

# LOC3

**Cooling system with three-phase AC Motor**  
for industrial use



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

# COOLING SYSTEM LOC

## 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 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.

## 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.

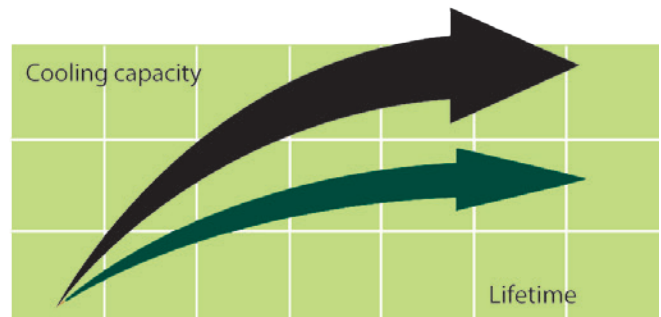


## Temperature optimisation - a basic prerequisite for cost-efficient operation

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

## 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 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.

## 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.

# TECHNICAL SPECIFICATION LOC

## 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.	

Heat transfer limit  $\pm 6\%$

### 3-phase motor

3-phase asynchronous motors in accordance with IEC 60034-1.

Nominal voltage	See separate instructions for electric motor.
Insulation class	F
Rise of temperature	B
Protection class	IP 55
Recommended ambient temperature	- 20 °C to + 40 °C

### Material

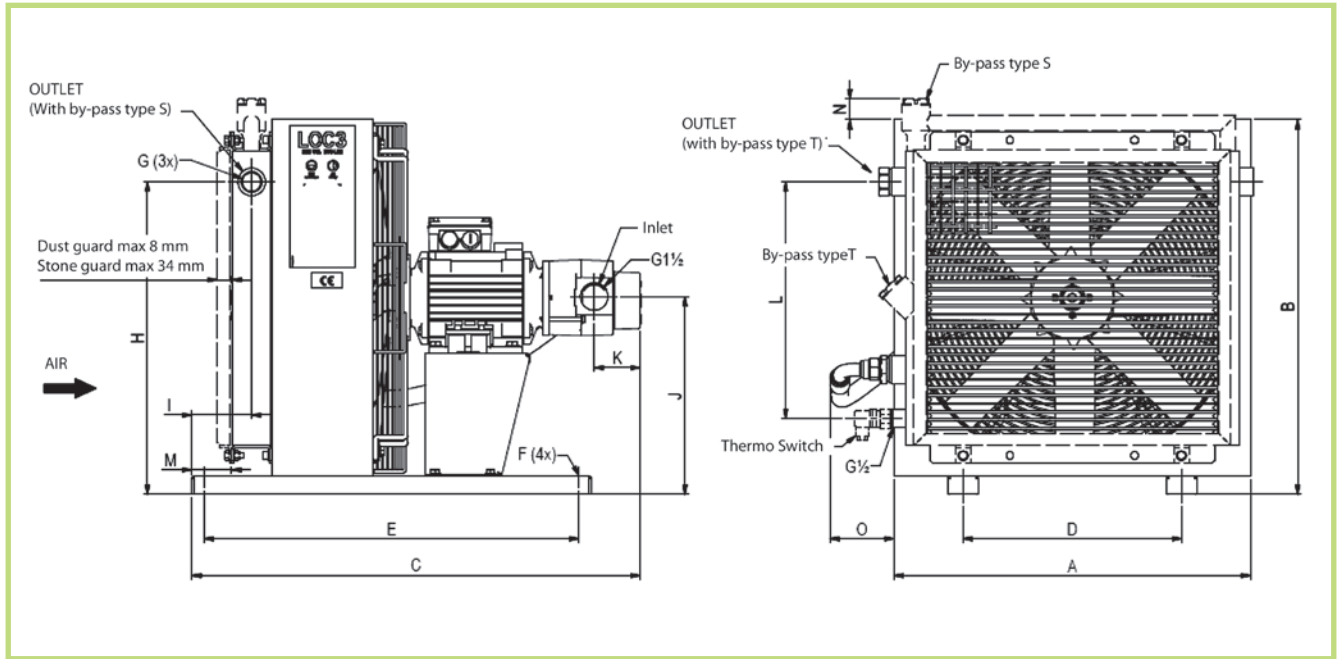
Pump housing / Cooler matrix	Aluminium
Fan blades / hub	Glass fibre reinforced polypropylene / Aluminium
Fan housing	Steel
Fan guard	Steel
Other parts	Steel
Surface treatment	Electrostatically powder-coated

Type	Nom. oil flow l/min	Cooling capacity in kW at EDT 40 °C	Cooling capacity kW/°C	Acoustic pressure level LpA dB(A) 1m*	No. of poles / Capacity kW	Weight (approx) kg
LOC3 004 - 4 - D - A	20	2,7	0,07	57	4 / 0,75	23
LOC3 007 - 4 - D - A	20	5,6	0,14	64	4 / 0,75	30
LOC3 007 - 4 - D - B	40	7,2	0,18	64	4 / 0,75	30
LOC3 007 - 4 - D - C	60	8,0	0,20	65	4 / 1,50	36
LOC3 007 - 4 - D - D	80	8,4	0,21	65	4 / 1,50	36
LOC3 011 - 4 - D - A	20	9,2	0,23	70	4 / 0,75	34
LOC3 011 - 4 - D - B	40	10,4	0,26	70	4 / 0,75	34
LOC3 011 - 6 - D - C	40	7,6	0,19	61	6 / 1,10	40
LOC3 011 - 6 - D - D	55	8,8	0,22	61	6 / 1,10	40
LOC3 011 - 4 - D - C	60	12,0	0,30	70	4 / 1,50	40
LOC3 011 - 4 - D - D	80	13,2	0,33	70	4 / 1,50	40
LOC3 016 - 4 - D - A	20	11,2	0,28	74	4 / 1,50	45
LOC3 016 - 4 - D - B	40	15,6	0,39	74	4 / 1,50	45
LOC3 016 - 6 - D - C	40	12,4	0,31	64	6 / 1,10	45
LOC3 016 - 6 - D - D	55	14,0	0,35	64	6 / 1,10	45
LOC3 016 - 4 - D - C	60	18,0	0,45	74	4 / 1,50	45
LOC3 016 - 4 - D - D	80	19,6	0,49	74	4 / 1,50	45
LOC3 023 - 4 - D - B	40	21,2	0,53	77	4 / 1,50	53
LOC3 023 - 6 - D - C	40	16,8	0,42	67	6 / 1,10	53
LOC3 023 - 6 - D - D	55	18,4	0,46	67	6 / 1,10	53
LOC3 023 - 4 - D - C	60	24,4	0,61	77	4 / 2,20	62
LOC3 023 - 4 - D - D	80	26,8	0,67	77	4 / 2,20	62
LOC3 033 - 6 - A - D	55	26,0	0,65	74	6 / 2,20	92
LOC3 033 - 4 - A - C	60	32,0	0,80	85	4 / 3,00	76
LOC3 033 - 4 - A - D	80	34,8	0,87	85	4 / 3,00	76
LOC3 044 - 6 - A - D	55	34,0	0,85	77	6 / 2,20	98
LOC3 044 - 4 - A - C	60	40,0	1,00	86	4 / 3,00	85
LOC3 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 OLAER for a choice of motors with a higher output.

\*\* Noise level tolerance  $\pm 3$  dB(A).

# DIMENSIONS LOC



Type	A	B	C	D	E	F ø	G	H	I	J	K	L	M	N	O
LOC3 004 - 4 - D - A	267	284	542	134	420	9	G 1	206	88	159	62	90	55	67	123
LOC3 007 - 4 - D - A	365	395	602	203	510	9	G 1	292	83	214	62	80	50	45	105
LOC3 007 - 4 - D - B	365	395	615	203	510	9	G 1	292	83	214	74	80	50	45	105
LOC3 007 - 4 - D - C	365	395	667	203	510	9	G 1	292	83	214	87	80	50	45	105
LOC3 007 - 4 - D - D	365	395	680	203	510	9	G 1	292	83	214	100	80	50	45	105
LOC3 011 - 4 - D - A	440	470	626	203	510	9	G 1	366	83	252	62	175	50	41	103
LOC3 011 - 4 - D - B	440	470	639	203	510	9	G 1	366	83	252	74	175	50	41	103
LOC3 011 - 6 - D - C	440	470	691	203	510	9	G 1	366	83	252	87	175	50	41	103
LOC3 011 - 6 - D - D	440	470	704	203	510	9	G 1	366	83	252	100	175	50	41	103
LOC3 011 - 4 - D - C	440	470	717	203	510	9	G 1	366	83	252	87	175	50	41	103
LOC3 011 - 4 - D - D	440	470	730	203	510	9	G 1	366	83	252	100	175	50	41	103
LOC3 016 - 4 - D - A	496	526	687	203	510	9	G 1	427	83	280	62	300	50	46	107
LOC3 016 - 4 - D - B	496	526	699	203	510	9	G 1	427	83	280	74	300	50	46	107
LOC3 016 - 6 - D - C	496	526	712	203	510	9	G 1	427	83	280	87	300	50	46	107
LOC3 016 - 6 - D - D	496	526	725	203	510	9	G 1	427	83	280	100	300	50	46	107
LOC3 016 - 4 - D - C	495	526	738	203	510	9	G 1	427	83	280	87	300	50	46	107
LOC3 016 - 4 - D - D	496	526	725	203	510	9	G 1	427	83	280	100	300	50	46	107
LOC3 023 - 4 - D - B	580	610	729	356	610	14	G 1	509	98	322	74	385	65	44	104
LOC3 023 - 6 - D - C	580	610	770	356	610	14	G 1	509	98	322	87	385	65	44	104
LOC3 023 - 6 - D - D	580	610	783	356	610	14	G 1	509	98	322	100	385	65	44	104
LOC3 023 - 4 - D - C	580	610	770	356	610	14	G 1	509	98	322	87	385	65	44	104
LOC3 023 - 4 - D - D	580	610	783	356	610	14	G 1	509	98	322	100	385	65	44	104
LOC3 033 - 6 - A - D	692	722	798	356	610	14	G 1¼	619	103	378	87	326	70	38	99
LOC3 033 - 4 - A - C	692	722	810	356	610	14	G 1¼	619	103	378	100	326	70	38	99
LOC3 033 - 4 - A - D	692	722	825	356	610	14	G 1¼	619	103	378	100	326	70	38	99
LOC3 044 - 6 - A - D	629	866	823	356	610	14	G 1¼	780	103	450	87	504	70	59	99
LOC3 044 - 4 - A - C	629	866	835	356	610	14	G 1¼	780	103	450	100	504	70	59	99
LOC3 044 - 4 - A - D	629	866	850	356	610	14	G 1¼	780	103	450	100	504	70	59	99

# 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 2 3 4 5 6 7 8 9 10/11 12

<b>1. Type of cooling system</b>	= LOC3
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<b>2. Cooler size</b>	004, 007, 011, 016, 023, 033 and 044
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<b>3. Number of poles, motor</b>	
4-pole	= 4
6-pole	= 6

<b>4. Voltage and frequency</b>	
230/400V 50 Hz <sup>1)</sup>	= A
460 alt 480V 60 Hz <sup>1)</sup>	= B
230/440 V 50 Hz alt 480 V 60 Hz <sup>2)</sup>	= D
500 V 50 Hz (nnot 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) <sup>3)</sup>	= X
1) For LOC3 033 to LOC3 044 2) For LOC3 007 to LOC3 023 3) For other options contact OLAER for assistance. All motors apply to IEC 60034, IEC 60072 and EN 50347.	

<b>5. Pump size</b>	
Displacement 20 l/min	= A
Displacement 40 l/min	= B
Displacement 60 l/min	= C
Displacement 55 l/min Displacement 80 l/min	= D (6-pole) = D (4-pole)
Special	= X

<b>6. Bypass valve, pump</b>	
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

<b>7. Thermo contact</b>	
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

<b>8. Cooler matrix</b>	
Standard	= 000
Two-pass	= T00

<b>Built-in, pressure-controlled bypass, single-pass</b>	
2 bar	= S20
5 bar	= S50
8 bar	= S80

<b>Built-in, pressure-controlled bypass, two-pass*</b>	
2 bar	= T20
5 bar	= T50
8 bar	= T80

<b>Built-in, temperature and pressure- controlled bypass, single-pass</b>	
50 °C, 2,2 bar	= S25
60 °C, 2,2 bar	= S26
70 °C, 2,2 bar	= S27
90 °C, 2,2 bar	= S29

<b>Built-in, temperature and pressure- controlled bypass, two-pass*</b>	
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.	

<b>9. Matrix guard</b>	
No guard	= 0
Stone guard	= S
Dust guard	= D
Dust and stone guard	= P

<b>10. Filter unit</b>	
No filter unit	= 0
Filter unit	= X
Please contact OLAER for guidance and information regarding filter units.	

<b>11. Pressure drop indicator</b>	
No pressure drop indicator	= 0
Pressure drop indicator	= X

<b>12. Standard / Special</b>	
Standard	= 0
Special	= Z

# THE RIGHT ACCESSORIES

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*

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.



## **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.



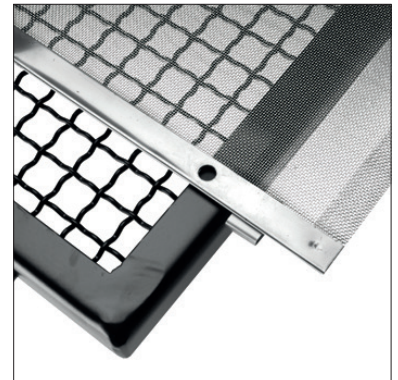
## **Lifting eyes**

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.