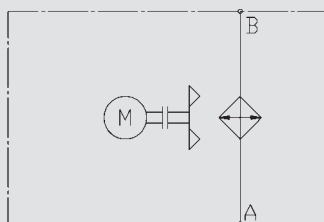


# HYDAC INTERNATIONAL



## Air Cooler Industry OK-ELC 0-7

### Symbol



### General

The OK-ELC air cooler series is designed specifically for 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, compact AC electrically powered fans to give long trouble-free operation in arduous hydraulic applications.

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

- Compact, efficient, high performance
- Cooling range 1 - 28 kW
- AC motors in 230/400 Volt 50/60 Hz

### Application Field

Systems with small and medium cooling requirements, such as

- Industrial power units
- Lubrication systems
- Machine tools

### Operation Data

Fluids	Oils (mineral oils, synthetic oils, high viscosity oils, biological oils, phosphate ester) Water-glycol (cooling fluid)
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> Please contact the technical sales department in the event of deviating temperatures. <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.
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>● AC motor</li> <li>● Protection class IP20 (OK-ELC 0) Protection class IP55 (OK-ELC 1-7)</li> <li>● Insulation class F</li> </ul> Other versions on request.
ErP	The fan unit of the OK-ELC corresponds to the minimum efficiency levels specified in the Ecodesign directive or ErP directive (Energy-related Products) 2009/125/EC.
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>● Thermostats</li> <li>● Air filter grid or air filter mat</li> <li>● Vibration damper</li> </ul>

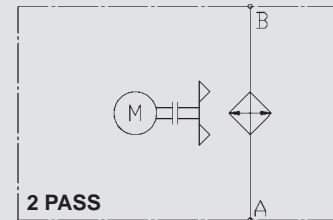
## Options

### 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.

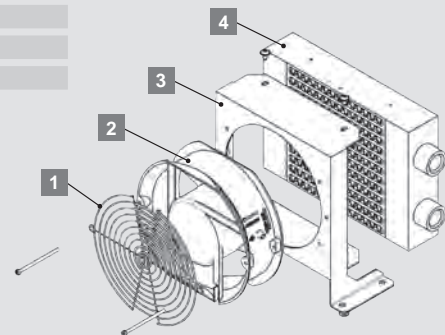
## Design

### OK-ELC 0

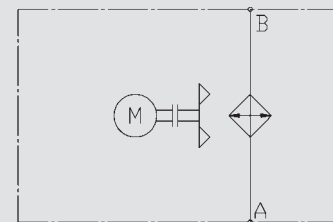


Air cooler with

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

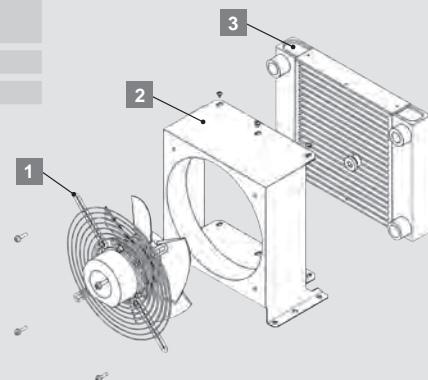


### OK-ELC 1



Air cooler with

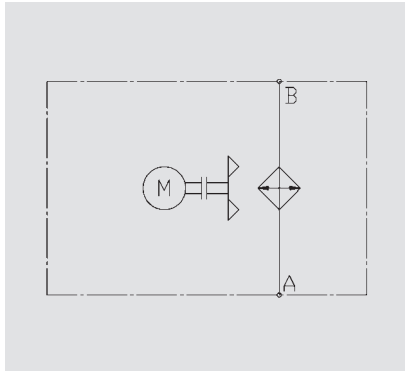
- 1 Axial fan with integrated motor and finger guard
- 2 Fan housing
- 3 Heat exchanger





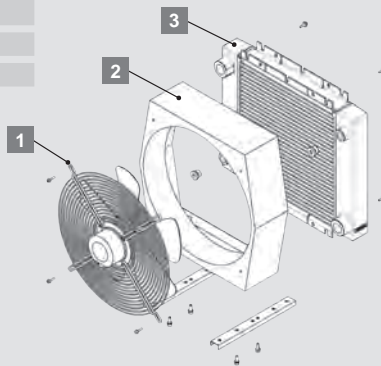
## Design

### OK-ELC 2-5

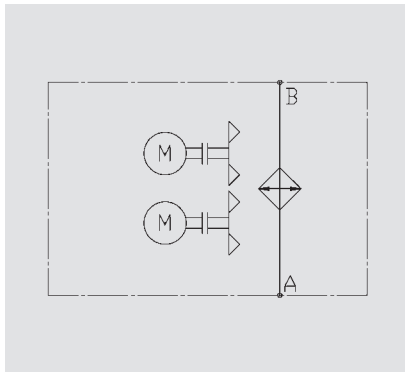


Air cooler with

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

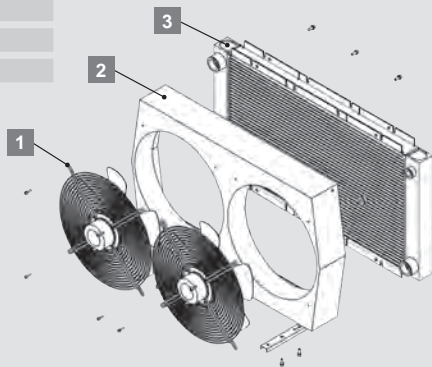


### OK-ELC 6-7



Air cooler with

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





### Technical Data

#### OK-ELC 0-7

Type of cooler	P/N	Voltage [V]	Fluid flow [l/min] <sup>1)</sup>	Air flow [m <sup>3</sup> /h]	N° of poles	Fan motor: Power / current absorption [kW / A] <sup>2)</sup>		Capacitor [µF/VDB] <sup>2)</sup>	Fan Diameter [mm] <sup>2)</sup>	Noise level (at 1m distance) [dB(A)]	Volume [l] <sup>3)</sup>	Weight [kg] <sup>4)</sup>
						kW	A					
OK-ELC 0H	3115194	230	50	200	2	0.04	0.29	–	145	59	0.3	3.2
OK-ELC 1H	3117022	230	150	900	2	0.12	0.54	2/450	230	71	0.5	9.0
OK-ELC 1H	3117021	400	150	900	2	0.12	0.34	2/500	230	71	0.5	9.0
OK-ELC 2H	3110965	230	180	850	2	0.15	0.50	2/450	250	71	2.0	11.9
OK-ELC 2H	3099620	400	180	850	2	0.17	0.37	2/500	250	71	2.0	11.9
OK-ELC 3H	3108660	230	180	1,300	2	0.17	0.75	4/450	300	75	2.2	14.7
OK-ELC 3H	3100673	400	180	1,300	2	0.19	0.56	3/500	300	75	2.2	14.7
OK-ELC 4S	3979356	230	250	1,900	4	0.21	0.92	4/450	400	69	3.0	21.0
OK-ELC 4S	3979358	400	250	1,900	4	0.23	0.40	–	400	69	3.0	21.0
OK-ELC 5S	3979359	230	250	2,000	4	0.21	0.92	4/450	400	72	5.2	28.0
OK-ELC 5S	3979360	400	250	2,000	4	0.23	0.40	–	400	72	5.2	28.0
OK-ELC 6H	3115191	230	250	3,000	2	0.17	0.75	4/450	300	75	4.2	39.0
OK-ELC 6H	3106810	400	250	3,000	2	0.19	0.56	3/500	300	75	4.2	39.0
OK-ELC 7S	3115193	230	250	4,200	4	0.21	0.92	4/450	400	71	5.2	45.0
OK-ELC 7S	3106811	400	250	4,200	4	0.23	0.40	–	400	71	5.2	45.0

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

<sup>2)</sup> OK-ELC 6-7: each fan

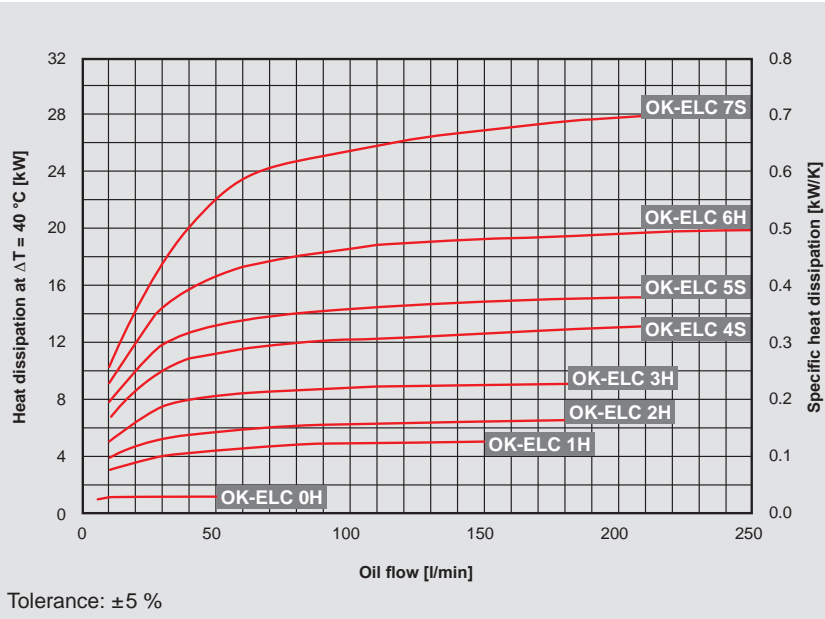
<sup>3)</sup> Fluid in cooling element

<sup>4)</sup> Unfilled



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

#### OK-ELC 0-7

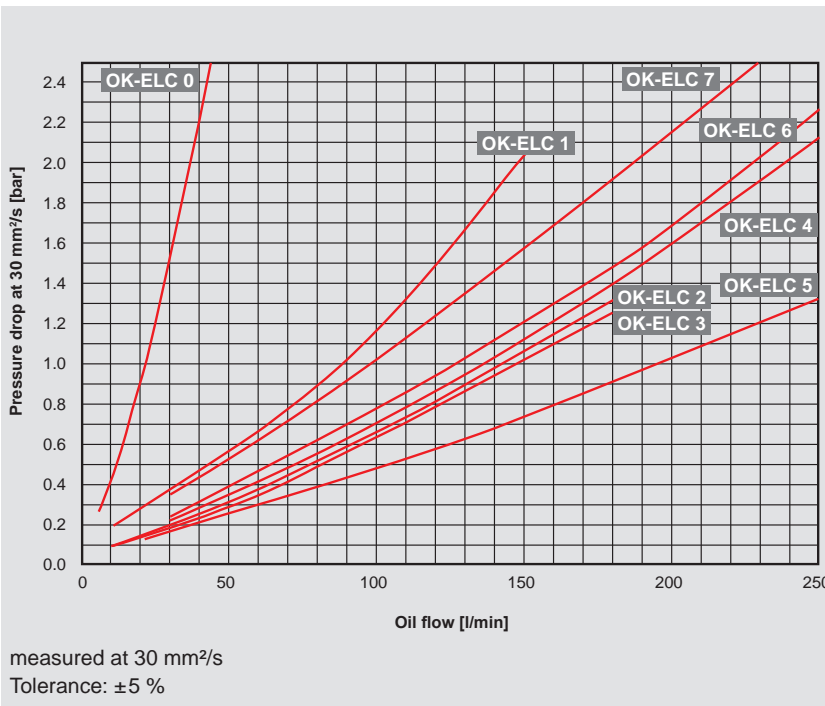


#### Cooling capacity:

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-ELC - 1H - 1.0 - 230 V - 1 - S - AITF50**

**Cooler type** \_\_\_\_\_

OK-ELC = Oil-Air cooler

**Size / motor speed** \_\_\_\_\_

0-7 = size (see cooling capacity)

H = 3,000 min<sup>-1</sup>

S = 1,500 min<sup>-1</sup>

**Revision** \_\_\_\_\_

**Motor voltage** \_\_\_\_\_

230 V = 230 V – 50 Hz, 220 V – 60 Hz

400 V = 400 V – 50 Hz, 440 V – 60 Hz

**Color** \_\_\_\_\_

1 = RAL 9005 (standard)

Other colors on request.

**Air flow direction** \_\_\_\_\_

S = Suction (standard)

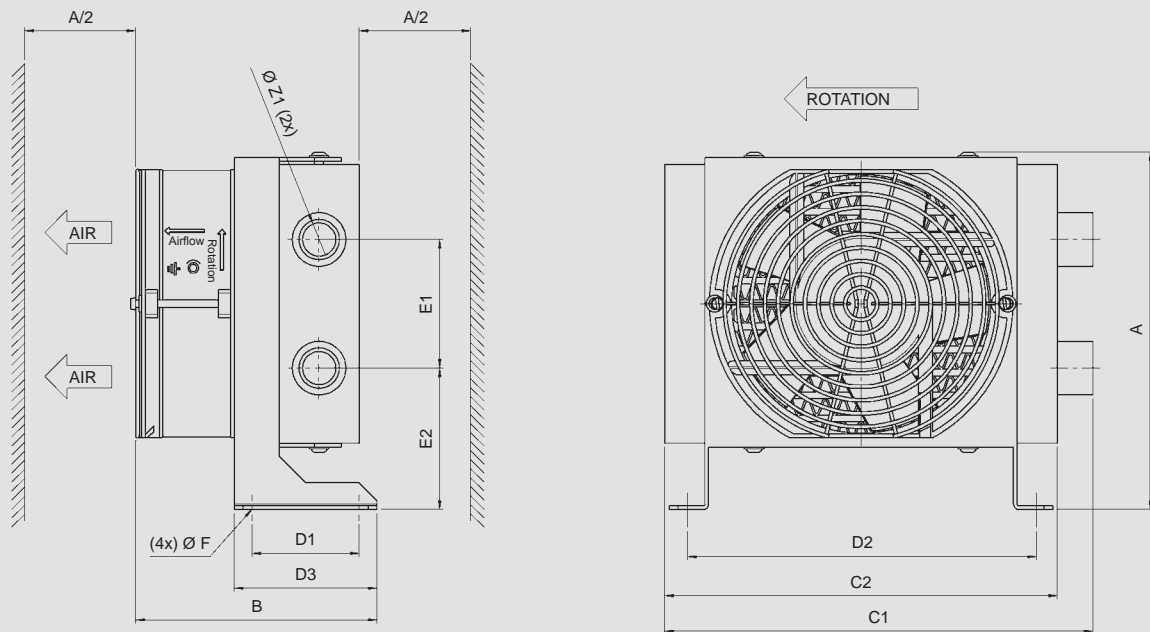
**Accessories** \_\_\_\_\_

IBP = Heat exchanger with integrated bypass valve (not available for OK-ELC 0 and OK-ELC 1)

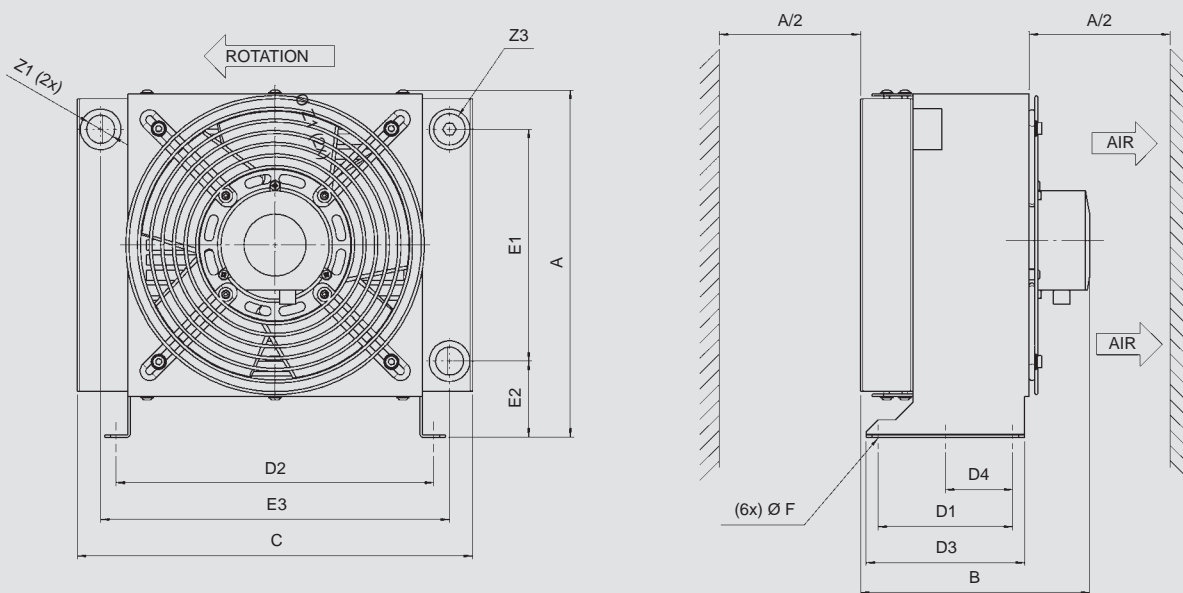
IBT = Heat exchanger with integrated thermo-bypass valve (not available for OK-ELC 0 and OK-ELC 1)

AITF = Thermostat (fixed)

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

**Dimensions**
**OK-ELC 0**


[mm]	A ±5	B ±10	C1 ±5	C2 ±5	D1 ±2	D2 ±2	D3 ±2	E1 ±5	E2 ±5	F ø/slot	Z1
<b>OK ELC 0</b>	200	135	240	220	60	190	80	72	79	6.5	G½"

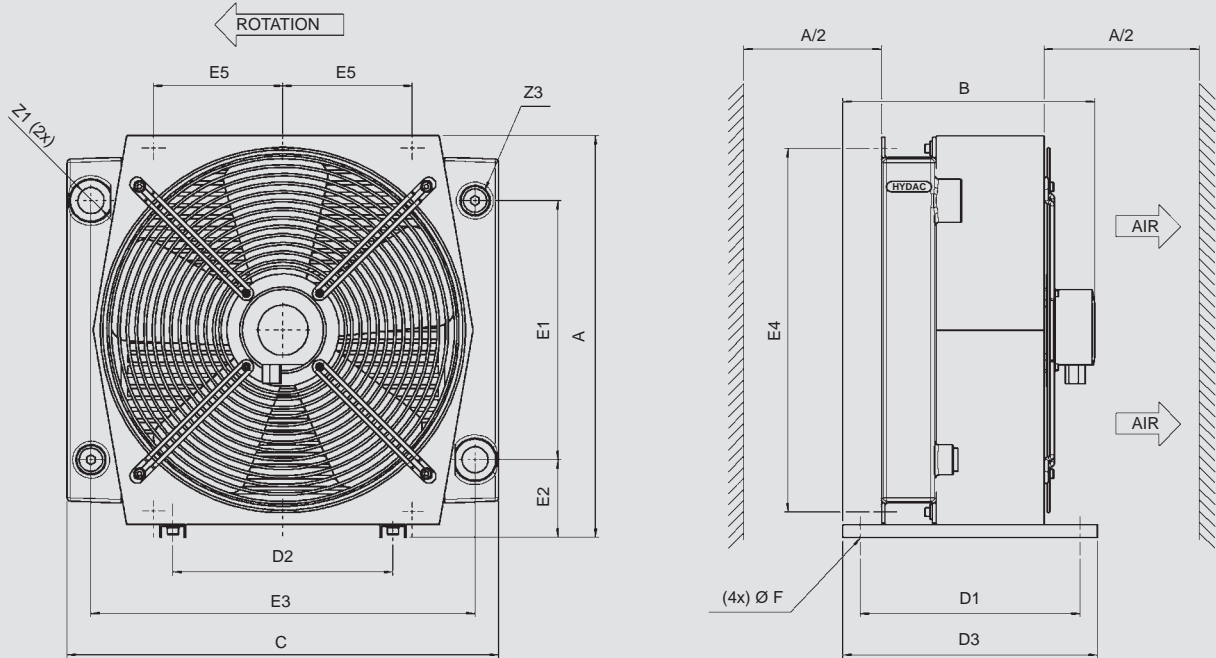
**Dimensions**
**OK-ELC 1**


[mm]	A ±5	B ±10	C ±5	D1 ±2	D2 ±2	D3 ±2	D4 ±2	E1 ±5	E2 ±5	E3 ±5	F ø/slot	Z1	Z3
<b>OK-ELC 1</b>	298	197	340	110	270	136	50	200	65	300	8.5	G¾"	M22x1.5

E 5.806.2/08.16

## Dimensions

### OK-ELC 2-5



[mm]	A ±5	B ±10	C ±5	D1 ±2	D2 ±2	D3 ±2	E1 ±5	E2 ±5	E3 ±5	E4 ±5	E5 ±2	F ø/slot	Z1	Z3
<b>OK-ELC 2</b>	328	290	384	255	160	295	199	72	324	288	80	9	G1"	M22x1.5
<b>OK-ELC 3</b>	371	287	420	255	240	295	233	76	370	329	100	14x10	G1"	M22x1.5 <sup>1)</sup>
<b>OK-ELC 4</b>	465	292	500	255	255	295	300	90	445	421	150	19x10	G1"	M22x1.5 <sup>1)</sup>
<b>OK-ELC 5</b>	475	306	600	255	255	295	350	72	490	200 <sup>2)</sup>	580 <sup>2)</sup>	12	G1-¼"	M22x1.5 <sup>1)</sup>

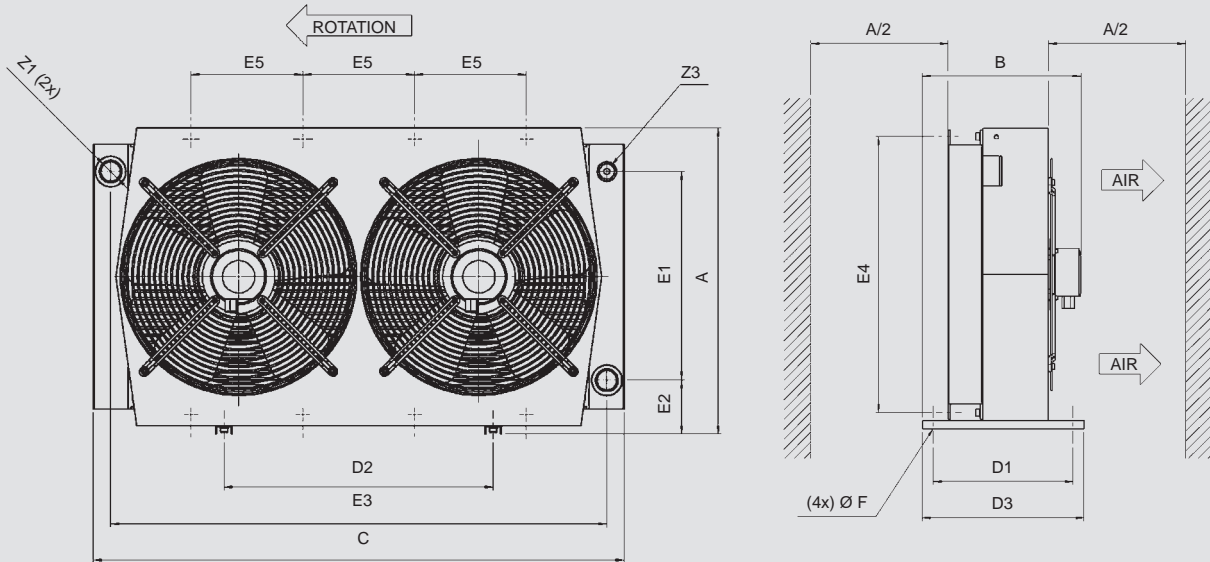
<sup>1)</sup> OK-ELC 3, OK-ELC 4 and OK-ELC 5 have two connections M22x1.5

<sup>2)</sup> OK-ELC 5 has the front fixing holes in the lateral sides



## Dimensions

### OK-ELC 6-7



[mm]	A ±5	B ±10	C ±5	D1 ±2	D2 ±2	D3 ±2	E1 ±5	E2 ±5	E3 ±5	E4 ±5	E5 ±2	F ø/slot	Z1	Z3
OK-ELC 6	495	289	810	255	482	295	321	95	750	445	170	10x20	G1-¼"	M22x1.5
OK-ELC 7	547	289	950	255	482	295	373	96	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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