



External doors

External doors are used for a variety of purposes including cargo or passenger access, pilot entry or access for bunker hoses. Arrangement of external doors is usually of side-hinged, top-hinged or vertical sliding type. For easy installation, doors are often delivered as a unit including the surrounding ship structure.

TTS

Side-hinged doors

Doors in the side shell can be seen on almost every type of ship and are used for various duties, the most common being for passengers, pilot entry, and for bunker hoses.

Side-hinged doors can be arranged to open inwards or outwards, and can be built in either one or two sections. Opening and closing is by manual, hydraulic or electric means. The door is cleated by a cylinder fitted with an internal mechanical lock for secure fixing.

If required, a small pump kit can be simply mounted onto the door itself with a minimum of hydraulic piping.

External side-hinged doors are equipped with TTS rubber gaskets to ensure the highest standards of weather-tightness, according to the latest rules.



In addition, an LED indicator system on a local panel shows the open, or closed/cleated status. A cable link to a remote panel on the bridge is also provided.

Shell doors can be built of steel or aluminium plate and profiles, using classification society-approved materials, and are designed to fit flush with either flat or curved hull sections.

Generally, such doors are delivered as complete units, including their own coaming and a part of the surrounding plate with any necessary stiffeners welded in position. This makes it possible to fit a door into a hull quickly and efficiently.

Top-hinged doors

The TTS top-hinged door provides an efficient and safe way for vehicles to enter the vessel. Similarly, smaller top-hinged doors are used as passenger doors on ferries and cruise ships.

A top-hinged door is used where there is no problem with free height. The advantage over side-hinged doors is that the door does not take up space at the side of the opening. When in its fully open position an external top-hinged door ensures that the full free height is always available under the door.

The top-hinged door is



lifted to its open position by two hydraulic cylinders, located one on each side. Locking is effected by hydraulic wedges and, for some arrangements, combined with specially-designed hinges which lift it vertically before it opens, enabling auto-cleats to be used for fastening it shut.

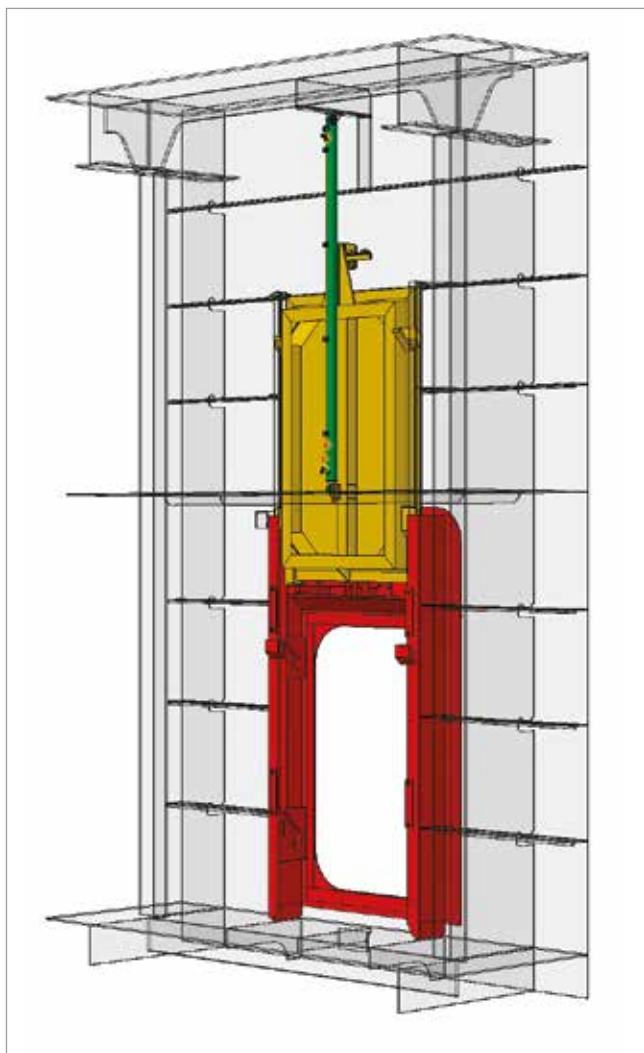
Generally small doors, such as passenger doors, are delivered as a complete unit, including the coaming, enabling rapid and efficient installation.

The door is made weathertight by a flat steel bar compressing a rubber seal. If required, the doors can also be supplied with built-in fireproofing and insulation.

The door's movement is controlled from a stand positioned nearby. The control equipment includes an LED display indicating the locked or unlocked status of the door. If required, a remote display can be installed on the bridge to indicate when the door is fully secured and cleated.



Vertical sliding doors



TTS vertical sliding doors are designed to be located on the inside of the shell plating. The door moves by sliding up and down within guides and, as the door approaches its lower, closed position, the guides direct it diagonally so that its outside plating sits flush with the ship's shell.

Opening and closing of the door is achieved hydraulically, with the most common method employing a jigger winch assembly. An alternative system is available, using a direct-acting cylinder.

Whichever operating system is used, the door is

safely secured in both its open and closed positions by means of hydraulic wedges fitted to the ship's hull.

Fireproofing and insulation can also be built in if required.

Shell doors are designed to fulfil the latest classification society rules, with weather-tightness being effected by a rubber gasket.

Generally, TTS vertical sliding doors are supplied as complete units, including the guides and coaming as part of the side shell. This enables quick and easy installation for shipyards. To reduce hydraulic pipe runs to a minimum, a small hydraulic

power pack can be located adjacent to the door, further simplifying installation.

Operation of the door is effected through manoeuvring valves which may either be manually operated or automatically controlled by means of push buttons as required.

An operating stand is positioned close to the door and incorporates a panel with an LED display to indicate the locked/unlocked status of the door. If required, a remote display can be supplied for installation on the bridge to indicate when the door is fully secured and cleared.

