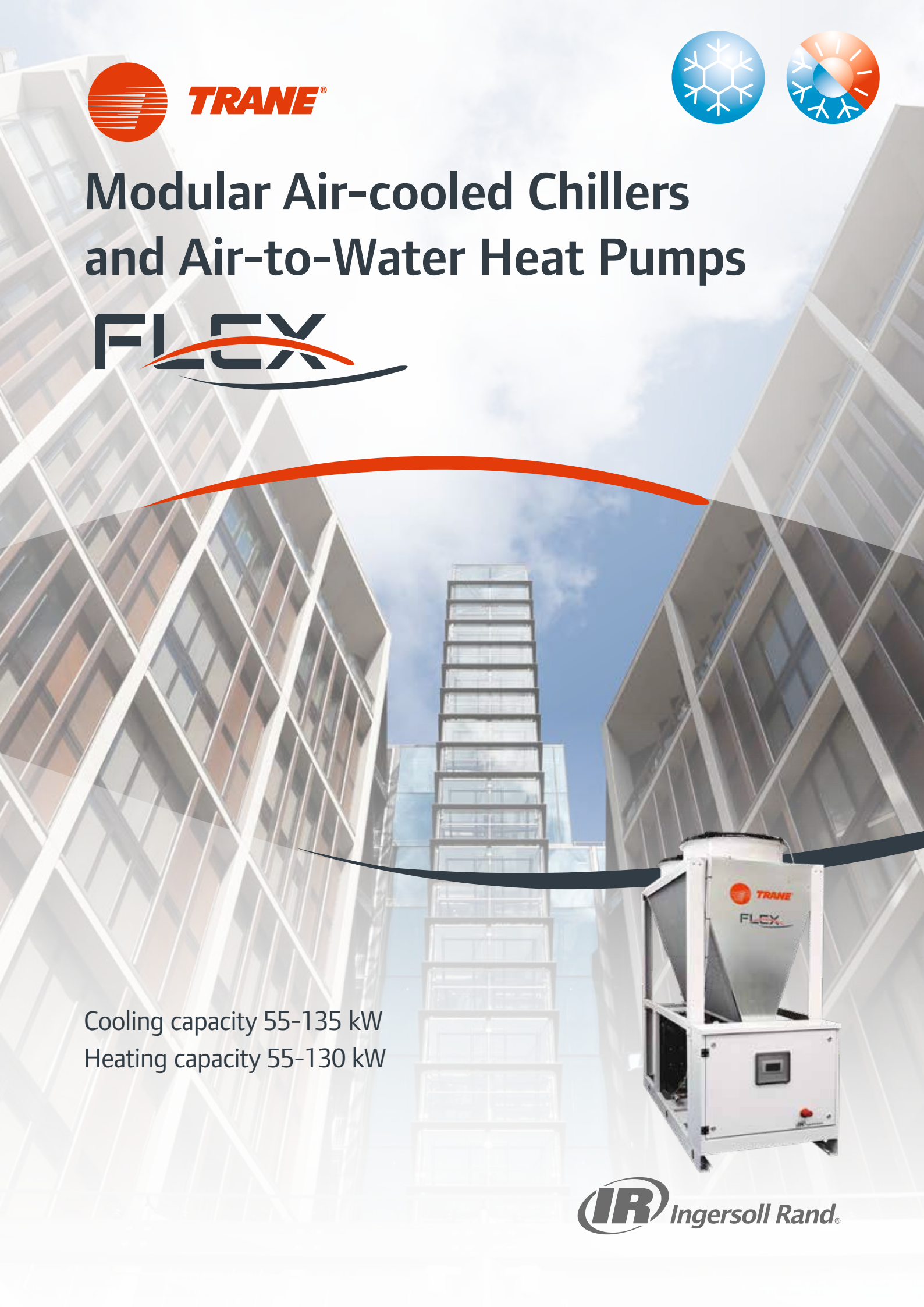
TRANE®

Modular Air-cooled Chillers and Air-to-Water Heat Pumps

FLEX



Cooling capacity 55-135 kW
Heating capacity 55-130 kW

Ingersoll Rand®

Flex II

Unit description

- Tandem scroll compressors for high part load efficiency
- Condensing and evaporating pressure control with fan speed modulation
- Microchannel condenser coil with very low refrigerant charge (chillers only)
- Waterside plate heat exchanger with differential pressure switch and antifreeze protection electric heater
- Electronic expansion valve
- Casing and panels in painted galvanized steel

Factory-mounted options

- Partial or total heat recovery (chillers only)
- Low noise or super low noise
- EC fans
- High static pressure EC fans, up to 100 Pa
- Hydraulic connection kits
- Pump sets with different pressures and available with variable speed drive
- Power factor correction
- Low ambient temperature kit in cooling mode (down to -10°C)
- Low ambient temperature kit in heat pump mode (down to -15°C)
- E-coated anti-corrosion condensing coils on chiller version
- Hydraulic module anti-freeze protection down to -20°C ambient air temperature

Accessories

- Serial card with BACnet protocol MS/TP or TCP/IP
- Gateway Modbus Lontalk
- Remote control display
- Signal amplification card
- Flow switch
- Automatic water filling
- Water strainer
- Water gauges
- Rubber or spring anti-vibration mounts
- 3-way valve for hot sanitary water including controls and power supply (heat pumps only)

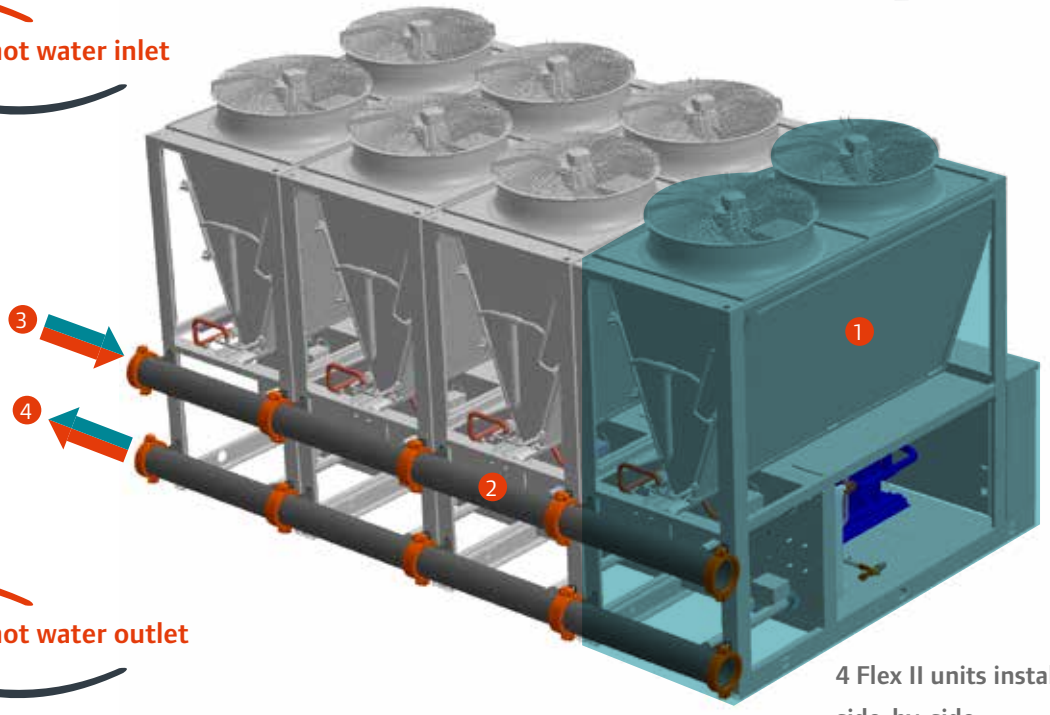
Controls

- Microprocessor-controller to manage on/off mode, operating mode, parameters setting, and error code display
- Modbus communication card RS485
- FlexMaster controller (optional)
    - Connect up to 6 Flex of equal or different capacities to one single master controller
    - Easy connection and specifically designed for modular capacity expansion of the chiller and/or heat pump plant
    - Controls the main functions, operating modes of the units, and hydraulic kit of external water pumps or water pumps integrated in each unit
    - Allows for continuous operation: in case of maintenance on one Flex unit, all other units keep on running

Ultimate flexibility

Up to 6 units can be combined into one system in order to reach the required capacity

Flex II's modularity is perfect when an extension of capacity becomes required as the building cooling and/or heating demand evolves, or when the HVAC plant is designed with multiple staggered chillers and/or heat pumps to fit in complex or limited (roof)space.



1 Single Flex II modular unit

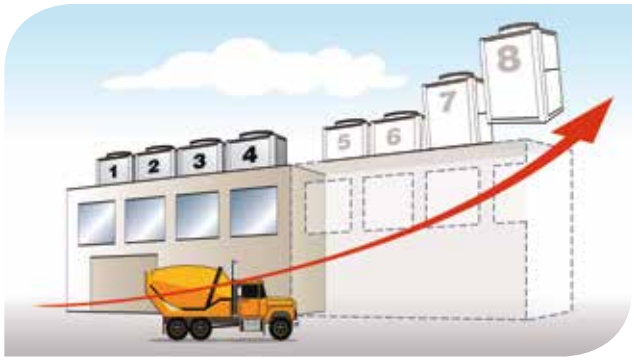
3 Chilled/hot water inlet

4 Chilled/hot water outlet

2 Hydraulic connection kit for connecting multiple units (optional) *

4 Flex II units installed side-by-side

*Optional kit includes hydraulic manifolds for inlet and outlet water, the water strainers, the flow switch, motorized shut off valve and non-return valve to isolate unit in case out of operation.



Flexible investment

The scalable system can be extended on site, in terms of number of units (maximum 6) and total available capacity.

Non-stop continuous operation

The multiple units activation and the specially designed control system allows the system to always be reliable and operational. In case of failure, maintenance or repair of one system unit, the rest continue to work to ensure the reliability of the system. In comparison with a packaged unit, the addition of just one module can guarantee the total power back up in case of failure.

Quiet operation

Super low noise, including: condensing control with fan speed modulation, oversized coils, muffler on the compressors delivery lines and soundproof box for the compressors and Axitop diffusers.

The innovative fan profile ensures the highest energy efficiency in combination with low sound emissions.

Easy to handle

Trane Flex units can be easily lifted and moved, and fit through doorways and into standard elevators, which make them a perfect choice for challenging replacement projects in older buildings and confined spaces.

General data

Flex Heat Pumps		55	60	65	70	75	80	85	100	110	120	130
Cooling according to EN 14511 (1)												
Total cooling capacity	(kW)	49.0	54.3	57.1	60.4	65.3	68.3	76.0	86.6	98.3	106.6	114.4
Total power input	(kW)	17.4	20.0	21.2	22.9	24.8	26.7	28.1	33.6	39.4	43.8	48.4
Total EER		2.81	2.72	2.70	2.63	2.63	2.56	2.70	2.58	2.50	2.43	2.36
Water flow	(m³/h)	8.4	9.3	9.8	10.4	11.2	11.7	13.1	14.9	16.9	18.3	19.7
Water pressure drop	(kPa)	14	17	19	21	11	12	14	18	12	14	16
Heating according to EN 14511 (2)												
Total heating capacity	(kW)	56.1	62.5	65.6	69.7	73.7	77.6	85.6	97.8	109.2	118.1	131.3
Total power input	(kW)	17.7	19.9	20.9	22.4	23.4	24.9	27.8	32.5	36.6	39.9	44.7
Total COP		3.17	3.14	3.14	3.10	3.15	3.12	3.07	3.01	2.99	2.96	2.94
Water flow	(m³/h)	9.65	10.75	11.28	12.0	12.7	13.3	14.7	16.8	18.8	20.32	22.58
Water pressure drop	(kPa)	19	23	25	28	14	15	18	22	15	17	21
Cooling according to EN 14511 (3)												
Total cooling capacity	(kW)	68.1	74.7	78.3	82.3	88.6	92.4	105.4	118.7	133.7	144.1	153.8
Total power input	(kW)	18.8	21.5	23.2	25.1	27.2	29.3	29.9	36.3	43.1	48.3	53.8
Total EER		3.63	3.47	3.38	3.27	3.26	3.16	3.53	3.27	3.10	2.98	2.86
Water flow	(m³/h)	11.72	12.85	13.46	14.2	15.2	15.9	18.1	20.4	23.0	24.8	26.4
Water pressure drop	(kPa)	28	33	36	39	20	21	27	33	23	26	29
Heating according to EN 14511 (4)												
Total heating capacity	(kW)	57.7	64.2	67.3	71.4	75.4	79.3	88.0	100.2	115.7	124.9	133.7
Total power input	(kW)	14.7	16.6	17.4	18.7	19.3	20.5	23.2	27.1	31.7	34.4	37.2
Total COP		3.92	3.87	3.86	3.82	3.91	3.87	3.79	3.70	3.65	3.63	3.60
Water flow	(m³/h)	9.9	11.0	11.6	12.3	13.0	13.6	15.1	17.2	19.9	21.5	23.0
Water pressure drop	(kPa)	20	24	26	29	14	16	19	24	17	20	22
Seasonal efficiency according to EN 14825 (5)												
P rated	(kW)	51.2	51.7	52.6	50.6	59.5	67.2	73.7	87.8	95.0	90.0	106.3
ηs.heating	(%)	129	131	131	130	134	133	125	127	125	128	127
SCOP		3.31	3.36	3.35	3.33	3.42	3.41	3.20	3.26	3.20	3.28	3.25
Energy efficiency class		A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+
Seasonal efficiency according to EN 14825 (6)												
P rated	(kW)	49.0	54.3	57.1	60.4	65.3	68.3	76.0	86.6	98.3	106.6	114.4
ηs.cooling	(%)	157	150	146	147	153	148	148	149	149	142	136
SEER		4.00	3.83	3.73	3.75	3.89	3.77	3.78	3.81	3.79	3.63	3.47
Compressors												
Number of compressors		2	2	2	2	2	2	2	2	2	2	2
Number of refrigerant circuits		1	1	1	1	1	1	1	1	1	1	1
Minimum capacity step	(%)	38	45	50	48	44	46	50	43	50	44	50
Refrigerant charge (7)	(kg)	22	22	22	22	22	22	22	22	23	23	23
Fans												
Number of fans		1	1	1	1	1	1	2	2	2	2	2
Airflow	(m³/h)	19132	20183	20604	21024	21024	21024	36190	38500	38500	38500	38500
Power input for each fan (in chiller mode)	(kW)	1.7	1.8	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9
Sound levels												
Sound power level (ISO 9614)	(db(A))	81	82	82	82	83	83	85	86	87	87	87
Sound pressure level at 10 m	(db(A))	49	50	50	50	51	51	53	54	55	55	55
Sound power level (ISO 9614) - super low noise	(db(A))	79	80	80	80	80	80	82	83	84	84	84
Sound pressure level at 10 m -super low noise	(db(A))	47	48	48	48	48	48	50	51	52	52	52
Dimensions and weight												
Length	(mm)	2489	2489	2489	2489	2489	2489	2489	2489	2489	2489	2489
Depth	(mm)	1004	1004	1004	1004	1004	1004	1004	1004	1004	1004	1004
Height	(mm)	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354
Operating weight	(kg)	808	815	819	827	848	855	900	955	1027	1030	1034

(1) Cooling: outdoor air temperature 35°C and chilled water temperature 12/7°C.
(2) Outdoor air temperature 7°C with 90% R.H. - hot water temperature in/out 40/45°C.
(3) Cooling: outdoor air temperature 35°C and chilled water temperature 23/18°C.
(4) Outdoor temperature 7°C 90% R.H. - hot water temperature in/out 30/35°C.
(5) Ecodesign rating at low temperature conditions. Outdoor temperature: 7°C dry bulb/6°C wet bulb and hot water temperature in/out: 30°C/35°C. ηs,h / SCOP as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to Ecodesign requirements for Space heaters and combination heaters with Prated < 400kW - COMMISSION REGULATION (EU) N° 813/2013 of 2 August 2013.
"(6) Ecodesign rating for comfort chiller - Fan coil application.
Outdoor air temperature 35°C and chilled water temperature in/out: 12°C/7°C. ηs,c/SEER as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to Ecodesign requirements for Comfort Chillers with 2000 kW maximum capacity - COMMISSION REGULATION (EU) N° 2016/2281 of 20 December 2016."
(7) Refrigerant charge values are not binding, please check the effective quantity of refrigerant shown on unit nameplate.

FLEX Chillers		55	60	65	70	75	77	80	100	115	125	135
Cooling according to EN 14511 (1)												
Total cooling capacity	(kW)	54.2	60.1	63.2	66.6	72.4	76.0	79.5	98.1	112.3	122.5	132.3
Total power input	(kW)	18.0	20.5	21.7	23.8	25.5	27.4	29.4	33.8	39.5	44.0	48.7
Total EER		3.01	2.94	2.91	2.79	2.85	2.77	2.71	2.90	2.84	2.79	2.72
Water flow	(m³/h)	9.3	10.3	10.9	11.4	12.5	13.1	13.7	16.9	19.3	21.1	22.8
Water pressure drop	(kPa)	17.3	20.9	22.9	25.1	12.9	14.0	15.2	22.3	15.7	18.4	21.1
Seasonal efficiency according to EN 14825 (2)												
P rated	(kW)	54.2	60.1	63.2	66.6	72.4	76.0	79.5	98.1	112.3	122.5	132.3
ηs.cooling	(%)	157	151	149	149	154	150	149	156	151	152	149
SEER		4.00	3.84	3.81	3.81	3.91	3.83	3.81	3.98	3.86	3.89	3.81
Compressors												
Number of compressors		2	2	2	2	2	2	2	2	2	2	2
Number of refrigerant circuits		1	1	1	1	1	1	1	1	1	1	1
Refrigerant charge (3)	(kg)	12	12	12	12	13	13	13	14	14	14	14
Fans												
Number of fans		1	1	1	1	1	1	1	2	2	2	2
Airflow	(m³/h)	21415	21415	21415	21415	21415	21415	21415	42459	42459	42459	42459
Power input for each fan	(kW)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Sound levels												
Sound power level (ISO 9614) - standard noise	(db(A))	81	82	82	82	83	83	83	86	87	87	87
Sound pressure level at 10 m - standard noise	(db(A))	49	50	50	50	51	51	52	54	55	55	55
Sound power level (ISO 9614) - super low noise	(db(A))	79	80	80	80	80	80	81	83	84	84	84
Sound pressure level at 10 m - super low noise	(db(A))	47	48	48	48	48	48	49	51	52	52	52
Dimensions and weight												
Length	(mm)	2489	2489	2489	2489	2489	2489	2489	2489	2489	2489	2489
Depth	(mm)	1004	1004	1004	1004	1004	1004	1004	1004	1004	1004	1004
Height	(mm)	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354	2354
Operating weight	(kg)	589	596	599	611	637	639	642	783	827	830	834

(1) Cooling: outdoor air temperature 35°C and chilled water temperature 12/7°C.
"(2) Ecodesign rating for comfort chiller - Fan coil application.
Outdoor air temperature 35°C and chilled water temperature in/out: 12°C/7°C. ηs,c/SEER as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to Ecodesign requirements for Comfort Chillers with 2000 kW maximum capacity - COMMISSION REGULATION (EU) N° 2016/2281 of 20 December 2016."
(3) Refrigerant charge values are not binding, please check the effective quantity of refrigerant shown on unit nameplate.

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We are committed to using environmentally conscious print practices that reduce waste.

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