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10580601

ROTH WERKE GMBH

1135010710 ThermoAura FR 11 kW

	55°C	35°C
	A+++	A+++

A+++
A++
A+
A
B
C
D

40 dB

49 dB

■	12	13
■	**11**	**11**
■	12	12
	kW	kW

2019

811/2013

ENERGY

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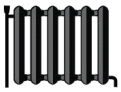
1135010710 ThermoAura FR 11 kW



	55°C	35°C
	A+++	A+++
	12	13
	11	**11**
	12	12
	kW	kW

40 dB

49 dB

2019 **811/2013**

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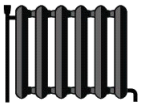
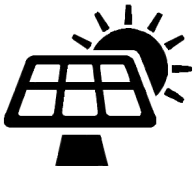
Roth Werke GmbH

10580601

1135010710 ThermoAura FR 11 kW + Modul WP Aura E



A+++



A+++

A++

A+

A

B

C

D

E

F

G

2015

811/2013

package (heat pumps and combination heater with heat pump) - 1135010710 ThermoAura FR 11 kW + Modul WP Aura E

Seasonal space heating energy efficiency of heat pump (ηs) — 1 — 152 %

Rated heat output of the heat pump (Prated kW) — 11

Temperature control — Class — II — **(Table 1)** — 2 — 2 %

Supplementary boiler

package with hot water storage tank — no — Psup kW (rated heat output of supplementary heater)

ηs % (sup)

(ηs % **(sup)** - 1) x (α_{WP}) = - — 3 — %

(αWE: see Table 3) — (α_{WE})

solar contribution

(A_{Koll} m²) — **(η_{Koll} %)**

(V_{Sp} m³) — **(standstill heat loss of the hot water storage tank in W)**

(ηSp: Table 2)

((294/P_{rated} x11) x (A_{Koll} m²) + (115/P_{rated} x11) x (V_{Sp} m³)) x 0,45 x ((η_{Koll} %) /100) x (η_{Sp}) = + — 4 — %

Seasonal space heating energy efficiency of package — 5 — 154 % (rounded to the nearest integer)

Seasonal space heating energy efficiency class of package

G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
									X
< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %

Seasonal space heating energy efficiency under colder or warmer climate conditions

Seasonal space heating energy efficiency of the heat pump (ηs) under colder climate conditions — 121 %

Seasonal space heating energy efficiency of the heat pump (ηs) under warmer climate conditions — 184 %

colder — 5 — 154 — -V — 31 — = — 123

warmer — 5 — 154 — +VI — 32 — = — 186

heatpump datasheet:			
manufacturer:	**Roth Werke GmbH**		
model:	**1135010710 ThermoAura FR 11 kW**		
Information concerning energy efficiency class and rated heat output:			
	average / low	average / medium	
energy efficiency class space heater:	A+++	A+++	
rated heat output:	11	11	kW
energy efficiency space heater:	197	152	%
annual final energy consumption space heater	4336	5598	kWh
sound power level indoors		40	dB
special precautions concerning assembly, installation or maintenance			
All instructional work in this manual may only be carried out by qualified specialist personnel in compliance with local regulations.			
additional information	low	medium	
rated heat output under colder climate conditions	13	12	kW
rated heat output under warmer climate conditions	12	12	kW
energy effiency space heater under colder climate conditions	155	121	%
energy effiency space heater under warmer climate conditions	231	184	%
annual energy consumption space heater under colder climate conditions	7777	9156	kWh
annual energy consumption space heater under warmer climate conditions	2739	3430	kWh
sound power level outdoors		49	dB

technical data of the temperature controller		
manufacturer:	Roth	
model:	Modul WP Aura E	
controller class	II	-
contribution of the controller to the energy efficiency space heater	2	%

Model	1135010710 ThermoAura FR 11 kW
Air-to-water heat pump: (yes/no)	yes
Brine-to-water heat pump: (yes/no)	no
Water-to-water heat pump: (yes/no)	no
Low-temperature heat pump: (yes/no)	no
Equipped with supplementary heater: (yes/no)	yes
combination heater with	no
application: (low/medium)	medium
climate: (colder/average/warmer)	average

Item	Symbol	Value	Unit
Rated heat output	Prated	11	kW
Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj			
Tj = -7°C	Pdh	8,9	kW
Tj = +2°C	Pdh	5,5	kW
Tj = +7°C	Pdh	3,8	kW
Tj = +12°C	Pdh	4,0	kW
Tj = bivalent temperature	Pdh	8,9	kW
Tj = operation limit temperature	Pdh	8,1	kW
For air-to-water heat pumps: Tj = +15°C (if TOL < -20°C)	Pdh		kW
Bivalent temperature	T_{biv}	-7,0	°C
Cycling interval capacity for heating	Pcych		kW
Degradation co-efficient (**)	Cdh	1,0	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,013	kW
Thermostat-off mode	P_{TO}	0,018	kW
Standby mode	P_{SB}	0,013	kW
Crankcase heater mode	P_{CK}	0,000	kW
Other items			
Capacity control		variable	
sound power level, indoors/outdoors	L_{WA}	40/49	dB
Emissions of nitrogen oxides	NO_X	-	mg/kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	ηS	152	%
Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj			
Tj = -7°C	COPd	2,35	-
Tj = +2°C	COPd	3,89	-
Tj = +7°C	COPd	4,96	-
Tj = +12°C	COPd	6,15	-
Tj = bivalent temperature	COPd	2,35	-
Tj = operation limit temperature	COPd	2,12	-
For air-to-water heat pumps: Tj = +15°C (if TOL < -20°C)	COPd		-
For air-to-water heat pumps: Operation limit temperature	TOL	-10,00	°C
Cycling interval efficiency	COPcyc		-
Heating water operating limit temperature	WTOL	78,00	°C
Supplementary heater			
Rated heat output	Psup	2,4	kW
Type of energy input		electrical	
For air-to-water heat pumps: Rated air flow rate, outdoors		4000	m³/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			m³/h

For heat pump combination heater:							
Declared load profile		-		Water heating energy efficiency	η_{wh}	-	%
Daily electricity consumption	Q_{elec}		kWh	Daily fuel consumption	Q_{fuel}	0	kWh
Contact details	Roth Werke GmbH Am Seerain 2 35232 Dautphetal Germany						

(*) 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 supplementary capacity for heating s

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.

Model	1135010710 ThermoAura FR 11 kW
Air-to-water heat pump: (yes/no)	yes
Brine-to-water heat pump: (yes/no)	no
Water-to-water heat pump: (yes/no)	no
Low-temperature heat pump: (yes/no)	no
Equipped with supplementary heater: (yes/no)	yes
combination heater with	no
application: (low/medium)	low
climate: (colder/average/warmer)	average

Item	Symbol	Value	Unit
Rated heat output	Prated	11	kW
Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj			
Tj = -7°C	Pdh	9,4	kW
Tj = +2°C	Pdh	5,7	kW
Tj = +7°C	Pdh	3,7	kW
Tj = +12°C	Pdh	4,1	kW
Tj = bivalent temperature	Pdh	9,4	kW
Tj = operation limit temperature	Pdh	8,7	kW
For air-to-water heat pumps: Tj = +15°C (if TOL < -20°C)	Pdh		kW
Bivalent temperature	T_{biv}	-7,0	°C
Cycling interval capacity for heating	Pcych		kW
Degradation co-efficient (**)	Cdh	1,0	-
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0,013	kW
Thermostat-off mode	P_{TO}	0,018	kW
Standby mode	P_{SB}	0,013	kW
Crankcase heater mode	P_{CK}	0,000	kW
Other items			
Capacity control		variable	
sound power level, indoors/outdoors	L_{WA}	40/49	dB
Emissions of nitrogen oxides	NO_X	-	mg/kWh
For heat pump combination heater:			
Declared load profile		-	
Daily electricity consumption	Q_{elec}		kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	ηS	197,1	%
Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj			
Tj = -7°C	COPd	3,07	-
Tj = +2°C	COPd	5,06	-
Tj = +7°C	COPd	6,39	-
Tj = +12°C	COPd	7,54	-
Tj = bivalent temperature	COPd	3,07	-
Tj = operation limit temperature	COPd	2,83	-
For air-to-water heat pumps: Tj = +15°C (if TOL < -20°C)	COPd		-
For air-to-water heat pumps: Operation limit temperature	TOL	-10,00	°C
Cycling interval efficiency	COPcyc		-
Heating water operating limit temperature	WTOL	78,00	°C
Supplementary heater			
Rated heat output	Psup	1,8	kW
Type of energy input		electrical	
For air-to-water heat pumps: Rated air flow rate, outdoors		4000	m^3/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			m^3/h
Water heating energy efficiency	η_{wh}	-	%
Daily fuel consumption	Q_{fuel}	-	kWh

Contact details	Roth Werke GmbH Am Seerain 2 35232 Dautphetal Germany

(*) 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 supplementary capacity for heating s

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.