

The Professional Choice

# **LOC** Cooling system



OLAER LOC | optimized for industrial use



**Olaer** is a global player specialising in innovative, efficient system solutions for temperature optimisation and energy storage. All over the world, our products are working in the most diverse environments and applications.

# **LOC Cooling System**

- For industrial use - maximum cooling capacity 45 kW

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 is also available with the FX3 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  $\in$  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:

- 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 ciculation pump** produces and even flow with low pressure pulsations.

#### **Easy to maintain** and easy to retrofit in many applications.



**Cooler matrix** with low pressure drop and high cooling capacity. **Quiet** fan and fan motor.

**Compact design** and low weight.

### **Technical specification**

- 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.

Heat transfer tolerance	±6%
3-PHASE MOTOR	

J-I HAJL MOTOR	
3-phase asynchronous motors in accordance	with IEC 60034-1
Nominal voltage	*
Insulation class	F
Rise of temperature	В
Protection class	IP 55
Recommended ambient temperature	-20 °C - +40 °C

\* = See separate instructions for electric motor.

#### MATERIAL

atrix Aluminum
Glass fibre reinforced polypropylene/
Aluminum
Steel
Steel
Steel
Electrostatically powder-coated

FX3 FILTER UNIT (option) Aluminum The filter housing has a built-in bypass valve, pre-set pressure  $4.5 \pm 0.3$  bar.

#### CONTACT OLAER FOR ADVICE ON

- Oil temperatures > 100 °C ٠
- 0il viscosity > 100 cSt
- Aggressive environments •
- Ambient air rich in particles
- High-altitude locations

ТҮРЕ		Nom. oil flow l/min	<b>Cooling capacity</b> in kW at EDT 40 °C	<b>Cooling capacity</b> <i>kW/°C</i>	Acoustic pressure level LpA dB(A) 1m*	No. of poles/ Capacity <i>kW</i>	Weight kg (approx)
LOC	004 - 4 - D - A	20	2.7	0.07	57	4-0.75	23
L0C2	007 - 4 - D - A	20	5.6	0.14	64	4-0.75	30
LOC2	007 - 4 - D - B	40	7.2	0.18	64	4075	30
LOC2	007 - 4 - D - C	60	8.0	0.20	65	4-1.50	36
LOC2	007 - 4 - D - D	80	8.4	0.21	65	4-1.50	36
LOC2	011 - 4 - D - A	20	9.2	0.23	70	4-0.75	34
LOC2	011 - 4 - D - B	40	10.4	0.26	70	4-0.75	34
LOC2	011 - 6 - D - C	40	7.6	0.19	61	6-1.10	40
LOC2	011 - 6 - D - D	55	8.8	0.22	61	6-1.10	40
L0C2	011 - 4 - D - C	60	12.0	0.30	70	4-1.50	40
LOC2	011 - 4 - D - D	80	13.2	0.33	70	4-1.50	40
L0C2	016 - 4 - D - A	20	11.2	0.28	74	4-1.50	45
LOC2	016 - 4 - D - B	40	15.6	0.39	74	4-1.50	45
L0C2	016 - 6 - D - C	40	12.4	0.31	64	6-1.10	45
L0C2	016 - 6 - D - D	55	14.0	0.35	64	6-1.10	45
LOC2	016 - 4 - D - C	60	18.0	0.45	74	4-1.50	45
LOC2	016 - 4 - D - D	80	19.6	0.49	74	4-1.50	45
LOC2	023 - 4 - D - B	40	21.2	0.53	77	4-1.50	53
LOC2	023 - 6 - D - C	40	16.8	0.42	67	6-1.10	53
LOC2	023 - 6 - D - D	55	18.4	0.46	67	6-1.50	53
LOC2	023 - 4 - D - C	60	24.4	0.61	77	4-2.20	62
LOC2	023 - 4 - D - D	80	26.8	0.67	77	4-2.20	62
LOC	033 - 6 - A - D	55	26.0	0.65	74	6-2.20	92
LOC	033 - 4 - A - C	60	32.0	0.80	85	4-3.00	76
LOC	033 - 4 - A - D	80	34.8	0.87	85	4-3.00	76
LOC	044 - 6 - A - D	55	34.0	0.85	77	6-2.20	98
LOC	044 - 4 - A - C	60	40.0	1.00	86	4-3.00	85
LOC	044 - 4 - A - D	80	44.8	1.12	86	4-3.00	85

\* = 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 us for a choice of motors with a higher output.
\*\* = Noise level tolerance ± 3 dB(A).



ТҮРЕ		A	В	с	D	Е	F	G	н	г	J	к	L	Mø
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LOC	004 - 4 - D - A	267	134	135	284	73	G1	420	90	164	163	488	58	9
LOC2	007 - 4 - D - A	365	203	105	395	42	G1	510	160	215	225	558	50	9
LOC2	007 - 4 - D - B	365	203	105	395	42	G1	510	160	215	225	571	50	9
LOC2	007 - 4 - D - C	365	203	105	395	42	G1	510	160	215	225	620	50	9
LOC2	007 - 4 - D - D	365	203	105	395	42	G1	510	160	215	225	633	50	9
L0C2	011 - 4 - D - A	440	203	103	470	41	G1	510	230	252	249	582	50	9
LOC2	011 - 4 - D - B	440	203	103	470	41	G1	510	230	252	249	595	50	9
L0C2	011 - 6 - D - C	440	203	103	470	41	G1	510	230	252	249	643	50	9
LOC2	011 - 6 - D - D	440	203	103	470	41	G1	510	230	252	249	657	50	9
L0C2	011 - 4 - D - C	440	203	103	470	41	G1	510	230	252	249	644	50	9
LOC2	011 - 4 - D - D	440	203	103	470	41	G1	510	230	252	249	657	50	9
LOC2	016 - 4 - D - A	496	203	107	526	46	G1	510	230	285	272	640	50	9
LOC2	016 - 4 - D - B	496	203	107	526	46	G1	510	230	285	272	653	50	9
LOC2	016 - 6 - D - C	496	203	107	526	46	G1	510	230	285	272	665	50	9
LOC2	016 - 6 - D - D	496	203	107	526	46	G1	510	230	285	272	678	50	9
L0C2	016 - 4 - D - C	496	203	107	526	46	G1	510	230	285	272	665	50	9
LOC2	016 - 4 - D - D	496	203	107	526	46	G1	510	230	285	272	678	50	9
LOC2	023 - 4 - D - B	580	356	104	610	40	G1	610	305	322	287	668	50	14
LOC2	023 - 6 - D - C	580	356	104	610	40	G1	610	305	322	287	722	50	14
LOC2	023 - 6 - D - D	580	356	104	610	40	G1	610	305	322	287	722	50	14
LOC2	023 - 4 - D - C	580	356	104	610	40	G1	610	305	322	287	709	50	14
LOC2	023 - 4 - D - D	580	356	104	610	40	G1	610	305	322	287	722	50	14
LOC	033 - 6 - A - D	692	356	99	722	32	G1¼	610	406	378	318	754	70	14
LOC	033 - 4 - A - C	692	356	99	722	32	G1¼	610	406	378	318	727	70	14
LOC	033 - 4 - A - D	692	356	99	722	32	G1¼	610	406	378	318	741	70	14
LOC	044 - 6 - A - D	692	356	99	866	49	G1¼	610	584	450	343	779	70	14
LOC	044 - 4 - A - C	692	356	99	866	49	G1¼	610	584	450	343	750	70	14
LOC	044 - 4 - A - D	692	356	99	866	49	G1¼	610	584	450	343	762	70	14

### Key for LOC and LOC2 cooling systems All positions must be filled in when ordering

#### EXAMPLE:

LOC2	- 011	- 6	- A	- C	- L	- 50	- S20	- D	- EO -	0
1	2	3	4	5	6	7	8	9	10/11	12

#### 1. TYPE OF COOLING SYSTEM = LOC / LOC2

#### 2. COOLER SIZE

004, 0	007,	011,	016,	023,	033,	044
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#### 3. NUMBER OF POLES, MOTOR

4 - pole	= 4
6 - pole	= 6

#### 4. VOLTAGE AND FREQUENCY

Three-phase 220-240/380-420 V 50 Hz*	= A
Three-phase 440-480 V 60 Hz*	= B
Three-phase 220-240/380-420 V 50 Hz 440/480 V 60 Hz**	= D
Three-phase 500 V 50 Hz	= E
Three-phase 400/690 V 50 Hz 440-480 V 60 Hz	= F
Three-phase 525 V 50 Hz	= G
Motor for special voltage (stated in plain language)	= X
* = for LC 033 to LOC 044	
** = for LOC 004 to LOC 023	

#### 5. PUMP SIZE

Displacement 15 cm³/r	= A
Displacement 30 cm³/r	= B
Displacement 45 cm³/r	= C
Displacement 60 cm³/r	= D
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	= 000
Two-pass	= T00
Built-in, pressure-controlled bypass, single	e-pass
2 bar	= S20
5 bar	= S50
8 bar	= S80
Built-in, pressure-controlled bypass, two-p	ass*
2 bar	= T20
5 bar	= T50
8 bar	= T80

Built-in temperature and pressure-controlled bypass, single-pass	
50 °C, 2.2 bar	= S25
60 °C, 2.2 bar	= S26
70 °C, 2.2 bar	= S27
90 °C, 2.2 bar	= S29
Built-in temperature and pressure-controlled bypass, two-pass*	
50 °C, 2.2 bar	= T25
60 °C, 2.2 bar	= T26
70 °C, 2.2 bar	= T27
90 °C, 2.2 bar	= T29
* = not valid for LOC 004	

#### 9. MATRIX GUARD

= 0
= S
= D
= P

#### **10. FX3 FILTER UNIT** (sizing, see page 6)

No filter unit	= 0
Filter unit with 4" element HP	= A
Filter unit with 4" element LP	= B
Filter unit with 8" element HP	= E
Filter unit with 4" element LP	= F

#### **11. PRESSURE DROP INDICATOR**

No pressure drop indicator.	= 0
Visual pressure drop indicator with manual reset.	= D
Visual pressure drop indicator with thermo guard and manual reset. No signal below 0 °C,	
signal above +29 °C.	= P
Electric pressure drop indicator with automatic reset. Connection in accordance with DIN 43650	
ISO 4400 (Hirschmann) IP 65.	= M
Electric pressure drop indicator	
with 2-pole AMP contact.	= U

#### 12. STANDARD/SPECIAL

Standard	= 0	
Special	= 2	

#### SPARE PARTS

Part number	Description
58920102	Filter element 04" HP
58920103	Filter element 04" LP
58920302	Filter element 08" HP
58920303	Filter element 08″ LP
589310	0-ring for filter housing cover

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.



Stone guard/Dust guard Protects components and systems from tough conditions.



#### **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.



Lifting eyes For simple installation and relocation.



#### 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.



#### Temperature-controlled 3-way valve External

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