

# Crane Tech Tips - a periodic newsletter

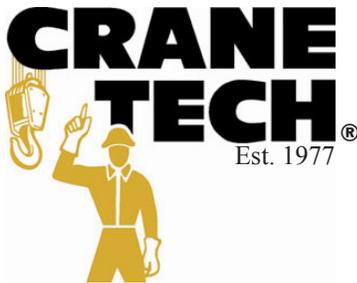
## **Plate clamp accident results in broken bones in a worker's foot.**

A worker lifts a 5/8", 460-pound, plate of steel from a horizontal position and rotated the plate to vertical with a plate clamp. While attempting to attach a tag line to the clamp the plate slipped and landed on the worker's foot breaking three bones.

An immediate accident investigation identified the following:

- The plate clamp being used was designated for 1-1/4" to 2" plate and was rated for 3-ton. The plate that slipped from the clamp was 5/8" thick.
- The plate clamp used to lift and rotate the plate was clearly marked for vertical lifting only.

The following is additional information critical for plate clamp safety.



*Safety through Education*

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## PLATE CLAMP SAFETY

1) There are three types of plate clamps designed for overhead lifting. Be sure to use the correct clamp for the job task:

1. vertically lift only,
2. horizontal — to and from vertical through a 90-degree plane, and
3. horizontal — to and from vertical through a 180-degree plane.

2) Plate clamps are designed to lift the thickness of plate identified by the manufacturer's identification plate located on the clamp. They must never be used to lift plates less than or greater than the thickness identified on the plate clamp identification tag.

3) Plate clamps must only lift one plate at a time. (The exception to this rule is lifting a stack of plates horizontally with two or four clamps approved for this type of lifting.)

4) Plate clamps must never be overloaded. Always calculate the plate weight and size your clamp appropriately.

5) Plate clamps are vulnerable to "under-loading" when they lift less than 50% of the WLL of the clamp.

6) Always center the plate clamp directly above the plate's center of gravity. A plate that hangs out of level puts undue side stress on jaw teeth allowing load slippage.

7) If a tag line is to be used to control the load it must be fastened to the plate clamp prior to lifting. Remember that a steel plate may fall on its edge but then falls over to one side. **Never place your body in the "fall-area."**

8) Keep loads low to the ground and stay out of the "fall-area."

9) Be especially careful when lifting steel plate to any elevated area. The plate will act like a sail and the wind load can cause the plate to swing out of control resulting in loss of the load. In these cases the "Fall-area" must be expanded.

10) Never allow shock-loads when using plate clamps.

11) Read the specification sheet that's supplied with the purchase of every plate clamp. It's a good idea to laminate these sheets so they can withstand the elements in the field, and where they will be readily available to users.

12) Inspect plate clamps before each use. You must understand the manufacturer's specifications on tooth, pin, and assembly wear and rejection criteria. This information is manufacturer specific, so you must be knowledgeable of each manufacturer's specs.

13) Specific plate clamps are designed to lift finished and polished plates with non-marring smooth gripping surfaces. These should be used in pairs supported by slings and a spreader beam.

14) Plate clamps are not designed to lift plates which exceed a 300 Brinell Hardness.

To avoid accidents when lifting steel plate also consider the following:

- Prior to lifting a plate, the user should determine if there is a safer way to accomplish the work.
- Inspect plate clamps thoroughly and remove any excessively worn clamps from the work area.
- Get professional advice before cutting a hole in the plate where a shackle may be attached. You may have insufficient metal above the hole resulting in metal tear and loss of load.

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