

# HEAT PUMPS R407C – R22

## AIR COOLED HEAT PUMPS

### WITH SCROLL COMPRESSORS AND AXIAL FANS



PAE 482 K + MV + PT

### PAE... Series

2 refrigerant circuits - cooling capacities from 47 to 82 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

2 cooling circuits

Summer 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 ecological gas R407C

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

**PAE...** standard version

**PAE...U** ultra silenced version

### 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 valves, 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

AE	Electrical power supply different from standard
BT	Low temperature operation (-20 °C) with modulating fan speed regulation (for summer working operation only)
CS	Compressors inrush counter
GP	Condensing coil protection grid
IH	RS 485 serial interface
IM	Seawood packing
MF	Phase monitor
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
PQ	Remote microprocessor
RA	Anti-freeze heater on evaporator
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
SC	Soundproofed compressors housing (included on ultra-silenced version)
VB	Brine version (water temperature < 0 °C)
VS	Solenoid valve

## PAE... Technical data

MODEL	PAE...	482	562	702	822
Cooling capacity with R407C	kW	45,9	53,0	65,9	77,3
Absorbed power with R407C	kW	16,1	18,9	22,9	29,7
Heating capacity with R407C	kW	56,00	65,00	81,00	97,00
Absorbed power in heating with R407C	kW	16,90	19,80	24,00	31,20
Cooling capacity with R22	kW	48,2	55,7	69,2	81,1
Absorbed power with R22	kW	15,2	17,9	21,6	28,0
Heating capacity with R22	kW	58,8	68,3	85,1	101,9
Absorbed power in heating with R22	kW	16,00	18,80	22,70	29,40
<b>Axial fans</b>					
Quantity	n	3	3	3	3
Rotation speed	rpm	860	860	860	860
Motors power	kW	1,9	1,9	1,9	1,9
Total air flow	l/s	7.000	7.000	5.916	5.916
Total air flow	m <sup>3</sup> /h	25.200	25.200	21.300	21.300
Nominal absorbed current	A	9	9	9	9
Sound pressure level 2)	dB(A)	73	73	73	73
<b>Evaporator 3)</b>					
Quantity	n	2	2	2	2
Water flow rate with R407C	l/s	2,2	2,5	3,1	3,7
Water flow rate with R407C	m <sup>3</sup> /h	7,9	9,1	11,3	13,3
Pressure drop with R407C	kPa	45	44	45	63
Water flow rate with R22	l/s	2,31	2,67	3,31	3,86
Water flow rate with R22	m <sup>3</sup> /h	8,3	9,6	11,9	13,9
Pressure drop with R22	kPa	44	46	45	62
<b>Pumps</b>					
Available pressure with P1	kPa	137	130	122	108
Motor power with P1	kW	0,75	0,75	0,75	0,75
Available pressure with P1H	kPa	187	185	172	158
Motor power with P1H	kW	1,1	1,1	1,1	1,1
Available pressure with PT	kPa	137	140	137	166
Motor power with PT	kW	1,5	1,5	1,5	1,5
Buffer tank water volume	l	180	180	180	180
<b>Scroll compressors</b>					
Quantity	n	2	2	2	2
Circuits	n	2	2	2	2
Standard steps capacity	n	G2	G2	G2	G2
Optional steps capacity	n	–	–	–	–
Nominal absorbed current	A	29	35	38	49
Maximum absorbed current	A	49	67	79	79
Inrush current	A	159	168	219	235
Total absorbed power with R407C	kW	18,8	21,6	25,6	32,4
Total absorbed power with R22	kW	17,8	20,5	24,3	30,7
<b>Dimensions</b>					
Length	mm	2.130	2.130	2.130	2.130
Length with MV included	mm	2.130	2.130	2.130	2.130
Width	mm	1.100	1.100	1.100	1.100
Width with MV included	mm	1.100	1.100	1.100	1.100
Height	mm	1.760	1.760	1.760	1.760
Height with MV included	mm	1.760	1.760	1.760	1.760
Weight	kg	607	611	682	693
Weight with empty MV included	kg	787	791	862	873
Refrigerant charge for each circuit	kg	6	6	12	12
<b>Power supply</b>		<b>400V/50Hz/3 Ph+T+N</b>			

– = 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) = Brazed plate

## PAE...U Technical data

MODEL	PAE...U	482	562	702
Cooling capacity with R407C	kW	42,4	51,3	60,7
Absorbed power with R407C	kW	17,2	18,5	21,0
Heating capacity with R407C	kW	56,00	65,00	76,00
Absorbed power in heating with R407C	kW	18,10	19,40	22,00
Cooling capacity with R22	kW	44,8	53,2	64,2
Absorbed power with R22	kW	15,1	16,6	21,4
Heating capacity with R22	kW	58,8	68,3	79,8
Absorbed power in heating with R22	kW	15,90	17,40	22,50
<b>Axial fans</b>				
Quantity	n	3	3	3
Rotation speed	rpm	650	650	650
Motors power	kW	0,9	0,9	0,9
Total air flow	l/s	4.917	3.944	3.944
Total air flow	m <sup>3</sup> /h	17.700	14.200	14.200
Nominal absorbed current	A	4,7	4,7	4,7
Sound pressure level 2)	dB(A)	64	64	64
<b>Evaporator 3)</b>				
Quantity	n	2	2	2
Water flow rate with R407C	l/s	2,03	2,44	2,89
Water flow rate with R407C	m <sup>3</sup> /h	7,3	8,8	10,4
Pressure drop with R407C	kPa	39	42	39
Water flow rate with R22	l/s	2,14	2,53	3,06
Water flow rate with R22	m <sup>3</sup> /h	7,7	9,1	11,0
Pressure drop with R22	kPa	38	42	40
<b>Pumps</b>				
Available pressure with P1	kPa	140	127	127
Motor power with P1	kW	0,75	0,75	0,75
Available pressure with P1H	kPa	190	177	172
Motor power with P1H	kW	1,1	1,1	1,1
Available pressure with PT	kPa	140	137	142
Motor power with PT	kW	1,5	1,5	1,5
Buffer tank water volume	l	180	180	180
<b>Scroll compressors</b>				
Quantity	n	2	2	2
Circuits	n	2	2	2
Standard steps capacity	n	G2	G2	G2
Optional steps capacity	n	–	–	–
Nominal absorbed current	A	30	33	40
Maximum absorbed current	A	49	67	79
Inrush current	A	159	168	219
Total absorbed power with R407C	kW	18,9	20,2	22,7
Total absorbed power with R22	kW	16,8	18,3	23,1
<b>Dimensions</b>				
Length	mm	2.130	2.130	2.130
Length with MV included	mm	2.130	2.130	2.130
Width	mm	1.100	1.100	1.100
Width with MV included	mm	1.100	1.100	1.100
Height	mm	1.760	1.760	1.760
Height with MV included	mm	1.760	1.760	1.760
Weight	kg	614	618	689
Weight with empty MV included	kg	794	798	869
Refrigerant charge for each circuit	kg	6	12	12
<b>Power supply</b>		<b>400V/50Hz/3 Ph+T+N</b>		

– = 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

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