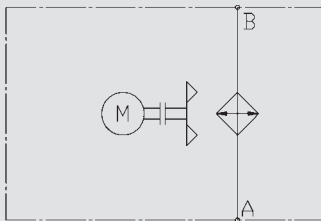


**HYDAC INTERNATIONAL**


## Air Cooler Mobile OK-ELD 0-6 with DC motor

### Symbol



### General

The OK-ELD air cooler series is designed specifically for mobile hydraulic applications where high performance and efficiency are required and physical size must be minimized to allow easy installation.

### Product Features

These coolers use a combination of high performance cooling elements and high capacity, long life DC electric powered fans to give long trouble free operation in arduous mobile hydraulic applications.

The compact design allows the coolers to fit most equipment and provide the highest cooling performance in heat dissipation whilst minimizing space required.

- Compact, efficient, high performance
- Cooling range 2-34 kW
- DC motors in 12 Volt and 24 Volt with motor lifetimes up to 16,000 hours

### Application Field

Hydraulic systems in mobile machines and vehicles, such as

- Mobile cranes
- Concrete mixers and pump trucks
- Road paving machines
- Construction machines (excavators, wheel loaders)
- Agricultural machines
- Municipal machines

### Operation Data

Fluids	<ul style="list-style-type: none"> <li>● Oils (mineral oils, synthetic oils, high viscosity oils, biological oils, phosphate ester)</li> <li>● Water-glycol (cooling fluids)</li> <li>● HFC pressure fluids</li> </ul>
Viscosity	2,000 mm <sup>2</sup> /s (standard)
Temperature range	<ul style="list-style-type: none"> <li>● Minimum / maximum ambient temperature: -20 °C to +40 °C (standard)</li> <li>● Minimum / maximum temperature of the medium: +20 °C to +130 °C</li> </ul> <p>Please contact the technical sales department in the event of deviating temperatures.</p> <p><b>Notice!</b> Fan at max. speed (max. volume of air) must be avoided when operating a cooler at which the temperature difference between the medium inlet at the cooler and the ambient temperature can be greater than 50 °C. Quick changes in the temperature of the cooling element material can lead to a significant reduction in service life or to direct damage of the cooling element due to thermal shock. Please contact the technical sales department to receive information about controlled fan drives.</p>
Pressure resistance of the cooling element	<ul style="list-style-type: none"> <li>● Dynamic operating pressure: 16 bar</li> <li>● Static operating pressure: 21 bar</li> </ul>
Fan	Axial fan in suction version (standard) Axial fan in pushing version on request (note: approx. 10 % less cooling capacity)
Motor	<ul style="list-style-type: none"> <li>● DC motor</li> <li>● 12 V / 24 V</li> <li>● Protection class IP68</li> <li>● Insulation class F</li> </ul> Other versions on request.
Noise levels	See technical data The noise levels are only reference values as the acoustic properties of a room, connections and reflection have an effect on the noise level.
Accessories	<ul style="list-style-type: none"> <li>● Integrated pressure bypass valve (IBP) or integrated thermal pressure bypass valve (IBT) (cannot be retrofitted, also see options)</li> <li>● Brushless fan</li> <li>● Electronic speed control (ESC)</li> <li>● Thermostats</li> <li>● Air filter grid or air filter mat</li> <li>● Vibration damper</li> </ul>

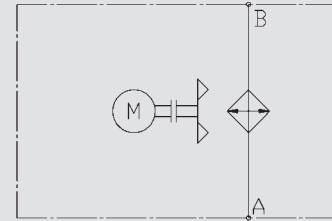
## Options

### Integrated pressure bypass valve (IBP) / Integrated thermal pressure bypass valve (IBT)

The bypass channel is integrated in the cooling element. If a particular pressure is exceeded, the IBP opens the bypass channel, thereby protecting the cooling element from too high a pressure. Furthermore, the IBT only opens the cooling element path once a particular temperature has been reached.

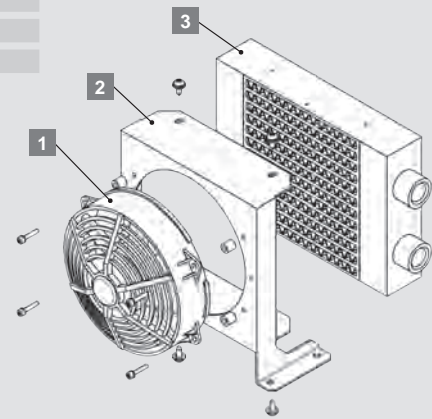
## Design

### OK-ELD 0

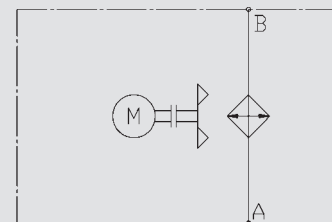


Air cooler with

- 1 Axial fan with integrated motor
- 2 Fan housing
- 3 Heat exchanger

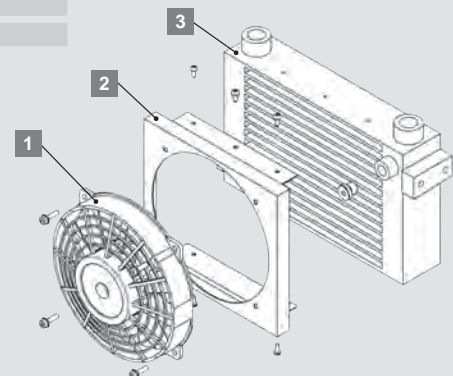


### OK-ELD 1.5



Air cooler with

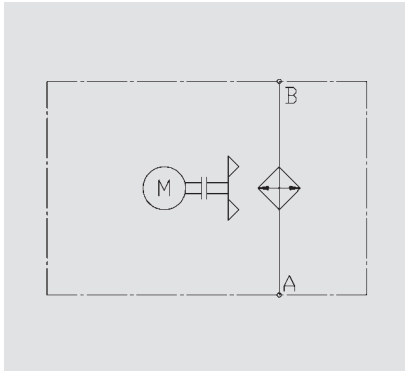
- 1 Axial fan with integrated motor
- 2 Fan housing
- 3 Heat exchanger





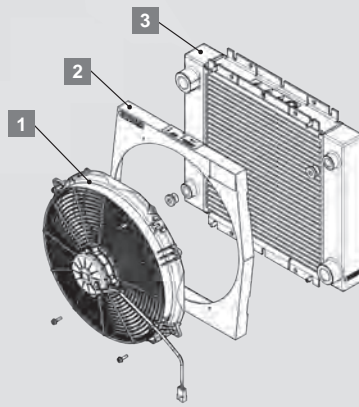
## Design

### OK-ELD 1-4.5

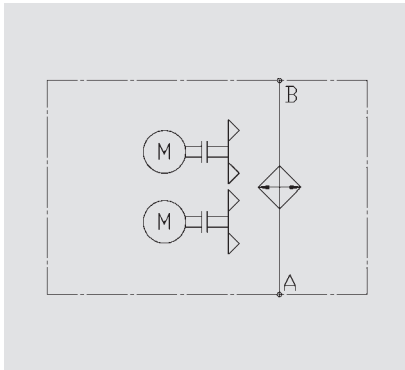


Air cooler with

- 1 Axial fan with integrated motor
- 2 Fan housing
- 3 Heat exchanger

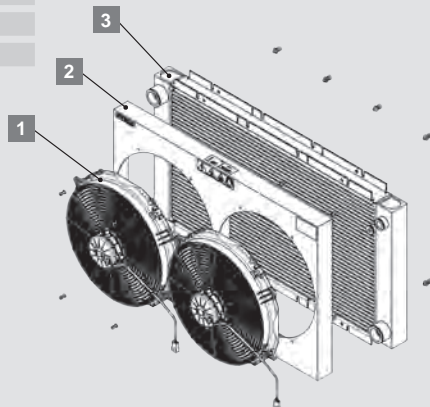


### OK-ELD 5-6



Air cooler with

- 1 Axial fan with integrated motor
- 2 Fan housing
- 3 Heat exchanger





### Technical Data

#### OK-ELD 0-6

Type of cooler	P/N	Voltage [V]	Fluid flow [l/min] <sup>1)</sup>	Air flow [m <sup>3</sup> /h]	Fan motor: Power / current absorption [kW / A] <sup>2)</sup>		Recommended Fuse [A]	Fan Diameter [mm] <sup>2)</sup>	Noise level (at 1 m distance) [dB(A)]	Volume [l] <sup>3)</sup>	Weight [kg] <sup>4)</sup>
					kW	A					
OK-ELD 0	3169981	12	60	279	0.05	3.0	5.0	140	68	0.4	2.7
OK-ELD 0	3169980	24	60	279	0.05	1.6	5.0	140	68	0.4	2.7
OK-ELD 1	3083371	12	150	451	0.10	8.0	15.0	190	73	0.6	4.0
OK-ELD 1	3083596	24	150	451	0.10	3.2	7.5	190	73	0.6	4.0
OK-ELD 1.5	3106405	12	150	455	0.10	8.0	15.0	190	77	1.0	4.7
OK-ELD 1.5	3106406	24	150	455	0.10	4.0	7.5	190	77	1.0	4.7
OK-ELD 2	3083370	12	150	910	0.14	9.4	20.0	255	74	2.0	9.4
OK-ELD 2	3083597	24	150	910	0.14	5.2	15.0	255	74	2.0	9.4
OK-ELD 3	3083369	12	180	1,338	0.23	17.5	25.0	305	79	2.2	11.0
OK-ELD 3	3083678	24	180	1,338	0.23	8.0	20.0	305	79	2.2	11.0
OK-ELD 4	3809511	12	180	2,052	0.30	22.5	30.0	385	76	3.0	15.9
OK-ELD 4	3809078	24	180	2,052	0.30	10.5	20.0	385	76	3.0	15.9
OK-ELD 4.5	3979800	12	180	2,284	0.30	22.5	30.0	385	76	5.2	22.0
OK-ELD 4.5	3979801	24	180	2,284	0.30	10.5	20.0	385	76	5.2	22.0
OK-ELD 5	3083286	12	180	3,581	0.46	35.0	2x25	305	80	4.2	30.3
OK-ELD 5	3083681	24	180	3,581	0.46	16.0	2x20	305	80	4.2	30.3
OK-ELD 6	3982479	12	180	5,020	0.60	45.0	2x30	385	77	5.2	36.6
OK-ELD 6	3982420	24	180	5,020	0.60	21.0	2x20	385	77	5.2	36.6

<sup>1)</sup> Max. flow rate

<sup>2)</sup> OK-ELD 5-6: each fan

<sup>3)</sup> Fluid in cooling element

<sup>4)</sup> Unfilled

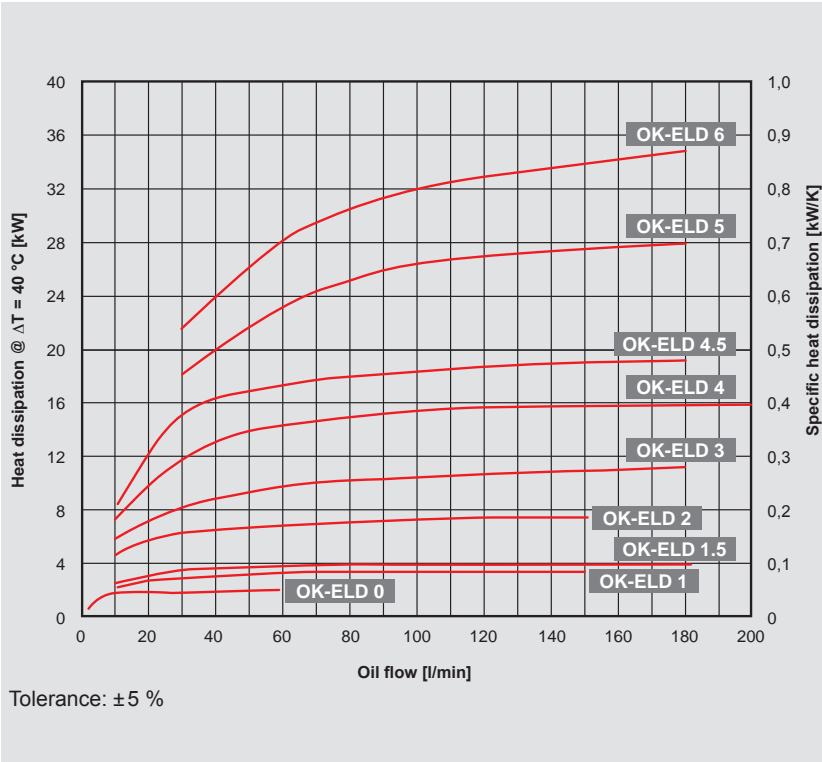
#### Counter connector

Type of cooler	P/N	
OK-ELD 0	12 V	3973604
	24 V	3973656
OK-ELD 1	12 V / 24 V	3973602
OK-ELD 1.5	12 V / 24 V	3973602
OK-ELD 2	12 V / 24 V	3973602
OK-ELD 3	12 V / 24 V	3176990
OK-ELD 4	12 V / 24 V	3973602
OK-ELD 4.5	12 V / 24 V	3973602
OK-ELD 5	12 V / 24 V	(2x) 3176990
OK-ELD 6	12 V / 24 V	(2x) 3973602



## Cooling Capacity and Pressure Difference $\Delta p$

### OK-ELD 0-6

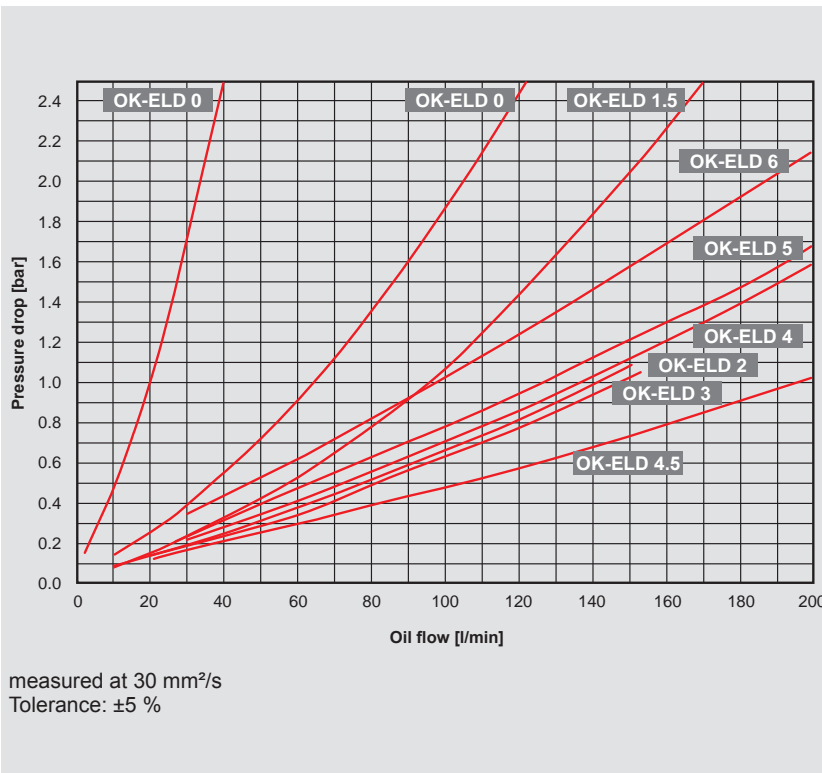


#### Cooling capacity:

Dependent on the oil flow rate and the temperature difference  $\Delta T$  between oil inlet and air inlet.

#### Note:

The values are measured at  $\Delta T = 40 \text{ °C}$ . For smaller  $\Delta T$  values, the values can change. You can also use our cooler calculation software for designing. Please contact our technical sales department.



#### Pressure difference $\Delta p$

For other viscosities, the pressure loss must be multiplied by the conversion factor K:

Viscosity ( $\text{mm}^2/\text{s}$ )	10	15	22	30	46	68	100	150
Factor K	0.35	0.5	0.75	1.0	1.4	1.9	2.5	3.5

## Model Type

OK-ELD - 1H - 3.1 - 12 VBL - 1 - S - AITF60

### Cooler type

OK-ELD = Oil-Air cooler

### Size / motor speed

0-6 = size

H = 2 pl (3,000 min<sup>-1</sup>)

### Revision

### Motor voltage

12 V = 12 V DC

24 V = 24 V DC

12 VBL = 12 V DC brushless

24 VBL = 24 V DC brushless

### Color

1 = RAL 9005 (standard)

Other colors on request.

### Air flow direction

S = Suction (standard)

D = Blowing

### Accessories

IBP = Heat exchanger with integrated bypass valve

IBT = Heat exchanger with integrated thermo-bypass valve

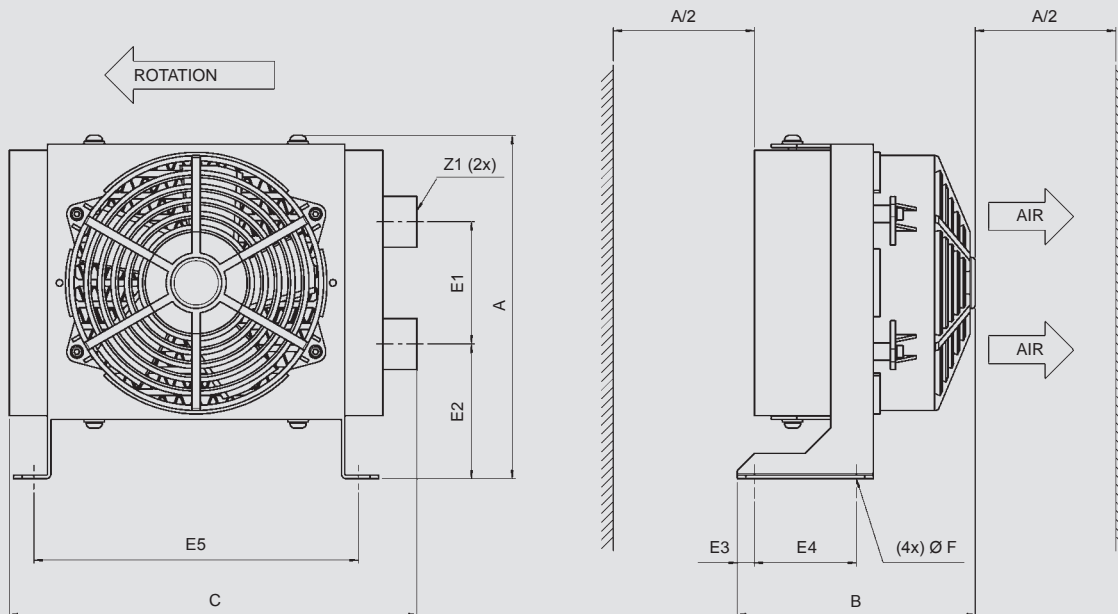
AITF = Thermostat (fixed)

ESC = Electronic speed control

For all possible accessories, like vibration absorber, air filter grid or air filter mat, please refer to brochure Accessories for air coolers.

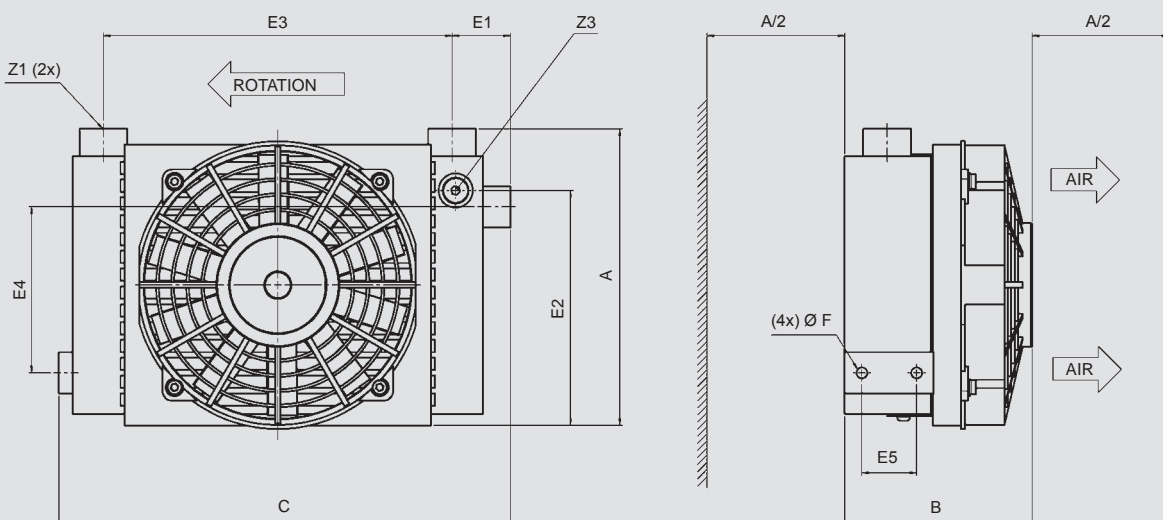
**Dimensions**

OK-ELD 0



**Dimensions**

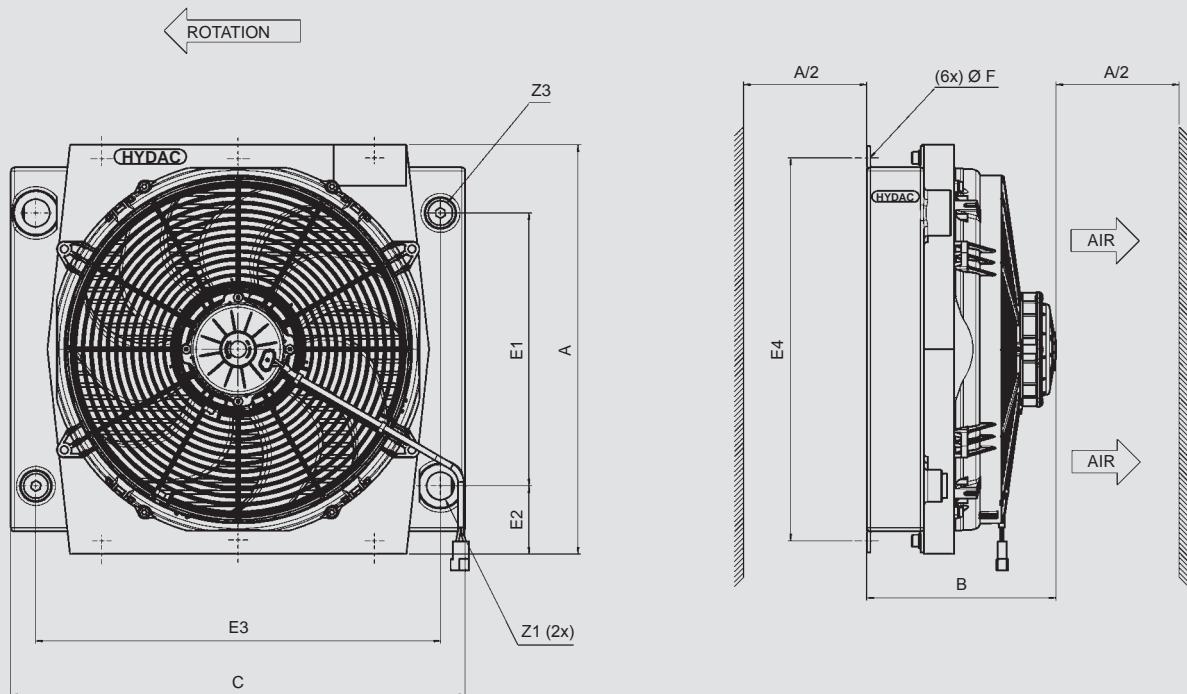
OK-ELD 1.5



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## Dimensions

### OK-ELD 1-4



[mm]	A ±5	B ±10	C ±5	E1 ±5	E2 ±5	E3 ±5	E4 ±5	E5 ±2	F ø/slot	Z1	Z3
OK-ELD 0	202	140	240	72	79	10	60	190	6.5	G½"	–
OK-ELD 1	245	120	300	125	60	250	225	180 <sup>1)</sup>	9.0	M22x1.5	M22x1.5
OK-ELD 1.5	217	137	330	43	172	255	121	40	M8	M22x1.5	M14x1.5
OK-ELD 2	313	207	384	199	57	324	288	80	14x10	G1"	M22x1.5
OK-ELD 3	356	207	420	230	63	370	329	100	14x10	G1"	M22x1.5
OK-ELD 4	450	208	500	300	75	445	421	150	19x10	G1"	M22x1.5 <sup>2)</sup>
OK-ELD 4.5	454	227	602	350	52	495	200	580 <sup>1)</sup>	12.0	G1-¼"	M22x1.5 <sup>2)</sup>

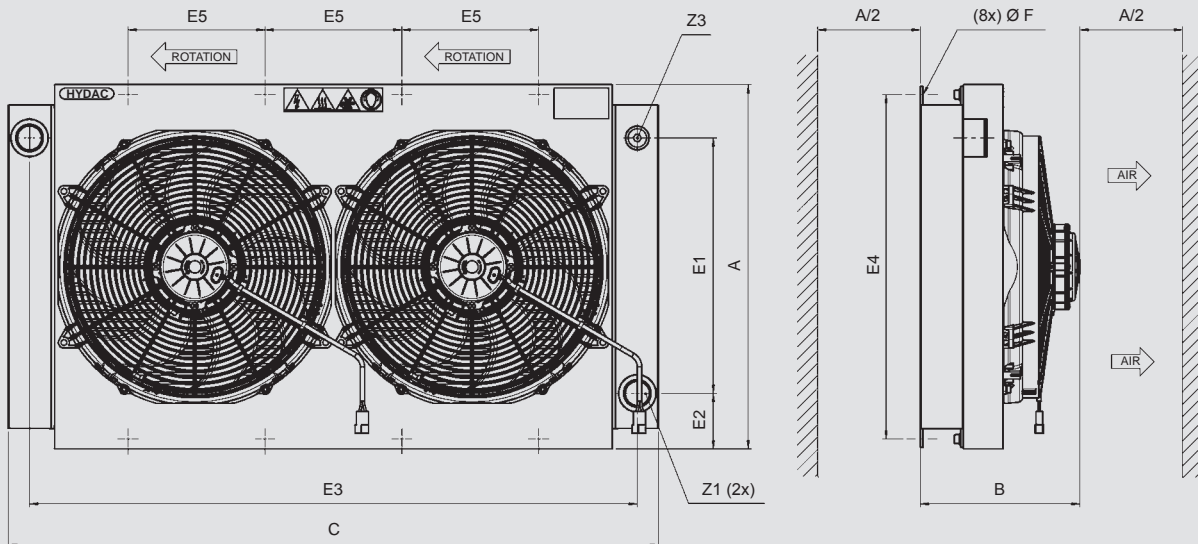
<sup>1)</sup> OK-ELD 1 and OK-ELD 4.5 have only the four external fixing points

<sup>2)</sup> OK-ELD 4 and OK-ELD 4.5 have two connections M22x1.5



## Dimensions

### OK-ELD 5-6



[mm]	A ±5	B ±10	C ±5	E1 ±5	E2 ±5	E3 ±5	E4 ±5	E5 ±2	F ø/slot	Z1	Z3
OK-ELD 5	480	232	810	321	79	750	450	170	10x20	G1-¼"	M22x1.5
OK-ELD 6	532	233	950	373	81	888	503	200	9x21	G1-¼"	M22x1.5

#### Note:

We recommend maintaining a minimum distance to ensure an unimpeded air inlet and air outlet. This is half the height of the cooling element (A/2). Anything below the minimum distance can influence the cooling capacity and the noise emissions.



# Niehues

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## Note

The information in this brochure relates to the operating conditions.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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