OLAER

for the perfect flow

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"For All Your Hydraulic Needs"

LHC

Air Oil Coolers with Hydraulic Motor

for mobile and industrial use

„Lifetime guarantee thanks to **optimal performances and unbeatable service life**."

Pius Emmenegger, OLAER (Schweiz) AG

AIR OIL COOLERS LHC

For mobile and industrial use - maximum cooling capacity 180 kW

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 180 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

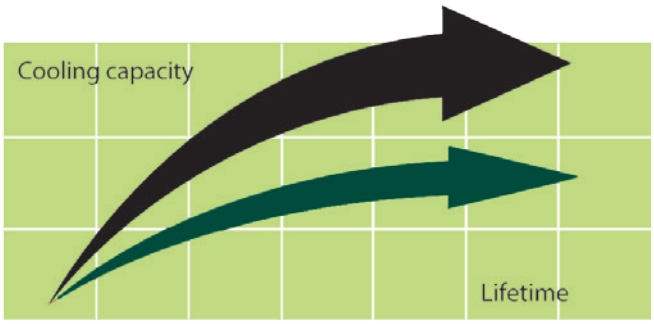
An under-sized cooling capacity produces a temperature balance that is too high. The consequences are poor lubricating properties, internal leakage, a higher risk of cavitation, damaged components, etc. Overheating leads to a significant drop in cost-effciency and environmental consideration.

Temperature optimisation - a basic prerequisite for cost-effcient 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.

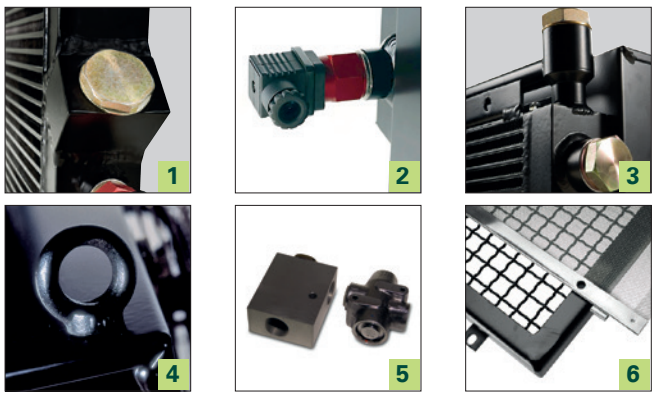


THE RIGHT ACCESSORIES

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.



1 Pressure-controlled bypass valve *Integrated*
2 Thermo contact
3 Temperature-controlled bypass valve *Integrated*
5 Lifting eyes
5 Temperature-controlled 3-way valve *External*
6 Stone guard/Dust guard

Please contact OLAER for guidance and information.

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.

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

Cooler matrix with low pressure drop and high cooling capacity.

Quiet fan and fan motor.

Hydraulic motor with displacement from 8,4 cm^3/r to 25,2 cm^3/r.

LHC-X and LHC-M

LHC cooling systems are also available in two special versions:

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

LHC-M is ideal for marine applications requiring very good corrosion resistance.

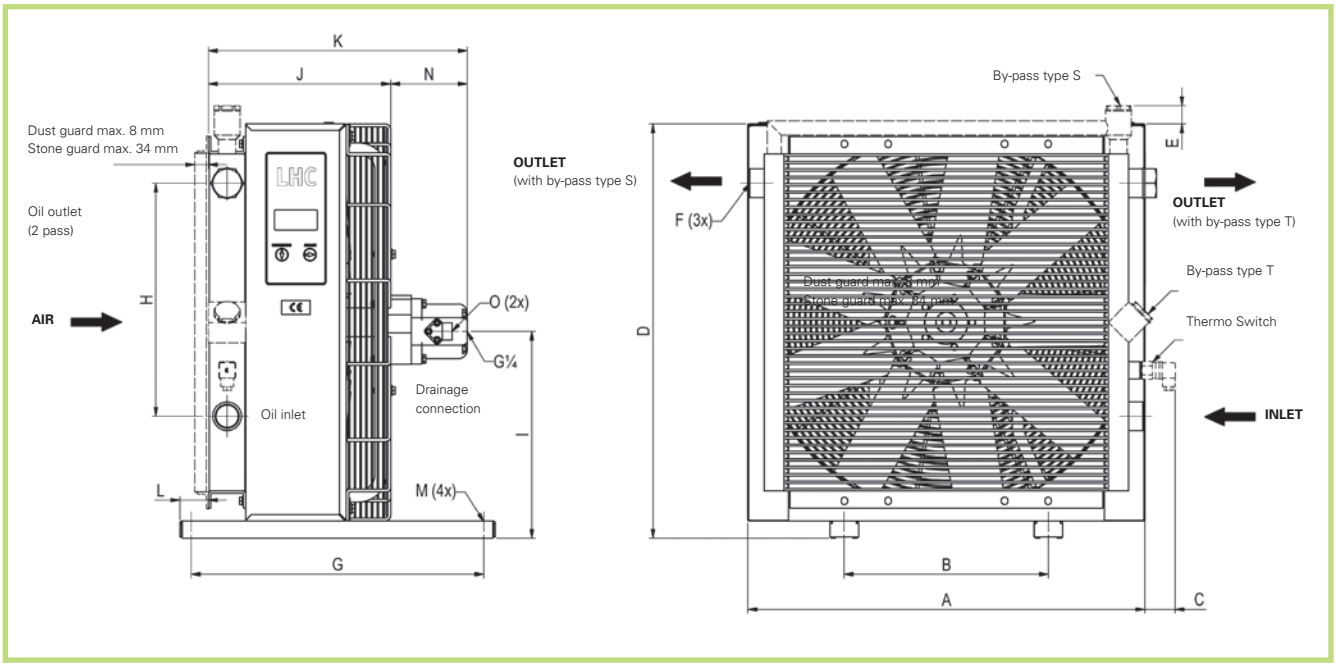
TECHNICAL SPECIFICATION LHC

Type	Fan speed rpm	Fan capacity kW	Weight (approx) kg	Max fan speed rpm at 40 °C	Acoustic pressure level LpA dB(A) 1m*	A	B	C	D	E	F	G	H	I	J	K	L	M ø
LHC2 007	1500	0,10	10	3500	62	365	203	64	395	42	G1	510	160	197	225	J+N	50	9
	3000	0,65	10	3500	79													
LHC2 011	1500	0,20	15	3500	67	440	203	62	470	41	G1	510	230	234	249	J+N	50	9
	3000	1,50	15	3500	82													
LHC2 016	1000	0,10	18	3500	60	496	203	66	526	46	G1	510	230	262	272	J+N	50	9
	1500	0,35	18	3500	70													
	3000	2,50	18	3500	86													
LHC2 023	1000	0,15	30	3500	64	580	356	44	610	44	G1	510	305	304	287	J+N	50	9
	1500	0,50	30	3500	76													
LHC 033	1000	0,65	40	2900	75	692	356	42	722	42	G1¼	510	406	360	318	J+N	50	9
	1500	2,00	40	2900	85													
LHC 044	1000	0,70	56	2900	77	692	356	59	866	59	G1¼	510	584	432	343	J+N	50	9
	1500	2,00	56	2900	86													
LHC 056	750	0,75	70	2400	74	868	508	49	898	43	G1¼	510	584	448	368	J+N	50	9
	1000	1,80	70	2400	82													
LHC 058	750	0,75	77	2400	75	868	508	49	898	43	G2	510	584	448	388	J+N	30	9
	1000	1,80	77	2400	83													
LHC 076	750	0,70	105	2200	80	1022	518	41	1052	45	G1½	610	821	525	393	J+N	70	14
	1000	1,60	105	2200	87													
LHC 078	750	0,70	111	2200	81	1022	518	41	1052	45	G2	610	821	525	413	J+N	50	14
	1000	1,60	111	2200	88													
LHC 110	750	1,70	117	1900	85	1185	600	54	1215	45	G2	610	985	607	418	J+N	70	14
	1000	4,00	117	1900	91													
LHC 112	750	1,70	125	1900	86	1185	600	54	1215	45	G2	610	985	607	438	J+N	50	14
	1000	4,00	125	1900	92													
LHC 113	750	1,70	184	2400	87	1200	600	82	1215	45	G2	610	985	607	485	J+N	132	14
	1000	4,00	184	2400	93													
LHC 200	For more informations, contact OLAER please.																	

* Noise level tolerance ± 3 dB(A).

Motor	Displacement cm³/r	N LHC2 007 - LHC2 023	N LHC 033 - LHC 112	O Angular 90 ° connection	Max. Working pressure bar
A	8,4	91	133	G½	250
B	10,8	98	138	G½	250
C	14,4	101	144	G½	250
D	16,8	105	148	G¾	250
E	19,2	110	151	G¾	250
F	25,2	120	165	G¾	250

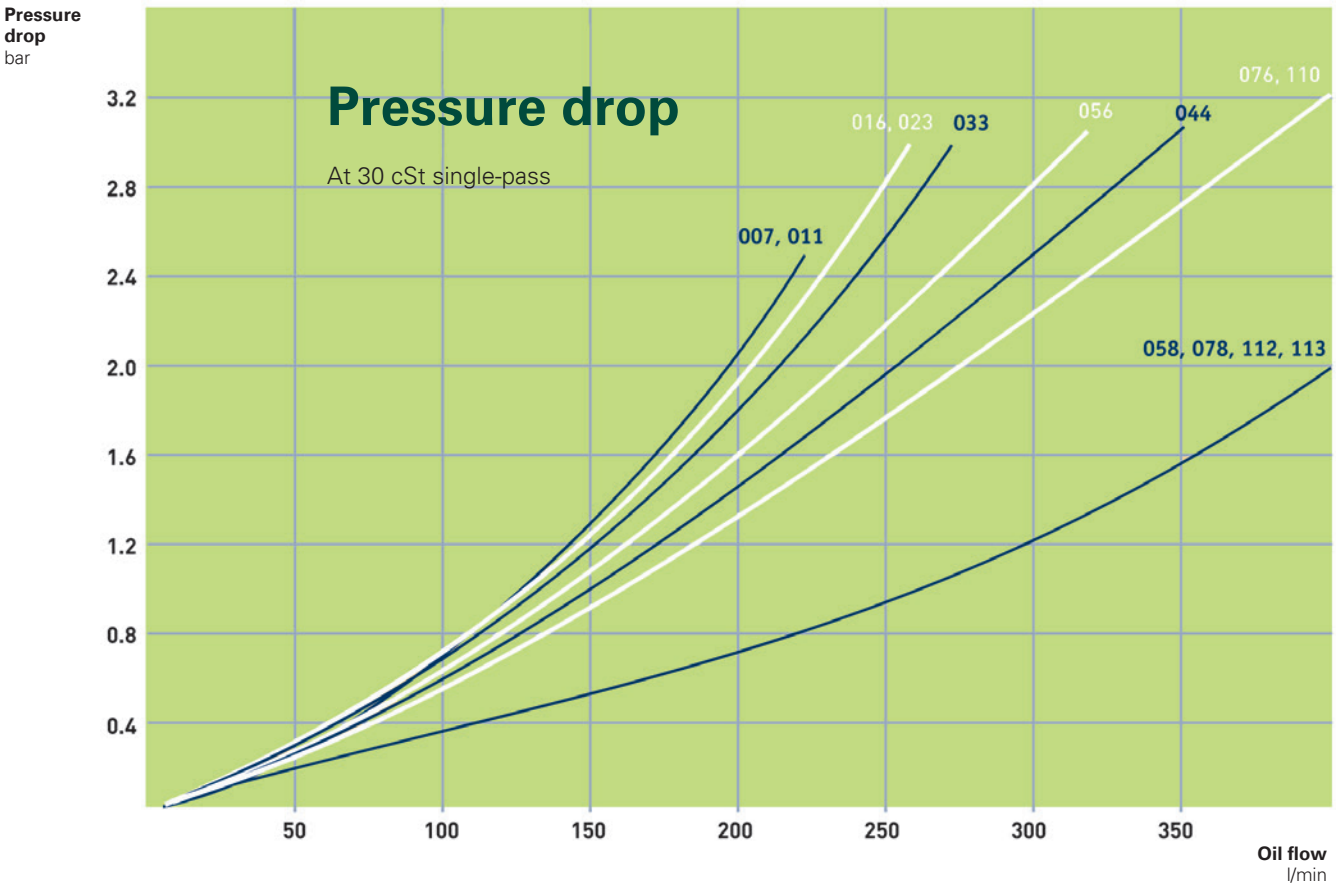
DIMENSIONS LHC



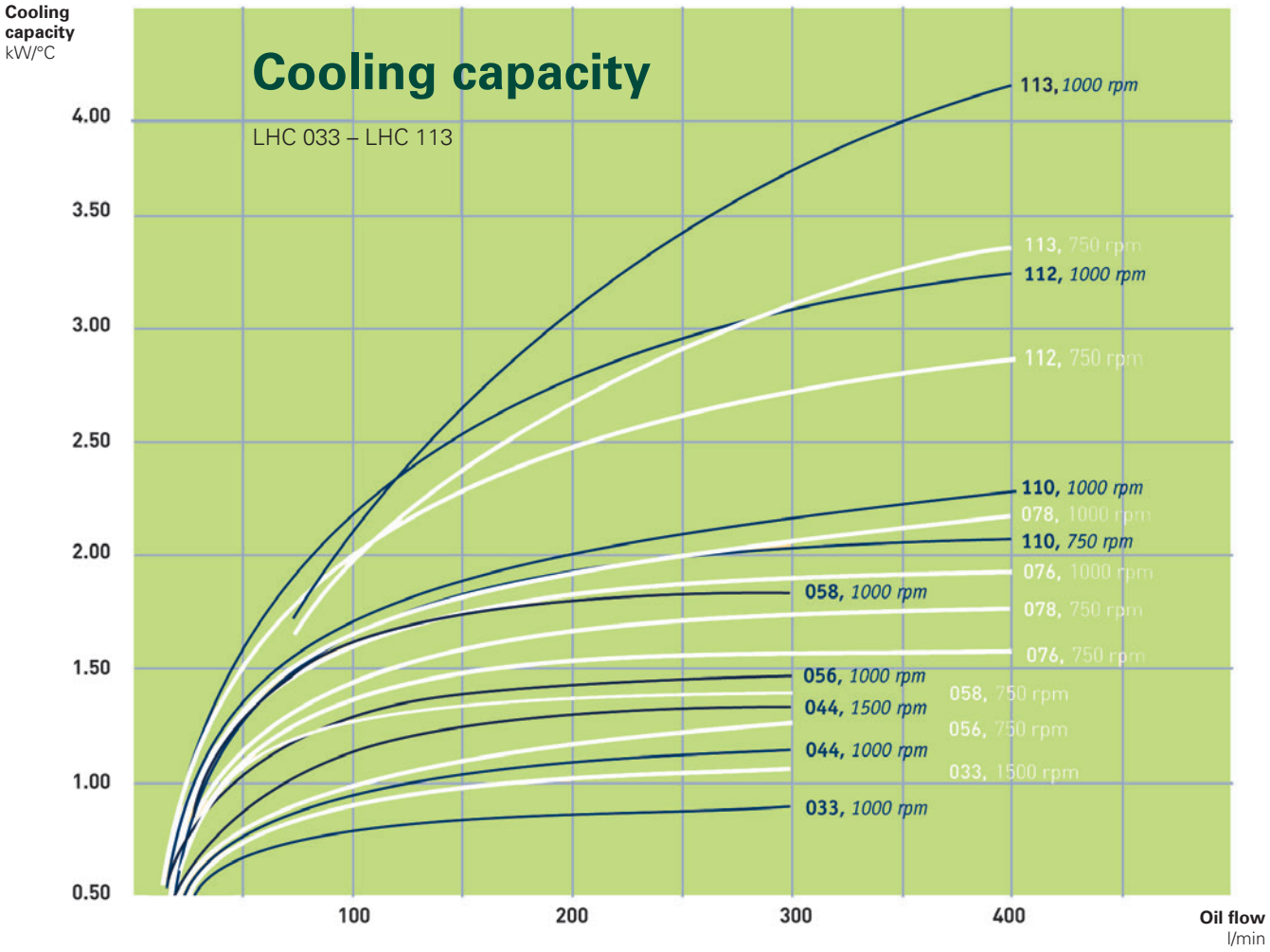
Manufacturer's tolerances not taken into account.

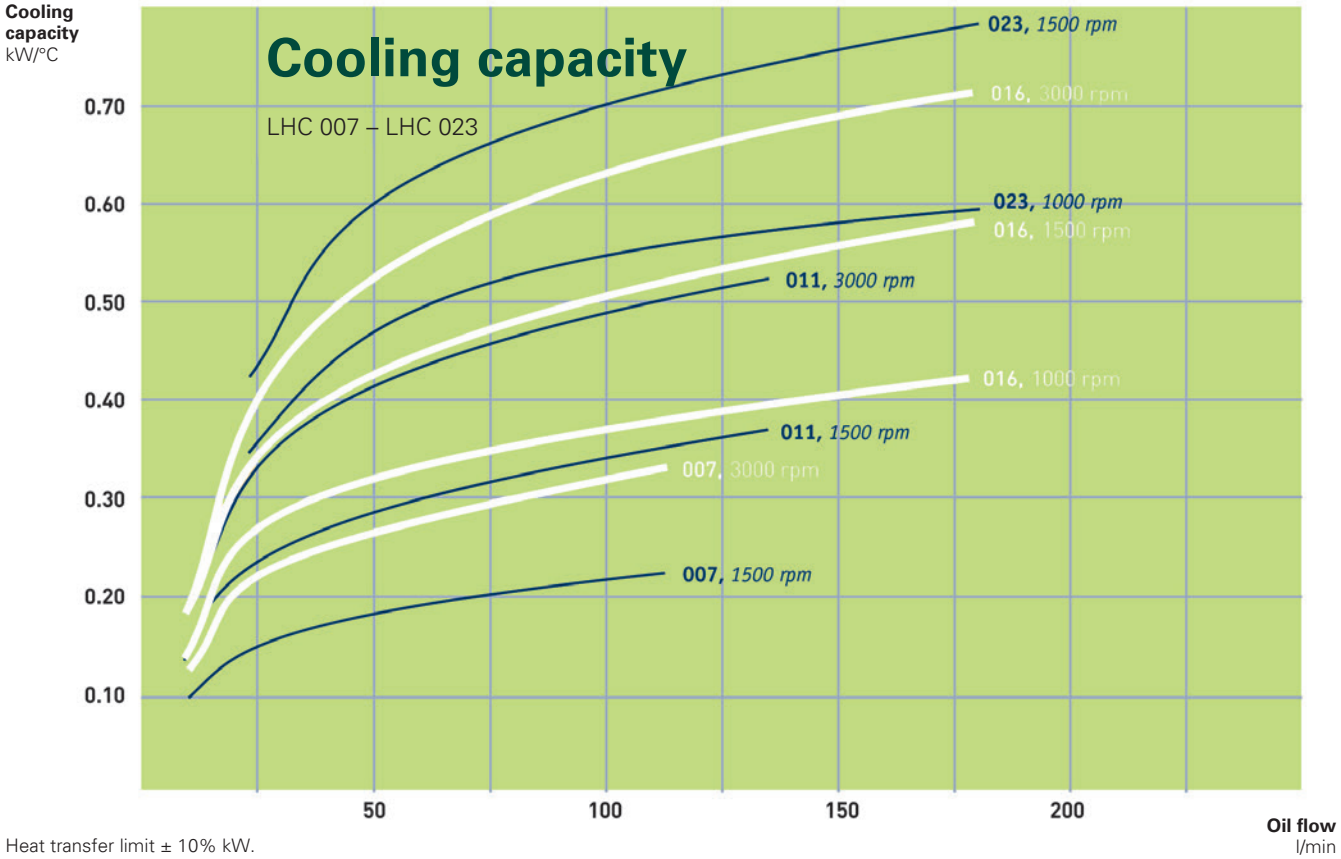
The right to make modifications reserved.

PRESSURE DROP LHC



COOLING CAPACITY LHC





Heat transfer limit ± 10% kW.

KEY FOR LHC / TECHNICAL SPECIFICATION

Example

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

1 2 3 4 5 6 7

All positions must be filled in when ordering.

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	= 0
Displacement 8,4 cm³/U	= A
Displacement 10,8 cm³/U	= B
Displacement 14,4 cm³/U	= C
Displacement 16,8 cm³/U	= D
Displacement 19,2 cm³/U	= E
Displacement 25,2 cm³/U	= F
Special	= X
X = Pressure, displacement, installation sizes etc. must be stated in plain language.	

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	= 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
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

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

7. Standard / Special	
Standard	= 0
Special	= Z

Technical specification

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

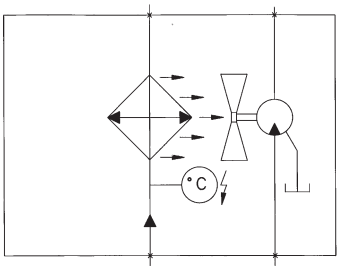
Technical data, cooler matrix	
Maximum static working-pressure	21 bar
Dynamic working pressure	14 bar Tested in accordance with ISO/DIS 10771-1
Heat transfer limit	± 6 %
Maximum oil inlet temperature	120 °C

Cooling capacity curve

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
Other liquids Aggressive environments Ambient air rich in particles High-altitude locations	

Connection chart for Air Oil Coolers LHC



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