## CROSBY SWIVEL HOIST RING WARNING AND APPLICATION INSTRUCTIONS



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


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


HR-125C


HR-125W

## Hoist Ring Application Assembly Safety

- Use swivel hoist ring only with a ferrous metal (steel, iron) or soft metal (i.e., aluminum) loads (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 HR1000CT 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 Table 1, 2, 3, 5 and 6 for UNC threads and Table 4 and 7 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. See rated load limit and bolt torque requirements imprinted on top of the swivel trunnion (See Table 1 through Table 7).
- 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).


## 1. ASTM A-563

(A) Grade D Hex Thick
(B) Grade DH Standard Hex
2. SAE Grade 8 - Standard Hex

## Hoist Ring Inspection / Maintenance

- Always inspect hoist ring before use.
- Regularly inspect hoist ring parts (Fig.3).
- 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.
- Always ensure free movement of bail. The bail should pivot 180 degrees and swivel 360 degrees (Fig. 4).
- Prior to loading, ensure free movement of bail. The bail should pivot 180 degrees and swivel 360 degrees (Fig. 4).
- 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. 5).
- Always be sure total workpiece surface is in contact with hoist ring bushing mating surface. Drilled and tapped hole must be 90 degrees to load (workpiece) surface.


## A 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 \& 7 for the HR125, HR-1000, HR125C, HR-1000CT, HR-125M, HR-1000M and HR125W, SS-125 and SS-125M respectively.
- Web sling HR-125W spool bolt must be securely tightened in place. The jam nut must then be securely tightened onto the connecting bolt, see Table 5, last column.
- 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.
- HR-125C chain connecting pin must be properly secured with the locking pin into the clevis ear.
- Before use tighten bolt first, then tighten nut (HR-125W).


## Operating Safety

- Never exceed the capacity of the swivel hoist ring, see Tables 1, 2, 3, 5 and 6 for UNC threads and Tables 4 and 7 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.



Figure 3


Figure 4

| Table 1 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Working Load Limit ${ }^{*}$ 5:1 (lbs.) | Hoist Ring Bolt Torque Ft. lbs. $\dagger$ | HR-125 |  | HR-1000 |  |
|  |  | Bolt Size $\ddagger$ (in.) | Effective <br> Thread Projection Length (in.) | Bolt Size $\ddagger$ (in.) | Effective <br> Thread Projection Length (in.) |
| 800 †† | 7 | 5/16-18 $\times 1.50$ | . 58 | 5/16-18 x 1.50 | . 52 |
| 1000 †† | 12 | 3/8-16 x 1.50 | . 58 | $3 / 8-16 \times 1.50$ | . 52 |
| 2500 | 28 | $1 / 2-13 \times 2.00$ | . 70 | 1/2-13 $\times 2.25$ | . 69 |
| 2500 †† | 28 | $1 / 2-13 \times 2.50$ | 1.20 | $1 / 2-13 \times 2.75$ | 1.19 |
| 4000 | 60 | 5/8-11 x 2.00 | . 70 | 5/8-11 $\times 2.25$ | . 69 |
| 4000 † $\dagger$ | 60 | 5/8-11 x 2.75 | 1.45 | $5 / 8-11 \times 3.00$ | 1.44 |
| 5000 | 100 | 3/4-10 $\times 2.25$ | . 95 | $3 / 4-10 \times 2.50$ | . 94 |
| 5000 †t | 100 | $3 / 4-10 \times 2.75$ | 1.45 | $3 / 4-10 \times 3.00$ | 1.44 |
| $7000 \Omega$ | 100 | $3 / 4-10 \times 2.75$ | . 89 | $3 / 4-10 \times 3.00$ | . 85 |
| $7000 \dagger \dagger \Omega$ | 100 | $3 / 4-10 \times 3.50$ | 1.64 | $3 / 4-10 \times 3.50$ | 1.35 |
| 8000 | 160 | $7 / 8-9 \times 2.75$ | . 89 | $7 / 8-9 \times 3.00$ | . 85 |
| 8000 †t | 160 | $7 / 8-9 \times 3.50$ | 1.64 | $7 / 8-9 \times 3.50$ | 1.35 |
| 10000 | 230 | $1-8 \times 3.00$ | 1.14 | $1-8 \times 3.50$ | 1.35 |
| 10000 †† | 230 | 1-8×4.00 | 2.14 | 1-8 $\times 4.50$ | 2.35 |
| 15000 | 470 | 1-1/4-7x4.50 | 2.21 | 1-1/4-7x5.00 | 2.09 |
| 24000 | 800 | 1-1/2-6 6.75 | 2.97 | 1-1/2-6 $\times 5.50$ | 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 | $3-4 \times 10.50$ | 5.00 | - | - |
| 100000 | 5100 | 3-1/2-4 x 13.00 | 7.00 | - | - |

${ }^{\Omega}$ Ultimate Load is 4.5 times Working Load Limit for 7000\# Hoist Ring when Tested in $90^{\circ}$ orientation. All sizes are individually proof tested to 2-1/2 times the Working Load Limit.
*, $\dagger, \dagger \dagger, \ddagger($ See footnote at bottom of Table 5).


| Table 3 |  |  |  |
| :---: | :---: | :---: | :---: |
| HR-1000CT |  |  |  |
| Working Load <br> Limit <br> 5:1 <br> (lbs.) **** | Hoist Ring Bolt <br> Torque in Ft. <br> lbs. $\dagger$ | (Bolt Size (in.) <br> $\Delta$ | Effective <br> Thread <br> Projection <br> Length (in.) |
| 2000 | 28 | $1 / 2-13 \times 2.25$ | .69 |
| 3200 | 60 | $5 / 8-11 \times 2.25$ | .69 |
| 5400 | 100 | $3 / 4-10 \times 3.00$ | .85 |
| 7200 | 160 | $7 / 8-9 \times 3.00$ | .85 |
| 10000 | 230 | $1-8 \times 3.50$ | 1.35 |
| 13500 | 470 | $11 / 4-7 \times 5.00$ | 2.09 |
| 20000 | 800 | $11 / 2-6 \times 5.50$ | 2.59 |
| 28000 | 1100 | $2-4.5 \times 7.50$ | 3.21 |


| Table 4 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Working Load Limit (kg)*** |  | Hoist Ring Bolt Torque in $\mathrm{Nm} \dagger$ | HR-125M |  | HR-1000M |  |
| Design Factor 5:1 | $\begin{gathered} \text { HR-125M } \\ \text { Design Factor } \\ 4: 1 \\ \hline \end{gathered}$ |  | Bolt Size (mm) (mm) | HR-125M Effective Thread Projection Length $(\mathrm{mm})$ | Bolt Size $\ddagger \ddagger$ $(\mathrm{mm})$ | HR-1000M Effective Thread Projection Length (mm) |
| 400 | 500 | 10 | M $8 \times 1.25 \times 40$ | 16.9 | M $8 \times 1.25 \times 40$ | 15.2 |
| 450 | 550 | 16 | M $10 \times 1.50 \times 40$ | 16.9 | M 10 X $1.50 \times 40$ | 15.2 |
| 1050 | 1300 | 38 | M $12 \times 1.75 \times 50$ | 17.2 | M $12 \times 1.75 \times 55$ | 15.5 |
| 1900 | 2400 | 81 | M $16 \times 2.00 \times 60$ | 27.2 | M $16 \times 2.00 \times 65$ | 25.5 |
| 2150 | 2700 | 136 | M $20 \times 2.50 \times 65$ | 31.2 | M $20 \times 2.50 \times 70$ | 30.5 |
| 3000 | 3750 | 136 | M $20 \times 2.50 \times 75$ | 28.1 | M $20 \times 2.50 \times 80$ | 25.4 |
| 4200 | 5250 | 312 | M $24 \times 3.00 \times 80$ | 33.1 | M $24 \times 3.00 \times 90$ | 35.4 |
| 7000 | 8750 | 637 | M $30 \times 3.50 \times 120$ | 65.1 | M $30 \times 3.50 \times 140$ | 66.2 |
| 11000 | 13750 | 1005 | M $36 \times 4.00 \times 150$ | 60.6 | M $36 \times 4.00 \times 150$ | 56.2 |
| 12500 | 15600 | 1005 | M $42 \times 4.50 \times 160$ | 70.6 | - | - |
| 13500 | 16900 | 1350 | M $48 \times 5.00 \times 160$ | 101 | - | - |
| 22300 | 27900 | 2847 | M $64 \times 6.00 \times 204$ | 101 | - | - |
| 31500 | 39400 | 5830 | M $72 \times 6.00 \times 265$ | 132 | - | - |
| 44600 | 55800 | 6914 | M $90 \times 6.00 \times 330$ | 177 | - | - |

## See Footnotes on next page.

| Table 5 |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| HR-125W Swivel Hoist Ring to Webbing |  |  |  |  |  |  |  |  |
| HR-125W Web Sling |  |  |  | $\qquad$ | Hoist Ring Bolt Torque in Ft. Ibs. $\dagger$ | Bolt Size (in.) $\ddagger$ | Effective Thread Projection Length (in.) | Torque in Ft. - lbs. Spool bolt and nut $\ddagger \ddagger \ddagger$ |
| $\begin{aligned} & \text { Round Sling } \\ & \text { Size } \\ & \text { (in.) } \\ & \hline \end{aligned}$ | Web Width (in.) | Eye Width <br> (in.) | Ply. (in.) |  |  |  |  |  |
| 1 \& 2 | 2 | 2 | 2 | 3-1/4 | 100 | 3/4-10 $\times 2.75$ | . 90 | 90 |
| 1 \& 2 | 2 | 2 | 2 | 3-1/4 | 100 | $3 / 4-10 \times 3.50$ | 1.65 | 90 |
| 3 | 3 | 1.5 | 2 | 4-1/2 | 230 | $1-8 \times 3.00$ | 1.15 | 110 |
| 3 | 3 | 1.5 | 2 | 4-1/2 | 230 | 1-8×4.00 | 2.15 | 110 |
| 4 | 4 | 2 | 2 | 6-1/4 | 470 | 1-1/4-7 $\times 4.50$ | 2.22 | 130 |

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

## Footnotes below relate to tables 1-5

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.
$\dagger \dagger$ 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.
$\ddagger$ Bolt specification is a Alloy socket head cap screw to ASTM A574. All threads are UNC .
$\ddagger \ddagger$ Bolt specification is a Grade 12.9 Alloy socket head cap screw to DIN 912. All threads are metric (ASME/ANSI B18.3.1m)
$\Delta$ Bolt specification is a Grade L7 or L43 Alloy socket head cap screw to ASTM A320. All threads are UNC.
$\ddagger \not \ddagger \ddagger$ Tighten bolt to specified torque, then tighten nut to specified torque.
All Swivel Hoist Rings are individually proof tested.

| Table 6 |  |  |  |
| :---: | :---: | :---: | :---: |
| SS-125 ¥ $¥$ |  |  |  |
| Working Load Limit (lbs.) $¥$ | Torque in Ft. Lbs. $\dagger$ | Bolt Size (in.) § | Effective Thread Projection (in.) |
| 400 | 3.5 | 5/16-18 x 1 | . 29 |
| 400 | 3.5 | 5/16-18×1.25 | . 54 |
| 500 | 6 | $3 / 8-16 \times 1.25$ | . 54 |
| 1250 | 14 | $1 / 2-13 \times 2$ | . 78 |
| 1250 | 14 | 1/2-13 x 2.25 | 1.03 |
| 1250 | 14 | 1/2-13 2.5 | 1.28 |
| 2000 | 30 | 5/8-11 $\times 2$ | . 78 |
| 2000 | 30 | 5/8-11 x 2.25 | 1.03 |
| 2000 | 30 | $5 / 8-11 \times 2.5$ | 1.28 |
| 2500 | 50 | $3 / 4-10 \times 2.25$ | 1.03 |
| 2500 | 50 | $3 / 4-10 \times 2.75$ | 1.53 |
| 3500 | 50 | $3 / 4-10 \times 2.75$ | 1.04 |
| 3500 | 50 | $3 / 4-10 \times 3.25$ | 1.54 |
| 4000 | 80 | $7 / 8-9 \times 2.75$ | 1.04 |
| 4000 | 80 | 7/8-9 x 3 | 1.29 |
| 5000 | 115 | $1-8 \times 3$ | 1.29 |
| 5000 | 115 | $1-8 \times 3.25$ | 1.54 |
| 5000 | 115 | $1-8 \times 4$ | 2.29 |
| 7500 | 235 | 1-1/4-7x4 | 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 | 2-1/2-8x 8 | 4.00 |
| 37500 | 2150 | $3-4 \times 10.25$ | 5.00 |
| 50000 | 2550 | 3-1/2-4x13 | 7.00 |


| Table 7 |  |  |  |
| :---: | :---: | :---: | :---: |
| SS-125M $¥ \neq$ |  |  |  |
| SS-125M ¥ $¥$ Working Load Limit $(\mathrm{Kg}) \neq$ | Torque in Lbs. $\dagger$ | Bolt Size (mm) §§ | Effective Thread Projection (mm) |
| 200 | 4 | M $8 \times 1.25 \times 30$ | 13 |
| 250 | 8 | M $10 \times 1.50 \times 35$ | 18 |
| 525 | 18 | M $12 \times 1.75 \times 50$ | 19 |
| 950 | 40 | M $16 \times 2.00 \times 60$ | 29 |
| 1075 | 68 | M $20 \times 2.50 \times 65$ | 34 |
| 1500 | 68 | M $20 \times 2.50 \times 75$ | 32 |
| 2100 | 108 | M $24 \times 3.00 \times 80$ | 37 |
| 2100 | 108 | M $30 \times 3.50 \times 110$ | 58 |
| 3500 | 318 | M $30 \times 3.50 \times 95$ | 42 |
| 3500 | 318 | M $30 \times 3.50 \times 115$ | 62 |
| 5500 | 542 | M $36 \times 4.00 \times 135$ | 64 |
| 6250 | 542 | M $42 \times 4.50 \times 155$ | 82 |
| 6750 | 746 | M $48 \times 5.00 \times 155$ | 82 |
| 11150 | 1423 | M $64 \times 6.00 \times 205$ | 101 |
| 15750 | 2915 | M $72 \times 6.00 \times 265$ | 132 |
| 22300 | 3459 | M $90 \times 6.00 \times 330$ | 177 |

Footnotes below relate to Tables 6 and 7
$\nsupseteq$ Ultimate load is 5 times the Working Load Limit. Individually proof tested to 2 times the Working Load Limit.
$\nexists ¥$ 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
F837 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).

