



# HEF5-V series

## Cellular panel evaporative coolers

Vertical air discharge (\*)

(\*) Another series caters for horizontal air discharge





## The evaporative process in the psychrometric chart

### Psychrometry

The chart below shows an example of the standard psychrometric process employed for the design of this kind of evaporative coolers:

- 1) The starting point is summer air at 34°C (dry bulb) and 21°C (wet bulb).
- 2) Air is obtained at 24°C (dry bulb) and 21°C (wet bulb).

Evaporative cooling (A-B).

The humidification achieved (x) is from 10 g/kg to 14.5 g/kg from which the evaporation performance is obtained. To this end, the 'Saturation efficiency' is defined.

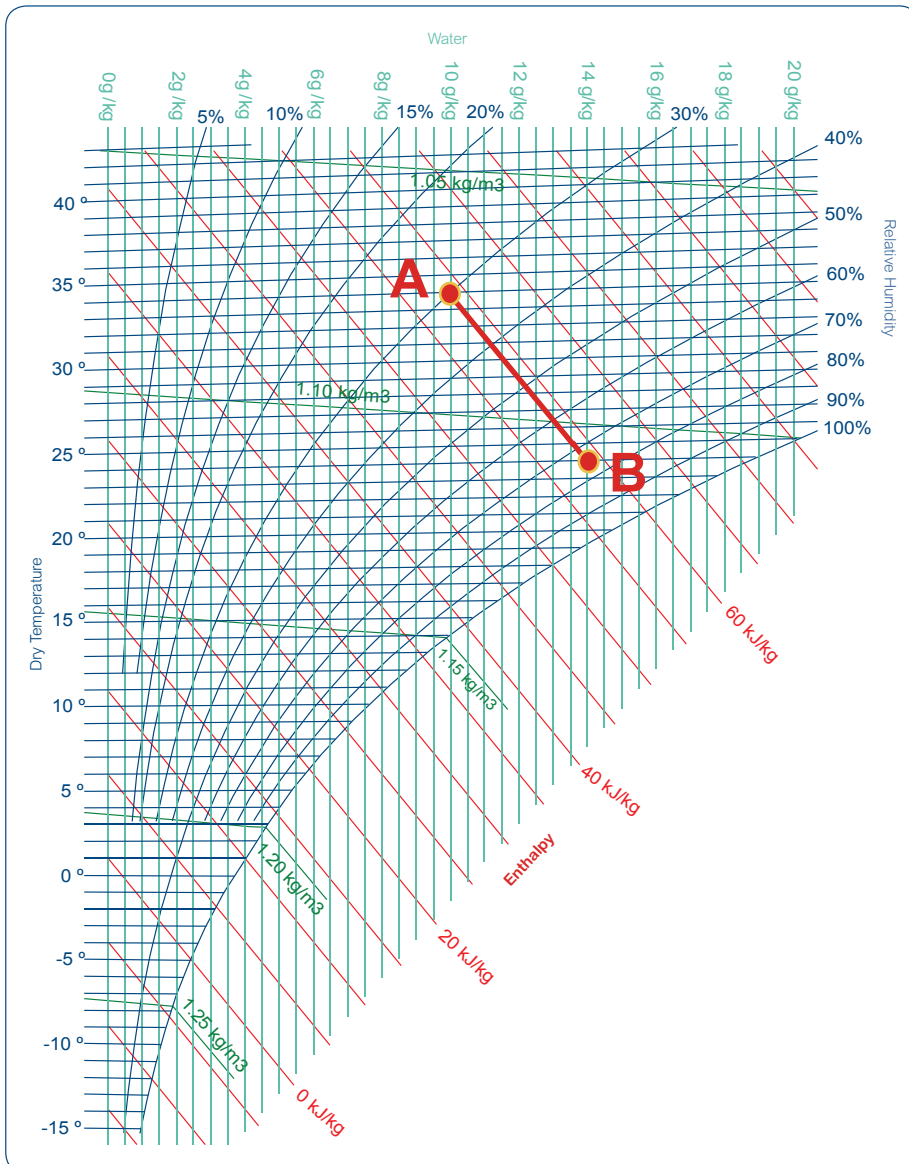
### Saturation Efficiency

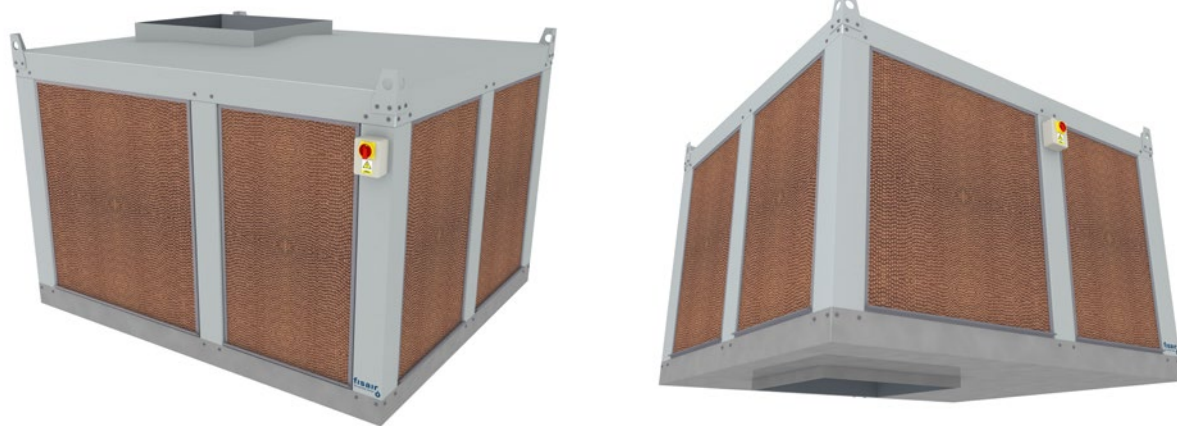
Defined as the ratio between the required humidification and the maximum permitted; which is expressed as the ratio of the process and humidified air dry bulb temperature difference, and the process air dry and wet bulb temperature difference.

$$+ \text{ Line A-B: } (34-24)/(34-21) = 76\%$$

### Humidifier Selection

Having ascertained the psychrometric conditions and the required saturation efficiency for the cooler/humidifier, the construction specifications chart and operating data are employed to define the unit most suited to your needs with regard to the full range of options.





### Specifications

FISAIR HEF5 contact cellular panel evaporative cooler

#### Construction

- AISI-304 stainless steel water basin
- Steel chassis (1)
- Evaporative cassettes: Steel frame (1) and cellulose panel (2)
- Water supply by: (3)
- Irrigation by (4) PVC pipes and flow regulation valves
- Constant bleed-off integrated into flow regulation
- Integrated overflow and draining
- Lower (LV) or upper (UV) vertical air discharge

### Options

- (1) Galvanized steel (standard) or stainless steel (optional)
- (2) Cellulose panel
- (3) Float valve (brass or stainless steel) and optional addition of NO/NC solenoid valve (24 or 230V)
- (4) Water direct from the network or recirculation pump (230/400V-IIIph-50Hz supply or other)
- (5) Optional integration for operational management and supervision of the humidifier with a PLR MFD-TITAN to enable the obtainment of quicker, more accurate, reliable and simple operating of the humidifier
- (6) Horizontal air discharge. H models (6)
- (7) Possibility of disinfectant treatment by UV lamp

#### Operating data

- Airflow: "N1", m<sup>3</sup>/h (\*)
- Available pressure for pipes: "N2", Pa (\*)
- Saturation performance: "N3", % (\*)
- Average pads inlet velocity: 1,5 m/s.
- Evaporative pad-fan ear distance: 0.75 times the turbine diameter. minimum.
- Max. Evaporated water flow: 7 l/h per 1000 m<sup>3</sup>/h rated airflow (at 38°C / 20°C dry/wet bulb).

(\*) According to specific data in the table of technical data or particular specifications.

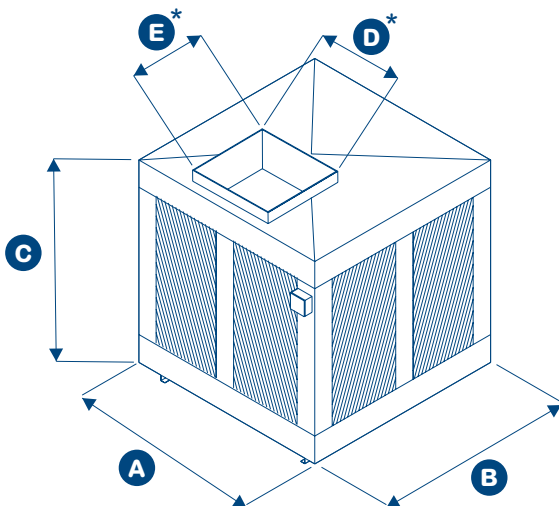


## Operating features

### Construction

- Self-supporting metal frame fabricated in galvanised steel plate with phosphate priming coat. Outside RAL-7035 enamel finish. Water basin Stainless steel AISI-304 (frame in AISI-304 as an option).
- Fan-motor group assembled on independent base frame with shock-adsorbers and flexible joint at the discharge. Centrifugal, double ear and forward curved plates air fan, driven by trapezoidal shaped driving-belts with personal protection. III Ph AC motor at 1500 r.p.m mounted on support-tensioning device.
- HUMI-KOOL evaporative media pad made of cellulose paper with wetting and strengthening agents, assembled into galvanised steel frames (cassettes) with handle and integrated water distribution device.
- Water feed and recirculation: Float filling valve; immersion III phase motor pump with flow regulation valve for recirculating and bleed-off water flows; PVC water pipes; integral overflows and drain steel nozzles.
- Electrical supply: Water proof IP55 connection box with terminals block and isolating switch for fan and pump motors independently. Connections to motors by protected conductor wires.

### Overall dimensions and weights



The dimensions marked with (\*)  
Refer to the opening and this  
could be Located on the top (VS)  
or on the base (VI).

Model	DIMENSIONS (mm)					Approx. Weight (Kg)	
	A	B	C	D	E	Vacío	Operativo
HEF-505-V	890	890	750	331	289	110	190
HEF-507-V	840	890	1000	395	341	155	235
HEF-510-V	1190	1190	1000	471	401	235	375
HEF-515-V	1485	1490	1150	557	478	270	490
HEF-520-V	1610	1710	1150	630	630	300	560
HEF-525-V	1610	1910	1250	692	695	340	640
HEF-530-V	1610	1910	1455	794	797	480	780
HEF-545-V	2205	2550	1650	870	936	620	1180

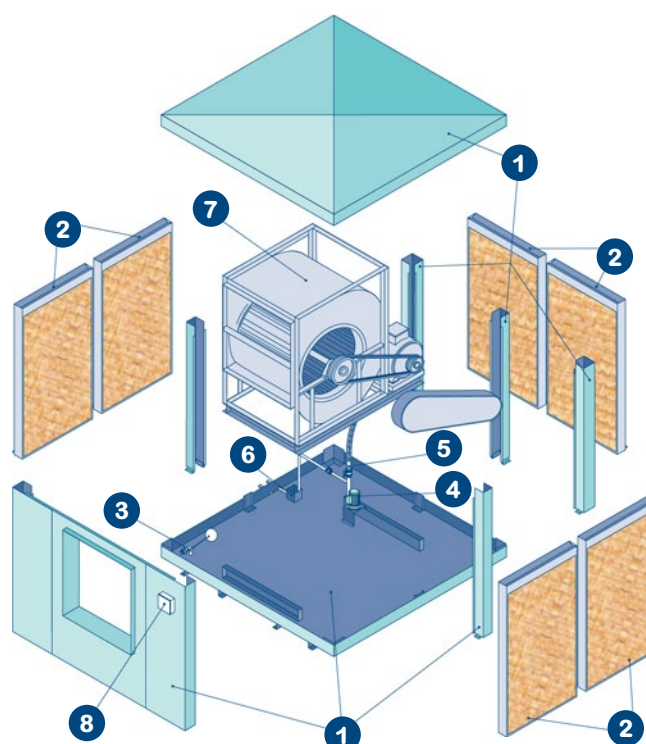
Technical specifications					
Model	Nominal Air Flow (m <sup>3</sup> /h) (1)	Available Pressure (Pa) (1)	Evaporative Cross Area (m <sup>2</sup> )	Performance Saturation (%) (2)	Cooling Power (Kcal/h) (3)
HEF-505-V	5.000	150	1.20	77	4.300
HEF-507-V	7.500	140	1.58	77	6.000
HEF-510-V	10.000	170	2.38	77	8.700
HEF-515-V	15.000	150	4.32	78	13.000
HEF-520-V	20.000	150	4.32	76	17.300
HEF-525-V	25.000	180	5.40	76	21.600
HEF-530-V	30.000	160	6.48	76	26.000
HEF-545-V	45.000	160	10.08	76	38.900

- (1) The data set of airflows, the available external pressure and the motor fan power can be roughly changed in a +/- 20% if needed to meet every single installation specification.
- (2) Saturation efficiency: Actual air cooling percentage over the maximum evaporative cooling process, which is the difference between dry and wet bulb temperature of inlet air.
- (3) Figures based on the installation airflow are projected with a 3°C gain in conditioned rooms.

(\*) Technical and construction specifications, and external dimensions subject to change without prior notification.

**The basic structure of our units includes the following components**

1. Frame-basin set
2. Evaporative cassettes
3. Filling float valve
4. Irrigation pump
5. Irrigation distribution pipes
6. Overflow / constant bleed-off
7. Motor-fan set
8. Electricity connection box



E.g: HEF5-H exploded view  
(horizontal discharge)



# HEF-5-V series

Cellular panel  
evaporative coolers

