



Auto-mooring

The reduction of both fuel consumption and the turnaround time of ships in port are key drivers for ferry operators. With that in mind, the TTS auto-mooring system has been developed to significantly reduce the time, cost, labour and risks associated with traditional methods of mooring with ropes.



Reduced time, cost and risk

Designed to reduce time, cost and risk, the auto-mooring system replaces the use of ropes or wires when mooring a ship, yielding significant benefits in terms of safety, economy and the reduction of environmental impact.

The automation itself is either controlled directly from the ship's bridge or from the quayside by an operator with a joystick-operated control panel.

The auto-mooring process secures the vessel tightly against the fender line and, as ropes are not required, the risk of injury to workers aboard ship and ashore is eliminated.

The system's load monitoring and alarm functions relay information to operations staff in real-time and the safety features ensure that the vessel remains securely moored even during power cuts or loss of control signals.

Auto-mooring requires only one operator and consumes little electric power. Electricity consumption is virtually zero once the vessel has been secured. The system secures and releases the ship quickly, so delays caused by waiting for available mooring crews are eliminated.

Time in port is thus reduced, enabling more efficient utilization of the ship and berth and allowing the vessel to reduce speed at sea. Emissions in the port environment are diminished and there is no wear on ropes, paint or fenders.

The TTS range includes grip-based auto-mooring systems as well as a semi-automatic bollard – a remotely controlled device that uses wires tightened by the vessel's deck winch and designed especially for short-term mooring.

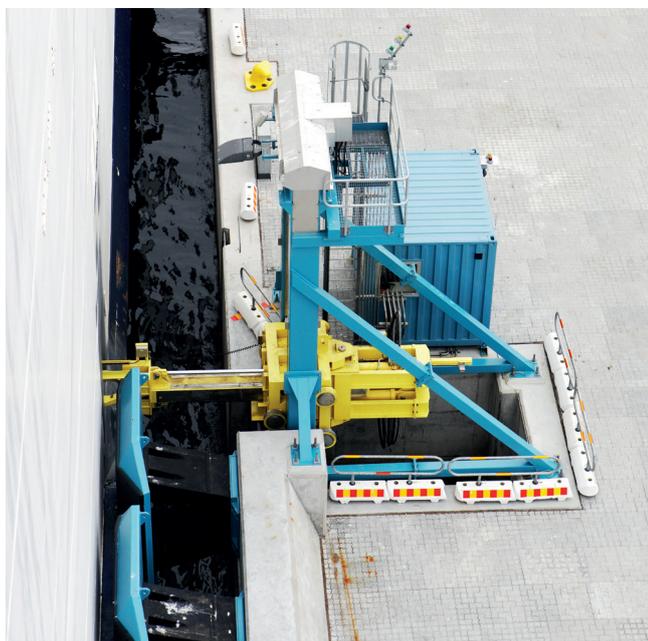
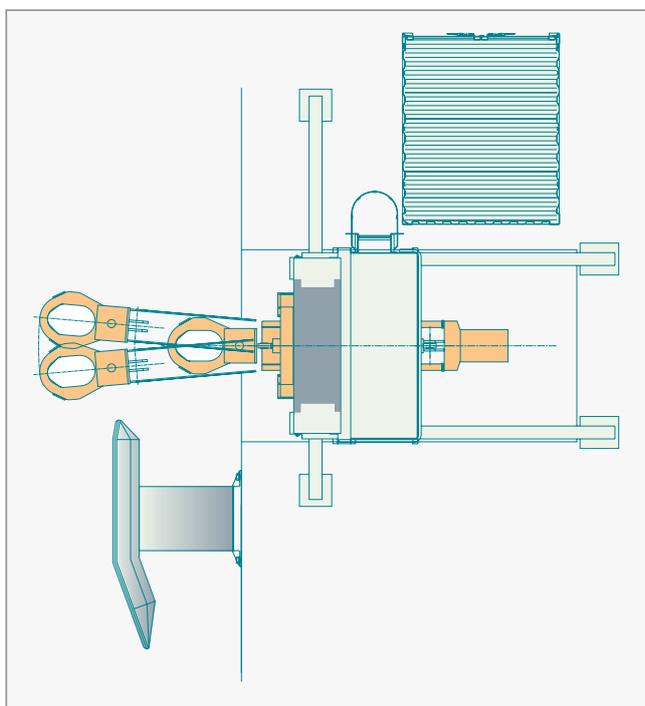
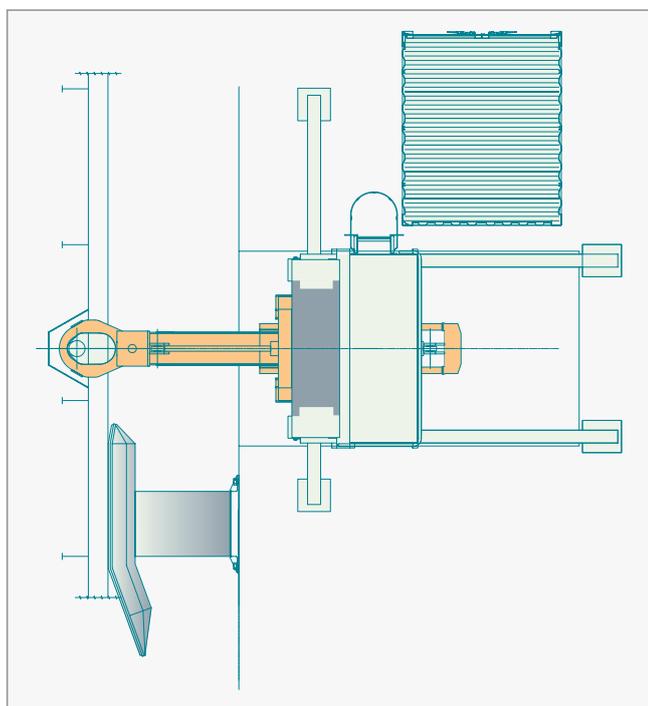


Grip-based auto-mooring

The TTS grip-based auto-mooring system consists of a vertical guiding mechanism, a wagon including an eye and hydraulic cylinders, electric control system, hydraulic system and a control panel. It can be designed with a mooring force to suit varying customer requirements (a typical example is 1000kN).

The system requires a bollard and recess to be fitted onboard the vessel.

An operating panel with an alarm function is easily fitted on the bridge of the vessel as operation is usually controlled onboard.



Operating procedure

Once the vessel is in position, the operator activates the mooring procedure by pushbutton.

The wagon travels to its programmed position, and the beam with the eye is pushed towards the recess on the vessel. The wagon then moves downward over the vessel's built-in bollard, after which the beam is retracted and the mooring force activated, thus securing the vessel. The wagon will then follow the movement of the vessel. The alarm system is activated at the time of the vessel's securing.

When the vessel is ready to depart, the operator releases the mooring by pushbutton on the control panel. The beam is pushed back toward the recess and the wagon travels upwards to release the bollard. Once the beam has returned to its retracted position, the vessel can depart and the wagon reverts to its parked position.

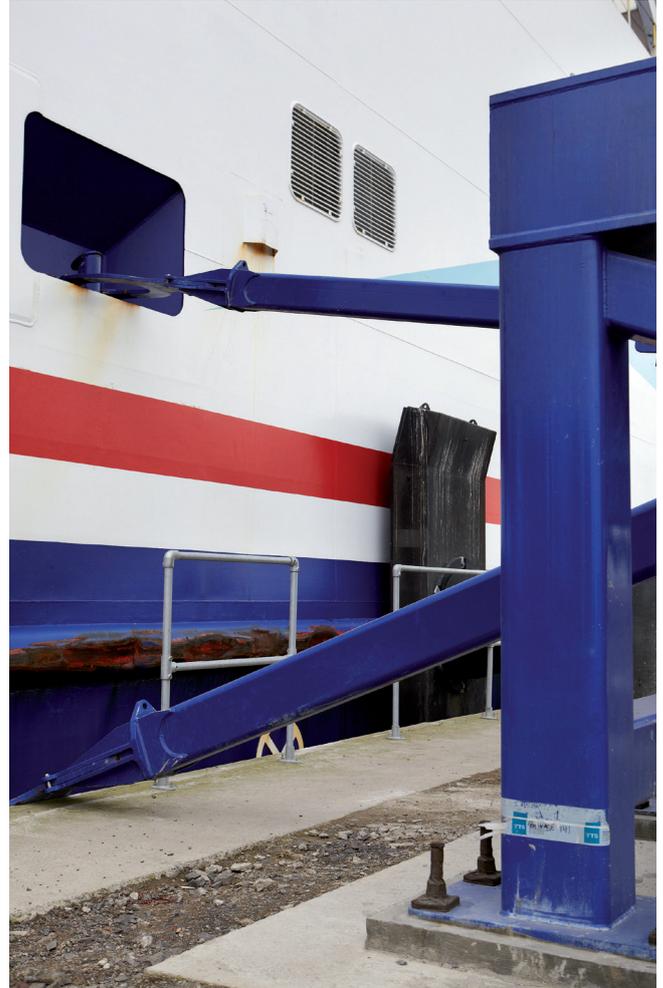
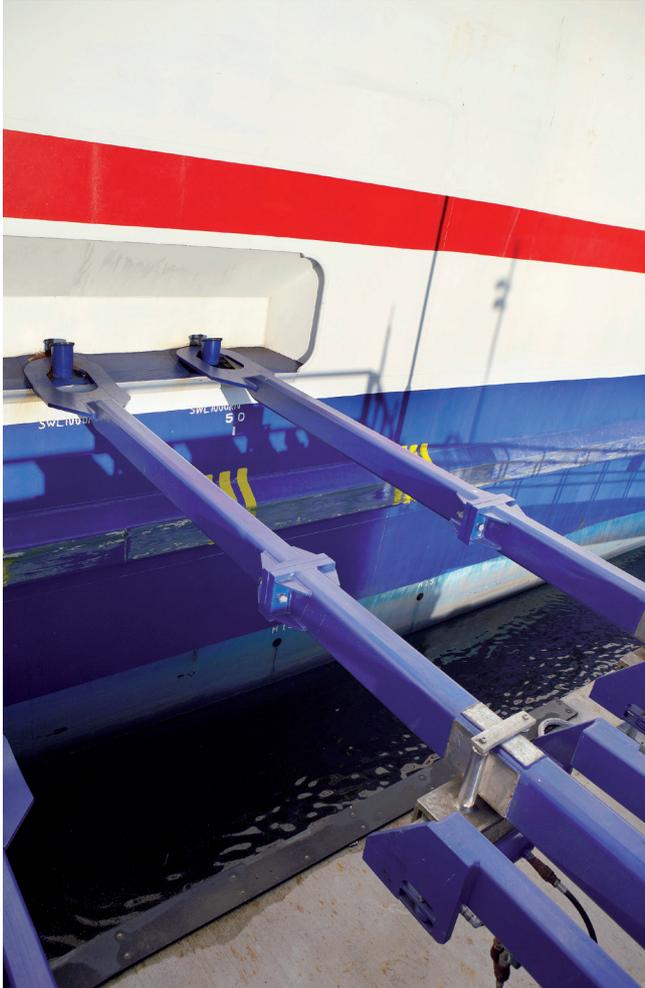
Semi-automatic mooring – rod type

Compared to traditional arrangements, operations are carried out significantly faster using semi-automatic moorings. The TTS semi-automatic mooring unit can be supplied with a mooring force to suit any customer requirement.

The unit is built to hold the ship close to the fenders with a mooring force adjusted to suit the wind and

environmental conditions at any given time.

The system simply requires a bollard and recess to be fitted to the vessel. An indicator panel with an alarm function can easily be fitted onto the vessel's bridge for crew to fully monitor the safe mooring of the ship.



Operating procedure

Once the vessel is in position, the operator uses a joy-stick to guide a mooring arm to connect with the bollard in the ship's side. When the mooring arm is in place the operator switches to auto-mooring mode. The mooring unit then follows the ship's movements with the tidal and draft variations, at the same time maintaining a close distance from the fenders.

The alarm system is activated at the time of the vessel's securing. When the vessel is ready to depart, the operator releases the mechanism, again using the joy-stick.