Danstoker is a subsidiary of Thermax, being a pioneer in India on thermal oil since 1971. There are references to more than 16,000 plants globally. The well-documented technology and focus on system efficiency form the basis of Danstoker’s series of thermal oil boilers.

Thermal oil boilers are most often used instead of steam and high temperature hot water boilers, with oil as the heat-carrying fluid. In general, a higher temperature level is achieved at low operating pressures.

With pressure less thermal oil systems, temperature up to 300°C is achieved. 400°C is achievable with pressurized thermal oil systems.

Horizontal thermal oil boilers are supplied as standard with oil-cooled end plates. This results in better operating economy and a maintenance-free solution.

Danstoker thermal oil boilers are offered with a complete range of accessories:

- Primary circulation pump(s)
- Expansion tank
- Collection tank
- Filling and emptying pump
- Deaerator tank
- Thermo Clutch
- Air preheater
- Burner and control panel

Our unique mixing pot (Thermo Clutch), allows the hot oil boiler to adapt to different process requirements with optimized flow design. In practice, the same hot oil boiler can cover a larger ∆T area on the secondary side. This technology ensures better boiler performance, lower energy consumption and optimized pump sizes.
## Technical specifications - TOB-H series

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Capacity kW</td>
<td>100</td>
<td>200</td>
<td>500</td>
<td>750</td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
<td>2500</td>
<td>3000</td>
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<tr>
<td>Capacity kcal/hr</td>
<td>8598</td>
<td>17196</td>
<td>42992</td>
<td>64488</td>
<td>85984</td>
<td>128976</td>
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<tr>
<td>Heat surface m²</td>
<td>15</td>
<td>19,4</td>
<td>34,6</td>
<td>44,9</td>
<td>46,1</td>
<td>48,6</td>
<td>52,2</td>
<td>55,8</td>
<td>60,2</td>
<td>70,6</td>
<td>83,2</td>
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<tr>
<td>Boiler oil volume ltr</td>
<td>67</td>
<td>101</td>
<td>154</td>
<td>192</td>
<td>224</td>
<td>266</td>
<td>310</td>
<td>346</td>
<td>382</td>
<td>463</td>
<td>544</td>
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<tr>
<td>Weight (dry) kg</td>
<td>1375</td>
<td>1125</td>
<td>2228</td>
<td>2971</td>
<td>3711</td>
<td>4894</td>
<td>6294</td>
<td>7040</td>
<td>8160</td>
<td>11769</td>
<td>14887</td>
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<tr>
<td>Average flow m³/h</td>
<td>6.11</td>
<td>12.23</td>
<td>30.57</td>
<td>45.85</td>
<td>61.13</td>
<td>91.70</td>
<td>122.27</td>
<td>152.84</td>
<td>183.40</td>
<td>244.54</td>
<td>305.67</td>
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<tr>
<td>Furnace diameter mm</td>
<td>435</td>
<td>525</td>
<td>730</td>
<td>830</td>
<td>1000</td>
<td>1200</td>
<td>1400</td>
<td>1755</td>
<td>1874</td>
<td>2100</td>
<td>2393</td>
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<tr>
<td>Furnace length mm</td>
<td>1081</td>
<td>1399</td>
<td>1778</td>
<td>2286</td>
<td>2540</td>
<td>3048</td>
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<td>4978</td>
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<tr>
<td>Thermal Oil Temperature °C</td>
<td>280 &amp; 300</td>
<td>280 &amp; 300</td>
<td>280 &amp; 300</td>
<td>280 &amp; 300</td>
<td>280 &amp; 300</td>
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<tr>
<td>Flue gas resistance (Gas) mmWc / mbar</td>
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<td>26.2 / 2.6</td>
<td>58.1 / 5.7</td>
<td>87.7 / 8.6</td>
<td>102 / 10.0</td>
<td>116.7 / 11.4</td>
<td>123.5 / 12.1</td>
<td>117.9 / 11.6</td>
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<td>152.3 / 14.8</td>
<td>161.9 / 15.9</td>
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<tr>
<td>Flue gas resistance (CO) mmWc / mbar</td>
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<td>27.7 / 2.7</td>
<td>56.1 / 5.8</td>
<td>88.7 / 8.7</td>
<td>101 / 10.1</td>
<td>117.9 / 11.6</td>
<td>124.6 / 12.2</td>
<td>118.9 / 11.7</td>
<td>136.1 / 13.4</td>
<td>153.8 / 15.0</td>
<td>161.1 / 16.0</td>
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<tr>
<td>Flue gas resistance (Gas+CO) mmWc / mbar</td>
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<td>NA</td>
<td>58.1 / 5.8</td>
<td>88.7 / 8.7</td>
<td>101 / 10.1</td>
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<td>124.6 / 12.2</td>
<td>118.9 / 11.7</td>
<td>136.1 / 13.4</td>
<td>153.8 / 15.0</td>
<td>161.1 / 16.0</td>
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<tr>
<td>Thermal Oil Flange DN</td>
<td>40</td>
<td>40</td>
<td>80</td>
<td>100</td>
<td>100</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>200</td>
<td>200</td>
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<tr>
<td>Thermal Oil Outlet Flange DN</td>
<td>40</td>
<td>40</td>
<td>80</td>
<td>100</td>
<td>100</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

Dimensions are shown in our dimensional sheet.

### Typical P&I diagram for thermal oil systems

#### Options available
- Vertical/horizontal design
- Oil, gas or combi fired
- Air preheater (≥ 91% efficiency)
- ECO oil/flue gas (2-3% temp. depen.)
- High medie temperature up to 350°C
- Complete accessoires

#### Operation and safety
- STOP at low oil flow
- STOP at high oil temperature
- Precise oil temperature control
- STOP at low oil level
- STOP at high flue gas temperature
- High pressure safety valve

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**Thermal Oil Boiler – TOB-H**

Oil and gas fired thermal oil boilers with capacities from 100 kW to 5.000 kW

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**A Thermax Group Company**

www.danstoker.com

03-2021
Thermal Oil Boiler – TOB-H

Oil and gas fired thermal oil boilers with capacities from 100 kW to 5,000 kW

Manufacturing excellence

Fully automated tube to tube TIG Welding Machine enables smooth uniform bore.
Causes less resistance on the oil side, which is an advantage.

CNC Coil Winding Machine ensures proper alignment, avoiding possibility of hot spots.

Air preheater (APH)

Danstoker air preheater (APH) comes with a non-corrosive design, with a hybrid cross and counter flow design that has been validated with extensive CFD analysis.

Used for heating the combustion air, ensuring a high efficiency of the hot oil boiler.

System efficiency and NOx emissions are opposing factors that are considered when designing the air preheater.

Advantages of APH design:
- Air is introduced in the intermediate flue gas zone which maximizes heat recovery and reduces stack temperature.
- Diverter damper in flue gas line facilitates online cleaning of the APH and use of only one module while the other is under cleaning.
- Modular APH helps to maintain efficiency even under part load conditions.
- No risk of dew point corrosion as the configuration ensures optimum steel temperatures.