Steering gear

HATLAPA RAM type POSEIDON

Structural features
- Electro-hydraulic driven
- 4 cylinders
- 2 rams
- Rudder stock diameters 250 - 500mm
- Working torque 160-1280 kNm
- For 2x 35° or 2x 45° rudder angle
- Hydraulic pumps of fix displacement (Poseidon 1300 variable displacement)
- Incorporated electro hydraulic drive and rudder carrier with shaft sealing
- Compact design, no assembly work at Shipyard
- Conical hydraulic shrinkfit connection to rudder stock (keyway on demand)
- Installation on steel chocks
- Fastening by stopper or reamer bolts
- In emergency case easily separation and operation with 2 cylinders (manually, automatically)

On request we can deliver
- Motor starters
- Alarm
- Automatic isolation
- Rudder control
- Rudder angle indicator systems
- etc.

Special designs
- Available on request
### Technical data

<table>
<thead>
<tr>
<th>Type</th>
<th>150</th>
<th>250</th>
<th>400</th>
<th>500</th>
<th>700</th>
<th>900</th>
<th>1300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working torque* at 35° [kNm]</td>
<td>161</td>
<td>252</td>
<td>413</td>
<td>525</td>
<td>730</td>
<td>900</td>
<td>1280</td>
</tr>
<tr>
<td>Max rudder stock diameter [mm]</td>
<td>250</td>
<td>300</td>
<td>340</td>
<td>380</td>
<td>420</td>
<td>460</td>
<td>500</td>
</tr>
<tr>
<td>Length L [mm]</td>
<td>2175</td>
<td>2560</td>
<td>2800</td>
<td>2900</td>
<td>3260</td>
<td>3470</td>
<td>3980</td>
</tr>
<tr>
<td>Width B [mm]</td>
<td>1050</td>
<td>1110</td>
<td>1300</td>
<td>1400</td>
<td>1500</td>
<td>1580</td>
<td>2280</td>
</tr>
<tr>
<td>Height H1 [mm]</td>
<td>820</td>
<td>1010</td>
<td>1050</td>
<td>1050</td>
<td>1150</td>
<td>1200</td>
<td>1500</td>
</tr>
<tr>
<td>Depth H2 [mm]</td>
<td>225</td>
<td>300</td>
<td>310</td>
<td>350</td>
<td>400</td>
<td>430</td>
<td>385</td>
</tr>
<tr>
<td>El. Motor output at 50/60 Hz** [kW]</td>
<td>2 x 9.5</td>
<td>2 x 14</td>
<td>2 x 23</td>
<td>2 x 29</td>
<td>2 x 37</td>
<td>2 x 46</td>
<td>2 x 61</td>
</tr>
<tr>
<td>Oil charge (approx) liter [l]</td>
<td>110</td>
<td>200</td>
<td>300</td>
<td>340</td>
<td>370</td>
<td>460</td>
<td>620</td>
</tr>
<tr>
<td>Weight [kg]</td>
<td>2200</td>
<td>2300</td>
<td>3450</td>
<td>4800</td>
<td>5050</td>
<td>7000</td>
<td>9150</td>
</tr>
<tr>
<td>Admissible axial / radial load on rudder carrier [kN]</td>
<td>423/690</td>
<td>600/900</td>
<td>750/1150</td>
<td>750/1150</td>
<td>1700/2100</td>
<td>1800/2100</td>
<td>2500/2100</td>
</tr>
</tbody>
</table>

* at working pressure  
** according to IEC 92-204: duty S 6-25%.

### Features

- Pump is switched on (bridge panel, starter cabinet)  
- Without a control signal the directional valve is in the neutral (middle) position  
- According to the control signal the directional valve is switching in the working position  
- The hydraulic oil will delivered to two cylinders (red)  
- The ram is getting out and the oil of the opposite cylinder will be delivered back to the pump (blue, close-loop)  
- The to and fro going movement of the ram will be transferred via the ram pin and the sliding block into a rotating movement of the tiller

MacGregor shapes the offshore and marine industries by offering world-leading engineering solutions and services with a strong portfolio of MacGregor, Hatlapa, Porsgrunn, Pusnes and Triplex brands.

**MacGregor is part of Cargotec (Nasdaq Helsinki: CGCBV).**

Published by MacGregor. Copyright © MacGregor April 2016. All rights reserved. No part of this publication may be reproduced, stored, photocopied, recorded or transmitted without permission of the copyright owner.

MacGregor Germany GmbH & Co. KG  
hatlapa.info@macgregor.com  
www.macgregor.com