

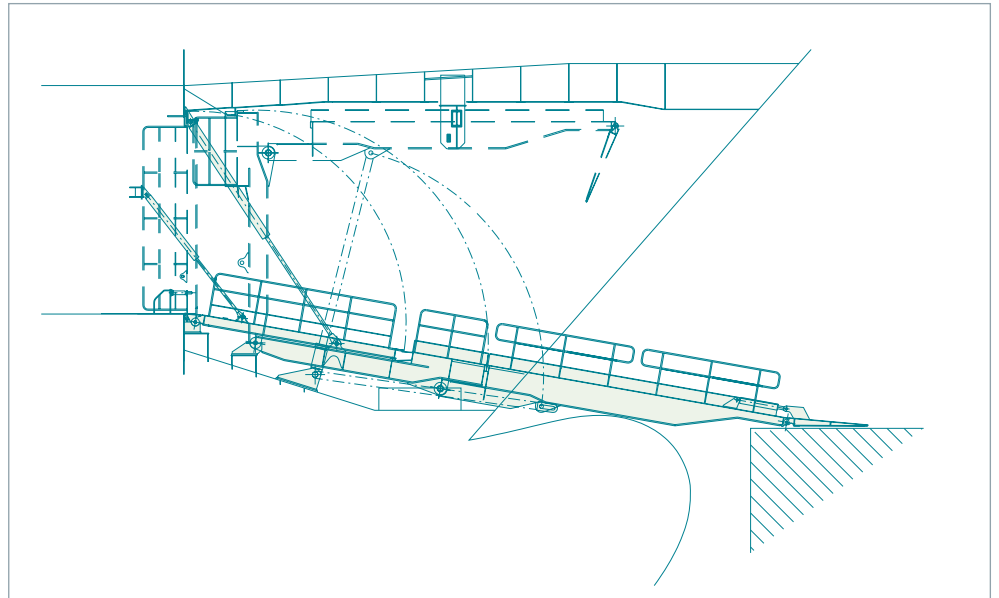


## Folding frame

With a TTS folding frame bow ramp arrangement the collision bulkhead door can be completely separated from the rest of the ramp. This implies that no part connected to the door will extend forward of the correct position for the collision bulkhead. A steel frame is positioned forward of the collision bulkhead door and controls the folding movement through hinge connections with the outer part of the ramp. In the fully out-folded position the frame, together with the outer section, forms the load carrying structure.

The door is opened and put down as a flap on the frame. The TTS Folding Frame arrangement is a simple and cost-effective solution to ensure that a bow ramp/door will fulfil the SOLAS rules.

1. Door and ramp section closed and totally separated in collision-safety mode. In the event of frontal collision the ramp section acts as a bumper to transfer forces horizontally to the upper deck.
2. Bow door open, allowing outward opening of the ramp section towards the quay.
3. Ramp section in position, resting on the quay. The door section is opened and extends outwards to stop and rest on the ramp section (frame section).
4. Door and ramp section fully deployed, acting as one ramp with accessibility to ship or quay.



▲  
General arrangement of the folding frame in an open position

\* Patent Sweden No. SE 507496  
 Patent Worldwide PCT/SE96/00433  
 European Patent No. EP96910265.6  
 Patent Japan JP3686677  
 Patent Norway NO317091

