

10061502

alpha innotec

SWP 451



55 °C

35 °C



^++

 A^+

Δ

D

D

A++





56 dB



- dB

4141

41kW

45

45

45 kW



2019

811/2013



10061502

alpha innotec

SWP 451



55 °C

35 °C



Λ++

 \mathbf{A}^{+}

Δ

В

L

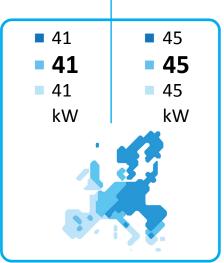
A⁺⁺







- dB



2019

811/2013



ENERG IJA енергия · ενεργεια

10061502

alpha innotec

SWP 451 + Luxtronik 2.05

























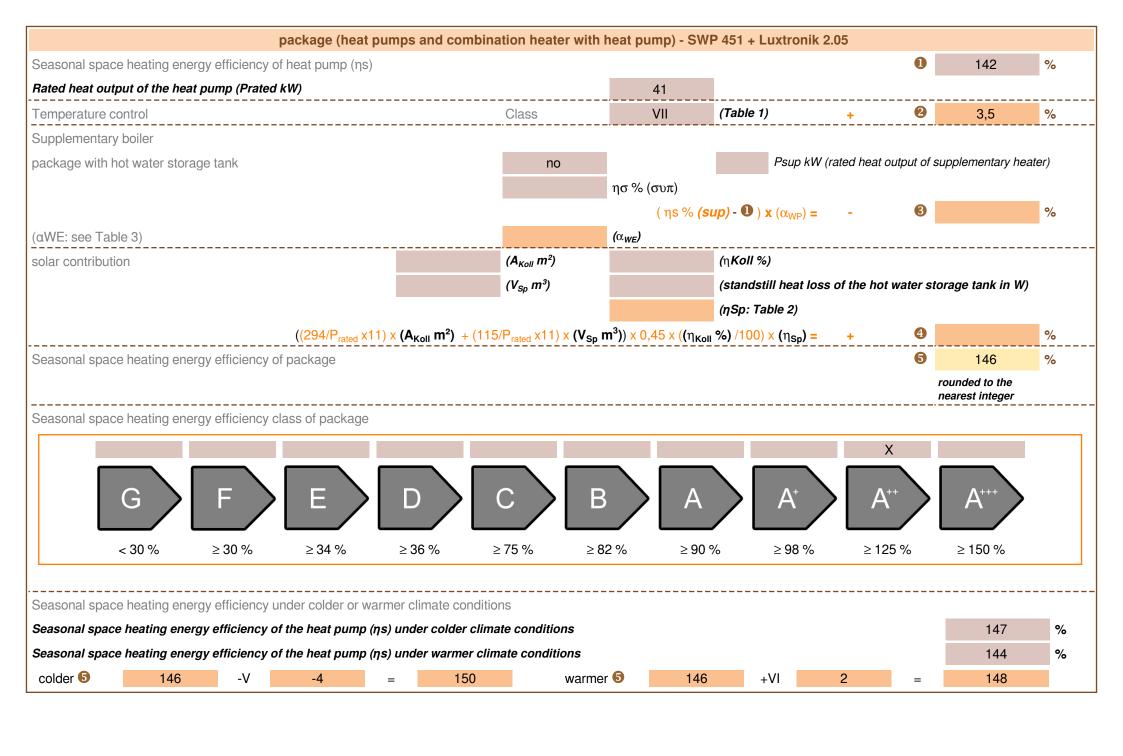






E





nanufacturer: alpha innotec				
model:	SWP 451			
	•			
Information concerning energy efficiency class and rate	d heat output:			
	average / low	average / medium		
energy efficiency class space heater:	A+++	A++	-	
rated heat output:	45	41	kW	
energy efficiency space heater:	202	142	%	
annual final energy consumption space heater	17701	22619	kWh	
	•	•	•	
sound power level indoors		56	dB	
special precautions concerning assembly, installation o		anel in compliance with loca		
All instructional work in this manual may only be carried out by		nnel in compliance with loca	al	
All instructional work in this manual may only be carried out by		nnel in compliance with loca	al	
All instructional work in this manual may only be carried out by		nnel in compliance with loca	al	
All instructional work in this manual may only be carried out by regulations.		nnel in compliance with loca	al	
All instructional work in this manual may only be carried out by regulations. additional information	qualified specialist persor		al kW	
special precautions concerning assembly, installation o All instructional work in this manual may only be carried out by regulations. additional information rated heat output colder climate rated heat output warmer climate	qualified specialist persor	medium		
All instructional work in this manual may only be carried out by regulations. additional information rated heat output colder climate rated heat output warmer climate	qualified specialist persor	medium 41	kW	
All instructional work in this manual may only be carried out by regulations. additional information rated heat output colder climate rated heat output warmer climate energy effiency space heater colder climate	low 45 45	medium 41 41	kW kW	
All instructional work in this manual may only be carried out by regulations. additional information rated heat output colder climate rated heat output warmer climate energy effiency space heater colder climate energy effiency space heater warmer climate	low 45 45 208	medium 41 41 41 147	kW kW %	
All instructional work in this manual may only be carried out by regulations. additional information rated heat output colder climate	low 45 45 208 205	medium 41 41 41 147 144	kW kW %	
All instructional work in this manual may only be carried out by regulations. additional information rated heat output colder climate rated heat output warmer climate energy effiency space heater colder climate energy effiency space heater warmer climate annual energy consumption space heater colder climate	low 45 45 208 205 20528	medium 41 41 147 144 26210	kW kW % kWh	

technical data of the temperature controller						
manufacturer:	alpha innotec					
model:	Luxtronik 2.05					
controller class	VII	-				
contribution of the controller to the energy efficiency space heater	3,5	%				

Second S	Model				SWP 451				
National Converted Part Property (yes/no)	Air-to-water heat pump: (yes/no)								
cov-temperature heat pump; (yes/no) coupped with supplementary heater; (yes/no) point polication; (kow/medium) medium average tem Symbol Value Unit tem Symbol Value Unit tem Symbol Value Unit tem Symbol Value Unit tem Seasonal space heating energy efficiency Declared coefficient of performance for part load at indoor emperature 20°C and outdoor temperature T; I] = -7°C Pdh 41,6 RW I] = +2°C CoPd 3,05 - I] I] = +2°C Pdh 44,1 RW I] = +2°C COPd 3,05 - I] I] = +2°C Pdh 44,1 RW I] = +2°C COPd 3,06 - I] I] = +1°C Pdh 44,1 RW I] = +2°C COPd 4,19 - I] I] = +1°C Pdh 44,1 RW I] = +1°C COPd 4,19 - I] I] = bivalent temperature Pdh 44,1 RW I] = bivalent temperature COPd 2,90 - I] I] = bivalent temperature Pdh 41,1 RW I] = bivalent temperature COPd 2,90 - I] I] = operation limit temperature Pdh 41,1 RW I] = bivalent temperature COPd 2,90 - I] I] = operation limit temperature Pdh 41,1 RW I] = bivalent temperature COPd 2,90 - I] I] = operation limit temperature Pdh 41,1 RW I] = bivalent temperature COPd 2,90 - I] I] = operation limit temperature Pdh 41,1 RW I] = bivalent temperature COPd 2,90 - I] I] = operation limit temperature Pdh 41,1 RW I] = bivalent temperature COPd 2,90 - I] I] = operation limit temperature Pdh 41,1 RW I] = bivalent temperature COPd 2,90 - I] I] = operation limit temperature Pdh 41,1 RW I] = bivalent temperature COPd 2,90 - I] I] = operation limit temperature Pdh 41,1 RW I] = bivalent temperature Pdh I I I I I I I I I I I I I I I I I I I	Brine-to-water heat pump: (yes/no)				yes				
Equipped with supplementary heater: (yes/no)	Water-to-water heat pump: (yes/no)				no				
Declared coefficient of performance for part load at Indoor emperature 20°C and outdoor temperature 17 Far 20°C Pdh 44,1 kW Tj = +2°C COPd 3,69 -2 Tj = +2°C Pdh 44,1 kW Tj = +2°C COPd 3,69 -2 Tj = +2°C Pdh 44,1 kW Tj = +2°C COPd 3,69 -2 Tj = +2°C Pdh 44,1 kW Tj = +2°C COPd 3,69 -2 Tj = +2°C Pdh 44,1 kW Tj = +2°C COPd 3,69 -2 Tj = +2°C Pdh 44,1 kW Tj = +2°C COPd 4,79 -2 Tj = bivalent temperature 20°C and outdoor 20°C and outdo	Low-temperature heat pump: (ye	s/no)			no				
Initial Exponential Colder/average/warmer)	Equipped with supplementary he	ater: (yes/no	0)		yes				
Symbol Value Unit Item Seasonal space heating \(\eta \) Seasonal space heating \(\eta \	combination heater with: (yes/no))			no				
Symbol Value Unit Rated heat output Prated 41 kW Seasonal space heating energy efficiency ηS 142,2 % Prated 41 kW Seasonal space heating energy efficiency ηS 142,2 % Prated 41 kW Seasonal space heating energy efficiency ηS 142,2 % Prated 41 kW Prated 41	application: (low/medium)				medium				
Prace A1	climate: (colder/average/warmer))			average				
Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj Tj = 7°C	Item	Symbol	Value	Unit	Item	Symbol	Value	Unit	
temperature 20°C and outdoor temperature T]	Rated heat output	Prated	41	kW		ηS	142,2	%	
$ T_j = +2^{\circ}C $				indoor				indoor	
$ T_j = +7 ^\circ \text{C} \qquad \qquad$	Tj = -7°C	Pdh	41,6	kW	Tj = -7°C	COPd	3,05	-	
Tj = +12°C Pdh 45,1 kW Tj = +12°C COPd 4,79 - Tj = bivalent temperature Pdh 41,1 kW Tj = bivalent temperature COPd 2,90 - Tj = operation limit temperature Pdh 41,1 kW Tj = bivalent temperature COPd 2,90 - Tj = operation limit temperature Pdh 41,1 kW Tj = operation limit temperature COPd 2,90 - Tj = operation limit temperature Pdh 41,1 kW Tj = operation limit temperature COPd 2,90 - Tj = -15°C (if TOL < -20°C) Tj = -15°C (if TOL < -20°C) Tj = operation limit temperature COPd 2,90 - To air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: To L = -10 °C COPdy - To COPdy	Tj = +2°C	Pdh	43,1	kW	Tj = +2°C	COPd	3,69	-	
Tj = bivalent temperature Pdh 41,1 kW Tj = bivalent temperature COPd 2,90 - Tj = operation limit temperature Pdh 41,1 kW Tj = operation limit temperature COPd 2,90 - Tj = operation limit temperature Pdh 41,1 kW Tj = operation limit temperature COPd 2,90 - Tor air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) Sivalent temperature T _{biv} -10 °C For air-to-water heat pumps: Tj COPd - Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: Tj COPd - Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: Tj COPd - Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: Tj COPd - Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: Tj COPd - Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: Tj COPd - Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: Tj COPd - Tj = -15°C (if TOL < -20°C) To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To COPcyc - To air-to-water heat pumps: Tj COPd - To Air-to	Tj = +7°C	Pdh	44,1	kW	Tj = +7°C	COPd	4,19	-	
Tj = operation limit temperature Pdh 41,1 kW Tj = operation limit temperature COPd 2,90 - For air-to-water heat pumps: Tj Pdh - kW For air-to-water heat pumps: Tj COPd For air-to-water heat pumps: ToL -10 °C Cycling interval capacity for Pcych - kW Cycling interval efficiency COPcyc For air-to-water heat pumps: ToL -10 °C Cycling interval efficiency COPcyc For air-to-water heat pumps: Tj COPd COPcyc For air-to-water heat pumps: Tj COPd For air-to-water heat pumps: Tj COPd COPcyc COPc	Tj = +12°C	Pdh	45,1	kW	Tj = +12°C	COPd	4,79	-	
For air-to-water heat pumps: Tj	Tj = bivalent temperature	Pdh	41,1	kW	Tj = bivalent temperature	COPd	2,90	-	
=-15 °C (if TOL < -20 °C) 3ivalent temperature T _{biv} -10 °C For air-to-water heat pumps: Operation limit temperature T _{biv} -10 °C Operation limit temperature Cycling interval capacity for Peych - kW Cycling interval efficiency COPcyc Peych Operation limit temperature Cycling interval efficiency COPcyc Peych Operation limit temperature Cycling interval efficiency COPcyc Peych Operation limit temperature Cycling interval efficiency COPcyc	Tj = operation limit temperature	Pdh	41,1	kW	Tj = operation limit temperature	COPd	2,90	-	
Operation limit temperature Cycling interval capacity for Pcych - kW Cycling interval efficiency COPcyc - cheating Operadation co-efficient (**) Codh 1,0 - Heating water operating limit temperature Supplementary heater Off mode Poff Operation limit temperature Supplementary heater Type of energy input electrical For air-to-water heat pumps: Rated air flow rate, outdoors Sound power level, Indoors/outdoors For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger Declared load profile Operation limit temperature Supplementary heater Supplementary heater Supplementary heater For energy input electrical For air-to-water heat pumps: Rated brine or water heat pumps: Rated brine or water flow rate, outdoor heat exchanger Declared load profile Operation limit temperature Supplementary heater For water operating limit temperature Supplementary heater Supplementary heater Supplementary heater For energy input electrical For air-to-water heat pumps: Rated brine or water flow rate, outdoors Water heating energy efficiency Now Now Now Now Now Now Now No	For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C)	Pdh	-	kW		COPd	-	-	
Degradation co-efficient (**) Codh 1,0	Bivalent temperature	T _{biv}	-10	°C		TOL	-10	°C	
Power consumption in modes other than active mode Off mode Poff	Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-	
Off mode	Degradation co-efficient (**)	Cdh	1,0	-		WTOL	60	°C	
Thermostat-off mode	Power consumption in modes	other thai	n active mod	e	Supplementary heater	upplementary heater			
Thermostat-off mode	Off mode	P _{OFF}	0,015	kW	Rated heat output	Psup	-	kW	
Crankcase heater mode	Thermostat-off mode		0,015	kW	Type of energy input		electrical		
Capacity control fixed For air-to-water heat pumps: Rated air flow rate, outdoors For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoors For heat pump combination heater: Declared load profile - Water heating energy efficiency \eta_{wh} \hspace \hs	Standby mode	P _{SB}	0,015	kW					
Capacity control fixed fixed For air-to-water heat pumps: Rated air flow rate, outdoors For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat pumps: Rated brine or water flow rate, outdoor heat exchanger For heat pump combination heater: Declared load profile - Water heating energy efficiency Awh Daily fuel consumption Qelec - kWh Daily fuel consumption Qfuel - kWh Contact details it deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Crankcase heater mode	P _{CK}	-	kW					
Rated air flow rate, outdoors For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat pumps: Rated brine or water flow rate pumps: Rated brine or water flow rate, outdoor heat pumps: Rated brine or water flow rate, outdoor heat pumps: Rated brine or	Other items						_		
pumps: Rated brine or water flow rate, outdoor heat exchanger Emissions of nitrogen oxides NO _X - mg/kWh For heat pump combination heater: Declared load profile - Water heating energy efficiency η _{wh} - % Daily electricity consumption Q _{elec} - kWh Daily fuel consumption Qfuel - kWh Contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Capacity control		fixed			-	-	m ³ /h	
For heat pump combination heater: Declared load profile - Water heating energy efficiency n _{wh} - % Daily electricity consumption Q _{elec} - kWh Daily fuel consumption Qfuel - kWh Contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	sound power level, indoors/outdoors	L _{WA}	56 / -	dB	pumps: Rated brine or water flow rate, outdoor heat	-	16	m ³ /h	
Declared load profile - Water heating energy efficiency η_{wh} - % Daily electricity consumption Q_{elec} - kWh Daily fuel consumption Qfuel - kWh Contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Emissions of nitrogen oxides	NO _X	-	mg/kWh					
Daily electricity consumption Qelec - kWh Daily fuel consumption Qfuel - kWh Contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	For heat pump combination h	eater:		-					
ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Declared load profile				Water heating energy efficiency	η_{wh}		%	
*) 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 sup(Tj).	Daily electricity consumption	Q _{elec}	-	kWh	Daily fuel consumption	Qfuel	-	kWh	
Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj).	Contact details	ait deutsch	land GmbH Ir	ndustriestr. 3	95359 Kasendorf Germany				
								eating	
	(**) If Cdh is not determined by m	neasuremen	t then the defa	ault degrada	tion coefficient is Cdh = 0,9.				

Water-to-water heat pump: (yes/no)	Model				SWP 451			
Water-to-water heat pump: (yes/no)	Air-to-water heat pump: (yes/no)							
Converge metal pumps: (yes/no) yes y								
Equipped with supplementary heater: (yes/ino)	Water-to-water heat pump: (yes/no)				,			
Declared coefficient (low/medium) Dow	Low-temperature heat pump: (ye	s/no)			no			
Declared (colder/average/warmer) Declared (colder/average/warmer) Declared (colder/average/warmer) Declared (colder/average/warmer) Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature T Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature T Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature T Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature T Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature T Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature T Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature T Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature T Declared Coefficient Coefficien	Equipped with supplementary he	ater: (yes/no	o)		yes			
Symbol Value Unit Item Symbol Value Unit V	combination heater with: (yes/no))			no			
Name	application: (low/medium)				low			
Prated 45 kW Seasonal space heating energy efficiency ns 202.1 % % Seasonal space heating energy efficiency ns 202.1 % % Seasonal space heating energy efficiency ns 202.1 % % Seasonal space heating energy efficiency ns 202.1 % % Seasonal space heating energy efficiency ns 202.1 % % Seasonal space heating energy efficiency ns 202.1 % % Seasonal space heating energy efficiency ns 202.1 % % Seasonal space heating energy efficiency ns 202.1 % % Seasonal space heating ns 202.1 % % Seasonal space heating ns 202.1 % % Seasonal space heating ns 202.1 % Seasonal space heating ns 100.0 \$	climate: (colder/average/warmer))			average			
Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature Tj Tj = -7°C Pdh 45.5 kW Tj = -7°C QPdh 45.5 kW Tj = +2°C QPd 5.20 Tj = +12°C Pdh 45.9 kW Tj = +2°C QPd 5.20 Tj = +12°C Pdh 45.0 kW Tj = +2°C QPd 5.88 Tj = branch 1 declared temperature Pdh 45.0 kW Tj = branch 1 declared temperature QPd 4.80 Tj = operation limit temperature Pdh 45.0 kW Tj = operation limit temperature Pdr air-to-water heat pumps: Tj = 0.5°C (if TOL < 20°C) Pdr air-to-water heat pumps: Tj = 0.5°C (if TOL < 20°C) Pdr air-to-water heat pumps: Tj = 0.5°C (if TOL < 20°C) Poperation limit temperature Pdr air-to-water heat pumps: ToL = 0.0°C Poperation limit temperature Poperature Declared temperature Declared temperatu	Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
$ temperature 20 ^{\circ} C \ and outdoor \ temperature T T = -7 ^{\circ} C $	Rated heat output	Prated	45	kW		ηS	202,1	%
$ T_j = +2 \circ C \\ T_j = +7 \circ C \\ Pdh \\ 45,5 \\ kW \\ T_j = +7 \circ C \\ Pdh \\ 45,9 \\ kW \\ T_j = +7 \circ C \\ COPd \\ 5,53 \\ -T_j = +7 \circ C \\ Pdh \\ 45,9 \\ kW \\ T_j = +7 \circ C \\ COPd \\ 5,53 \\ -T_j = +7 \circ C \\ Pdh \\ 46,3 \\ kW \\ T_j = +7 \circ C \\ COPd \\ 5,53 \\ -T_j = +7 \circ C \\ COPd \\ 5,53 \\ -T_j = +7 \circ C \\ COPd \\ 5,53 \\ -T_j = +7 \circ C \\ COPd \\ 5,88 \\ -T_j = -7 \circ C \\ COPd \\ 5,88 \\ -T_j = -7 \circ C \\ COPd \\ 5,88 \\ -T_j = -7 \circ C \\ COPd \\ 5,88 \\ -T_j = -7 \circ C \\ COPd \\ 5,80 \\ -T_j = -7 \circ C \\ COPd \\ 5,90 \\ -T_j = -7 \circ C \\ COPd \\ 5,90 \\ -T_j = -7 \circ C \\ COPd \\ 5,90 \\ -T_j = -7 \circ C \\ COPd \\ 5,90 \\ -T_j = $				indoor				indoor
$ T_j = +7^{\circ}C $	Tj = -7°C	Pdh	45,1	kW	Tj = -7°C	COPd	4,86	-
Tj = +12°C Pdh 46,3 kW Tj = +12°C COPd 5,88 - Tj = bivalent temperature Pdh 45,0 kW Tj = bivalent temperature COPd 4,80 - Tj = operation limit temperature Pdh 45,0 kW Tj = bivalent temperature COPd 4,80 - Tj = operation limit temperature Pdh 45,0 kW Tj = operation limit temperature COPd 4,80 - For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) Pdh15°C (if TOL < -20°C) Pdh10 °C Porair-to-water heat pumps: Pdh10 °C Porair-to-water heat pum	Tj = +2°C	Pdh	45,5	kW	Tj = +2°C	COPd	5,20	-
Tj = bivalent temperature Pdh 45,0 kW Tj = bivalent temperature COPd 4,80 - Tj = operation limit temperature Pdh 45,0 kW Tj = operation limit temperature COPd 4,80 - Tj = operation limit temperature Pdh 45,0 kW Tj = operation limit temperature COPd 4,80 - For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) Bivalent temperature T _{biv} -10 °C For air-to-water heat pumps: Tj COPd	Tj = +7°C	Pdh	45,9	kW	Tj = +7°C	COPd	5,53	-
Tj = operation limit temperature Pdh 45,0 kW Tj = operation limit temperature COPd 4,80 - For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) Bivalent temperature Tbiv -10 °C For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) Bivalent temperature Tbiv -10 °C For air-to-water heat pumps: ToL -10 °C Cycling interval capacity for Pcych - kW Cycling interval efficiency COPcyc heating Degradation co-efficient (**) Cdh 1,0 - Heating water operating limit temperature Degradation co-efficient (**) Cdh 1,0 - Heating water operating limit tomperature Power consumption in modes other than active mode Off mode PoFF 0,015 kW Rated heat output Psup - kW Thermostat-off mode PoBB 0,015 kW Type of energy input electrical Standby mode PBB 0,015 kW Type of energy input electrical Standby mode PBB 0,015 kW Type of energy input electrical Capacity control fixed For air-to-water heat pumps: Rated air flow rate, outdoors Sound power level, LWA 56 / dB For air-to-water heat pumps: m³/h indoors/outdoors Emissions of nitrogen oxides NO _X - mg/kWh For heat pump combination heater: Declared load profile - Water heating energy efficiency nom - % Daily fuel consumption Quele - kWh Daily fuel consumption Quele - kWh Daily fuel consumption Quele - kWh Contact details ait deutschland GmbH Industriestrs. 3 95359 Kasendorf Germany (1) 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 sup(Tj).	Tj = +12°C	Pdh	46,3	kW	Tj = +12°C	COPd	5,88	-
For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C) Bivalent temperature Tem	Tj = bivalent temperature	Pdh	45,0	kW	Tj = bivalent temperature	COPd	4,80	-
= -15 °C (if TOL < -20 °C) Bivalent temperature T _{biv} -10 °C For air-to-water heat pumps: Operation limit temperature Cycling interval capacity for heating Degradation co-efficient (**) Cdh 1,0 - Heating water operating limit temperature Cycling interval efficiency Efficiency Cycling interval efficiency Cycling interval efficiency Cycling interval efficiency Efficiency Cycling interval efficiency Efficiency Cycling interval efficiency Efficiency Evaluate theat pumps: Cycling interval efficiency Evaluate theat pumps: Cycling interval efficiency Cycling interval efficiency Evaluate theat pumps: Cycl	Tj = operation limit temperature	Pdh	45,0	kW	Tj = operation limit temperature	COPd	4,80	-
Cycling interval capacity for heating Cycling interval efficiency Cycling interval efficiency Cycling interval efficiency CoPcyc - heating Cycling interval efficiency CoPcyc - heating Cycling interval efficiency CoPcyc - heating MTOL 60 °C Power consumption in modes other than active mode Off mode Poff Ooff Poff 0,015 kW Rated heat output Psup - kW Type of energy input electrical Standby mode Crankcase heater mode Pok Crankcase heater mode Pok Thermostat-off mode Pok To 0,015 kW Type of energy input electrical For air-to-water heat pumps: Rated air flow rate, outdoors Saund power level, Indoors/outdoors Sound power level, Indoors/outdoors NO _X - mg/kWh For heat pump combination heater: Declared load profile Daily electricity consumption Qelec - kWh Daily fuel consumption Qfuel - kWh Contact details (*) 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 sup(Tj).	For air-to-water heat pumps: Tj = -15°C (if TOL < -20°C)	Pdh	-	kW		COPd	-	-
Degradation co-efficient (**) Cdh 1,0 - Heating water operating limit temperature Supplementary heater Off mode Poff 0,015 KW Thermostat-off mode Poff 0,015 KW Thermostat-off mode Pogradation co-efficient (**) Pogradation in modes other than active mode Supplementary heater Supplementary heater Supplementary heater Supplementary heater Pour c kW Type of energy input electrical For air-to-water heat pumps: Rated air flow rate, outdoors For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoors heat exchanger For heat pump combination heater: Declared load profile Dealiy electricity consumption Qelec RWh Daily fuel consumption Qfuel KWh Contact details (*) 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 sup(Tj).	Bivalent temperature	T _{biv}	-10	°C		TOL	-10	°C
Power consumption in modes other than active mode Off mode Poff 0,015 kW Rated heat output Psup - kW Thermostat-off mode PsB 0,015 kW Tope of energy input electrical Standby mode PsB 0,015 kW Crankcase heater mode Pck - kW Other items Capacity control fixed For air-to-water heat pumps: Rated air flow rate, outdoors Sound power level, indoors/outdoors For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger Emissions of nitrogen oxides NO _X - mg/kWh For heat pump combination heater: Declared load profile Other items Water heating energy efficiency 1, wh - % Daily electricity consumption Qelec - kWh Daily fuel consumption Qfuel - kWh Contact details et also details it deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Cycling interval capacity for heating	Pcych	-	kW	Cycling interval efficiency	COPcyc	-	-
Off mode	Degradation co-efficient (**)	Cdh	1,0	-		WTOL	60	°C
Thermostat-off mode	Power consumption in modes	other thai	n active mod	e	Supplementary heater	•		
Thermostat-off mode	Off mode	P _{OFF}	0,015	kW	Rated heat output	Psup	-	kW
Standby mode	Thermostat-off mode		0,015	kW	Type of energy input		electrical	•
Crankcase heater mode	Standby mode		0,015	kW				
Capacity control fixed fixed For air-to-water heat pumps: Rated air flow rate, outdoors Sound power level, indoors/outdoors For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat pumps: Rated brine or water flow rate, outdoor heat exchanger For heat pump combination heater: Declared load profile Poally electricity consumption Qelec Water heating energy efficiency Water heating energy efficiency Awh Contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Crankcase heater mode		-	kW				
Rated air flow rate, outdoors Sound power level, indoors/outdoors Emissions of nitrogen oxides NO _X - mg/kWh For heat pump combination heater: Declared load profile - Water heating energy efficiency \(\eta_{wh}\) = \(\frac{1}{9}\) = \(\frac{1}{9}\) \(\frac{1}{9}\) To water heat pump consumption \(\frac{1}{9}\) Q _{elec} - kWh Daily fuel consumption Qfuel - kWh Contact details Awh Contact 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 sup(Tj).	Other items							
pumps: Rated brine or water flow rate, outdoor heat exchanger Emissions of nitrogen oxides NO _X - mg/kWh For heat pump combination heater: Declared load profile - Water heating energy efficiency η_{wh} - % Daily electricity consumption Q_{elec} - kWh Daily fuel consumption Qfuel - kWh Contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Capacity control		fixed			-	-	m ³ /h
For heat pump combination heater: Declared load profile - Water heating energy efficiency n _{wh} - % Daily electricity consumption Q _{elec} - kWh Daily fuel consumption Qfuel - kWh Contact details (*) 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 sup(Tj).	sound power level, indoors/outdoors	L _{WA}	56 / -	dB	pumps: Rated brine or water flow rate, outdoor heat	-	16	m ³ /h
Declared load profile - Water heating energy efficiency η_{wh} - % Daily electricity consumption Q_{elec} - kWh Daily fuel consumption Q_{fuel} - kWh Contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Emissions of nitrogen oxides	NO _X	-	mg/kWh				
Daily electricity consumption Q _{elec} - kWh Daily fuel consumption Qfuel - kWh Contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	For heat pump combination h	eater:		<u> </u>				
contact details ait deutschland GmbH Industriestr. 3 95359 Kasendorf 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 sup(Tj).	Declared load profile				Water heating energy efficiency	η_{wh}		%
(*) 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 sup(Tj).	Daily electricity consumption	Q _{elec}	-	kWh	Daily fuel consumption	Qfuel	-	kWh
Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj).	Contact details	ait deutsch	land GmbH Ir	ndustriestr. 3	95359 Kasendorf Germany			
(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9.								eating
	(**) If Cdh is not determined by m	neasuremen	t then the defa	ault degradat	tion coefficient is Cdh = 0,9.			