Carrier

United Technologies

DESIGNING INNOVATIVE SOLUTIONS

HEATING, VENTILATION &
AIR CONDITIONING SOLUTIONS

ADVANCED TECHNOLOGIES IN A COMPACT SOLUTION

Packaged rooftop units

Cooling capacity 22.9 kW – 90.4 kW

50FF

Cooling capacity 22.3 kW - 90.2 kW
Heating capacity 21.9 kW - 89.7kW

50FC

50FF & 50FC units
Advanced technologies

Energy efficient technologies

The control system of the 50FF and 50FC ranges targets the **advanced management of part load operation**. The range offers best-in-class technologies such as EC motor fans, multi-scroll compressors, electronic expansion valves, improved defrost technology and active heat recovery system for an **increased energy performance: SEER up to 4.89 and SCOP up to 3.59**.

Compact flexible system

The compact single-packaged system has been designed to **optimize transportation and installation, both in new projects or refurbishments**. The range offers a wide range of options and a wide set of configurations to customize the unit according to any particular needs: energy recovery system, free-cooling, variable air flow… Units are two-height stackable for transport optimization.

Absolute reliability

The 50FF and 50FC ranges have been designed to ensure robustness throughout the lifecycle of the units. The full reliability of the units is the result of **high quality material and components** (powder paint, locks, fan mounting, cables) combined with the **highest quality standards** in terms of manufacturing and laboratory testing.

Extensive scope of applications

The 50FF and 50FC range adapts effortlessly to a wide range of applications. This unit comes in reversible heat pump version with capacities **from 20 kW to 90kW** for a wide range of compressor operating conditions starting at **-15 °C and up to 52°C** outdoor air.

Environmental responsibility

The 50FF and 50FC ranges are contributing to a sustainable future by offering the highest seasonal efficiency performance: SEER up to 4.89 and SCOP up to 3.59. The whole range is **already compliant with the 2021 Ecodesign requirements**.

The specific casing and frame design allows for a waste reduction by eliminating the use of wooden pallets.

Cooling and heating

The new 50FF/FC packaged rooftop range consists of autonomous compact air-air units of horizontal design, rooftop type.

- **50FF series: for cooling-only operation**.
- **50FC series: for reversible heat pump operation**.

The range of available capacities in the series allows for the air conditioning of medium and large surface areas which are common in shopping malls, food retail, logistics and many other commercial and industrial applications.

SEER UP TO **4.89**
SCOP UP TO **3.59**

Robustness & Reliability

2021 Ecodesign ready

< 1200 KG

FROM **-15°C** TO **52°C***

* For 50FF units. Up to 48°C for 50FC units.

Packaged rooftop units with separated gas module option

50FF & 50FC

STANDARD FEATURES

- **SINGLE DUCT CONFIGURATION**
  For single-volume installations without extraction air energy recovery. The supply fan is connected to simple duct network with no return (or a simple one). Allows for fresh air and freecooling management.
- **DOUBLE DUCT CONFIGURATION**
  For single-volume installations with or without extraction air energy recovery needs. Supply and return fans are connected to both duct networks. Allows for fresh air and freecooling management.
- **EXHAUST AIR ENERGY RECOVERY OPTIONS**
  Mandatory in many countries. Available through active (thermodynamic) or passive (heat recovery wheel) options.
- **HEATING OPTIONS**
  As a support element for heat pumps or as main heater in cooling only units. Available through condensation gas burners and boilers, hot water coils and electrical heaters.
- **IN-LINE CONFIGURATIONS FOR RENOVATION PROJECTS**
  Above 50 kW, new footprint to better match with own and competitors' legacy units to be replaced in existing installations.
- **LIGHTWEIGHT OPTIMIZED BOXES**
  Either for stacked transportation or for helicopter lifting, to reduce overall side costs to customer.

ADVANCED APPLICATIONS

- **VARIABLE AIR VOLUME**
  Special application for managing more than one volume at the same time.
- **LOW TEMPERATURE FOOD STOCKS**
  Low temperature has to be maintained for food preservation at low return temperature (15ºC).
- **REFRIGERATION HEAT RECOVERY COIL**
  Energy recovery system to use hot water coming from refrigeration systems for low water temperature applications.
- **100% FRESH AIR WITHOUT EXTRACTION AIR**
  Where it is necessary to blow 100% fresh air inside the volume as extraction air cannot be recycled: kitchens, bad smelling premises, smokes, polluted air...
- **DEHUMIDIFICATION ACTIVE CONDENSATION COIL**
  Extra condensation coil for dehumidification in high humidity ambients. Dedicated to food retail as to avoid condensation over the goods or refrigerant cabinet glass doors.

Technical characteristics

50FF		020	028	037	040	045	047	052	058	062	070	074	086	093
COOLING														
COOLING CAPACITY *	kW	22.88	28.86	34.80	38.76	43.36	44.98	49.85	54.22	59.89	68.70	72.77	80.84	90.39
POWER INPUT **	kW	7.13	9.30	10.62	12.10	14.10	14.87	15.58	17.27	19.92	21.48	22.89	26.34	30.06
SEER		4.89	4.84	4.59	4.44	4.33	4.32	4.63	4.55	4.49	4.49	4.49	4.31	4.25
η_s		193%	191%	181%	175%	170%	170%	182%	179%	177%	176%	177%	170%	167%
OUTDOOR CIRCUIT FAN		EC ELECTRONIC AXIAL FAN(S)												
NOMINAL AIR FLOW	m^3/h	9.000	14.500	17.000	17.000	17.000	17.750	31.000	31.000	31.000	33.000	33.000	34.500	35.000
AVAILABLE STATIC PRESSURE	mm.w.c	5												
INDOOR CIRCUIT SUPPLY FAN		EC PLUG-FAN(S)												
NOMINAL AIR FLOW	m^3/h	5.100	6.500	8.500	8.750	9.000	9.000	12.000	12.500	12.500	15.500	15.500	16.000	16.000
AVAILABLE STATIC PRESSURE	mm.w.c	12	12	12	15	15	15	20	20	20	20	20	20	25
WEIGHT														
B1 ASSEMBLY ***	kg	594	617	699	698	704	701	914	929	936	1.035	1.059	1.057	1.078

* Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27ºC, 19ºC WB and 35ºC outdoor temperature.
** Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.
*** B1 ASSEMBLY with standard configuration = Vertical supply / Vertical return.

Eurovent certified data

50FC		020	028	037	040	045	047	052	058	062	070	074	086	093
COOLING														
COOLING CAPACITY *	kW	22.31	27.78	33.44	36.90	41.50	43.92	53.22	57.80	60.39	68.26	72.22	80.66	90.18
POWER INPUT ***	kW	7.00	8.98	10.25	11.79	13.40	14.26	16.53	18.38	19.38	21.27	22.89	25.77	28.94
SEER		4.82	4.83	4.57	4.44	4.34	4.35	4.82	4.82	4.85	4.62	4.56	4.44	4.45
η_s		190%	190%	180%	175%	171%	171%	190%	190%	191%	182%	179%	175%	175%
HEATING														
HEATING CAPACITY **	kW	21.88	27.72	33.05	36.61	41.82	44.56	50.71	55.79	58.57	67.68	71.77	80.38	89.66
POWER INPUT ***	kW	5.82	7.99	9.09	10.21	12.00	12.95	14.43	16.01	16.89	18.97	20.27	22.91	25.90
SCOP		3.47	3.43	3.45	3.45	3.46	3.44	3.57	3.59	3.50	3.49	3.55	3.59	3.58
η_s		136%	134%	135%	135%	135%	135%	140%	141%	137%	137%	139%	141%	140%
OUTDOOR CIRCUIT FAN		EC ELECTRONIC AXIAL FAN(S)												
NOMINAL AIR FLOW	m^3/h	9.000	14.500	17.000	17.000	17.000	17.750	31.000	31.000	31.000	33.000	33.000	34.500	35.000
AVAILABLE STATICPRESSURE	mm.w.c	5												
INDOOR CIRCUIT SUPPLY FAN		EC PLUG FAN												
NOMINAL AIR FLOW	m^3/h	5.100	6.500	8.500	8.750	9.000	9.000	12.000	12.500	12.500	15.500	15.500	16.000	16.000
AVAILABLE STATIC PRESSURE	mm.w.c	12	12	12	15	15	15	20	20	20	20	20	20	25
WEIGHT														
B1 ASSEMBLY ****	kg	585	610	675	680	685	690	990	995	1.040	1.155	1.160	1.165	1.170

* Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27ºC, 19ºC WB and 35ºC outdoor temperature.
** Heating capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 20ºC and 6ºC WB outdoor temperature.
*** Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.
**** B1 ASSEMBLY with standard configuration = Vertical supply / Vertical return

Eurovent certified data Eurovent certified data

Compliance

- Machinery Directive 2006/42/EC (MD)
- Electromagnetic Compatibility Directive 2014/30/EU (EMC)
- Low Voltage Directive 2014/35/EU (LVD)
- Pressure Equipment Directive 2014/68/EU (Category 2) (PED)
- RoHS Directive 2011/65/EU (RoHS)
- Eco-design Directive 2009/125/EC (ECO-DESIGN)
- Energy Labelling Directive 2017/1369/EU (ECO-LABELLING)
- Harmonised Standard: EN 378-2:2012
  (Refrigerating systems and heat pumps - Safety and environmental requirements).

www.carrier.com
50FF - 50FC - English - NA18.33B - April 2019.