TPO - TPH
AIR ACTUATED CLUTCHES
MAIN FEATURES

TRANSFLUID air clutches are durable and reliable components. Their technical development has been achieved with years of experience in the field of transmissions.

With transmittable torques of up to 14000 Nm and being self-adjusting, they satisfy many different applications. Air actuation allows for easy engagement control and they can be remote controlled.

The main technical features are:

- Operating discs made of a high quality cast iron with large surfaces to dissipate heat generated from friction
- The friction discs are made of an asbestos-free composite compound that is molded with external gear teeth to interface with the internal teeth of the drive ring
- TPO clutches have compact external dimensions allowing easy installation
- The hubs have enlarged bore capacities to allow shafts with large diameters to be used
- The compact design allows two or three plate clutches to be used in the envelope where a single disc clutch typically would mount

Medium series

The TPO clutches sizes 8” and 10” are manufactured with a vulcanized tube made with a nylon reinforced neoprene compound to eliminate leakage and provide a very long operational life. The medium series is interchangeable in components and dimensions with the corresponding Twin Disc production.

Heavy series

The core of 14” and 18” TPO clutch is an elastomeric diaphragm developed after in-depth research and development. This development resulted in a longest life diaphragm on the market. Because of the large air volume used to engage the heavy series of clutches they are supplied with an integrated quick release valve to provide rapid disconnect. The smaller clutches are typically not fitted with the quick release valve as long as the actuator is positioned near the TPO.

Tab.1 - PERFORMANCES

<table>
<thead>
<tr>
<th>MODEL</th>
<th>7 bar (100 Psi)</th>
<th>9 bar (130 Psi)</th>
<th>Max oper. speed</th>
<th>Air volume to engage (fully worn disc)</th>
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<tbody>
<tr>
<td></td>
<td>Nm</td>
<td>lbs-ft</td>
<td>Nm</td>
<td>lbs-ft</td>
</tr>
<tr>
<td>TPO-208</td>
<td>860</td>
<td>635</td>
<td>1100</td>
<td>825</td>
</tr>
<tr>
<td>TPO-308</td>
<td>1300</td>
<td>960</td>
<td>1680</td>
<td>1450</td>
</tr>
<tr>
<td>TPO-210</td>
<td>1800</td>
<td>1330</td>
<td>2700</td>
<td>1740</td>
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<tr>
<td>TPO-310</td>
<td>2670</td>
<td>1973</td>
<td>3450</td>
<td>2620</td>
</tr>
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<td>TPO-214</td>
<td>5840</td>
<td>4315</td>
<td>7650</td>
<td>5625</td>
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<td>TPO-314</td>
<td>8760</td>
<td>6473</td>
<td>11440</td>
<td>8437</td>
</tr>
<tr>
<td>TPO-318</td>
<td>13670</td>
<td>10100</td>
<td>16800</td>
<td>12400</td>
</tr>
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</table>
TPO Air Clutches - 20.09

CLUTCH SELECTION GUIDE

- The input power can be used to determine the torque limitation for the clutch:

\[ T = 9550 \times \text{kW} / \text{rpm} \times \text{Nm} \]

\[ T = 7058 \times \text{kW} / \text{rpm} \times \text{lbs-ft} \]

- to the nominal transmitted torque, it is necessary to add a service factor “S” which depends upon prime mover and type of load:

\[ T_{\text{KN}} > S \times T, \text{where S factor is taken from table 3} \]

Tab. 2 - DIMENSIONS: mm (inch)

```
<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D max</th>
<th>E</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>P</th>
<th>Q</th>
<th>Total weight</th>
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<td></td>
<td></td>
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<td>lb</td>
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<tr>
<td>208</td>
<td>245</td>
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<td>152</td>
<td>65</td>
<td>84</td>
<td>203</td>
<td>36.5</td>
<td>60.3</td>
<td>72</td>
<td>285.75</td>
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<td>23 (0.41)</td>
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<td></td>
<td></td>
<td>(9.65)</td>
<td>(5.98)</td>
<td>(2.56)</td>
<td>(3.31)</td>
<td>(7.99)</td>
<td>(1.44)</td>
<td>(2.37)</td>
<td>(2.83)</td>
<td>(11.25)</td>
<td></td>
<td>9.5 (0.37)</td>
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<td>(4.42)</td>
<td>(5.98)</td>
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<td>108</td>
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<td>47.6</td>
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<td>78</td>
<td>336.55</td>
<td>8</td>
<td>30 (1.25)</td>
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<td>307</td>
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<td>64</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>45 (1.72)</td>
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<td></td>
<td></td>
<td>(12.09)</td>
<td>(5.60)</td>
<td>(2.66)</td>
<td>(2.66)</td>
<td>(10.00)</td>
<td>(3.07)</td>
<td>(3.07)</td>
<td>(3.07)</td>
<td>(13.25)</td>
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<td>77.14</td>
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<td>65</td>
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<td>203</td>
<td>36.5</td>
<td>60.3</td>
<td>72</td>
<td>285.75</td>
<td>6</td>
<td>45 (1.72)</td>
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<td></td>
<td></td>
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<td>(5.98)</td>
<td>(2.56)</td>
<td>(3.31)</td>
<td>(7.99)</td>
<td>(1.44)</td>
<td>(2.37)</td>
<td>(2.83)</td>
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<td>(4.42)</td>
<td>(5.98)</td>
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DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

Tab. 3 - SERVICE FACTOR S

<table>
<thead>
<tr>
<th>Prime mover</th>
<th>Driver equipment load classification</th>
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<tbody>
<tr>
<td></td>
<td>light load</td>
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<tr>
<td>AC electric motors</td>
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</tr>
<tr>
<td>Multi-cylinder engines</td>
<td>1.25</td>
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</tbody>
</table>
**OPTIONAL ACCESSORIES**

**ASSEMBLY WITH QUICK RELEASE VALVE**
(ONLY FOR TPO 214 - 318)

- 1-LFTXA 4255A
  - quick release valve
  - offset elastic pin
- 1-LFTB 1424

**ASSEMBLY WITHOUT QUICK RELEASE VALVE**

- TPO 214 + 318
- TPO 208 + 310

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TF 5226A - TF 5226 / Less fitting adapter 1/2" - 14 NPT

- ADAPTER
- PRESS TUBE 20 - 6X14
- 1/4"-19BSP
- 1/4"-18NPT

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TF 6379-ER: R/H THREAD
TF 6379-EL: L/H THREAD

- 17 SIZE WRENCH
- 1/4" Gas (BSP)
APPLICATION EXAMPLES

TPO 208 ÷ TPO 310
Fig. 1

Outboard mounting

TPO 214 ÷ TPO 318
Fig. 2

Clutch and sheave supported between two pillow blocks

TPO 214 ÷ TPO 318
Fig. 3

Air sheave version with sleeve fitted on EM shaft

TPH 208 ÷ TPH 310
Fig. 4

For in-line drive with flex coupling or U-joint, on input (or output)
TPH AIR/OIL CLUTCHES

MAIN FEATURES

The TPH model is designed for in-line drives and is based on the standard TPO clutch pack with a self-contained stationary thruster operating with 9 bar (130 Psi) air pressure.

The standard input for the TPH clutch is through the drive ring side by a flexible coupling or a universal joint flange. Typically the output is fixed and supported by the driven equipment (pump, generator, reduction gear etc). If required the input and output can be reversed.

To simplify installation an air power-pack, 12 or 24 Vdc is available.

PERFORMANCES

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Input Torque Tkn 9 bar (130Psi)</th>
<th>Max speed rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>208</td>
<td>815</td>
<td>3000</td>
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<tr>
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<td>1230</td>
<td>3000</td>
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<tr>
<td>210</td>
<td>1000</td>
<td>3000</td>
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<td>310</td>
<td>1490</td>
<td>1050</td>
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DIMENSIONS: mm (inch)

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>B</th>
<th>C max</th>
<th>D max*</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>K max</th>
<th>Weight</th>
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</thead>
<tbody>
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<td>295</td>
<td>109</td>
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<td>231</td>
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</tr>
</tbody>
</table>

* with reduced keyway

K, R, S depend on D bore

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