

Dry Coolers

FC ECA FC CHV AES AEV



20 kW
26 dB(A)

1400 kW
62 dB(A)



EUROVENT
CERTIFIED PERFORMANCE



CERTIFY ALL
DRY COOLERS

FRIGA-BOHN



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FC ECA.FC CHV

Main applications: air conditioning, free cooling... and cooling all kinds of fluids compatible with copper, with a maximum inlet temperature of 100°C.
When the outlet air temperature exceeds 60°C, choose **AES** or **AEV** range.

FC ECA (26 to 850 kW)



CASING

Casing made of galvanized steel sheet and RAL 7035 grey paint galvanized steel sheet.

The FC ECA are delivered on a wooden frame.

The use of 18/10 stainless steel bolts and nuts give them high corrosion resistance as well as quality aesthetics.

VENTILATION

The direct driven fan assemblies are equipped with following motors :

06P=900 r.p.m. - 08P=700 r.p.m. - 12N=570 r.p.m. - 12P=430 r.p.m. - 16P=380 r.p.m.

These motors are of the type 400V 3-ph, 50Hz, totally enclosed, IP55, class F, conforming to standard CEI 34-1, permanently lubricated.

Please consult us when the outlet air temperature exceeds 60°C.

The motors are factory-wired in :

- a junction box for the L models (motors in line)
- two junction boxes for the P models (motors in parallel)

12N motors are obtained by factory-wiring the 8P motors in star (Y) and 16P motors are obtained by factory-wiring the 12P motors in star (Y)

The fan guards comply to NF E51.190 standard

ADVANTAGES

- The most economical solution.
- Reduced maintenance due to direct driven fans.
- An optimised solution (noise level, energy consumption, size, type of temperature control...) due to multiple selection possibilities.

FC CHV (30 to 750 kW)



CASING

Casing made of galvanized steel sheet and RAL 7035 grey paint galvanized steel sheet.

The use of 18/10 stainless steel bolts and nuts give them high corrosion resistance as well as quality aesthetics.

The FC CHV are delivered screwed on a wooden frame with full packing.

VENTILATION

The fan assemblies, with external rotor, are equipped with fan guards comply to NF E51.190 standard.

The external mounting allows very easy access for eventual maintenance.

Three phase, 400 V, 50 Hz, IP 54, class F motors with internal protector.

Please consult us when the outlet air temperature exceeds 60°C.

The 8P motors are obtained by star coupling (Y) of the 6P motors, and the 16P motors are obtained by star coupling (Y) of the 12P motors.

ADVANTAGES

- Limited floor space.
- Maintenance reduced and simplified due to the direct driven fan assemblies with external mounting.

AES.AEV

Main applications: co-generation, power plants, process, industry... and cooling all kinds of fluids compatible with copper, with a maximum inlet temperature of 100°C and when outlet air temperature exceeds 60°C.

AES (70 to 550 kW)



CASING

Casing made of galvanized steel sheet and RAL 7035 grey paint galvanized steel sheet.

The AES are delivered on a wooden frame.

The use of 18/10 stainless steel bolts and nuts give them high corrosion resistance as well as quality aesthetics.

VENTILATION

The fan assemblies are equipped with Ø1840 mm fans with a special blade design, offering a high efficiency and extremely low noise level.

The blades in synthetic material are highly corrosion and wear resistant.

The air outlet temperature may be high, the motors being out of the air flux due to the pulleys and belts transmission.

Asynchronous motors, long life lubricated, three phase, 400V/50Hz, class F, conform to the CEI34-1 norm.

Fan guards conform to the NF E51.190 norm.

ADVANTAGES

- Motors outside of the air flow for increased lifetime even with high outlet air temperatures.
- Extremely low noise level due to reduced r.p.m.

AEV (150 to 1400 kW)



CASING

Hot dip galvanized steel frame, galvanized steel sheet casing.

VENTILATION

The fan assemblies are equipped with Ø1840mm fans with a special blade design, offering a high efficiency and extremely low noise level.

The blades in synthetic material are highly corrosion and wear resistant.

The air outlet temperature may be high, the motors being out of the air flux due to the pulleys and belts transmission.

Asynchronous motors, long life lubricated, three phase, 400V/50Hz, class F, conform to the CEI34-1 norm.

Fan guards conform to the NF E51.190 norm.

ADVANTAGES

- High capacity dry coolers.
- Motors outside of the air flow for increased lifetime even with high outlet air temperatures.
- Limited floor space.
- Extremely low noise level due to reduced r.p.m.

DESCRIPTION

COILS

The FC ECA, FC CHV, AES and AEV dry coolers are equipped with coils with the following characteristics :

- Copper tubes in a staggered arrangement and corrugated aluminium fins for optimum heat transfer.
- Headers with air vents and drain plugs.
- Connections : NPT steel pipe up to DN50, flanges for larger sizes.

ADVANTAGES

Replace advantageously cooling towers:

- no air and water bacteria contamination
- no water consumption
- reduced maintenance
- low maintenance costs
- no steam production
- flexible use in winter time
- simple and cheap installation (steel pipes)
- easy control of fluid temperature in winter time

PERFORMANCES



Performances benefit from the EUROVENT certification .They have been measured according to EN 1048 standard.

As the performance of a dry cooler varies a lot with each working condition, it is not possible to present a selection method in this document.

Only the selection software, at your disposal on simple request, will allow you to select the dry cooler which suits the best your needs.

In case of emergency, do not hesitate to consult us in specifying : capacity, maximum day/night noise level, type of fluid, ambient temperature, fluid inlet temperature, fluid outlet temperature (or flow), maximum allowed pressure drop, other external constraints.

GENERALITIES

The freezing point of the fluid must be at least 5K below the minimum winter ambient temperature of the site of installation.

FREEZING RISK

A standard dry cooler cannot be fully drained simply by opening the drain fitting orifices.

Always run the piping leak tests using the selected fluid. For an application with plain water, and when the ambient temperature may drop below 0°C, a special coil design is required. Please consult us.

RECOMMENDATIONS

According to the professional regulations concerning :

- Vents and drains
 - Surge tanks
 - Flexible connexions
 - Vibration protection
 - Correct percentage of glycol
 - Fan motor protection
- Water treatment

OPTIONAL FEATURES

- Coil:
 - BYD** Blygold Plus coating of the fins
 - BAE** Coating of the fins
 - BCC** Copper fins
 - Special circuits**
 - Free draining circuit when not in operation**
 - Mating flanges, bolts and gaskets**
 - Steel or brass 1/2" G vents and drains**
- Fans:
 - C2V** Factory wiring in two speed into a common junction box (except 06P on FC ECA)
 - M60** 60Hz motors
- Casing:
 - REH** Extended legs for FC ECA et AES
- Protection and regulation (FC ECA and FC CHV):
 - CMP*** Motors protection cabinet
 - RT1*** CMP plus control by fan cycling
 - RT2*** CMP plus control by speed regulation (voltage variation)
 - RT3*** CMP plus control by speed regulation (frequency variation)
 - RT4*** Pressure regulation with electronic motor speed control
- Miscellaneous:
 - VEX** Surge tank
 - CSE** Electrical safety device box
 - VDV** Speed controller
- Other options: Consult us

* see specific leaflet CMP RT1.RT2.RT3.RT4