Catalogue

Hydraulic motors

OMS

Low speed high torque motors
A wide range of hydraulic motors

Danfoss is Europe's largest producer of low speed high torque hydraulic motors. We can offer more than 1600 different hydraulic motors, categorised in types, variants and sizes (incl. different shaft versions).

The motors vary in size (rated displacement) from 8 cm³ to 800 cm³ per revolution.

Speeds range up to approx. 2500 rpm for the smallest type and up to approx 600 rpm for the largest type.

Maximum operating torques vary across the ranges from 1.3 daNm to 250 daNm (peak) and maximum power-outputs from 2.0 kW to 64 kW.

Characteristic features:
• Smooth running over the entire speed range
• Constant operating torque over a wide speed range
• High starting torque
• High return pressure without use of drain line
• High efficiency
• Long life under extreme operating conditions
• Robust and compact design
• High radial and axial bearing capacity
• For applications in both open and closed loop hydraulic systems
• Suitable for a wide variety of hydraulics fluids

Variants
Standard/Extended Programme

The Danfoss metric motor programme has been divided into standard ranges and extended ranges.

The standard ranges are characterised by technical features appealing to a large number of applications.

The extended ranges are characterised by motors adapted to specific applications and comprising the following variants among others:
• Motors with corrosion resistant parts
• Wheel motors with recessed mounting flange
• OMP, OMR motors with needle bearing
• Short motors without bearings
• Ultra short motors
• Motors with integrated drum brake
• Motors with integrated negative holding brake
• Motors with integrated flushing valve
• Actuator motors
• Compact motors; type OMN
• Motors with speed censor
• Motors with tacho connection

Planetary gears
Danfoss represents a complete range of planetary gears with flanges and couplings designed for Danfoss hydraulic motors. The combination of motors and gears makes it possible to obtain completely smooth running at fractional speeds and torques up to 65,000 daNm.

Examples of Danfoss hydraulic motor applications
• Machines for agriculture and forestry
• Mining machinery
• Construction plant equipment and access platforms
• Grass cutting machinery
• Special vehicles
• Ship's equipment and winches on fishing vessels
• Machine tools
• Woodworking and sawmill machinery
• Plastic and rubber machinery etc.

Survey of literature with technical data on Danfoss hydraulic motors

Detailed data on all Danfoss motors can be found in our motor catalogue, which is divided into 4 individual subcatalogues:

• General information on Danfoss hydraulic motors: function, use, selection of hydraulic motor, hydraulic systems, etc.
• OML and OMM technical data on small motors.
• Technical data on medium sized motors: OMP, OMR and OMH
• Technical data on large motors: OMS, OMT and OMV

A general survey brochure on Danfoss hydraulic motors giving a quick motor reference based on power, torque, speed and capabilities.
Contents and data survey

Contents

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. speed</th>
<th>Max. torque</th>
<th>Max. output</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMS, OMSW, OMSS, OMS B</td>
<td>1000 min⁻¹</td>
<td>63 daNm</td>
<td>21 kW</td>
</tr>
<tr>
<td>OMT, OMTW, OMTS</td>
<td>780 min⁻¹</td>
<td>137 daNm</td>
<td>40 kW</td>
</tr>
<tr>
<td>OMV, OMVW, OMVS</td>
<td>630 min⁻¹</td>
<td>211 daNm</td>
<td>64 kW</td>
</tr>
</tbody>
</table>

Conversion factors

The bar diagram above is used for a quick selection of relevant motor sizes for the application. The final motor size can be determined by using the function diagram for each motor size.

The function diagrams for
- OMS can be found on pages 7 - 10
- OMT can be found on pages 25 - 27
- OMV can be found on pages 40 - 42.

Thread designation
The designation G for pipe thread replaces the previous designation BSPF, cf BS/ISO 228/1.

The function diagrams are drawn on the basis of actual tests on a representative number of motors from our production. The diagrams apply to a return pressure between 5 and 10 bar when using mineral based hydraulic oil with a viscosity of 35 mm²/s and a temperature of 50°C. For further explanation concerning how to read and use the function diagrams, please consult the paragraph “Selection of motor size” in our catalogue “General Information”.

HK.13.B-
## Hydraulics motor

**OMS**

### Code numbers and weight

<table>
<thead>
<tr>
<th>Motor type</th>
<th>OMS 80</th>
<th>OMS 100</th>
<th>OMS 125</th>
<th>OMS 160</th>
<th>OMS 200</th>
<th>OMS 250</th>
<th>OMS 315</th>
<th>OMS 400</th>
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</thead>
<tbody>
<tr>
<td>Cylindrical shaft</td>
<td>151F0200</td>
<td>151F0201</td>
<td>151F0202</td>
<td>151F0203</td>
<td>151F0204</td>
<td>151F0205</td>
<td>151F0206</td>
<td>151F0305</td>
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<tr>
<td>Splined shaft</td>
<td>151F0207</td>
<td>151F0208</td>
<td>151F0209</td>
<td>151F0210</td>
<td>151F0211</td>
<td>151F0212</td>
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<tr>
<td>Tapered shaft</td>
<td>151F0214</td>
<td>151F0215</td>
<td>151F0216</td>
<td>151F0217</td>
<td>151F0218</td>
<td>151F0219</td>
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<td>P.t.o. shaft</td>
<td>151F0260</td>
<td>151F0261</td>
<td>151F0262</td>
<td>151F0263*</td>
<td>151F0264*</td>
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<td>Weight (kg)</td>
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<td>10.0</td>
<td>10.3</td>
<td>10.7</td>
<td>11.1</td>
<td>11.6</td>
<td>12.3</td>
<td>13.1</td>
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### Motor with special flange

<table>
<thead>
<tr>
<th>Motor type</th>
<th>OMS 80</th>
<th>OMS 100</th>
<th>OMS 125</th>
<th>OMS 160</th>
<th>OMS 200</th>
<th>OMS 250</th>
<th>OMS 315</th>
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</thead>
<tbody>
<tr>
<td>Splined shaft</td>
<td>151F0242</td>
<td>151F0243</td>
<td>151F0244</td>
<td>151F0245</td>
<td>151F0246</td>
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<td>Weight (kg)</td>
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<td>10.7</td>
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<td>11.5</td>
<td>12.0</td>
<td>12.7</td>
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### Wheel motor

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<th>Motor type</th>
<th>OMSW 80</th>
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<th>OMSW 125</th>
<th>OMSW 160</th>
<th>OMSW 200</th>
<th>OMSW 250</th>
<th>OMSW 315</th>
<th>OMSW 400</th>
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<tbody>
<tr>
<td>Cylindrical shaft</td>
<td>151F0221</td>
<td>151F0222</td>
<td>151F0223</td>
<td>151F0224</td>
<td>151F0225</td>
<td>151F0226</td>
<td>151F0227</td>
<td>151F0310</td>
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<td>Tapered shaft</td>
<td>151F0228</td>
<td>151F0229</td>
<td>151F0230</td>
<td>151F0231</td>
<td>151F0232</td>
<td>151F0233</td>
<td>151F0234</td>
<td>151F0309</td>
</tr>
<tr>
<td>Weight (kg)</td>
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<td>10.5</td>
<td>10.8</td>
<td>11.2</td>
<td>11.6</td>
<td>12.1</td>
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<td>13.6</td>
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### Short motor

<table>
<thead>
<tr>
<th>Motor type</th>
<th>OMSS 80</th>
<th>OMSS 100</th>
<th>OMSS 125</th>
<th>OMSS 160</th>
<th>OMSS 200</th>
<th>OMSS 250</th>
<th>OMSS 315</th>
<th>OMSS 400</th>
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</thead>
<tbody>
<tr>
<td>Without output shaft</td>
<td>151F0235</td>
<td>151F0236</td>
<td>151F0237</td>
<td>151F0238</td>
<td>151F0239</td>
<td>151F0240</td>
<td>151F0241</td>
<td>151F0308</td>
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<tr>
<td>Weight (kg)</td>
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<td>8.0</td>
<td>8.3</td>
<td>8.7</td>
<td>9.1</td>
<td>9.6</td>
<td>10.3</td>
<td>11.1</td>
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### Motor with drum brake

<table>
<thead>
<tr>
<th>Motor type</th>
<th>OMS B 80</th>
<th>OMS B 100</th>
<th>OMS B 125</th>
<th>OMS B 160</th>
<th>OMS B 200</th>
<th>OMS B 250</th>
<th>OMS B 315</th>
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<tbody>
<tr>
<td>Brake lever Left</td>
<td>151F0065*</td>
<td>151F0066*</td>
<td>151F0067*</td>
<td>151F0068*</td>
<td>151F0069*</td>
<td>151F0070</td>
<td>151F0071</td>
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<tr>
<td>Brake lever Right</td>
<td>151F0072*</td>
<td>151F0073*</td>
<td>151F0074*</td>
<td>151F0075</td>
<td>151F0076*</td>
<td>151F0077</td>
<td>151F0078</td>
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<tr>
<td>Weight (kg)</td>
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<td>17.7</td>
<td>18.1</td>
<td>18.6</td>
<td>19.3</td>
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* Code number not active. Please contact Danfoss Sales Organization for Hydraulics.

Motors with tacho connection

For code numbers of motors with tacho connection, please contact Danfoss Sales Organization for Hydraulics.
Technical data

<table>
<thead>
<tr>
<th>Motor type</th>
<th>OMS</th>
<th>OMSW</th>
<th>OMSS</th>
<th>OMSB</th>
<th>OMS</th>
<th>OMSW</th>
<th>OMSS</th>
<th>OMSB</th>
<th>OMS</th>
<th>OMSW</th>
<th>OMSS</th>
<th>OMSB</th>
<th>OMS</th>
<th>OMSW</th>
<th>OMSS</th>
<th>OMSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor size</td>
<td>80</td>
<td>100</td>
<td>125</td>
<td>160</td>
<td>200</td>
<td>250</td>
<td>315</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geometric displacement (cm³/rev)</td>
<td>80.5</td>
<td>100</td>
<td>125.7</td>
<td>159.7</td>
<td>200</td>
<td>250</td>
<td>314.9</td>
<td>393</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. speed (min⁻¹)</td>
<td>1) Intermittent operation: the permissible values may occur for max. 10% of every minute.</td>
<td>1000</td>
<td>900</td>
<td>720</td>
<td>560</td>
<td>450</td>
<td>360</td>
<td>285</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. pressure drop (bar)</td>
<td>2) Peak load: The permissible values may occur for max. 1% of every minute.</td>
<td>20</td>
<td>25</td>
<td>32</td>
<td>34</td>
<td>40</td>
<td>45</td>
<td>54</td>
<td>56</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. output (kW)</td>
<td>1) Operation at lower speeds may be slightly less smooth.</td>
<td>16</td>
<td>17.5</td>
<td>17.5</td>
<td>15.5</td>
<td>14</td>
<td>12.5</td>
<td>11.5</td>
<td>10.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. oil flow (l/min)</td>
<td>1) Applies to an actuating force of 145 daN vertically on the actuating arm. Max. actuating force: 270 daN.</td>
<td>65</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. starting pressure with unloaded shaft (bar)</td>
<td>1) Intermittent operation: the permissible values may occur for max. 1% of every minute.</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. starting torque (daNm)</td>
<td>2) Peak load: The permissible values may occur for max. 1% of every minute.</td>
<td>16.5</td>
<td>20.5</td>
<td>26</td>
<td>28</td>
<td>33</td>
<td>36</td>
<td>44</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. speed (min⁻¹)</td>
<td>3) Operation at lower speeds may be slightly less smooth.</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holding torque (OMS B) (daNm)</td>
<td>4) Applies to an actuating force of 145 daN vertically on the actuating arm. Max. actuating force: 270 daN.</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
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<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. inlet pressure</th>
<th>Max. return pressure with drain line</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMS</td>
<td>cont.</td>
<td>210</td>
</tr>
<tr>
<td>OMSW</td>
<td>int.</td>
<td>250</td>
</tr>
<tr>
<td>OMSS</td>
<td>peak</td>
<td>300</td>
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</tbody>
</table>

1) Intermittent operation: the permissible values may occur for max. 10% of every minute.
2) Peak load: The permissible values may occur for max. 1% of every minute.
3) Operation at lower speeds may be slightly less smooth.
4) Applies to an actuating force of 145 daN vertically on the actuating arm. Max. actuating force: 270 daN.

Max. permissible shaft seal pressure

**OMS motors have incorporated check valves**

In applications without drain line the pressure on the shaft seal will never exceed the pressure in the return line.

Max. return pressure without drain line or max. pressure in the drain line

**HK.13.B-**
Oil flow in drain line

The table shows the max. oil flow in the drain line for all OMS motors. The values are measured at a return pressure less than 5-10 bar.

<table>
<thead>
<tr>
<th>Pressure drop (bar)</th>
<th>Viscosity (mm²/s)</th>
<th>Oil flow in drain line (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>140</td>
<td>20</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>1</td>
</tr>
<tr>
<td>210</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>2</td>
</tr>
</tbody>
</table>

Pressure loss in the motor

The curve applies to an unloaded motor shaft and an oil viscosity of 35 mm²/s.

Direction of shaft rotation

Direction of shaft rotation

Permissible shaft loads

The output shaft runs in tapered roller bearings that permit high axial and radial forces.

The permissible radial load on the shaft is shown for an axial load of 0 and 500 daN as a function of the distance from the mounting flange to the point of load application.

Curve A shows max. radial shaft load. Any shaft load exceeding the values quoted in the curve will involve a risk of breakage. The other curves apply to a B10 bearing life of 3000 hours at 200 min⁻¹ when mineral based hydraulic oil with a sufficient content of anti-wear additives is used.

Bearing life calculations can be made using the explanation and formula provided in the chapter "Bearing dimensioning" in the subcatalogue "General information".
Explanation of function diagram use, basis and conditions can be found on page 3.

- A: Continuous range
- B: Intermittent range (max. 10% operation every minute)

Note: Intermittent pressure drop and oil flow must not occur simultaneously.
Intermittent pressure drop and oil flow must not occur simultaneously.

Explanation of function diagram use, basis and conditions can be found on page 3.

- A: Continuous range
- B: Intermittent range (max. 10% operation every minute)
Note: Intermittent pressure drop and oil flow must not occur simultaneously.

Explanation of function diagram use, basis and conditions can be found on page 3.

- A: Continuous range
- B: Intermittent range (max. 10% operation every minute)
Note: Intermittent pressure drop and oil flow must not occur simultaneously.

Explanation of function diagram use, basis and conditions can be found on page 3.

- A: Continuous range
- B: Intermittent range (max. 10% operation every minute)
Shaft versions

A: Cylindrical shaft
G: Parallel key
A10 × 8 × 45
DIN 6885

B: Involute splined shaft
ANS B92.1 - 1970 standard
Flat root side fit
Pitch 12/24
Teeth 14
Major dia. 1.25 inch
Pressure angle 30°

C: Tapered shaft
(ISO/R775)
E: DIN 937
Across flats: 41
Tightening torque: 20 ± 1 daNm

F: Parallel key
B6 × 6 × 20
DIN 6885

D: P.t.o. shaft
DIN 9611 Form 1
(ISO/R500 without pin hole)
** Deviates from DIN 9611
The gearwheel set is 3.0 mm wider across the rollers than the L1 dimensions.

<table>
<thead>
<tr>
<th>Type</th>
<th>L_{max}</th>
<th>L1 *)</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMS 80</td>
<td>165</td>
<td>11.0</td>
<td>121</td>
</tr>
<tr>
<td>OMS 100</td>
<td>168</td>
<td>14.4</td>
<td>124</td>
</tr>
<tr>
<td>OMS 125</td>
<td>173</td>
<td>18.8</td>
<td>129</td>
</tr>
<tr>
<td>OMS 160</td>
<td>179</td>
<td>24.8</td>
<td>135</td>
</tr>
<tr>
<td>OMS 200</td>
<td>186</td>
<td>31.8</td>
<td>142</td>
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<tr>
<td>OMS 250</td>
<td>194</td>
<td>40.5</td>
<td>150</td>
</tr>
<tr>
<td>OMS 315</td>
<td>206</td>
<td>51.8</td>
<td>162</td>
</tr>
<tr>
<td>OMS 400</td>
<td>221</td>
<td>65.4</td>
<td>175</td>
</tr>
</tbody>
</table>

*) The gearwheel set is 3.0 mm wider across the rollers than the L1 dimensions.
OMS with special flange

The gearwheel set is 3.0 mm wider across the rollers than the \( L_1 \) dimensions.

<table>
<thead>
<tr>
<th>Type</th>
<th>( L_{\text{max}} )</th>
<th>( L_1 ) (*)</th>
<th>( L_2 )</th>
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</thead>
<tbody>
<tr>
<td>OMS 80</td>
<td>176</td>
<td>11.0</td>
<td>133</td>
</tr>
<tr>
<td>OMS 100</td>
<td>180</td>
<td>14.4</td>
<td>137</td>
</tr>
<tr>
<td>OMS 125</td>
<td>184</td>
<td>18.8</td>
<td>141</td>
</tr>
<tr>
<td>OMS 160</td>
<td>190</td>
<td>24.8</td>
<td>147</td>
</tr>
<tr>
<td>OMS 200</td>
<td>197</td>
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<td>154</td>
</tr>
<tr>
<td>OMS 250</td>
<td>206</td>
<td>40.5</td>
<td>163</td>
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<td>OMS 315</td>
<td>217</td>
<td>51.8</td>
<td>174</td>
</tr>
<tr>
<td>OMS 400</td>
<td>230</td>
<td>64.8</td>
<td>187</td>
</tr>
</tbody>
</table>

\(*\) The gearwheel set is 3.0 mm wider across the rollers than the \( L_1 \) dimensions.

C: Drain connection

G 1/4; 12 mm deep

D: M10; 13 mm deep

E: G 1/2; 15 mm deep
The gearwheel set is 3.0 mm wider across the rollers than the L1 dimensions.

<table>
<thead>
<tr>
<th>Type</th>
<th>Lmax</th>
<th>L1</th>
<th>L2</th>
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</thead>
<tbody>
<tr>
<td>OMSW 80</td>
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<td>11.0</td>
<td>84</td>
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<tr>
<td>OMSW 100</td>
<td>131</td>
<td>14.4</td>
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</tr>
<tr>
<td>OMSW 125</td>
<td>136</td>
<td>18.8</td>
<td>92</td>
</tr>
<tr>
<td>OMSW 160</td>
<td>142</td>
<td>24.8</td>
<td>98</td>
</tr>
<tr>
<td>OMSW 200</td>
<td>154</td>
<td>31.8</td>
<td>105</td>
</tr>
<tr>
<td>OMSW 250</td>
<td>157</td>
<td>40.5</td>
<td>114</td>
</tr>
<tr>
<td>OMSW 315</td>
<td>168</td>
<td>51.8</td>
<td>125</td>
</tr>
<tr>
<td>OMSW 400</td>
<td>181</td>
<td>64.8</td>
<td>138</td>
</tr>
</tbody>
</table>

*) The gearwheel set is 3.0 mm wider across the rollers than the L1 dimensions.

C: Drain connection
G 1/4; 12 mm deep
D: M10; 13 mm deep
E: G 1/2; 15 mm deep
The cardan shaft of the OMSS motor acts as an "output shaft". Because of the movement of the shaft, no seal can be fitted at the shaft output. Internal oil leakage from the motor will therefore flow into the attached component.

During start and operation it is important that the spline connection and the bearings in the attached component receive oil and are adequately lubricated. To ensure that the spline connection receives sufficient oil, a conical sealing ring between the shaft of the attached component and the motor intermediate plate is recommended. This method is used in the OMS.

The conical sealing ring (code. no. 633B9023) is supplied with the motor.

To ensure that oil runs to the bearings and other parts of the attached component, the stop plate must have a hole in it (see fig. overleaf).

We recommend an O-ring between motor and attached component. The O-ring (code no. 151F1033) is supplied with the motor. If motor and attached component have been separated, remember to refill before starting up. Fill the oil through the drain connection.

**) The gearwheel set is 3.0 mm wider across the rollers than the \( t_1 \) dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>( L_{\text{max}} )</th>
<th>( t_1 )</th>
<th>( t_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMSS 80</td>
<td>122</td>
<td>11.0</td>
<td>80</td>
</tr>
<tr>
<td>OMSS 100</td>
<td>126</td>
<td>14.4</td>
<td>84</td>
</tr>
<tr>
<td>OMSS 125</td>
<td>130</td>
<td>18.8</td>
<td>87</td>
</tr>
<tr>
<td>OMSS 160</td>
<td>136</td>
<td>24.8</td>
<td>93</td>
</tr>
<tr>
<td>OMSS 200</td>
<td>143</td>
<td>31.8</td>
<td>100</td>
</tr>
<tr>
<td>OMSS 250</td>
<td>152</td>
<td>40.5</td>
<td>109</td>
</tr>
<tr>
<td>OMSS 315</td>
<td>163</td>
<td>51.8</td>
<td>120</td>
</tr>
<tr>
<td>OMSS 400</td>
<td>176</td>
<td>64.8</td>
<td>133</td>
</tr>
</tbody>
</table>

* The gearwheel set is 3.0 mm wider across the rollers than the \( t_1 \) dimensions
**Technical data**

**Dimensions of the attached component**

![Diagram of attached component]

- **A**: O-ring: 100 × 3 mm
- **B**: External drain channel
- **C**: Drain connection
- **D**: Conical seal ring
- **E**: Internal drain channel
- **F**: M10; min. 15 mm deep
- **G**: Oil circulation hole
- **H**: Hardened stop plate

**Internal spline data for the component to be attached**

The attached component must have internal splines corresponding to the external splines on the motor cardan shaft (see drawing below).

**Material:**
Case hardening steel with a tensile strength corresponding at least to 20 MoCr4 (90 daN/mm²).

**Hardening specification:**
- On the surface: HV = 750 ± 50
- 0.7 ± 0.2 mm under the surface: HV = 560

**Internal involute spline data**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fillet root side fit</strong></td>
<td>mm 5.2 ± 0.2</td>
</tr>
<tr>
<td><strong>Number of teeth</strong></td>
<td>12</td>
</tr>
<tr>
<td><strong>Pitch</strong></td>
<td>25.4°</td>
</tr>
<tr>
<td><strong>Pressure angle</strong></td>
<td>30°</td>
</tr>
<tr>
<td><strong>Pitch dia.</strong></td>
<td>12/24</td>
</tr>
<tr>
<td><strong>Major dia.</strong></td>
<td>28.0 mm</td>
</tr>
<tr>
<td><strong>Form dia. (min.)</strong></td>
<td>27.6 mm</td>
</tr>
<tr>
<td><strong>Minor dia.</strong></td>
<td>23.0 mm</td>
</tr>
<tr>
<td><strong>Space width (circular)</strong></td>
<td>4.308 ± 0.020 mm</td>
</tr>
<tr>
<td><strong>Tooth thickness</strong></td>
<td>2.341 mm</td>
</tr>
<tr>
<td><strong>Fillet radius</strong></td>
<td>0.2 mm</td>
</tr>
<tr>
<td><strong>Max. measurement between pins</strong></td>
<td>17.62 ± 0.15 mm</td>
</tr>
<tr>
<td><strong>Pin dia.</strong></td>
<td>4.835 ± 0.001 mm</td>
</tr>
</tbody>
</table>

*Finished dimensions (when hardened)*

**Drain connection on OMSS or attached component**

A drain line ought to be used when pressure in the return line can exceed the permissible pressure on the shaft seal of the attached component.

The drain line can be connected at two different points:
1) at the motor drain connection
2) at the drain connection of the attached component.

If a drain line is fitted to the attached component, it must be possible for oil to flow freely between motor and attached component.

The drain line must be led to the tank in such a way that there is no risk of the motor and attached component being drained of oil when at rest.

The maximum pressure in the drain line is limited by the attached component and its shaft seal.

See also SAE 8620 for further information on steel material.

**OMSS**
Motor with drum brake, OMS B

1. Brake lever
2. Brake shaft
3. Springs
4. Brake pads
5. Brake drum
6. OMS motor

When the brake lever is actuated, the brake shaft is turned. The rectangular shape of the inner part of this shaft forces the brake pads to be pressed against the brake drum. This brakes the wheel or the winch drum.

When the lever is released, the springs pull it and the brake pads back to their initial positions and the motor output shaft is released.

Adjustment of actuating angle

The actuating angle can be adjusted by dismantling the brake lever and placing it in the requested angle on the splines profile of the brake shaft. Minimum angle adjustment is 11°.

Actuating direction and min. actuating movement

Due to the construction of the brake shaft, the brake is actuated irrespective of the actuating direction of the brake lever. You can choose the actuating direction best suited for the individual application. The cable or rod connection actuating the brake should be capable of moving at least 25 mm from neutral position to extreme position.
The gearwheel set is 3.0 mm wider across the rollers than the \( L_1 \) dimensions.

### Dimensions

**Type**
- OMS 80 B
- OMS 100 B
- OMS 125 B
- OMS 160 B
- OMS 200 B
- OMS 250 B
- OMS 315 B
- OMS 400 B

<table>
<thead>
<tr>
<th>Type</th>
<th>( L_{\text{max}} )</th>
<th>( L_1 )</th>
<th>( L_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMS 80 B</td>
<td>116</td>
<td>11.0</td>
<td>71</td>
</tr>
<tr>
<td>OMS 100 B</td>
<td>119</td>
<td>14.4</td>
<td>74</td>
</tr>
<tr>
<td>OMS 125 B</td>
<td>123</td>
<td>18.8</td>
<td>79</td>
</tr>
<tr>
<td>OMS 160 B</td>
<td>129</td>
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<td>51.8</td>
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<tr>
<td>OMS 400 B</td>
<td>169</td>
<td>64.8</td>
<td>125</td>
</tr>
</tbody>
</table>

*) The gearwheel set is 3.0 mm wider across the rollers than the \( L_1 \) dimensions.

**C:** Drain connection
- G 1/4; 12 mm deep
- D: G 1/2; 15 mm deep
- E: M10; 13 mm deep (4 off)
- F: Wheel bolt M12 \( \times 1.5 \) (5 off)
- G: M12; 17 mm deep (4 off)

**H:** Inspection hole for checking brake lining.
- Across flats: 3/16 inch

**L:** Location of brake lever on version "Left"

**R:** Location of brake lever on version "Right"
Motors with tacho connection
OMS T, OMSW T, OMSS T, OMS BT

Dimensions

Tolerances in the connection between the motor output shaft and tacho connection give a certain angular backlash. Backlash can be defined as the angle the output shaft will turn on reversing before the tacho shaft is engaged. On the OMS motors the backlash is min. 9.1° and max. 14.1°.

- Torque: 0.01 Nm cont. and 0.04 Nm int.
- Radial force in the middle of drive shaft: 5 daN at 0-800 min⁻¹
- Axial load: 5 daN

<table>
<thead>
<tr>
<th>Motor size</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>160</th>
<th>200</th>
<th>250</th>
<th>315</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type OMS T</td>
<td>199</td>
<td>203</td>
<td>207</td>
<td>213</td>
<td>220</td>
<td>229</td>
<td>240</td>
<td>253</td>
</tr>
<tr>
<td>Type OMSW T</td>
<td>162</td>
<td>165</td>
<td>170</td>
<td>176</td>
<td>183</td>
<td>191</td>
<td>202</td>
<td>215</td>
</tr>
<tr>
<td>Type OMSS T</td>
<td>156</td>
<td>160</td>
<td>164</td>
<td>170</td>
<td>177</td>
<td>186</td>
<td>197</td>
<td>210</td>
</tr>
<tr>
<td>Type OMS BT</td>
<td>150</td>
<td>153</td>
<td>157</td>
<td>163</td>
<td>170</td>
<td>179</td>
<td>190</td>
<td>203</td>
</tr>
</tbody>
</table>

Weight of tacho connection unit: 0.2 kg
Danfoss quality and hydraulic range

ISO 9001

INTERNATIONAL STANDARD

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ORGANISATION INTERNATIONALE DE NORMALISATION

MЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Quality management and quality assurance standards

Danfoss Mobile Hydraulics have been manufactured to meet the quality demands specified by ISO 9001.

Conversion factors

<table>
<thead>
<tr>
<th>Unit</th>
<th>Conversion Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 daNm</td>
<td>= 88.51 lbf in</td>
</tr>
<tr>
<td>1 daN</td>
<td>= 2.248 lbf</td>
</tr>
<tr>
<td>1 bar</td>
<td>= 14.50 lbf/in²</td>
</tr>
<tr>
<td>1 mm</td>
<td>= 0.0394 in</td>
</tr>
<tr>
<td>1 cm³</td>
<td>= 0.061 in³</td>
</tr>
<tr>
<td>1 litre</td>
<td>= 0.22 gallon, UK</td>
</tr>
<tr>
<td>1 litre</td>
<td>= 0.264 gallon, US</td>
</tr>
<tr>
<td>°F</td>
<td>= 1.8 × °C + 32</td>
</tr>
</tbody>
</table>

Catalogues and leaflets are available for detailed information on the following hydraulic components:

- Low-speed high-torque hydraulic motors
- Planetary gears
- Hydrostatic steering units
- Steering columns
- Valve blocks
- Flow-amplifiers
- Priority valves
- Torque amplifiers
- Variable displacement hydraulic pumps
- Pump controls
- Proportional valves
- Remote control units
- Electronics for hydr. components
- Rotary actuators
- Gear wheel motors
- Gear wheel pumps
- Cartridge valves
- Directional control valves

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