

# The **NEW** Mobile Air Cooler AC-M 1-6 with DC Motor

## Description

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

## Features and Benefits

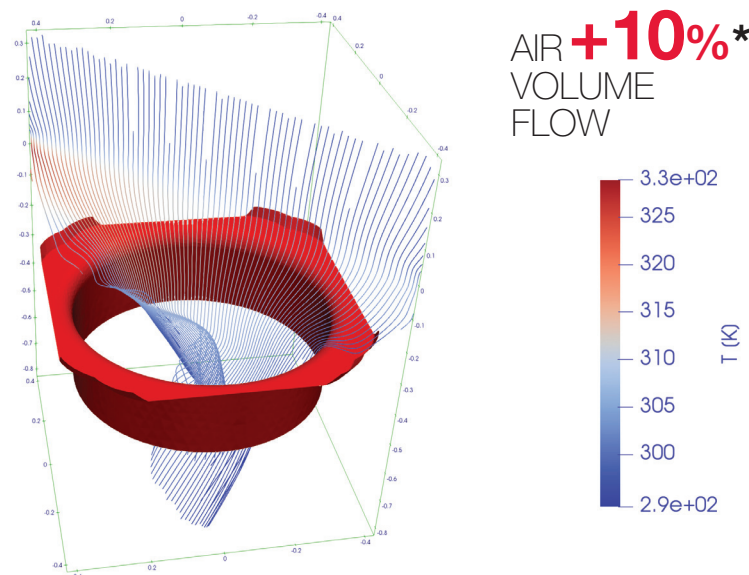
- Improved corrosion protection due to plastic fan housing and shroud
- The cooling element is equipped with a bypass channel as an option, this allows the IBP pressure bypass valve or the IBT thermal pressure bypass valve to be interchanged
- Simple and flexible mounting design
- Choose between 2 different air fins for higher cooling performance (PC) or lower susceptibility to clogging (HB)
- Bar and Plate style construction
- Fan features sealed connector standard

## Applications

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



CFD modeling optimized the plastic shroud's design for improved airflow, ensuring the AC-M series achieves the highest cooling performance.



## AC-M

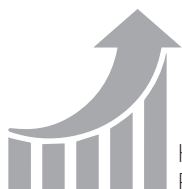
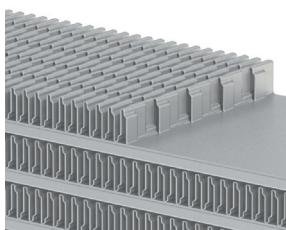
with **PANEL CUT** fins

## PC

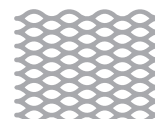
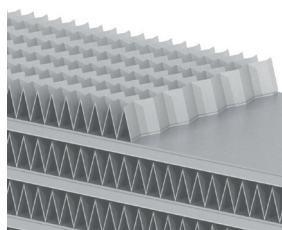
## AC-M

with **HERRINGBONE** fins

## HB



HIGH  
PERFORMANCE



ANTI CLOGGING

Suitable for very  
dusty applications



General

Fluids	<ul style="list-style-type: none"><li>• Oils (<i>mineral oils, synthetic oils, high viscosity oils, biological oils, phosphate ester</i>)</li><li>• Water-glycol (<i>cooling fluids</i>)</li></ul>
Viscosity	According to the max. allowed pressure
Temperature Range	<ul style="list-style-type: none"><li>• Minimum / maximum ambient temperature: -4°F to 104°F (-20°C to 40°C)</li><li>• Maximum temperature of the medium: 68°F to 248°F (20°C to 120°C) (<i>standard</i>)</li></ul> <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><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 122°F (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>• Max operating pressure: 16 bar</li></ul>
Air fin types	<ul style="list-style-type: none"><li>• Panel cut (PC): Suitable for higher cooling capacity/low dust applications</li><li>• Herringbone (HB): Suitable for high-dust applications</li></ul>
Fan	Axial fan in suction version
Motor	<ul style="list-style-type: none"><li>• DC motor</li><li>• 12 V / 24 V</li><li>• Protection class IP68 (<i>IP6K9K on the complete E-fan</i>)</li></ul>
Accessories	<ul style="list-style-type: none"><li>• Integrated pressure bypass valve (IBP) or integrated thermal pressure bypass valve (IBT) (<i>cannot be retrofitted, also see options</i>)</li><li>• Electronic speed control (ESC) for DC fan</li><li>• Temperature Switch</li><li>• Feet</li></ul>

Options

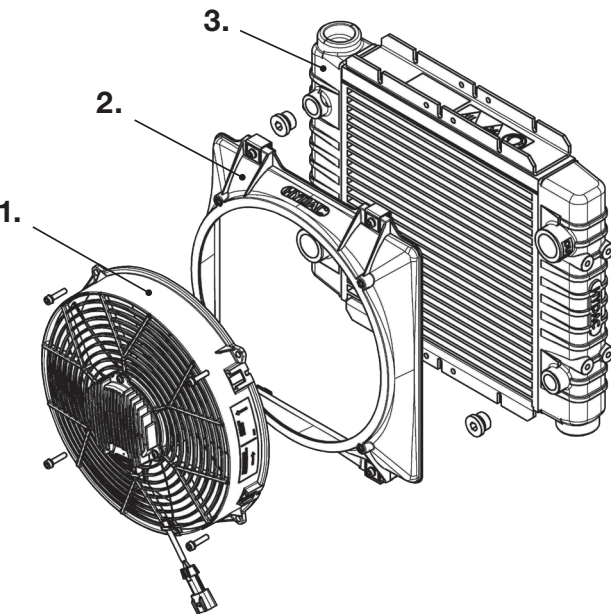
Integrated pressure bypass valve (IBP) / Integrated thermal pressure bypass valve (IBT)

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.

Air cooler with

- 1. Axial fan with integrated motor
- 2. Plastic fan housing
- 3. Heat Exchanger



Model Code

AC-M 4 2.5 12V HB S IBT45-3 TS140 X

Cooler type

AC-M= Air cooler for mobile applications

Size

1, 2, 3, 4, 5, 6

Modification Number (latest version always supplied)

2.5 = Heat Exchanger 1.0 Ports ORB-16, and ORB-08

Fan Motor Voltage

12 = 12 volt DC (Standard) 24 = 24 volt DC

Air Fin Design

HB = Herringbone (Standard) PC = Panel cut

Air Flow Direction

S = Suction (Standard)

Bypass Options

(omit) = None  
IBT = Internal Thermostatic Bypass Valve  
IBP = Internal Pressure Bypass Valve

Valve Opening Temperature (IBT only, consult factory for other options)

45 = 113°F (45°C) (closes at 131°F)

Opening Pressure Drop (IBT & IBP Only)

2 = 2 bar (29 psi) (IBP Only) 3 = 3 bar (45 psi) (IBT Only)

Temperature Switches (normally open, closes at listed temperature)

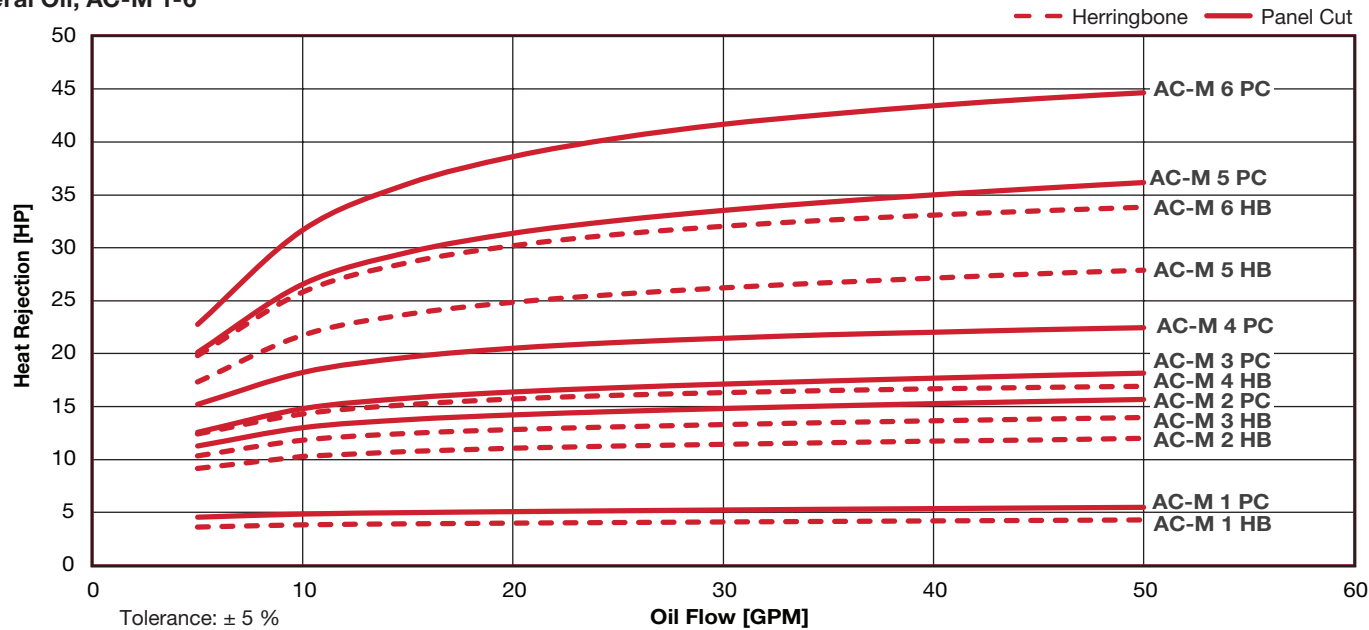
TS140 (wire leads)

Other Options

F = Foot Mount ESC = Electronic Speed Controller

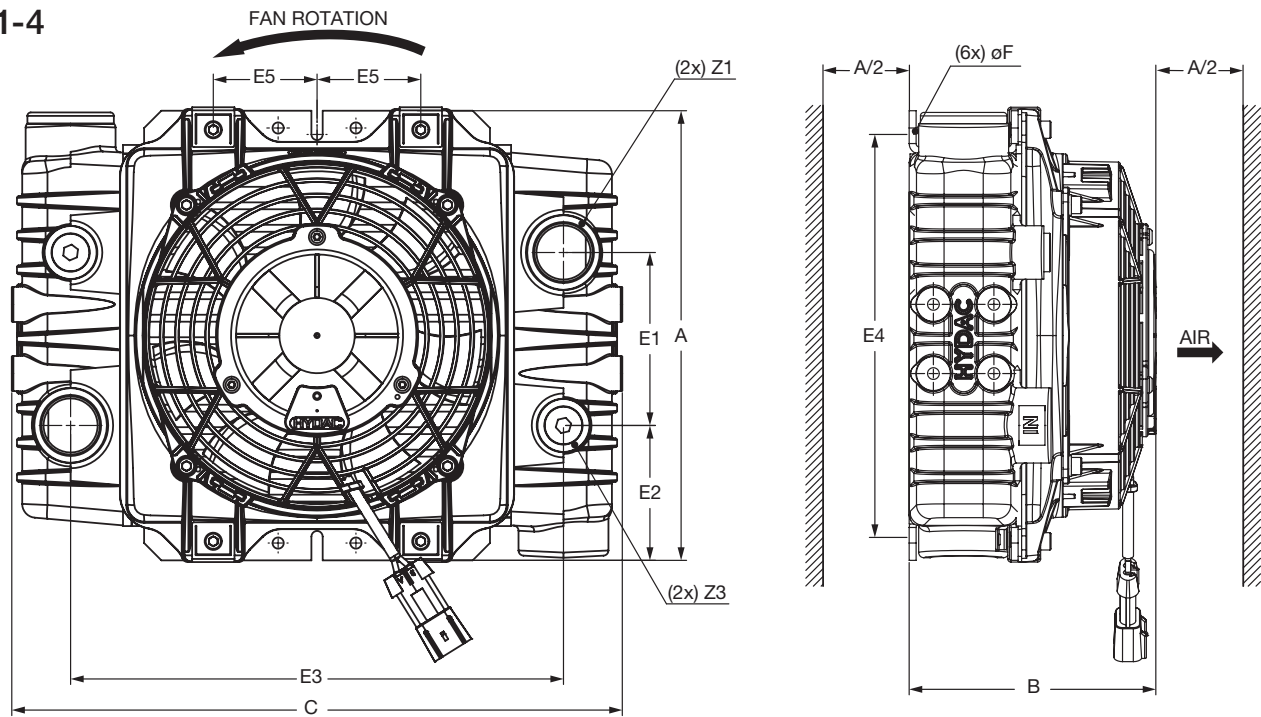
Cooling Capacity

Mineral Oil, AC-M 1-6



Dependent on the oil flow rate and the temperature difference  $\Delta T$  between oil inlet and air inlet.  
Note: The values are measured at  $\Delta T = 72^\circ\text{F}$  ( $40^\circ\text{C}$ ). For smaller  $\Delta T$  values, the values can change. You can also use our cooler calculation software for sizing. Please contact our technical sales department.

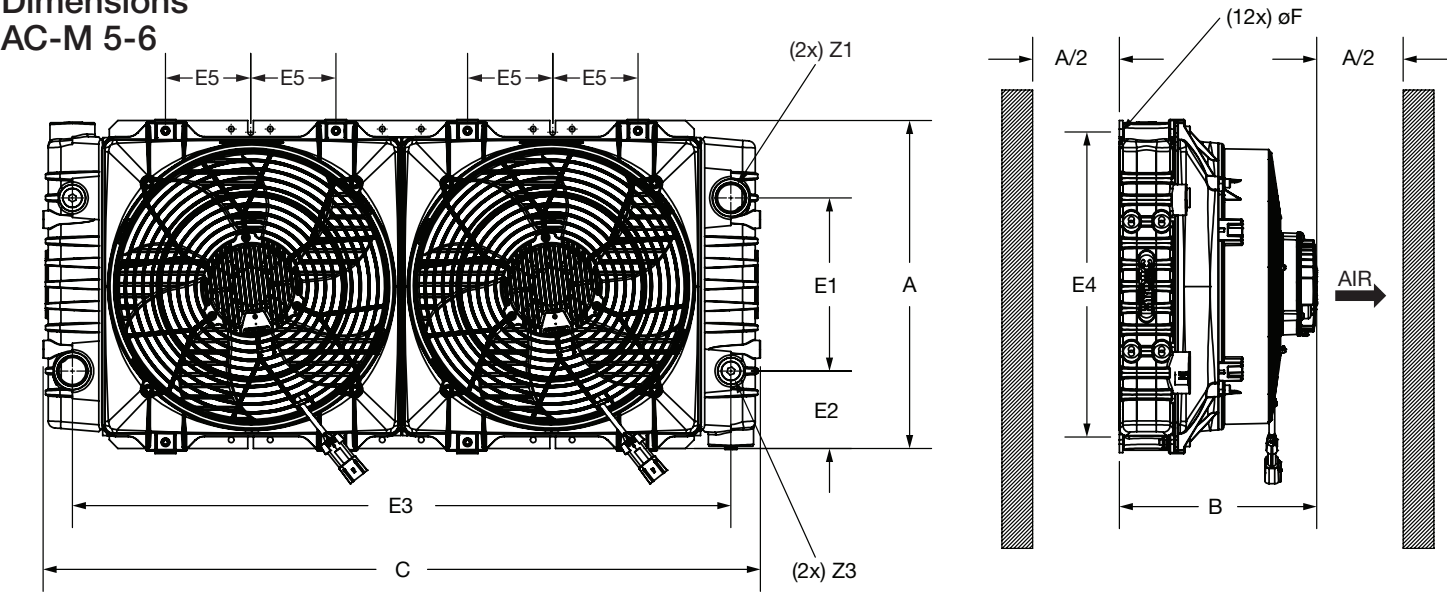
Dimensions  
AC-M 1-4



Type	A ±5	B ±5	C ±5	E1 ±5	E2 ±5	E3 ±5	E4 ±5	E5 ±2	Ø F ±2	Z1	Z3
AC-M 1	10.24 [260]	5.63 [143]	13.9 [353]	3.94 [100]	2.24 [57]	11.22 [285]	9.37 [238]	2.36 [60]	[6.5]X[17]	ORB-16	ORB-08
AC-M 2	13.82 [351]	8.31 [211]	18.03 [458]	7.87 [200]	2.09 [53]	15.35 [390]	13.07 [332]	3.94 [100]	[6.5]X[17]	ORB-16	ORB-08
AC-M 3	15.12 [384]	8.90 [226]	18.43 [468]	7.87 [200]	2.72 [69]	15.75 [400]	14.17 [360]	3.94 [100]	[6.5]X[17]	ORB-16	ORB-08
AC-M 4	18.43 [468]	9.17 [233]	21.18 [538]	11.81 [300]	2.40 [61]	18.50 [470]	17.72 [450]	4.72 [120]	[6.5]X[17]	ORB-16	ORB-08

The dimensions are in inches [mm] and only apply to standard coolers without accessories.  
Note: It is recommended to maintain a minimum distance to ensure an adequate airflow. The required distance is half of the height of the heat exchanger A/2. Anything below the minimum distance can affect the cooling capacity and noise emissions.

Dimensions  
AC-M 5-6



Type	A ±5	B ±5	C ±5	E1 ±5	E2 ±5	E3 ±5	E4 ±5	E5 ±2	øF ±2	Z1	Z3
AC-M 5	14.93 [379]	8.98 [228]	32.64 [829]	7.87 [200]	3.53 [90]	29.96 [761]	13.88 [353]	3.99 [99]	[6.3]x[17]	ORB-16	ORB-08
AC-M 6	18.51 [470]	9.15 [233]	37.72 [958]	11.81 [300]	3.35 [85]	35.04 [890]	17.72 [450]	4.72 [120]	[6.3]x[17]	ORB-16	ORB-08

The dimensions are in inches [mm] and only apply to standard coolers without accessories.

Note: It is recommended to maintain a minimum distance to ensure an adequate airflow. The required distance is half of the height of the heat exchanger A/2. Anything below the minimum distance can affect the cooling capacity and noise emissions.

Technical Data

Type of Cooler	P/N	Voltage [V]	Fluid flow [gpm] <sup>1)</sup>	Fan motor: current absorption [A]	Recommended Fuse [A] <sup>2)</sup>	Fan Diameter [mm]	Volume [gal] <sup>3)</sup>	Weight [lbs] <sup>4)</sup>
Air fin: Panel cut (PC)								
AC-M 1	7705375	12	39.6	4.8	15.0	190	0.45	13.2
AC-M 1	7705912	24	39.6	2.7	7.5	190	0.45	13.2
AC-M 2	7705376	12	47.6	15.7	20.0	280	0.74	22.9
AC-M 2	7705940	24	47.6	8.5	15.0	280	0.74	22.9
AC-M 3	7705377	12	47.6	19.5	30.0	305	0.85	27.3
AC-M 3	7705968	24	47.6	13.5	20.0	305	0.85	27.3
AC-M 4	7705378	12	47.6	16.9	30.0	350	1.27	34.0
AC-M 4	7705996	24	47.6	10.5	25.0	350	1.27	34.0
AC-M 5	7707512	12	47.6	21.1*	TBD	305	1.00	45.21
AC-M 5	7707505	24	47.6	12.5*	TBD	305	1.00	45.21
AC-M 6	7707536	12	47.6	24*	TBD	350	1.38	56.48
AC-M 6	7707529	24	47.6	11.3*	TBD	350	1.38	56.48
Air fin: Herringbone (HB)								
AC-M 1	7705363	12	39.6	7.6	15.0	190	0.45	13.2
AC-M 1	7705925	24	39.6	3.1	7.5	190	0.45	13.2
AC-M 2	7705364	12	47.6	12.7	20.0	280	0.74	22.9
AC-M 2	7705953	24	47.6	7.4	15.0	280	0.74	22.9
AC-M 3	7705365	12	47.6	20.5	30.0	305	0.85	27.3
AC-M 3	7705981	24	47.6	13.9	20.0	305	0.85	27.3
AC-M 4	7705366	12	47.6	18.6	30.0	350	1.27	34.0
AC-M 4	7706009	24	47.6	9.8	25.0	350	1.27	34.0
AC-M 5	7707511	12	47.6	20.6*	TBD	305	1.00	45.21
AC-M 5	7707499	24	47.6	12.1*	TBD	305	1.00	45.21
AC-M 6	7707535	12	47.6	23.3*	TBD	350	1.38	56.48
AC-M 6	7707523	24	47.6	10.8*	TBD	350	1.38	56.48

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

<sup>2)</sup> 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

<sup>3)</sup> Fluid in heat exchanger

<sup>4)</sup> Unfilled

\* Amp draw per fan