



# ACTEK®

MANUFACTURING AND ENGINEERING, INC.

## Do's & Don'ts of Installing & Using Hoist Rings

### DO:

- **ALWAYS READ SAFETY PRECAUTION PAGE PRIOR TO USE OR INSTALLATION.** (Safety Precaution included with every hoist ring.)
- **ALWAYS INSPECT THE HOIST RING BEFORE EACH USE.**
- Regularly inspect all hoist ring parts.
- Always tighten the screw to the recommended torque value.
- Always make sure that the hoist ring is free to pivot and swivel in all directions.
- Always choose a hoist ring with the proper load rating. See the "Actual Load" equation on the back page to help you choose the appropriate hoist ring.
- Always make sure that the bushing of the hoist ring sits flush against the object being lifted.
- Install hoist rings in materials that have a tensile strength of at least 80,000 psi.
- Always make sure the thread engagement is at least 1.5 times the diameter of the hoist ring screw.
- When installing a hoist ring in a through-hole with a nut and washer, make sure to use a Grade 8 nut that has full thread engagement.
- Consider periodic load-testing as an extra precaution.

### DON'T:

- **NEVER EXCEED RATED LOAD.**
- **NEVER APPLY SHOCK LOAD.**
- Never use a hoist ring that you believe is damaged.
- Never use a hoist ring that has damaged threads on the screw.
- Never use a hoist ring in an application where it does not pivot and swivel in every direction freely.
- Never use a hoist ring that is not tightened to the recommended torque.
- Never replace the components of the hoist ring with anything other than parts recommended by Actek.
- Never use a hook larger than the diameter of the hoist ring opening.
- Never shim or use washers between the hoist ring and surface of object being lifted.



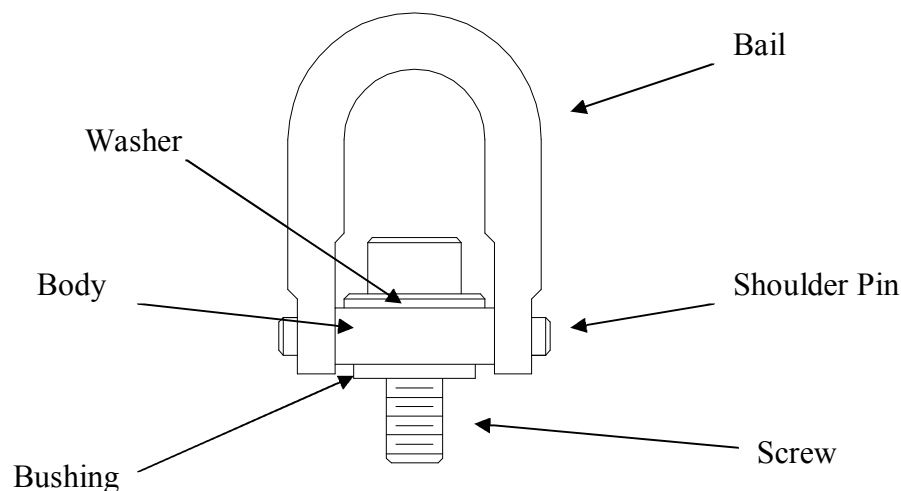
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## Hoist Ring Inspection & Maintenance

**ALWAYS INSPECT THE HOIST RING BEFORE EACH USE. MAKE SURE:**

- The screw is tightened to the recommended torque.
  - If the screw is not tightened, the threads may be stripped on a vertical lift.
- The bushing of the hoist ring sits flush against the object being lifted.
  - This ensures that the recommended torque puts the proper preload onto the hoist ring allowing the hoist ring to reach its full 5:1 safety factor.
- The hoist ring is free to swivel and pivot in every direction.
  - If the hoist ring binds up in any direction, it should be removed from service.
- There are no signs of corrosion.
  - This can cause deterioration to the hoist ring material allowing for fatigue or cracking to take place. Corrosion can also prevent the hoist ring from pivoting and swiveling freely.
- There are no signs of wear or cracks, especially on the screw, shoulder pins, and bail.
  - Damage or wear on the screw head, shoulder pins, or bail may be an indication that the hoist ring is coming into contact with something during use. This should be avoided as such contact can cause binding and shock loads which exceed the rating of the hoist ring.
- The shoulder pins are secure and do not rotate or come loose.
  - This can be checked by using pliers to rotate the shoulder pins by hand. If the shoulder pin does rotate, it is no longer securely in place and could come loose causing the hoist ring to break.



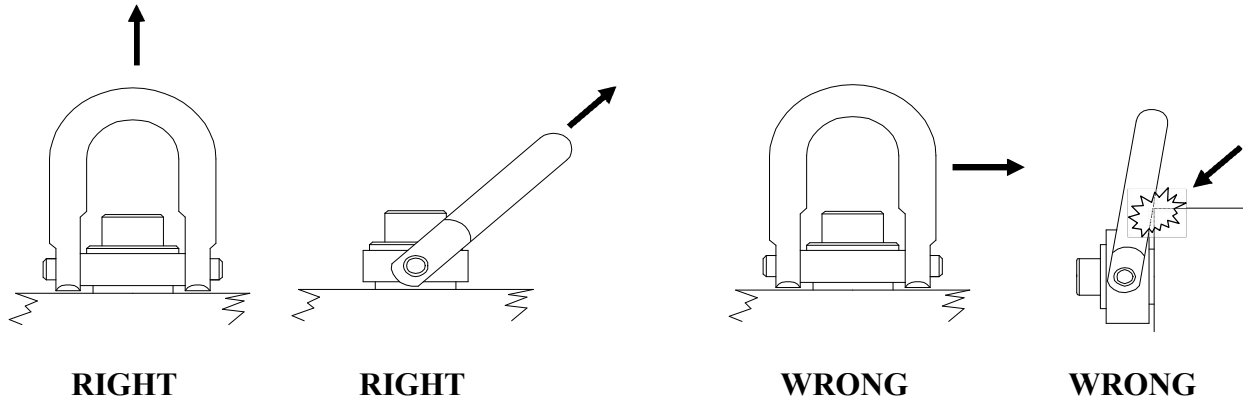
1110 Fullerton Road - City of Industry, CA 91748

Toll Free: (800) 752-7229 • Tel: (626) 581-3424 • Fax: (626) 581-3423 • www.actekmfg.com • E-mail: sales@actekmfg.com



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**Important:** The load on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. See the example and chart below.

L = Load experienced by hoist ring  
 W = Total weight = 2,000 Lbs.

N = Number of hoist rings = 4  
 A = Lifting angle

$$L = \frac{W}{N \sin A}$$

If A = 60:

$$L = \frac{2000}{4 \sin 60} = 577 \text{ Lbs.}$$

If A = 20:

$$L = \frac{2000}{4 \sin 20} = 1,462 \text{ Lbs.}$$

Lifting Angle (Degrees)	Number of Hoist Rings	Weight of Load (Pounds)	Actual Applied Load on Hoist Ring (Pounds)
90	4	2,000	500
80	4	2,000	510
70	4	2,000	535
60	4	2,000	580
50	4	2,000	655
40	4	2,000	780
30	4	2,000	1,000
20	4	2,000	1,465

