

DATA SHEET

RTC 6i Air-to-water Heat Pump



Main Features

Application	Heating and cooling, DHW heating.
Description	The heat pump gains energy from the ambient air (at outdoor temperatures as low as $-25\text{ }^{\circ}\text{C}$), the energy is then "pumped" to a higher temp. and transferred into heating water, the flow temperature can reach up to $55\text{ }^{\circ}\text{C}$; in cooling mode, it absorbs heat from the cooling water (at ambient temperatures of up to $55\text{ }^{\circ}\text{C}$), the water temperature can be as low as $5\text{ }^{\circ}\text{C}$ at the outlet from the heat pump; equipped with modulating compressor control.
Working fluid	R410A (cooling circuit), water (heating circuit).
Installation	The heat pump must be installed together with a pump station and controller (for codes see the Catalogue).
Code	17735

Technical Data

Nominal output ¹⁾	1.6 kW/4.46 kW
Nominal power input ¹⁾	0.5 kW/1.5 kW
COP ¹⁾	3.2/2.97
Nominal current	12 A
Power supply	1/N/PE ~ 230 V 50 Hz
Recommended circuit breaker	B16A 1f
Ingress protection (IP)	IPX4
Max. flow temperature	5/55 $^{\circ}\text{C}$
Max. heating water temperature at HP inlet	100 $^{\circ}\text{C}$
Max. heating water working pressure	3 bar
Heating water volume in heat pump	4.5 l
Min. volume of non-closable heating system	60 l
Min. flow rate through HP	570 l/h
Min. surface area of heat exchanger in storage	1 m ²
Working air temperature for heating mode	-25 to $45\text{ }^{\circ}\text{C}$
Working air temperature for cooling mode	0 to $55\text{ }^{\circ}\text{C}$
Max. flow rate	2700 m ³ /h
Number of fans	1
Fan speed	variable
Fan input power	65 W
Compressor/oil type	twin rotary/FV50S
Refrigerant	R410A (GWP 2088)
Refrigerant quantity	1.30 kg
CO ₂ equivalent ²⁾	2.71 t
Refrigerant max. working pressure	42 bar
Connections	G 1" M
Weight	76 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 efficiency data

(for low-temperature applications under average climatic conditions, others see the Product Fiche)

Seasonal Energy Efficiency	176%
Energy Efficiency Class	A+++
SCOP	4.47

Sound Data (according to ErP)

Sound power level	57 dB(A)
Sound pressure level at 5 m	35 dB(A)
Sound pressure level at 10	29 dB(A)

DATA SHEET

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Parameters for distribution tariff change	
Nominal power input (required input)	2.28 kW
Heat Output ³⁾	5.81 kW
Steady current ³⁾	8.0 A
Starting current	2.4 A
Nominal voltage / number of phases	230 V 1f

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

Output parameters						
RPS	Air temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]	
95 Hz	2 °C	35 °C	5.81	1.65	3.52	
		45 °C	5.43	1.90	2.86	
		55 °C	5.31	2.28	2.33	
	-7 °C	35 °C	4.46	1.50	2.97	
		45 °C	4.21	1.73	2.43	
		55 °C	3.89	2.02	1.93	
85 Hz	7 °C	35 °C	5.42	1.44	3.76	
		45 °C	5.17	1.71	3.02	
		55 °C	4.89	2.04	2.40	
	2 °C	35 °C	5.30	1.42	3.73	
		45 °C	5.03	1.66	3.03	
		55 °C	4.84	1.94	2.49	
	-7 °C	35 °C	4.03	1.32	3.05	
		45 °C	3.46	1.45	2.39	
		55 °C	3.48	1.78	1.96	
	-15 °C	35 °C	3.16	1.21	2.61	
		45 °C	2.90	1.38	2.10	
		55 °C	2.62	1.63	1.61	
50 Hz	12 °C	35 °C	3.71	0.75	4.95	
		45 °C	3.48	0.94	3.70	
		55 °C	3.75	1.15	3.26	
	7 °C	35 °C	3.24	0.75	4.32	
		45 °C	3.10	0.93	3.33	
		55 °C	2.81	1.11	2.53	
	2 °C	35 °C	3.15	0.75	4.20	
		45 °C	2.82	0.91	3.10	
		55 °C	-	-	-	
	-7 °C	35 °C	2.27	0.72	3.15	
		45 °C	2.01	0.85	2.36	
		55 °C	1.79	1.00	1.79	
	-15 °C	35 °C	1.72	0.69	2.49	
		45 °C	-	-	-	
		55 °C	-	-	-	
	36 Hz	12 °C	35 °C	2.73	0.53	5.15
			45 °C	2.47	0.67	3.69
			55 °C	2.62	0.83	3.16
7 °C		35 °C	1.60	0.50	3.20	
		45 °C	-	-	-	
		55 °C	1.85	0.80	2.31	
2 °C		35 °C	2.18	0.53	4.11	
		45 °C	2.00	0.65	3.08	
		55 °C	-	-	-	

Output parameters					
RPS	Air temperature	Flow temperature	Output [kW]	Power input [kW]	EER [-]
max.	35 °C	18 °C	5.81	2.10	2.77
		7 °C	4.50	1.74	2.59
min.	35 °C	18 °C	2.05	0.77	2.66
		7 °C	1.59	0.61	2.61

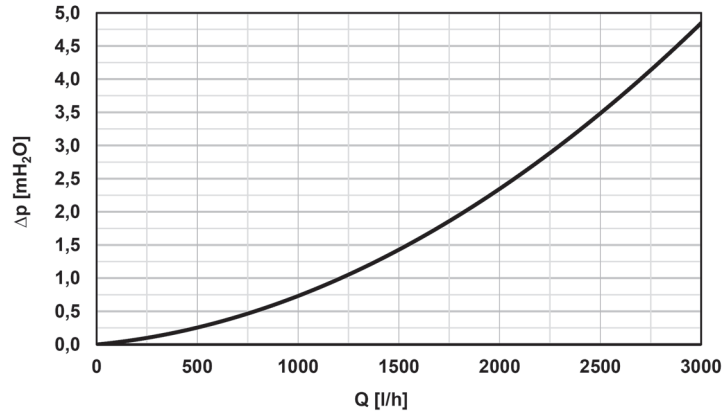
DATA SHEET

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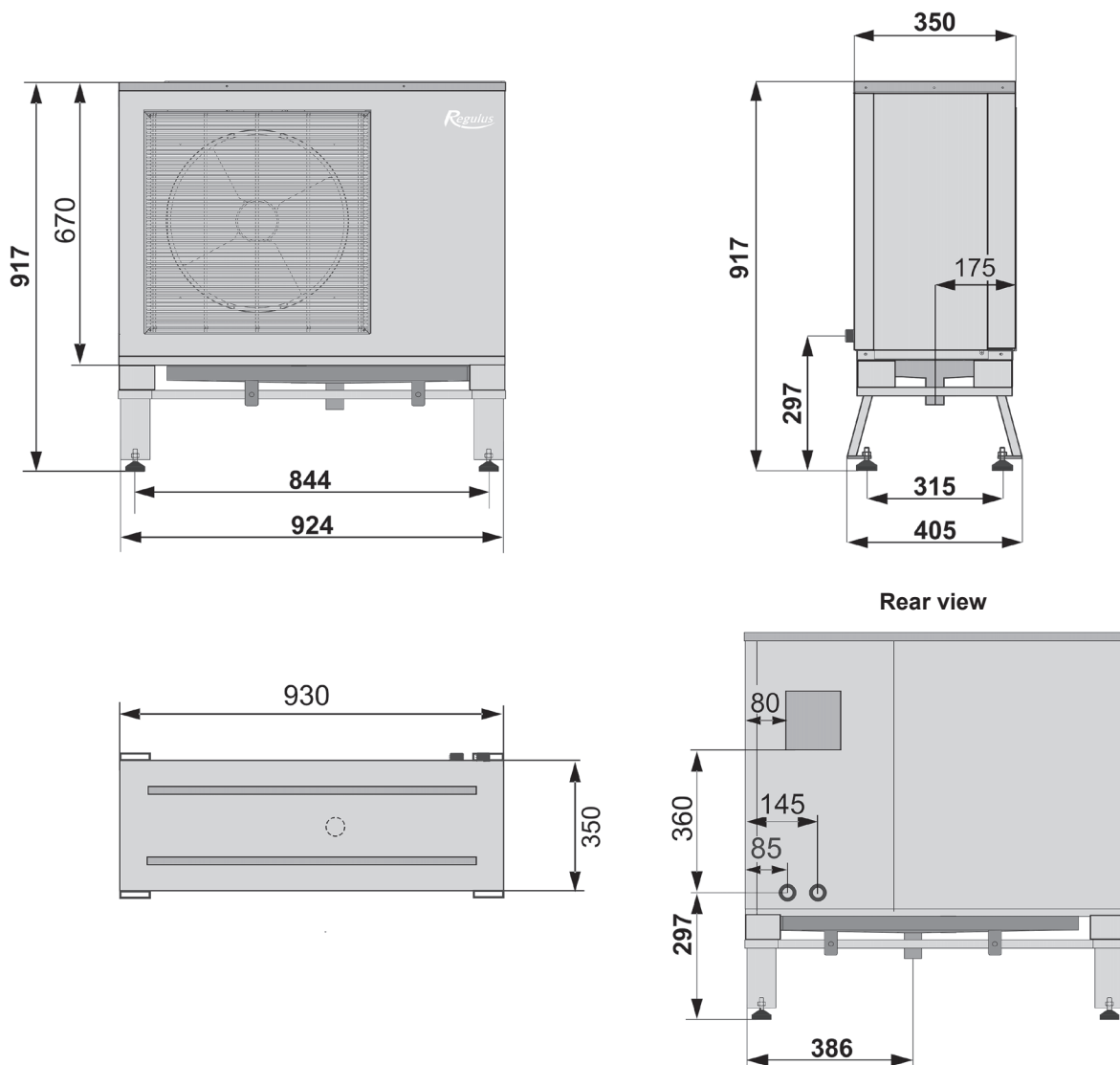
Sound Data at max. compressor rpm

Sound power level	57 dB(A)
Sound pressure level at 5 m	35 dB(A)
Sound pressure level at 10 m	29 dB(A)

Heat pump pressure drop graph



Dimensions



PRODUCT FICHE

RTC 6i Air-to-water Heat Pump

Supplier's name *REGULUS spol. s r. o.*
 Supplier's model identifier *RTC 6i*

Parameter	low temperature
The seasonal space heating energy efficiency class	A+++
Average climate	
The rated heat output including any supplementary heaters	5,3 kW
The seasonal space heating energy efficiency	176 %
The annual energy consumption	2448 kWh
Cold climate	
The rated heat output including any supplementary heaters	5,3 kW
The seasonal space heating energy efficiency	139 %
The annual energy consumption	3694 kWh
Warm climate	
The rated heat output including any supplementary heaters	7,2 kW
The seasonal space heating energy efficiency	182 %
The annual energy consumption	2090 kWh
The sound power level LWA, outdoors	57 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 6i
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	Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	5	kW	Seasonal space heating energy efficiency	η_s	176	%
<i>Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j.</i>				<i>Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j.</i>			
$T_j = -7\text{ °C}$	P_{dh}	4,70	kW	$T_j = -7\text{ °C}$	COP_d	2,64	–
$T_j = +2\text{ °C}$	P_{dh}	2,90	kW	$T_j = +2\text{ °C}$	COP_d	4,48	–
$T_j = +7\text{ °C}$	P_{dh}	2,20	kW	$T_j = +7\text{ °C}$	COP_d	5,88	–
$T_j = +12\text{ °C}$	P_{dh}	3,50	kW	$T_j = +12\text{ °C}$	COP_d	7,09	–
$T_j = \text{bivalent temperature}$	P_{dh}	4,70	kW	$T_j = \text{bivalent temperature}$	COP_d	2,64	–
$T_j = \text{operation limit temperature}$	P_{dh}	4,70	kW	$T_j = \text{operation limit temperature}$	COP_d	2,39	–
For air-to-water heat pumps:				For air-to-water heat pumps:			
$T_j = -15\text{ °C}$ (if TOL < -20 °C)	P_{dh}	–	kW	$T_j = -15\text{ °C}$ (if TOL < -20 °C)	COP_d	–	–
Bivalent temperature	T_{biv}	-7	°C	For air-to-water heat pumps:	T_{OL}	-10	°C
Cycling interval capacity for heating	P_{cyc}	–	kW	operation limit temperature	COP_{cyc}	–	–
Degradation co-efficient (**)	C_{dh}	0,99	–	Cycling interval efficiency			
<i>Power consumption in modes other than active mode</i>				Heating water operating limit temp.	W_{TOL}	55	°C
Off mode	P_{OFF}	0,009	kW	<i>Supplementary heater</i>			
Thermostat-off mode	P_{TO}	0,009	kW	Rated heat output (*)	P_{sup}	0,00	kW
Standby mode	P_{SB}	0,009	kW	Type of energy input		electric	
Crankcase heater mode	P_{CK}	0,040	kW	For air-to-water heat pumps:			
Other items				rated air flow rate, outdoors		2700	m ³ /h
capacity control		variable		For water/brine-to-water heat pumps:			
Sound power level, indoors / outdoors	L_{WA}	57	dB	Rated brine or water flow rate, outdoor heat exchanger		–	m ³ /h

Contact details **REGULUS 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 P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the capacity for heating $sup(T_j)$.

(**) If C_{dh} is not determined by measurement then the default degradation is $C_{dh} = 0,9$.