<table>
<thead>
<tr>
<th>DN Nominal pipe diameter</th>
<th>Medium</th>
<th>Pipe material</th>
<th>Sea-water Pump side</th>
<th>Fresh water</th>
<th>Lub. oil</th>
<th>MDO</th>
<th>HFO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>suction delivery</td>
<td>mild steel</td>
<td>mild steel</td>
<td>mild steel</td>
<td>mild steel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>steel galvanized</td>
<td>both</td>
<td>succion</td>
<td>delivery</td>
<td>succion</td>
<td>delivery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Albrass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 m/s</td>
<td>1.0</td>
<td>1.4</td>
<td>-</td>
<td>1.5</td>
<td>1.5</td>
<td>0.6</td>
<td>1.0</td>
</tr>
<tr>
<td>40 m/s</td>
<td>3.5</td>
<td>4.9</td>
<td>-</td>
<td>5.2</td>
<td>5.2</td>
<td>2.1</td>
<td>3.5</td>
</tr>
<tr>
<td>50 m/s</td>
<td>12</td>
<td>1.6</td>
<td>-</td>
<td>1.7</td>
<td>1.7</td>
<td>0.7</td>
<td>1.2</td>
</tr>
<tr>
<td>65 m/s</td>
<td>10.1</td>
<td>14.0</td>
<td>-</td>
<td>14.8</td>
<td>14.8</td>
<td>6.2</td>
<td>10.9</td>
</tr>
<tr>
<td>80 m/s</td>
<td>1.5</td>
<td>2.0</td>
<td>-</td>
<td>2.1</td>
<td>2.1</td>
<td>0.8</td>
<td>1.5</td>
</tr>
<tr>
<td>100 m/s</td>
<td>16.7</td>
<td>22.2</td>
<td>-</td>
<td>23.3</td>
<td>23.3</td>
<td>8.9</td>
<td>16.7</td>
</tr>
<tr>
<td>125 m/s</td>
<td>7.5</td>
<td>36.1</td>
<td>-</td>
<td>37.8</td>
<td>37.8</td>
<td>15.5</td>
<td>27.5</td>
</tr>
<tr>
<td>150 m/s</td>
<td>1.8</td>
<td>2.2</td>
<td>-</td>
<td>2.3</td>
<td>2.3</td>
<td>0.9</td>
<td>1.6</td>
</tr>
<tr>
<td>200 m/s</td>
<td>53</td>
<td>65</td>
<td>-</td>
<td>68</td>
<td>68</td>
<td>27</td>
<td>47</td>
</tr>
<tr>
<td>250 m/s</td>
<td>2.0</td>
<td>2.3</td>
<td>-</td>
<td>2.4</td>
<td>2.5</td>
<td>1.1</td>
<td>1.7</td>
</tr>
<tr>
<td>300 m/s</td>
<td>93</td>
<td>107</td>
<td>-</td>
<td>112</td>
<td>116</td>
<td>51</td>
<td>79</td>
</tr>
<tr>
<td>350 m/s</td>
<td>2.2</td>
<td>2.4</td>
<td>-</td>
<td>2.5</td>
<td>2.6</td>
<td>1.3</td>
<td>1.8</td>
</tr>
<tr>
<td>400 m/s</td>
<td>148</td>
<td>161</td>
<td>-</td>
<td>168</td>
<td>175</td>
<td>87</td>
<td>121</td>
</tr>
<tr>
<td>450 m/s</td>
<td>2.2</td>
<td>2.5</td>
<td>-</td>
<td>2.6</td>
<td>2.7</td>
<td>1.3</td>
<td>1.8</td>
</tr>
<tr>
<td>500 m/s</td>
<td>250</td>
<td>291</td>
<td>-</td>
<td>302</td>
<td>302</td>
<td>314</td>
<td>451</td>
</tr>
<tr>
<td>550 m/s</td>
<td>2.5</td>
<td>2.6</td>
<td>-</td>
<td>728</td>
<td>728</td>
<td>702</td>
<td>702</td>
</tr>
</tbody>
</table>

Remarks:
The values given in the table are guidance figures only. National standards also may be applied.
Piping symbols 1

- Stop valve
- Gate valve
- Self closing valve
- Float valve
- Quick closing valve (remote controlled)
- Control valve
- Electrically operated valve
- Solenoid valve
- Hydraulically operated valve
- Electric motor operated valve
- Diaphragm valve
- Safety valve or relief valve
- Regulating valve or needle valve
- Flow regulating valve for control air

- Safety valve blow-off free to atmosphere
- Vacuum breaker
- Deaerator
- Non-return valve
- Screw down non-return valve
- Spring loaded, relief and non-return valve
- Pressure reducing valve
- Pressure reducing valve with safety valve
- Three-way valve
- Automatic three-way control valve
- Three-way valve (electrically operated)
- Three-way solenoid valve
- Hydraulically operated three-way valve
- Electric motor operated three-way valve

- Diaphragm operated three-way valve
- Angle valve
- Self closing angle valve
- Angle relief valve
- Angle non-return valve
- Angle screw down non-return valve
- Three-way cock (T port)
- Two-way cock (L port)
- Angle cock
- Butterfly valve
- Butterfly valve, temperature control valve
- Non-return valve, swing type
Piping symbols 2

Valve chest with stop and screw down non-return valve

Change over valve chest

Foot valve

Foot valve with suction strainer

Suction strainer

Automatic float vent valve

Sounding pipe with plug

Condenser

Steam trap

Separator

Cyclone separator

Expansion chamber

Oil vapour trap

Silencer

Sight glass

Flowmeter

Viscosimeter

Electric motor

Agitator

Turbogenerator

Turbogenerator with gear transmission

Piston compressor

Centrifugal pump

Vane pump

Screw or gear pump

Eccentric spiral pump

Dosing pump

Injector/Injector

Heating coil

Heat exchanger

Heat exchanger

Lubricator

Funnel

Feeding hopper with cover and strainer

Trough or drip tray

Throttling disc

Ring and blank flange

Blank flange

Flanged connection

Terminal point
**WinGD W-2S – RECOMMENDED FLUID-FLOW-RATES vs VELOCITIES**

**TRACK CHANGES**

<table>
<thead>
<tr>
<th>DATE</th>
<th>SUBJECT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-02-13</td>
<td>DRAWING SET</td>
<td>First web upload</td>
</tr>
<tr>
<td>2019-09-26</td>
<td>107.246.078 107.245.935</td>
<td>Main drg and selection table – new revision</td>
</tr>
<tr>
<td>2020-09-30</td>
<td>107.246.078 DAAD130530</td>
<td>Main drg. – new revision</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Piping symbol key drg. - added</td>
</tr>
</tbody>
</table>

**DISCLAIMER**

© Copyright by Winterthur Gas & Diesel Ltd.

All rights reserved. No part of this document may be reproduced or copied in any form or by any means (electronic, mechanical, graphic, photocopying, recording, taping or other information retrieval systems) without the prior written permission of the copyright owner.

THIS PUBLICATION IS DESIGNED TO PROVIDE AN ACCURATE AND AUTHORITATIVE INFORMATION WITH REGARD TO THE SUBJECT-MATTER COVERED AS WAS AVAILABLE AT THE TIME OF PRINTING. HOWEVER, THE PUBLICATION DEALS WITH COMPLICATED TECHNICAL MATTERS SUITED ONLY FOR SPECIALISTS IN THE AREA, AND THE DESIGN OF THE SUBJECT-PRODUCTS IS SUBJECT TO REGULAR IMPROVEMENTS, MODIFICATIONS AND CHANGES. Consequently, THE PUBLISHER AND COPYRIGHT OWNER OF THIS PUBLICATION CAN NOT ACCEPT ANY RESPONSIBILITY OR LIABILITY FOR ANY EVENTUAL ERRORS OR OMISSIONS IN THIS BOOKLET OR FOR DISCREPANCIES ARISING FROM THE FEATURES OF ANY ACTUAL ITEM IN THE RESPECTIVE PRODUCT BEING DIFFERENT FROM THOSE SHOWN IN THIS PUBLICATION. THE PUBLISHER AND COPYRIGHT OWNER SHALL UNDER NO CIRCUMSTANCES BE HELD LIABLE FOR ANY FINANCIAL CONSEQUENTIAL DAMAGES OR OTHER LOSS, OR ANY OTHER DAMAGE OR INJURY, SUFFERED BY ANY PARTY MAKING USE OF THIS PUBLICATION OR THE INFORMATION CONTAINED HEREIN.