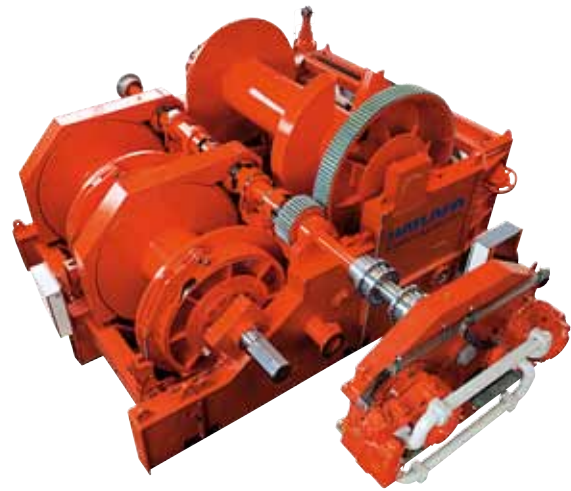


## TOWING WINCHES



### STRUCTURAL FEATURES:

- Single and double drum in waterfall design or linear design

### Driving systems for HATLAPA towing winches:

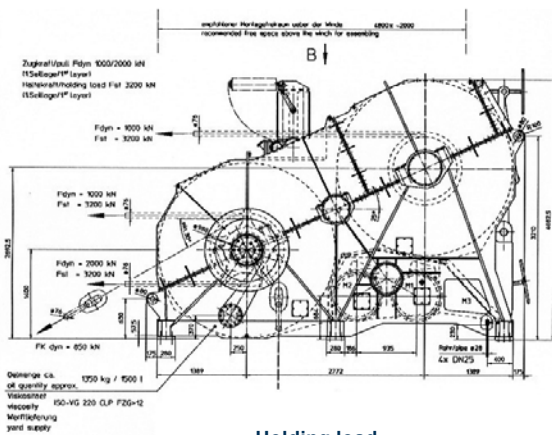
- Low-pressure hydraulic drive type HATLAPA
- High-pressure hydraulic drive
- A.C. electric drive
- Quick release function
- Torque transmission by means of friction clutch
- Towing drum with spooling device
- The design corresponds to the "IMO Guidelines for Safe Ocean Towing" as well as to the regulations of all internationally recognised classification societies
- Load measuring device
- Rope speed and length measuring device
- Tailor-made to customer requirements



**TOWING WINCHES**



**Example:** Double drum towing winch in waterfall arrangement 2000/3000 kN



**Holding load**

Fst: 3200 kN (1st layer)

**Pull**

F dyn: 1000/2000 kN (1st layer)

FK dyn: 850 kN

**Features**

- Electro-hydraulic, remotely-controlled friction clutches
- Electro-hydraulic, remotely controlled spindle band brakes
- Spooling device

**ADVANTAGES:**

The exclusive use of friction clutches guarantees that during every possible towing situation the towing drum can be disengaged without endangering the operative driving components.

For towing winch capacities of more than 600 kN with the corresponding speed the use of double low-pressure drives ensures sufficient capacity reserves in case of failure of one motor, thus guaranteeing continuing operation.

For example: By installation of an additional planetary gear stage it is possible to change the direction of rotation of the drum and simultaneously increasing the pull to carry out anchoring operations.

The winch design is adapted to the geometry of the tug, either in waterfall or adjacent arrangement to allow a free view on the drum and rope for the operator from the bridge during all towing operations.

For the possible special use of the towing winch for escorting operation the necessary steps have been taken, which fulfill the requirements of the classification societies for an auto-tensioning winch system.

In case of sudden overload due to dynamic seaway conditions, the winch slips and later the original rope length is automatically re-set.

Illustrations, technical data, weights and dimensions are subject to alteration without previous notice.