Point Lisas Energy Association
Event Learning

EL#:1

WHAT HAPPENED?

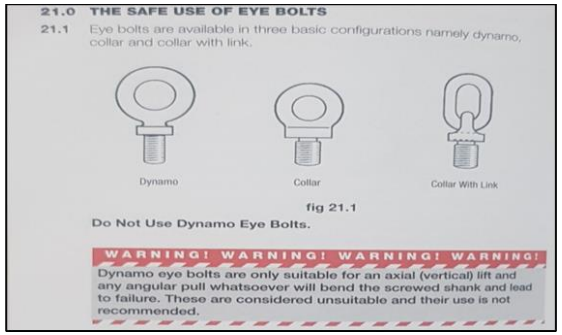
1. A contractor was attempting to lift a load approximately 50 feet in the air onto a tank that was under construction using a 'HIAB' crane truck. The crew rigged the load and gradually lifted. At around 8 feet off the ground both eyebolts snapped, causing the load to fall.
2. A dropped object calculation based on the object`s characteristics and the height of the fall to ground, indicated that this event had a high potential to produce fatal injuries to any persons in the drop path.

ILLUSTRATION

WHY IT HAPPENED?

Brief description of current causes

The following are key notes & warnings extracted from the International Rigging & Lifting Handbook 13th Edition.



21.0 THE SAFE USE OF EYE BOLTS

21.1 Eye bolts are available in three basic configurations namely dynamo, collar and collar with link.

Dynamo | Collar | Collar With Link

fig 21.1

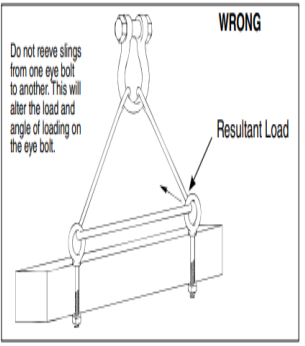
Do Not Use Dynamo Eye Bolts.

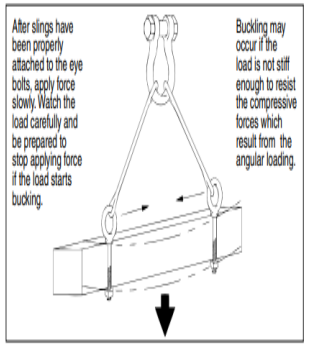
WARNING! WARNING! WARNING! WARNING!

Dynamo eye bolts are only suitable for an axial (vertical) lift and any angular pull whatsoever will bend the screwed shank and lead to failure. These are considered unsuitable and their use is not recommended.

⚠ 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 both sides of 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.**





1. Lift plan appeared to be inadequate and was not specific to the clear recommendations of forged eyebolt warnings and application instructions.
2. Contractor made an unauthorized field change to the rigging arrangement by doubling the sling to shorten it, which further increased the angular pull on the eye bolts.
3. The contractor therefore lifted the load with the wrong equipment and in the wrong way. Applied load to eye bolt outside the plane of the eye. This extreme angle bent and sheared the bolt.
4. Inadequate system of assurance. No technical authority approval to advise on these special conditions.
5. Performance standards for Lifting and Rigging appeared to be inadequate. It did not provide sufficient rigor for Lifting and Rigging compliance to be achieved.

WHAT DID WE LEARN!

Connect lessons to causes in the context of Life Saving principles or Process Safety fundamentals.

1. Determine and use the correct lifting equipment based on task ahead.
2. Eyebolts should be used in strict adherence to manufacture's recommendations and a non-destructive testing/examination (NDT/E) should be performed on eyebolts prior to use.
3. Describe all rigging & lifting in detail and develop a clear task risk plan. A clear set of working rules will govern how the job will be done safely. Have it endorsed by a subject matter expert.
4. A detailed rigging drawing should be included with all lift plans to show all rigging arrangements.
5. Systematically review performance standards for lifting and rigging assurance. Apply continuous improvement actions and retrain company staff & contractors.
6. Based on effective planning and execution risks carefully select a specialist contract partner to maintain highest safety standards.
7. Always enforce these high standards in the field with effective oversight.