x 2.0	.71		
	3000††	60	5/8 - 11 x 2.75	1.46		
3	5000	100	3/4 - 10 x 2.75	1.46	7/8" - (6-1/2)	2" - (6-1/4)
	5000††	100	3/4 - 10 x 3.5	1.63		
	6500	160	7/8 - 9 x 2.5	.90		
	6500††	160	7/8 - 9 x 3.5	1.65		
	8000	230	1 - 8 x 3.0	1.15		
	8000††	230	1 - 8 x 4.0	2.15		
4	14000	470	1-1/4 - 7 x 4.5	2.22	1" - (8-1/2) 1-1/8" - (9-1/2) 1-1/4" - (12)	3" - (8-1/2)
5	17200 29000	800 1100	1-1/2 - 6 x 6.5 2 - 4-1/2 x 6.5	2.98 2.98	1-3/8" - (13-1/2) 1-1/2" - (17) 1-3/4" - (25)	—

HR1200M Metric Threads

TABLE 2

Frame Size	Working Load Limit * (kg)	Hoist Ring Bolt Torque (Nm) †	Bolt Size ‡ (mm)	Effective Thread Projection Length (mm)	Recommended Shackles	
					Red Pin® Shackles 209, 210, 213 215, 2130, 2150	Red Pin® Web Shackles S-281
1	300	10	M8 x 1.25 x 40	16.9	1/2" - (2) 5/8" - (3-1/4)	2" - (3-1/4)
	400	16	M10 x 1.5 x 40	16.9		
2	1000	31	M12 x 1.75 x 50	17.2	5/8" - (3-1/4) 3/4" - (4-3/4)	2" - (3-1/4) 1-1/2" - (4-1/2)
	1400	81	M16 x 2.00 x 60	27.2		
3	2250	136	M20 x 2.50 x 75	28.1	7/8" - (6-1/2)	2" - (6-1/4)
	3500	312	M24 x 3.00 x 80	33.1		
4	6250	637	M30 x 3.5 x 120	65.1	1" - (8-1/2) 1-1/8" - (9-1/2) 1-1/4" - (12)	3" - (8-1/2)
5	7750 10000 13000	1005 1005 1350	M36 x 4.0 x 150 M42 x 4.5 x 160 M48 x 5.0 x 160	60.6 70.6 70.6	1-3/8" - (13-1/2) 1-1/2" - (17) 1-3/4" - (25)	—

Designed to be used with Ferrous workpiece only

* Ultimate load is 5 times the Working Load Limit. Individually proof tested to 2-1/2 times the Working Load Limit.

† Tightening torque values shown are based upon threads being clean, dry and free of lubrication.

†† Long bolts are designed to be used with soft metal (i.e., aluminum) workpiece. While the long bolts may also be used with ferrous metal (i.e., steel & iron) workpieces, short bolts are designed for ferrous workpieces only.

‡ Bolt specification is a Grade 8 Alloy socket head cap screw to ASTM A574. All threads are UNC - 3A.

‡‡ Bolt specification is a Grade 12.9 Alloy socket head cap to DIN 912. All threads are metric (ASME/ANSI B18.3.1m).

CROSBY® WELD-ON PIVOTING LINK

WARNING & APPLICATION INSTRUCTIONS



S-265

⚠ WARNING

- Loads may disengage from link if proper welding, assembly, and lifting procedures are not used.
- A falling load may cause serious injury or death.
- Do not use with damaged slings or chain. For sling inspection criteria see ASME B30.9.
- Read and understand these instructions before welding on, or using the pivoting link.

Important Safety Information - Read and Follow

- Use weld-on pivoting link only with ferrous metal (steel) workpiece.
- After determining the loads on each weld-on pivoting link, select the proper size using the Working Load Limit (WLL) ratings in Table 1 on next page.
- Always make sure the weld-on pivoting link and mounting surface is free of dirt or contaminants before installation.
- Never use spacers between the weld-on pivot link and mounting surface.
- Always select proper load rated lifting device for use with weld-on pivoting link.
- Attach lifting device ensuring free movement of weld-on pivoting link bail (Figure 1).
- Apply partial load and check proper alignment. There should be no interference between load (workpiece) and weld-on pivoting link (Figure 2).
- Always ensure free movement of bail. The bail should pivot 180 degrees (Figure 4).
- The support structure that the pivot link is attached to must be of suitable size, composition and quality to support the anticipated loads of all operating positions. The required support structure thickness for a given application is dependent on variables such as unsupported length and material strength, and should be determined by a qualified individual.
- Never repair, alter, rework or reshape the pivoting link bail by welding, heating, burning or bending.

Weld-on Pivoting Link Inspection / Maintenance

- Always inspect weld-on pivoting link before use.
- Regularly inspect weld-on pivoting link parts (Figure 3).
- Never use weld-on pivoting link that shows signs of corrosion, wear or damage.
- Never use weld-on pivoting link if bail is bent or elongated.
- Do not use part showing cracks, nicks or gouges.
- Always make sure there are no spacers used between weld-on pivoting link and the mounting surface.
- Always be sure workpiece surface is in total contact with the weld-on pivoting link base mating surface.
- Always inspect the weld-on pivoting link bail and base for wear.
- A visual periodic inspection of the weld should be performed. Check the weld visually, or use a suitable NDE method if required.

Operating Safety

- Never exceed the capacity (WLL) of the weld-on pivoting link (Table 1, next page).
- Always apply load within 90° of inline, at any pivot angle (Figure 4 & 5).
- When using lifting slings of two or more legs, make sure the forces in the legs are calculated using the angle from the horizontal sling angle to the leg and select the proper size link.

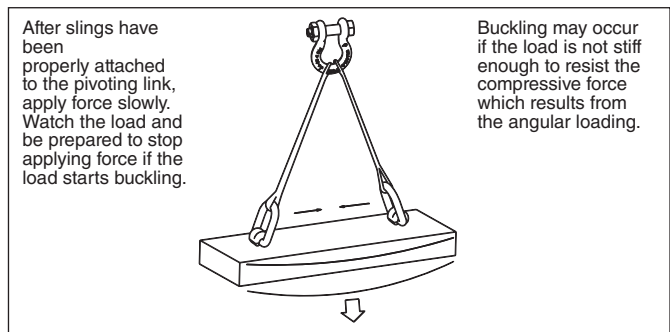
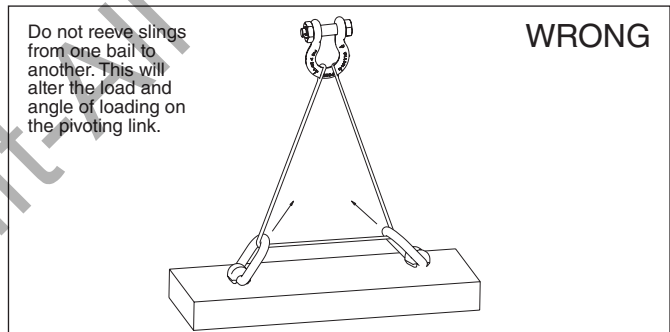


Figure 1



Figure 2

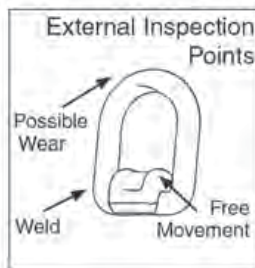


Figure 3

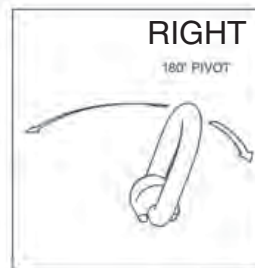


Figure 4

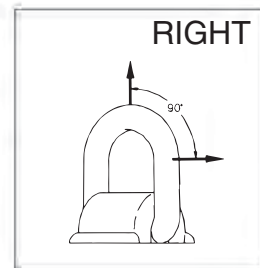


Figure 5

Weld-on Pivoting Link Welding Guidelines

1. Select the correct size weld-on pivoting link to be used. Be sure to calculate the maximum load that will be applied to the weld-on pivoting link.
2. Place the weld-on pivoting link onto the mounting surface. The bottom of the link base must be parallel and even with the mounting surface.
3. Welding is to be performed by a qualified welder using a qualified procedure in accordance with American Welding Society and/or American Society of Mechanical Engineers requirements. Always follow your country or local mandatory regulations or codes.
 - A. Saddle material is equivalent to SAE/AISI 1024, EN S355J2, or DIN 1.0570.
 - B. Weld material is to have a minimum tensile strength of 70,000 PSI (such as AWS A5.1 E-7018). Observe the electrode manufacturer's recommendations. Completely fill internal fillet created between weld-on pivoting link base and mounting surface.
 - C. Before welding, all weld surfaces must be clean and free from rust, grease, paint, slag and any other contaminants.
4. The following welding recommendations should be included in the qualified procedure for welding to low or medium carbon plate steel. For welding to other grades of steel, a qualified weld procedure must be developed.
 - D. Fillet weld leg size should be minimum shown in Table 1. Weld profiles to be in accordance with AWS. Weld size is measured by length of leg.
 - E. Welding should be carried out in a minimum of two passes to ensure adequate root penetration at the base of the pivoting link.
 - F. Weld full length of "D" dimension on both sides of link base (Figure 5).
 - G. Do not weld close to the bail. After welding, ensure bail pivots full 180° without interfering with the weld.
 - H. Do not rapidly cool the weld.
 - I. The ends of the weld must be ground sufficiently so that the weld-on pivoting link will fit flush against the mounting surface.
 - J. A thorough inspection of the weld should be performed. No cracks, pitting, inclusions, notches or undercuts are allowed. If doubt exists, use a suitable NDE method, such as magnetic particle or liquid penetrant to verify.
 - K. If repair is required, grind out the defect and re-weld using the original qualified procedure.

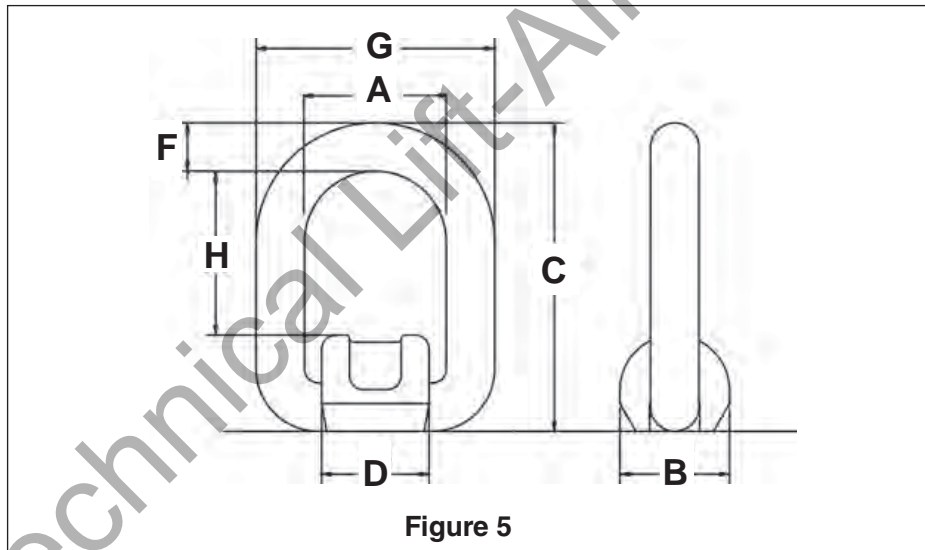


Figure 5

Stock Number	Working Load Limit (t)		Dimensions (mm)							Minimum Fillet Weld Size	Weight Each (kg)
	Design Factor 5:1	Design Factor 4:1	A	B	C	D	F	G	H		
1290740	1	1.2	40	36	83	35	13	66	42	3	.40
1290768	2.5	3.2	45	44	99	42	18	81	48	3	.60
1290786	4	5	55	50	123	49	22	99	57	6	1.20
1290802	6.4	8	70	64	144	64	26	122	67	6	2.40
1290820	12	15	97	90	193	86	34	165	94	8	5.90

*Designed to be used with ferrous workpiece only.

CROSBY SWIVEL HOIST RING

WARNING & APPLICATION INSTRUCTIONS



HR-125/SS-125
(Red Washer)
HR-125M
SS-125M
(Silver Washer)



HR-1000
(Red Washer)
HR-1000M
(Silver Washer)
HR-1000CT
(Blue Washer)

Hoist Ring Application Assembly Safety

Use swivel hoist ring only with a ferrous metal (steel, iron) or soft metal (i.e., aluminum) load (workpiece). Do not leave threaded end of hoist ring in aluminum loads for long time periods due to corrosion.

For subsea or marine environment applications, use the HR-1000CT series Hoist Ring only.

- After determining the loads on each hoist ring, select the proper size hoist ring using the Working Load Limit ratings in Tables 1, 2, and 5 for UNC threads and Tables 3, 4 and 6 for Metric threads (on next page).
- Drill and tap the workpiece to the correct size to a minimum depth of one-half the threaded shank diameter plus the threaded shank length. See rated load limit and bolt torque requirements imprinted on top of the swivel trunnion (See Table 1 through Table 6 on next page).
- When a hoist ring is used in a side load application, ensure equal loading on the pins by aligning the bail as shown in (Fig. 3).
- Always be sure total hoist ring bushing mating surface is in contact with the (workpiece) surface. Drilled and tapped hole must be 90 degrees to load (workpiece) surface.
- Install hoist ring to recommended torque with a torque wrench making sure the bushing flange meets the load (workpiece) surface.
- Never use spacers between bushing flange and mounting surface.
- Always select proper load rated lifting device for use with Swivel Hoist Ring.
- Attach lifting device ensuring free fit to hoist ring bail (lifting ring) (Fig. 1).
- Apply partial load and check proper rotation and alignment. There should be no interference between load (workpiece) and hoist ring bail (Fig. 2).
- Special Note: When a Hoist Ring is installed with a retention nut, the nut must have a full thread engagement and must meet one of the following standards to develop the Working Load Limit (WLL).

UNC NUTS

- 1. ASTM A-563**
Grade D
(Heavy Hex or Hex Thick)
Grade DH
Grade DH3
- 2. ASTM A-194**
Grade 2H
Grade 4
Grade 7
- 3. FNL**
Grade 9
- 4. SAE J995**
Grade 8

METRIC NUTS

- 1. ASTM A-563M**
Class 10S
- 2. ISO 898-2**
(EN 20898-2/DIN 267-4)
Class 10
Class 12

Hoist Ring Inspection / Maintenance

- Always inspect hoist ring before use.
- Regularly inspect hoist ring parts.
- Never use hoist ring that shows signs of corrosion, wear or damage.
- Never use hoist ring if bail is bent or elongated.
- Always be sure threads on shank and receiving hole are clean, not damaged, and fit properly.

- Always check with torque wrench before using an already installed hoist ring.
- Always make sure there are no spacers (washers) used between bushing flange and the mounting surface. Remove any spacers (washers) and retorque before use.
- Prior to loading always ensure free movement of bail. The bail should pivot 180 degrees and swivel 360 degrees.

⚠ WARNING

- Loads may slip or fall if proper Hoist Ring assembly and lifting procedures are not used.**
- A falling load may cause serious injury or death.**
- Install hoist ring bolt to torque requirements listed in tables 1, 2, 3, 4, 5, & 6 for the HR-125, HR-1000, HR-1000CT, HR-125M, HR-1000M and SS-125.**
- Read, understand and follow all instructions and chart information.**
- Do not use with damaged slings, chain, or webbing. For inspection criteria see ASME B30.9.**
- Use only genuine Crosby parts as replacements.**

Operating Safety

- Never exceed the capacity of the swivel hoist ring, see Tables 1, 2 and 5 for UNC threads and Tables 3, 4 and 6 for Metric threads. (See next page for tables.)
- When using lifting slings of two or more legs, make sure the forces in the legs are calculated using the angle from the horizontal sling angle to the leg and select the proper size swivel hoist ring to allow for the angular forces.

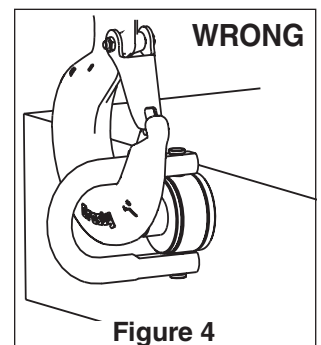
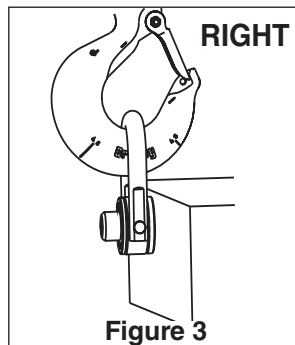
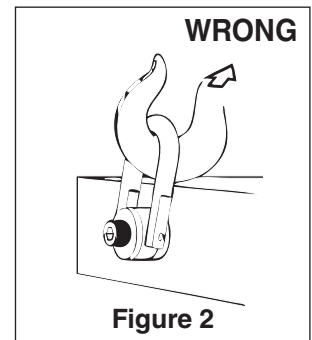
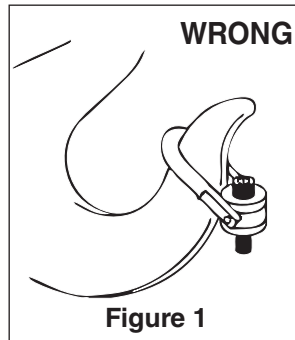
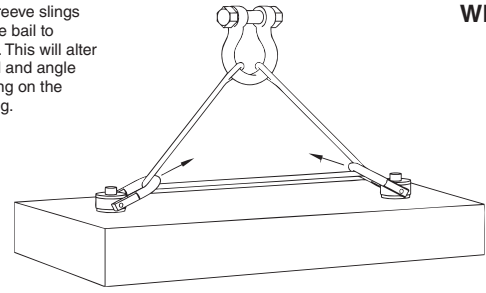


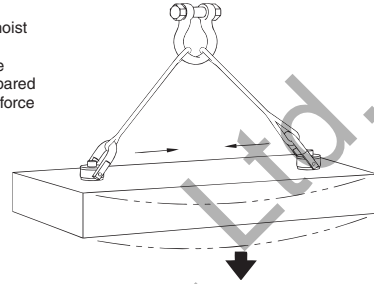
Table 1					
Working Load Limit* 5:1 (lb) ††	Hoist Ring Bolt Torque (ft•lbf) †	HR-125		HR-1000	
		Bolt Size ‡ (in)	Effective Thread Projection Length (in)	Bolt Size ‡ (in)	Effective Thread Projection Length (in)
800 ††	7	5/16 - 18 x 1.50	.58	5/16 - 18 x 1.50	.52
1000 ††	12	3/8 - 16 x 1.50	.58	3/8 - 16 x 1.50	.52
2500	28	1/2 - 13 x 2.00	.70	1/2 - 13 x 2.25	.69
2500 ††	28	1/2 - 13 x 2.50	1.20	1/2 - 13 x 2.75	1.19
4000	60	5/8 - 11 x 2.00	.70	5/8 - 11 x 2.25	.69
4000 ††	60	5/8 - 11 x 2.75	1.45	5/8 - 11 x 3.00	1.44
5000	100	3/4 - 10 x 2.25	.95	3/4 - 10 x 2.50	.94
5000 ††	100	3/4 - 10 x 2.75	1.45	3/4 - 10 x 3.00	1.44
7000 Ω	100	3/4 - 10 x 2.75	.89	3/4 - 10 x 3.00	.85
7000 ††Ω	100	3/4 - 10 x 3.50	1.64	3/4 - 10 x 3.50	1.35
8000	160	7/8 - 9 x 2.75	.89	7/8 - 9 x 3.00	.85
8000 ††	160	7/8 - 9 x 3.50	1.64	7/8 - 9 x 3.50	1.35
10000	230	1 - 8 x 3.00	1.14	1 - 8 x 3.50	1.35
10000 ††	230	1 - 8 x 4.00	2.14	1 - 8 x 4.50	2.35
15000	470	1-1/4 - 7 x 4.50	2.21	1-1/4 - 7 x 5.00	2.09
24000	800	1-1/2 - 6 x 6.75	2.97	1-1/2 - 6 x 5.50	2.59
30000	1100	2 - 4-1/2 x 6.75	2.97	—	—
50000	2100	2-1/2 - 4 x 8.00	4.00	—	—
75000	4300	3 - 4 x 10.50	5.00	—	—
100000	5100	3-1/2 - 4 x 13.00	7.00	—	—

Do not reeve slings from one bail to another. This will alter the load and angle of loading on the hoist ring.



WRONG

After slings have been properly attached to the hoist ring, apply force slowly. Watch the load and be prepared to stop applying force if the load starts buckling.



Buckling may occur if the load is not stiff enough to resist the compressive forces which result from the angular loading.

Ω Ultimate Load is 4.5 times Working Load Limit for 7000# Hoist Ring when tested in 90° orientation. All sizes are individually proof tested to 2-1/2 times the Working Load Limit. *, †, ††, ‡ (See footnotes at bottom of Table 5).

Table 2				
Working Load Limit (kg)****		HR-1000MCT		
Design Factor 5:1	Design Factor 4:1	Hoist Ring Bolt Torque in (Nm) †	Bolt Size (mm) ‡†	Effective Thread Projection Length (mm)
825	1030	38	M12 x 1.75 x 55	15.6
1350	1690	81	M16 x 2.00 x 65	25.5
2250	2810	136	M20 x 2.50 x 80	25.3
3175	3970	312	M24 x 3.00 x 90	35.4
5450	6810	637	M30 x 3.50 x 140	65.9
7450	9310	1005	M36 x 4.00 x 130	56.3
13250	16560	1350	M48 x 5.00 x 180	50.7

Table 3			
HR-1000CT			
Working Load Limit 5:1 (lb)****	Hoist Ring Bolt Torque in (ft•lbf) †	Bolt Size (in) Δ	Effective Thread Projection Length (in)
1900	28	1/2 - 13 x 2.25	.70
1900	28	1/2 - 13 x 2.75	1.20
3000	60	5/8 - 11 x 2.25	.70
4800	100	3/4 - 10 x 3.00	.85
6200	160	7/8 - 9 x 3.00	.85
8300	230	1 - 8 x 3.50	1.35
12500	470	1 1/4 - 7 x 5.00	2.10
20000	800	1 1/2 - 6 x 5.50	2.60
20000	800	1 1/2 - 8 x 5.50	2.60
28000	1100	2 - 4.5 x 7.50	3.20
45000	2100	2 1/2 - 4 x 9.50	3.73

Table 4						
Working Load Limit (kg)***		Hoist Ring Bolt Torque in (Nm) †	HR-125M		HR-1000M	
Design Factor 5:1	HR-125M Design 4:1		Bolt Size ‡ (mm)	HR-125M Effective Thread Projection Length (mm)	Bolt Size ‡ (mm)	HR-1000M Effective Thread Projection Length (mm)
400	500	10	M 8 X 1.25 X 40	16.9	M 8 X 1.25 X 40	15.2
450	550	16	M 10 X 1.50 X 40	16.9	M 10 X 1.50 X 40	15.2
1050	1300	38	M 12 X 1.75 X 50	172	M 12 X 1.75 X 55	15.5
1900	2400	81	M 16 X 2.00 X 60	272	M 16 X 2.00 X 65	25.5
2150	2700	136	M 20 X 2.50 X 65	312	M 20 X 2.50 X 70	30.5
3000	3750	136	M 20 X 2.50 X 75	28.1	M 20 X 2.50 X 80	25.4
4200	5250	312	M 24 X 3.00 X 80	33.1	M 24 X 3.00 X 90	35.4
7000	8750	637	M 30 X 3.50 X 120	65.1	M 30 X 3.50 X 140	66.2
11000	13750	1005	M 36 X 4.00 X 150	60.6	M 36 X 4.00 X 150	56.2
12500	15600	1005	M 42 x 4.50 x 160	70.6	—	—
13500	16900	1350	M 48 x 5.00 x 160	101	—	—
22300	27900	2847	M 64 x 6.00 x 204	101	—	—
31500	39400	5830	M 72 x 6.00 x 265	132	—	—
44600	55800	6914	M 90 x 6.00 x 330	177	—	—

See Footnotes on next page.

† Tightening torque values shown are based upon threads being clean, dry and free of lubrication.

Footnotes below relate to tables 1-4

* Ultimate load is 5 times the Working Load Limit. Individually proof tested to 2-1/2 times the Working Load Limit.

** Ultimate load is 4 times the Working Load Limit. Individually proof tested to 2-1/2 times the Working Load Limit.

*** Individually proof tested to 2-1/2 times the Working Load Limit based on 4:1 design factor

**** Ultimate load is 5 times the Working Load Limit. Individually proof tested to 2 times the Working Load Limit.

†† Long bolts are designed to be used with soft metal (i.e., aluminum) workpiece. While the long bolts may also be used with ferrous metal (i.e., steel & iron) workpieces, short bolts are designed for ferrous workpieces only.

‡ Bolt specification is an Alloy socket head cap screw to ASTM A574. All threads are UNC .

‡‡ Bolt specification is a Grade 12.9 Alloy socket head cap screw to DIN 912. All threads are metric (ASME/ANSI B18.3.1m)

Δ Bolt specification is a Grade L7 or L43 Alloy socket head cap screw to ASTM A320. All threads are UNC.

‡‡‡ Tighten bolt to specified torque, then tighten nut to specified torque.

All Swivel Hoist Rings are individually proof tested.

Table 5			
SS-125 ¥¥			
Working Load Limit (lb) ¥	Torque in (ft•lbf) †	Bolt Size (in) §	Effective Thread Projection (in)
400	3.5	5/16 - 18 x 1	.29
400	3.5	5/16 - 18 x 1.25	.54
500	6	3/8 - 16 x 1.25	.54
1250	14	1/2 - 13 x 2	.78
1250	14	1/2 - 13 x 2.25	1.03
1250	14	1/2 - 13 x 2.5	1.28
2000	30	5/8 - 11 x 2	.78
2000	30	5/8 - 11 x 2.25	1.03
2000	30	5/8 - 11 x 2.5	1.28
2500	50	3/4 - 10 x 2.25	1.03
2500	50	3/4 - 10 x 2.75	1.53
3500	50	3/4 - 10 x 2.75	1.04
3500	50	3/4 - 10 x 3.25	1.54
4000	80	7/8 - 9 x 2.75	1.04
4000	80	7/8 - 9 x 3	1.29
5000	115	1 - 8 x 3	1.29
5000	115	1 - 8 x 3.25	1.54
5000	115	1 - 8 x 4	2.29
7500	235	1-1/4 - 7 x 4	1.89
12000	400	1-1/2 - 6 x 5.5	2.70
15000	550	2 - 4-1/2 x 5.75	2.96
25000	1050	2-1/2 - 4 x 8	4.00
25000	1050	2-1/2 - 8 x 8	4.00
37500	2150	3 - 4 x 10.25	5.00
50000	2550	3-1/2 - 4 x 13	7.00

Table 6			
SS-125M ¥¥			
Working Load Limit (kg) ¥	Torque in (Nm) †	Bolt Size (mm) §§	Effective Thread Projection (mm)
200	4	M 8 x 1.25 x 30	13
250	8	M 10 x 1.50 x 35	18
525	18	M 12 x 1.75 x 50	19
950	40	M 16 x 2.00 x 60	29
1075	68	M 20 x 2.50 x 65	34
1500	68	M 20 x 2.50 x 75	32
2100	108	M 24 x 3.00 x 80	37
2100	108	M 30 x 3.50 x 110	58
3500	318	M 30 x 3.50 x 95	42
3500	318	M 30 x 3.50 x 115	62
5500	542	M 36 x 4.00 x 135	64
6250	542	M 42 x 4.50 x 155	82
6750	746	M 48 x 5.00 x 155	82
11150	1423	M 64 x 6.00 x 205	101
15750	2915	M 72 x 6.00 x 265	132
22300	3459	M 90 x 6.00 x 330	177

Footnotes below relate to Tables 6 and 7

¥ Ultimate load is 5 times the Working Load Limit. Individually proof tested to 2 times the Working Load Limit.

¥¥ All components are 316 Stainless Steel, except Bolt Retainers, which are made from 15-7 PH (UNS 15700) magnetic stainless steel.

§ Bolt specification is 316 Stainless Steel socket head cap screw to ASTM F 837 Group 1 (316).

§§ Bolt specification is 316 Stainless Steel socket head cap screw to ASTM F837M (316).

All threads are Metric (ASME/ANSI B18.3.1M).

CROSBY® THIMBLE EYE BUNDLE CLIPS

WARNING & APPLICATION INSTRUCTIONS



G-461

The Bundle Clip is utilized in a choker hitch application to maintain the shape of bundled packages after a load is placed. The Bundle Clip is attached to live line of choker hitch, but it is never to be used as a button or ferrule to carry a load in the primary load path.

Certain conditions (such as extreme variation of the choke size) or improper installation may cause the eye of the choke hitch to disengage from the Bundle Clip and allow the eye to seat away from or below the Bundle Clip (see Figure 3). If this occurs, the Bundle Clip must be removed and installed in the proper position.

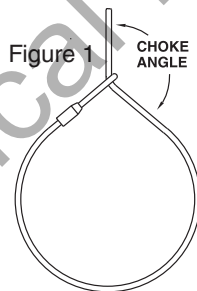
The Bundle Clip is sized to provide a grip to the live rope without reducing the efficiency of a choker hitch. This grip is adequate to keep the bundle clip in position.

These instructions are for use with thimble eyes formed with RRL or RLL wire rope, 6 x 19 or 6 x 36 Class, FC or IWRC; IPS or XIP, XXIP, and a Crosby Thimble. For other classes of wire rope not mentioned above, we recommend contacting Crosby Engineering.

For Soft Eye applications see the Crosby G-460 Soft Eye Bundle Clip.

For OSHA (Construction) applications, see OSHA 1926.251.

1. The eye of the sling must be in the choked position (around live line). Choker hitch applications should comply with the requirements of ASME B30.9 Slings. Install the choker hitch to provide a minimum choke angle of 120 degrees (See Figure 1). Refer to ASME B30.9 for required de-rating of the sling if choke angle is less than 120 degrees.



2. Before installing Bundle Clip, apply initial load by lifting the bundle and clearing the support, producing a tight choke. Repeat as necessary until the bundle package is in the most compact position (See figure 2, Loaded). **Keep hands and feet from under load.**

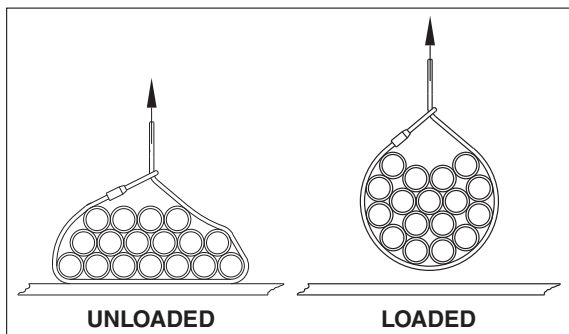


Figure 2

WARNING

- Failure to read, understand, and follow these instructions may cause death or serious injury.
- A falling load may seriously injure or kill.
- Read and understand these instructions before using clips.
- Failure to properly position the Bundle Clip may allow the load to slip and fall.
- Match the same size clip to the same size wire rope.
- Install Bundle Clip only as instructed.
- Do not use with plastic coated wire rope.
- Do not use for lifting personnel.

3. After initial loading, install the Bundle Clip. The orientation of the Bundle Clip on the live line is not an important consideration, as the assembly is of adequate size to prevent passage through proper size Crosby Thimble and next larger size Thimble. Insert U-bolt through the Bundle Clip. Properly position the clip base over the U-bolt and install nuts (See Figure 3). Use torque wrench to tighten evenly, alternating from one nut to the other until the bundle stop bottoms out on the clip base, and the recommended torque is reached (See Table 1).

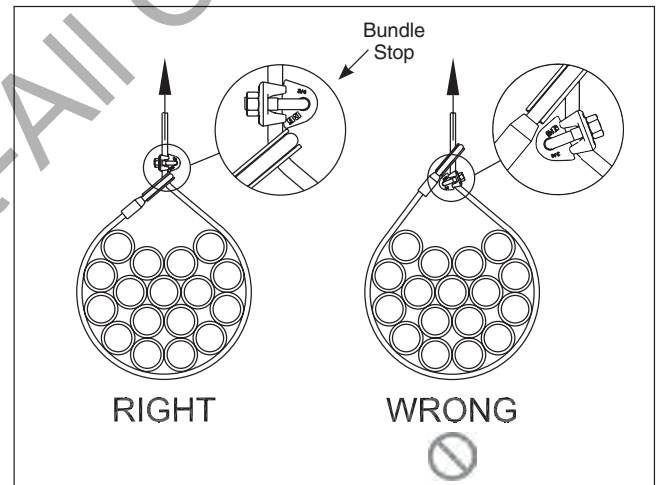


Figure 3

Table 1 – Recommended Torque

Clip Size	Rope Size (mm)	Torque (Nm)
5/8	16	129
3/4	19	176
7/8	22	305

4. Before each lift, check to ensure that the choke eye has not slipped from the Bundle Clip. Repeat Step 3 if necessary.
5. When disconnecting, the load should be clear of the stable support (See figure 2, Loaded). Remove Bundle Clip. Stay clear of the load as the bundle is lowered and the load is removed from the sling.

In accordance with good rigging and maintenance, the wire rope sling should be inspected periodically for wear, abuse, and general adequacy.

CROSBY® SOFT EYE BUNDLE CLIPS

WARNING & APPLICATION INSTRUCTIONS



The Bundle Clip is utilized in a choker hitch application to maintain the shape of bundled packages after a load is placed. The Bundle Clip is attached to live line of choker hitch, but it is never to be used as a button or ferrule to carry a load in the primary load path.

Certain conditions (such as extreme variation of the choke size) or improper installation may cause the eye of the choke hitch to disengage from the Bundle Clip and allow the eye to seat away from or below the Bundle Clip (see Figure 3). If this occurs, the Bundle Clip must be removed and installed in the proper position.

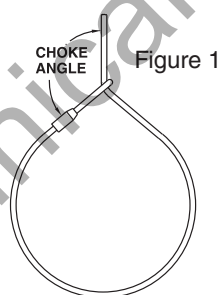
The Bundle Clip is sized to provide a grip to the live rope without reducing the efficiency of a choker hitch. This grip is adequate to keep the bundle clip in position. The eye may pull free of the Bundle Clip if not positioned properly.

These instructions are for use with soft eyes (no thimble) formed with RRL or RLL wire rope, 6 x 19 or 6 x 36 Class, FC or IWRC; IPS or XIP, XXIP. For other classes of wire rope not mentioned above, we recommend contacting Crosby Engineering.

For Thimble Eye applications see the Crosby G-461 Thimble Eye Bundle Clip.

For OSHA (Construction) applications, see OSHA 1926.251.

1. The eye of the sling must be in the choked position (around live line). Choker hitch applications should comply with the requirements of ASME B30.9 Slings. Install the choker hitch to provide a minimum choke angle of 120 degrees (See Figure 1). Refer to ASME B30.9 for required de-rating of the sling if choke angle is less than 120 degrees.



2. Before installing Bundle Clip, apply initial load by lifting the bundle and clearing the support, producing a tight choke. Repeat as necessary until the bundle package is in the most compact position (See figure 2, Loaded). **Keep hands and feet from under load.**

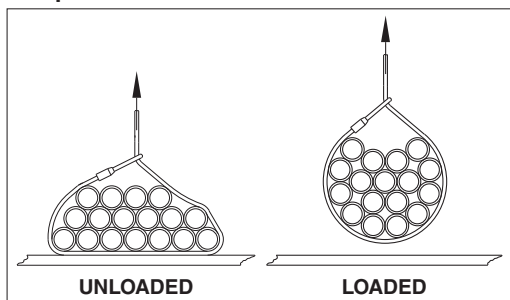


Figure 2

⚠ WARNING

- Failure to read, understand, and follow these instructions may cause death or serious injury.
- A falling load may seriously injure or kill.
- Read and understand these instructions before using clips.
- Failure to properly position the Bundle Clip may allow the load to slip and fall.
- Do not use the Bundle Clip to form the choke hitch (See Figure 3).
- Match the same size clip to the same size wire rope.
- Install Bundle Clip only as instructed.
- Do not use with plastic coated wire rope.
- Do not use for lifting personnel.

3. After initial loading, install the Bundle Clip in proper orientation, with curved portion (Bundle Clip tip) over the eye of the sling. Insert U-bolt through the Bundle Clip. Properly position the clip base over the U-bolt and install nuts (See Figure 3). Use torque wrench to tighten evenly, alternating from one nut to the other until the curved portion bottoms out on the clip base, and the recommended torque is reached (See Table 1).

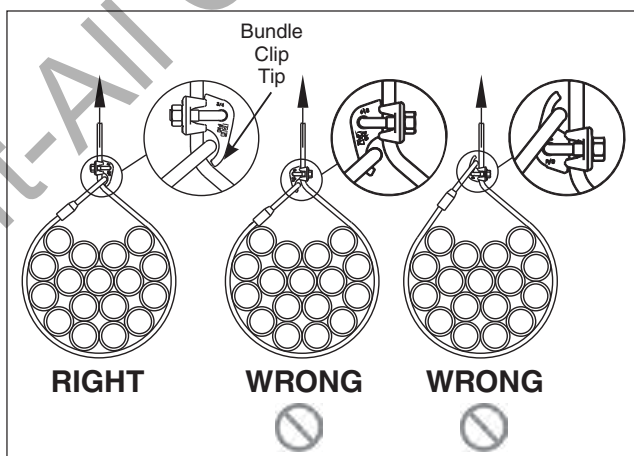


Figure 3

Table 1 – Recommended Torque

Clip Size	Rope Size (mm)	Torque (Nm)
5/8	16	129
3/4	19	176
7/8	22	305

4. Before each lift, check to ensure that the choke eye has not slipped from the Bundle Clip tip. Repeat Step 3 if necessary.
5. When disconnecting, the load should be clear of the stable support (See figure 2, Loaded). Remove Bundle Clip. Stay clear of the load as the bundle is lowered and the load is removed from the sling.

In accordance with good rigging and maintenance, the wire rope sling should be inspected periodically for wear, abuse, and general adequacy.

CROSBY Slide-Loc® Lifting Point

WARNINGS & APPLICATION INSTRUCTIONS



SL -150 & SL-150M
Slide-Loc Lifting Point

LIFTING POINT

APPLICATION / ASSEMBLY INSTRUCTIONS

- Lifting Points incorporate a red indented area on each forged bail that provides a quick indicator to determine whether the Lifting Point is in the installation position or the lifting position. If the **QUIC-CHECK** mark is visible, product is in installation mode and shall not be used for lifting.
- To check**, look for indented surface (red) on bail. A visible **QUIC-CHECK** mark (Figure 2) means the slide lock and bolt are engaged for installation. When Lifting Point is properly installed, move slide lock to lifting position (Figure 1).
- Use Lifting Points only with a ferrous metal (i.e., steel, iron) or soft metal (e.g., aluminum) load (workpiece). Do not leave threaded end of Lifting Point in aluminum loads for long time periods due to corrosion.
- When using lifting slings of two or more legs, make sure the forces in the legs are calculated using the angle from the horizontal sling angle to the leg and select the proper size swivel hoist ring to allow for the angular forces.
- After determining the loads on each Lifting Point, select the proper size Lifting Point using the Working Load Limit ratings in Table 1 for UNC threads and Table 2 for Metric threads.
- Never exceed rated capacity of Lifting Point. See Table 1 for UNC threads, and Table 2 for metric threads.
- Drill and tap the workpiece to the correct size to a minimum depth of one-half the threaded shank diameter plus the threaded shank length.
- Install Lifting Point by hand so that the bushing flange is held tight to the mounting surface by the bolt. The bushing flange should engage the entire mounting surface.
- Never use spacers between bushing flange and mounting surface.
- Always select proper load rated lifting device for use with Lifting Points.
- Attach lifting device ensuring free fit to Lifting Point bail. (Figure 6)
- Never lift load if Red **QUIC-CHECK** indicator is visible. (Figure 2)
- Apply partial load and check proper rotation and alignment. The Lifting Point bail should be in-line with the direction of the load.

QUIC-CHECK®



WARNING

- Load may slip or fall if proper Lifting Point assembly and lifting procedures are not used.
- A falling load can seriously injure or kill.
- Do not use with damaged slings or chain. For inspection criteria see ASME B30.9.
- Use only genuine Crosby bolts as replacements.
- Read and understand these warnings and application instructions.
- Do not load the Lifting Point if the slide lock is in the installation position (Red QUIC-CHECK mark is visible).

USING THE LIFTING POINT

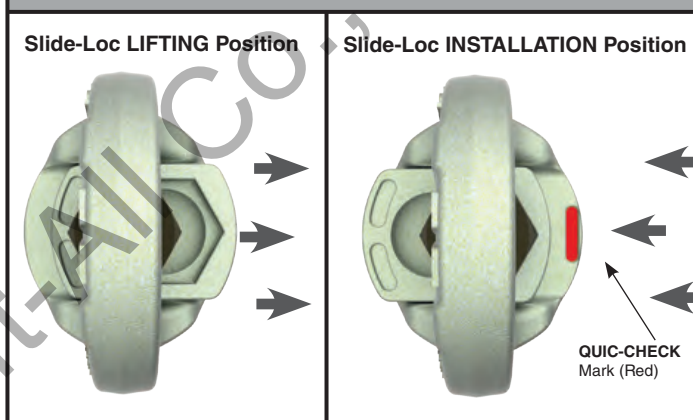


Figure 1

Figure 2

- Do not load in a direction perpendicular to the bail. (Figure 5)
- Special Note: When a Lifting Point is installed with a retention nut, the nut must have a full thread engagement and must meet one of the following standards to develop the Working Load Limit (WLL):

- ASTM A-563
 - Grade D Hex Thick
 - Grade DH Standard Hex
- SAE Grade 10.9 — Standard Hex

To place the Lifting Point:

- Move the slide lock into the installation position, such that the four flats on the bolt head are engaged. (Figure 2)
- Thread the bolt of the Lifting Point into the hole of your workpiece making sure that the entire length of exposed bolt thread is engaged. If the hole on your workpiece is not threaded, ensure that the Lifting Point is secured with a nut on the opposite side of your workpiece and that that nut thread is fully engaged.

Rigging
Accessories

- Before applying any load, ensure that the slide lock has been moved back into the lifting position and that the bail is free to rotate. (Figure 1)
- The Lifting Point can be loaded in any direction shown in Figure 4.
- Do not swivel the Lifting Point while supporting a load. The Lifting Point is a positioning device and is not intended to swivel under load.

To remove Lifting Point

- Move the slide lock into the installation position, such that the four flats on the bolt head flats are engaged. (Figure 2)
- Unthread the Lifting Point from your workpiece.

Lifting Point Inspection / Maintenance

- Perform regular daily inspections as recommended.
- Always inspect Lifting Point before use.
- Regularly inspect Lifting Point parts. (Figure 3)
- Never use Lifting Point that shows signs of corrosion, wear or damage.
- Never use Lifting Point if bail is bent or elongated.
- Always be sure threads on shank and receiving hole are clean, not damaged, and fit properly.
- Never use spacers (washers) between bushing flange and the mounting surface.
- Always ensure free movement of bail. The bail should swivel 360 degrees. (Figure 3)
- Always be sure total workpiece surface is in contact with Lifting Point bushing mating surface. Drilled and tapped hole must be 90 degrees to load (workpiece) surface.

Working Load Limit 4:1 (t)	UNC Bolt Size (in)	Effective Thread Projection Length (in)
.5	3/8	.61
.75	1/2	.80
1.50	5/8	1.01
2.30	3/4	1.28
2.30	7/8	1.63
3.20	1	1.93

Working Load Limit 4:1 (t)	Metric Bolt Size (mm)	Effective Thread Projection Length (mm)
.5	10	14.7
.75	12	18.1
1.50	16	24.5
2.30	20	31.0
3.20	24	37.0

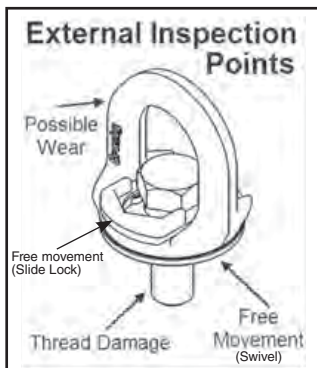


Figure 3

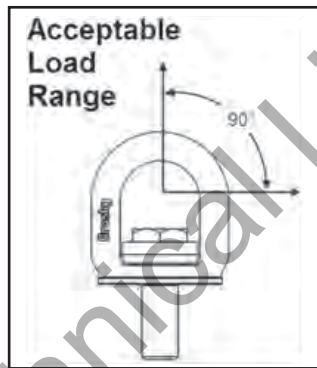


Figure 4

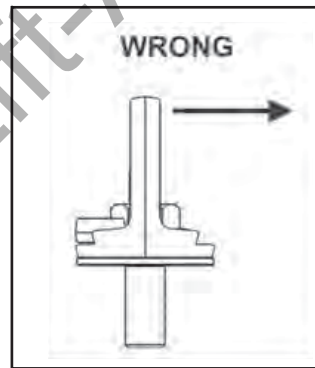


Figure 5

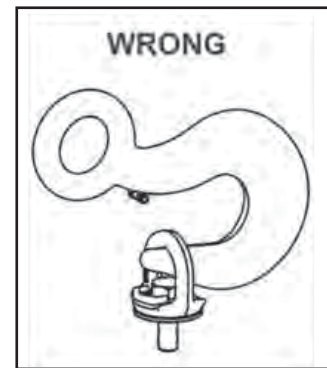
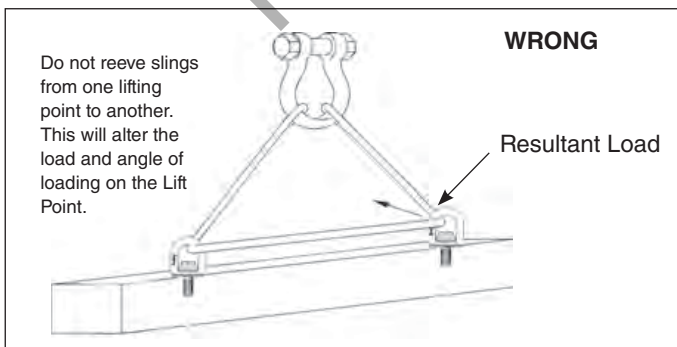
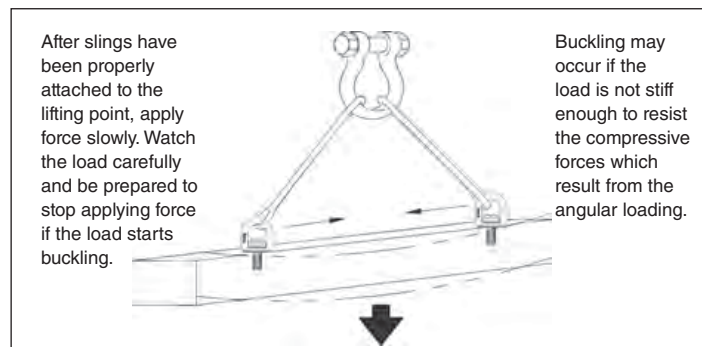


Figure 6



WRONG

Resultant Load



Buckling may occur if the load is not stiff enough to resist the compressive forces which result from the angular loading.