

GENERAL INSTRUCTIONS FOR INSTALLATION OF LAUTEX MARINE CEILINGS

- General:** Prior to start of ceiling installations, it is recommended to study the LAUTEX Product Catalogue or to visit the web-sites of LAUTEX:
www.lautex.com
- 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:** If perimeter profiles are used, after the marking, the perimeter 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 carrier lines, the vertical threaded hanger rods (M8) should be installed alongside with the marker lines, with 800–1200 mm internal spacing. The upper end of the rods should be secured properly by welding to the steel deck above, or 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 lists (or marker lines) as reference. Too long rods should be shortened to measure.
- Additional hangers:** If heavy, integrated type light fixtures or loudspeakers are to be installed into the ceiling, or in case the ship will be operating in heavy seas, then it is recommended to provide additional hangers and even additional carriers, in order to accommodate the additional gravity force.
- Carrier locks:** After installation of all hangers, the LAUTEX carrier locks should be fastened accurately to the M8 hanger rod. Lautex carrier locks and connecting pieces should be used and 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 list should be used as reference.
- Carriers:** Prior to the final installation of the carriers, the modular direction lines of the ceiling products 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 90°. 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:** Carriers can be joined by using LAUTEX carrier connection splices, which slide inside the carrier ends and to be 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 vertical suspension can be achieved by installing a welded suspension framework (consisting of vertical and horizontal 20x40x1,5 mm rectangular steel tubes, or similar commercially available products).

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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 adjustment possibilities later on.

Installation of panels:	The LAUTEX ceiling panels should be engaged under to the clips of the carrier as per detailed individual instructions shown in the Product Catalogue.
Joining of ceilings:	When installing ceilings, the LAUTEX products normally are supplied with edge bends. The ceiling blades can be joined by using specially LAUTEX-designed joint clips, which clamp the end bends tight together after installation. Clean-cut butt seam extensions of narrow ceiling profiles can be joined to each other by using profile connection splices, which are placed inside the profile open ends, and thus guiding and securing the profile ends to each other.
Dismantling:	Most of the LAUTEX ceilings can be easily dismantled and taken down. When dismantling pull one edge of the profile that you want to remove towards yourself and release it from the carrier clip, whereafter release the other edge and take carefully down the ceiling blade. (Avoid bending of products!)
Perimeter Z-lists:	In case perimeter Z-lists are used to enclose the perimeter edges of the ceilings, these can be installed underneath the perimeter-L-list, after installation of the ceiling products, by using screws supplied by LAUTEX, painted into the same colour as the panels. The optimal spacing between screws is 400 mm.
Perimeter U-lists:	In case perimeter U-lists are used to cover the perimeter edges of the ceilings, these should be installed underneath the perimeter-L-profile, if possible prior to the installation of the ceiling profiles, by using screws installed from inside of the u-profile. The optimal spacing between screws is 400 mm.
U-insert lists or clips:	In case the ceiling blades have to be cut to shape in order to fit the perimeter edge on-site during the installation, and in case the ceiling blade edge width is 200 mm or more, each cut ceiling blade should be secured to the perimeter list by inserting short pieces of u-insert lists or pre-cut spring clips inside the u-profile or z-profile. The insert pieces maintain the even shape of the ceiling blade 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 access hatch. The size of access hatch can be modular and depending on the size of the ceiling blades. The hatches are normally provided with hinges and locks
Adapter plates:	Integrated adapter panels for down-light fixtures and loudspeakers can be supplied as integrated to the ceiling system by using special modular adapter plates. The adapter plates can be installed to the carriers the same way as the ceiling blades, as described above, and secured by self-tapping screws.
Care & Maintenance:	The LAUTEX ceilings shall be handled with care, avoiding distortions or scratches during handling. The protective foil should not be removed prior to the installation of each individual ceiling profile. Long ceiling blades can be bent if lifted in the ends, or in the middle only. Therefore it is important to support the ceiling blade in the middle and in the ends during lifting. It should be avoided to lift a wide ceiling blade in a horizontal position, why the ceilings should be lifted in vertical position.
Cleaning:	Dust can be wiped off the ceiling blades 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.