

HEAT PUMPS R407C FOR LOW AMBIENT TEMPERATURES

AIR COOLED HEAT PUMPS

WITH SCROLL COMPRESSORS AND AXIAL FANS



PAE 51.K.LT



PAE 141.K.LT + MV

PAE... K.LT Series

1 refrigerant circuit - cooling capacities from 4 to 16 kW

Heat pumps suitable for small and medium size air conditioning systems for both cooling and heating

Designed for external installation

Axial fans

Coated with pre-painted zinc steel plates

1 cooling circuit

Operating conditions from +15 °C to +45 °C for standard models

Winter operation down to -15°C

The following versions are available:

PAE...M K.LT single phase standard version

PAE... K.LT three phase standard version

Made up of:

High efficiency scroll compressor of last generation suitable for heat pumps requiring high performances at low ambient temperatures and outlet water temperature of 50°, with low sound level, internal heat protection, installed on rubber vibration dampers, supplied with oil sump heater when necessary.

Heat-exchange external coil with high-efficiency aluminium fins, designed for optimization of defrosting and copper pipe designed for cooling fluids.

Low rpm axial fans directly coupled provided with heat protection, low sound level blades with wing profile, safety protection grid and provided with modulating pressure control.

Weld-brazed plate evaporator with heat insulation, antifreeze heater and differential water flow switch.

Electric panel, in compliance with CE norms, supplied with a main switch with magneto-thermic protection.

The cooling circuit is composed of: 4-way valve for refrigerant circuit reverse, thermostatic expansion valve, dehydrating filter, sight glass, safety device, antifreeze thermostat, high and low pressure switches.

Unit management microprocessor for all models.

Defrost system completely controlled by microprocessor according to time/temperature logic.

Compressors hour counter.

Accessories

AE	Electrical power supply different from standard
GP	Condensing coil protection grid
HG	Hot gas by-pass
IH	RS 485 serial interface
IM	Seawood packing
MF	Phase monitor
MT	High and low pressure gauges
MV	Buffer tank/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valves
P1	Pump group/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valve
P1H	High head pump group/expansion vessel/safety valve/water gauge/water charge and discharge valves/air discharge valve
PA	Rubber-type vibration dampers
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PQ	Remote microprocessor
RL	Compressors overload relays
RM	Epoxy coating of condensing coil for sea environment
RR	Condensing coils with copper/copper fins
RV	Personalized RAL paint
VS	Solenoid valve

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PAE... K.LT Technical data

MODEL	PAE...	51M	61M	71M	81M	51	61	71	81	91	111	141	
Heating capacity 1)	kW	5,9	7,2	7,7	9,7	5,8	7,1	7,7	9,6	11,4	13,9	16,4	
Heating capacity 4)	kW	4,5	5,6	5,9	7,5	4,5	5,5	5,9	7,4	8,8	10,7	12,6	
Absorbed power	kW	2,15	2,4	2,6	3,2	2,0	2,3	2,5	3,1	3,8	4,4	5,2	
C.O.P	kW/kW	2,09	2,30	2,29	2,35	2,26	2,35	2,34	2,38	2,34	2,42	2,42	
Cooling capacity 5)	kW	5,0	6,3	7,1	8,7	5,0	6,3	7,0	8,9	10,4	12,9	15,0	
Absorbed power	kW	1,9	2,3	2,4	3,1	1,8	2,2	2,3	2,8	3,3	4,1	4,8	
C.O.P	kW/kW	2,7	2,7	3,0	2,8	2,7	2,9	3,0	3,1	3,1	3,1	3,1	
Axial fans													
Quantity	n	2	2	2	2	2	2	2	2	2	3	3	
Rotation speed	rpm	900	900	900	900	900	900	900	900	860	860	860	
Motors power	kW	0,29	0,29	0,74	0,74	0,29	0,29	0,74	0,74	1,26	1,90	1,90	
Total air flow	l/s	2083	1861	3111	2833	2083	1861	3111	2833	4445	5917	5917	
Total air flow	m³/h	7499	6700	11200	10199	7499	6700	11200	10199	16002	21301	21301	
Nominal absorbed current	A	1,3	1,3	3,4	3,4	1,3	1,3	3,4	3,4	6,0	9,0	9,0	
Sound pressure level 2)	dB(A)	57	57	63	65	57	58	64	64	70	72	72	
Brazed plate evaporator													
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	
Water flow rate 5)	l/s	0,24	0,30	0,34	0,42	0,24	0,30	0,33	0,43	0,50	0,62	0,72	
Water flow rate 5)	m³/h	0,86	1,08	1,22	1,50	0,86	1,08	1,20	1,53	1,79	2,22	2,58	
Pressure drop 5)	kPa	31	34	33	35	31	34	33	35	37	39	40	
Compressors													
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	
Circuits	n	1	1	1	1	1	1	1	1	1	1	1	
Standard steps capacity	%	0-100											
Nominal absorbed current 2)	A	10	12	12	15	4	4	5	6	6	8	9	
Maximum absorbed current	A	15	17	19	24	5	6	7	9	10	14	18	
Inrush current	A	58	74	76	97	26	32	40	46	52	64	74	
Dimensions													
Length	mm	1100	1100	1600	1600	1100	1100	1600	1600	2000	2130	2130	
Width	mm	750	750	750	750	750	750	750	750	850	1100	1100	
Height	mm	1100	1100	1260	1260	1100	1100	1260	1260	1650	1760	1760	
Transport weight 3)	kg	195	195	327	327	195	195	327	327	400	607	618	
Functioning weight with MV	kg	225	225	407	407	225	225	407	407	589	801	810	
Electrical data													
Total absorbed power	kW	2	3	3	4	2	3	3	4	5	6	7	
Total nominal absorbed current	A	11	13	16	19	5	5	8	9	12	17	18	
Maximum absorbed current	A	16	18	22	27	6	7	10	12	16	23	27	
Total inrush current	A	59	75	79	100	27	33	43	49	58	73	83	
[PAE... K.LT.PS]													
Water pump motor power	kW	0,08	0,08	0,18	0,18	0,08	0,08	0,18	0,18	0,18	0,18	0,18	
Available pressure	kPa	61	55	57	55	61	55	57	55	50	65	56	
Absorbed current	A	0,15	0,15	0,34	0,34	0,15	0,15	0,34	0,34	0,34	0,34	0,34	
Water pump motor power - P1H	kW	0,18	0,18	0,55	0,55	0,18	0,18	0,55	0,55	0,55	0,55	0,55	
Available pressure	kPa	135	127	124	118	135	127	124	118	117	175	166	
Absorbed current	A	0,34	0,34	1,05	1,05	0,34	0,34	1,05	1,05	1,05	1,05	1,05	
Buffer tank water volume	l	30	30	80	80	30	30	80	80	180	180	180	
Power supply		230 V/50 Hz / 1Ph + N + T						400 V/50 Hz / 3Ph + N + T					

1) Winter work mode: air 7°C - warmed water 45/50 °C

2) Measured at 1 m in open field (ISO 3746)

3) Oil and refrigerant charge included

4) Winter work mode: air -5°C - warmed water 45/50 °C

5) Summer operation: air 35 °C - chilled water 7/12 °C

PAE...K.LT SERIES

OPERATION LIMITS AND CORRECTION FACTORS

CORRECTION FACTOR FOR COOLING CAPACITY R407C

		External air temperature °C									
		25	28	30	32	35	38	40	42	45	48
Water evaporator outlet °C	15	1,475	1,433	1,404	1,376	1,333	1,289	1,260	1,226	1,175	1,137
	14	1,428	1,388	1,360	1,333	1,291	1,249	1,221	1,187	1,137	1,099
	13	1,382	1,343	1,317	1,290	1,250	1,209	1,182	1,148	1,099	1,062
	12	1,336	1,298	1,273	1,247	1,208	1,169	1,142	1,110	1,060	1,024
	11	1,290	1,253	1,229	1,204	1,166	1,128	1,103	1,071	1,022	0,987
	10	1,243	1,028	1,185	1,161	1,125	1,088	1,064	1,032	0,984	0,949
	9	1,197	1,163	1,141	1,118	1,087	1,048	1,025	0,993	0,946	0,912
	8	1,151	1,118	1,097	1,075	1,041	1,008	0,985	0,954	0,907	0,874
	7	1,105	1,073	1,053	1,032	1	0,968	0,946	0,915	0,869	0,837
	6	1,058	1,027	1,007	0,986	0,956	0,925	0,904	0,873	0,827	0,800
	5	1,011	0,981	0,961	0,941	0,911	0,882	0,862	0,831	0,785	0,763

CORRECTION FACTOR FOR ABSORBED CAPACITY R407C

		External air temperature °C									
		25	28	30	32	35	38	40	42	45	48
Water evaporator outlet °C	15	0,933	0,981	1,013	1,046	1,100	1,155	1,192	1,232	1,292	1,345
	14	0,920	0,968	1,001	1,033	1,088	1,143	1,179	1,219	1,279	1,335
	13	0,906	0,955	0,988	1,020	1,075	1,130	1,167	1,207	1,267	1,324
	12	0,893	0,942	0,975	1,008	1,063	1,118	1,154	1,194	1,255	1,314
	11	0,880	0,929	0,962	0,995	1,050	1,105	1,142	1,182	1,242	1,304
	10	0,867	0,916	0,949	0,982	1,037	1,093	1,129	1,170	1,230	1,294
	9	0,854	0,903	0,936	0,970	1,025	1,080	1,117	1,157	1,218	1,283
	8	0,840	0,890	0,924	0,957	1,012	1,067	1,104	1,145	1,206	1,273
	7	0,827	0,877	0,911	0,944	1	1,055	1,092	1,132	1,193	1,263
	6	0,823	0,872	0,904	0,937	0,987	1,037	1,071	1,110	1,169	1,232
	5	0,819	0,866	0,898	0,929	0,974	1,020	1,050	1,088	1,145	1,201

If the machine runs with evaporator water outlet temperature below 5 °C it is absolutely necessary to use a mixture of water and glycol in the percentages listed in the table showed at the relevant section of the present catalogue.

Emicon AC SpA disclaims all responsibilities in case of damages deriving from violation of this instructions.

For further clarifications or informations, you are kindly request to contact our sales department.

N.B.

The listed coefficients are mean values referred to different units, so the performances calculated by the tables could be different up to 5% from the data for a specific unit.

CORRECTION FACTOR FOR HEATING CAPACITY R407C

		External air temperature °C					
		-15	-10	-5	0	5	10
Water evaporator outlet °C	45	0,765	0,882	1,034	1,202	1,286	1,412
	50	0,740	0,854	1	1,163	1,244	1,366
	55	0,739	0,840	0,966	1,109	1,176	1,286
	60	/	0,824	0,965	1,059	1,126	1,218

CORRECTION FACTOR FOR ABSORBED CAPACITY R407C

		External air temperature °C					
		-15	-10	-5	0	5	10
Water evaporator outlet °C	45	0,840	0,880	0,910	0,950	0,960	0,990
	50	0,930	0,970	1	1,040	1,050	1,080
	55	1,040	1,080	1,110	1,150	1,160	1,180
	60	/	1,210	1,120	1,270	1,290	1,310

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