
STRONG POINTS of Syncrolift AS Shiplift & Transfer Systems

Please find hereafter a list of features and advantages of the Shiplift & Transfer Systems as designed and built by Syncrolift AS.

Experience

1. Syncrolift AS is the most experienced supplier of shiplifts and transfer systems worldwide, with in excess of 260 Syncrolift® shiplifts supplied throughout the last 55 years. Since 2012 – Syncrolift has won 75% of all shiplift contracts worldwide.
2. Syncrolift AS has, with support by Bosch Rexroth BV (partner for the drive & control systems and supplier of world's largest shiplift built at MV Werften, Stralsund, Germany) developed a technological high standard and safe shiplift system based on the available modern technology and the lessons learned over the past 50 years.
3. Syncrolift AS is an experienced designer/supplier of shiplifts as well as transfer systems. Customers will deal with only one company for turn-key shiplift & transfer system, meaning single point of contact and responsibility without any potential interfacing conflicts between shiplift and transfer system supplier.

Safety & Reliability

1. Syncrolift AS uses rigid platform technology. In case of a wire rope failure a rigid platform will not fall apart due to its longitudinal stiffness, being completely welded in both ends. Longitudinal beams for an articulated platform are welded in one end and only hinged in other end.

In case of wire rope failure for rigid platform – the welded longitudinal beam will avoid "hold" Main Transverse Beam from falling down.

In case of wire rope failure for articulated platform – the hinged longitudinal beam will not avoid Main Transverse Beam from falling down.

In case of one wire rope failure in the hinged end, this particular element will lose the support of all four wire ropes, which may result in a consequential failure of other wire ropes and winches due to overload. A number of accidents with articulated platforms over the recent years have convinced Syncrolift AS to only use rigid platforms as it has more safety. For this reason Lloyds also has introduced a Lloyds distribution factor (0,83 for rigid, 0.67 for articulated) to build in extra safety margin on required winch capacity for the same Nominal Lifting capacity.

A rigid platform as designed and built by Syncrolift, consists of sections which are pinned and bolted together in such a way that the platform will act as rigid structure. In case of a wire rope failure, the neighbour winches of the failing winch will take over the load due to the longitudinal stiffness of the platform. In case of a wire rope failure the winches will be stopped and the mechanical brake and ratchet and pawl system will automatically being activated to ensure a safe situation.

2. In Syncrolift's standard design the platform will not collapse, and the vessel will not suffer any damage in case of a wire rope failure. The platform may be deformed but the vessel will not crash.
If no special design measures will be taken, the salvage of the vessel and platform will require some time due to fact that special measures have to be taken with special equipment to lower the platform and vessel safely back into the water.
Syncrolift even adjusted the design to ensure that the platform and vessel not only will be kept safe in case of a wire rope failure, but also that the platform and vessel can still be lowered safely into the water directly after the failure took place. Syncrolift has added some extra steel in the platform longitudinal beams to prevent platform deformation in case of a wire rope failure.
3. In case of a winch failure, the specific winch can be dis-abled and wire rope can be quite easily disconnected, allowing the platform and vessel to safely lowered into the water
4. Syncrolift winches are in fact fitted with a "triple" brake system: one mechanical brake mounted on the gear box, one mechanical brake on the drive motor (ratchet & pawl system mounted on the winch drum / foundation optional) and the asynchrone drive motor, which is able to hold the platform as it able to produce maximum torque at zero speed (where synchro motors do not produce any torque and always require a brake system)
5. Syncrolift shiplift winch system is making use of variable speed electromotors which make it possible to stop/start/accelerate/decelerate the platform smoothly. Platform movement will not be subject to bumpy jolty or intermittent movements as with synchro motors or chain jacking systems.
6. The use of variable speed motors makes it possible to distribute peak loads over the winches, preventing/limiting high peak loads into the ship's hulls during docking.
7. As many yards are making use of divers during docking the vessels for precise blocking and checking if blocking remains in place, a low lifting speed before the vessel is touching the blocks is an important feature.
8. To maintain a high reliability of the shiplift system, Syncrolift is applying European make mechanical components and electrical components are of class "A".

Operational features

1. The use of frequency-controlled electromotors is making it possible to lift the platform and vessel at variable speed. This feature helps operator and divers during the critical phase of the yachts touching the blocks.
2. In case of a "heavy" vessel with high weight concentrations, the variable speed winches and control system are able to distribute peak loads over the winches, which may make it possible to lift the vessel, which may not be able to be lifted with synchro motor driven winches. Once the platform has arrived at quay level, the "fluid" bed transfer system can be driven onto the platform and take over the load distribution from the winches while the platform will be stretched prior to be able to be locked.
3. A second option to dock "heavy" vessels is using the "fluid" bed transfer system on the platform during docking. The transfer system operating in "fluid" mode is able to distribute

loads during the docking as well as during the transfer from shiplift platform to the berths. In this case the platform can be kept straight and can be locked immediately when arriving at quay level. Syncrolift bogie transfer system is hydraulically interconnected in a 3 groups "fluid" bed mode to ensure a smooth transfer of the vessels from shiplift to land and vice versa. The hydraulic bogies are able to absorb high deflections during transfer, keeping the ships safe from high peak loads. Rigid transfer system can cause high peak loads to ships hulls during transfer, with risk of damage and misalignments of the propulsion systems.

4. Syncrolift transfer bogies are designed for being submerged and can be used on the platform in "fluid" bed mode during docking of relative "heavy" vessels, which normally may cause unacceptable peak loads during docking. Peak loads on platform and into the ships hulls can be minimized by redistributing the loads by using the fluid bed mode of the bogie transfer system. The fluid bed bogie system not only ensures safe docking and transfer of the vessels, but also makes it possible to dock vessels which are normally not able to be docked without use of a fluid bed system.
5. The use of variable speed electromotors driving the shiplift winches ensures that the speed of the motors at starting and at stopping is controlled in accordance with inclined sinus and without an increased starting current. This results in a relative low demand to the electrical power supply (synchro motors require high starting currents, which can have a significant impact on the required electrical power supply).
6. The lifting and lowering speed will be designed for full loaded condition (20 cm/min). The drive system allows to lift and lower the platform with an increased speed at reduced load (until 40 cm/min at zero load). The system chooses the optimum speed by itself in unloaded condition. The platform speed will be continuous and not intermittent as with chain jacking systems.
7. It is also possible to bring the platform under list or trim. List can easily be generated by operating only the starboard or portside winches. Trim is created by controlling the speed of each winch pair. Trim and list are controlled automatically by the control system. Trimming the platform is specially being used for vessels with a non-horizontal keel or vessels with a damaged keel.
8. The winches can be controlled also individually from the control room for maintenance purposes.
9. At Syncrolift's rigid platform, trestles can be placed in longitudinal direction at any location on the platform, where at an articulated platform the trestles usually need to be placed symmetrically on the platform sections (cannot be positioned on the hinge locations). In case a shipyard needs to dock a special vessel, which may require non-equal trestle distances, this vessel can be parked directly opposite of the shiplift. Especially with naval vessels / megayachts with sonar domes, stabilizers etc. the yard is more flexible with a rigid platform and is capable of optimizing the vessel support with the flexibility positioning trestles at any location.
10. Syncrolift platform can be equipped with side locking at the winches to ensure a smooth side transfer to both sides of the platform.
11. Platform end is fitted with end locking system to ensure a smooth transfer in longitudinal direction from shiplift to land.
12. Platform can be designed for direct docking on the platform.

13. Platform can be designed with steel deck and drains around the platform deck, for environmental friendly works on the vessel while standing on the platform.

Maintainability

1. Syncrolift winches are equipped with fully enclosed planetary gear boxes fitted inside the winch drums. The winches therefore have no open gears and no dirt, sand, grit, water can enter the gears. This concept resulted in very low maintenance costs (just exchanging gear box oil every 3 years) and a long lifetime of the winches.
2. By using frequency-controlled electromotors, the winches and platform are always stopped first, before the brakes are being activated. This will result in very low maintenance on the brakes.
3. The platform is modular built up and consisting of sections. The sections are interconnected by pins (hydraulically pressed into the interconnecting holes) and bolted. For future platform refurbishment each platform section can easily be dismantled and lifted to site for repainting. Other sections can remain in position. Shiplift with articulated platform do not allow for section by section disassembly as all sections are hinged and require a support at one side.
4. Platform can be locked at a service position which is usually well above High water level. Locking the platform service level will enable the maintenance crew to safely carry out inspections and maintenance activities. A number of wire ropes can be safely exchanged, and all winches can safely be operated while the platform is locked.

Maintenance, Service and Operational Support

1. Syncrolift is able to provide direct online support to the local operator or maintenance crew by using a direct VPN internet connection with the control system.
 2. Syncrolift is applying mainly standard commercial of the shelf components which are world-wide commercially available. Syncrolift of course is able to provide all its customers with spare parts, but customers will not fully depend on Syncrolift and are able to buy the standard commercial components directly from the suppliers if required. Other shiplift suppliers are using specific parts which can only be obtained through the shiplift suppliers' network.
 3. Syncrolift has a dedicated and experienced service team to assist the shipyards by providing maintenance support and additional training. Syncrolift is capable to enter into a customized maintenance contract for x years with the shipyard which matches the shipyard's needs.
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