

CPF (300mm) SELECTION DATA

Rated according to CRMA code of practice

MODEL	CPF3-13	CPF3-16	CPF3-21	CPF3-25	CPF3-33	CPF3-38	CPF3-44	CPF3-50
WATTS @ 6 KTD	1320	1610	2105	2500	3309	3860	4410	5010

* = Basic Capacity Watts per degree temperature difference for use with capacity correction factors. Refer to application limits for minimum KTD allowed.

R404A kg	1.54	1.63	2.28	2.36	3.77	4.74	4.83	6.11
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** = 80% liquid and 20% vapour refrigerant by volume including header and heat exchanger, at -24°C

NO. OF FANS	1	2	2	2	3	3	4	4
AIR FLOW l/s	340	760	0	680	0	1020	0	1360
AIR THROW m	6.5	8.3	8	7.7	11.3	11	12.4	12.1

TOTAL WATTS	73	146	146	146	219	219	292	292
TOTAL AMPS	0.32	0.64	0.64	0.64	0.96	0.96	1.28	1.28
WattHrs/24Hrs	1752	3504	3504	3504	5256	5256	7008	7008

TOTAL WATTS	1040	2050	2050	2050	3000	3000	3960	3960
TOTAL AMPS*	4.33	8.54	8.54	8.54	4.60	4.60	6.20	6.20
SUPPLY VOLTS	240	240	240	240	415	415	415	415
PHASE	1	1	1	1	3	3	3	3
CONNECTION	PARALLEL	PARALLEL	PARALLEL	PARALLEL	STAR	STAR	STAR	STAR

* = Given as total amps for 240V supply, or maximum amps per phase for 415V supply.

RECOMMENDED T-X VALVE R404A									
DANFOSS	TES2-.45(01)	TES2-.45(01)	TES2-0.6(02)	TES2-1.2(03)	TES2-1.2(03)	TES2-1.2(03)	TES2-1.7(04)	TES2-1.7(04)	TES2-2.2(05)

*** = SUPERHEAT SETTINGS ON SYSTEMS USING R407B & C MUST BE VERIFIED IN USE. REFER TO VALVE MANUFACTURERS DATA FOR AVAILABILITY AND SELECTION.

For basis of selection refer to Performance Rating Basis section.

R404A CAPACITY FACTOR AND APPLICATION LIMITS							
SST	-42	-36	-30	-24	-18	-12	
F, R404A	0.69	0.78	0.89	1.00	1.10	1.20	
MAX KTD	6	8	9	9	9	8	
MIN KTD	4	4	3	3	4	4	
max RSHF	1	1	1	1	0.95	0.95	
min RSHF	0.9	0.9	0.85	0.8	0.8	0.75	

FIN CAPACITY CORRECTION FACTORS					
5FPI	0.93	4FPI	0.87	COPPER FIN	1.022

STANDARD COILS ARE 6FPI ALUMINIUM. MULTIPLY RATED CAPACITY BY FACTOR TO FIND CAPACITY WITH REQUIRED FPI & MATERIAL.
APPLICATION LIMITS DO NOT CHANGE FOR OTHER FPI AND/OR COPPER FIN.

NOTES: CAPACITY FACTOR TABLES

1. CAPACITY FACTOR APPLIES TO BASIC CAPACITY. ACTUAL CAPACITY = BASIC CAPACITY x FACTOR x KTD
2. THE LIMITS ON THIS CHART ARE INTENDED TO INDICATE THE MAXIMUM APPLICATION RANGE OF STANDARD KFR COILS.
3. MAX AND MIN RSHF (ROOM SENSIBLE HEAT FACTOR) REFER TO THE RANGE IN WHICH DEFROST DATA IS CALCULATED. MAX RSHF CORRESPONDS TO MIN KTD, MIN RSHF CORRESPONDS TO MAX KTD.

PERFORMANCE RATING BASIS OF CPF EVAPORATORS

1. CAPACITY- Based on CRMA Guidelines at 40°C entering liquid (inherent subcooling), -18°C air on, and 6KTD.
Capacity figure is Total Capacity (rated with wet fin surfaces).
KTD is defined as entering air temperature - leaving refrigerant Saturation temperature. Coils are in counterflow. 3K useful coil superheat assumed.
Rated Capacity is for 6fpi (standard) coils. Other fpi refer to capacity factor table.
2. AIRFLOW- Rated at standard air conditions (20°C dry air, 101.35kPa atmospheric pressure)
3. AIRTHROW- Based on CRMA guidelines. Measurements taken at 0.5, 0.75, and 1m from the ceiling at 20°C air. The distance at which the average of the 3 values equals 0.5m/s is taken as the limit of airthrow. Correction for -18°C room (0.87) is included.
4. Motor WattHrs per 24 hours- Taken as the total heat input per day (fans run continuously) for equipment selection purposes. Value is motor wattage x 24.
 5. T-X valve selection- Based on coil capacity at -24°C SST & 40°C liquid, 6KTD. R404A based on 950kPa,
 6. Condensing unit balance- Taken at 32°C Amb., -18°C air on.

CPF DEFROST DATA

IN ORDER TO MAXIMISE EFFICIENCY AND AIRFLOW, THE FOLLOWING ADVISORY DEFROST DATA HAS BEEN COMPILED

SST	-42	-36	-30	-24	-18	-12
DEFROSTS AT MAX. KTD	6	7	7	7	6	6
DEFROSTS AT 6KTD	6	5	5	4	4	4
DEFROSTS AT MIN. KTD	5	5	4	3	3	4

DEFROST DATA IS MINIMUM NO. REQUIRED FOR AVERAGE ROOM LOADS

ADVISORY DEFROST TIMING FOR -18°C ROOM								
KTD	LIGHT LOAD			HEAVY LOAD			LIGHT LOAD	
	1	2	3	4	5	6	7	8
10	X		X	X	X	X	X	X
8		X		X	X	X	X	X
6			X		X		X	
4			X		X			X

Each column represents a 3 hour period during the day.

An X indicates the hour that a defrost should commence.

"Heavy load" indicates the nominal 'working period' of each day.

Average defrost time = 20 minutes including drainage and fan delay. Time will vary with varying degrees of ice-up.

DEFROST TERMINATION REQUIREMENTS-

Defrost time for average loads should be approx. 20-25 minutes including drainage. Time will vary with varying degrees of ice-up.

Time Termination-

Time termination should be set to ensure complete defrost at the heaviest load condition. Typically allow 20 - 25 minutes with safety reset at 35 minutes.

Temperature Termination-

Temperature termination setting depends on frequency and severity of defrosts, and location of the sensing device. If using the standard freezer thermostat the defrosting guidelines above should be used.

Pressure Termination-

Pressure termination can be incorporated into the defrost in a number of ways. Whatever method is preferred, it must be noted that the temperature of the fins will be somewhat lower than the saturation temperature corresponding to the refrigerant pressure. Therefore a somewhat higher refrigerant temperature must often be allowed for when setting the pressure control. See table below. It is also not recommended to control fan delay by pressure as a very low pressure will be reached quite quickly after defrost on TX valve systems, when the fans are not running. It is preferable to combine the pressure termination with a timeclock for fan delay.

Fan Delay Requirements-

Fan delay requirements may vary with application, conditions, and control method, but should not be more than 5 minutes.

4 and 5 FPI Coils

Testing has shown that 4fpi coils can operate satisfactorily with fewer defrosts than indicated above, depending on moisture load. Each installation should be treated on an individual basis. 5 fpi coils should be operated to the above guidelines unless otherwise indicated on the installation concerned.

Control Setting Guidelines-

Each application should be treated on its merits, however the following is given as a guide.

Termination Type	Sensor Location	Setting	Fan Delay
Time	n/a	20 - 25mins	4 mins (max)
Temperature	Suction Line Plate	11° - 14°C	1° to -2°C
Pressure	Header	600-630 kPa R22	n/a
		760-780 R407B	n/a
		610-630kPa R407C	n/a
		800-820kPa R507	n/a
		750-770kPa R404A	n/a

The above guidelines allow for relatively heavy defrost loads. Shorter times or lower settings must be verified on the installation. All data given is for defrost without refrigerant pumpdown. Pumpdown is not recommended for electric defrost using pressure and/or temperature control. Pumpdown may be used with time termination. Requirements must be determined on individual systems

CPF DIMENSIONAL DATA

MODEL	CPF3-13	CPF3-16	CPF3-21	CPF3-25	CPF3-33	CPF3-38	CPF3-44	CPF3-50
DIMENSIONS								
A	784	784	784	1164	1164	1544	1544	1544
B	1018	1018	1018	1398	1398	1778	1778	1778
C	450	450	450	450	450	450	450	450
D	300	300	300	300	300	300	300	300
E	439	439	439	819	819	819	1579	1579
SUCTION CONN. mm	19.05	19.05	22.2	25.4	25.4	28.6	28.6	28.6
LIQUID CONN. mm	9.52	9.52	12.7	12.7	12.7	12.7	12.7	12.7

* =outlet of liquid subcooler -- most recommended valves have 9.5 dia. inlet flare fitting

** = Frost Free flare nut. Distributors are nozzle type.

*** = Tube for flaring or brazing. Liquid and Ext. Eq. lines are soldered together for testing and charging and must be separated on installation. For Brass/Copper coils, add 50% to standard unpacked weight.

CPF DIMENSIONAL DRAWING

