



# Air-Oil Plate-Fin Heat Exchanger

Nowadays, more and more air cooling system were applied in oil cooling system because water cooling cost is too high and some areas are not easy to secure water. Even more water treatment and discharge is also very difficult and expensive. Air-Oil Plate-Fin heat exchanger has the characteristics of water-free, clean, compact, light weight and very easy for piping.

Dynatec provides 3 different series Air-Oil Plate-fin Heat Exchanger. These heat exchanger could be applied in drain system or return line systems with high quality and perfect cooling efficiency.

**AL series:** For Low Pressure Variable pump drain circuit.

Maximum Working pressure: 10 bar, Flow rate: 1-10 L/min.

**AW series:** For High pressure Variable pump drain circuit.

Maximum Working pressure: 15 bar, Flow rate: 1-20 L/min.

**AH series:** For Return line circuit or drain circuit.

Maximum Working pressure: 20 bar, Flow rate: 5 - 300 L/min.

## ■ Installation

1. Air-oil heat exchanger should be mounted in a position that could avoid vibration and impact, and make sure the air can be flow freely. Prevents to mount it close to other heat source. Please refers to figure no. 1.
2. When use the heat exchanger, a by-pass circuit was recommend. Especially when use our AH series as return line cooling system. Please refers to figure no. 2. This by-pass circuit could protects heat exchanger when surge pressure happen.
3. When fastening the adaptor of In out ports, please use an Adjustable Wrenches to hold-on the ports. Because Both ports also made by aluminum, and could be damaged when without a tool to hold-on when twist.
4. For keeping the heat exchanger in high efficiency, please clean the radiator once a week if possible. It can be done by compressed air. Please be sure the jet runs in usual direction and the electric motor must be disconnect to the power and in good protection.

## ■ How to Choose your heat exchanger

The Overall efficiency of most hydraulic system is app.. 70 to 85 %, It means that 15 to 30% of power convert to heat and must be dissipated by the heat exchanger. When choosing a heat exchanger, an over estimate of 15 to 20% is necessary. When dust cover the fin, the cooling efficiency will be lower.

## ■ Formula

$N$ =installed power in the system (kW)

$Q$ =heat to be dissipated (kcal/h)

$T_o$ =maximum allowed oil temperature (°C)

$T_{amb}$ =ambient temperature(°C)

$K_r$  means the required specific performance of the heat-exchanger

$K_r = Q/\Delta T$ , dove  $\Delta T$  is the difference between oil inlet temperature and summer ambient temperature, while  $Q$  is the quantity of heat to be dissipated which can be easily calculated considering 20-30% of installed power.

## ■ Example

$N = 20 \text{ kW}$   $T_o = 50^\circ\text{C}$   $T_{amb} = 30^\circ\text{C}$

$Q = (30\% + 20\%)20 = 10 \text{ kW} = 8600 \text{ kcal/h}$

$T = 50 - 30 = 20^\circ\text{C}$

$K_r = 8600/20 = 430 \text{ kcal/h}^\circ\text{C}$

The choice of the correct cooler is made using the diagrams you will find in our technical catalogues.

## ■ Equivalent among main units

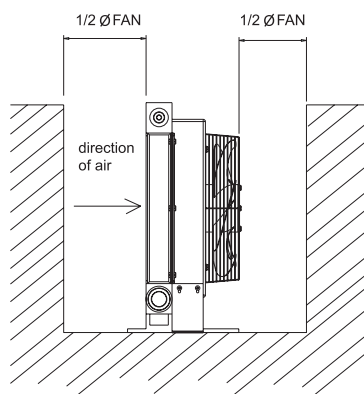
1 HP = 635 kcal/h

1 kW = 860 kcal/h

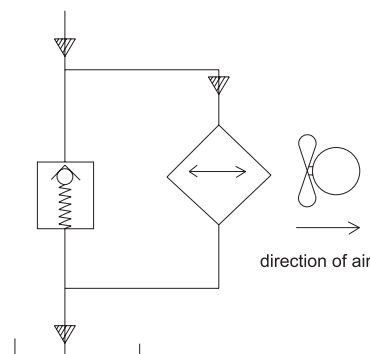
1 BTU = 0.35 kcal/h

1 cSt = 1 mm<sup>2</sup>/sec

## ■ Figure no. 1



## ■ Figure no. 2





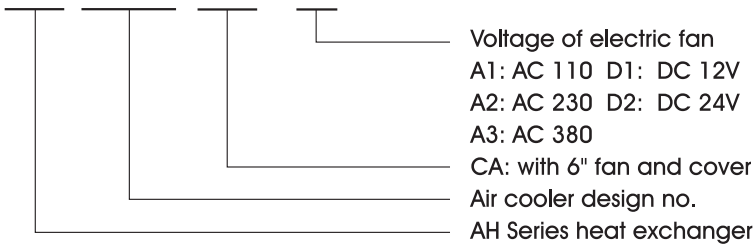
# AH Series Plate-Fin Heat Exchanger - Drain type

## Characteristic:

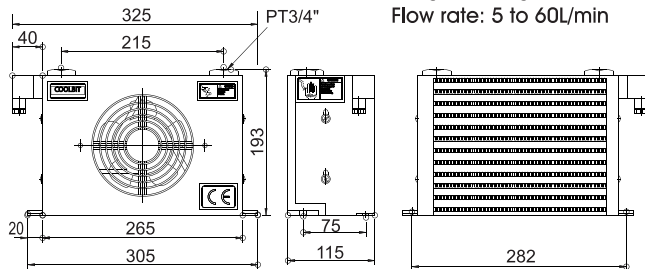
1. AH series are special designed for return line system, Maximum working pressure reaches 20 bar.
2. High density of fins are made by aluminum, increasing the cooling surface and very light of weight.
3. Three types of capacity for chosen.
4. All electric motor has CE certification and very low noise when operation.
5. Maximum working pressure 15 bar.

## ■ HOW TO ORDER

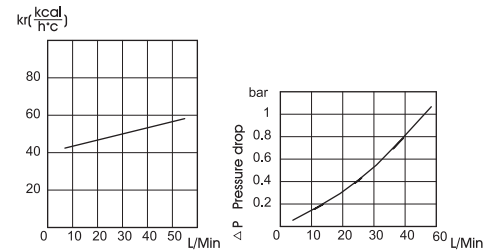
**AH -0608T -CA - A1**



UNIT: mm

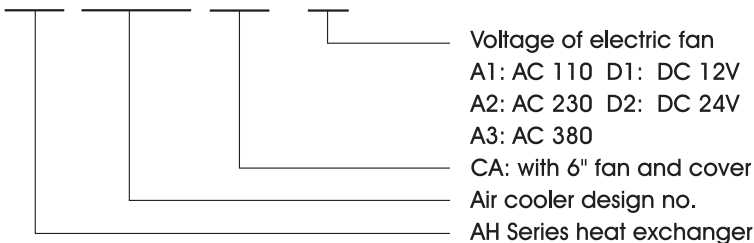


## ■ Performance Curve

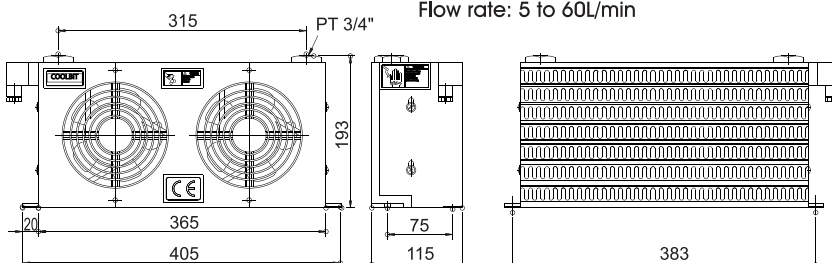


## ■ HOW TO ORDER

**AH -0608LT -CA - A1**



UNIT: mm



## ■ Performance Curve

