DATA SHEET
RTC 20e Air-to-Water Heat Pump

Main Features	
Application	Heating/cooling, DHW heating.
Description	In the heating/DHW mode, the heat pump extracts energy from the ambient air (at an outdoor temperature as low as –25 °C) and transfers it into heating water; its flow temp. may reach up to 55 °C. In the cooling mode, the heat pump draws heat from the cooling water (at an ambient air temperature up to 43 °C); its temperature at the heat pump outlet may be as low as 5 °C. The heat pump is equipped with a variable speed compressor.
Working fluid	R32 (cooling circuit), water (heating circuit).
Installation	The heat pump shall be installed with a pump station and a controller (for codes see the Catalogue).
Code	**19439**

Technical Data	
Output[1)]	9.19 kW / 12.57 kW
Power input[1)]	1.83 kW / 3.94 kW
Coefficient of performance (COP)[1)]	5.02 / 3.19
Nominal current	9.6 A
Power supply	3/N/PE ~ 400/230 V 50 Hz
Recommended circuit breaker	B16A 3f
IP protection	IPX4
Min./max. flow temperature from HP	5 / 55 °C
Max. heating water temperature at HP inlet	100 °C
Max. heating water working pressure	3 bar
Heating water volume in heat pump	3 l
Min. volume of non-closable heating system	120 l
Min. flow rate through HP	1560 l/h
Min. surface area of heat exchanger in HW storage tank	2.5 m²
Working air temperature for heating mode	–25 to 43 °C
Working air temperature for cooling mode	0 to 43 °C
Max. air flow rate	7000 m³/h
Number of fans	2
Fan speed	variable
Max. fan power input	120 W
Compressor type	twin rotary
Refrigerant	R32 (GWP 675)
Refrigerant quantity	2.60 kg
CO_2 equivalent[2)]	1.75 t
Refrigerant max. working pressure	42 bar
Connections	2 x G 5/4" M
Weight	154 kg

1) For A+7/W35 at min speed and for A-7/W35 at max. speed according to EN 14511. 2) Not covered by the annual check for leaking refrigerant (EU No 517/2014).

Energy Data *(for low-temperature applications under average climatic conditions, others see the Product Fiche)*	
Seasonal Energy Efficiency	191%
Energy Efficiency Class	A+++
SCOP	4.84

Sound data (according to ErP)	
Sound power level	61 dB(A)
Sound pressure level at 5 m	39 dB(A)
Sound pressure level at 10 m	33 dB(A)

REGULUS spol. s r. o. Czech Republic
Do Koutů 1897/3, 143 00 Praha 4
Tel.: +420 241 765 191
Fax: +420 241 763 976
E-mail: sales@regulus.eu
Web: www.regulus.eu

DATA SHEET
RTC 20e Air-to-Water Heat Pump

Parameters required for connection to the distribution network	
Nominal power input (required input)	5.95 kW
Heat output[3)]	18.52 kW
Steady current[3)]	6.67 A
Starting current	3.8 A
Nominal voltage	400 V 3f

3) For temperatures A2/W35 and max. compressor speed.

Output parameters (heating)					
Speed	**Air temperature**	**Flow temperature**	**Output [kW]**	**Power input [kW]**	**COP [–]**
76 Hz	7 °C	35 °C	18.52	4.14	4.47
		45 °C	18.22	4.99	3.65
		55 °C	17.67	5.95	2.97
	2 °C	35 °C	14.97	3.88	3.85
		45 °C	14.15	4.51	3.14
		55 °C	13.47	5.46	2.47
	–7 °C	35 °C	12.57	3.94	3.19
		45 °C	11.67	4.60	2.54
		55 °C	10.68	5.46	1.96
	–15 °C	35 °C	9.72	3.71	2.62
		45 °C	9.03	4.42	2.04
		55 °C	8.50	5.17	1.64
55 Hz	12 °C	35 °C	15.51	2.83	5.48
		45 °C	14.79	3.47	4.26
		55 °C	13.68	4.28	3.20
	7 °C	35 °C	13.95	2.95	4.73
		45 °C	13.15	3.51	3.75
		55 °C	12.40	4.28	2.90
	2 °C	35 °C	12.09	2.84	4.26
		45 °C	11.43	3.44	3.32
		55 °C	9.96	3.90	2.56
	–7 °C	35 °C	9.11	2.80	3.25
		45 °C	8.43	3.28	2.57
		55 °C	7.47	3.91	1.91
	–15 °C	35 °C	6.72	2.67	2.52
		45 °C	6.24	3.13	1.99
		55 °C	5.51	3.72	1.48
36 Hz	12 °C	35 °C	10.10	1.75	5.77
		45 °C	9.42	2.27	4.15
		55 °C	8.88	2.80	3.17
	7 °C	35 °C	9.19	1.83	5.02
		45 °C	8.51	2.25	3.80
		55 °C	7.60	2.78	2.73
	2 °C	35 °C	7.75	1.81	4.27
		45 °C	7.18	2.22	3.23
		55 °C	6.79	2.75	2.47
	–7 °C	35 °C	5.75	1.79	3.21
		45 °C	5.36	2.14	2.50
		55 °C	4.49	2.57	1.75
	–15 °C	35 °C	4.08	1.73	2.36
		45 °C	3.70	2.07	1.79
		55 °C	3.09	2.40	1.29

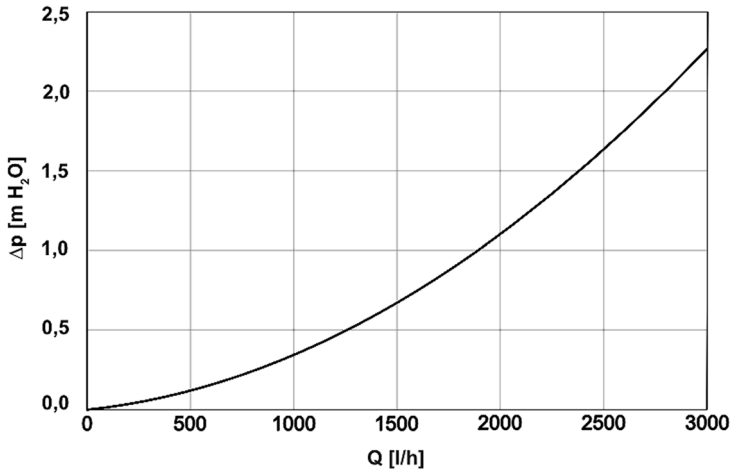
The values of the operating parameters including the defrost cycle are measured on the manufacturer's test bench according to EN 14 511.

DATA SHEET
RTC 20e Air-to-Water Heat Pump

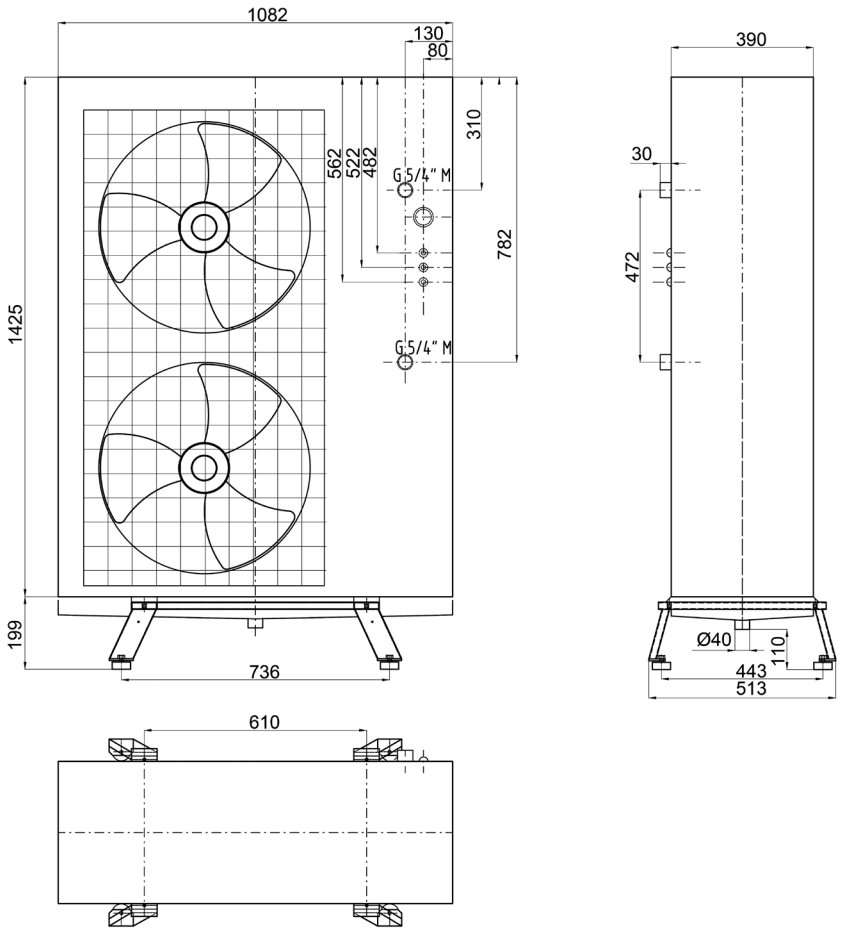
Output parameters (cooling)					
Speed	Air temperature	Flow temperature	Output [kW]	Power input [kW]	COP [–]
76 Hz	*35 °C*	*7 °C*	15.80	5.38	2.94
	40 °C	*18 °C*	19.38	6.26	3.10

Sound data (according to EN 12 102)	
Sound power level	61 dB(A)
Sound pressure level at 5 m	39 dB(A)
Sound pressure level at 10 m	33 dB(A)

Heat Pump Pressure Drop Graph



Dimensions



PRODUCT FICHE

RTC 20e Air-to-Water Heat Pump

Supplier's name *R E G U L U S spol. s. r. o.*
Supplier's model identifier *RTC 20e*

Parametr	low-temperature application	medium-temperature applications
Seasonal space heating energy efficiency class	**A+++**	**A++**
Average climate:		
The rated heat output including any suplementary heaters	**16.28 kW**	**15.1 kW**
The seasonal energy efficiency	**191 %**	**130 %**
The annual energy consumption	**6953 kWh**	**7750 kWh**
Cold climate:		
The rated heat output including any suplementary heaters	**15.1 kW**	**14.3 kW**
The seasonal space heating energy efficiency	**156 %**	**110 %**
The annual energy consumption	**8825 kWh**	**9930 kWh**
Warm climate:		
The rated heat output including any suplementary heaters	**18.2 kW**	**16.1 kW**
The seasonal space heating energy efficiency	**194 %**	**140 %**
The annual energy consumption	**8105 kWh**	**8590 kWh**
The sound power level LwA, outdoors	**61 dB**	

Any specific precautions that shall be taken when the space heater is assembled, installed or maintained are stated in the manual that is a part of the supply.

Model:	**RTC 20e**
Air-to-water heat pump:	**yes**
Water-to-water heat pump:	**no**
Brine-to-water heat pump:	**no**
Low-temperature heat pump:	**yes**
Equipped with supplementary heater:	**no**
Heat pump combination heater:	**no**

Parameters declared for low-temperature application and average climate.

Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	**16.28**	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj.:			
Tj = –7 °C	P_{dh}	**14.40**	kW
Tj = +2 °C	P_{dh}	**8.77**	kW
Tj = +7 °C	P_{dh}	**5.64**	kW
Tj = +12 °C	P_{dh}	**2.50**	kW
Tj = bivalent temperature	P_{dh}	**14.40**	kW
Tj = operation limit temperature	P_{dh}	**16.28**	kW
For air-to-water heat pumps Tj = –15 °C, if TOL < –20 °C	P_{dh}	**–**	kW
Bivalent temperature	T_{biv}	**–7**	°C
Cycling interval capacity for heating	P_{cyc}	**–**	kW
Degradation co-efficient (**)	C_{dh}	**0.99**	–
Power consumption in modes other than active mode:			
Off mode	P_{OFF}	**0.015**	kW
Thermostat-off mode	P_{TO}	**0.015**	kW
Standby mode	P_{SB}	**0.015**	kW
Crankcase heater mode	P_{CK}	**0.035**	kW
Other items: Capacity control		**variable**	
Sound power level, indoors / outdoors	L_{WA}	**– / 61**	dB

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	**191**	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj.:			
Tj = –7 °C	COP_d	**3.27**	–
Tj = +2 °C	COP_d	**4.56**	–
Tj = +7 °C	COP_d	**6.24**	–
Tj = +12 °C	COP_d	**8.58**	–
Tj = bivalent temperature	COP_d	**3.27**	–
Tj = operation limit temperature	COP_d	**2.99**	–
For air-to-water heat pumps Tj = –15 °C, if TOL < –20 °C	COP_d	**–**	–
For air-to-water heat pumps: operation limit temperature	T_{OL}	**–10**	°C
Cycling interval efficiency	COP_{cyc}	**–**	–
Heating water operating limt temp.	W_{TOL}	**55**	°C
Supplementary heater: Rated heat output (*)	P_{sup}	**0.00**	kW
Type of energy input		**electric**	
For air-to-water heat pumps: rated air flow rate, outdoors		**7000**	m^3/h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger		**–**	m^3/h

Contact details **R E G U L U S spol. s r. o. Do Koutů 1897/3, 143 00 Praha 4** **www.regulus.eu**

(*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the capacity for heating sup(Tj).
(**) If Cdh is not determined by measurement then the default degradation is Cdh = 0,9.