

INSTALLATION OF LAUTEX MARINE H-PANELS

- General:** Prior to start ceiling installation, it is recommended that the interior walls, ventilation ducts, piping lines and electrical cabling should be installed prior to installation of the LAUTEX ceiling system. The ceiling area should be measured and controlled on-site and compared to the ceiling plan drawing available, in order to avoid deviations.
- Marking:** The final ceiling height should be levelled and marked on the surrounding walls by using stretched lines or laser marker.
- Perimeter profiles:** After the marking, the perimeter L-list can be installed onto the walls on the correct levelled height. Thereafter the ceiling area should be divided and marked up longitudinally by means of marker lines, in order to accommodate the carriers at internal spacing not exceeding 1200 mm. The location of the first carrier from wall should not exceed 150 mm. (If carriers are dimensioned on the ceiling plan, then this spacing should be marked up).
- Hangers:** After marking of the support carrier lines, the vertical threaded hanger rods (M8) should be installed alongside with the marker lines, with 1000–1200 mm internal spacing. The upper end of the rods should be secured properly by welding to the steel deck above, or preferably, onto sides of the deck stiffeners, all in accordance with Classification Society's approval or as per Shipyard standards.
The lengths of the hanger rods should be controlled with the levelled ceiling height, using the already installed perimeter L-profiles as reference. Too long rods should be shortened to measure. Recommended level of the M8 rod is 100 mm above the underside level of the perimeter L-list, when using carrier lock N:o 64. (When using carrier lock N:o 58 the height should be 30 mm above this level respectively).
- Additional hangers:** If heavy, integrated type light fixtures or loudspeakers are to be installed into the ceiling, then it is recommended to provide additional hangers or even additional carriers, in order to accommodate the additional weight.
- Carrier locks:** After installation of all hangers, the LAUTEX carrier locks should be fastened accurately to the M8 hanger rod. Carrier lock N:o 64 to be installed by using lock connection piece N:o 66. (Carrier lock N:o 58 can be installed directly onto the M8-rod). The carrier locks to be adjusted and aligned to the appropriate level, starting from carrier lines adjacent to the walls, then aligning the remaining part of the ceiling. The level of the underside of the perimeter L-list should be used as reference.
- Carriers:** Prior to the final installation of the carriers, the panels' modular lines should be aligned and marked. The carriers to be fastened underneath the carrier locks by locating the carrier lock into the carrier slot and then secured by twisting the lock 45°. Prior to locking the carriers into position the internal alignment between the carriers should be controlled and adjusted if required, by using long installation panels or marker lines.
- Carrier splicing:** The carriers can be joined by using LAUTEX carrier connection splices N:o 115, which to be inserted inside the carrier ends and secured by screws. Alternatively the ends of the carriers can be secured to each other, side by side by overlapping ends, and locked to each other by bolts or crews, or by tack-welding.
- Alternative suspension System:** *Instead of using LAUTEX ordinary hanger-suspension system (with carrier locks and threaded rods) a basic sub-construction can be achieved by installing a welded suspension framework (consisting of vertical and horizontal 20x40x1,5 mm rectangular steel tubes). The horizontal sub-construction should be installed with an internal spacing of 1000-1200 mm and aligned in according to the perimeter edge lists on the walls, whereupon it can be fixed and secured by welding. The carriers can be installed directly underneath the sub-construction by using screws, tack-welding, or more flexible, by using LAUTEX carrier locks N:o 57, providing horizontal adjustment possibilities later on.*

- Installation of panels:** The H-panels should be installed underneath of the carriers, by using self-tapping screws drilled through the panel flange only. At walls the panel end should be installed under the L-profile by screws. In cases of panels longer than 1500 mm, it is recommended that two persons should make the installation, the one controlling the proper alignment of the panel and keeping the panel in position with both hands, while the other fastening the panel flange by screwing.
NOTE: The flange of one panel should be overlapping the flange of the next panel completely. Electric hand tools (or compressed air tools) are recommended to be used when installing. (During installation it should be avoided to get torn plastic or mineral wool or protection foil in between the carrier or the panels).
- Joining of panels:** H-panels normally are supplied with end bends. Panels can be joined longitudinally by using specially LAUTEX-designed connecting piece N:o 112, which clamp the two panel ends tight together after installation. The maximum distance of panel joint to nearest carrier should not exceed 300 mm.

Alternatively, extensions of several panels can be made by joining panel fields to each other by using transversal cover lists, such as LAUTEX Hat List N:o 52, which to be supported from above by one support carrier preferably with same alignment direction as the hat list. The cut open panel ends are covered and secured by the flange of the hat list.
- B-class Insulation:** The LAUTEX HT-panels of B-0 and B-15 fire-class are supplied with factory-installed rockwool of proper quality, which is approved by the classification society and the maritime authorities.
NOTE: This insulation should not be removed. If removed, then the fire integrity will be endangered.
- Additional rockwool:** For B-15 class ceilings LAUTEX supply additional rockwool stripes of proper quality and dimension, which to be installed alongside the walls above all the edge L-lists as well as above all carriers, simultaneously with the installation of the panels and prior to closing the ceiling, in order to secure and seal the fire insulation integrity of the ceiling. Hatch frames and lamps to be sealed with additional rockwool as well.
- Dismantling:** Any ceiling panel can be dismantled and taken down. When dismantling remove the screws of the panel that you want to dismantle and carefully pull down the panel. At the same time prevent the next adjacent panel from buckling by supporting it by one temporary screw.
- Securing the panels:** After final installation and adjustments, the panels should be secured into position by controlling that all crews are properly fastened and secured.
- Perimeter Z-profiles:** In case perimeter z-profiles are used to cover the ends of the panels, these can be installed underneath the perimeter-L-profile, after installation of the panels, by using self-tapping screws. Such screws can be supplied by LAUTEX and painted into the same colour as the panels. The optimal spacing between screws is 400 mm.
- Insert lists or clips:** The panel ends which have been cut, and which do not have the end bending, can be reinforced and secured to the perimeter profile by inserting short pieces of U-insert lists N:o 53 or Z-insert lists N:o 107 which to be pre-cut to proper length and to be placed inside the panel end inside the edge profile. The insert pieces maintain the flat shape of the panel bottom, which otherwise tend to bend upwards at the ends.
- Service hatches:** Regular access to the void space above the ceiling can be obtained by installing an integrated modular LAUTEX Service Hatch. The regular size is 600x600 mm but other modular sizes are also available. The hatches are normally provided with hinges and locks.

- Holes for lamps:** Lamps, down light fixtures, loudspeaker units, smoke detectors e.t.c. can be installed as integrated to the H-panel ceiling system simply by cutting or drilling necessary holes to the panel on-site. The holes have to be made prior to installing the panels, and the panel bottom has to be supported by a wooden board or similar underneath the panel, in order to avoid buckling or distortion of the panel. It is recommended that additional carriers are installed alongside or above of heavy fixtures which are installed as integrated to the ceiling.
- Handling:** The ceiling panels shall be handled with care, avoiding distortions or scratches during handling. During installation, the protective foil (if any) should be removed from the flanges only, leaving the panel bottom still protected. When all installation work is completed then the protection foil can be removed.
NOTE: Long panels must not lifted in the ends only. Therefore it is important to support the panel in the middle during lifting, and to lift the panel in a vertical position.
- Maintenance/cleaning:** Dust can be wiped off panels by using soft brush or cloth or a vacuum cleaner with soft brush. Remove possible sharp metal chips with care, avoiding scratches. Stains can be removed by using soft cloth and a water diluted soap solution.
NOTE: do not use acids or salty water!