

HEAT PUMPS R407C – R134A – R22

WATER COOLED HEAT PUMPS

WITH HOUSING AND SCROLL COMPRESSORS



PWE 111

PWE... Series

1 refrigerant circuit – cooling capacities from 5 to 90 kW

Packaged heat pumps suitable for cooling and heating plants in air conditioning systems and industrial premises

WARNING: units with inversion on water side (and not on refrigerant side) to be realized, on customer charge, during installation

Designed for internal installation

Realized with an housing in painted steel plates

1 refrigerant circuit

Available versions are the following:

PWE...K with ecological gas R407C

PWE...Ka with ecological gas R134a

PWE... standard version with R22

Made up of:

High efficiency Scroll compressors (COP 3,37 under ARI conditions) with low sound level (on average 6 dB (A) less than the corresponding hermetic compressors), with internal heat protection, mounted on dampers.

Units with bigger capacity are provided with two tandem compressors.

Weld-brazed plate evaporator with thermal insulation.

Weld-brazed plate condenser.

Electric panel in compliance with CE norms, supplied with protection fuses and safety transformer.

The cooling circuit is composed of: thermostatic expansion valve, sight glass, dehydrating filter, safety device, antifreeze safety device, high and low pressure switches.

Electronic microprocessor for the control on all units.

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

Compressors hour counter.

Accessories

AE	Electrical power supply different from standard
CL	Soundproofed compressors housing with standard material
CM	Soundproofed compressors housing with lead material
CS	Compressor inrush counter
HG	Hot gas by-pass
IH	Serial interface RS 485
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 valves
P1H	High head 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
RV	Personalized RAL paint
SN	Main switch
VP	Pressostatic valve

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PWE...K Technical data with refrigerant R407C

MODEL	PWE...	61 K	111 K	171K	201 K	221 K	251 K	301 K	381 K	461 K	501 K	571 K	751 K	901 K	
Cooling capacity 1)	kW	5,2	9,4	14,6	17,2	18,7	22,3	26,3	33,7	40,4	44,3	51,3	66,7	77,6	
Absorbed power	kW	1,5	2,7	3,6	4,3	5,7	6,7	7,9	10,4	12,6	13,9	15,9	21,0	24,8	
Heating capacity	kW	6,7	12,1	18,2	21,4	24,4	29,3	34,2	44,1	53,0	58,1	67,2	87,7	102,4	
Brazed plate evaporator															
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	
Circuits	n	1	1	1	1	1	1	1	1	1	1	1	1	1	
Water flow rate	l/s	0,25	0,44	0,69	0,83	0,89	1,06	1,25	1,61	1,94	2,11	2,44	3,19	3,72	
Water flow rate	m ³ /h	0,90	1,58	2,48	2,99	3,20	3,82	4,50	5,80	6,98	7,60	8,78	11,48	13,39	
Pressure drop	kPa	22	62	41	55	55	57	51	59	39	20	19	24	25	
Brazed plate condenser															
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	
Water flow rate	l/s	0,33	0,58	0,89	1,03	1,19	1,42	1,67	2,14	2,56	2,81	3,25	4,25	4,97	
Water flow rate	m ³ /h	1,19	2,09	3,20	3,71	4,28	5,11	6,01	7,70	9,22	10,12	11,70	15,30	17,89	
Pressure drop	kPa	20	24	30	36	37	43	44	47	68	18	21	19	20	
Pumps															
Available pressure with P1	kPa	64	43	58	79	72	64	94	85	76	85	67	49	37	
Motor power with P1	kW	0,18	0,18	0,55	0,55	0,55	0,55	0,75	0,75	0,75	0,55	0,55	0,55	0,55	
Available pressure with P1H	kPa	84	70	90	111	104	98	138	128	120	142	123	112	100	
Motor power with P1H	kW	0,18	0,18	0,75	0,75	0,75	0,75	1,1	1,1	1,1	0,75	0,75	0,75	0,75	
Buffer tank water volume	l	80	80	80	80	80	80	80	80	80	110	110	110	110	
Scroll compressors															
Quantity	n	1	1	1	1	1	1	1	1	1	2	2	2	2	
Standard steps capacity	%	1	1	1	1	1	1	1	1	1	1	1	1	1	
Nominal absorbed current	A	86,1	14,3	8,2	9,1	12,2	14,4	16,5	19,2	23,8	28,2	32,2	39,5	47,7	
Maximum absorbed current	A	11	19	10	11	17	19	29	35	35	40	50	70	70	
Inrush current	A	38	80	52	59	78	104	104	140	140	116	108	158	159	
Sound pressure level 2)	dB(A)	58	59	58	60	60	61	61	62	62	63	63	64	64	
Dimensions															
Length	mm	800	800	800	800	800	800	800	800	800	1.600	1.600	1.600	1.600	
Length with MV included	mm	800	800	800	800	800	800	800	800	800	1.600	1.600	1.600	1.600	
Width	mm	500	500	500	500	500	500	500	500	500	750	750	750	750	
Width with MV included	mm	500	500	500	500	500	500	500	500	500	750	750	750	750	
Height	mm	960	960	960	960	960	960	960	960	960	960	960	960	960	
Height with MV included	mm	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.340	1.340	1.340	1.340	
Transport weight 3)	kg	119	126	142	145	189	199	204	231	247	339	345	406	434	
Weight with empty MV included	kg	169	176	192	195	239	149	254	281	297	499	505	566	594	
Refrigerant charge	kg	2,4	2,5	2,8	2,9	4,5	4,7	5,6	6,4	8,1	12,1	13,4	17,1	19,6	
Power supply		230 V/50 Hz / 1Ph+N+T							400 V / 50 Hz / 3 Ph + T + N						

1) Nominal conditions referred to: chilled water 7/12 °C - Condensing water 40/45 °C

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

3) Oil and refrigerant charge included

PWE...Ka Technical data with refrigerant R134a

HEAT PUMPS R407C – R134A – R22

WATER COOLED HEAT PUMPS

WITH HOUSING AND SCROLL COMPRESSORS

PWE...Ka Technical data with refrigerant R134a

MODEL	PWE...	151 Ka	181 Ka	211 Ka	271 Ka	311 Ka	351 Ka	421 Ka	521 Ka	601 Ka
Cooling capacity 1)	kW	13,2	15,9	18,4	24,2	27,3	31,6	37,5	47,0	53,5
Absorbed power	kW	4,0	4,7	5,4	7,3	8,3	9,6	11,3	14,5	17,0
Heating capacity	kW	17,2	20,5	23,8	31,5	35,6	41,2	48,5	61,5	70,4
Brazed plate evaporator										
Quantity	n	1	1	1	1	1	1	1	1	1
Circuits	n	1	1	1	1	1	1	1	1	1
Water flow rate	l/s	0,64	0,75	0,89	1,14	1,31	1,50	1,78	2,25	2,56
Water flow rate	m ³ /h	2,30	2,70	3,20	4,10	4,70	5,40	6,40	8,10	9,20
Pressure drop	kPa	55	49	51	67	56	26	21	21	26
Brazed plate condenser										
Quantity	n	1	1	1	1	1	1	1	1	1
Water flow rate	l/s	0,83	1,00	1,14	1,53	1,72	2,00	2,36	2,97	3,42
Water flow rate	m ³ /h	3,00	3,60	4,10	5,50	6,20	7,20	8,50	10,70	12,30
Pressure drop	kPa	20	31	32	24	21	17	17	26	22
Pumps										
Available pressure with P1	kPa	72	87	75	71	110	111	110	96	92
Motor power with P1	kW	0,55	0,55	0,55	0,55	0,75	0,55	0,55	0,55	0,55
Available pressure with P1H	kPa	103	118	107	104	152	164	165	152	150
Motor power with P1H	kW	0,75	0,75	0,75	0,75	1,1	0,75	0,75	0,75	0,75
Buffer tank water volume	l	80	80	80	80	80	110	110	110	110
Scroll compressors										
Quantity	n	1	1	1	1	1	2	2	2	2
Standard steps capacity	%	1	1	1	1	1	1	1	1	1
Nominal absorbed current	A	9,6	11,0	12,6	15,3	17,5	22,3	25,8	29,5	35,6
Maximum absorbed current	A	17	19	29	35	35	40	50	70	70
Inrush current	A	78	104	104	140	140	114	106	153	156
Sound pressure level 2)	dB(A)	56	57	57	58	58	59	59	60	60
Dimensions										
Length	mm	800	800	800	800	800	1.600	1.600	1.600	1.600
Length with MV included	mm	800	800	800	800	800	1.600	1.600	1.600	1.600
Width	mm	500	500	500	500	500	750	750	750	750
Width with MV included	mm	500	500	500	500	500	750	750	750	750
Height	mm	960	960	960	960	960	960	960	960	960
Height with MV included	mm	1.430	1.430	1.430	1.430	1.430	1.340	1.340	1.340	1.340
Transport weight 3)	kg	175	185	193	212	227	315	312	368	389
Weight with empty MV included	kg	225	235	243	262	277	475	472	528	549
Refrigerant charge	kg	2	2	2	2	2	3	3	4	4
Power supply		400 V / 50 Hz / 3 Ph + T + N								

1) Nominal conditions referred to: chilled water 7/12 °C - Condensing water 40/45 °C

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

3) Oil and refrigerant charge included

PWE... Technical data with refrigerant R22

PWE... Technical data with refrigerant R22

MODEL	PWE...	61	111	161	191	221	271	311	391	461	521	601	771	901	
Cooling capacity 1)	kW	5,1	9,5	14,0	16,8	19,4	24,1	27,6	35,0	41,1	46,8	53,3	69,6	81,4	
Absorbed power	kW	1,4	2,5	3,8	4,6	6,0	7,2	8,2	10,7	12,6	14,5	17,3	21,8	25,1	
Heating capacity	kW	6,5	12,0	17,8	21,4	25,5	31,3	35,8	45,6	53,7	61,3	70,6	91,5	106,4	
Brazed plate evaporator															
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	
Circuits	n	1	1	1	1	1	1	1	1	1	1	1	1	1	
Water flow rate	l/s	0,25	0,44	0,67	0,81	0,92	1,14	1,31	1,67	1,97	2,44	2,53	3,31	3,89	
Water flow rate	m ³ /h	0,90	1,60	2,40	2,90	3,30	4,10	4,70	6,00	7,10	8,80	9,10	11,90	14,00	
Pressure drop	kPa	22	65	53	75	60	63	57	64	40	22	21	26	27	
Brazed plate condenser															
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	
Water flow rate	l/s	0,31	0,58	0,86	1,03	1,22	1,53	1,72	2,19	2,61	2,97	3,42	4,42	5,14	
Water flow rate	m ³ /h	1,10	2,10	3,10	3,70	4,40	5,50	6,20	7,90	9,40	10,70	12,30	15,90	18,50	
Pressure drop	kPa	20	25	21	32	38	44	45	46	63	20	23	21	21	
Pumps															
Available pressure with P1	kPa	66	44	64	80	64	70	93	83	85	104	98	74	57	
Motor power with P1	kW	0,18	0,18	0,55	0,55	0,55	0,55	0,75	0,75	0,75	0,55	0,55	0,55	0,55	
Available pressure with P1H	kPa	86	71	99	114	96	99	134	123	130	159	156	139	120	
Motor power with P1H	kW	0,18	0,18	0,75	0,75	0,75	0,75	1,1	1,1	1,1	0,75	0,75	0,75	0,75	
Buffer tank water volume	l	80	80	80	80	80	80	80	80	80	110	110	110	110	
Scroll compressors															
Quantity	n	1	1	1	1	1	1	1	1	1	2	2	2	2	
Standard steps capacity	%	1	1	1	1	1	1	1	1	1	1	1	1	1	
Nominal absorbed current	A	8	14	8	9	12	14	16	18	23	27	31	39	46	
Maximum absorbed current	A	11	19	10	11	17	19	29	35	35	40	50	70	70	
Inrush current	A	38	80	52	59	78	104	104	140	140	116	109	158	160	
Sound pressure level 2)	dB(A)	57	58	58	59	59	60	60	61	61	62	62	63	63	
Dimensions															
Length	mm	800	800	800	800	800	800	800	800	800	1.600	1.600	1.600	1.600	
Length with MV included	mm	800	800	800	800	800	800	800	800	800	1.600	1.600	1.600	1.600	
Width	mm	500	500	500	500	500	500	500	500	500	750	750	750	750	
Width with MV included	mm	500	500	500	500	500	500	500	500	500	750	750	750	750	
Height	mm	960	960	960	960	960	960	960	960	960	960	960	960	960	
Height with MV included	mm	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	
Transport weight 3)	kg	117	126	139	143	185	199	202	219	237	336	342	399	425	
Weight with empty MV included	kg	167	176	189	193	235	249	252	269	287	496	502	559	585	
Refrigerant charge	kg	2,4	2,5	2,8	2,9	4,5	4,7	5,6	6,4	8,1	12,1	13,4	17,1	19,6	
Power supply		230 V/50 Hz /1Ph+N+T							400 V / 50 Hz / 3 Ph + T + N						

1) Nominal conditions referred to: chilled water 7/12 °C - Condensing water 40/45 °C

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

3) Oil and refrigerant charge included