
C6 Requirements for Lashing Software

(May 2024)

C6.1 General

C6.1.1 Application

All seagoing dedicated container ships are to comply with these minimum requirements.

C6.1.2 Definition

Lashing software is an electronic data processing tool for onboard analysis of forces in container stacks and thereby reflects the parameters of the lashing system as described in the Cargo Securing Manual prepared in accordance with the Administration requirements.

An approved lashing software is not a substitute for the approved Cargo Securing Manual. It is considered as a supplement to the approved Cargo Securing Manual.

The lashing software is a ship specific tool, and the results of the calculations are only applicable to the ship for which it has been approved.

C6.2 Operation Manual

An operation manual is to be provided for the lashing software and be kept on board.

The language of the operation manual is to be the same as the language of the approved Cargo Securing Manual. A translation into another language considered appropriate may be required.

The operation manual should contain descriptions and instructions, as appropriate, as per the following list:

- a general description of the lashing software;
- installation;
- function keys;
- menu displays;
- input and output data;
- required minimum hardware to operate the software;
- instruction on testing the lashing software with the test loading condition;
- a list of all terms, definitions, error messages and warnings likely to be encountered by the user; and
- in the case of error messages and warnings, there are to be unambiguous user instructions for subsequent action to be taken in each case.

Note:

1. This Unified Requirement is to be uniformly implemented by IACS Societies on ships contracted for construction on or after 1 July 2025.

2. The "contracted for construction" date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of "contract for construction", refer to IACS Procedural Requirement (PR) No. 29.

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(cont)**C6.3 Functional Requirements**

The lashing software is to be capable of calculating forces on containers and container securing equipment for any loading conditions for each container stack.

It is also to be capable of indicating the respective permissible values in order to assist the master in his/her judgement on whether the ship is loaded within the approved limits. The following parameters are to be presented:

- summary of ship particulars such as IMO No., length, and breadth;
- summary of loading conditions showing relevant input parameters such as draught and GM;
- stack and container positions;
- actual stack weights verified against permissible stack weights;
- relevant properties of securing devices, including permissible loads;
- accelerations and other external forces such as wind containers are exposed to;
- listing of all calculated forces on containers and container securing equipment, and evaluation of compliance of the calculated forces with the corresponding allowable values.

The container and lashing arrangements in each bay on deck and in holds are to be shown graphically.

The data are to be presented on screen and in hard copy printout in a clear and unambiguous manner.

A clear warning is to be given on screen and in hard copy printout if any of the allowable forces are exceeded.

In addition to the printout content, each page of the printout is to contain ship's identification, lashing software name and version number, date and time of the printout, and the title of the loading condition. The printout is to be paginated sequentially, and the total number of printout pages are to be shown.

Units of measurement are to be clearly identified and used consistently.

Incorrect data input by the users, such as negative draught values, are to be prohibited. An error message is to be prompted on screen and in hard copy printout in a clear and unambiguous manner.

C6.4 Test Loading Conditions

The lashing software is to be delivered with test loading conditions for selected stacks and bays covering applicable stowage patterns for containers of different dimensions contained in the Cargo Securing Manual, as per the Rules of the Society.

The test loading conditions and their results are to be permanently stored in the computer where the lashing software is installed and be protected against unintentional or unauthorized modifications and access.

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(cont)**C6.5 Approval of Lashing Software**

The lashing software is subject to approval by the Society and is to include:

- verification of type approval, if any;
- verification that the latest ship data has been used;
- verification and approval of the test loading conditions and their results;
- verification if requirements of C6.3 are satisfied;
- checking of proper installation, and verification of the instrument on board in accordance with the approved test loading conditions;
- checking the availability of the operation manual on board.

In case of modifications implying changes in the ship's design or container securing arrangement, the software is to be modified accordingly and re-approved by the Society.

Any changes in software version related to the container securing calculations are to be reported to and be approved by the Society.

Upon installation, the lashing software is to be verified with the approved test loading conditions in the presence of Society surveyor. It is to be checked that the operation manual for the lashing software is available on board.

Verification by the Society does not absolve the shipowner of responsibility for ensuring that the information supplied into the lashing software is consistent with the current condition of the ship and approved Cargo Securing Manual.

C6.6 Acceptable Tolerances

The accuracy of the computational results from the lashing software for the particular ship, on which the lashing software will be installed, is to be determined by using reference computation results deemed appropriate by the Society.

The tolerance of the accuracy of the results from the lashing software is to be below 1.0% of the allowable values. However, deviations may be accepted subject to review by the Society provided that there is a satisfactory explanation for the deviation and that there will be no adverse effects on the safety of the ship.

C6.7 Annual and Special Survey¹

At each annual and special survey, it is to be checked that the operation manual is available on board.

The lashing software is to be checked for accuracy annually by the ship's Master by applying the test loading conditions. If Society surveyor is not present for lashing software check, a copy of the test loading condition results obtained by this check is to be retained on board as documentation of satisfactory testing for the surveyor's verification at the next scheduled survey.

At each special survey this checking is to be done in the presence of surveyor.

¹ "Special Survey", "Special Periodical Survey", and "Renewal Survey" are used interchangeably by different Member Societies.

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C6.8 Other Requirements

The lashing software and its data are to be protected against unintentional or unauthorized modifications and access.

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