DATA SHEET

H1

Weatherdeck Hatch Covers

Lift-Away Types

Lift-away hatch covers for use on the weatherdeck are divided into two categories as follows:

Single-panel covers
- single-opening abreast
- multi-opening abreast

Multi-panel covers:
- with longitudinal joints
- with transversal joints

Single-panel types comprise one cover for each opening i.e. there are no joints. They are normally specified for bulk carriers in the case of single-opening abreast, and for cellular container ships in the case of multi-opening abreast configurations.

Multi-panel covers comprise several separate panels for each hatch opening. They are used for cellular container ships in the case of longitudinal joints, and for multipurpose cargo ships and heavy cargo tonnage in the case of transversal joints.

To open the hatch, the lift-away covers are generally removed by lifting tackle or spreader using the ship's or shore cranes.

In the case of single-panel and single-opening abreast versions, special lifting gear fitted to the legs of the gantry crane is used; and in the case of single-panel covers and multi-panel covers with longitudinal joints a shore crane (usually a container bridge crane) is normally used.

Features

Sealing and order of operation

Sealing between hatch covers and coaming is generally achieved by sliding rubber packing (ref: data sheet H20 'CAT-Profile weathertight seal') which is fitted to the panels and tightens against the top of the coaming.

Similar gaskets can be fitted for the panel joints, or some of the seals offering non-sequential operation. In the case of non-weathertight hatches, a labyrinth-type gasketless seal and an open joint without drainage can be used.

Non-weathertightness of covers – or reduced weathertightness for some class requirements – is in all cases to be clarified by classification societies, national authorities and the shipowner based on IACS LL64.

The operation of the covers can be sequential or non-sequential, depending on the type of the cross-joint chosen.

A sequential joint with sealing can be used in basic solutions where there is no need to specify partial opening of the hold. This type of joint is fitted with cleating.

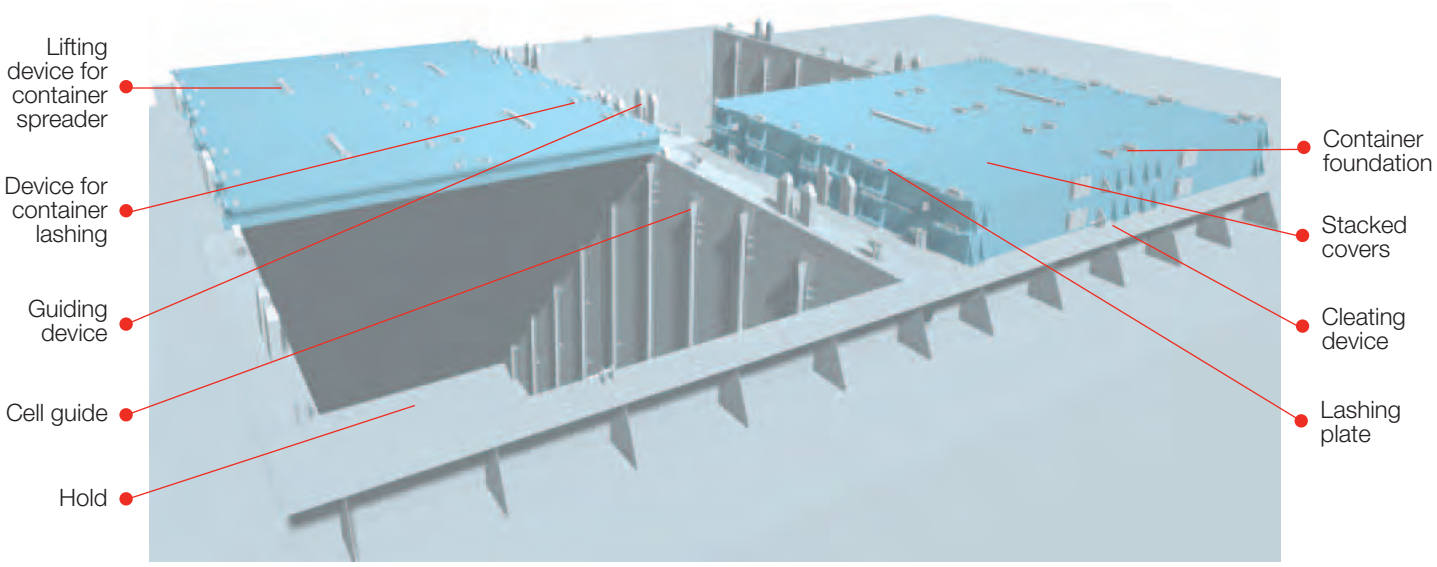
Hydraulically or manually operated swing-seals or pneumatically operated OMEGA seals are the solutions for weathertight non-sequential operation. The swing-seal comprises a foldable steel beam fitted with gaskets. In the sea-going condition the beam seals the joint, and when the hatch is open in port the panels can be handled in any order. Folding of the sealing beam can be performed by hydraulic cylinders served by a portable or fixed power pack, or manually by a ratchet or pneumatic power tool.

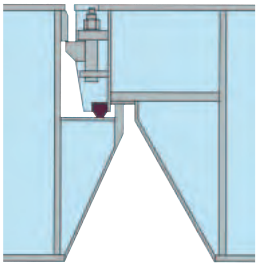
Operation of the OMEGA seal is effected by the ship's compressed air system (ref: data sheet H21 'OMEGA sealing system'). The swing-seal and the OMEGA sealing system are mainly used for transversal joints.

Specially for two-panel solutions a sliding seal can be used between the panels.

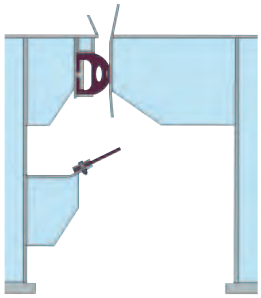
In the case of reduced weather-tightness on cellular container ships, classification societies allow use of a longitudinal joint fitted with a double rubber lip seal preventing rain and spray entering the hold, subject to approval of individual installations. For the double rubber lip there is no seal handling needed during hatch cover operation and it can be hose-tested to a surveyor's satisfaction.

In the case of a non-weathertight hatch cover, an open joint can be used. The joint can be fitted with a rubber flap contacting the adjacent panel, which provides gastightness for CO2 but no drainage. Without this contact, a drainage option is available.

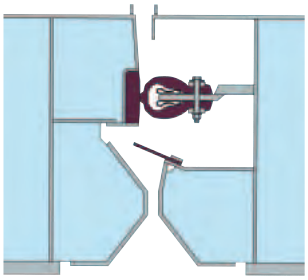




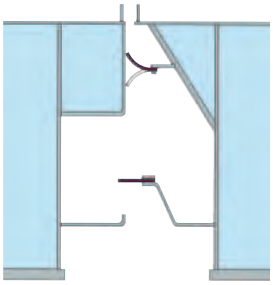
Sequential joint



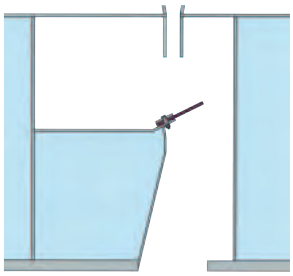
Sliding joint



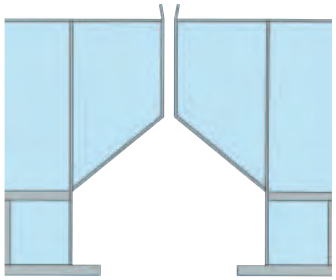
Omega joint



Double rubber lip seal



Open joint with drainage



Open joint, no drainage

Cleating

The following two types of cleating are applicable to lift-away covers: hold downs and quick-action cleats (QACs).

Hold-downs

Manually-operated hold-downs, available in various forms, can be fitted to lift-away hatch covers. According to the Classification Societies' rules the hold-downs can in some cases be omitted (IACS Reg. 14).

Quick-action cleats

Manually-operated QACs are actuated from above or below the top of the coaming and used for small vessels with transversal joints.

Load transmission

In order to transmit the weight of the load on the covers to the coaming structure the covers are supported by a specified number of bearing pads.

Lubripad, Polypad, Unipad and Flexipad

For ships imposing greater demands on the bearing pads, increased relative movements or excessive loadings, an arrangement based on low-friction flexible replaceable sliding pads (Lubripad, Polypad or Unipad) or non-sliding flexible replaceable pads (Flexipad) is recommended. For further information, please see separate data sheets H10 'Lubripad', H11 'Flexipad', H12 'Unipad' and H14 'Polypad'.

Steel/steel bearing pad

In general a steel/steel bearing pad is sufficient for most ships. It is essential, however, that data relating to maximum surface pressure and hardness difference between the two steel surfaces is taken into account.

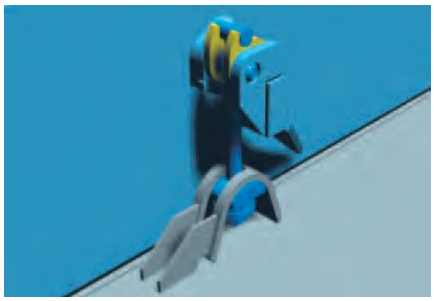
Location and fixing of covers

Optimised guiding and fixing arrangements are essential for the proper operation of lift-away covers during stacking as well as during the voyage. The panels are guided into position initially by high guides, with final guidance designed into the fixing devices. The fixing devices are located with consideration given to minimum relative movements between coaming and covers, as well as to containers stowed on two panels.

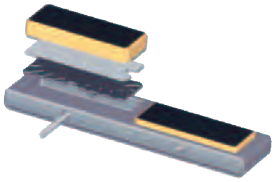
Special fittings

Lift-away covers can be equipped with special fittings, as required: for example, with stanchion sockets for loading timber, cement/grain feed hatches, and ventilation hatches or water spray arrangements for dangerous cargo.

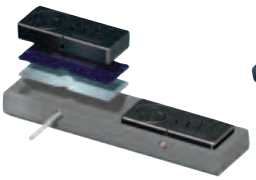
Hold-down



Quick-acting cleat

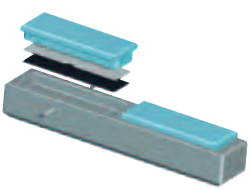


Lubripad



Polypad

Flexipad



Steel bearing pad

Lloyd's Register Quality Assurance certifies that MacGREGOR's Quality Management System is ISO 9001 compliant.
Certificate No: SW970212

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