Fluid Cooling Shell & Tube EKT Series

Copper & Steel Construction

Performance Notes

- HPU, in-tank cooler
- Compact size
- EK style & size
- High efficiency finned bundle design
- Serviceable
- Removable
- In-tank design minimizes space requirements and reduces plumbing
- Internal aluminum fins increase performance
- Removable end bonnets allow water passage servicing
- High strength steel shell

Materials

- Shell: Steel
- Tubes: Copper
- Fins: Aluminum
- Tubesheets: Steel
- Baffles: Steel
- End Bonnets: Cast iron
- Gaskets: Nitrile rubber/cellulose fiber

Optional Surge-Cushion®

The Surge-Cushion® is a patented protective device designed to internally bypass a portion of the oil flow during cold start conditions, or when sudden flow surges temporarily exceed the maximum flow allowed for a given cooler. This device may replace an external bypass, but it is not intended to bypass the total oil flow.

Ratings

Maximum Operating Pressure - Shell Side
75 PSI

Maximum Operating Pressure - Tube Side
150 PSI

Test Pressure - Shell Side
75 PSI

Test Pressure - Tube Side
150 PSI

Maximum Operating Temperature
250°F

How to Order

- Model Series
- Model Size Selected
- Surge Cushion
  - Blank - None
  - R - Surge Cushion

EKT = NPT Connections.
EKTS = SAE Oil Connections.
EKTM = All Metric Connections.

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Performance Curves are based on a 40°F approach temperature, a 2:1 oil to water ratio and an average oil viscosity of 100 SSU. Example: oil leaving cooler at 125°F with 85°F cooling water (125°F - 85°F = 40°F). The 2:1 oil to water ratio means that for every GPM of oil circulated, a minimum of 1/2 GPM of water must be circulated to obtain the curve results.

**STEP 1**  Corrections for approach temperature and oil viscosity.

\[
\text{HP Heat Removed in Cooler} = \frac{\text{HP Actual} \times 40°F}{\text{Oil out °F} - \text{Water in °F}} 
\times \text{Correction A}
\]

**STEP 2**  Oil Pressure Drop Coding: ◆ = 5 PSI  ■ = 10 PSI. Curves having no pressure drop symbol indicate that the oil pressure drop is less than 5 PSI to the highest oil flow rate for that curve. Multiply curve oil pressure drop by Correction B.

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**Selection Procedure**

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**Viscosity Corrections**

<table>
<thead>
<tr>
<th>Average Oil SSU</th>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>50</td>
<td>0.84</td>
<td>0.6</td>
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<tr>
<td>100</td>
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<td>1.14</td>
<td>2.0</td>
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<tr>
<td>300</td>
<td>1.24</td>
<td>3.1</td>
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<tr>
<td>400</td>
<td>1.31</td>
<td>4.1</td>
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<tr>
<td>500</td>
<td>1.37</td>
<td>5.1</td>
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**Maximum Flow Rates**

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>Shell Side GPM</th>
<th>Tube Side GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>700</td>
<td>70</td>
<td>12</td>
</tr>
<tr>
<td>1000</td>
<td>100</td>
<td>28</td>
</tr>
</tbody>
</table>

*If maximum allowable flow rates are exceeded, premature failure may occur.*