



ENERG

енергия · ενεργεια



Kaysun
AQUANTIA

KHP-MO 16 DTR2



55°C

35°C

A+++

A++

A+

A

B

C

D

A++

A+++



-- dB



68dB

12

13

14

kW

14

15

13

kW



2019

811/2013

Kaysun
by **frigicoll**

Model	For medium - temperature application										
	Energy efficiency class	Unit sound power	average climate			colder climate			warmer climate		
			Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption	Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption	Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption
	-	dB	kW	%	kWh	kW	%	kWh	kW	%	kWh
KHP-MO 4 DVR2	A++	55	4.4	129.5	2742	3.4	102.1	3158	5.0	163.1	1614
KHP-MO 6 DVR2	A++	58	5.7	137.9	3343	4.3	111.1	3680	5.1	165.4	1634
KHP-MO 8 DVR2	A++	59	6.6	131.6	4054	5.8	112.1	4948	7.6	177.2	2242
KHP-MO 10 DVR2	A++	60	7.7	135.7	4567	6.7	116.5	5539	8.6	181.7	2496
KHP-MO 12 DVR2	A++	65	11.6	135.1	6927	10.3	117.8	8419	12.5	174.1	3376
KHP-MO 14 DVR2	A++	65	12.1	135.6	7202	11.0	118.9	8866	13.7	176.5	4088
KHP-MO 16 DVR2	A++	68	13.0	133.3	7895	11.8	121.8	9309	13.8	176.1	4112
KHP-MO 12 DTR2	A++	65	11.6	135.1	6928	10.3	117.7	8420	12.5	173.8	3780
KHP-MO 14 DTR2	A++	65	12.1	135.6	7203	11.0	118.9	8867	13.7	176.4	4092
KHP-MO 16 DTR2	A++	68	13.0	133.2	7896	11.8	121.8	9310	13.8	175.9	4116

Unit type explanation:

- 1.KHP-MO ** DVR2, with 3kW back-up heater and 1-Phase Source
- 2.KHP-MO ** DTR2, with 9kW back-up heater and 3-Phase Source

Model	For low - temperature application										
	Energy efficiency class	Unit sound power	average climate			colder climate			warmer climate		
			Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption	Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption	Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption
	-	dB	kW	%	kWh	kW	%	kWh	kW	%	kWh
KHP-MO 4 DVR2	A+++	55	5.5	191.0	2351	4.6	159.5	2769	5.5	255.4	1146
KHP-MO 6 DVR2	A+++	58	6.8	195.0	2845	5.6	165.3	3300	6.1	259.8	1244
KHP-MO 8 DVR2	A+++	59	8.1	205.6	3218	7.0	170.0	3976	8.1	276.6	1551
KHP-MO 10 DVR2	A+++	60	9.2	204.8	3644	7.7	169.8	4423	8.6	280.5	1617
KHP-MO 12 DVR2	A+++	65	12.0	189.4	5152	11.4	160.2	6870	11.1	256.1	2292
KHP-MO 14 DVR2	A+++	65	13.7	185.7	6012	12.6	159.6	7667	12.1	260.3	2457
KHP-MO 16 DVR2	A+++	68	15.2	181.7	6804	13.7	157.8	8431	13.1	248.5	2781
KHP-MO 12 DTR2	A+++	65	12.0	189.3	5153	11.4	160.2	6871	11.1	255.6	2296
KHP-MO 14 DTR2	A+++	65	13.7	185.6	6013	12.6	159.6	7667	12.1	259.8	2462
KHP-MO 16 DTR2	A+++	68	15.2	181.6	6805	13.7	157.8	8431	13.1	248.1	2786

Unit type explanation:

- 1.KHP-MO**DVR2, with 3kW back-up heater and 1-Phase Source
- 2.KHP-MO**WDTR2, with 9kW back-up heater and 3-Phase Source

Product fiche 1

Heat pump space heater		Model	KHP-MO 14 DVR2	KHP-MO 16 DVR2	KHP-MO 12 DTR2	KHP-MO 14 DTR2	KHP-MO 16 DTR2
Unit sound power (*)	Average climate low temperature application	[dB(A)]	65.0	68.0	65.0	65.0	68.0
	Average climate medium temperature application	[dB(A)]	65.0	68.0	65.0	65.0	68.0
Capacity of the back-up heater integrated in the unit	Psup back-up heater (optional)	[kW]	0/3/9	0/3/9	0/3/9	0/3/9	0/3/9
Space heating	Energy efficiency class 35°C (Low temp. app.)	-	A+++	A+++	A+++	A+++	A+++
Space heating	Energy efficiency class 55°C (Medium temp. app.)	-	A++	A++	A++	A++	A++
Average climate (Design temperature = -10°C)							
Space heating 35°C	Prated (declared heating capacity) @ -10°C	[kW]	13.7	15.2	12.0	13.7	15.2
	Seasonal space heating efficiency (η_s)	[%]	185.7	181.7	189.3	185.6	181.6
	Annual energy consumption	[kWh]	6,012	6,804	5,153	6,013	6,805
Space heating 55°C	Prated (declared heating capacity) @ -10°C	[kW]	12.1	13.0	11.6	12.1	13.0
	Seasonal space heating efficiency (η_s)	[%]	135.6	133.3	135.1	135.6	133.2
	Annual energy consumption	[kWh]	7,202	7,895	6,928	7,203	7,896
Part load conditions space heating average climate low temperature application							
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	12.14	13.45	10.61	12.14	13.45
	COPd (declared COP)	-	2.79	2.72	2.88	2.79	2.72
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	7.94	8.56	6.69	7.94	8.56
	COPd (declared COP)	-	4.52	4.41	4.65	4.52	4.41
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	5.20	5.70	4.44	5.20	5.70
	COPd (declared COP)	-	6.68	6.56	6.62	6.68	6.56
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	3.75	3.78	3.74	3.75	3.78
	COPd (declared COP)	-	8.52	8.51	8.47	8.52	8.51
	Cdh(degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90

Product fiche 2

Heat pump space heater		Model	KHP-MO 14 DVR2	KHP-MO 16 DVR2	KHP-MO 12 DTR2	KHP-MO 14 DTR2	KHP-MO 16 DTR2
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-10.00	-10.00	-10.00	-10.00	-10.00
	P _{dh} (declared heating capacity)	[kW]	11.47	12.52	10.74	11.47	12.52
	COP _d (declared COP)	-	2.59	2.48	2.77	2.59	2.48
	WTOL (Heating water Operation Limit)	[°C]	60.00	60.00	60.00	60.00	60.00
(F) Tbivalent temperature	T _{blv}	[°C]	-7.00	-7.00	-7.00	-7.00	-7.00
	P _{dh} (declared heating capacity)	[kW]	12.14	13.45	10.61	12.14	13.45
	COP _d (declared COP)	-	2.79	2.72	2.88	2.79	2.72
Supplementary capacity at P _{design}	P _{sup} (@T _{designh} : -10°C)	[kW]	2.23	2.68	1.26	2.23	2.68
Part load conditions space heating average climate medium temperature application							
(A) condition (-7°C)	P _{dh} (declared heating capacity)	[kW]	10.68	11.52	10.24	10.68	11.52
	COP _d (declared COP)	-	2.01	1.99	2.01	2.01	1.99
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(B) condition (2°C)	P _{dh} (declared heating capacity)	[kW]	6.86	7.18	6.52	6.86	7.18
	COP _d (declared COP)	-	3.43	3.34	3.44	3.43	3.34
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(C) condition (7°C)	P _{dh} (declared heating capacity)	[kW]	4.63	4.67	4.36	4.63	4.67
	COP _d (declared COP)	-	4.66	4.61	4.59	4.66	4.61
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(D) condition (12°C)	P _{dh} (declared heating capacity)	[kW]	3.31	3.32	3.29	3.31	3.32
	COP _d (declared COP)	-	6.13	6.07	6.05	6.13	6.07
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-10.00	-10.00	-10.00	-10.00	-10.00
	P _{dh} (declared heating capacity)	[kW]	9.19	10.33	9.10	9.19	10.33
	COP _d (declared COP)	-	1.76	1.80	1.79	1.76	1.80
	WTOL (Heating water Operation Limit)	[°C]	60.00	60.00	60.00	60.00	60.00
(F) Tbivalent temperature	T _{blv}	[°C]	-7.00	-7.00	-7.00	-7.00	-7.00
	P _{dh} (declared heating capacity)	[kW]	10.68	11.52	10.27	10.68	11.52
	COP _d (declared COP)	-	2.01	1.99	2.01	2.01	1.99
Supplementary capacity at P _{design}	P _{sup} (@T _{designh} : -10°C)	[kW]	2.91	2.67	2.50	2.91	2.67

Product fiche 3

Heat pump space heater		Model	KHP-MO 14 DVR2	KHP-MO 16 DVR2	KHP-MO 12 DTR2	KHP-MO 14 DTR2	KHP-MO 16 DTR2
Colder climate (Design temperature = -22°C)							
Space heating 35°C	Prated (declared heating capacity) @ -22°C	[kW]	12.6	13.7	11.4	12.6	13.7
	Seasonal space heating efficiency (η_s)	[%]	159.6	157.8	160.2	159.6	157.8
	Annual energy consumption	[kWh]	7,667	8,431	6,871	7,667	8,431
Space heating 55°C	Prated (declared heating capacity) @ -22°C	[kW]	11.0	11.8	10.3	11.0	11.8
	Seasonal space heating efficiency (η_s)	[%]	118.9	121.8	117.7	118.9	121.8
	Annual energy consumption	[kWh]	8,866	9,309	8,420	8,867	9,310
Part load conditions space heating colder climate low temperature application							
(A) condition (-7°C)	P _{dh} (declared heating capacity)	[kW]	7.96	8.31	7.05	7.96	8.31
	COP _d (declared COP)	-	3.44	3.37	3.48	3.44	3.37
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(B) condition (2°C)	P _{dh} (declared heating capacity)	[kW]	5.05	5.26	4.67	5.05	5.26
	COP _d (declared COP)	-	4.92	4.86	4.96	4.92	4.86
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(C) condition (7°C)	P _{dh} (declared heating capacity)	[kW]	3.15	3.62	3.14	3.15	3.62
	COP _d (declared COP)	-	6.11	6.49	6.10	6.11	6.49
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(D) condition (12°C)	P _{dh} (declared heating capacity)	[kW]	3.57	3.34	3.57	3.57	3.34
	COP _d (declared COP)	-	7.82	7.40	7.87	7.82	7.40
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90
(E) Tol (temperature operating limit)	T _{ol} (temperature operating limit)	[°C]	-22.00	-22.00	-22.00	-22.00	-22.00
	P _{dh} (declared heating capacity)	[kW]	7.57	8.88	7.01	7.57	8.88
	COP _d (declared COP)	-	1.92	1.97	1.98	1.92	1.97
	WTOL (Heating water Operation Limit)	[°C]	51.00	51.00	51.00	51.00	51.00
(F) Tivalent temperature	T _{blv}	[°C]	-15.00	-15.00	-15.00	-15.00	-15.00
	P _{dh} (declared heating capacity)	[kW]	10.31	11.22	9.28	10.31	11.22
	COP _d (declared COP)	-	2.53	2.43	2.59	2.53	2.43
Supplementary capacity at P _{design}	P _{sup} (@T _{designh} : -22°C)	[kW]	5.03	4.82	4.40	5.03	4.82

Product fiche 4

Heat pump space heater			Model	KHP-MO 14 DVR2	KHP-MO 16 DVR2	KHP-MO 12 DTR2	KHP-MO 14 DTR2	KHP-MO 16 DTR2
Part load conditions space heating colder climate medium temperature application								
(A) condition (-7°C)	P _{dh} (declared heating capacity)	[kW]	6.89	7.64	6.63	6.89	7.64	
	COP _d (declared COP)	-	2.66	2.65	2.63	2.66	2.65	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(B) condition (2°C)	P _{dh} (declared heating capacity)	[kW]	4.32	4.42	4.06	4.32	4.42	
	COP _d (declared COP)	-	3.66	3.79	3.60	3.66	3.79	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(C) condition (7°C)	P _{dh} (declared heating capacity)	[kW]	3.06	2.97	2.78	3.06	2.97	
	COP _d (declared COP)	-	4.72	4.81	4.54	4.72	4.81	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(D) condition (12°C)	P _{dh} (declared heating capacity)	[kW]	3.33	3.43	3.33	3.33	3.43	
	COP _d (declared COP)	-	6.25	6.29	6.25	6.25	6.29	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(E) Tol (temperature operating limit)	T _{ol} (temperature operating limit)	[°C]	-22.00	-22.00	-22.00	-22.00	-22.00	
	P _{dh} (declared heating capacity)	[kW]	4.20	5.21	4.19	4.20	5.21	
	COP _d (declared COP)	-	1.13	1.23	1.13	1.13	1.23	
	WTOL (Heating water Operation Limit)	[°C]	51.00	51.00	51.00	51.00	51.00	
(F) Tbivalent temperature	T _{blv}	[°C]	-15.00	-15.00	-15.00	-15.00	-15.00	
	P _{dh} (declared heating capacity)	[kW]	8.94	9.61	8.41	8.94	9.61	
	COP _d (declared COP)	-	1.79	1.86	1.84	1.79	1.86	
Supplementary capacity at P _{design}	P _{sup} (@T _{designh} : -22°C)	[kW]	6.76	6.59	6.12	6.76	6.59	
Warmer climate (Design temperature = 2°C)								
Space heating 35°C	P _{rated} (declared heating capacity) @ 2°C	[kW]	12.1	13.1	11.1	12.1	13.1	
	Seasonal space heating efficiency (η _s)	[%]	260.3	248.5	255.6	259.8	248.1	
	Annual energy consumption	[kWh]	2,457	2,781	2,296	2,462	2,786	
Space heating 55°C	P _{rated} (declared heating capacity) @ 2°C	[kW]	13.7	13.8	12.5	13.7	13.8	
	Seasonal space heating efficiency (η _s)	[%]	176.5	176.1	173.8	176.4	175.9	
	Annual energy consumption	[kWh]	4,088	4,112	3,780	4,092	4,116	

Product fiche 5

Heat pump space heater			Model	KHP-MO 14 DVR2	KHP-MO 16 DVR2	KHP-MO 12 DTR2	KHP-MO 14 DTR2	KHP-MO 16 DTR2
Part load conditions space heating warmer climate low temperature application								
(B) condition (2°C)	P _{dh} (declared heating capacity)	[kW]	12.04	13.10	11.26	12.04	13.10	
	COP _d (declared COP)	-	3.44	3.35	3.59	3.44	3.35	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(C) condition (7°C)	P _{dh} (declared heating capacity)	[kW]	7.78	8.41	7.14	7.78	8.41	
	COP _d (declared COP)	-	5.84	5.36	5.87	5.84	5.36	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(D) condition (12°C)	P _{dh} (declared heating capacity)	[kW]	3.75	3.87	3.55	3.75	3.87	
	COP _d (declared COP)	-	8.25	8.11	7.94	8.25	8.11	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(E) Tol (temperature operating limit)	T _{ol} (temperature operating limit)	[°C]	2.00	2.00	2.00	2.00	2.00	
	P _{dh} (declared heating capacity)	[kW]	12.04	13.10	11.26	12.04	13.10	
	COP _d (declared COP)	-	3.44	3.35	3.59	3.44	3.35	
	WTOL (Heating water Operation Limit)	[°C]	62.00	62.00	62.00	62.00	62.00	
(F) Tbivalent temperature	T _{blv}	[°C]	7.00	7.00	7.00	7.00	7.00	
	P _{dh} (declared heating capacity)	[kW]	7.78	8.41	7.14	7.78	8.41	
	COP _d (declared COP)	-	5.84	5.36	5.87	5.84	5.36	
Supplementary capacity at P _{design}	P _{sup} (@T _{designh} : 2°C)	[kW]	0.00	0.00	0.00	0.00	0.00	
Part load conditions space heating warmer climate medium temperature application								
(B) condition (2°C)	P _{dh} (declared heating capacity)	[kW]	13.04	13.38	12.07	13.04	13.38	
	COP _d (declared COP)	-	2.20	2.29	2.31	2.20	2.29	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(C) condition (7°C)	P _{dh} (declared heating capacity)	[kW]	8.83	8.86	8.04	8.83	8.86	
	COP _d (declared COP)	-	3.91	3.84	3.86	3.91	3.84	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	
(D) condition (12°C)	P _{dh} (declared heating capacity)	[kW]	4.08	4.06	3.75	4.08	4.06	
	COP _d (declared COP)	-	5.90	5.86	5.70	5.90	5.86	
	C _{dh} (degradation coefficient)	-	0.90	0.90	0.90	0.90	0.90	

Product fiche 6

Heat pump space heater		Model	KHP-MO 14 DVR2	KHP-MO 16 DVR2	KHP-MO 12 DTR2	KHP-MO 14 DTR2	KHP-MO 16 DTR2
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	2.00	2.00	2.00	2.00	2.00
	P _{dh} (declared heating capacity)	[kW]	13.04	13.38	12.07	13.04	13.38
	COP _d (declared COP)	-	2.20	2.29	2.31	2.20	2.29
	WTOL (Heating water Operation Limit)	[°C]	62.00	62.00	62.00	62.00	62.00
(F) T _{bivalent} temperature	T _{blv}	[°C]	7.00	7.00	7.00	7.00	7.00
	P _{dh} (declared heating capacity)	[kW]	8.83	8.86	8.04	8.83	8.86
	COP _d (declared COP)	-	3.91	3.84	3.86	3.91	3.84
Supplementary capacity at P _{design}	P _{sup} (@T _{designh} : 2°C)	[kW]	0.66	0.42	0.43	0.66	0.42
0							
Product description	Air-to-water heat pump	Y/N	Yes	Yes	Yes	Yes	Yes
	Water-to-water heat pump	Y/N	No	No	No	No	No
	Brine-to-water heat pump	Y/N	No	No	No	No	No
	Low-temperature heat pump	Y/N	No	No	No	No	No
	Equipped with a supplementary heater	Y/N	Yes	Yes	Yes	Yes	Yes
	Heat pump combination heater	Y/N	No	No	No	No	No
Air to water unit	Rated airflow	[m³/h]	4060	4650	4060	4060	4650
Brine/water to water unit	Rated water/brine flow (outdoor H/E)		/	/	/	/	/
Other	Capacity control	-	Inverter	Inverter	Inverter	Inverter	Inverter
	P _{off} (Power consumption Off mode)	[kW]	0.014	0.014	0.02	0.02	0.02
	P _{to} (Power consumption Thermostat off mode)	[kW]	0.024	0.024	0.030	0.030	0.030
	P _{sb} (Power consumption Standby mode)	[kW]	0.014	0.014	0.02	0.02	0.02
	P _{CK} (Power crankcase heater model)	[kW]	0.000	0.000	0.000	0.000	0.000
	Q _{elec} (Daily electricity consumption)	[kWh]	/	/	/	/	/
	Q _{fuel} (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):	KHP-MO 16 DTR2
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
Declared climate condition:	AVERAGE

Parameters are declared for medium-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit	
Rated heat output (*)	Prated	13.0	kW	Seasonal space heating energy efficiency	η_s	133.2	%	
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	11.52	kW	Tj = -7°C	COPd	1.99	-	
Tj = 2°C	Pdh	7.18	kW	Tj = 2°C	COPd	3.34	-	
Tj = 7°C	Pdh	4.67	kW	Tj = 7°C	COPd	4.61	-	
Tj = 12°C	Pdh	3.31	kW	Tj = 12°C	COPd	6.07	-	
Tj = bivalent temperature	Pdh	11.52	kW	Tj = bivalent temperature	COPd	1.99	-	
Tj = operating limit	Pdh	10.33	kW	Tj = operating limit	COPd	1.80	-	
For air-to-water heat pumps: Tj = -15°C	Pdh	-	kW	For air-to-water heat pumps: Tj = -15°C	COPd	-	-	
Bivalent temperature	Tbiv	-7	°C	For air-to-water heat pumps: Operation limit temperature	TOL	-10	°C	
Cycling interval capacity for heating	Pcyc	-	kW	Cycling interval efficiency	COPcyc	-	-	
Degradation co-efficient (**)	Cdh	0.9	--	Heating water operating limit temperature	WTOL	60	°C	
Power consumption in modes other than active mode				Supplementary heater				
Off mode	Poff	0.020	kW	Rated heat output (**)	Psup	2.67	kW	
Standby mode	Psb	0.020	kW					
Thermostat-off mode	Pto	0.030	kW	Type of energy input	Electrical			
Crankcase heater mode	Pck	0.000	kW					

Other items							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4650	m³/h
Sound power level, indoors/outdoors	LWA	-68	dB	For water-or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m³/h
Annual energy consumption	QHE	7896	kWh				

For heat pump combination heater:							
Declared load profile	-			Water heating energy efficiency	η_{wh}	-	%
Daily electricity consumption	Qelec	-	kWh	Daily fuel consumption	Qfuel	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

Contact details

FRIGICOLL SA
C/ BLASCO DE GARAY , 4-6 08960 SANT JUST DESVERN 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):	KHP-MO 16 DTR2
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
Declared climate condition:	COLDER
Parameters are declared for medium-temperature application.	

Item	Symbol	Value	Unit
Rated heat output (*)	Prated	11.8	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7 °C	Pdh	7.64	kW
Tj = 2 °C	Pdh	4.42	kW
Tj = 7 °C	Pdh	2.97	kW
Tj = 12 °C	Pdh	3.43	kW
Tj = bivalent temperature	Pdh	9.61	kW
Tj = operating limit	Pdh	5.21	kW
For air-to-water heat pumps: Tj = -15 °C	Pdh	-	kW
Bivalent temperature	Tbiv	-15	°C
Cycling interval capacity for heating	Pcych	-	kW
Degradation co-efficient (**)	Cdh	0.9	--
Power consumption in modes other than active mode			
Off mode	Poff	0.020	kW
Standby mode	Psb	0.020	kW
Thermostat-off mode	Pto	0.030	kW
Crankcase heater mode	Pck	0.000	kW

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η s	121.8	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = -7 °C	COPd	2.65	-
Tj = 2 °C	COPd	3.79	-
Tj = 7 °C	COPd	4.81	-
Tj = 12 °C	COPd	6.29	-
Tj = bivalent temperature	COPd	1.86	-
Tj = operating limit	COPd	1.23	-
For air-to-water heat pumps: Tj = -15 °C	COPd	-	-
For air-to-water heat pumps: Operation limit temperature	TOL	-22	°C
Cycling interval efficiency	COPcyc	-	-
Heating water operating limit temperature	WTOL	51	°C
Supplementary heater			
Rated heat output (**)	Psup	6.59	kW
Type of energy input	Electrical		

Other items							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4650	m³/h
Sound power level, indoors/outdoors	LWA	-	dB	For water-or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m³/h
Annual energy consumption	QHE	9310	kWh				

For heat pump combination heater:							
Declared load profile	-			Water heating energy efficiency	η_{wh}	-	%
Daily electricity consumption	Qdec	-	kWh	Daily fuel consumption	Qfuel	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

Contact details	FRIGICOLL SA C/ BLASCO DE GARAY, 4-6 08960 SANT JUST DESVERN 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):	KHP-MO 16 DTR2
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
Declared climate condition:	WARMER

Parameters are declared for medium-temperature application.

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	Prated	13.8	kW	Seasonal space heating energy efficiency	η_s	175.9	%
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	-	kW	Tj = -7°C	COPd	-	-
Tj = 2°C	Pdh	13.38	kW	Tj = 2°C	COPd	2.29	-
Tj = 7°C	Pdh	8.86	kW	Tj = 7°C	COPd	3.84	-
Tj = 12°C	Pdh	4.06	kW	Tj = 12°C	COPd	5.86	-
Tj = bivalent temperature	Pdh	8.86	kW	Tj = bivalent temperature	COPd	3.84	-
Tj = operating limit	Pdh	13.38	kW	Tj = operating limit	COPd	2.29	-
For air-to-water heat pumps: Tj = -15°C	Pdh	-	kW	For air-to-water heat pumps: Tj = -15°C	COPd	-	-
Bivalent temperature	Tbiv	7	°C	For air-to-water heat pumps: Operation limit temperature	TOL	2	°C
Cycling interval capacity for heating	Pcyc	-	kW	Cycling interval efficiency	COPcyc	-	-
Degradation co-efficient (**)	Cdh	0.9	--	Heating water operating limit temperature	WTOL	62	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	Poff	0.014	kW	Rated heat output (**)	Psup	0.42	kW
Standby mode	Psb	0.014	kW				
Thermostat-off mode	Pto	0.029	kW	Type of energy input		Electrical	
Crankcase heater mode	Pck	0.000	kW				

Other items							
Capacity control	variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	4650	m³/h
Sound power level, indoors/outdoors	LWA	-	dB	For water-or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	-	m³/h
Annual energy consumption	QHE	4116	kWh				

For heat pump combination heater:

Declared load profile	-			Water heating energy efficiency	η_{wh}	-	%
Daily electricity consumption	Qelec	-	kWh	Daily fuel consumption	Qfuel	-	kWh
Annual electricity consumption	AEC	-	kWh	Annual fuel consumption	AFC	-	GJ

Contact details

FRIGICOLL SA
C/ BLASCO DE GARAY, 4-6 08960 SANT JUST DESVERN 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.

Information requirements for comfort chillers

Model(s):				KHP-MO 16 DTR2			
Outdoor side heat exchanger of chiller:				Air to water			
Indoor side heat exchanger chiller:				Water			
Type:				Compressor driven vapour compression			
Driver of compressor:				Electric motor			
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	14.3	kW	Seasonal space cooling energy efficiency	$\eta_{s,c}$	183.6	%
Declared cooling capacity for part load at given outdoor temperature T_j				Declared energy efficiency ratio for part load at given outdoor temperature T_j			
$T_j=+35^{\circ}\text{C}$	P_{dc}	14.31	kW	$T_j=+35^{\circ}\text{C}$	EER_d	2.47	-
$T_j=+30^{\circ}\text{C}$	P_{dc}	10.68	kW	$T_j=+30^{\circ}\text{C}$	EER_d	3.63	-
$T_j=+25^{\circ}\text{C}$	P_{dc}	6.76	kW	$T_j=+25^{\circ}\text{C}$	EER_d	5.27	-
$T_j=+20^{\circ}\text{C}$	P_{dc}	3.41	kW	$T_j=+20^{\circ}\text{C}$	EER_d	7.29	-
Degradation co-efficient for chillers (*)	C_{dc}	0.9	-				
Power consumption in modes other than "active mode"							
Off mode	P_{OFF}	0.020	kW	Crankcase heater mode	P_{CK}	0.000	kW
Thermosat-off mode	P_{TO}	0.010	kW	Standby mode	P_{SB}	0.020	kW
Other items							
Capacity control	variable			For air-to-water comfort chillers: air flow rate, outdoor measured	-	4650	m^3/h
Sound power level, indoors / outdoors	L_{WA}	-/69	dB	For water / brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger	-	-	m^3/h
Emissions of nitrogen oxides (if applicable)	$\text{NO}_x(**)$	-	mg/kWh input GCV				
GWP of the refrigerant	-	675	kg CO_2 eq (100years)				
Standard rating conditions used		Low temperature application					
Contact details		FRIGICOLL SA C/ BLASCO DE GARAY , 4-6 08960 SANT JUST DESVERN BARCELONA SPAIN					

(*) If C_{dc} is not determined by measurement then the default degradation coefficient of chillers shall be 0,9.
(**) From 26 September 2018.

Information requirements for comfort chillers

Model(s):				KHP-MO 16 DTR2			
Outdoor side heat exchanger of chiller:				Air to water			
Indoor side heat exchanger chiller:				Water			
Type:				Compressor driven vapour compression			
Driver of compressor:				Electric motor			
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	15.4	kW	Seasonal space cooling energy efficiency	$\eta_{s,c}$	265.3	%
Declared cooling capacity for part load at given outdoor temperature T_j				Declared energy efficiency ratio for part load at given outdoor temperature T_j			
$T_j=+35^{\circ}\text{C}$	P_{dc}	15.40	kW	$T_j=+35^{\circ}\text{C}$	EER_d	3.50	-
$T_j=+30^{\circ}\text{C}$	P_{dc}	11.42	kW	$T_j=+30^{\circ}\text{C}$	EER_d	5.14	-
$T_j=+25^{\circ}\text{C}$	P_{dc}	7.27	kW	$T_j=+25^{\circ}\text{C}$	EER_d	7.83	-
$T_j=+20^{\circ}\text{C}$	P_{dc}	3.40	kW	$T_j=+20^{\circ}\text{C}$	EER_d	10.35	-
Degradation co-efficient for chillers (*)	C_{dc}	0.9	-				
Power consumption in modes other than "active mode"							
Off mode	P_{OFF}	0.020	kW	Crankcase heater mode	P_{CK}	0.000	kW
Thermosat-off mode	P_{TO}	0.010	kW	Standby mode	P_{SB}	0.020	kW
Other items							
Capacity control	variable			For air-to-water comfort chillers: air flow rate, outdoor measured	-	4650	m^3/h
Sound power level, indoors / outdoors	L_{WA}	-/69	dB	For water / brine-to-water chillers: Rated brine or water flow rate, outdoor side heat exchanger	-	-	m^3/h
Emissions of nitrogen oxides (if applicable)	$\text{NO}_x(**)$	-	mg/kWh input GCV				
GWP of the refrigerant	-	675	kg CO_2 eq (100years)				
Standard rating conditions used		Medium temperature application					
Contact details		FRIGICOLL SA C/ BLASCO DE GARAY , 4-6 08960 SANT JUST DESVERN BARCELONA SPAIN					

(*) If C_{dc} is not determined by measurement then the default degradation coefficient of chillers shall be 0,9.
(**) From 26 September 2018.