

Unit overview

Unit model	Multi-pipe unit	
Model	CMAF 165 HE XLN	
Unit application	Low ambient air temperatures	
Compressor type	Scroll	
Refrigerant	Full refrigerant charge R454B	
Eta s,c / SEER	193 % / 4.91	Compliance not applicable
Eta s,h / SCOP	158 % / 4.01	Compliance not applicable
SEPR HT	5.87	Compliance not applicable
Heat recovery	Heat recovery included	
Free cooling	No option	
Chilled loop hydraulic module	Dual pump standard pressure	
Hot loop hydraulic module	Dual pump std pressure alternate running	
Unit power supply	400V 50Hz 3Ph	



Project conditions

	Cooling	Heating
Outdoor air dry bulb temperature	35.0 C	-3.0 C
Relative humidity		90 %
Fluid entering temperature	16.0 C	42.0 C
Fluid leaving temperature	10.0 C	50.0 C
Fluid type and concentration	Water	Water
Fouling factor	0.017615 m2-deg K/kW	0.017615 m2-deg K/kW
Elevation	0.0 m	0.0 m

Unit performance data

	Cooling	(1)	Heating	(2)
Gross capacity	580.02 kW		426.52 kW	
Net capacity	580.26 kW		426.45 kW	
Gross total absorbed power	201.33 kW		171.77 kW	
Total absorbed power	199.85 kW		171.41 kW	
Gross EER/COP	2.88 EER (kW/kW)		2.48 COP (kW/kW)	
Net EER/COP	2.90 EER (kW/kW)		2.49 COP (kW/kW)	
Design flow rate	23.13 L/s		12.85 L/s	
Waterside Heat Exchanger Pressure drop	29.2 kPa		7.3 kPa	
Strainer pressure drop	7.7 kPa		2.4 kPa	
Waterside heat exchanger min flow	12.90 L/s		8.30 L/s	
Waterside heat exchanger max flow	39.00 L/s		41.60 L/s	
Max flow variation allowed per minute	2.31 L/s		1.29 L/s	

Heat recovery mode

	Cooling	Heating	Total
Gross capacity	613.80 kW	763.12 kW	1376.93 kW
Net capacity	614.04 kW	763.05 kW	1377.09 kW
Gross total absorbed power			174.58 kW
Total absorbed power			172.74 kW
Gross TER			7.890 kW/kW
Total Efficiency Ratio (TER)			7.970 kW/kW
Design Flow rate	23.13 L/s	12.85 L/s	
Waterside heat exchanger pressure drop	29.0 kPa	7.3 kPa	
Waterside heat exchanger min flow	12.90 L/s	8.30 L/s	
Waterside heat exchanger max flow	39.00 L/s	41.60 L/s	
Inlet water temperature	16.3 C	35.7 C	
Outlet chilled water temperature	10.0 C	50.0 C	

Acoustic data

Outdoor sound power level, Lw(A)				91 dBA				(3)
Outdoor sound pressure level, Lp(A)				59 dBA				(4)
Sound power level at night, Lw(A)				89 dBA				(4)
Sound pressure level at night, Lp(A)				57 dBA				(3)
Sound power spectrum (Lw)	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
	95 dB	90 dB	89 dB	86 dB	79 dB	78 dB	70 dB	

Note: Acoustic data for unit at full load in cooling mode, excluding hydraulic module

Hydraulic module

	Cooling circuit	Heating circuit	Cooling circuit (HR mode)	Heating circuit (HR mode)
Chilled loop hydraulic module	Dual pump standard pressure	Dual pump std pressure alternate running		
Chilled loop primary flow control	with VFD	With VFD		
Design flow rate	23.13 L/s	12.85 L/s	23.13 L/s	12.85 L/s
Available head - user side	190.6 kPa	200.4 kPa	190.6 kPa	200.5 kPa
Pump power absorbed	9.08 kW	4.25 kW	9.08 kW	4.25 kW

General data - refrigerant circuit

Refrigerant	Full refrigerant charge R454B
Number of circuits	2
Number of compressors (circuit 1 / 2...n)	3 / 3
Compressor type	Scroll
Refrigerant charge per circuit	53 kg / 54 kg
Oil charge per circuit	7.2 kg / 7.2 kg

General data - fan section

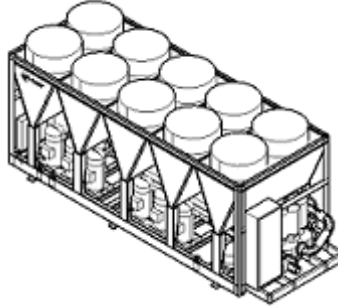
Number of outdoor fans	10
Fan type	EC fans
Total nominal airflow at conditions	56.87 m3/s

Electrical data

Unit power supply	400V 50Hz 3Ph
Start-up current	765.32 A
Maximum running current	453.71 A
Maximum power at maximum current	276.14 kW
Displacement power factor (cos-phi)	0.878

Dimension and weight

Length	6207 mm
Width	2200 mm
Height	2530 mm
Shipping weight	5190 kg
Operating weight	5507 kg



Note: Dimensions and weight include sound attenuation, hydraulic module, heat recovery and/or free cooling - if selected. Image is for illustration purposes only, options may not be shown.

Applicable standards

(1) According to EN14511:2022
(2) According to EN14825:2022, considering average climate
(3) Sound power measurements in accordance with ISO 9614:2009 (part 1)
(4) Average sound pressure at 10 meter distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level

More information

Ecodesign datasheet	https://ecodesign.tranetechnologies.com/
Product documentation	http://www.trane.eu/
Model Number	CMAF165DE**HCXELWWNBEX1XB1DCA11XLMXFVXPX1DXBAXX2X AX1AA21X1FAXXXX