

Hatch Covers And Hatch Cover Testing

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Leading Providers of Marine & Transportation Risk Services

Hull and Machinery Surveys
Protection and Indemnity Club Surveys
Casualty Surveys
Loss Prevention / Pre-risk Surveys

CSL is a leading provider of professional claims, risk control and recovery services to the marine insurance industry and to clients operating in and around the global cargo, shipping, transportation and supply chain sectors.



MARINE CLAIMS

- Surveys & investigations
- Loss adjusting
- Claims management
- Third Party Administration (TPA)
- Recoveries
- Freight liability & general marine liability
- Specie, including Cash in Transit
- Theft & fraud investigations

TECHNICAL SERVICES

- Hull & Machinery
- P&I surveys
- Shipyard inspections
- Marine casualty
- Vessel condition surveys
- Tug & tow
- Super yachts
- Marine risk consultancy
- Expert witness

PROJECTS

- Warranty surveys for the international insurance markets on large infrastructure development projects.
 - Power generation
 - Petrochemical
 - Oil & Gas
 - Heavy Industry
- Load, discharge & route / transportation consultancy
- Management of whole project on a global basis

RISK CONTROL – Loss prevention

- Risk control reviews
- Location reviews
- Load, stow & securing surveys
- Vessel outturn inspection & control
- Supply chain – risk analysis, risk monitoring
- Port risk assessments
- Car accounts – transit & storage

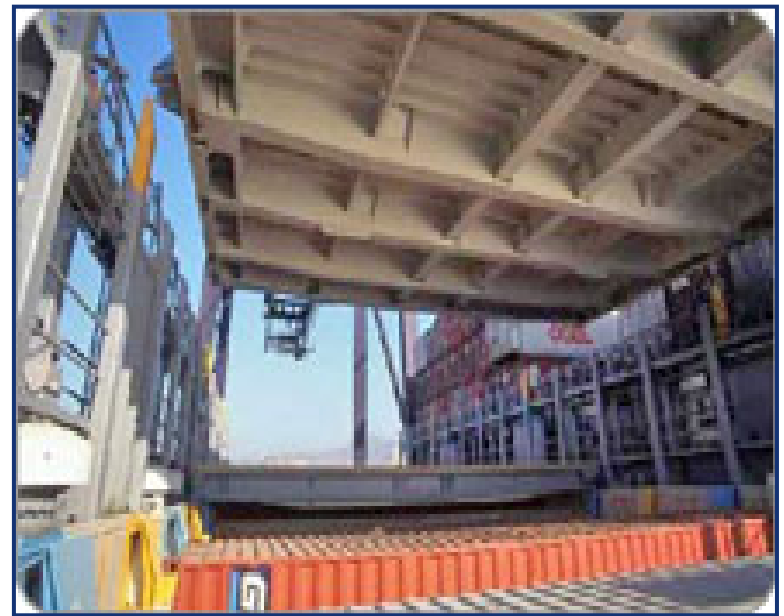
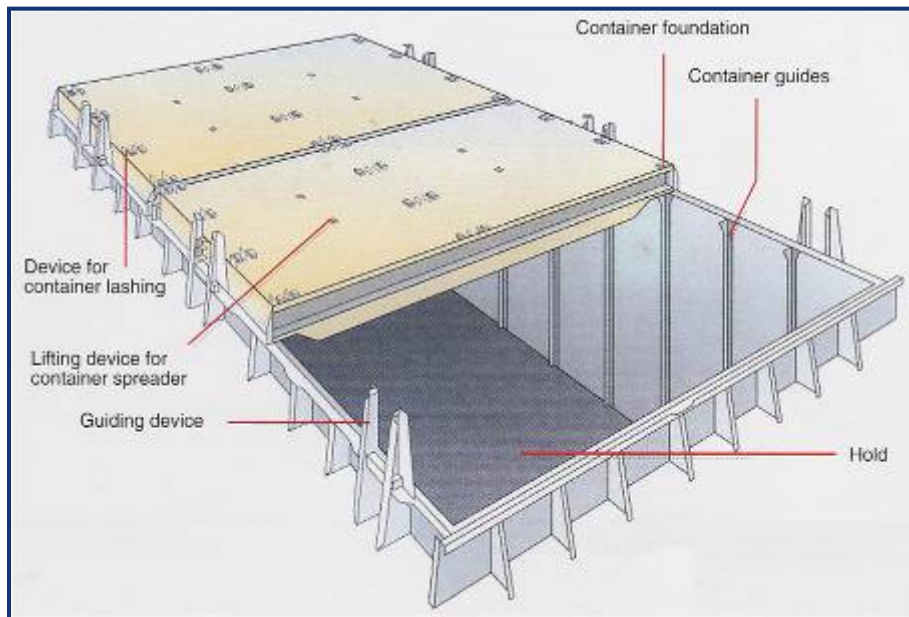


- Types of hatch covers
- Holding down devices
- Conditions at sea
- Typical hatch cover movements in a seaway
- Weather-tightness & influencing factors
- Typical defects encountered
- Hose testing and its limitations
- Ultrasonic testing – Benefits

Types of Hatch Covers



1. Lift Away Hatch Cover



2. Rolling Hatch Cover (a) Piggy back type



2. Rolling Hatch Cover (b) Side rolling type



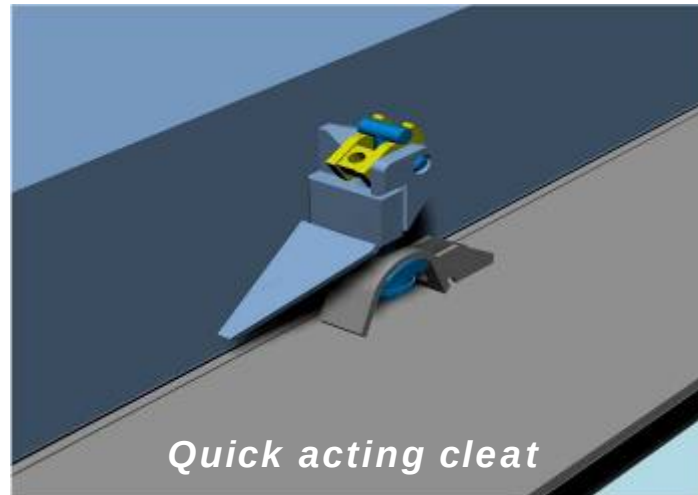
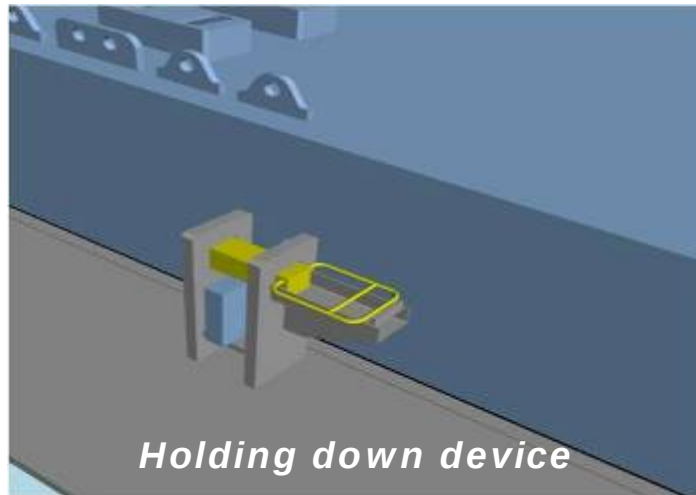
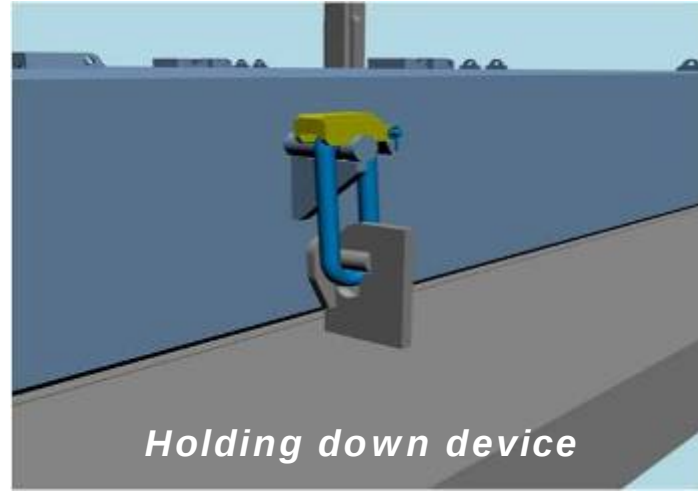
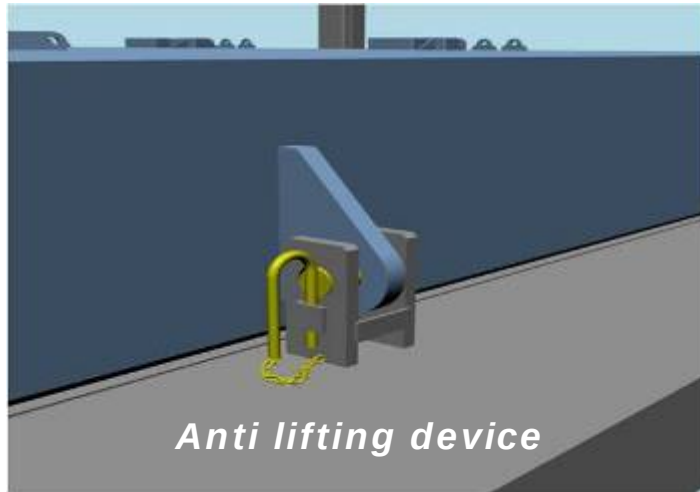
3. Hydraulic Folding Hatch Covers



4. Folding Hatch Covers



Holding Down Devices

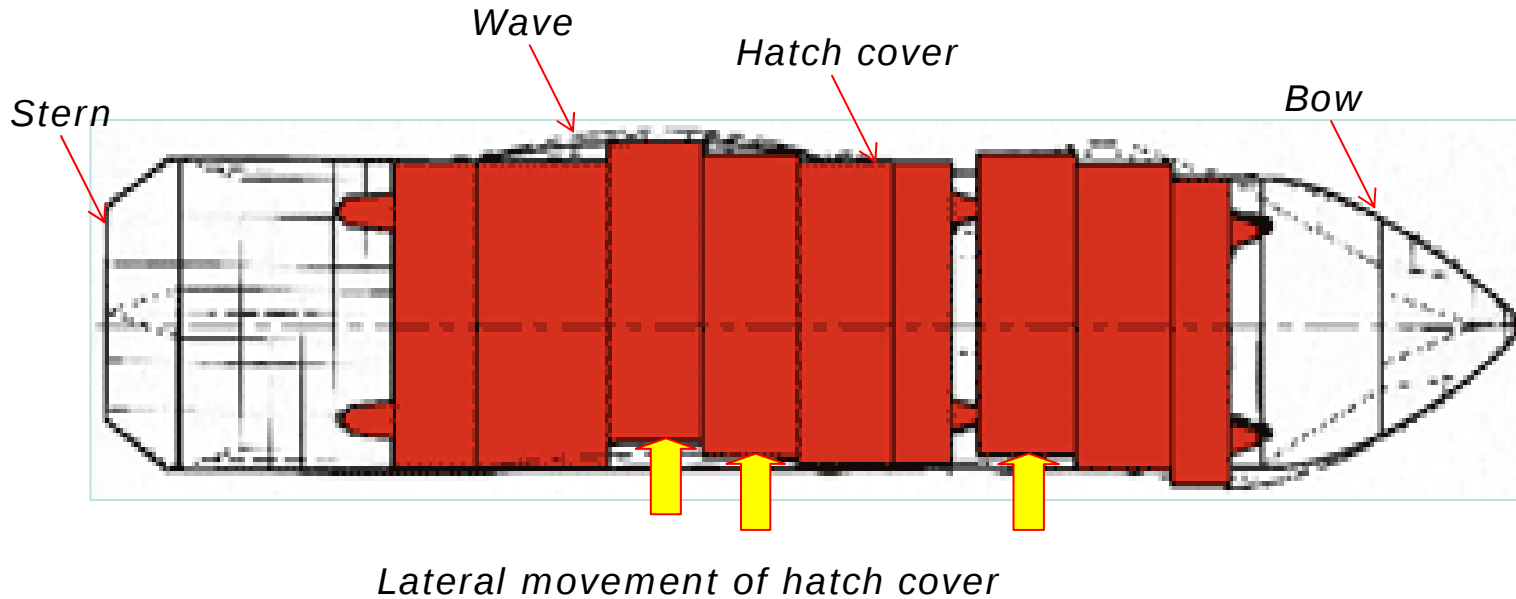


Conditions at Sea

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Typical Hatch Cover Movement in Seaway



The bigger the size of the hatch; the more significant are the flexible deformations

***Flexible deformations in the hull like panting, hogging, sagging
cause result in relative movements of hatch covers***

Weather-tight means that in any sea condition water should not penetrate into the ship.

Contributing factors to Lack of weather-tightness:

- Deformation of the hatch coaming or hatch cover due to impact.
- Normal wear-and-tear of the cleating arrangement
(corrected only through extensive repairs or overhauls.)
- Lack of proper maintenance
(corrosion of plating due to lack of protection against corrosion, lack of adequate lubrication of moving parts, non-replacement of old gaskets, use of cleats and gaskets which do not comply with the standards specified by the hatch cover manufacturer and inappropriate repairs)

Typical Defects Encountered



Inspected after Lay-up (Lift Away Type)



Split rubber seal



Wastage on side coaming



Wastage around corners



Wastage on locator



(Other)



Slack cross seal



Compression bar wasted and pitted

Typical Defects Encountered



(Other)



Worn rubber seal with evidence of foam



Evidence of tape used to seal cross joints



Quick closing cleat with evidence of foam



Covers with worn rubbers

A hose test involves playing a jet of water along the cross joints and perimeter seals of the hatch covers at a certain minimum pressure and distance from the structure.

Advantage:

- Cheap and easily available, operator training not necessary

Limitations:

- Cargo holds must be free of cargo
- Not viable in sub-zero temperatures
- Cannot pinpoint leakages accurately
- Water pressure variance and the distance of the jet from the structure can affect results
- A minimum of two surveyors / ship's crew are required
- Many port authorities will not permit it because excess water on deck can lead to pollution

Hose Testing Being Carried Out

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Correctly Incident Jet



Jet Directed Incorrectly

Ultrasonic Testing - Benefits



Advantages:

- Pinpoints leaks quickly and accurately
- Viable means of testing watertight integrity of hatch covers, access hatches, etc.
- Holds can be laden
- Single surveyor / operator required
- Drawbacks of hose testing do not apply

Limitations:

- Initial equipment cost high and operator training essential

Ultrasonic Testing of Hatches



TESTING OF HATCH COVER SIDE AND CROSS JOINTS

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