



## Slewing ramps

The TTS wire-operated slewing ramp offers considerable advantages in cargo access. Its main benefit is that it will allow the vessel to berth in the normal manner aft or alongside a quay without the need for dedicated shore facilities. The slewing can be of one or two side slewing, starboard mid and portside.

## SLEWING RAMPS

Heavy loads can be accommodated over the TTS slewing ramp, whose operating system can be designed to absorb most of the weight of the ramp, thus keeping the pressure on the quay to quite low levels and avoiding any damage to its surface. As no specifically strengthened quay areas are required, ships equipped with a slewing ramp can operate at virtually any port, giving full flexibility of route.

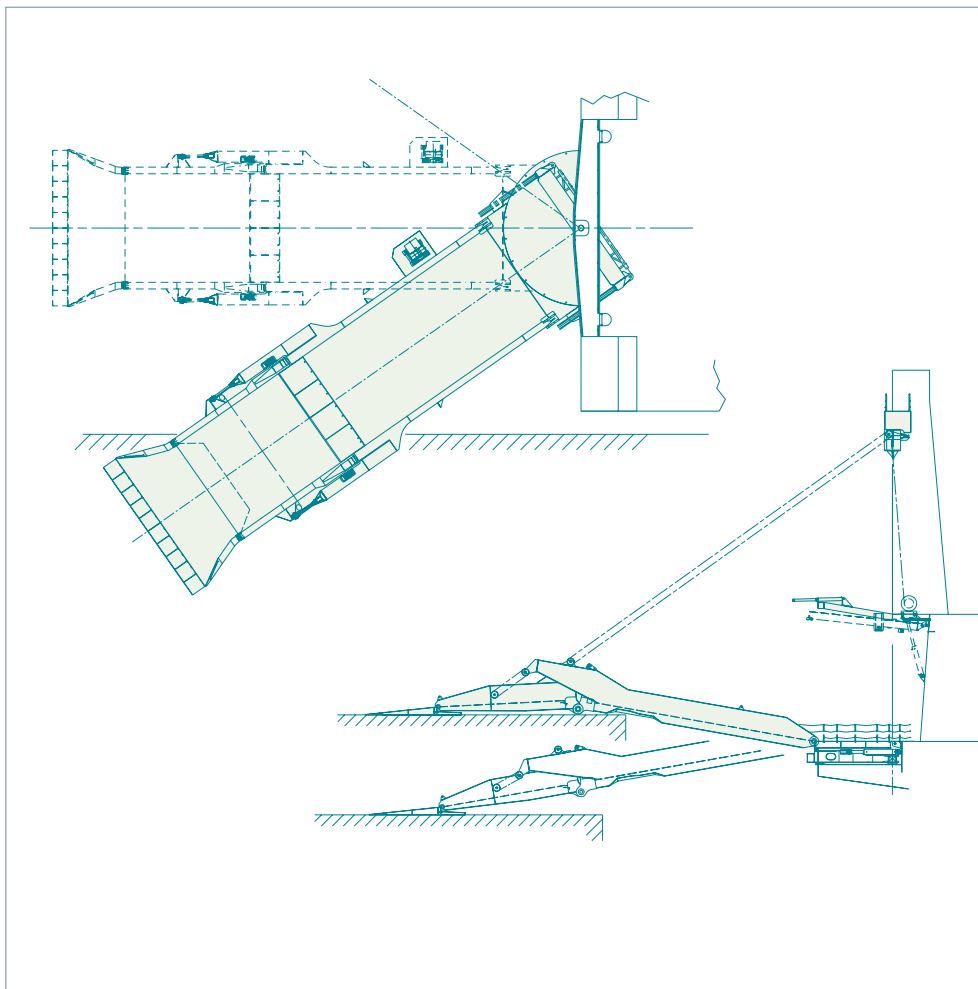
TTS wire-operated slewing ramps are arranged in three sections plus the turntable section and can cater for a range of quay heights above and below the deck attachment datum point. The three sections are designed so that in normal working conditions the slope will not exceed 1:8 (7.1 deg) but in extreme conditions the slope limit can be increased to 1:6 (9.5 deg). The ramps can be designed and built in all sizes and, where

required, slewing units operated by the main winches or by direct hydraulic cylinders in the turntable can also be supplied.

The ramp is of open construction between two longitudinal girders, one on each side. Hydraulically-operated buttressing cylinders are located between the inner and outer sections, at the longitudinal side girders, and act as adjustable buttresses to accommodate the adjustments necessary for the different quay heights.

The outer, third section of the ramp incorporates flaps for the transition between ramp and quay, and the whole structure is designed with in-built mechanical flexibility. This ensures that the whole of the outer section will rest on the quay even with the ramp empty and the ship listing approx.  $\pm 3$  deg.

The operating winches may be set in self-tensioning mode in which they automatically



maintain the tension on the wires and thereby control the pressure of the ramp on the quay.

Deployment of the ramp takes 15–30 minutes depending on its size.

◀ Ramp shown slewed to starboard. Ramp can also be slewed to port side