LOC

Cooling system with three-phase AC Motor for industrial use

„Compact, very silent and life-extending – a reliable partner.“

René Schaller, OLAER (Schweiz) AG
The LOC cooling system with three-phase AC motor is optimized for use in the industrial sector. The system is supplied ready for installation. An integrated circulation pump makes it possible to cool and treat the oil in a separate circuit – offline cooling. The cooling system can also be equipped with OLAER filter unit. Together with a wide range of accessories, the LOC cooling system is suitable for installation in most applications and environments. The maximum cooling capacity is 45 kW at ETD 40 °C. Choosing the right cooler requires precise system 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.

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 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: \( P_{\text{loss}} = P_{\text{cool}} = P_{\text{in}} - P_{\text{used}} \). 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.

Overheating - an expensive problem

- Extended hydraulic system life.
- Extended oil life.
- Increased hydraulic system availability - more operating time and fewer shutdowns.
- Reduced service and repair costs.
- Maintained high efficiency in continuous operation – the system efficiency falls if the temperature exceeds the ideal working temperature.

The correct working temperature produces a number of economic and environmental benefits:

- Extended hydraulic system life.
- Extended oil life.
- Increased hydraulic system availability - more operating time and fewer shutdowns.
- Reduced service and repair costs.
- Maintained high efficiency in continuous operation – the system 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.

Integrated circulation pump produces and even flow with low pressure pulsations.

Easy to maintain and easy to retrofit in many applications.

LOC-X and LOC-M

LOC cooling systems are also available in two special versions:

**LOC-X** (Atex version) is approved for the use in explosive areas.

**LOC-M** is ideal for marine applications requiring very good corrosion resistance.
General informations

- LOC is designed primarily for synthetic oils, vegetable oils and mineral oil type HL/HLP in accordance with DIN 51524. Maximum oil temperature 100 °C.
- Maximum negative pressure in the inlet line is 0,4 bar with an oil-filled pump. Maximum pressure on the pump’s suction side is 0,5 bar.
- Maximum working pressure for the pump is 10 bar. For information about suction height, pressure, etc. see the QPM3 pump manual.

Contact OLAER for advice on:

- Oil temperatures > 100 °C
- Oil viscosity 15 - 100 cSt
- Other liquids, aggressive environments, ambient air rich in particles, high-altitude locations.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nom. oil flow l/min</th>
<th>Cooling capacity kW at EDT 40 °C</th>
<th>Cooling capacity kW/°C</th>
<th>Acoustic pressure level LpA dB(A) 1m*</th>
<th>No. of poles / Capacity kW</th>
<th>Weight (approx) kg</th>
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* = Electric motors specified are calculated for max. working pressure 6 bar at 125 cSt and 50 Hz, 4 bar at 125 cSt and 60 Hz. If you require higher pressure, please contact OLAER for a choice of motors with a higher output.

** Noise level tolerance ± 3 dB(A).
### DIMENSIONS LOC

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<th>C</th>
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Manufacturer’s tolerances not taken into account. The right to make modifications reserved.
**KEY FOR LOC / TECHNICAL SPECIFICATION**

### Example

```
LOC3 - 011   -   6   -   A   -   C   -   L   -   50   -   S20   -   D   -   00   -   0
```

All positions must be filled in when ordering.

### 1. Type of cooling system

- Standard = LOC3

### 2. Cooler size

- 004, 007, 011, 016, 023, 033 and 044

### 3. Number of poles, motor

- 4-pole = 4
- 6-pole = 6

### 4. Voltage and frequency

- 230/400V 50 Hz = A
- 460 alt 480V 60 Hz = B
- 230/440 V 50 Hz alt 480 V 60 Hz = D
- 500 V 50 Hz (not standard) = E
- 400/690 V 50 Hz, 460 alt 480 V 60 Hz = F
- 525 V 50 Hz, 575 V 60 Hz = G
- Motor for special voltage (stated in plain language) = X

1) For LOC3 033 to LOC3 044
2) For LOC3 007 to LOC3 023
3) For other options contact OLAER for assistance.

### 5. Pump size

- Displacement 20 l/min = A
- Displacement 40 l/min = B
- Displacement 60 l/min = C
- Displacement 55 l/min = D (6-pole)
- Displacement 80 l/min = D (4-pole)
- Special = X

### 6. Bypass valve, pump

- No bypass valve = 0
- Built-in bypass valve, 5 bar internal = L
- Built-in bypass valve, 10 bar internal = H
- Built-in bypass valve, 5 bar external = K
- Built-in bypass valve, 10 bar external = M

### 7. Thermo contact

For temperature alarm, not for direct control of electric motor.

- No thermo contact = 00
- 40 °C = 40
- 50 °C = 50
- 60 °C = 60
- 70 °C = 70
- 80 °C = 80
- 90 °C = 90

### 8. Cooler matrix

#### Standard matrix
- Standard = 000
- Two-pass = T00

#### Built-in, pressure-controlled bypass, single-pass
- 2 bar = S20
- 5 bar = S50
- 8 bar = S80

#### Built-in, pressure-controlled bypass, two-pass
- 2 bar = T20
- 5 bar = T50
- 8 bar = T80

* = Not valid for LOC 004.

### 9. Matrix guard

- No guard = 0
- Stone guard = S
- Dust guard = D
- Dust and stone guard = P

### 10. Filter unit

- No filter unit = 0
- Filter unit = X

Please contact OLAER for guidance and information regarding filter units.

### 11. Pressure drop indicator

- No pressure drop indicator = 0
- Pressure drop indicator = X

### 12. Standard / Special

- Standard = 0
- Special = Z
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.

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*

Allow 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.

**Thermo contact**

Sensor with fixed set point, for temperature warnings. Can be used for more cost-efficient operation and better environmental consideration through the automatic control of the fan motor, either on or off.

**Temperature-controlled bypass valve**

*Integrated*

Allows the oil to bypass the cooler matrix if the pressure drop is higher than 2.2 bar or less than the chosen temperature. The bypass closes when the oil temperature increases. Different closing temperatures available. Available for singlepass or two-pass matrix design.

**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.

**Stone guard/Dust guard**

Protects components and systems from tough conditions.