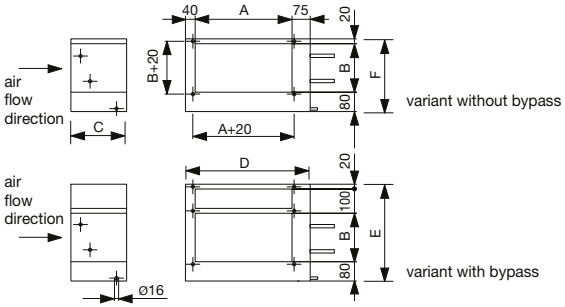
# IKF – cooler, direct evaporator






## Technical parameters

| Type | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| IKF 200 | 400 | 200 | 230 | 515 | 400 | 300 |
| IKF 225 | 500 | 250 | 230 | 615 | 450 | 350 |
| IKF 250 | 500 | 300 | 250 | 615 | 500 | 400 |
| IKF 285 | 600 | 300 | 250 | 715 | 500 | 400 |
| IKF 315 | 600 | 350 | 300 | 715 | 550 | 450 |
| IKF 355 | 700 | 400 | 350 | 815 | 600 | 500 |
| IKF 400 | 800 | 500 | 450 | 915 | 700 | 600 |
| IKF 450 | 1,000 | 500 | 450 | 1,115 | 700 | 600 |

### IKF – cooler, direct evaporator

- is intended for square pipes in connection with DIRECT AIR units
- the cooler shell is made of galvanized sheet metal
- aluminum slats on copper tubes
- the connection is by soldering
- the cooler contains a drip eliminator
- usable up to an operating pressure of 30 bar (3 MPa)

### Installation and operation

- the air velocity in the pipeline must not exceed 4 m/s, otherwise it is necessary to add another droplet eliminator after consultation with the EDV technical department
- direct coolers can only be installed indoors (in a place where the temperature is permanently above 0 °C
- mounting exclusively in a horizontal position
- an air filter must be installed in front of the cooler (protection against pollution)
- we recommend placing the cooler behind the heater
- during assembly, it is necessary to remember to drain and fill the system and ensure access for service
- as part of the projection, the cooler must be designed with regard to the amount of condensate generated
- the condensate drain with the odor siphon must be checked for the possibility of drying out and ensure a sufficient height of the water column to overcome the pressure loss of the siphon
- to determine the minimum safe level difference in the siphon, you can roughly proceed by taking the total fan pressure Pt in mm of the water column, this value will be increased by approx. 50 % (the value thus obtained represents a practical recommended value for the height of the water column in the siphon, so that it cannot the odor barrier is overcome by overpressure blowing or suction by vacuum fan)
- passing air must not contain solid, fibrous, sticky and aggressive additives. It must also be free of chemical substances that cause corrosion of the materials used, i.e. destroy aluminum, copper and zinc
- to reduce pressure losses (and thereby reduce operating costs), we recommend using coolers with air bypass around the evaporator (type IKFxxBP)
- the evaporator is connected to the source using an insulated copper pipe. The cooling capacity is regulated by switching the condensing unit (START-STOP operation)
- based on consultation with the technical department, it is possible to offer a suitable source of cold

### Notice

The cooler must be installed in the pipe route with the air flow in the direction of the arrow on the cooler case, if the cooler is mounted upside down, the condensate is not led into the receiver and flows out of the cooler.
For the reliable operation of the cooler, it is necessary to ensure protection against freezing, or regulation of performance (defrosting cycle). In the order, it is necessary to state the request for right or left version.

**K**
**proposal and consultation of the regulator tel. 602 679 469**

| Type | for fans IRB/IRT | maximum performance [kW] | flow [l/h] | weight IKW [kg] | weight IKW BP [kg] | Piping [mm] inlet Cu | Piping [mm] outlet Cu | internal volume [dm³] | controller | piping sensor | spatial sensor | antifreeze protection |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IKF 200 | 200 | 7.0 | 763 | 10.0 | 12.0 | 12 | 16 | 0.8 | Digireg® | TGCU | na dotaz | THE, F2000 |
| IKF 225 | 225 | 11.0 | 1,152 | 12.7 | 15.2 | 12 | 16 | 1.1 | Digireg® | TGCU | na dotaz | THE, F2000 |
| IKF 250 | 250 | 13.4 | 1,382 | 14.4 | 17.0 | 12 | 16 | 1.3 | Digireg® | TGCU | na dotaz | THE, F2000 |
| IKF 285 | 285 | 14.6 | 1,627 | 16.8 | 19.7 | 12 | 16 | 1.5 | Digireg® | TGCU | na dotaz | THE, F2000 |
| IKF 315 | 315 | 18.0 | 1,800 | 20.4 | 23.7 | 16 | 22 | 1.8 | Digireg® | TGCU | na dotaz | THE, F2000 |
| IKF 355 | 355 | 24.8 | 2,484 | 26.0 | 30.0 | 22 | 28 | 2.5 | Digireg® | TGCU | na dotaz | THE, F2000 |
| IKF 400 | 400 | 35.3 | 3,636 | 37.2 | 42.6 | 22 | 28 | 3.5 | Digireg® | TGCU | na dotaz | THE, F2000 |
| IKF 450 | 450 | 44.7 | 4,464 | 43.0 | 49.5 | 28 | 35 | 4.4 | Digireg® | TGCU | na dotaz | THE, F2000 |

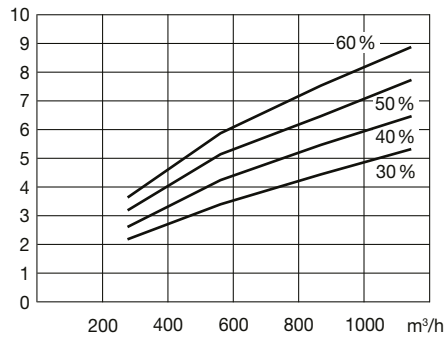
evaporating temperature of coolant (calculated) 5 °C, max. front air speed 4 m/s, performance values apply to supply air 32 °C, RH 40%. refrigerant R410 and R32

## Characteristics

**Evaporator IKF 200**

| Front speed [m/s] | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Air amount [m³/h] | | 288 | 576 | 864 | 1,152 |
| Pressure drop in the air [Pa] | | 19 | 46 | 87 | 152 |
| RV 30% | Performance [kW] | 2.1 | 3.4 | 4.4 | 5.2 |
| (x=0.009) | Output temperature [°C] | 13.6 | 17.0 | 18.9 | 20.1 |
| RV 40% | Performance [kW] | 2.6 | 4.2 | 5.5 | 6.5 |
| (x=0.012) | Output temperature [°C] | 14.2 | 17.5 | 19.4 | 20.7 |
| RV 50% | Performance [kW] | 3.2 | 5.1 | 6.5 | 7.7 |
| (x=0.015) | Output temperature [°C] | 14.5 | 17.9 | 19.9 | 21.2 |
| RV 60% | Performance [kW] | 3.7 | 5.9 | 7.5 | 8.9 |
| (x=0.018) | Output temperature [°C] | 14.8 | 18.3 | 20.3 | 21.6 |

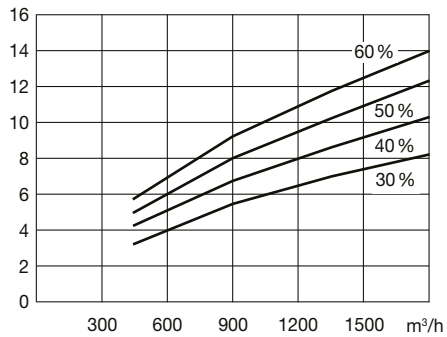
**Performance IKF 200**




**Evaporator IKF 225**

| Front speed [m/s] | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Air amount [m³/h] | | 450 | 900 | 1,350 | 1,800 |
| Pressure drop in the air [Pa] | | 19 | 46 | 87 | 152 |
| RV 30% | Performance [kW] | 3.3 | 5.3 | 6.9 | 8.2 |
| (x=0.009) | Output temperature [°C] | 13.6 | 16.8 | 18.9 | 20.0 |
| RV 40% | Performance [kW] | 4.2 | 6.7 | 8.6 | 10.3 |
| (x=0.012) | Output temperature [°C] | 14.1 | 17.4 | 19.4 | 20.6 |
| RV 50% | Performance [kW] | 5.0 | 8.0 | 10.2 | 12.2 |
| (x=0.015) | Output temperature [°C] | 14.4 | 17.8 | 19.8 | 21.2 |
| RV 60% | Performance [kW] | 5.8 | 9.3 | 11.8 | 14.0 |
| (x=0.018) | Output temperature [°C] | 14.7 | 18.2 | 20.2 | 21.6 |

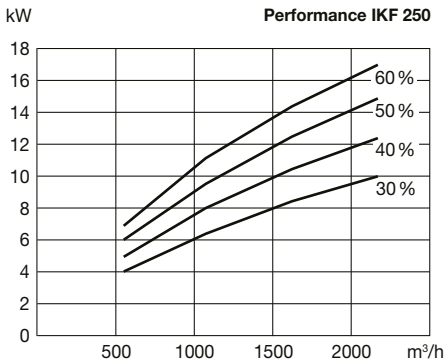
**Performance IKF 225**




**Evaporator IKF 250**

| Front speed [m/s] | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Air amount [m³/h] | | 540 | 1,080 | 1,620 | 2,160 |
| Pressure drop in the air [Pa] | | 19 | 46 | 87 | 152 |
| RV 30% | Performance [kW] | 4.0 | 6.5 | 8.3 | 10.0 |
| (x=0.009) | Output temperature [°C] | 13.5 | 16.8 | 18.8 | 20.1 |
| RV 40% | Performance [kW] | 5.0 | 8.0 | 10.4 | 12.4 |
| (x=0.012) | Output temperature [°C] | 14.0 | 17.4 | 19.3 | 20.6 |
| RV 50% | Performance [kW] | 6.0 | 9.7 | 12.4 | 14.8 |
| (x=0.015) | Output temperature [°C] | 14.3 | 17.8 | 19.8 | 21.1 |
| RV 60% | Performance [kW] | 7.0 | 11.2 | 14.3 | 17.0 |
| (x=0.018) | Output temperature [°C] | 14.6 | 18.1 | 20.2 | 21.5 |

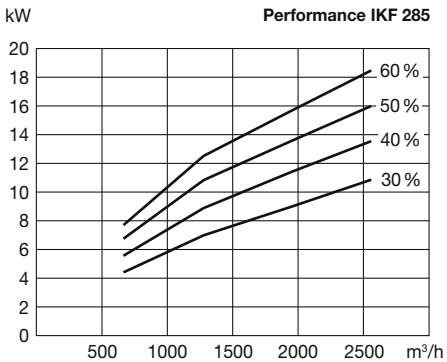
**Performance IKF 250**




**Evaporator IKF 285**

| Front speed [m/s] | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Air amount [m³/h] | | 650 | 1,300 | 1,950 | 2,590 |
| Pressure drop in the air [Pa] | | 19 | 46 | 87 | 152 |
| RV 30% | Performance [kW] | 4.5 | 7.1 | 9.1 | 10.8 |
| (x=0.009) | Output temperature [°C] | 14.6 | 17.9 | 19.8 | 20.9 |
| RV 40% | Performance [kW] | 5.6 | 8.9 | 11.4 | 13.5 |
| (x=0.012) | Output temperature [°C] | 15.2 | 18.5 | 20.4 | 21.6 |
| RV 50% | Performance [kW] | 6.8 | 10.7 | 13.6 | 16.0 |
| (x=0.015) | Output temperature [°C] | 15.5 | 18.9 | 20.8 | 22.1 |
| RV 60% | Performance [kW] | 7.9 | 12.4 | 15.7 | 18.5 |
| (x=0.018) | Output temperature [°C] | 15.8 | 19.3 | 21.2 | 22.5 |

**Performance IKF 285**

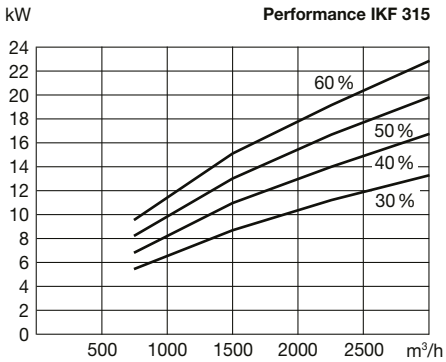


# IKF – cooler, direct evaporator

Soler&Palau Ventilation Group

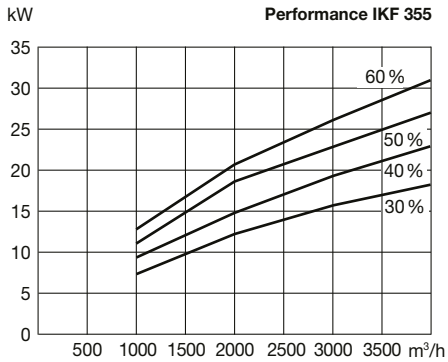
### Evaporator IKF 315

| Front speed [m/s] | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Air amount [m³/h] | | 750 | 1,500 | 2,250 | 3,000 |
| Pressure drop in the air [Pa] | | 19 | 46 | 87 | 152 |
| RV 30% | Performance [kW] | 5.5 | 8.7 | 11.2 | 13.4 |
| (x=0.009) | Output temperature [°C] | 14.0 | 17.2 | 19.1 | 20.3 |
| RV 40% | Performance [kW] | 6.8 | 10.9 | 14.0 | 16.7 |
| (x=0.012) | Output temperature [°C] | 14.4 | 17.7 | 19.7 | 20.9 |
| RV 50% | Performance [kW] | 8.2 | 13.0 | 16.7 | 19.8 |
| (x=0.015) | Output temperature [°C] | 14.7 | 18.2 | 20.1 | 21.4 |
| RV 60% | Performance [kW] | 9.5 | 15.1 | 19.3 | 22.8 |
| (x=0.018) | Output temperature [°C] | 15.1 | 18.5 | 20.5 | 21.8 |



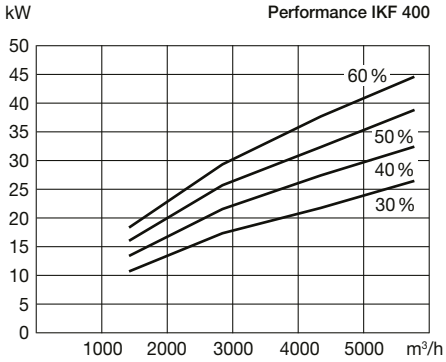

### Evaporator IKF 355

| Front speed [m/s] | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Air amount [m³/h] | | 1,000 | 2,000 | 3,000 | 4,000 |
| Pressure drop in the air [Pa] | | 19 | 46 | 87 | 152 |
| RV 30% | Performance [kW] | 7.4 | 11.9 | 15.4 | 18.3 |
| (x=0.009) | Output temperature [°C] | 13.6 | 16.9 | 18.7 | 20.1 |
| RV 40% | Performance [kW] | 9.3 | 14.9 | 19.2 | 22.9 |
| (x=0.012) | Output temperature [°C] | 14.0 | 17.4 | 19.3 | 20.6 |
| RV 50% | Performance [kW] | 11.1 | 17.8 | 22.9 | 27.2 |
| (x=0.015) | Output temperature [°C] | 14.3 | 17.8 | 19.8 | 21.1 |
| RV 60% | Performance [kW] | 13.0 | 20.7 | 26.5 | 31.4 |
| (x=0.018) | Output temperature [°C] | 14.7 | 18.2 | 20.2 | 21.5 |



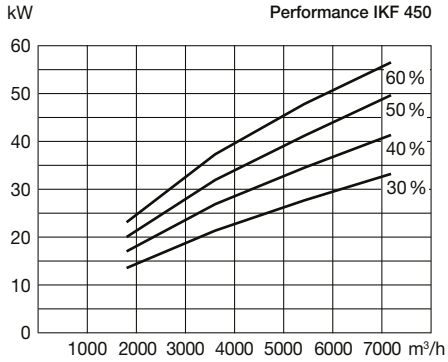

### Evaporator IKF 400

| Front speed [m/s] | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Air amount [m³/h] | | 1,440 | 2,880 | 4,320 | 5,760 |
| Pressure drop in the air [Pa] | | 19 | 46 | 87 | 152 |
| RV 30% | Performance [kW] | 10.5 | 16.9 | 21.8 | 26.2 |
| (x=0.009) | Output temperature [°C] | 13.8 | 17.0 | 18.9 | 20.2 |
| RV 40% | Performance [kW] | 13.2 | 21.2 | 27.3 | 32.5 |
| (x=0.012) | Output temperature [°C] | 14.2 | 17.5 | 19.4 | 20.7 |
| RV 50% | Performance [kW] | 15.9 | 25.4 | 32.5 | 38.7 |
| (x=0.015) | Output temperature [°C] | 14.5 | 17.9 | 19.9 | 21.2 |
| RV 60% | Performance [kW] | 18.5 | 29.4 | 37.6 | 44.9 |
| (x=0.018) | Output temperature [°C] | 14.8 | 18.3 | 20.3 | 21.5 |




### Evaporator IKF 450

| Front speed [m/s] | | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Air amount [m³/h] | | 1,800 | 3,600 | 5,400 | 7,200 |
| Pressure drop in the air [Pa] | | 19 | 46 | 87 | 152 |
| RV 30% | Performance [kW] | 13.4 | 21.5 | 27.8 | 33.1 |
| (x=0.009) | Output temperature [°C] | 13.5 | 16.8 | 18.8 | 19.9 |
| RV 40% | Performance [kW] | 16.7 | 26.9 | 34.7 | 41.3 |
| (x=0.012) | Output temperature [°C] | 14.0 | 17.3 | 19.3 | 20.6 |
| RV 50% | Performance [kW] | 20.1 | 32.1 | 41.3 | 49.1 |
| (x=0.015) | Output temperature [°C] | 14.3 | 17.8 | 19.8 | 21.1 |
| RV 60% | Performance [kW] | 23.3 | 37.3 | 47.7 | 56.5 |
| (x=0.018) | Output temperature [°C] | 14.6 | 18.2 | 20.2 | 21.5 |



# IKF – cooler, direct evaporator

## Supplementary image

IKF without bypass valve

When ordering, it must be stated whether you require a LEFT or RIGHT version. The design is understood according to the direction of the outlets when viewed from the front (i.e. the evaporator fins are closer to you).

**Frost protection**
In normal use, we must ensure that the evaporator is protected against freezing. In winter, the bypass is open, which limits cooling by the inlet air. Frost protection is provided by a sensor so that when the temperature behind the radiator drops below +5 °C, the cold source (condensing unit) is disconnected. Reconnection will occur when the temperature behind the cooler rises above +5 °C and there is a demand for cooling from the control system at the same time. You can use thermostats with a contact output, for example the F2000 sensor, which is designed for sensing the air temperature in the piping behind the evaporator. Čidlo má nastavitelnou teplotu v rozsahu +30 °C, protection IP44, contact Umax = 250 V, Imax = 16A.

**Installation and maintenance of direct coolers – evaporators**
The direct cooler must be less than the maximum permitted distance from the condensing unit. Limits for maximum lead length and maximum elevation between source and evaporator must be observed. The installation must be carried out on the basis of a professional project by a qualified designer who is responsible for the correct selection of the evaporator and accessories. Installation and commissioning may only be carried out by a professional assembly company authorized in accordance with generally applicable regulations.
Before installation, the cooling system must be carefully checked. In particular, it is necessary to check whether some parts are not damaged, whether the pipes, slats and collectors of the evaporator are in order. The connecting copper piping must be insulated along its entire length. each pipe separately.