

HEAT PUMPS R407C

AIR COOLED HEAT PUMPS

WITH SCROLL COMPRESSORS AND AXIAL FANS



PAE 1482 K

PAE... Series

2 refrigerant circuits - cooling capacities from 75 to 255 kW

Heat pumps suitable for various environments: blocks of flats, offices, shops and factories, etc. etc.

Designed for external installation realized in a strong and compact housing coated with treated and painted zinc steel plate

Axial fans

2 cooling circuits

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

Winter operation down to -4°C

The following versions are also available

PAE...K version with axial fans and ecological gas R407C

PAE...S K silenced version with ecological gas R407C

PAE...U K ultra-silenced version with ecological gas R407C

Made up of:

High-efficiency scroll compressors (COP 3.37 under ARI conditions), with low sound level (on average 6dB (A) less than the hermetic compressors), internal heat protection, installed on rubber vibration dampers, supplied with oil sump heater when necessary.

Heat-exchange external coil with high-efficiency aluminium fins and copper pipes designed for cooling fluids; independent circuits.

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

Weld-brazed plate heat exchanger with heat insulation.

Electric panel, in compliance with CE norms, supplied with a main switch and both overload and short circuit protections at each electrical components.

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.

The available water accessories, like pump and buffer tank, are installed inside the unit including electric control device of the pump.

Compressors hour counter.

Accessories

A	Amperometer
AE	Electrical power supply different from standard
BT	Low temperature operation (-20 °C) with modulating fan speed regulation (for summer working operation only)
CF	Soundproofed compressors cabinet with standard material
CFU	Soundproofed compressors cabinet with lead material
CI	Soundproofing jackets on compressors
CS	Compressors inrush counter
GP	Condensing coil protection grid
I1	Victaulic insulation on pump side
I2	Victaulic insulation on buffer tank side
IG	Watch card
IH	RS 485 serial interface
IM	Seawood packing
MF	Phase monitor
MP	Oversized microprocessor
MT	Low and high 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
PT	Twin-pump group/expansion vessel/safety valve /water gauge/water charge and discharge valves/air discharge valve
PA	Rubber-type vibration dampers
PF	Safety water flow switch on evaporator
PM	Spring-type vibration dampers
PQ	Remote microprocessor
RA	Anti-freeze heater on evaporator
RF	Power factor correction system cosfi > 0,9
RL	Compressors overload relays
RM	Epoxy coating of condensing coil for sea environment
RP	Partial heat recovery
RR	Condensing coil with copper/copper fins
RT	Total heat recovery (it is necessary to order option BT)
RV	Personalized RAL paint
V	Voltmeter
VS	Solenoid valve

PAE... Technical data

MODEL	PAE...K	752	892	982	1062	1332	1352	1482	1622	1922	1972	2292	2542	2702	2962
Cooling capacity	kW	77,9	90,9	100,9	108,8	136,8	138,2	152,1	166,8	197,7	198,5	235,7	261,7	271,9	294,6
Absorbed power	kW	27,5	29,8	36,9	36,4	45,1	42,8	55,7	55,8	67,8	74,2	82,8	91	100,4	116,4
Heating capacity	kW	101	116	132	139	174	173	199	213	255	266	305	338	357	394
Absorbed power in heating	kW	25,9	28,0	34,7	34,2	42,4	40,2	52,4	52,4	63,7	69,7	77,8	85,5	94,4	109,4
Axial fans															
Quantity	n	2	2	2	2	3	3	3	3	4	4	4	5	5	5
Rotation speed	rpm	880	880	880	880	880	880	880	880	880	880	880	880	880	880
Motors power	kW	4	4	4	4	6	6	6	6	8	8	8	10	10	10
Total air flow	l/s	11.900	10.800	10.800	10.000	16.400	16.400	16.400	15.000	22.200	22.200	20.600	27.600	25.700	25.700
Total air flow	m ³ /h	42.840	38.880	38.880	36.000	59.040	59.040	59.040	54.000	79.920	79.920	74.160	99.360	92.520	92.520
Nominal absorbed current	A	8	8	8	8	12	12	12	12	16	16	16	20	20	20
Sound pressure level 2)	dB(A)	72	73	73	75	77	77	77	78	79	79	80	80	80	80
Evaporator 3)															
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Water flow rate	l/s	3,7	4,3	4,8	5,2	6,5	6,6	7,3	8,0	9,4	9,5	11,3	12,5	13,0	14,1
Water flow rate	m ³ /h	13,4	15,6	17,4	18,7	23,5	23,8	26,2	28,7	34,0	34,1	40,5	45,0	46,8	50,7
Pressure drop	kPa	38	38	36	41	40	40	36	43	48	39	48	58	61	65
	l	5	6	7	7	9	9	11	11	12	15	16	16	16	16
Pumps															
Available pressure with P1	kPa	143	131	116	95	147	153	137	110	140	145	130	113	103	95
Motor power with P1	kW	1,1	1,1	1,1	1,1	1,9	1,9	1,9	1,9	3,0	3,0	3,0	4,0	4,0	4,0
Available pressure with P1H	kPa	188	186	176	165	198	197	192	180	185	195	180	198	193	187
Motor power with P1H	kW	1,9	1,9	1,9	1,9	3,0	3,0	3,0	3,0	4,0	4,0	4,0	7,5	7,5	7,5
Available pressure with PT	kPa	148	146	141	130	118	117	112	95	129	135	115	98	93	84
Motor power with PT	kW	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	3,0	3,0	3,0	4	4,0	4,0
Buffer tank water volume	l	300	300	300	300	300	300	300	300	750	750	750	750	750	750
Scroll compressors															
Quantity	n	2	4	4	2	4	2	4	2	6	4	4	4	4	4
Circuits	n	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Standard steps capacity	n	2	4	4	2	4	2	4	2	4	4	4	4	4	4
Optional steps capacity	n	-	-	-	-	-	-	-	-	6	-	-	-	-	-
Nominal absorbed current	A	49	55	67	62	78	73	98	95	115	125	139	153	171	198
Heating nominal absorbed current	A	47	53	65	59	75	70	94	91	110	120	134	147	165	190
Maximum absorbed current	A	70	80	116	100	116	138	140	180	162	200	238	276	228	248
Inrush current	A	210	190	217	265	237	339	280	490	302	365	439	477	486	506
Electrical data															
Total absorbed power	kW	31,5	33,8	40,9	40,4	51,1	48,8	61,7	61,8	75,8	82,2	90,8	101,0	110,4	126,4
Total nominal absorbed current	A	57	63	75	70	90	85	110	107	131	141	155	173	191	218
Total maximum absorbed current	A	78	88	124	108	128	150	152	192	178	216	254	296	248	268
Total inrush current	A	218	198	225	273	249	351	292	502	318	381	455	497	506	526
Dimensions															
Length	mm	2.715	2.715	2.715	2.715	3.740	3.740	3.740	3.740	4.765	4.765	4.765	5.790	5.790	5.790
Width	mm	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370
Height	mm	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140
Weight	kg	1.251	1.448	1.455	1.484	1.865	1.775	1.923	1.937	2.726	2.651	2.725	2.968	3.383	3.529
Weight with empty MV included	kg	1.361	1.558	1.565	1.594	1.975	1.885	2.033	2.047	2.946	2.871	2.945	3.188	3.603	3.749
Weight in operation	kg	1.256	1.454	1.462	1.491	1.874	1.784	1.934	1.948	2.451	2.666	2.741	2.984	3.113	3.197
Weight in operation with MV	kg	1.666	1.864	1.872	1.901	2.281	2.194	2.344	2.358	3.421	3.636	3.711	3.954	4.083	4.167
Refrigerant charge for each circuit	kg	17	21	21	24	26	26	27	32	41	42	49	48	58	58
Power supply 400V/50Hz/3 Ph+T+N															

- = not available

Nominal conditions referred to:

Summer work mode: air 35 °C - chilled water 7/12 °C

Winter work mode: air 10 °C - warmed water 40/45 °C

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

Notes: Option B1 allows summer operation of units (therefore with chilled water production) with external temperature lower than 15 °C

3) P = Brazed plate; FT = Shell & tube

HEAT PUMPS R407C

AIR COOLED HEAT PUMPS

WITH SCROLL COMPRESSORS AND AXIAL FANS

PAE...S Technical data

MODEL	PAE...SK	752	892	982	1062	1332	1352	1482	1622	1922	1972	2292	2542
Cooling capacity	kW	74,5	86,7	99,9	103,8	130,4	132,5	150,6	159,3	188,5	207,0	229,3	261,7
Absorbed power	kW	29,2	31,9	37,5	38,8	48,1	45,6	56,5	59,3	73,2	75,8	86,4	91,0
Heating capacity	kW	100	114	132	137	171	171	199	210	252	264	303	338
Absorbed power in heating	kW	27,5	29,9	35,2	36,5	45,2	42,9	53,1	55,7	68,8	71,3	81,2	85,5
Axial fans													
Quantity	n	2	2	2	2	3	3	3	3	4	4	5	5
Rotation speed	rpm	660	660	660	660	660	660	660	660	660	660	660	660
Motors power	kW	2,5	2,5	2,5	2,5	3,75	3,75	3,75	3,75	5	5	6,25	6,25
Total air flow	l/s	9.100	8.200	7.600	7.600	12.300	12.300	11.300	11.300	16.400	15.200	20.600	19.000
Total air flow	m ³ /h	32.760	29.520	27.360	27.360	44.280	44.280	40.680	40.680	59.040	54.720	74.160	68.400
Nominal absorbed current	A	5	5	5	5	7	7	7	7	9	9	12	12
Sound pressure level 2)	dB(A)	69	69	69	72	73	73	73	74	74	76	76	76
Evaporator 3)													
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1
Water flow rate	l/s	3,56	4,14	4,77	4,96	6,23	6,33	7,20	7,61	9,01	9,89	10,96	12,50
Water flow rate	m ³ /h	12,81	14,91	17,18	17,85	22,43	22,79	25,90	27,40	32,42	35,60	39,44	45,01
Pressure drop	kPa	35	35	36	38	36	37	36	40	44	38	46	58
	l	5	6	7	7	9	9	11	11	12	15	16	16
Pumps													
Available pressure with P1	kPa	152	140	122	109	157	151	133	119	147	151	132	113
Motor power with P1	kW	1,1	1,1	1,1	1,1	1,85	1,85	1,85	1,85	3,00	3,0	3,0	4,0
Available pressure with P1H	kPa	192	195	180	174	212	206	198	189	197	201	182	203
Motor power with P1H	kW	1,85	1,85	1,85	1,85	3,0	3,0	3,0	3,0	4,0	4,0	4,0	7,5
Available pressure with PT	kPa	152	150	142	134	132	126	118	109	142	141	117	103
Motor power with PT	kW	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	3,0	3,0	3,0	4,0
Buffer tank water volume	l	300	300	300	300	300	300	300	300	750	750	750	750
Scroll compressors													
Quantity	n	2	4	4	2	4	2	4	2	6	4	4	4
Circuits	n	2	2	2	2	2	2	2	2	2	2	2	2
Standard steps capacity	n	2	4	4	2	4	2	4	2	4	4	4	4
Optional steps capacity	n	-	-	-	-	-	-	-	-	6	-	-	-
Nominal absorbed current	A	51	58	68	65	83	77	99	99	121	127	144	153
Heating nominal absorbed current	A	49	56	65	62	79	74	95	95	116	122	138	147
Maximum absorbed current	A	70	80	116	100	114	136	140	180	162	198	236	273
Inrush current	A	210	190	217	265	235	337	280	490	302	363	437	475
Electrical data													
Total absorbed power	kW	31,7	34,4	40,0	41,3	51,9	49,4	60,3	63,1	78,2	80,8	92,7	97,3
Total nominal absorbed current	A	56	63	73	69	89	84	106	106	130	136	156	165
Total maximum absorbed current	A	75	85	121	105	121	143	147	187	171	207	247	285
Total inrush current	A	215	195	222	270	242	344	287	497	311	372	448	486
Dimensions													
Length	mm	2.715	2.715	2.715	2.715	2.715	2.715	3.740	3.740	4.765	3.740	4.765	4.765
Width	mm	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370
Height	mm	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140
Weight	kg	1.251	1.448	1.503	1.484	1.865	1.775	1.976	1.937	3.290	2.718	2.968	3.053
Weight with empty MV included	kg	1.361	1.558	1.565	1.594	1.975	1.885	2.033	2.047	3.510	2.871	2.945	3.188
Weight in operation	kg	1.256	1.454	1.510	1.491	1.874	1.784	1.987	1.948	2.451	2.733	2.984	3.069
Wight in operation with MV	kg	1.666	1.864	1.920	1.901	2.284	2.194	2.397	2.357	3.421	3.703	3.954	4.039
Refrigerant charge for each circuit	kg	17	21	24	24	26	26	32	32	41	49	48	56
Power supply		400V / 50Hz / 3 Ph + T + N											

- = not available

Nominal conditions referred to:

Summer work mode: air 35 °C - chilled water 7/12 °C

Winter work mode: air 10 °C - warmed water 40/45 °C

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

Notes: Option BT allows summer operation of units (therefore with chilled water production) with external temperature lower than 15 °C

3) P = Brazed plate

PAE...U Technical data

MODEL	PAE...UK	752	892	982	1062	1332	1352	1482	1622	1922	1972	2292
Cooling capacity	kW	76,9	85,4	97,7	109,7	128,6	133,7	153,2	164,8	193,6	204,6	229,3
Absorbed power	kW	28,0	32,5	38,6	37,6	48,9	50,0	55,2	61,8	70,2	81,0	93,2
Heating capacity	kW	101	113	131	141	170	176	200	217	253	274	310
Absorbed power in heating	kW	26,3	30,6	36,2	35,3	46,0	47,0	51,9	58,1	66,0	76,1	87,6
Axial fans												
Quantity	n	2	2	3	3	3	3	4	4	5	5	5
Rotation speed	rpm	530	530	530	530	530	530	530	530	530	530	530
Motors power	kW	1,50	1,54	2,31	2,31	2,31	2,31	3,08	3,08	3,9	3,85	3,85
Total air flow	l/s	6.670	6.110	10.800	10.000	9.170	9.170	13.300	13.300	16.700	16.700	15.300
Total air flow	m ³ /h	24.000	22.000	38.880	36.000	33.000	33.000	47.880	47.880	60.120	60.120	55.080
Nominal absorbed current	A	3	3	5	5	5	5	6	6	8	8	8
Sound pressure level 2)	dB(A)	66	66	66	68	68	68	69	70	70	72	72
Evaporator 3)												
Quantity	n	1	1	1	1	1	1	1	1	1	1	1
Water flow rate	l/s	3,7	4,1	4,7	5,2	6,1	6,4	7,3	7,9	9,2	9,8	11,0
Water flow rate	m ³ /h	13,2	14,7	16,8	18,9	22,1	23,0	26,4	28,3	33,3	35,2	39,4
Pressure drop	kPa	37	34	34	42	35	38	37	42	46	40	46
	l	5	6	7	7	9	9	11	11	12	15	16
Pumps												
Available pressure with P1	kPa	149	149	130	115	162	158	133	121	145	132	113
Motor power with P1	kW	1,10	1,10	1,10	1,10	1,85	1,85	1,85	1,85	3,00	3,0	3,0
Available pressure with P1H	kPa	189	194	185	180	209	208	193	184	190	182	203
Motor power with P1H	kW	1,85	1,85	1,85	1,85	3,0	3,0	3,0	3,0	4,0	4,0	4,0
Available pressure with PT	kPa	149	154	145	138	134	133	118	109	135	117	103
Motor power with PT	kW	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	3,0	3,0	3,0
Buffer tank water volume	l	300	300	300	300	300	300	750	750	750	750	750
Scroll compressors												
Quantity	n	2	4	4	2	4	2	4	2	6	4	4
Circuits	n	2	2	2	2	2	2	2	2	2	2	2
Standard steps capacity	n	2	4	4	2	4	2	4	2	4	4	4
Optional steps capacity	n	-	-	-	-	-	-	-	-	6	-	-
Nominal absorbed current	A	49,2	58,8	69,4	67,0	83,7	87,8	97,4	109,0	118	141,0	162,0
Heating nominal absorbed current	A	47	56	67	64	80	84	94	104	113	136	156
Maximum absorbed current	A	70	80	117	101	117	139	140	180	163	201	239
Inrush current	A	210	190	218	266	238	340	280	490	303	366	440
Electrical data												
Total absorbed power	kW	31,0	35,5	43,1	42,1	53,4	54,5	61,2	67,8	77,7	88,5	100,7
Total nominal absorbed current	A	52	62	74	72	88	92	103	115	126	149	170
Total maximum absorbed current	A	73	83	121	105	121	143	146	186	170	208	246
Total inrush current	A	213	193	222	270	242	344	286	496	310	373	447
Dimensions												
Length	mm	2.715	2.715	3.740	3.740	3.740	3.740	4.765	4.765	5.790	5.790	5.790
Width	mm	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370	1.370
Height	mm	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140	2.140
Weight	kg	1.276	1.487	1.706	1.745	1.904	1.813	2.314	2.275	3.533	2.937	3.029
Weight with empty MV included	kg	1.386	1.597	1.816	1.855	2.124	2.033	2.534	2.495	3.753	3.157	3.249
Weight in operation	kg	1.281	1.493	1.713	1.752	1.913	1.822	2.325	2.286	3.724	2.952	3.045
Weight in operation with MV	kg	1.691	1.903	2.123	2.162	2.883	2.792	3.295	3.256	4.694	3.922	4.015
Refrigerant charge for each circuit	kg	20	24	21	26	32	32	41	41	47	47	56
Power supply	400V/50Hz/3 Ph+T+N											

- = not available

Nominal conditions referred to:

Summer work mode: air 35 °C - chilled water 7/12 °C

Winter work mode: air 10 °C - warmed water 40/45 °C

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

Notes: Option B1 allows summer operation of units (therefore with chilled water production) with external temperature lower than 15 °C

3) P = Brazed plate