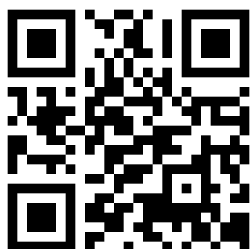
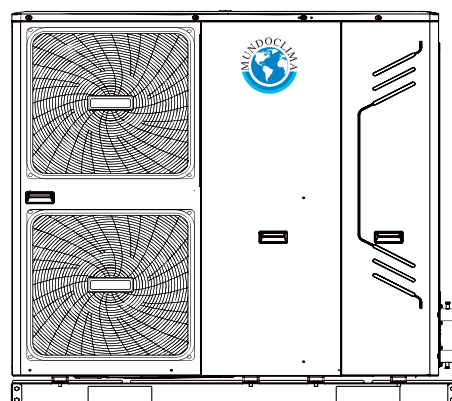


MONOBLOC UNIT - AEROTHERM V17

Technical Data Manual



Product fiche 2

Heat pump space heater		unit	5KW	7KW	10KW	12KW	14KW	16KW	12KW (TRIF.)	14KW (TRIF.)	16KW (TRIF.)
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-10	-10	-10	-10	-10	-10	-10	-10	-10
	Pdh (declared heating capacity)	[kW]	4.2	6.3	9.8	10.7	11.8	11.6	10.9	10.8	11.0
	COPd (declared COP)	-	2.63	2.61	2.48	2.60	2.59	2.38	2.47	2.41	2.36
	WTOL (Heating water Operation Limit)	[°C]	49	49	49	49	49	49	49	49	49
(F) Tivalent temperature	Tblv	[°C]	-7	-7	-10	-7	-8	-6	-7	-7	-5
	Pdh (declared heating capacity)	[kW]	4.1	5.8	9.8	11.4	13.0	13.9	10.6	12.0	13.0
	COPd (declared COP)	-	2.85	2.80	2.48	2.92	2.84	2.80	2.83	2.66	2.90
Supplementary capacity at P_design	Psup (@Tdesignh: – 10°C)	[kW]	0.5	0.3	0	2.1	2.2	4.8	1.1	2.7	5.2
Part load conditions space heating average climate medium temperature application											
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	4.1	5.8	8.2	8.9	11.5	12.3	9.2	11.6	11.7
	COPd (declared COP)	-	1.90	1.98	1.85	1.96	1.95	2.02	2.00	2.02	1.99
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	2.5	3.5	4.9	5.6	7.3	7.9	5.6	7.5	7.8
	COPd (declared COP)	-	2.91	3.01	2.69	3.07	2.95	3.05	3.01	3.10	3.02
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	1.6	2.3	3.1	3.8	4.6	5.1	3.7	4.7	5.1
	COPd (declared COP)	-	3.70	4.17	3.54	4.39	4.58	4.57	4.27	4.68	4.70
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	1.0	0.9	1.5	1.7	2.3	2.1	2.8	2.8	2.8
	COPd (declared COP)	-	4.53	4.68	2.86	4.23	5.18	4.77	5.26	5.20	5.28
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-10	-10	-10	-10	-10	-10	-10	-10	-10
	Pdh (declared heating capacity)	[kW]	4.6	6.0	9.3	9.4	10.7	10.2	10.5	11.7	10.6
	COPd (declared COP)	-	1.71	1.72	1.67	1.71	1.71	1.68	1.85	1.77	1.78
	WTOL (Heating water Operation Limit)	[°C]	49	49	49	49	49	49	49	49	49
(F) Tivalent temperature	Tblv	[°C]	-7	-7	-10	-7	-7	-7	-10	-7	-6
	Pdh (declared heating capacity)	[kW]	4.1	5.8	9.3	8.9	11.5	12.3	10.5	11.6	12.1
	COPd (declared COP)	-	1.90	1.98	1.67	1.96	1.95	2.02	1.85	2.02	2.09
Supplementary capacity at P_design	Psup (@Tdesignh: – 10°C)	[kW]	0	0.6	0	0.6	2.3	3.7	0	1.5	3.7

Product fiche 3

Heat pump space heater		unit	5KW	7KW	10KW	12KW	14KW	16KW	12KW (TRIF.)	14KW (TRIF.)	16KW (TRIF.)
Colder climate (Design temperature = -22°C)											
Space heating 35°C	Prated (declared heating capacity) @ -22°C	[kW]	5	7	11	12	14	16	12	14	16
	Seasonal space heating efficiency (ηs)	[%]	133	158	132	144	136	131	145	145	121
	Annual energy consumption	[kWh]	3,331	4,116	7,747	8,175	10,032	12,145	8,515	9,430	12,724
Space heating 55°C	Prated (declared heating capacity) @ -22°C	[kW]	5	7	10	11	12	15	11	12	15
	Seasonal space heating efficiency (ηs)	[%]	100	106	99	94	94	99	108	108	111
	Annual energy consumption	[kWh]	4,459	6,436	9,946	12,303	12,303	14,341	10,958	10,956	13,021
Part load conditions space heating colder climate low temperature application											
condition (-15°C)	Pdh (declared heating capacity)	[kW]	3.7	5.5	8.6	9.8	9.9	9.9	10.0	10.3	9.6
	COPd (declared COP)	-	2.23	2.41	2.35	2.33	2.21	2.21	2.43	2.42	2.15
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	2.7	4.0	6.3	7.5	8.9	10.0	7.6	9.2	9.4
	COPd (declared COP)	-	3.04	3.25	3.11	3.14	2.90	2.81	3.19	3.15	2.74
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	1.6	2.5	3.8	4.7	5.2	6.2	4.7	6.0	6.3
	COPd (declared COP)	-	3.91	5.16	4.01	4.44	4.19	4.12	4.57	4.55	3.66
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	1.3	1.8	2.4	3.0	3.4	4.0	3.0	3.5	4.0
	COPd (declared COP)	-	5.98	7.13	5.82	6.10	5.85	5.91	6.06	6.03	5.47
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	1.2	1.1	1.1	2.9	4.4	2.7	2.6	2.6	3.1
	COPd (declared COP)	-	8.59	7.57	3.56	8.92	8.72	6.88	5.76	5.65	6.10
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-20	-20	-20	-20	-20	-20	-20	-20	-20
	Pdh (declared heating capacity)	[kW]	4.5	4.9	8.2	8.2	8.3	7.6	8.4	8.4	7.6
	COPd (declared COP)	-	1.83	2.00	1.87	1.85	1.88	1.68	2.02	2.00	1.73
	WTOL (Heating water Operation Limit)	[°C]	40	40	40	40	40	40	40	40	40
(F) Tbivalent temperature	Tblv	[°C]	-15	-15	-15	-15	-12	-11	-14	-13	-11
	Pdh (declared heating capacity)	[kW]	3.7	5.5	8.6	9.8	10.4	11.8	10.1	10.8	11.4
	COPd (declared COP)	-	2.23	2.41	2.35	2.33	2.36	2.51	2.50	2.58	2.42
Supplementary capacity at P_design	Psup (@Tdesignh: -22°C)	[kW]	0	1.5	1.8	3.2	5.0	8.9	3.7	4.9	7.5

Product fiche 4

Heat pump space heater		unit	5KW	7KW	10KW	12KW	14KW	16KW	12KW (TRIF.)	14KW (TRIF.)	16KW (TRIF.)
Part load conditions space heating colder climate medium temperature application											
condition (-15°C)	Pdh (declared heating capacity)	[kW]	3.8	5.0	8.4	10.1	10.1	9.0	9.3	9.3	9.2
	COPd (declared COP)	-	1.66	1.66	1.68	1.82	1.82	1.64	1.80	1.80	1.72
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	3.0	4.4	6.2	7.8	7.8	8.8	7.8	7.8	9.3
	COPd (declared COP)	-	2.12	2.26	2.17	2.14	2.14	2.20	2.32	2.32	2.34
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	1.7	2.5	3.9	4.4	4.4	5.3	4.5	4.5	5.7
	COPd (declared COP)	-	3.01	3.43	3.00	2.77	2.77	3.20	3.35	3.35	3.53
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	1.2	1.6	2.5	2.9	2.9	3.4	2.9	2.9	3.6
	COPd (declared COP)	-	3.91	4.39	4.09	4.16	4.16	4.52	4.44	4.44	4.68
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	1.1	1.0	1.2	1.3	1.3	2.5	2.4	2.4	3.6
	COPd (declared COP)	-	5.84	5.39	3.10	3.33	3.33	6.41	4.73	4.73	7.08
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-20	-20	-20	-20	-20	-20	-20	-20	-20
	Pdh (declared heating capacity)	[kW]	4.2	4.2	7.1	7.1	7.1	6.4	7.3	7.3	7.0
	COPd (declared COP)	-	1.37	1.34	1.31	1.29	1.29	1.16	1.40	1.40	1.34
	WTOL (Heating water Operation Limit)	[°C]	40	40	40	40	40	40	40	40	40
(F) Tbivalent temperature	Tblv	[°C]	-15	-13	-15	-11	-11	-11	-14	-14	-11
	Pdh (declared heating capacity)	[kW]	3.8	5.4	8.4	8.6	8.6	10.6	9.8	9.8	10.7
	COPd (declared COP)	-	1.66	1.77	1.68	1.59	1.59	1.86	1.89	1.89	1.99
Supplementary capacity at P_design	Psup (@Tdesignh: -22°C)	[kW]	0.2	2.5	2.6	4.4	4.4	8.5	4.4	4.4	7.2
Warmer climate (Design temperature =2°C)											
Space heating 35°C	Prated (declared heating capacity) @ 2 °C	[kW]	5	7	10	12	14	15	12	14	15
	Seasonal space heating efficiency (η_s)	[%]	229	248	272	251	237	218	250	188	212
	Annual energy consumption	[kWh]	1,105	1,392	2,021	2,565	3,223	3,569	2,580	4,023	3,756
Space heating 55°C	Prated (declared heating capacity) @ 2 °C	[kW]	5	7	10	12	12	15	12	12	15
	Seasonal space heating efficiency (η_s)	[%]	145	167	153	159	160	155	149	147	169
	Annual energy consumption	[kWh]	1,660	2,121	3,534	3,967	3,928	4,963	4,386	4,445	4,773

Product fiche 6

Heat pump space heater		unit	5KW	7KW	10KW	12KW	14KW	16KW	12KW (TRIF.)	14KW (TRIF.)	16KW (TRIF.)
(F) Tivalent temperature	Tblv	[°C]	7	7	7	7	7	7	7	7	7
	Pdh (declared heating capacity)	[kW]	3.0	4.4	6.6	7.7	7.7	9.2	8.0	8.0	9.9
	COPd (declared COP)	-	3.29	3.45	3.38	3.37	3.37	3.33	3.50	3.50	3.66
Supplementary capacity at P_design	Psup (@Tdesignh: – 10°C)	[kW]	0	0	0.1	0	0	0.4	0.3	0.3	1.6
Ecodesign technical data											
Product description	Air-to-water heat pump	Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Water-to-water heat pump	Y/N	No	No	No	No	No	No	No	No	No
	Brine-to-water heat pump	Y/N	No	No	No	No	No	No	No	No	No
	Low-temperature heat pump	Y/N	No	No	No	No	No	No	No	No	No
	Equipped with a supplementary heater	Y/N	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Heat pump combination heater	Y/N	No	No	No	No	No	No	No	No	No
Air to water unit	Rated airflow (outdoor)	[m³/h]	3100	3100	6250	6250	6250	6250	6250	6250	6250
Brine/water to water unit	Rated water/brine flow (outdoor H/E)	[m³/h]	/	/	/	/	/	/	/	/	/
Other	Capacity control	-	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter	Inverter
	Poff (Power consumption Off mode)	[kW]	0.016	0.016	0.017	0.017	0.017	0.017	0.027	0.027	0.027
	Pto (Power consumption Thermostat off mode)	[kW]	0.016	0.016	0.006	0.006	0.006	0.006	0.006	0.006	0.006
	Psb (Power consumption Standby mode)	[kW]	0.016	0.016	0.017	0.017	0.017	0.017	0.027	0.027	0.027
	PCK (Power crankcase heater model)	[kW]	0.034	0.034	0.018	0.018	0.018	0.018	0.001	0.001	0.001
	Qelec (Daily electricity consumption)	[kWh]	/	/	/	/	/	/	/	/	/
	Qfuel (Daily fuel consumption)	[kWh]	/	/	/	/	/	/	/	/	/

Details and precautions on installation, maintenance and assembly can be found in the installation and or operation manuals.
Product fiche data according to energy label directive 2010/30/EC regulation (EU) 811/2013.

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (5KW)
Air-to-water heat pump:	YES
Water-to-water heat pump:	NO
Brine-to-water heat pump:	NO
Low-temperature heat pump:	NO
Equipped with a supplementary heater:	NO
Heat pump combination heater:	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average, colder and warmer climate conditions.

Item	Symbol	Value	Unit
Rated heat output (*)	Prated	5	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	Pdh	4.1	kW
Tj = 2	Pdh	2.5	kW
Tj = 7	Pdh	1.6	kW
Tj = 12	Pdh	1.0	kW
Tj = bivalent temperature	Pdh	4.1	kW
Tj = operating limit	Pdh	4.6	kW
For air-to-water heat pumps: Tj = -15	Pdh	-	kW
Bivalent temperature	Tbiv	-7	°C
Cycling interval capacity for heating	P _{cych}	-	kW
Degradation co-efficient (**)	C _{dh}	0.9	--
Power consumption in modes other than active mode			
off mode	P _{off}	0.016	kW
standby mode	P _{sb}	0.016	kW
thermostat-off mode	P _{to}	0.016	kW
crankcase heater mode	P _{ck}	0.034	kW

Other items			
Capacity control	variable		
Sound power level, indoors/outdoors	L _{WA}	-61	dB
Annual energy consumption	Q _{HE}	3233	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
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

Contact details	SALVADOR ESCODA SA PROVENZA, 392 P2, BARCELONA (SPAIN)
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(*) 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).

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

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	ηs	115	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	COPd	1.90	-
Tj = 2	COPd	2.91	-
Tj = 7	COPd	3.70	-
Tj = 12	COPd	4.53	-
Tj = bivalent temperature	COPd	1.90	-
Tj = operating limit	COPd	1.71	-
For air-to-water heat pumps: Tj = -15	COPd	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cyc} or PER _{cyc}	-	%
Heating water operating limit temperature	W _{TOL}	49	°C
Supplementary heater			
Rated heat output (**)	Psup	0	kW
Type of energy input	-		

For air-to-water heat pumps: Rated air flow rate, outdoors	-	3100	m³/h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m³/h

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (7KW)
Air-to-water heat pump:	YES
Water-to-water heat pump:	NO
Brine-to-water heat pump:	NO
Low-temperature heat pump:	NO
Equipped with a supplementary heater:	NO
Heat pump combination heater:	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average, colder and warmer climate conditions.

Item	Symbol	Value	Unit
Rated heat output (*)	Prated	7	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	Pdh	5.8	kW
Tj = 2	Pdh	3.5	kW
Tj = 7	Pdh	2.3	kW
Tj = 12	Pdh	0.9	kW
Tj = bivalent temperature	Pdh	5.8	kW
Tj = operating limit	Pdh	6.0	kW
	Pdh	-	kW
Bivalent temperature	T _{biv}	-7	°C
	P _{cy ch}	-	kW
Degradation co-efficient (**)	C _{dh}	0.9	--
Power consumption in modes other than active mode			
off mode	P _{off}	0.016	kW
standby mode	P _{sb}	0.016	kW
thermostat-off mode	P _{to}	0.016	kW
crankcase heater mode	P _{ck}	0.034	kW

Other items			
Capacity control	variable		
Sound power level, indoors/outdoors	L _{WA}	-65	dB
Annual energy consumption	Q _{HE}	4412	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η _s	120	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	COP _d	1.98	-
Tj = 2	COP _d	3.01	-
Tj = 7	COP _d	4.17	-
Tj = 12	COP _d	4.68	-
Tj = bivalent temperature	COP _d	1.98	-
Tj = operating limit	COP _d	1.72	-
For air-to-water heat pumps: Tj = -15	COP _d	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cy c} or PER _{cy c}	-	%
Heating water operating limit temperature	W _{TOL}	49	°C
Supplementary heater			
Rated heat output (**)	P _{sup}	0.6	kW
Type of energy input	-		

For air-to-water heat pumps: Rated air flow rate, outdoors	-	3100	m ³ /h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m ³ /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}	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

Contact details: SALVADOR ESCODA SA
PROVENZA, 392 P2, BARCELONA (SPAIN)

(*) 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).

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

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (10KW)
Air-to-water heat pump:	YES
Water-to-water heat pump:	NO
Brine-to-water heat pump:	NO
Low-temperature heat pump:	NO
Equipped with a supplementary heater:	YES
Heat pump combination heater:	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average, colder and warmer climate conditions.

Item	Symbol	Value	Unit
Rated heat output (*)	P _{rated}	9	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _J			
T _J = -7	P _{dh}	8.2	kW
T _J = 2	P _{dh}	4.9	kW
T _J = 7	P _{dh}	3.1	kW
T _J = 12	P _{dh}	1.5	kW
T _J = bivalent temperature	P _{dh}	9.3	kW
T _J = operating limit	P _{dh}	9.3	kW
For air-to-water heat pumps: T _J = -15	P _{dh}	-	kW
Bivalent temperature	T _{biv}	-10	°C
Cycling interval capacity for heating	P _{cy ch}	-	kW
Degradation co-efficient (**)	C _{dh}	0.9	-
Power consumption in modes other than active mode			
off mode	P _{off}	0.017	kW
standby mode	P _{sb}	0.017	kW
thermostat-off mode	P _{to}	0.006	kW
crankcase heater mode	P _{ck}	0.018	kW

Other items			
Capacity control	variable		
Sound power level, indoors/ outdoors	L _{WA}	-/66	dB
Annual energy consumption	Q _{HE}	7303	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η _s	102	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _J			
T _J = -7	COP _d	1.85	-
T _J = 2	COP _d	2.69	-
T _J = 7	COP _d	3.54	-
T _J = 12	COP _d	2.86	-
T _J = bivalent temperature	COP _d	1.67	-
T _J = operating limit	COP _d	1.67	-
For air-to-water heat pumps: T _J = -15	COP _d	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cy c} or PER _{cy c}	-	%
Heating water operating limit temperature	W _{TOL}	49	°C
Supplementary heater			
Rated heat output (**)	P _{sup}	0	kW
Type of energy input	Electrical		

For air-to-water heat pumps: Rated air flow rate, outdoors	-	6250	m ³ /h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m ³ /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}	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

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(*) 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 supplementary capacity for heating sup(T_J).

(**) If C_{dh} is not determined by measurement then the default degradation coefficient is C_{dh} = 0,9.

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (12KW)
Air-to-water heat pump:	YES
Water-to-water heat pump:	NO
Brine-to-water heat pump:	NO
Low-temperature heat pump:	NO
Equipped with a supplementary heater:	YES
Heat pump combination heater:	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average, colder and warmer climate conditions.

Item	Symbol	Value	Unit
Rated heat output (*)	Prated	10	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	Pdh	8.9	kW
Tj = 2	Pdh	5.6	kW
Tj = 7	Pdh	3.8	kW
Tj = 12	Pdh	1.7	kW
Tj = bivalent temperature	Pdh	8.9	kW
Tj = operating limit	Pdh	9.4	kW
For air-to-water heat pumps: Tj = -15	Pdh	-	kW
Bivalent temperature	T _{biv}	-7	°C
Cycling interval capacity for heating	P _{cyh}	-	kW
Degradation co-efficient (**)	C _{dh}	0.9	-
Power consumption in modes other than active mode			
off mode	P _{off}	0.017	kW
standby mode	P _{sb}	0.017	kW
thermostat-off mode	P _{to}	0.006	kW
crankcase heater mode	P _{ck}	0.018	kW

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	ηs	123	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	COPd	1.96	-
Tj = 2	COPd	3.07	-
Tj = 7	COPd	4.39	-
Tj = 12	COPd	4.23	-
Tj = bivalent temperature	COPd	1.96	-
Tj = operating limit	COPd	1.71	-
For air-to-water heat pumps: Tj = -15	COPd	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cyh} or PER _{cyh}	-	%
Heating water operating limit temperature	W _{TOL}	49	°C
Supplementary heater			
Rated heat output (**)	P _{sup}	0.6	kW
Type of energy input	Electrical		

Other items			
Capacity control	variable		
Sound power level, indoors/outdoors	L _{WA}	-67	dB
Annual energy consumption	Q _{HE}	6555	kWh

For air-to-water heat pumps: Rated air flow rate, outdoors	-	6250	m ³ /h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m ³ /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}	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

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(*) 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).

(**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0.9.

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (14KW)
Air-to-water heat pump:	YES
Water-to-water heat pump:	NO
Brine-to-water heat pump:	NO
Low-temperature heat pump:	NO
Equipped with a supplementary heater:	YES
Heat pump combination heater:	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Item	Symbol	Value	Unit
Rated heat output (*)	Prated	13	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	Pdh	11.5	kW
Tj = 2	Pdh	7.3	kW
Tj = 7	Pdh	4.6	kW
Tj = 12	Pdh	2.3	kW
Tj = bivalent temperature	Pdh	11.5	kW
Tj = operating limit	Pdh	10.7	kW
For air-to-water heat pumps: Tj = -15	Pdh	-	kW
Bivalent temperature	T _{biv}	-7	°C
Cycling interval capacity for heating	P _{cych}	-	kW
Degradation co-efficient (**)	C _{dh}	0.9	-
Power consumption in modes other than active mode			
off mode	P _{off}	0.017	kW
standby mode	P _{sb}	0.017	kW
thermostat-off mode	P _{to}	0.006	kW
crankcase heater mode	P _{ck}	0.018	kW

Other items			
Capacity control	variable		
Sound power level, indoors/outdoors	L _{WA}	-71	dB
Annual energy consumption	Q _{HE}	8525	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η _s	123	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	COP _d	1.95	-
Tj = 2	COP _d	2.95	-
Tj = 7	COP _d	4.58	-
Tj = 12	COP _d	5.18	-
Tj = bivalent temperature	COP _d	1.95	-
Tj = operating limit	COP _d	1.71	-
For air-to-water heat pumps: Tj = -15	COP _d	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cyc} or PER _{cyc}	-	%
Heating water operating limit temperature	W _{TOL}	49	°C
Supplementary heater			
Rated heat output (**)	P _{sup}	2.3	kW
Type of energy input	Electrical		

For air-to-water heat pumps: Rated air flow rate, outdoors	-	6250	m³/h
For water- or 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}	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

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(*) 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).

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

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (16KW)
Air-to-water heat pump:	YES
Water-to-water heat pump:	NO
Brine-to-water heat pump:	NO
Low-temperature heat pump:	NO
Equipped with a supplementary heater:	YES
Heat pump combination heater:	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average, colder and warmer climate conditions.

Item	Symbol	Value	Unit
Rated heat output (*)	P _{rated}	14	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7	P _{dh}	12.3	kW
T _j = 2	P _{dh}	7.9	kW
T _j = 7	P _{dh}	5.1	kW
T _j = 12	P _{dh}	2.1	kW
T _j = bivalent temperature	P _{dh}	12.3	kW
T _j = operating limit	P _{dh}	10.2	kW
For air-to-water heat pumps: T _j = -15	P _{dh}	-	kW
Bivalent temperature	T _{biv}	-7	°C
Cycling interval capacity for heating	P _{cych}	-	kW
Degradation co-efficient (**)	C _{dh}	0.9	-
Power consumption in modes other than active mode			
off mode	P _{off}	0.017	kW
standby mode	P _{sb}	0.017	kW
thermostat-off mode	P _{to}	0.006	kW
crankcase heater mode	P _{ck}	0.018	kW

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η _s	125	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7	COP _d	2.02	-
T _j = 2	COP _d	3.05	-
T _j = 7	COP _d	4.57	-
T _j = 12	COP _d	4.77	-
T _j = bivalent temperature	COP _d	2.02	-
T _j = operating limit	COP _d	1.68	-
For air-to-water heat pumps: T _j = -15	COP _d	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cyc} or PER _{cyc}		
Heating water operating limit temperature	W _{TOL}	49	°C
Supplementary heater			
Rated heat output (**)	P _{sup}	3.7	kW
Type of energy input	Electrical		

Other items			
Capacity control	variable		
Sound power level, indoors/outdoors	L _{WA}	-71	dB
Annual energy consumption	Q _{HE}	8973	kWh

For air-to-water heat pumps: Rated air flow rate, outdoors	-	6250	m ³ /h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m ³ /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}	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

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(*) 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 supplementary capacity for heating sup(T_j).

(**) If C_{dh} is not determined by measurement then the default degradation coefficient is C_{dh} = 0,9.

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (12KW) (TRIF.)
Air-to-water heat pump:	YES
Water-to-water heat pump:	NO
Brine-to-water heat pump:	NO
Low-temperature heat pump:	NO
Equipped with a supplementary heater:	YES
Heat pump combination heater:	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average, colder and warmer climate conditions.

Item	Symbol	Value	Unit
Rated heat output (*)	Prated	10	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	Pdh	9.2	kW
Tj = 2	Pdh	5.6	kW
Tj = 7	Pdh	3.7	kW
Tj = 12	Pdh	2.8	kW
Tj = bivalent temperature	Pdh	10.5	kW
Tj = operating limit	Pdh	10.5	kW
For air-to-water heat pumps: Tj = -15	Pdh	-	kW
Bivalent temperature	T _{biv}	-10	°C
Cycling interval capacity for heating	P _{cych}	-	kW
Degradation co-efficient (**)	C _{dh}	0.9	--
Power consumption in modes other than active mode			
off mode	P _{off}	0.027	kW
standby mode	P _{sb}	0.027	kW
thermostat-off mode	P _{to}	0.006	kW
crankcase heater mode	P _{ck}	0.001	kW

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η _s	122	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	COP _d	2.00	-
Tj = 2	COP _d	3.01	-
Tj = 7	COP _d	4.27	-
Tj = 12	COP _d	5.26	-
Tj = bivalent temperature	COP _d	1.85	-
Tj = operating limit	COP _d	1.85	-
For air-to-water heat pumps: Tj = -15	COP _d	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cyc} or PER _{cyc}	-	%
Heating water operating limit temperature	W _{TOL}	49	°C
Supplementary heater			
Rated heat output (**)	P _{sup}	0	kW
Type of energy input	Electrical		

Other items			
Capacity control	variable		
Sound power level, indoors/outdoors	L _{WA}	-68	dB
Annual energy consumption	Q _{HE}	6929	kWh

For air-to-water heat pumps: Rated air flow rate, outdoors	-	6250	m ³ /h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m ³ /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}	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

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(*) 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).

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

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (14KW) (TRIF.)
Air-to-water heat pump:	YES
Water-to-water heat pump:	NO
Brine-to-water heat pump:	NO
Low-temperature heat pump:	NO
Equipped with a supplementary heater:	YES
Heat pump combination heater:	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average, colder and warmer climate conditions.

Item	Symbol	Value	Unit
Rated heat output (*)	Prated	13	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	Pdh	11.6	kW
Tj = 2	Pdh	7.5	kW
Tj = 7	Pdh	4.7	kW
Tj = 12	Pdh	2.8	kW
Tj = bivalent temperature	Pdh	11.6	kW
Tj = operating limit	Pdh	11.7	kW
For air-to-water heat pumps: Tj = -15	Pdh	-	kW
Bivalent temperature	Tbiv	-7	°C
Cycling interval capacity for heating	P _{cych}	-	kW
Degradation co-efficient (**)	C _{dth}	0.9	--
Power consumption in modes other than active mode			
off mode	P _{off}	0.027	kW
standby mode	P _{sb}	0.027	kW
thermostat-off mode	P _{to}	0.006	kW
crankcase heater mode	P _{ck}	0.001	kW

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	ηs	128	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7	COPd	2.02	-
Tj = 2	COPd	3.10	-
Tj = 7	COPd	4.68	-
Tj = 12	COPd	5.20	-
Tj = bivalent temperature	COPd	2.02	-
Tj = operating limit	COPd	1.77	-
For air-to-water heat pumps: Tj = -15	COPd	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cyc} or PER _{cyc}	-	%
Heating water operating limit temperature	WTOL	49	°C
Supplementary heater			
Rated heat output (**)	Psup	1.5	kW
Type of energy input	Electrical		

Other items			
Capacity control	variable		
Sound power level, indoors/ outdoors	LWA	-71	dB
Annual energy consumption	Q _{HE}	8291	kWh

For air-to-water heat pumps: Rated air flow rate, outdoors	-	6250	m ³ /h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m ³ /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}	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

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(*) 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).

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

Technical parameters

Model(s):	MONOBLOC AEROTHERM V17 (16KW) (TRIF.)		
Air-to-water heat pump:	YES		
Water-to-water heat pump:	NO		
Brine-to-water heat pump:	NO		
Low-temperature heat pump:	NO		
Equipped with a supplementary heater:	YES		
Heat pump combination heater:	NO		

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average, colder and warmer climate conditions.

Item	Symbol	Value	Unit
Rated heat output (*)	P _{rated}	14	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7	P _{dh}	11.7	kW
T _j = 2	P _{dh}	7.8	kW
T _j = 7	P _{dh}	5.1	kW
T _j = 12	P _{dh}	2.8	kW
T _j = bivalent temperature	P _{dh}	12.1	kW
T _j = operating limit	P _{dh}	10.6	kW
For air-to-water heat pumps: T _j = -15	P _{dh}	-	kW
Bivalent temperature	T _{biv}	-6	°C
Cycling interval capacity for heating	P _{cy ch}	-	kW
Degradation co-efficient (**)	C _{dh}	0.9	--
Power consumption in modes other than active mode			
off mode	P _{off}	0.027	kW
standby mode	P _{sb}	0.027	kW
thermostat-off mode	P _{to}	0.006	kW
crankcase heater mode	P _{ck}	0.001	kW

Other items			
Capacity control	variable		
Sound power level, indoors/ outdoors	L _{WA}	-71	dB
Annual energy consumption	Q _{HE}	9172	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η _s	126	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T _j			
T _j = -7	COP _d	1.99	-
T _j = 2	COP _d	3.02	-
T _j = 7	COP _d	4.70	-
T _j = 12	COP _d	5.28	-
T _j = bivalent temperature	COP _d	2.09	-
T _j = operating limit	COP _d	1.78	-
For air-to-water heat pumps: T _j = -15	COP _d	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{cy c} or PER _{cy c}	-	%
Heating water operating limit temperature	W _{TOL}	49	°C
Supplementary heater			
Rated heat output (**)	P _{sup}	3.7	kW
Type of energy input	Electrical		

For air-to-water heat pumps: Rated air flow rate, outdoors	-	6250	m ³ /h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m ³ /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}	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

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(*) 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 supplementary capacity for heating sup(T_j).

(**) If C_{dh} is not determined by measurement then the default degradation coefficient is C_{dh} = 0,9.

	Outlet water temperature/	5KW	7KW	10KW
Cooling capacity/kW	18	4.6	6.6	10
	7	4.6	6.6	10
SEER	18	4.43	4.87	6.22
	7	3.20	3.39	4.49
	Outlet water temperature/	12KW	14KW	16KW
Cooling capacity/kW	18	12	14	15
	7	12	13	13.5
SEER	18	6.64	6.18	5.88
	7	4.42	4.29	4.01
	Outlet water temperature/	12KW (TRIF.)	14KW (TRIF.)	16KW (TRIF.)
Cooling capacity/kW	18	12	13.5	15
	7	12	12.5	13.5
SEER	18	5.78	5.72	6.19
	7	4.39	4.46	4.52

Mode	Ambient temperature	Water temperature	5KW			7KW			10KW		
			Capacity/W	Power input/W	COP/EER	Capacity/W	Power input/W	COP/EER	Capacity/W	Power input/W	COP/EER
Heating	7/6	30-35	4580	970	4.72	6550	1450	4.52	10430	2280	4.57
		40-45	4670	1430	3.27	6690	2050	3.26	10170	3080	3.30
		47-55	4760	1880	2.53	6240	2390	2.61	8890	3380	2.63
	2/1	30-35	4380	1170	3.77	6100	1690	3.61	9610	2740	3.51
		40-45	4400	1660	2.65	6250	2310	2.70	9070	3400	2.67
		a-55	4270	1930	2.21	5990	2630	2.28	11010	4830	2.28
	-7/-8	30-35	4870	1760	2.77	6120	2310	2.65	8880	3130	2.84
		40-45	4640	2210	2.10	6110	2910	2.10	8700	3880	2.24
		a-55	4350	2390	1.82	6140	3250	1.89	8620	4910	1.76
Cooling	35/24	23-18	4550	1000	4.55	6450	1470	4.40	10250	2060	4.98
		12-7	4550	1550	2.94	6710	2570	2.61	10440	3280	3.18

Mode	Ambient temperature	Water temperature	12KW			14KW			16KW		
			Capacity/W	Power input/W	COP/EER	Capacity/W	Power input/W	COP/EER	Capacity/W	Power input/W	COP/EER
Heating	7/6	30-35	12170	2730	4.46	14760	3400	4.34	16330	3900	4.19
		40-45	12580	3860	3.26	14080	4470	3.15	16120	5220	3.09
		47-55	10550	3840	2.75	11640	4380	2.66	13430	5220	2.57
	2/1	30-35	11150	3130	3.56	12170	3640	3.34	13100	4110	3.19
		40-45	10550	3950	2.67	10880	4260	2.55	12520	4740	2.64
		a-55	12350	5000	2.47	12370	5290	2.34	13210	5630	2.35
	-7/-8	30-35	9720	3610	2.69	9870	3820	2.58	11340	4100	2.77
		40-45	9170	4330	2.12	9540	4650	2.05	10920	5130	2.13
		a-55	10130	5640	1.80	10600	6100	1.74	11300	6300	1.79
Cooling	35/24	23-18	12190	2650	4.60	14610	3320	4.40	14820	3660	4.05
		12-7	12210	4170	2.93	12950	4530	2.86	13720	5160	2.66

Mode	Ambient temperature	Water temperature	12KW (TRIF.)			14KW (TRIF.)			16KW (TRIF.)		
			Capacity/W	Power input/W	COP/EER	Capacity/W	Power input/W	COP/EER	Capacity/W	Power input/W	COP/EER
Heating	7/6	30-35	12370	2760	4.48	14100	3260	4.33	16300	3880	4.20
		40-45	12020	3720	3.23	14110	4460	3.16	16060	5230	3.07
		47-55	12510	4430	2.82	14410	5160	2.79	16150	5860	2.76
	2/1	30-35	11580	3380	3.43	12740	3780	3.37	14190	4420	3.21
		40-45	12460	4390	2.84	12160	4610	2.64	14080	5350	2.63
		a-55	12180	5090	2.39	11800	5280	2.24	12170	5500	2.21
	-7/-8	30-35	11690	4270	2.74	11880	4390	2.71	12140	4430	2.74
		40-45	11650	5080	2.29	10950	5080	2.16	11810	5350	2.21
		a-55	10610	5710	1.86	10910	5920	1.84	10640	6160	1.73
Cooling	35/24	23-18	12640	2750	4.60	14030	3260	4.30	15100	3780	4.00
		12-7	12580	4320	2.91	13800	5140	2.68	15260	6410	2.38

*a-With the water flow rate as determined during the "7/6 47-55" test.

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