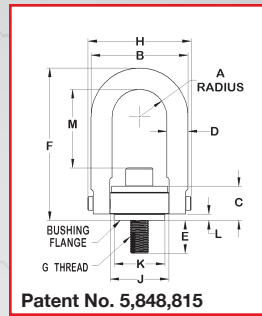


SAFETY ENGINEERED HOIST RINGS

STAINLESS STEEL

- Material: 300 Series Stainless Steel
- Design Factor: 5:1
- Range of Movement: Swivel 360°, Pivot 180° Under Load
- NDT: Liquid Penetrant Tested Per ASTM-E 1417
- Purification Process: Clean & Passivate Per ASTM-A967
- Typical Applications: Use Stainless for Corrosive, Cryogenic or Elevated Temperature Environments
- All dimensions approximate - variations do not affect use or design factor
- Each Individually Serial Numbered



Part No.	Rated Load (lbs)	A	B	C	D	E +/- .12	F	G	H	J	K	L	M	TL* (ft-lbs)	Weight (lbs)
29050	275	.43	1.61	.71	3/8	.54	2.67	1/4-20	1.84	1.00	.75	.17	1.33	2.5	5 oz.
29051	400	.43	1.61	.71	3/8	.29	2.67	5/16-18	1.84	1.00	.75	.17	1.27	3.5	5 oz.
29052	400	.43	1.61	.71	3/8	.54	2.67	5/16-18	1.84	1.00	.75	.17	1.27	3.5	5 oz.
29053	500	.43	1.61	.71	3/8	.54	2.67	3/8-16	1.84	1.00	.75	.17	1.21	6	5 oz.
29301	1250	.70	2.40	.93	1/2	1.07	3.77	1/2-13	2.58	1.49	1.25	.20	1.84	14	1 lb
29004	1250	.88	3.25	1.22	3/4	.78	4.78	1/2-13	3.52	1.99	1.50	.16	2.31	14	2 lb. 5 oz
*29322	1250	.88	3.25	1.22	3/4	.78	6.72	1/2-13	3.52	1.99	1.50	.16	4.25	14	2 lb. 12 oz
29005	1250	.88	3.25	1.22	3/4	1.03	4.78	1/2-13	3.52	1.99	1.50	.16	2.31	14	2 lb. 5 oz
*29323	1250	.88	3.25	1.22	3/4	1.03	6.72	1/2-13	3.52	1.99	1.50	.16	4.25	14	2 lb
29006	1250	.88	3.25	1.22	3/4	1.28	4.78	1/2-13	3.52	1.99	1.50	.16	2.31	14	2 lb. 5 oz
*29324	1250	.88	3.25	1.22	3/4	1.28	6.72	1/2-13	3.52	1.99	1.50	.16	4.25	14	2 lb. 12 oz
29001	2000	.88	3.25	1.22	3/4	.78	4.78	5/8-11	3.52	1.99	1.50	.16	2.18	30	2 lb. 7 oz
29002	2000	.88	3.25	1.22	3/4	1.03	4.78	5/8-11	3.52	1.99	1.50	.16	2.18	30	2 lb. 7 oz
*29320	2000	.88	3.25	1.22	3/4	1.03	6.72	5/8-11	3.52	1.99	1.50	.16	4.12	30	2 lb. 14 oz
29003	2000	.88	3.25	1.22	3/4	1.28	4.78	5/8-11	3.52	1.99	1.50	.16	2.18	30	2 lb. 7 oz
*29321	2000	.88	3.25	1.22	3/4	1.28	6.72	5/8-11	3.52	1.99	1.50	.16	4.12	30	2 lb. 14 oz
29007	2500	.88	3.25	1.22	3/4	1.03	4.78	3/4-10	3.52	1.99	1.50	.16	2.06	50	2 lb. 9 oz
*29325	2500	.88	3.25	1.22	3/4	1.03	6.72	3/4-10	3.52	1.99	1.50	.16	4.00	50	3 lb
29009	2500	.88	3.25	1.22	3/4	1.53	4.78	3/4-10	3.52	1.99	1.50	.16	2.06	50	2 lb. 9 oz
*29327	2500	.88	3.25	1.22	3/4	1.53	6.72	3/4-10	3.52	1.99	1.50	.16	4.00	50	3 lb
29102	3500	1.40	4.80	1.71	1"	1.04	6.52	3/4-10	5.14	3.00	2.37	.24	3.06	50	6 lb. 10 oz
*29329	3500	1.40	4.80	1.71	1"	1.04	8.11	3/4-10	5.14	3.00	2.37	.24	4.65	50	7 lb. 4 oz
29103	3500	1.40	4.80	1.71	1"	1.54	6.52	3/4-10	5.14	3.00	2.37	.24	3.06	50	6 lb. 10 oz
*29330	3500	1.40	4.80	1.71	1"	1.54	8.11	3/4-10	5.14	3.00	2.37	.24	4.65	50	6 lb. 10 oz
29101	4000	1.40	4.80	1.71	1"	1.04	6.52	7/8-9	5.14	3.00	2.37	.24	2.93	80	6 lb. 12 oz
*29328	4000	1.40	4.80	1.71	1"	1.04	8.11	7/8-9	5.14	3.00	2.37	.24	4.52	80	6 lb. 12 oz
29105	5000	1.40	4.80	1.71	1"	1.29	6.52	1"-8	5.14	3.00	2.37	.24	2.81	115	7 lb
*29331	5000	1.40	4.80	1.71	1"	1.29	8.11	1"-8	5.14	3.00	2.37	.24	4.40	115	7 lb
29106	5000	1.40	4.80	1.71	1"	1.54	6.52	1"-8	5.14	3.00	2.37	.24	2.81	115	7 lb
*29332	5000	1.40	4.80	1.71	1"	1.54	8.11	1"-8	5.14	3.00	2.37	.24	4.40	115	7 lb
29107	5000	1.40	4.80	1.71	1"	2.29	6.52	1"-8	5.14	3.00	2.37	.24	2.81	115	7 lb
*29333	5000	1.40	4.80	1.71	1"	2.29	8.11	1"-8	5.14	3.00	2.37	.24	4.40	115	7 lb
29401	7500	1.75	6.00	2.11	1-1/4	1.89	8.73	1-1/4"-7	6.50	3.76	3.20	.35	4.12	235	14 lb
29202	12000	2.25	8.00	2.81	1-3/4	2.70	12.47	1-1/2"-6	8.55	4.87	4.20	.47	6.41	400	33 lb. 12 oz
†29200	15000	2.25	8.00	2.81	1-3/4	2.96	12.47	2"-4-1/2	8.55	4.87	4.20	.47	5.41	400	36 lb
†29501	25000	3.00	10.50	4.09	2-1/4	4.00	16.87	2-1/2"-8	11.67	6.52	5.75	1.12	8.03	1050	87 lb. 8 oz
†29503	25000	3.00	10.50	4.09	2-1/4	4.00	16.87	2-1/2"-4	11.67	6.52	5.75	1.12	8.03	1050	87 lb. 8 oz
†29600	37500	3.75	13.00	5.27	2-3/4	5.20	19.50	3"-4	14.15	8.10	7.25	1.00	8.48	2150	166 lb
†29701	50000	4.00	14.50	6.06	3-1/4	7.00	22.09	3-1/2"-4	15.90	8.60	7.75	1.09	9.28	3300	240 lb

† Supplied with stud and nut

* Recommended Torque Load



WARNING!

General Hoist Ring Safety and Installation Guidelines

Improper use of ADB® lifting devices could result in personal injury, damaged equipment, or death. In order to ensure maximum safety, please read and understand the following ADB® safety guidelines prior to using any ADB® lifting device.

1. **IMPORTANT!!** The force on each hoist ring is not just the total weight divided by the number of hoist rings. The force can be greater at lower lift angles. See example below:
2. Never exceed the rated load capacity (except when proof testing) of the hoist ring. The 5:1 design factor is provided in case of mis-use such as overload or uneven loading.

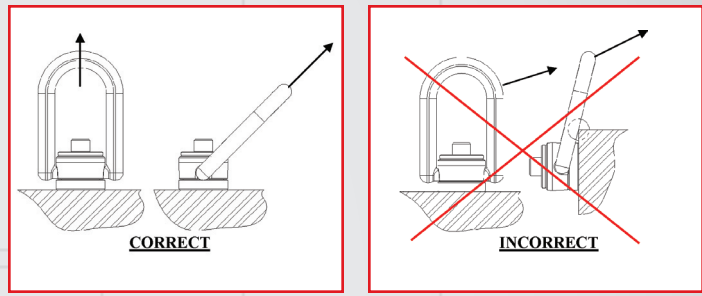
$$F = \frac{W}{N \sin A}$$

A=65°, F = $\frac{4000}{4 \sin 65^\circ} = 1103 \text{ lbs.}$

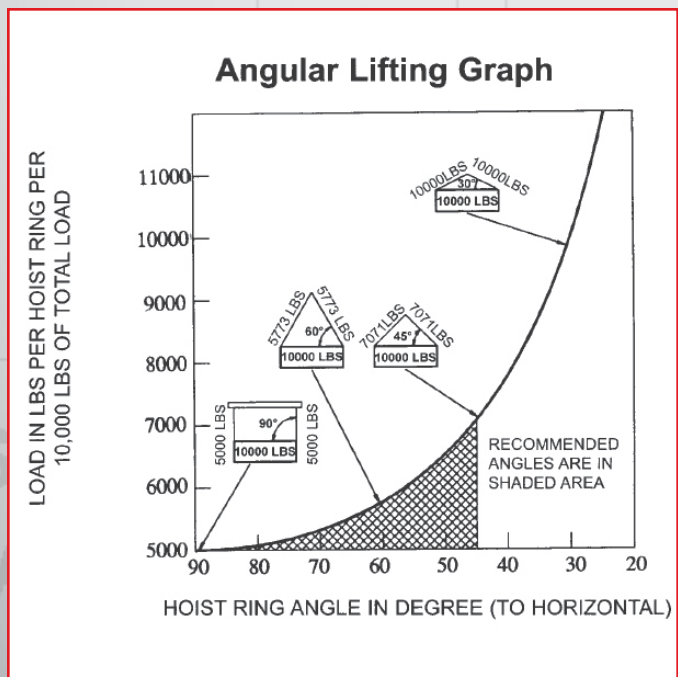
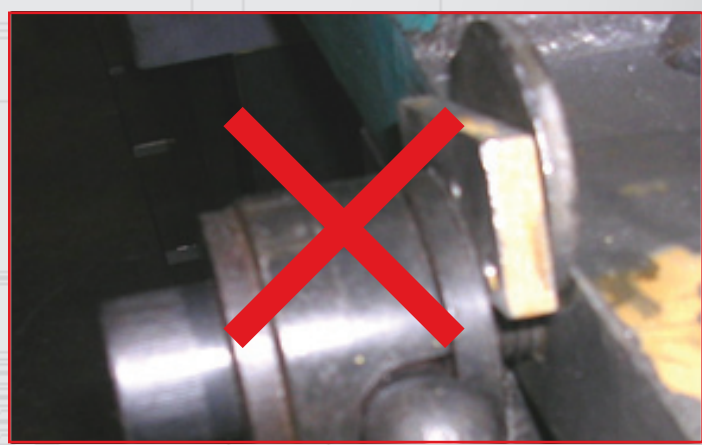
A=14°, F = $\frac{4000}{4 \sin 14^\circ} = 4134 \text{ lbs.}$

F = Force on each hoist ring
 W = Total weight = 4000 lbs.
 N = Number of hoist rings = 4
 A = Lifting angle

3. ADB® recommends the parent material to have an ultimate tensile strength of least 80,000 psi in order to maintain the full load rating. For lower tensile materials, through hole mounting with a bolt and washer on the opposite side is required. If the user cannot achieve these requirements, contact ADB®'s engineering department for other possible options.
4. Do not allow hoist rings to bind and avoid applying side loads to the bail. Ensure that loads applied are in the same direction of the bail. If necessary, use a spreader bar to avoid binding. See below:



5. The use of free fit spacers should not be used between the hoist ring and the mounting surface. This will reduce the working capacity of the device. See below:



6. Hoist rings should be installed in a manner that allows 360 degrees of rotation and 180 degrees of pivot. Any obstructions within this range will prohibit a safe and proper use of the device. The mounting surface must be flat and smooth for full contact of the device. All ADB® lifting devices are to be installed perpendicular to the surface of the work station. Any lifting device installed at any other angle other than 90 degrees could cause failure to the device and/or damage to the equipment being lifted.



WARNING!

7. Never lift with any device, such as oversized hooks, chains, or cables, that could cause side loading or damage to the bail. See photo to right:

8. Ensure that the mounting screw/stud is tightened to the recommended torque value (see top of washer). All torque values are based on a dry installation without the use of lubricant. If lubricant is used, contact ADB®'s engineering department for revised torque value. For temporary installations or weaker parent material, the torque can be reduced by 50% in order to prevent thread stripping.

9. Apply loads gradually to AVOID SHOCK LOADS.

10. Environment:

A. Temperature - When ADB® Swivel Hoist Rings are to be used at temperatures above 400 degrees F (204 degrees C or below -20 degrees F (-29 degrees C), please consult ADB®'s engineering department for available options.

B. Chemically Active Environments Caution!! The integrity of ADB® hoist rings can be jeopardized by exposure to chemical, caustic, or acidic substances. Contact ADB®'s engineering department for available options.

Refer to ADB® plating options for the use of hoist rings in chemical, saltwater, or offshore environments, military or aviation operations, or sandy/dry areas

11. Repairs, alterations or modifications to any ADB® lifting device is prohibited unless otherwise specified by ADB®. In the event that the bolt needs to be replaced, use only ADB® certified replacement bolts.

12. Do not reeve slings from one bail to another, as this can decrease the lifting angle and increase the load per hoist ring.

13. Do not allow hoist rings to bind and avoid applying side loads to the bail. Ensure that loads applied are in the same direction of the bail. If necessary, use a spreader bar to avoid.



Safe



Unsafe
Do Not Reeve

WARNING!

Improper maintenance and inspections of ADB® lifting devices could result in damaged equipment, personal injury, or death. In order to ensure maximum safety, please read and understand the following ADB® maintenance and inspection guidelines prior to using any ADB® lifting device.

Maintenance

1. When ADB® hoist rings are not being used, they should be stored in a manner that prevents corrosion or damage from occurring.
2. Do not remove the installation and safety tag from the lifting device.
3. The identification of the lifting device should remain legible and maintained by the user during the life of the device.



Inspection

1. Visually examine the lifting device prior to any lifting operation.
2. The frequency of inspection should depend upon the frequency of use, severity of service conditions, and the criticality of the lift.
3. Removal criteria: ADB®'s lifting device should be removed from service if the following conditions exist:
 - A. Missing Manufacturers identification
 - B. Indications of heat damage
 - C. Excessive corrosion or pitting
 - D. Damaged or missing load bearing components
 - E. Excessive nicks or gouges
 - F. Excessive thread damage
 - G. Evidence of unauthorized welding or modification
 - H. Lack of ability to swivel 360 degrees or pivot 180 degrees
4. If it is suspected that damage has been done to an ADB® lifting device, ADB® offers evaluation services thru magnetic particle testing, tensile testing, and mechanical hardness testing. Call ADB®'s engineering department for more information.

ADB® recommends ADB-Field inspection form to be used for customer inspection programs (available for download @ www.adbhoiststrings.com).

WARNING!

READ PRIOR TO USE AND COMPLY WITH ALL INSTALLATION AND SAFETY NOTES

INSTALLATION NOTES: Tap thread perpendicular to the mounting surface. Mounting surface should be flat to provide 360° flush seating for the hoist ring. For installation in ferrous materials the bolt should be tightened to the full torque load (+0-20%). To maintain the 5:1 design factor of ADB® hoist rings, ADB® recommends the ultimate tensile strength of the mating material to be a minimum of 80,000 psi. For weaker mating material, if possible, consider using longer bolts or through-hole mounting with a nut and washer on the back side. To prevent stripping the mating thread, lower torque value (down to half of value) may be considered, especially in temporary installations. After installation, validate that hoist ring swivels and pivots freely in all directions.

SAFETY NOTES: (1) **NEVER EXCEED WORKING LOAD LIMIT.** (2) Visually inspect hoist ring for damage before each use. (3) Some loosening of the bolt may develop after prolonged service in a permanent installation and it is advisable to periodically retighten to maintain the specified torque value. (4) Apply loads gradually to, **AVOID SHOCK LOADS.** (5) The use of free fit spacers between the bushing flange and the mounting surface is not recommended. (6) **DO NOT USE OVERSIZED HOOKS OR ATTACHMENT METHODS THAT SPREAD THE RING.** (7) **RING MUST BE ALIGNED WITH THE DIRECTION OF THE LOAD (SEE FIG)** (8) Do not attach guidelines to hoist rings. (9) **DO NOT LEAVE GAP BETWEEN BUSHING AND MOUNTING SURFACE (SEE FIG).** Do not interchange ADB® hoist ring components with other manufacturers. (10) For further information or answers to any questions, consult ADB® Engineering Support at: 1.800.423.4425.