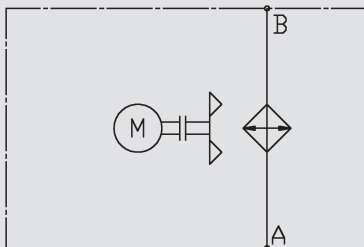




Air Cooler Mobile AC-M 1-4 with DC motor

Symbol



General

The AC-M series with DC motor has been specially developed for mobile applications (hydraulic systems) where high performance is required combined with compact design and easy installation.

Product Features

- Improved corrosion protection due to plastic fan housing and shroud
- The cooling element is equipped with a bypass channel as standard, this allows the IBP pressure bypass valve or the IBT thermal pressure bypass valve to be easily retrofitted
- Simple and flexible fixation design
- Choose between 2 different air fins for higher cooling capacity (PC) or lower susceptibility to contamination (HB)

Application Field

- Mobile cranes
- Concrete pumps
- Drilling rigs
- Roadworking machines
- Construction machines
- Agricultural machines
- Municipal machines

Operation Data

Fluids	<ul style="list-style-type: none"> ● Oils (mineral oils, synthetic oils, high viscosity oils, biological oils, phosphate ester) ● Water-glycol (cooling fluids) ● DI-water-glycol (cooling fluids)
Viscosity	According to the max. allowed pressure
Temperature range	<ul style="list-style-type: none"> ● Minimum / maximum ambient temperature: -20 °C to +40 °C (standard) ● Maximum temperature of the medium: +20 °C to +120 °C <p>In case of water-glycol mixtures, please check the minimum content of glycol to be used as specified in its technical datasheet. The fluid must be kept in its liquid form according to ASTM D1177. Please contact the technical sales department in the event of deviating temperatures.</p> <p>Notice! 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"> ● Dynamic operating pressure: 16 bar ● Static operating pressure: 26 bar
Radiator, air fin types	<ul style="list-style-type: none"> ● Panel cut (PC): for higher cooling capacities ● Herringbone (HB): suitable for very dusty applications
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"> ● DC motor ● 12 V / 24 V ● Protection class IP68 (IP6K9K on the complete E-fan) 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"> ● Integrated pressure bypass valve (IBP) or integrated thermal pressure bypass valve (IBT) (cannot be retrofitted, also see options) ● Electronic speed control (ESC) ● Thermostats ● Air filter grid or air filter mat ● Vibration dampers ● Feet

Options

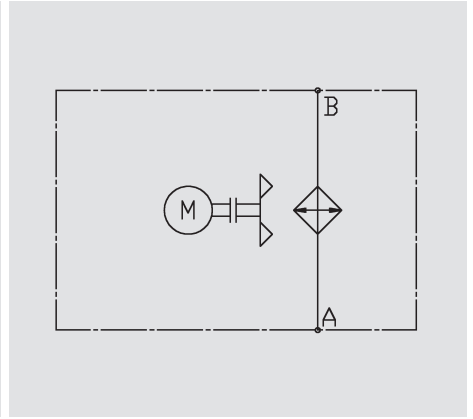
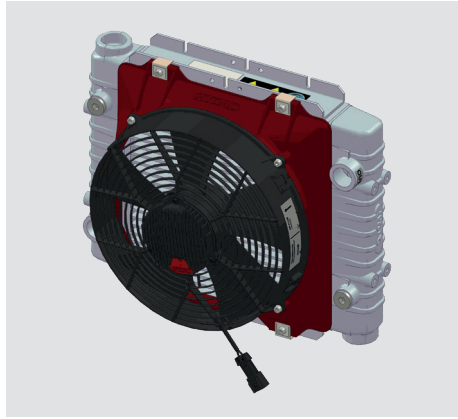
Integrated pressure bypass valve (IBP) / Integrated thermal pressure bypass valve (IBT)

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.

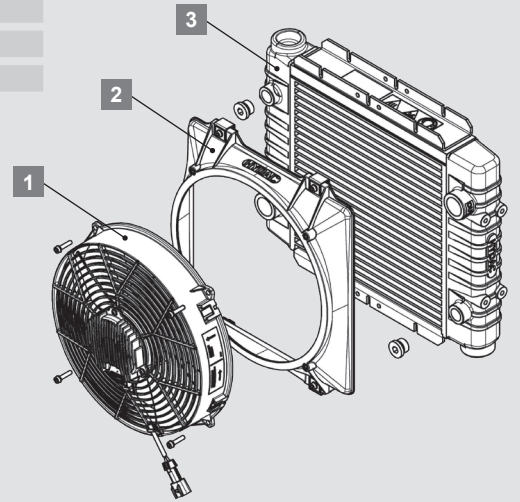
Design

AC-M 1-4



Air cooler with

- 1 Axial fan with integrated motor
- 2 Plastic fan housing
- 3 Radiator



Technical Data

AC-M 1-4

Type of cooler	P/N	Voltage [V]	Fluid flow [l/min] ¹⁾	Air flow [m ³ /h]	Fan motor: power/current absorption [kW/A]		Recommended Fuse [A] ²⁾	Fan Diameter [mm]	Noise level (at 1 m distance) [dB(A)]	Volumen [l] ³⁾	Weight [kg] ⁴⁾
					kW	A					
Air fin: Panel cut (PC)											
AC-M1	4348322	12	150	530	0.10	4.8	15.0	190	71.0	1.7	6.0
AC-M1	4348410	24	150	560	0.10	2.7	7.5	190	73.0	1.7	6.0
AC-M2L	4393124	12	150	1,130	0.10	6.9	15.0	280	70.0	2.8	9.6
AC-M2L	4393215	24	150	1,130	0.10	3.4	7.5	280	71.0	2.8	9.6
AC-M2	4348323	12	180	1,570	0.30	15.7	20.0	280	74.0	2.8	10.4
AC-M2	4348412	24	180	1,610	0.30	8.5	15.0	280	76.0	2.8	10.4
AC-M3	4348324	12	180	1,870	0.35	19.5	30.0	305	79.0	3.2	12.4
AC-M3	4348414	24	180	1,860	0.35	13.5	20.0	305	78.0	3.2	12.4
AC-M4	4348325	12	180	2,100	0.35	16.9	30.0	350	68.0	4.8	15.4
AC-M4	4348467	24	180	2,330	0.35	10.5	25.0	350	71.0	4.8	15.4
Air fin: Herringbone (HB)											
AC-M1	4348575	12	150	590	0.10	7.6	15.0	190	75.0	1.7	6.0
AC-M1	4348470	24	150	640	0.10	3.1	7.5	190	75.0	1.7	6.0
AC-M2L	4393216	12	150	1,200	0.10	6.0	15.0	280	68.0	2.8	9.6
AC-M2L	4393217	24	150	1,240	0.10	3.3	7.5	280	69.0	2.8	9.6
AC-M2	4348577	12	180	1,740	0.30	12.7	20.0	280	74.0	2.8	10.4
AC-M2	4348471	24	180	1,740	0.30	7.4	15.0	280	75.0	2.8	10.4
AC-M3	4348579	12	180	2,320	0.35	20.5	30.0	305	79.0	3.2	12.4
AC-M3	4348474	24	180	2,140	0.35	13.9	20.0	305	80.0	3.2	12.4
AC-M4	4348584	12	180	2,300	0.35	18.6	30.0	350	71.0	4.8	15.4
AC-M4	4348485	24	180	2,540	0.35	9.8	25.0	350	73.0	4.8	15.4

¹⁾ Max. flow rate

²⁾ Not included in the scope of supply of HYDAC; the fuse must comply to the ISO 8820 part 3 and with dimension suitable for the system and product features

³⁾ Fluid in radiator

⁴⁾ Unfilled

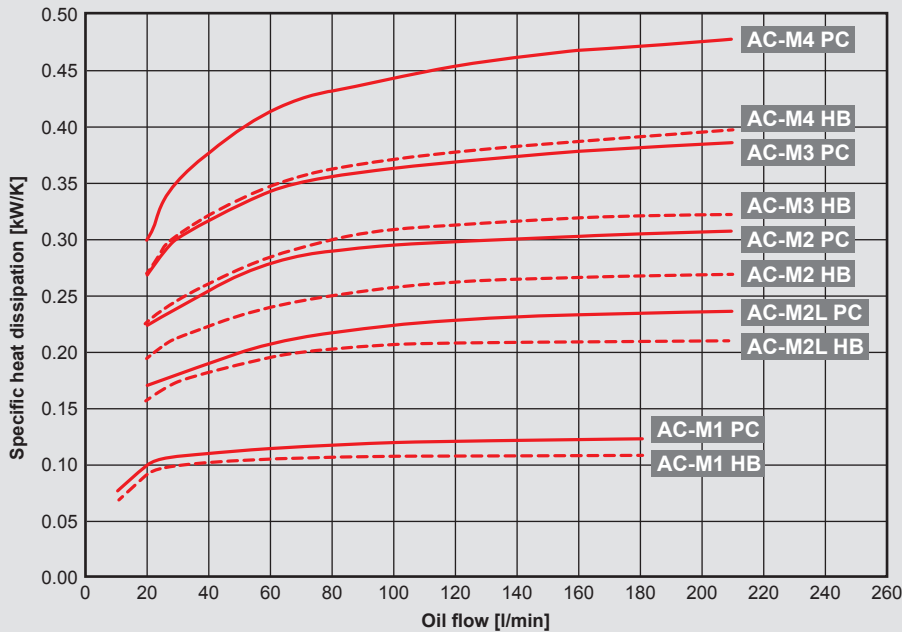
Counter connector

Type of cooler	P/N	
AC-M1	12 V / 24 V	3176990
AC-M2L	12 V / 24 V	3176990
AC-M2	12 V / 24 V	3176990
AC-M3	12 V	4425018
	24 V	3176990
AC-M4	12 V / 24 V	3176990

Cooling Capacity and Pressure Difference Δp

Mineral oil

AC-M 1-4



Tolerance: $\pm 5\%$

PC = Version with Panel cut air fin

HB = Version with Herringbone air fin

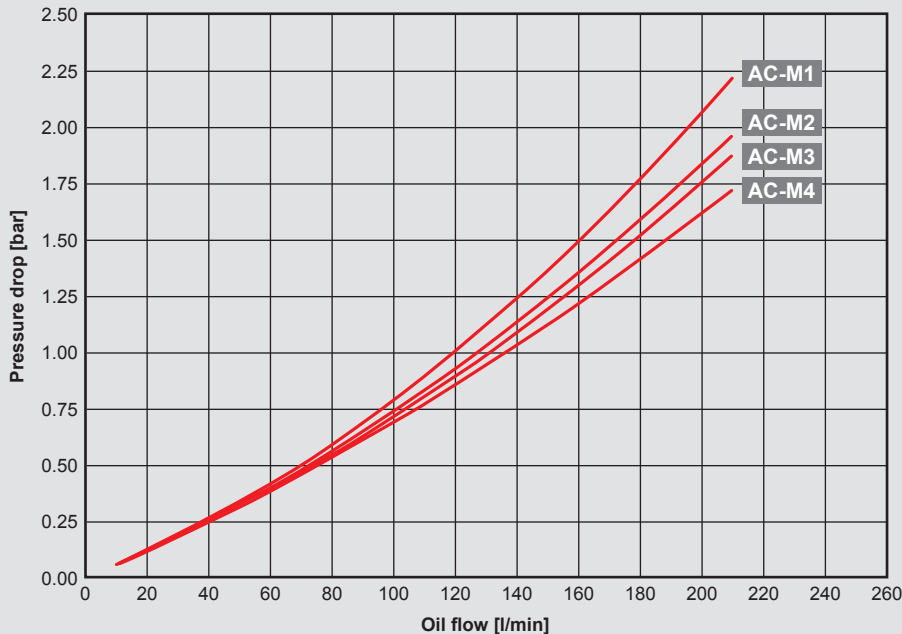
Cooling capacity:

Dependent on the oil flow rate and the temperature difference ΔT between oil inlet and air inlet.

For performance ranges below or above the values specified here, the **OK-ELD** series can be used. Please contact the technical sales department for these applications.

Note:

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



Measured at $30 \text{ mm}^2/\text{s}$

Tolerance: $\pm 5\%$

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

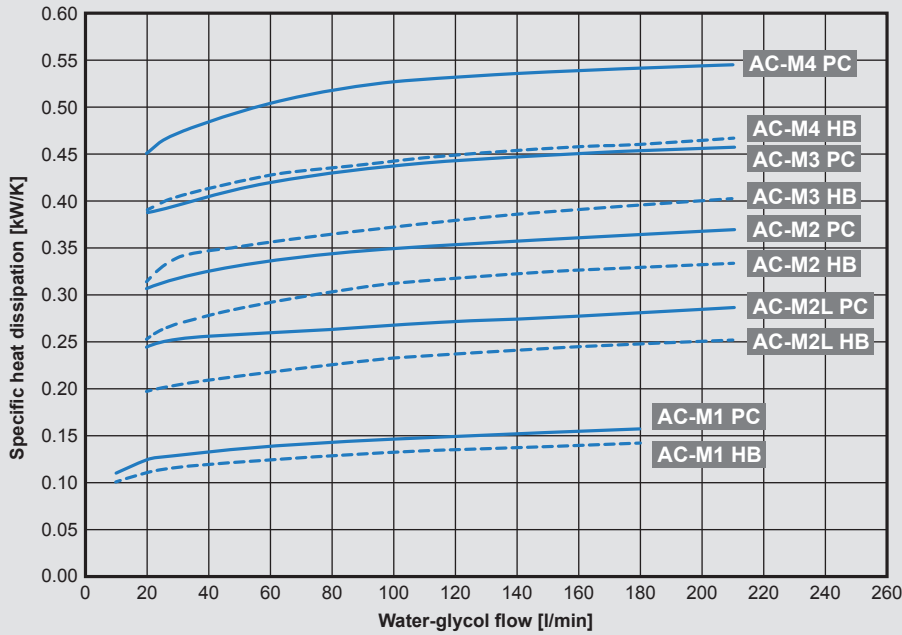
Viscosity (mm^2/s)	10	15	22	30	46	68	100	150
Factor K	0.35	0.5	0.75	1.0	1.4	1.9	2.5	3.5

Pressure difference Δp

Cooling Capacity and Pressure Difference Δp

Water-glycol (60/40)

AC-M 1-4



Tolerance: $\pm 5\%$

PC = Version with Panel cut air fin

HB = Version with Herringbone air fin

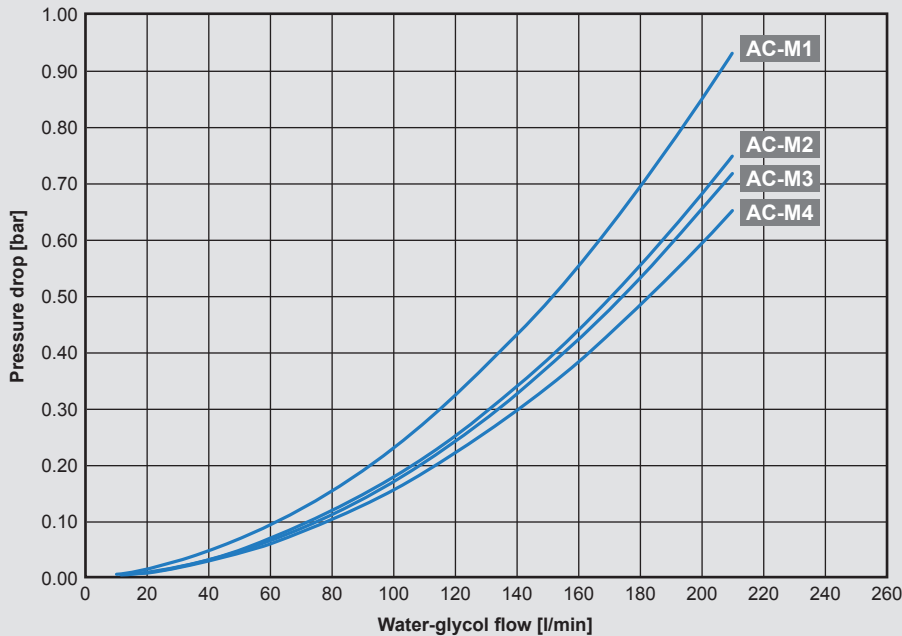
Cooling capacity:

Dependent on the water-glycol flow rate and the temperature difference ΔT between water-glycol inlet and air inlet.

For performance ranges below or above the values specified here, the **OK-ELD** series can be used. Please contact the technical sales department for these applications.

Note:

The values are measured at $\Delta T = 30^\circ\text{C}$. For smaller ΔT values, the values can change. You can also use our cooler calculation software for designing. Please contact our technical sales department.



Measured at $2 \text{ mm}^2/\text{s}$

Tolerance: $\pm 5\%$

Pressure difference Δp

Model Type

(Example)

AC-M 1 - 1.0 - 12V - PC - 1 - S - AITF60

Cooler type

AC-M = Air cooler (Oil / Water-glycol)

Size

1 - 4 = See cooling capacity

Version

Motor voltage

12V = 12 V DC

24V = 24 V DC

Radiator air fin types

PC = Panel cut

HB = Herringbone

Color

1 = RAL 3003 (standard)

Air flow direction

S = Suction version (standard)

B = Blowing version

Accessories

AITF = Thermostat (fixed)

ESC = Electronic speed control

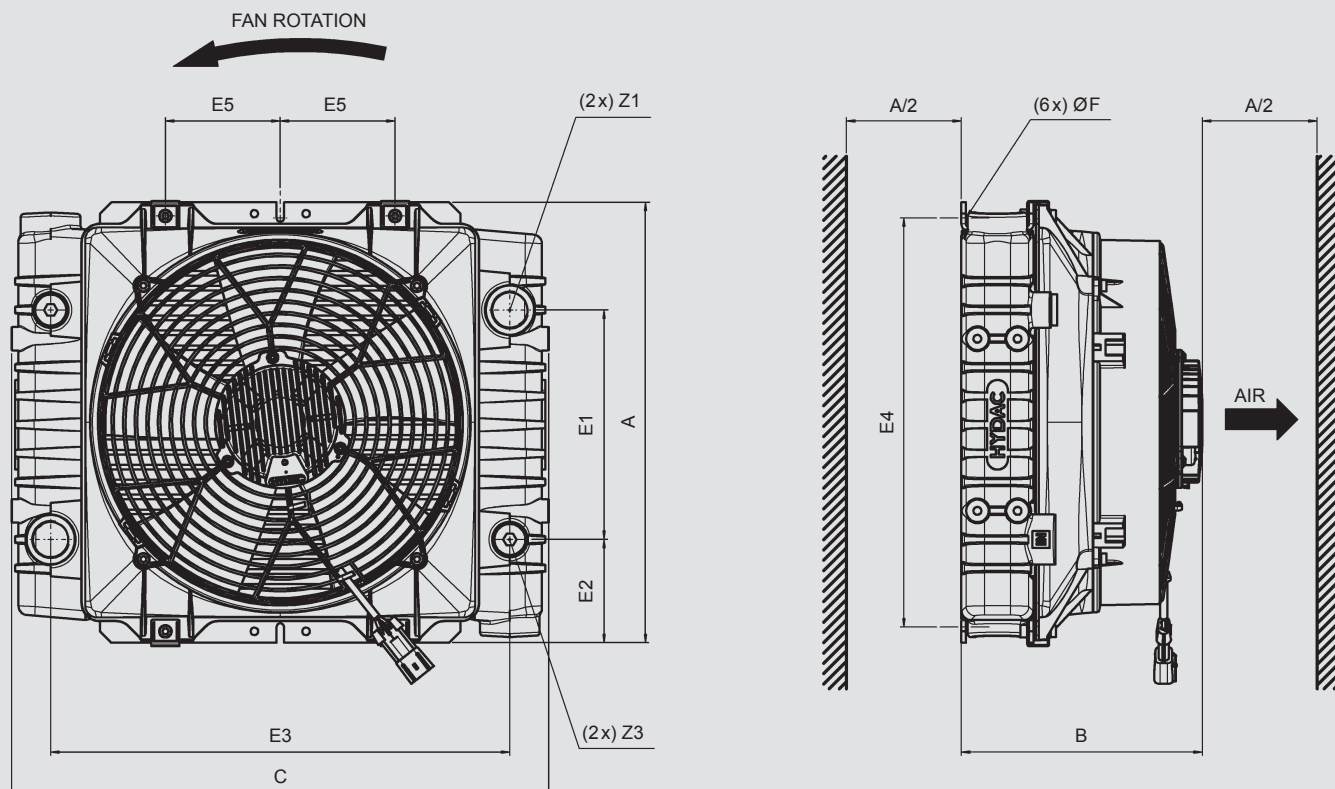
IBP = Integrated pressure bypass valve

IBT = Integrated thermal pressure bypass valve

For all possible accessories, like feet or vibration dampers please refer to brochure "Accessories for air coolers" (brochure no. 5.822).

Dimensions

AC-M 1-4



[mm]	A ±5	B ±10	C ±5	E1 ±5	E2 ±5	E3 ±5	E4 ±5	E5 ±2	F Ø/slot	Z1	Z3
AC-M1	260	143	353	100	78	285	233	60	6.5x17	G1"	M22x1.5
AC-M2L	351	211	458	200	74	390	324	100	6.5x17	G1"	M22x1.5
AC-M2	351	211	458	200	74	390	324	100	6.5x17	G1"	M14x1.5
AC-M3	384	228	468	200	90	400	356	100	6.5x17	G1"	M22x1.5
AC-M4	468	233	538	300	82	470	441	120	6.5x17	G1"	M22x1.5

The dimensions only apply to standard coolers without accessories.

Note:

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

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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