TECHNICAL DOCUMENTATION

according Directive 2010/30/EU and corresponding Regulation (EU) No. 811/2013 (Energy Labelling),

Dircetive 2009/125/EC and corresponding Regulation (EU) No. 813/2013 (Ecodesign)

DIE ENERGIEFAMILIE

Model:	**TERRA SWM 3-13**
Type of heat pump:	Brine-to-water heat pump
Low-temperature heat pump: (Yes/No)	Yes
Temperature application: (35°C/55°C)	low temperature (35°C)
Equipped with supplementary heater: (Yes/No)	Yes
Heat pump combination heater: (Yes/No)	Yes

		Climate condition			
		cold	average	warm	
Rated heat output	P_{rated}	**13,5**	**13,3**	**13,4**	kW

Outdoor temperature T_j	Declared capacity for part load (indoor temperature = 20 °C)				
T_j = – 15 °C	P_{dh}	-	-	-	kW
T_j = – 7 °C	P_{dh}	8,2	11,8	-	kW
T_j = +2 °C	P_{dh}	5,1	7,3	13,4	kW
T_j = +7 °C	P_{dh}	3,2	4,6	8,6	kW
T_j = +12 °C	P_{dh}	2,8	2,8	3,9	kW
T_j = Bivalenz temperature (T_{biv})	P_{dh}	13,5	13,3	13,4	kW
T_j = Operation limit temperature (TOL)	P_{dh}	13,5	13,3	13,4	kW
Bivalenz temperature (Tbiv)	T_{biv}	-22,0	-10,0	2,0	°C
Cycling interval capacity for heating	P_{cych}				kW
Degradation co-efficient	C_{dh}	0,9	0,9	0,9	---
Power consumption in modes other than active mode					
Thermostat-off mode	P_{TO}	0,026	0,026	0,026	kW
Standby mode	P_{SB}	0,026	0,026	0,026	kW
Off-mode	P_{OFF}	0,026	0,026	0,026	kW
Crankase heater mode	P_{CK}	0	0	0	kW
Other items					
Capacity control		variable			
Sound power levels, indoors/outdoors	L_{WA}	- / 41	- / 41	- / 41	dB
Annual energy consumption	Q_{HE}	5.663	4.978	3.227	kWh
For heat pump combination heater:					
Declared load profile		**n.a.**			
Daily electricity consumption	Q_{elec}	n.a.			kWh
Annual electricity consumption	AEC	n.a.			kWh

		Climate condition			
		cold	average	warm	
Seasonal space heating efficiency	η_s	**227**	**212**	**224**	%

Outdoor temperature Tj	Declared capacity for part load (indoor temperature = 20 °C)				
T_j = – 15 °C	COP_d	-	-	-	---
T_j = – 7 °C	COP_d	5,34	4,09	-	---
T_j = +2 °C	COP_d	6,63	5,60	3,84	---
T_j = +7 °C	COP_d	7,39	6,71	5,00	---
T_j = +12 °C	COP_d	6,51	6,96	7,04	---
T_j = Bivalenz temperature (T_{biv})	COP_d	3,82	3,70	3,84	---
T_j = Operation limit temperature (TOL)	COP_d	3,82	3,70	3,84	---
Operation limit temperature	TOL	-22,0	-10,0	2,0	°C
Cycling interval capacity for heating	COP_{cyc}				---
Heating water operating limit temperature	$WTOL$	62	62	62	°C
Supplementary heater					
Rated heat output (*)	P_{sup}	1-6	1-6	1-6	kW
Type of energy input		electrical			
For air-to-water heat pumps:					
Rated air flow rate, outdoors	---	n.a.	n.a.	n.a.	m^3/h
For water- or brine-to-water heat pumps:					
Rated brine or water flow rate, outdoor heat exchanger	---	1,6	1,6	1,6	m^3/h

Water heating energy efficiency	η_{wh}	**106**			%
Daily fuel consumption	Q_{fuel}	n.a.	n.a.	n.a.	kWh
Annual fuel consumption	AFC	n.a.	n.a.	n.a.	GJ

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DIE ENERGIEFAMILIE

Model:	**TERRA SWM 3-13**
Type of heat pump:	Brine-to-water heat pump
Low-temperature heat pump: (Yes/No)	Yes
Temperature application: (35°C/55°C)	high temperature (55°C)
Equipped with supplementary heater: (Yes/No)	Yes
Heat pump combination heater: (Yes/No)	Yes

		Climate condition			
		cold	average	warm	
Rated heat output	P_{rated}	**10,4**	**10,0**	**10,4**	kW

Outdoor temperature T_j	**Declared capacity for part load (indoor temperature = 20 °C)**				
T_j = – 15 °C	P_{dh}	-	-	-	kW
T_j = – 7 °C	P_{dh}	6,3	9,0	-	kW
T_j = +2 °C	P_{dh}	3,8	5,3	10,4	kW
T_j = +7 °C	P_{dh}	2,7	3,7	6,7	kW
T_j = +12 °C	P_{dh}	2,7	2,9	3,0	kW
T_j = Bivalenz temperature (T_{biv})	P_{dh}	10,4	10,4	10,4	kW
T_j = Operation limit temperature (TOL)	P_{dh}	10,4	10,4	10,4	kW
Bivalenz temperature (Tbiv)	T_{biv}	-22,0	-10,0	2,0	°C
Cycling interval capacity for heating	P_{cych}				kW
Degradation co-efficient	C_{dh}	0,9	0,9	0,9	---
Power consumption in modes other than active mode					
Thermostat-off mode	P_{TO}	0,026	0,026	0,026	kW
Standby mode	P_{SB}	0,026	0,026	0,026	kW
Off-mode	P_{OFF}	0,026	0,026	0,026	kW
Crankase heater mode	P_{CK}	0	0	0	kW
Other items					
Capacity control		variable			
Sound power levels, indoors/outdoors	L_{WA}	- / 41	- / 41	- / 41	dB
Annual energy consumption	Q_{HE}	5.981	4.870	3.437	kWh
For heat pump combination heater:					
Declared load profile		**n.a.**			
Daily electricity consumption	Q_{elec}	n.a.			kWh
Annual electricity consumption	AEC	n.a.			kWh

		Climate condition			
		cold	average	warm	
Seasonal space heating efficiency	η_s	**163**	**162**	**164**	%

Outdoor temperature Tj	**Declared capacity for part load (indoor temperature = 20 °C)**				
T_j = – 15 °C	COP_d	-	-	-	---
T_j = – 7 °C	COP_d	3,73	3,15	-	---
T_j = +2 °C	COP_d	4,96	4,34	2,94	---
T_j = +7 °C	COP_d	5,38	5,07	3,81	---
T_j = +12 °C	COP_d	5,93	6,22	5,10	---
T_j = Bivalenz temperature (T_{biv})	COP_d	2,94	2,94	2,94	---
T_j = Operation limit temperature (TOL)	COP_d	2,94	2,94	2,94	---
Operation limit temperature	TOL	-22,0	-10,0	2,0	°C
Cycling interval capacity for heating	COP_{cyc}				---
Heating water operating limit temperature	$WTOL$	62	62	62	°C
Supplementary heater					
Rated heat output (*)	P_{sup}	1-6	1-6	1-6	kW
Type of energy input		electrical			
For air-to-water heat pumps:					
Rated air flow rate, outdoors	---	1,6	1,6	1,6	m^3/h
For water- or brine-to-water heat pumps:					
Rated brine or water flow rate, outdoor heat exchanger	---	n.a.	n.a.	n.a.	m^3/h

Water heating energy efficiency	η_{wh}	**106**			%
Daily fuel consumption	Q_{fuel}	n.a.	n.a.	n.a.	kWh
Annual fuel consumption	AFC	n.a.	n.a.	n.a.	GJ

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