

VESSEL-MOUNTED CRANES

INFORMATION SHEET

Overview

This information sheet provides advice on the risks associated with vessel-mounted cranes for use in smooth water and operated on a ship, barge, pontoon or other vessel.



For further information see the [General guide for cranes](#).



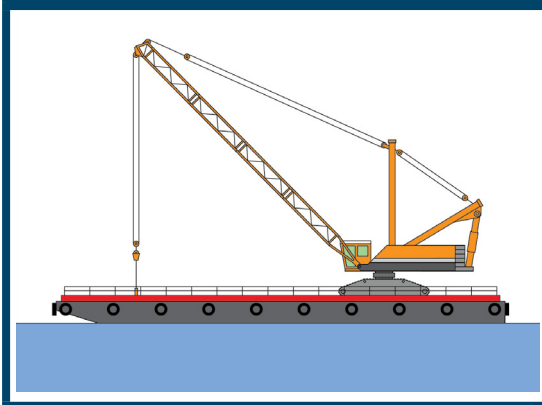
What is a vessel-mounted crane?

A **vessel-mounted crane** is a crane mounted on a vessel for the purpose of lifting loads (see Figure 1). A vessel-mounted crane may be permanently fixed to the vessel or a mobile crane temporarily positioned on the vessel.

Vessel-mounted cranes can be used for a range of tasks including:

- moving loads on and off the vessel or between vessels
- suspending and holding loads in position
- pile removal operations, and
- grabbing operations.

FIGURE 1 A mobile crawler crane mounted on a barge



A vessel-mounted crane and associated equipment may need to meet regulatory requirements other than for work health and safety, for example *Marine Order 32 (Cargo Handling Equipment)* under the Navigation Act 2012.

Plant registration issued by a work health and safety regulator for a vessel-mounted crane may meet other regulatory requirements but you will need to check with the relevant authority.

Pre-use checks

A competent person should complete a pre-use check including confirmation of the:

- crane manufacturer's or a competent persons recommended rated capacity when operating on a barge, pontoon or vessel
- maximum loads and vessel maximum heel or list
- vessel freeboard allowed (distance between the vessel's deck and the water)
- amount and position of any ballast
- minimum depth of water for safe operation
- weather conditions e.g. the likelihood of high winds or waves, that limit the use of the crane and vessel combination, and
- adequacy of ties, anchorages and supports at minimum and maximum heel or list.

Rated capacity and load charts

If the capacity of the crane has been de-rated for use on the vessel this should be clearly identified on the load charts. Load charts should be kept with the crane.

A rated capacity limiter or indicator should be adjusted to reflect crane de-rating where suitable for vessel operations.

Controls should be put in place to ensure the crane is operating within the specified limits.

Mobile cranes

When positioning a mobile crane on a barge, pontoon or vessel, either in the loaded or unloaded condition the following should be taken into consideration:

- the effect on freeboard
- the ability of the vessel to carry and support the crane and any dynamic loads applied to the crane
- any load capacity de-rating required for the crane to safely operate on the vessel
- the installation of stops or restraints to prevent the crane approaching the sides of the vessel, and

- the method of securing the crane to the vessel, in accordance with the manufacturer's instructions, to prevent unintended movement, particularly when working outside smooth water limits.

A competent person should determine the deck tilt and freeboard allowed with the rated capacity and test load conditions of the crane. The competent person must be experienced in crane design and the stability of marine vessels.

The vessel should be anchored during mobile crane operation.

If it is not possible to anchor the vessel, it should be tethered or tied to a craft alongside. The tether should be of sufficient length to allow the vessel to take up a natural list in the water.

Where the crane can move along the deck of the vessel, lifting should only take place when the crane is secured to the deck, for example by chains of suitable strength.



Testing vessel-mounted mobile cranes

The mobile crane and vessel combination should be inspected after erection and before applying a test load to check:

- ties, anchorages and ballast are in place and correctly secured
- the crane is configured according to the crane manufacturer's or a competent person's specifications, and
- the crane configuration is free from defects that would prevent the vessel-mounted crane from handling the test load safely.

Pre-operation testing with no load applied should be carried out to check the correct operation of controls, cut-outs, contactors, brakes, limiters and other devices.

The rated capacity indicator and limits should be checked to make sure the reduced rated capacity and any increase in radius due to list of the vessel is considered and appropriate action taken.

Testing by a competent person should include relevant stability, function and brake tests.

Stability testing should include tests conducted at the position of least stability.

Function tests should be conducted at minimum speeds for crane motions.

Post-test assessment

A competent person should complete a post-test assessment to check that the vessel and crane combination:

- has not suffered any structural or mechanical damage or failure, and
- is safe to operate.



Operator competency and licensing

Vessel-mounted crane operators must be trained and competent in operating the crane. Training should cover the crane, controls, instruments, working load limits, load charts, safe working procedures and any operating limitations of each type of crane they operate.

A person must hold a relevant high risk work licence if they operate any of the following mobile cranes on a vessel:

- a vehicle loading crane with a capacity of 10 metre tonnes or more, or
- a slewing mobile crane, or
- a non-slewing mobile crane with a capacity exceeding 3 tonnes.

You should check with the local work health and safety and marine authorities to confirm any crane operator licensing requirements.



Further information

The following technical standards provide further information on vessel mounted cranes and mobile cranes:

- AS 2550.1-2011: *Cranes, hoists and winches—Safe use Part 1: General requirements*
- AS 2550.5-2002: *Cranes, hoists and winches—Safe use Part 5: Mobile cranes.*

For further information see the Safe Work Australia website www.swa.gov.au.