LHC
With hydraulic motor

OLAER LHC | optimized for mobile and industrial use
The LHC air oil cooler with hydraulic motor is optimized for use in the mobile and industrial sector. Together with a wide range of accessories, the LHC cooler is suitable for installation in most applications and environments. The maximum cooling capacity is 160 kW at ETD 40 °C. Choosing the right cooler requires precise sizing. The most reliable way to size is with the aid of our calculation program. This program, together with precise evaluations from our experienced, skilled engineers, gives you the opportunity for more cooling per € invested.

Overheating - an expensive problem
An under-sized cooling capacity produces a temperature balance that is too high. The consequences are poor lubricating properties, internal leakage, a higher risk of cavitation, damaged components, etc. Overheating leads to a significant drop in cost-efficiency and environmental consideration.

Temperature optimisation - a basic prerequisite for cost-efficient operation
Temperature balance in a hydraulic system occurs when the cooler can cool down the energy input that the system does not consume - the system’s lost energy (Ploss = Pcool = Pin – Pused).

Temperature optimisation means that temperature balance occurs at the system’s ideal working temperature – the temperature at which the oil’s viscosity and the air content comply with recommended values. The correct working temperature produces a number of economic and environmental benefits:
- The hydraulic system’s useful life is extended.
- The oil’s useful life is extended.
- The hydraulic system’s availability increases – more operating time and fewer shutdowns.
- Service and repair costs are reduced.
- High efficiency level maintained in continuous operation – the system’s efficiency falls if the temperature exceeds the ideal working temperature.
Clever design and the right choice of materials and components produce a long useful life, high availability and low service and maintenance costs.

Compact design and low weight.

Easy to maintain and easy to retrofit in many applications.

Clever design and the right choice of materials and components produce a long useful life, high availability and low service and maintenance costs.

Compact design and low weight.

Easy to maintain and easy to retrofit in many applications.

Hydraulic motor with displacement from 8.4 cm³/r to 25.2 cm³/r.

Collar bearing for fan motor on larger models provides longer useful life.

Quiet fan and fan motor.

Cooler matrix with low pressure drop and high cooling capacity.

LHC-M and LHC-X

LHC air oil coolers are also available in two special versions, LHC-X (ATEX version), approved for applications where there may be an explosive environment above ground, and LHC-M, adapted to be able better to deal with corrosion attacks, for example in marine environments.
Calculate the cooling capacity requirement

Cooling capacity requirement? → Installed capacity → Flow? Pressure? Pump capacity? → Measure in your existing unit → Contact our engineers → Theoretical capacity losses → Choose the right kind of cooler

Enter your values ....

... suggested solution
Optimal sizing produces efficient cooling. Correct sizing requires knowledge and experience. Our calculation program, combined with our engineers' support, gives you access to this very knowledge and experience. The result is more cooling per € invested.

The user-friendly calculation program can be downloaded from www.olaer.se

Valuable system review into the bargain
A more wide-ranging review of the hydraulic system is often a natural element of cooling calculations. Other potential system improvements can then be discussed – e.g. filtering, offline or online cooling, etc. Contact us for further guidance and information.

OLAER's quality and performance guarantee insurance for your operations and systems
A constant striving towards more cost-efficient and environment friendly hydraulic systems requires continuous development. Areas where we are continuously seeking to improve performance include cooling capacity, noise level, pressure drop and fatigue.

Meticulous quality and performance tests are conducted in our laboratory. All tests and measurements take place in accordance with standardised methods - cooling capacity in accordance with EN1048, noise level ISO 3743, pressure drop EN 1048 and fatigue ISO 10771-1.

For more information about our standardised tests, ask for “OLAER's blue book – a manual for more reliable cooler purchasing”.

Better energy consumption means not only less environmental impact, but also reduces operating costs, i.e. more cooling per € invested.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>Fan speed</th>
<th>Fan capacity</th>
<th>Weight (approx)</th>
<th>Max speed</th>
<th>Acoustic pressure level LpA dB(A) 1m*</th>
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<td>184</td>
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* = Noise level tolerance ± 3 dB(A).
### MOTOR

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<tr>
<th>Displacement cm³/r</th>
<th>N</th>
<th>LHC 007 - LHC 023</th>
<th>LHC 033 - LHC 112</th>
<th>Angular connection</th>
<th>Max. working pressure bar</th>
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<td>10.8</td>
<td>98</td>
<td>138</td>
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<td>C</td>
<td>14.4</td>
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<td>D</td>
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<td>E</td>
<td>19.2</td>
<td>110</td>
<td>151</td>
<td>6½</td>
<td>210</td>
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<td>F</td>
<td>25.2</td>
<td>120</td>
<td>165</td>
<td>6½</td>
<td>160</td>
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</table>
The cooling capacity curves are based on the inlet oil temperature and the ambient air temperature. An oil temperature of 60 °C and an air temperature of 20 °C produce a temperature difference of 40 °C. Multiply by kW/°C for total cooling capacity.
Cooling capacity tolerance ± 10% kW.

The Professional Choice
Key for LHC and LHC2 air oil coolers

EXAMPLE:
LHC2 - 016 - B - 50 - S20 - S - Z

1. AIR OIL COOLER
   WITH HYDRAULIC MOTOR = LHC / LHC2

2. COOLER SIZE
   007, 011, 016, 023, 033, 044, 056, 058, 076, 078, 110, 112 and 113.

3. HYDRAULIC MOTOR, DISPLACEMENT
   No hydraulic motor = O
   Displacement 8.4 cm³/r = A
   Displacement 10.8 cm³/r = B
   Displacement 14.4 cm³/r = C
   Displacement 16.8 cm³/r = D
   Displacement 19.2 cm³/r = E
   Displacement 25.2 cm³/r = F
   Special = X

4. THERMO CONTACT
   No thermo contact = 00
   40 °C = 40
   50 °C = 50
   60 °C = 60
   70 °C = 70
   80 °C = 80
   90 °C = 90

5. COOLER MATRIX
   Standard = 00
   Two-pass = 100
   Built-in, pressure-controlled bypass, single-pass
   2 bar = 520
   5 bar = 550
   8 bar = 580
   Built-in, pressure-controlled bypass, two-pass*
   2 bar = 720
   5 bar = 750
   8 bar = 780
   Built-in temperature and pressure-controlled bypass, single-pass
   50 °C, 2.2 bar = 525
   60 °C, 2.2 bar = 526
   70 °C, 2.2 bar = 527
   90 °C, 2.2 bar = 529
   Built-in temperature and pressure-controlled bypass, two-pass*
   50 °C, 2.2 bar = 725
   60 °C, 2.2 bar = 726
   70 °C, 2.2 bar = 727
   90 °C, 2.2 bar = 729

6. MATRIX GUARD
   No guard = 0
   Stone guard = S
   Dust guard = D
   Dust and stone guard = P

7. STANDARD/SPECIAL
   Standard = 0
   Special = Z

**FLUID COMBINATIONS**
- Mineral oil / HL/ HLP in accordance with DIN 51524
- Oil/water emulsion HFA, HFB in accordance with CETOP RP 77H
- Water glycol HFC in accordance with CETOP RP 77H
- Phosphate ester HFD-R in accordance with CETOP RP 77H

**MATERIAL**
- Cooler matrix Aluminum
- Fan blades/hub Glass fibre reinforced polypropylene/Aluminum
- Fan housing Steel
- Fan guard Steel
- Other parts Steel
- Surface treatment Electrostatically powder-coated

**COOLER MATRIX**
- Maximum static operating pressure: 21 bar
- Dynamic operating pressure: 14 bar*
- Heat transfer limit: ± 6 %
- Maximum oil inlet temperature: 120 °C
  * Tested in accordance with ISO/DIS 10771-1

**COOLING CAPACITY CURVES**
The cooling capacity curves in this technical data sheet are based on tests in accordance with EN 1048 and have been produced using oil type ISO VG 46 at 60 °C.

**CONTACT OLAER FOR ADVICE ON**
- Oil temperatures > 120 °C
- Oil viscosity > 100 cSt
- Aggressive environments
- Ambient air rich in particles
- High-altitude locations

**CONNECTION CHART**
Connection chart for LHC air oil cooler.

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**The information in this brochure is subject to change without prior notice.**
With our specialist expertise, industry knowledge and advanced technology, we can offer a range of different solutions for coolers and accessories to meet your requirements.

Take the next step
- choose the right accessories

Supplementing a hydraulic system with a cooler, cooler accessories and an accumulator gives you increased availability and a longer useful life, as well as lower service and repair costs. All applications and operating environments are unique. A well-planned choice of the following accessories can thus further improve your hydraulic system. Please contact Olaer for guidance and information.

**Pressure-controlled bypass valve** *Integrated*

Allows the oil to bypass the cooler matrix if the pressure drop is too high. Reduces the risk of the cooler bursting, e.g. in connection with cold starts and temporary peaks in pressure or flow. Available for single-pass or two-pass matrix design.

**Temperature-controlled bypass valve** *Integrated*

Same function as the pressure-controlled by-pass valve, but with a temperature-controlled opening pressure - the hotter the oil, the higher the opening pressure. Available for single-pass or two-pass matrix design.

**Thermo contact**

Sensor with fixed set point. For temperature warnings, and for more cost-efficient operation and better environmental consideration through the automatic switching on and off of the fan motor.

**Stone guard/Dust guard**

Protects components and systems from tough conditions.

**Lifting eyes**

For simple installation and relocation.

**Temperature-controlled 3-way valve** *External*

Same function as the temperature-controlled bypass valve, but positioned externally. Note: must be ordered separately.
Global perspective

and local entrepreneurial flair

Olaer is a global player specialising in innovative, efficient system solutions for temperature optimisation and energy storage. Olaer develops, manufactures and markets products and systems for a number of different sectors, e.g. the aircraft, engineering, steel and mining industries, as well as for sectors such as oil and gas, contracting and transport, farming and forestry, renewable energy, etc.

All over the world, our products operate in the most diverse environments and applications. One constantly repeated demand in the market is for optimal energy storage and temperature optimisation. We work at a local level with a whole world as our workplace – local entrepreneurial flair and a global perspective go hand in hand.

Our local presence, long experience and a wealth of knowledge combine with our cutting-edge expertise to give you the best possible conditions for making a professional choice.