Southern Safety Trilateral Safe Work Guidelines

Tool Box Topic: Beam Clamp Usage

On June 6, 2018, a tragic incident occurred on a Southern Company site when an ironworker employee was struck by a dropped beam. The incident investigation revealed the root cause to be the non-approved use of a beam clamp, used below the hook, as a rigging point on the beam. Further investigations, audits, and STOP Work submittals have clearly shown that beam clamps are being used improperly both above and below the hook as rigging devices across Southern Company projects.

Safe Work Guidelines

Roll Back and Inventory: All beam clamps should be removed from the field, inventoried and inspected to ensure they are in working order. This also allows management to gauge the amount of clamps in circulation. SST strongly encourages limiting the amount of clamps placed back into service. For those placed back in service, ensure the following practices are followed:

- Clamps are kept in a secure location that restricts ready availability.
- Manufacturer's documentation is readily available to be reviewed prior to use.
- Clamps should be logged in/out. Ensure that employees requesting the use of beam clamps have received adequate training.

Pretask Planning: All Pretask planning documentation should be updated to specifically address the use of beam clamps and the associated hazards. Contractor's Manual Rigging Documentation (pre-lift checklist) should include a mechanism to identify the use of beam clamps and ensure it notes to proper use of the tool.

The use of beam clamps as "below the hook rigging device" is prohibited

Training: Contractors are to have documented training with all craft employees to heighten awareness of this issue. SST additionally recommends amending existing orientation materials to include this subject matter.

Audits: Contractors are recommended to hold Focused-Rigging Audits periodically

Southern Safety Trilateral Safe Work Guidelines

Tool Box Topic: Beam Clamp Usage

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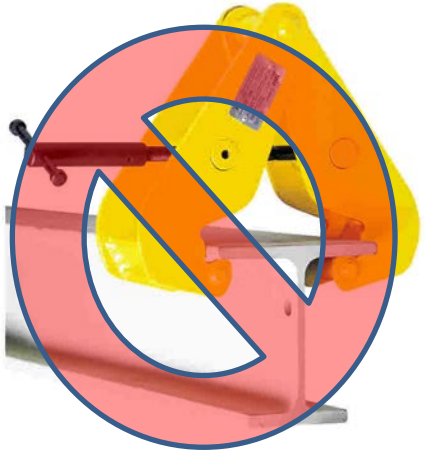


The use of beam clamps as "below the hook rigging device" is prohibited*

The use of beam clamps below-the-hook as a rigging point on the load is prohibited, except in rare cases when a Deviation Form has been properly completed and approved **BEFORE** the lifting operation. Contractors should have Deviation Forms developed and approved by Southern Company prior to implementation.

Beam Clamps - Safe Work Guidelines

Roll Back and Inventory: All beam clamps should be removed from the field, inventoried and inspected to ensure they are in working order. This also allows management to gauge the number of clamps in circulation. SST strongly encourages limiting the number of clamps placed back into service. For those placed back in service, ensure the following practices are followed:

- Clamps are kept in a secure location that restricts ready availability.
- Manufacturer's documentation is readily available to be reviewed prior to use.
- Clamps should be logged in/out. Ensure that employees requesting the use of beam clamps have received adequate training.

Pre-task Planning: All Pre-task planning documentation should be updated to specifically address the use of beam clamps and the associated hazards. Contractor's Manual Rigging Documentation (pre-lift checklist) should include a mechanism to identify the use of beam clamps and ensure it notes to proper use of the tool

Training: Contractors are to have documented training with all craft employees to heighten awareness of this issue. SST additionally recommends amending existing orientation materials to include this subject matter.

Audits: Contractors are recommended to hold Focused-Rigging Audits periodically with a specific focus on beam clamp usage and program adherence.

OSHA **requires** that all riggers must be trained **and** knowledgeable in the safe and proper usage of the rigging accessories and equipment that are planned to be used. Without fully understanding the Manufacturer's instructions, the use of certain rigging items should not take place!

How can we help to maintain safe rigging tasks?

- Use the 'Stop Work Authority' if uncertainty is present!
- Observe- have a "questioning attitude".
- Ask questions- what is the capacity- what is the max allowable angle from vertical, is side loading even acceptable? etc..
- **Review the manufacturer's specifications!**

Through the internet we have access to information of each and every lifting device and accessory that we have on our sites.

Always Consider the Following When Manual Rigging with Beam and Plate Clamps:

1. The load weight has been determined.
2. The load's COG (Center of Gravity) has been determined.
3. Hoist is adequate for the load to be lifted.
4. Hoist attachment is adequate for planned load including structural support.
5. Hoist position allows for non-hindered movement of hoist.
6. The upper and lower hoist hooks are in straight line.
7. If more than one sling is attached to either hoist hook, a shackle is used to attach sling eyes to the hook.
8. Hoist capacity does not exceed the rated capacity of the monorail/lifting system.
9. All equipment and slings inspected and protected (softeners).
10. Pre-lift/hoist meeting has been conducted for adequate communications.
11. Pre-lift worksheet filled out completely.
12. Area below lift is controlled/barricaded to protect entering fall zone.

Beam Clamps

13. **Beam Clamps are prohibited in use below the hook!**
14. Beam clamps attached **per Manufacturer Specifications!**
15. Beam clamps used for straight hoist only, unless specifically designed for angle hoists.

Plate Clamps

16. Plate clamps not to be used on polished plate.
17. Plate clamp is over Center of Gravity (COG).
18. Only one plate is used in each plate clamp.
19. Only positive self-clamp and locking plate grips are used.
20. Lower from vertical to horizontal or vice versa only by manufacturer specifications.
21. Vertical plate clamps are not side loaded.
22. Plate clamps are not used for overhead attachment points for hoisting.

Positive feedback should be given to all affected employees regarding resolution of the stop work issue. Under no circumstances should retribution be directed at anyone who exercises their SWA in good faith.

SST Overview

1. The Southern Safety Tri-Lateral (SST) consists of leadership from Southern Company Generation, associate craft labor organizations, and core contractors. All Southern Company Generation and Construction sites will adopt this program; it excludes Southern Power and Southern Nuclear.
2. The Southern Safety Tri-Lateral was established to create a unified voice on safety.
3. The program sets consistent site requirements and expectations across our fleet.
4. Focused Initiatives to date: First Line Supervisor Training, Stop Work Authority (SWA), and Site Safety Champions. See respective FAQs for more details.
5. The need for additional initiatives will be evaluated after we are certain the first three initiatives are successfully rooted in our culture.
6. Generally, the new initiatives apply to bring consistency to the plants, contractors, and craft, but there are nuances to each that must be considered.
    a. For example, there is a site safety champion who is selected from onsite contractor craft personnel. Similarly, some plants already have a Safety Rover selected from internal craft personnel whose job has similar responsibilities.
    b. First Line Supervisor Training is currently for the contract foreman; however, Southern Company is evaluating how to incorporate the same material into the new supervisor training for internal leaders.
    c. Finally, the SWA should similarly be ingrained into the site culture whether someone is a contract employee or a Southern Company employee.
7. There are already several places to look for indications of the Southern Safety Tri-Lateral.
    a. SWA signs are posted in the contractor offices and Southern Company shops, along with badge cards promoting the expectation of a positive and receptive culture to SWA.
    b. Site safety champions can be seen interacting with contractors and Southern Company work crews and participating in various safety meetings.
    c. Lastly, everyone should be hearing common terminology and seeing visible leadership decisions that stay consistent with the teachings of First Line Supervisor Training and embrace the Stop Work Authority culture.

Southern Safety Trilateral

SST
SOUTHERN SAFETY TRI-LATERAL

Beam & Plate Clamp Usage

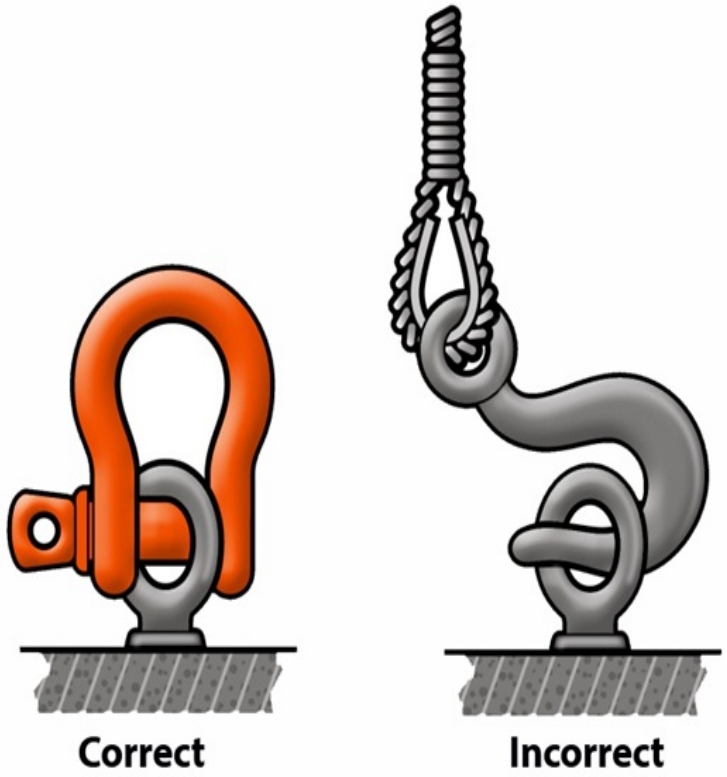
RIGGING SAFETY TRAINING
BEAM CLAMP AWARENESS

Rigging Safety

- No one typically goes out of their way to do it wrong.
- A person will rationalize the improper use of a lifting device especially when the design usage is not known.

We must know:

- How is it designed to be used! DO NOT ASSUME!
- What processes are in place to provide personnel performing the work with usage information of rigging equipment that is to be used?



How can we help to maintain safe rigging tasks?

- OSHA requires that all riggers must be trained and knowledgeable in the safe and proper usage of the rigging accessories and equipment that are planned to be used.
- Without fully understanding the manufacturer's instructions, the use of certain rigging items should not take place!
- How can we help to maintain safe rigging tasks?
  - Use 'Stop Work Authority' if uncertainty is present!
  - Observe- have a "questioning attitude."
  - Ask questions- what is the capacity- what is the max allowable angle from vertical, is side loading even acceptable? etc..
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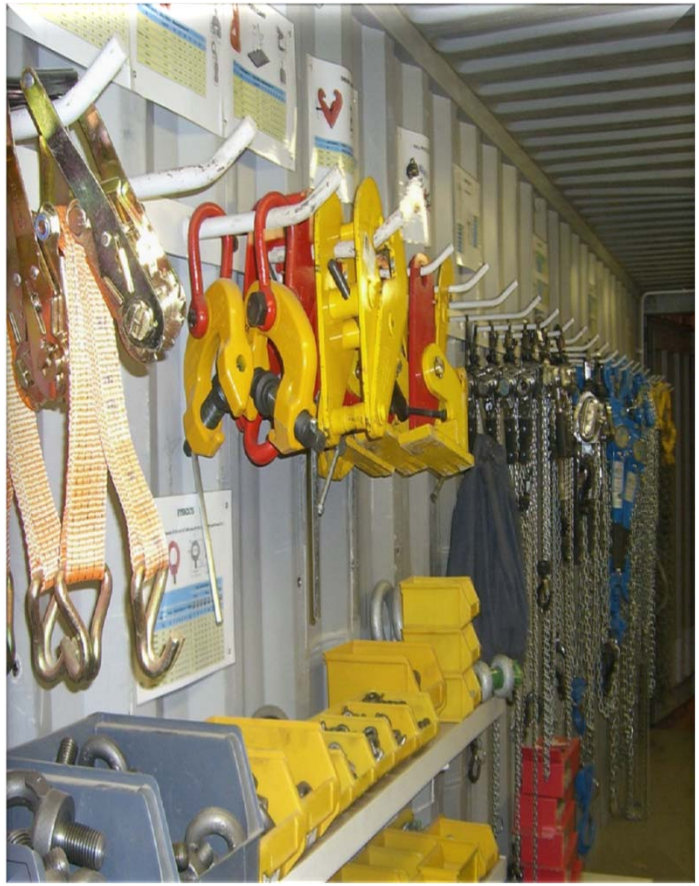
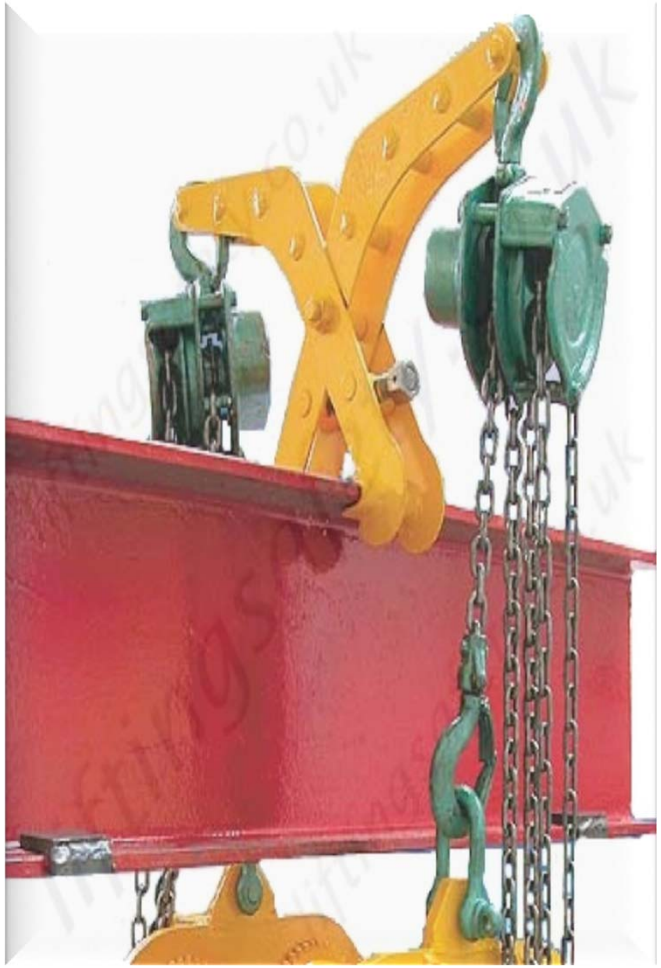
  - Through the internet we have access to information of each and every lifting device and accessory that we have on our sites.



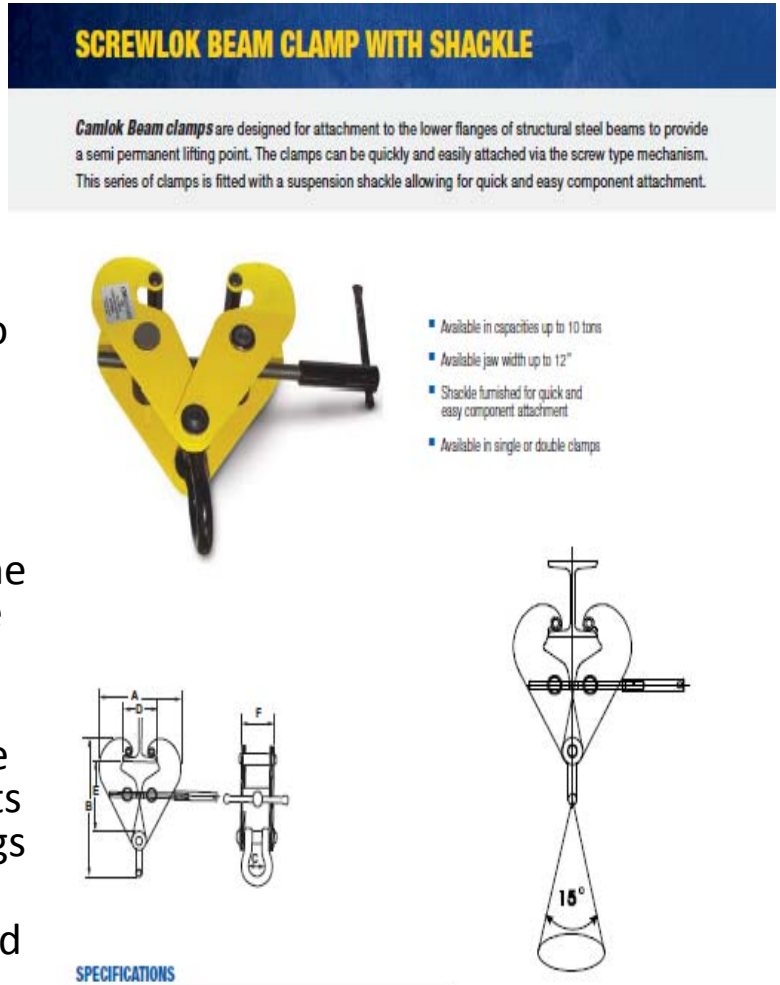
Beam Clamps

- Beam Clamps used as anchor points for hoists supported by structural members such as- I Beams and even structural ‘C’ Channel type clamps available are designed for specific usages!
- Many different designs mean many different ways that they are designed to be used!
- Manufacturer’s design usages must be understood for the safe installation, usage, inspections, etc.…
- NEVER use a beam clamp until you have read and understand design limits of the specific clamp being used.



Beam Clamps

- As with all rigging accessories, we must refer to the manufacturer's information prior to usage.
- This information provides guidance to the user in the proper usage(s) of the specific rigging accessory.
- Keep in mind- the specific manufacturer and the specific model number must be taken from the accessory to ensure accurate information is present.
- If we do not understand the design usage(s) we cannot use the accessory within its design limits and as history has proven, this potentially brings about unwanted events.
- The ultimate safe usage is our responsibility and obligation and simply stated- we don't know what we don't know!

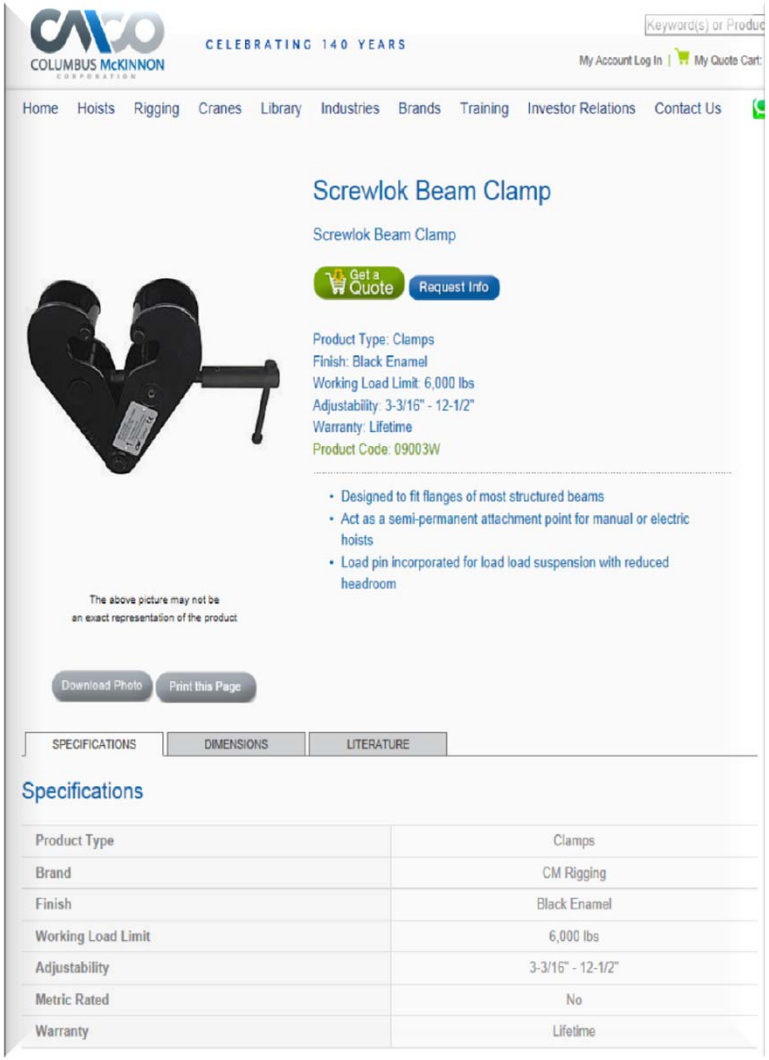


This clamp has an allowable side load/angle rating not to exceed 15 degrees.

Beam Clamps

Verify design usage

- Note that this specification is direct as to use- the second bullet item states; **“Act as a semi-permanent attachment point for manual or electric hoists.”**
- **Without any doubt, this specific beam clamp is designed for overhead/underhung applications only.**



Beam Clamps

Verify design

- ASME B30.20
- The specification sheet for this beam clamp contains all information indicating that this may be used as a “Below the Hook Lifting Device.”
- THE NEXT SLIDE contains usage instructions for this specific clamp model. Please read carefully, especially line item #5.

SUPERCLAMP SPECIFICATIONS

The SuperClamp Trade Mark is synonymous with Excellence in practical design, effective safety and assured quality control. **SuperClamp**™ products are engineered with the aim to provide safety, efficiency and durability.

Originally designed and internationally patented as a beam clamp, **SuperClamp**™ products may be used for both hoisting and lifting applications. The line has been expanded to include Runway Beam Trolleys designed like the original **SuperClamp**™ to be a one piece fully adjustable trolley. Recently a new design, the Universal Superclamp was added to the line. This model is designed to be used at full rated capacity at angles up to 90° in a 360° radius.

GENERAL SPECIFICATIONS

- Design exceeds 5:1 factor of safety. Periodic tests to destruction are performed to ensure this.
- Each unit is Proof Load Tested at 2:1, and comes with a Certificate of Test and Evaluation.
- Units are individually serial numbered to assist with traceability.
- Side Plates and Jaws are ASTM A588 steel.
- Lifting Shackle is fully heat treated and normalized.
- All welding procedures are AWD D1.1 certified.
- Each unit is one piece, fully adjustable and includes attached lifting shackle.
- All trolleys include Anti-Drop plates as an integral part of the structure.
- Design is covered by U.S. and foreign patents.
- Clamp adjustability range and jaw size are designed to ensure optimum contact with the beam flange to ensure personnel and equipment safety.
- All designs meet or exceed existing codes and regulations, including **ANSI/ASME B30.20** *"Below-the-Hook Lifting Devices."*
- Full Product Liability Insurance coverage is maintained.
- Manufactured in the U.S.A.

In use in the Mining; On and Off Shore Mineral Exploration; General Maintenance and Construction industries; **SuperClamp**™ continues to lead the way in safe lifting applications.

SUPERCLAMP™ BENEFITS AND ADVANTAGES

Beam Clamps

- Taken from manufacturer specifications:
  - When used as a 'below the hook lifting device,' at no time can a single clamp be used with this model.

SPECIFICATIONS

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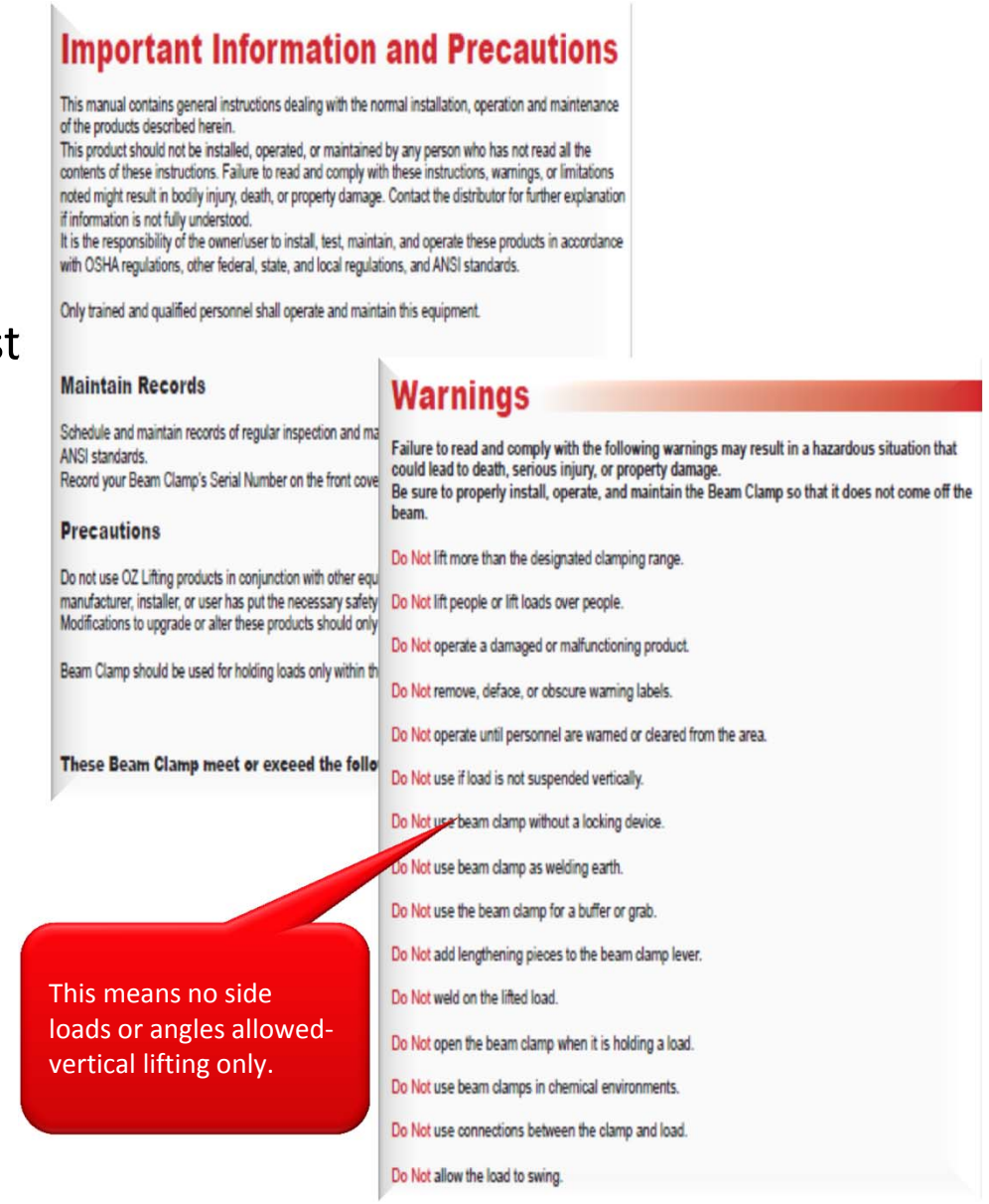
SEE LINE ITEM 5

Safety & Health Issues

5. Never use a single clamp as a lifting point on a beam/girder. Always use two or more clamps to ensure a stable lift: use a spreader beam when applicable.

Beam Clamps

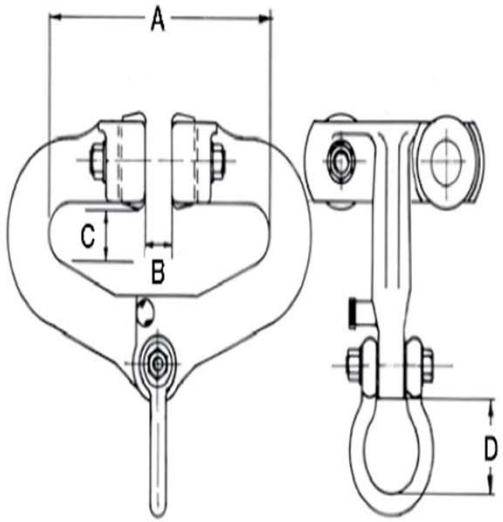
- All rigging accessory manuals must be read and fully understood.
- This is not limited to Beam Clamps.
- We must once again fully understand how each item is designed to be used and only use it in that manner!
- Taken from manufacturer's manual: **DANGER…Read and understand user information!**



Beam Trollies

- These are used strictly per manufacturer's specifications without exception-
  - No Side Loading is permitted at anytime.

‘Riley’ Trolley Specifications Manufacturer ‘Superclamp’



- Beam trolleys are not designed for side loading!
- Manufacturer Specifications must be reviewed and fully understood.
- ‘Riley’ trolley specifications.
- Manufacturer ‘Superclamp’

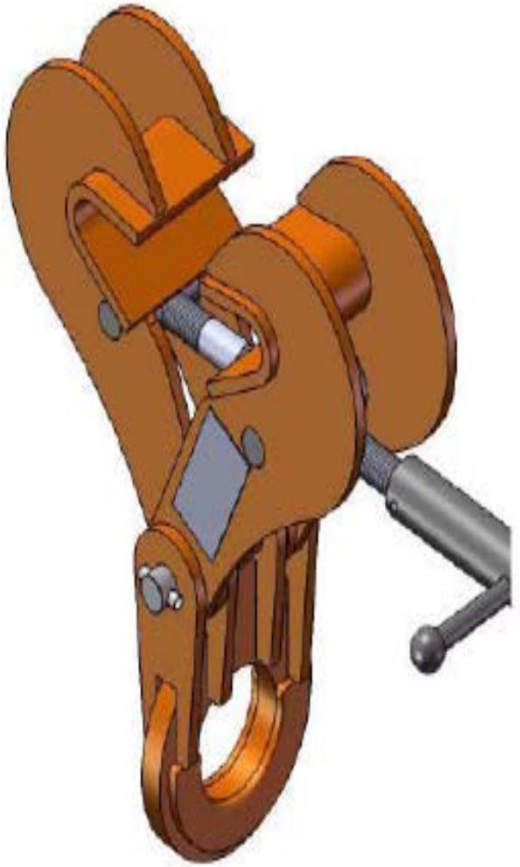
Note- WLL at 0 degree Vertical! (No side loading)

MODEL	WLL at 0° Vertical Lbs	Kg	A Flange Width Adjustment inch min-max	B To Accommodate Beam Web Thickness (max) inch	C To Accommodate Beam Flange Thickness (max) inch	D Inside Shackle Crown to Spacer inch	Average Weight Lbs
A1	6720	3048	3" - 8"	5/8"	1"	5 1/4"	46
A2	13440	6096	4" - 12"	3/4"	1 1/4"	5 5/8"	73
A3	22400	10160	4" - 12"	3/4"	1 1/4"	5 1/2"	105

Title of Training: BEAM CLAMP-RIGGING SAFETY
Equipment Info: MAKE/TYPE/SIZE/MODEL
Material Required/Needed: OPERATORS/EQUIPMENT MANUAL

Storing and Handling Beam Clamps

- Never return damaged beam clamps to storage- tag 'Out of Service' and deliver to appointed person for proper action.
- They should be dry, clean and protected from corrosion.
- Where necessary fasteners should be reassembled immediately after removal from the beam.
- Beam clamps should not be dropped or thrown down.



Title of Training: BEAM CLAMP-RIGGING SAFETY
Equipment Info: MAKE/TYPE/SIZE/MODEL
Material Required/Needed: OPERATORS/EQUIPMENT MANUAL

Using Beam Clamps Safely

The safe use of beam clamps will be partially governed by the requirements for the lifting equipment with which it is to be used but should always follow the manufacturer's instructions as well as taking the following matters into account:

- Do not use defective beam clamps, Hoists, lifting hardware or accessories.
- Ensure the structure from which the clamp is to be suspended is undamaged and is adequate for the full load that will be imposed. If any doubt exists consult a Qualified Person to confirm strength/integrity.
- Ensure the clamp is suitable for the application, correct size and profile for the beams flange and seats correctly. It must not cause localized overloading.
- Ensure the hoist is compatible with the clamp and that hooks or other attachments fit freely into the eye, shackle etc. of the clamp.
- The clamp must be positioned directly over the center of gravity of the load and the load must not be allowed to swing or impose an oblique loading (side loading).
- If two clamps are to be used in tandem the use of ancillary equipment may also be necessary, e.g. spreader beam.
- Care must be taken to ensure no one clamp takes more than its Safe Working Load limit/Capacity

In-service Inspection and Maintenance

- Beam clamps should be cleaned and any moving parts lubricated at appropriate intervals unless the Manufacturer's specific instructions indicate otherwise.
- Regularly inspect the beam clamp, in the event of the following defects refer the clamp to a Competent Person for thorough examination:
  - Wear, damage or distortion, cracks, insecure bolts etc., corrosion, illegible markings(Manufacturer, capacity, model number, etc.).
  - If any abnormal conditions / defects are found, then contact the site competent person or Team Leader for resolution prior to utilizing the equipment