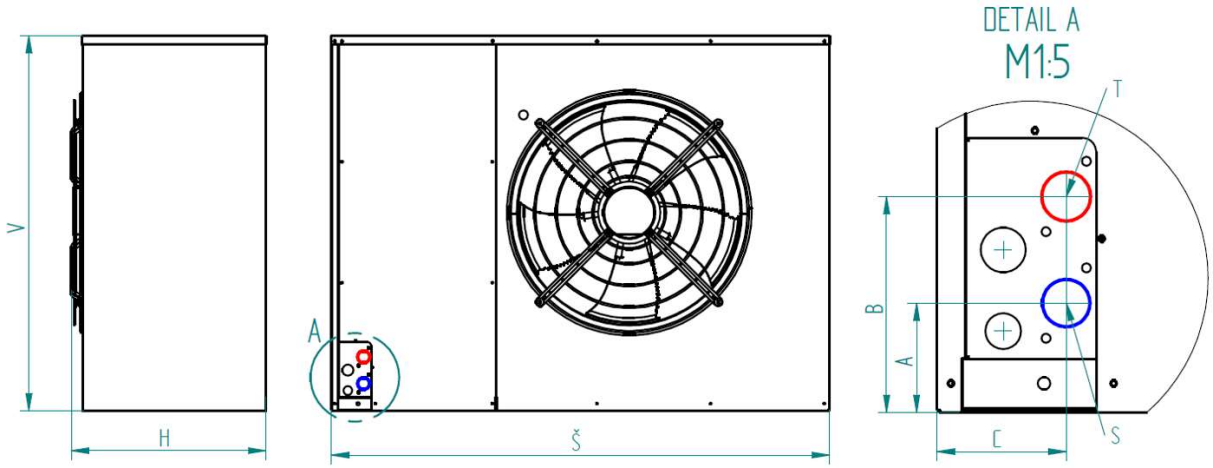
Technical Parameters

A compact monobloc heat pump that uses a variable speed scroll compressor with R290 refrigerant. The heat pump consists from outdoor unit and indoor functional assemblies such as electric distributor, hydromodule or hydrobox according to the chosen optional accessories. The product also includes an indoor thermostat placed in reference room for maximum user comfort and efficiency.

Model	PRO-N	PRO-R
Feeding voltage code; circuit breaker	1~N/PE/230V/50Hz; B40A	1~N/PE/230V/50Hz; B63A
Outdoor unit's voltage code; circuit breaker	1~N/PE/230V/50Hz; B16A	1~N/PE/230V/50Hz; B32A
Compressor Model	Scroll	Scroll
Maximum current of outdoor unit [A]	13	26
Starting current [A]	5	5
Protection class	IP44	IP44
Refrigerant	R290	R290
Refrigerant weight [kg]	1,35	2,75
Cooling capacity A35/W18 [kW]	3 – 7	6 – 14
Maximum allowable pressure – high pressure side [bar]	26	26
Maximum allowable pressure – low pressure side [bar]	26	26
Air temperature limit range [°C]	-22 to 35	-22 to 35
Water temperature limit range [°C]	20 to 70	20 to 70
Water flow range [m^3/h]	0,5 to 3	0,5 to 3

Heat pump dimensions



Model	PRO-N	PRO-R
V [mm]	740	1070
S [mm]	1130	1430
H [mm]	500	560
A [mm]	107	78
B [mm]	183	154
C [mm]	82	92
Weight [kg]	115	195
T – hot water [mm]	G1“ DIN ISO 228	G1“ DIN ISO 228
S – cold water [mm]	G1“ DIN ISO 228	G1“ DIN ISO 228

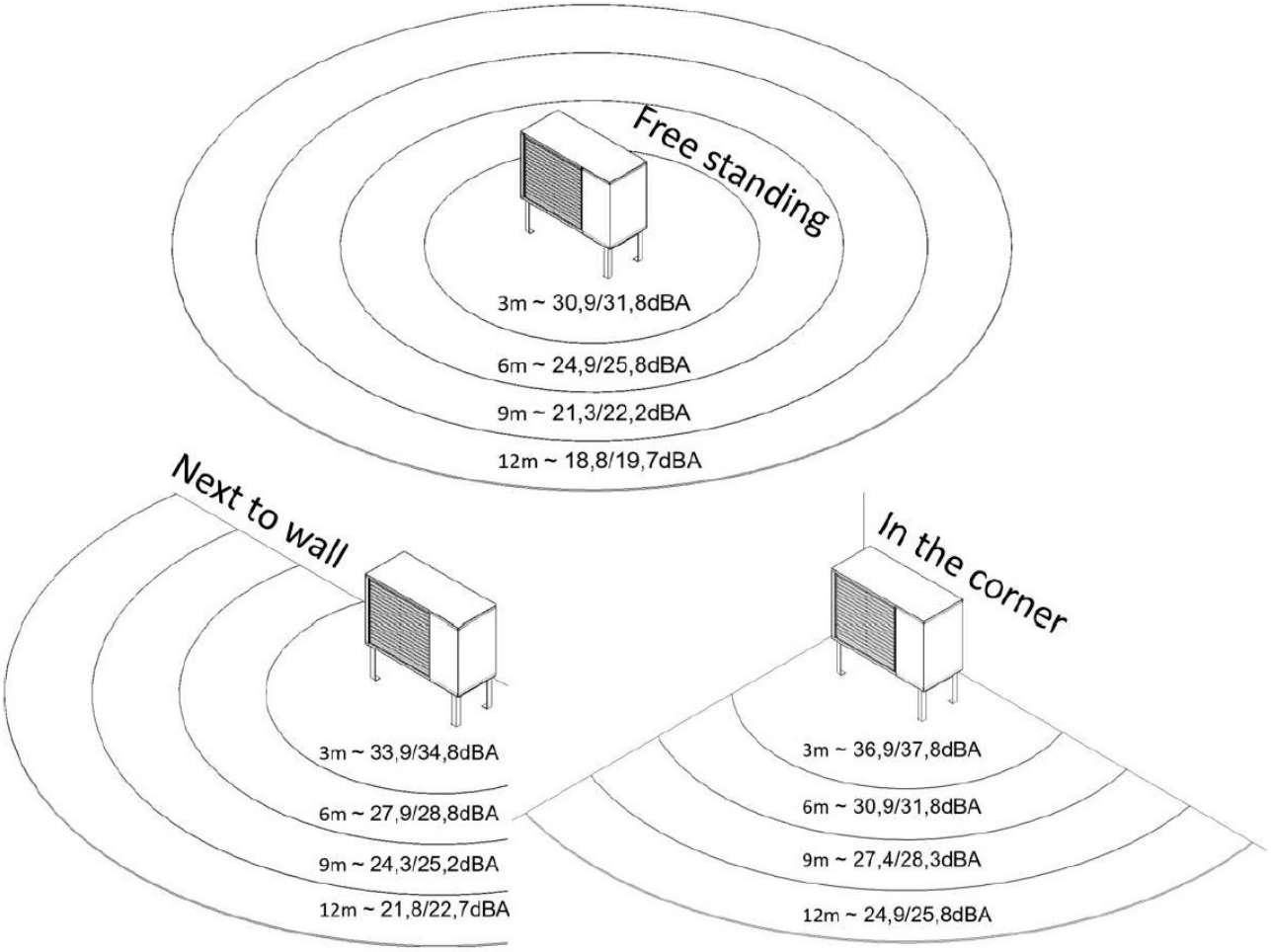
Acoustic Parameters

Air source heat pumps are designed to be installed outdoors or inside a plan room that comply with EN 378-3. The acoustic pressure level may change with many factors, for example if the heat pump is placed next to wall, in the corner, wall structure or height above the sea level. This means the acoustic pressure values stated below are just orientational.

The acoustic power values were measured during A7/W55 condition according to EN 12102.

Model	PRO-N	PRO-R
Acoustic pressure power L_{WA} [dB(A)]	48,4	49,3

The values of acoustic pressure are stated as follows - PRO-N /PRO-R.



Performance parameters

Model	PRO-N	PRO-R
Maximum building's heat losses [kW]*)	**8**	**18**
Performance parameters at nominal conditions according to EN 14511		
Heating capacity x COP at A7/W35 [kW x 1]	3,28 x 4,9	6,77 x 5,22
Heating capacity x COP at A2/W35 [kW x 1]	2,74 x 4,31	5,7 x 4,49
Heating capacity x COP at A7/W55 [kW x 1]	3,87 x 3,28	7,41 x 3,29
Performance parameters, Equithermal regulation, reference water temperature 35°C according to EN 14 825		
Heating capacity x COP at A12/W27 [kW x 1]	1,81 x 6,27	4,05 x 7,11
Heating capacity x COP at A7/W27 [kW x 1]	1,63 x 5,55	3,81 x 6,33
Heating capacity x COP at A2/W30 [kW x 1]	2,54 x 4,94	5,46 x 5,03
Heating capacity x COP at A-7/W34 [kW x 1]	4,17 x 3,14	9,23 x 3,24
Performance parameters, Equithermal regulation, reference water temperature 55°C according to EN 14 825		
Heating capacity x COP at A12/W35 [kW x 1]	1,76 x 5,36	3,88 x 5,92
Heating capacity x COP at A7/W36 [kW x 1]	1,6 x 4,41	3,52 x 4,97
Heating capacity x COP at A2/W42 [kW x 1]	2,48 x 3,74	5,53 x 3,87
Heating capacity x COP at A-7/W52 [kW x 1]	4,08 x 2,38	9 x 2,5
Parameters for average climate, Equithermal regulation		
P_{rated} x SCOP W35 [kW x 1]	4,71 x 4,74	10,38 x 5,05
P_{rated} x SCOP W55 [kW x 1]	4,61 x 3,68	10,17 x 3,93
Parameters for warmer climate, Equithermal regulation		
P_{rated} x SCOP W35 [kW x 1]	4,52 x 5,54	9,53 x 6,27
P_{rated} x SCOP W55 [kW x 1]	4,41 x 4,17	9,19 x 4,79
Parameters for colder climate, Equithermal regulation		
P_{rated} x SCOP W35 [kW x 1]	6,9 x 3,83	15,21 x 4,15
P_{rated} x SCOP W55 [kW x 1]	6,8 x 3,19	14,74 x 3,36

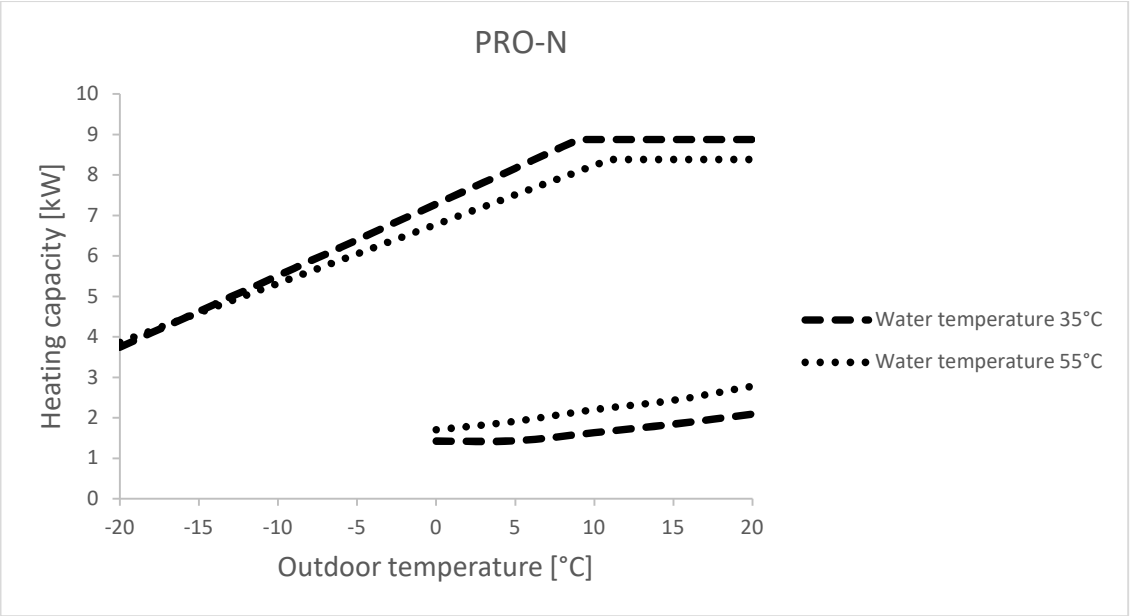
*) To the building's heat losses (at -15°C) the DHW heating and pool heating must be added if it is fitted. Bivalent source of heat must be dimensioned sufficiently for these heat losses.

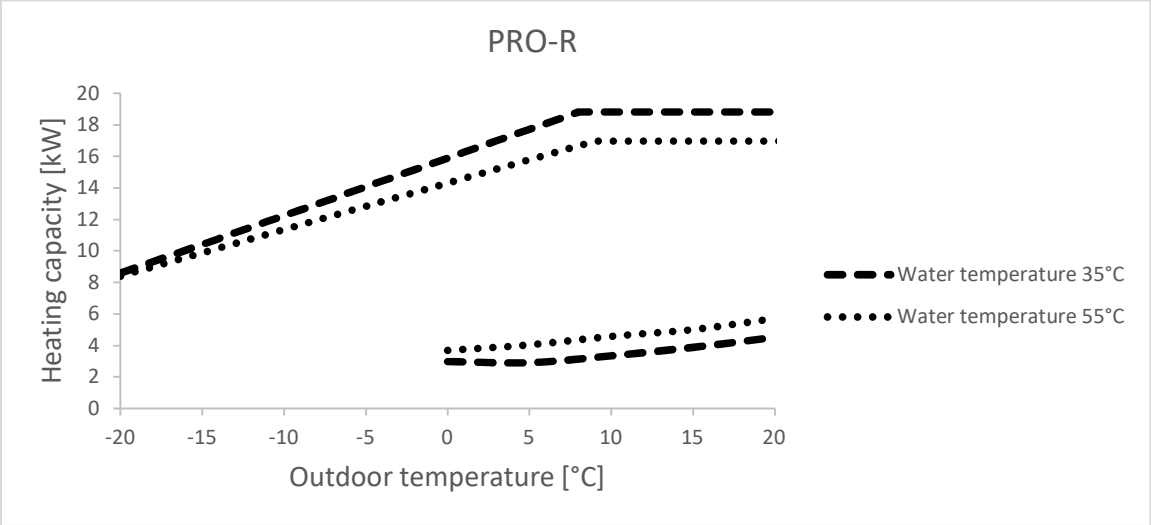
Energy parameters

Model		PRO-N		PRO-R	
Reference water temperature [°C]		**35**	**55**	**35**	**55**
Average climate	**Energy class**	A+++	A++	A+++	A+++
	Seasonal heating energy efficiency [%]	187	144	199	155
	Annual heating power consumption [kWh]	2053	2588	4246	5351
Warmer climate	**Energy class**	A+++	A+++	A+++	A+++
	Seasonal heating energy efficiency [%]	219	164	248	189
	Annual heating power consumption [kWh]	1089	1412	2029	2562
Colder climate	**Energy class**	A+++	A++	A+++	A++
	Seasonal heating energy efficiency [%]	150	125	163	131
	Annual heating power consumption [kWh]	4442	5256	9037	10815

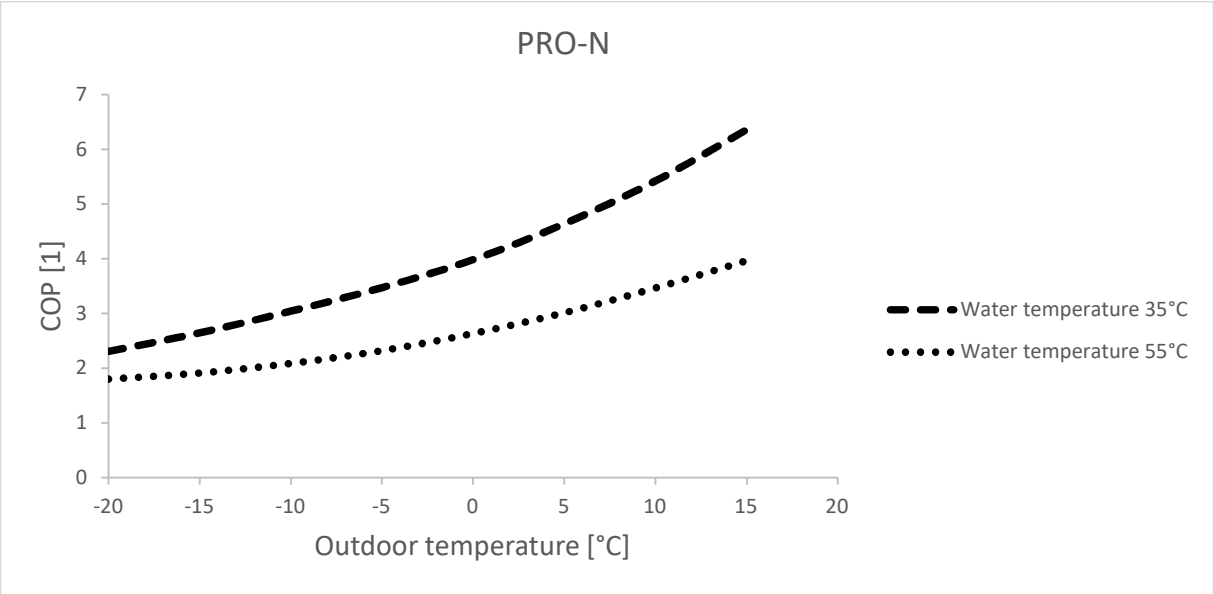
Heating capacity limits in dependence on outdoor and water temperature

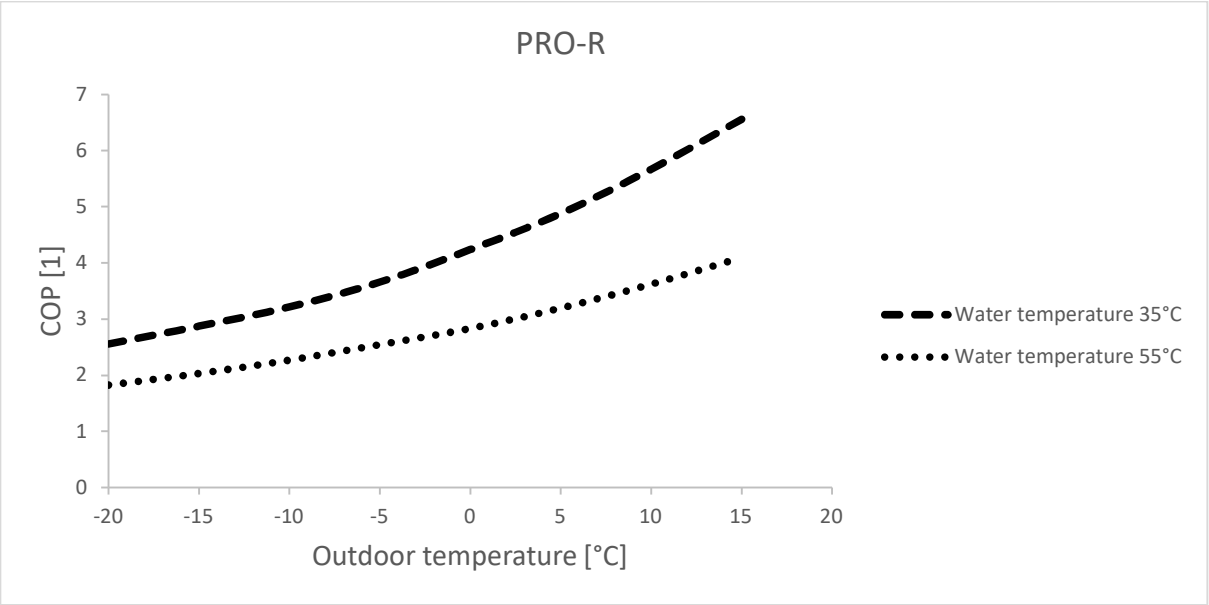
The following values are measured during continuous mode.



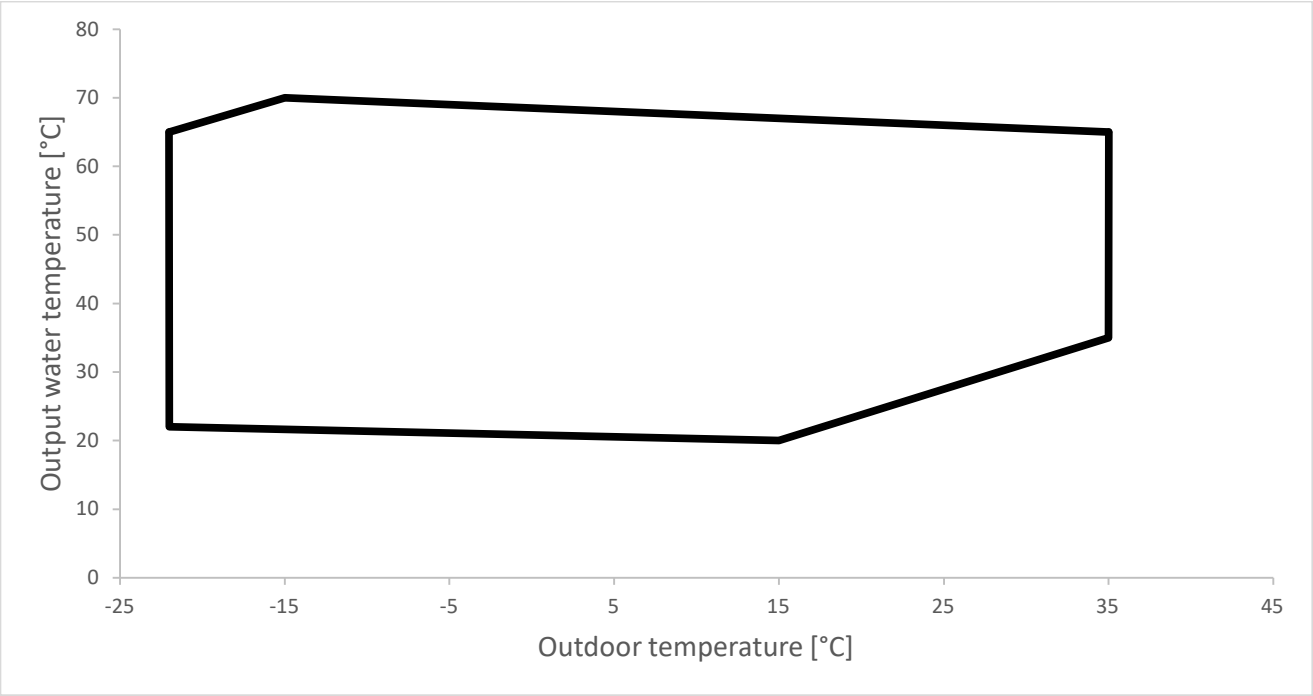


Maximum coefficient of performance in dependence on outdoor and water temperature





Working area



Model(s):				PRO-N			
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 a supplementary heater: (yes/no)				no			
Heat pump combination heater: (yes/no)				no			
Application: (low temperature/medium temperature)				medium temperature			
Climate: (colder/average/warmer)				average			
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Rated heat output ([1])	Prated	5	kW	Seasonal heating energy efficiency	η_s	144	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7°C	Pdh	4,1	kW	Tj = -7°C	COPd	2,4	-
Tj = +2°C	Pdh	2,5	kW	Tj = +2°C	COPd	3,7	-
Tj = +7°C	Pdh	1,6	kW	Tj = +7°C	COPd	4,4	-
Tj = +12°C	Pdh	1,8	kW	Tj = +12°C	COPd	5,4	
Tj = bivalent temperature	Pdh	4,6	kW	Tj = bivalent temperature	COPd	2,1	-
Tj = operation limit temperature	Pdh	4,6	kW	Tj = operation limit temperature	COPd	2,1	-
For air-to-water heat pumps: Tj = -15°C (if TOL <-20°C)	Pdh	-	kW	For air-to-water heat pumps: Tj = -15°C (if TOL <-20°C)	COPd	-	-
Bivalent temperature	T_{biv}	-10	°C	For air-to-water heat pumps: operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval capacity for heating	COPcyc	-	-
Degradation co-efficient ([2])	Cdh	0,9	-	Heating water operating limit temperature	WTOL	70	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0,016	kW	Rated heat output ([1])	Psup	0	kW
Thermostat-off mode	P_{TO}	0,016	kW	Type of energy input	Electric		
Standby mode	P_{SB}	0,016	kW				
Crankcase heater mode	P_{CK}	0	kW				
Other items							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	1600	m^3/h
Sound power level, indoors/outdoors	L_{WA}	-/48,4	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m^3/h
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	Q_{fuel}		kWh
Contact details							

Model(s):				PRO-R			
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 a supplementary heater: (yes/no)				no			
Heat pump combination heater: (yes/no)				no			
Application: (low temperature/medium temperature)				medium temperature			
Climate: (colder/average/warmer)				average			
Item	**Symbol**	**Value**	**Unit**	**Item**	**Symbol**	**Value**	**Unit**
Rated heat output (1)	Prated	10	kW	Seasonal heating energy efficiency	η_s	155	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7°C	Pdh	9	kW	Tj = -7°C	COPd	2,5	-
Tj = +2°C	Pdh	5,5	kW	Tj = +2°C	COPd	3,9	-
Tj = +7°C	Pdh	3,5	kW	Tj = +7°C	COPd	5	-
Tj = +12°C	Pdh	3,9	kW	Tj = +12°C	COPd	6,1	
Tj = bivalent temperature	Pdh	10,2	kW	Tj = bivalent temperature	COPd	2,1	-
Tj = operation limit temperature	Pdh	10,2	kW	Tj = operation limit temperature	COPd	2,1	-
For air-to-water heat pumps: Tj = -15°C (if TOL <-20°C)	Pdh	-	kW	For air-to-water heat pumps: Tj = -15°C (if TOL <-20°C)	COPd	-	-
Bivalent temperature	T_{biv}	-10	°C	For air-to-water heat pumps: operation limit temperature	TOL	-10	°C
Cycling interval capacity for heating	Pcych	-	kW	Cycling interval capacity for heating	COPcyc	-	-
Degradation co-efficient (2)	Cdh	0,9	-	Heating water operating limit temperature	WTOL	70	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0,016	kW	Rated heat output (1)	Psup	0	kW
Thermostat-off mode	P_{TO}	0,016	kW	Type of energy input	Electric		
Standby mode	P_{SB}	0,016	kW				
Crankcase heater mode	P_{CK}	0	kW				
Other items							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	3400	m^3/h
Sound power level, indoors/outdoors	L_{WA}	-/49,3	dB	For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m^3/h
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	Q_{fuel}		kWh
Contact details							

(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)*.

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