

Below the Hook Lifting Devices

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A below-the-hook lifter is a device that operates independently from cranes, hoists, trolleys and carrier hooks. Devices such as spreader beams, c-hooks, pallet lifters, grabs, plate clamps and sheet lifters offer a way to attach load to hoist as well as hold, protect, control and orient the load. Selecting the proper below the hook lifter for the job and knowing its limitations is critical. They are designed to make your work easier but, like any good rigging tool, they must be properly used. The latest version of ASME B30.20 should be obtained and reviewed. ASME B30.20 is the safety standard for below the hook lifting devices. It covers markings, construction, installation, inspection, testing, maintenance and operation of below the hook lifting devices. Lifting devices may contain slings, hooks, rigging hardware and lifting attachments covered by other ASME standards.

Why choose a below the hook lifter over slings or conventional rigging?

- Below the hook lifters allow you to properly support long loads. A load handled with slings alone may have a tendency to slip or slide.
- Can provide lower headroom between load and hoist. Slings require more height between attachment points and hoist hook. This is useful for facilities with very low ceiling height or for lifting large loads.
- Handles equipment without damage. Many sling hook ups can cause edge damage to load and slings
- They can be customer designed or easily adapted in the field by attaching or repositioning components to suit many operations.
- Simplifies and speeds up repetitive lifting operations. They are a fast, direct method of attachment. They replace time consuming improvisations required with slings and chains. Often times, improvising can lead to unsafe rigging practices.
- A combination of both slings and rigging hardware are often used to make a safe lift.
- Can help eliminate rigging at dangerous shallow angles (30 degrees or less) thus reducing tremendous tension imposed on slings and load. It is not recommended to rig below a 30 degree angle. If you find this is happening, chances are you need a below the hook lifting device to assist with the lift.



Camlok Vertical Plate
Clamp

ASME B30.20 has gone through some radical changes regarding design and construction of below the hook lifting devices. The revised ASME B30.20-2006 was issued on January 16, 2007. The effective date to be in compliance with the revised standard was January 16, 2008. The standard now says that below the hook lifting devices shall be designed to ASME BTH-1-2005. ASME BTH-1 addresses only design requirements. As such, this standard should be used in conjunction with ASME B30.20, which addresses safety requirements. ASME BTH-1 does not replace ASME B30.20. It is not the intent of ASME BTH-1 standard to require retrofitting of existing lifting devices. Per ASME, “although always implied, this provision now explicitly states that

the design of below the hook lifting devices is the responsibility of a qualified person. This requirement has been established in recognition of the impact that the performance of a lifting device has on workplace safety, the complexity of the design process, and the level of knowledge and training required to competently design lifting devices.” BTH-1-2005 is very technical and I can not sum it up in a few brief sentences. There are options for service class and design categories that manufactures can design to depending on frequency of use and the type of loading see by the lifter. Below the hook manufactures have been designing their lifters to new BTH-1 design category B: “where loading can be unpredictable and environmental conditions are either severe or not defined.”

Required markings per ASME:

- Manufactures name
- serial number,
- lifter weight (if over 100 lbs),
- cold current amps (when applicable),
- rated voltage (if applicable),
- rated load,
- ASME BTH-1 Design category (January 2008)
- ASME BTH-1 Service Class. (January 2008)
- Warning labels (basically the do’s and don’ts of rigging).



Inspection (per ASME)

- An every lift inspection by the operator is required (no documentation)
- A minimum of a yearly inspection with documentation for **normal** service.
- **Heavy service** requires an inspection semiannually with documentation.
- **Severe service** requires a quarterly inspection with documentation.

Operation (per ASME)

- Below-the-hook lifting devices **shall** be operated only by trained, designated persons.

Qualifications (per ASME)

- Training is required
- The operator shall demonstrate the ability to operate the lifter as instructed before assuming responsibility for using the lifer.

The operator training requires knowledge of basic rigging practices. Most revised ASME standards are requiring training for material handling equipment. (Rigging)



Cady Lifters
Steel Coil Lifter

The following is a brief general checklist to check if your below the hook lifter meets the ASME B30.20 standard.

Is the lifter clearly marked on two sides with the rated load capacity?

Is there a nameplate or other permanent marking displaying the following:

- Manufactures name
- serial number,
- lifter weight (if over 100 lbs),
- cold current amps (when applicable),
- rated voltage (if applicable),
- rated load,
- ASME BTH-1 Design category (January 2008)
- ASME BTH-1 Sevice Class. (January 2008)
- Warning labels (basically the do's and don'ts of rigging)



Are there engineering calculations and a bill of material showing that the lifter was designed and construction by a qualified person according to ASME B30.20?

Do you perform a minimum of a yearly inspection for normal service on each lifter, including inspection of all welds, wear of components, and deformation or other defects?

Note: an operator shall perform a visual inspection of the lifter before every lift.

Do you have a certificate of conformance and/or a proof test certificate for each lifter stating that the lifter meets ASME B30.20?

Note: This is only a general guideline, users should obtain a full copy of ASME B30.20 to review full details of this standard.

If you failed to check all the boxes above, your lifter may not meet ASME B30.20 and may be a potential safety hazard. You need to take immediate action to insure your lifter meets this specification.

Cady Lifters of Columbus McKinnon can answer or assist you with your below the hook lifting requirements. **Columbus McKinnon** manufactures a broad line of material handling products for use in a wide range of markets around the world. Primary products include hoists, lifting chain, overhead crane systems and below-the-hook attachments. The company has a rich 135-year history, and many of the brands are the most recognized in the world. Products from Columbus McKinnon are used to lift, position, and secure loads in hundreds of industries including fabrication, food processing, mining, forestry, entertainment, trucking, utility, and defense – to name only a few.