

DATA SHEET

RTC 12i Air-to-water Heat Pump



Main Features

Application	heating, cooling, DHW heating
Description	In heating and hot water modes, the heat pump draws energy from the ambient air (at an outdoor temperature of up to $-25\text{ }^{\circ}\text{C}$) and transfers it to the heating water, the temperature of which can reach up to $55\text{ }^{\circ}\text{C}$ at the heat pump outlet. In cooling mode, it absorbs heat from the cooling water (at an ambient temperature of up to $55\text{ }^{\circ}\text{C}$), the temperature of which can reach up to $5\text{ }^{\circ}\text{C}$ at the outlet from the heat pump. It is equipped with a compressor with speed control.
Working fluid	water (heating circuit)
Installation	the heat pump shall be installed with the pump station and controller, for the codes see the Product Catalogue
Code	17448

Technical data

Nominal output ¹⁾	5,34 kW / 8,07 kW
Nominal power input ¹⁾	1,04 kW / 2,78 kW
COP ¹⁾	5,13 / 2,90
Nominal current	18 A
Power supply	1/N/PE ~ 230V 50 Hz
Recommended circuit breaker	B20A 1f
Ingress protection (IP)	IPX4
Min./Max. flow temperature	5 / $55\text{ }^{\circ}\text{C}$
Max. temperature in heating system	$100\text{ }^{\circ}\text{C}$
Max. heating water working pressure	3 bar
Heating water volume in heat pump	4,5 l
Min. volume of non-closable heating system	120 l
Min. flow rate through HP	1335 l/h
Min. surface area of heat exchanger in storage	$1,5\text{ m}^2$
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	$4200\text{ m}^3/\text{h}$
Number of fans	2
Fan speed	variable
Fan input power	150 W
Compressor / oil type	twin rotary / FV50S
Refrigerant	R410A (GWP 2088)
Refrigerant quantity	3 kg
CO ₂ equivalent ²⁾	6,26 t
Refrigerant max. working pressure	42 bar
Connections	2 x G 1" F
Weight	140 kg

1) for temp. A+7/W35 at max. speed, 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	153%
Energy Efficiency Class	A++
SCOP	3,90

Sound data (according ErP)

Sound power level	65 dB(A)
Sound pressure level at 5 m	43 dB(A)
Sound pressure level at 10 m	37 dB(A)

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Parameters for distribution tariff change	
Nominal power input (required input)	3,80 kW
Heat output ³⁾	11,42 kW
Steady current ³⁾	12,3 A
Starting current	3,8 A
Nominal voltage / number of phases	230 V 1f

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

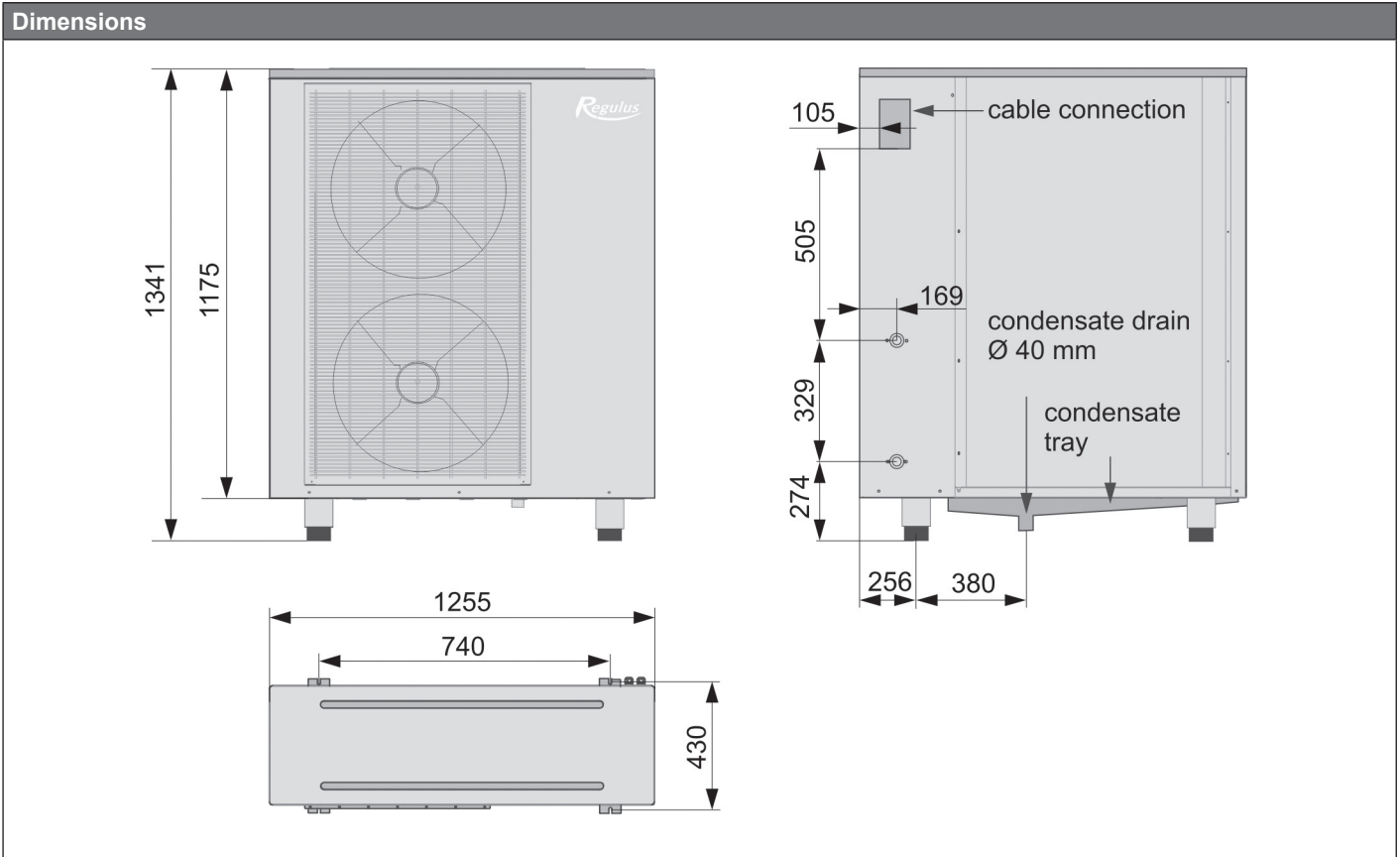
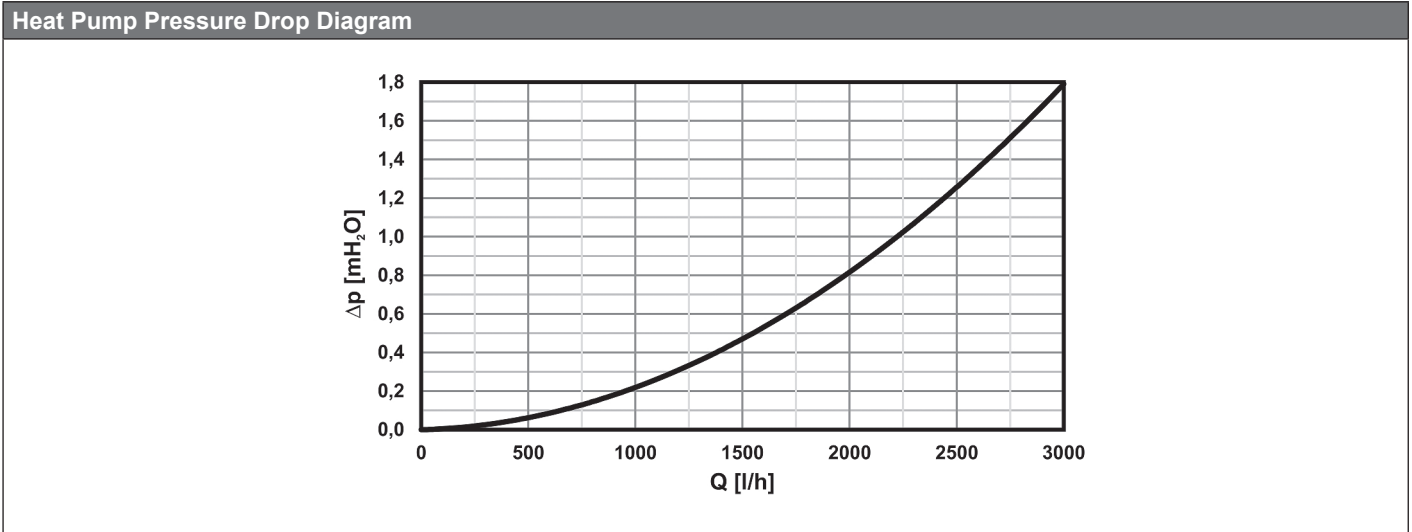
Output parameters					
RPS	Air temperature	Flow temperature	Output [kW]	Power input [kW]	COP [-]
85 Hz	12 °C	35 °C	14,31	2,67	5,36
		45 °C	14,20	3,10	4,58
		55 °C	13,28	3,80	3,49
	7 °C	35 °C	12,24	2,60	4,71
		45 °C	12,60	3,16	3,9
		55 °C	11,48	3,64	3,15
	2 °C	35 °C	11,42	2,55	4,48
		45 °C	10,58	3,01	3,51
		55 °C	10,23	3,56	2,87
	-7 °C	35 °C	8,54	2,40	3,56
		45 °C	8,07	2,78	2,90
		55 °C	7,55	3,26	2,32
	-15 °C	35 °C	6,67	2,21	3,02
		45 °C	6,52	2,66	2,45
		55 °C	5,91	3,02	1,96
55 Hz	12 °C	35 °C	9,50	1,35	7,04
		45 °C	8,77	1,65	5,32
		55 °C	8,62	2,04	4,23
	7 °C	35 °C	7,92	1,39	5,70
		45 °C	7,71	1,65	4,67
		55 °C	7,19	2,12	3,39
	2 °C	35 °C	6,90	1,40	4,93
		45 °C	6,76	1,66	4,07
		55 °C	6,32	2,07	3,05
	-7 °C	35 °C	5,21	1,41	3,70
		45 °C	5,25	1,67	3,14
		55 °C	4,45	1,98	2,25
	-15 °C	35 °C	4,64	1,33	3,49
		45 °C	3,91	1,63	2,40
		55 °C	2,97	1,82	1,63
36 Hz	12 °C	35 °C	6,12	0,86	7,12
		45 °C	6,11	1,03	5,93
		55 °C	5,22	1,41	3,70
	7 °C	35 °C	5,37	0,92	5,84
		45 °C	5,34	1,04	5,13
		55 °C	4,86	1,43	3,40
	2 °C	35 °C	4,48	0,95	4,72
		45 °C	4,27	1,01	4,23
		55 °C	4,04	1,42	2,85
	-7 °C	35 °C	3,64	0,91	4,00
		45 °C	3,42	1,16	2,95
		55 °C	2,57	1,35	1,90
	-15 °C	35 °C	2,58	0,94	2,74
		45 °C	2,27	1,13	2,01
		55 °C	1,88	1,29	1,46

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Output parameters					
RPS	Air temperature	Flow temperature	Output [kW]	Power input [kW]	EER [-]
max.	35 °C	18 °C	10,37	3,16	3,28
		7 °C	7,91	3,01	2,63
min.	35 °C	18 °C	4,29	0,96	4,48
		7 °C	2,34	1,00	2,34

Sound data at max. compressor rpm	
Sound power level	65 dB(A)
Sound pressure level at 5 m	43 dB(A)
Sound pressure level at 10 m	37 dB(A)



PRODUCT FICHE

RTC 12i Air-to-water Heat Pump

Supplier's name *REGULUS spol. s r. o.*
 Supplier's model identifier *RTC 12i*

Parameter	low temperature
The seasonal space heating energy efficiency class	A++
Average climate	
The rated heat output including any supplementary heaters	9,6 kW
The seasonal space heating energy efficiency	153 %
The annual energy consumption	5127 kWh
Cold climate	
The rated heat output including any supplementary heaters	9,3 kW
The seasonal space heating energy efficiency	138 %
The annual energy consumption	6511 kWh
Warm climate	
The rated heat output including any supplementary heaters	10,5 kW
The seasonal space heating energy efficiency	171 %
The annual energy consumption	3297 kWh
The sound power level LWA, outdoors	65 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 12i
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}	10	kW	Seasonal space heating energy efficiency	η_s	153	%
<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}	8,50	kW	$T_j = -7\text{ °C}$	COP_d	2,74	-
$T_j = +2\text{ °C}$	P_{dh}	5,20	kW	$T_j = +2\text{ °C}$	COP_d	3,72	-
$T_j = +7\text{ °C}$	P_{dh}	3,30	kW	$T_j = +7\text{ °C}$	COP_d	4,93	-
$T_j = +12\text{ °C}$	P_{dh}	1,50	kW	$T_j = +12\text{ °C}$	COP_d	6,44	-
$T_j = \text{bivalent temperature}$	P_{dh}	8,10	kW	$T_j = \text{bivalent temperature}$	COP_d	2,85	-
$T_j = \text{operation limit temperature}$	P_{dh}	9,60	kW	$T_j = \text{operation limit temperature}$	COP_d	2,50	-
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}	-6	°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}	0,017	kW	<i>Supplementary heater</i>			
Thermostat-off mode	P_{TO}	0,000	kW	Rated heat output (*)	P_{sup}	0,00	kW
Standby mode	P_{SB}	0,017	kW	Type of energy input		electric	
Crankcase heater mode	P_{CK}	0,033	kW	For air-to-water heat pumps:			
<i>Other items</i>				rated air flow rate, outdoors		4200	m ³ /h
capacity control		variable		For water/brine-to-water heat pumps:			
Sound power level, indoors / outdoors	L_{WA}	65	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 $C_{dh} = 0,9$.