HEAT PUMPS R407C – R134A – R22

WATER COOLED HEAT PUMPS

WITH SCREW COMPRESSORS

PWH 411

PWH... Series

1-2-3 refrigerant circuits - cooling capacities from 74 to 2297 kW

The units of PWH series are suitable for water cooling and heating in industrial processes and air conditioning systems
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 in a compact housing with painted steel structure in which eat exchanges are integrated and where all other components are installed on it
One or two refrigerant circuit assembled with copper pipes or, for higher capacities, in carbon steel
Available versions:
PWH...K with ecological gas R407C
PWH...Ka with ecological gas R134a
PWH... standard version with R22

Made up of:

High efficiency screw compressors (semi-hermetic type) equipped with capacity steps, oil crankcase heater and motor thermal protection.
Shell & tube evaporator, single or double circuit with thermal insulation.
One or two shell & tube condensers (depending by refrigerant circuits).
Electric panel, in compliance with CE norms, supplied with main switch lock-door type and with protection fuses.
Components of every cooling circuit: thermostatic expansion valve, sight-glass, dehydrating filter, shut-off valve on liquid line, non return valve on compressors discharge, shut-off valve on compressors discharge, high and low pressure gauges, high and low pressure switches, high and low pressure safety valves, copper or carbon steel pipes (depending on unit's capacity).
EMIPLUS microprocessor on all units.
Compressors hour counter.

Accessories

A	Amperometer
AE	Electrical power supply different from the standard
CA	Condensers for seawater
CC	Insulated condensers
CF	Soundproofed compressors cabinet with standard material
CFU	Soundproofed compressors cabinet with lead material
CS	Compressor inrush counter
DQ	Additional box for connection of power supply cables
IE	Wooden crate packing
IG	Watch card
IH	Serial interface RS 485
IM	Seawood packing
IR	Packing with wooden pallet and transparent film
LI	Liquid injection
KS	Lifting kit
M12	Modulating control capacity regulation for unit with 2 circuits
M25	Modulating control capacity regulation for unit with 1 circuit
PA	Rubber-type vibration dampers
PF	Safety water flow switch on evaporator
PM	Spring-type vibration dampers
PQ	Remote microprocessor
PW	Part-Winding
RA	Anti-freeze heater on evaporator
RF	Power factor correction system cosfi > 0,9
RH	Shut-off valve on compressors suction side
RL	Compressors overload relays
RP	Partial heat recovery
RT	Total heat recovery
TC	Fish joints (Victaulic) and welding coupling for water connections at condensers
TE	Electronic thermostatic expansion valve
V	Voltmeter
VB	Brine version (water temperature < 0 °C)
VS	Solenoid valve

PWH…K Technical data with refrigerant R407C

MODEL	PWH…	131 K	161 K	191 K	211 K	241 K	301 K	341 K	391 K	531 K	611 K	691 K	731 K	831 K	252 K	312 K
Cooling capacity 1)	kW	100,1	125	146	169	193	242	278	319	419	477	546	625	701	208	250
Absorbed power 1)	kW	39	48,3	56,5	65,3	73,5	88,7	102	114	151	173	194	222	248	77,5	96,6
Heating capacity	kW	139	173	202	234	266	331	379	433	569	650	740	847	949	285	347
C.O.P	kW/kW	2,6	2,6	2,6	2,6	2,6	2,7	2,7	2,8	2,8	2,8	2,8	2,8	2,8	2,7	2,6
Shell and tube evaporator																
Quantity	n	1	1	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	2	2
Water flow rate 1)	l/s	4,78	5,97	6,98	8,07	9,22	11,56	13,28	15,24	20,02	22,79	26,09	29,86	33,49	9,94	11,94
Water flow rate 1)	m³/h	17,2	21,5	25,1	29,1	33,2	41,6	47,8	54,9	72,1	82,0	93,9	107,5	120,6	35,8	43,0
Pressure drop 1)	kPa	45	50	43	38	30	53	52	53	39	50	51	53	41	46	52
Shell and tube condenser																
Quantity	n	1	1	1	1	1	1	1	1	1	1	1			2	2
Water flow rate 1)	l/s	6,64	8,27	9,65	11,18	12,71	15,81	18,11	20,69	27,19	31,06	35,36	40,47	45,34	13,62	16,58
Water flow rate 1)	m³/h	23,9	29,8	34,7	40,2	45,8	56,9	65,2	74,5	97,9	111,8	127,3	145,7	163,2	49,0	59,7
Pressure drop 1)	kPa	71	75	74	76	77	67	70	67	71	71	68	73	69	60	69
Screw compressors																
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Standard steps capacity	n	3	3	3	3	3	3	3	3	3	3	3	3	3	6	6
Continuous control capacity (option)	%	0 - 25 ÷ 100													0 - 12 ÷ 100	
Nominal absorbed current 1)	A	67	82	95	109	119	147	170	190	239	283	315	359	399	133	163
Maximum absorbed current	A	86	108	128	144	162	180	216	246	330	370	420	450	450	172	216
Inrush current	A	411	508	485	585	686	801	943	1.023	1.442	1.853	2.029	2.520	2.520	497	616
Part-Winding inrush current (opt.)	A	218	269	290	350	423	520	612	665	–	–	–			304	377
Delta-Star inrush current (opt.)	A	–	–	–	–	–	–	–	–	465	586	650	805	805	–	–
Sound pressure level 2)	dB(A)	70	76	76	76	77	77	80	81	82	83	84	85	87	73	79
Dimensions																
Length	mm	2.430	2.430	2.430	2.430	2.430	3.310	3.310	3.340	3.700	3.700	3.700	3.700	3.700	3.750	3.750
Width	mm	800	800	800	850	850	800	800	850	1.300	1.300	1.300	1.300	1.300	750	750
Height	mm	1.525	1.525	1.525	1.610	1.610	1.525	1.525	1.610	1.900	1.900	1.900	1.900	1.900	1.790	1.790
Dimensions with CF/CFU																
Length	mm	2.430	2.430	2.430	2.430	2.430	3.310	3.310	3.340	3.700	3.700	3.700	3.700	3.700	3.750	3.750
Width	mm	800	800	800	850	850	800	800	850	1.300	1.300	1.300	1.300	1.300	750	750
Height	mm	1.525	1.525	1.525	1.610	1.610	1.525	1.525	1.610	1.900	1.900	1.900	1.900	1.900	1.790	1.790
Transport weight 3)	kg	909	926	1.168	1.265	1.288	1.688	1.716	1.900	3.464	3.503	3.696	3.898	3.979	1.828	1.838
Working weight	kg	974	993	1.237	1.340	1.365	1.819	1.849	2.040	3.724	3.774	3.978	4.304	4.401	2.005	2.020
Refrigerant charge for each circuit	kg	25	24	23	45	44	50	48	94	91	86	63	77	91	58	57
Power supply		400 V / 50 Hz / 3 Ph + T														

PWH…K Technical data with refrigerant R407C

MODEL	PWH…	372 K	422 K	472 K	592 K	672 K	772 K	1062 K	1222 K	1392 K	1462 K	1652 K	1933 K	2203 K	2493 K
Cooling capacity 1)	kW	294	339	390	483	552	639	835	960	1.093	1.231	1.404	1.647	1.858	2.098
Absorbed power 1)	kW	112	130	146	177	203	229	297	347	389	443	497	583	665	745
Heating capacity	kW	406	469	535	660	755	868	1.131	1.307	1.482	1.674	1.901	2.231	2.524	2.843
C.O.P	kW/kW	2,6	2,6	2,7	2,7	2,7	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8	2,8
Shell and tube evaporator															
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Circuits	n	2	2	2	2	2	2	2	2	2	2	2	3	3	3
Water flow rate 1)	l/s	14,05	16,20	18,63	23,08	26,37	30,53	39,89	45,87	52,22	58,81	67,08	78,69	88,77	100,24
Water flow rate 1)	m³/h	50,6	58,3	67,1	83,1	94,9	109,9	143,6	165,1	188,0	211,7	241,5	283,3	319,6	360,9
Pressure drop 1)	kPa	49	45	36	51	52	34	39	26	47	33	65	50	64	26
Shell and tube condenser															
Quantity	n	2	2	2	2	2	2	2	2	2	2	2	3	3	3
Water flow rate 1)	l/s	19,40	22,41	25,56	31,53	36,07	41,47	54,04	62,45	70,81	79,98	90,83	106,59	120,59	135,83
Water flow rate 1)	m³/h	69,8	80,7	92,0	113,5	129,9	149,3	194,5	224,8	254,9	287,9	327,0	383,7	434,1	489,0
Pressure drop 1)	kPa	62	69	65	67	69	68	61	72	68	71	69	69	72	69
Screw compressors															
Quantity	n	2	2	2	2	2	2	2	2	2	2	2	3	3	3
Standard steps capacity	n	6	6	6	6	6	6	6	6	6	6	6	9	9	9
Continuous control capacity (option)	%													0 - 8 ÷ 100	
Nominal absorbed current 1)	A	187	217	235	294	339	379	471	566	630	716	797	946	1.075	1.196
Maximum absorbed current	A	256	288	324	360	432	492	660	740	840	900	900	1.260	1.350	1.350
Inrush current	A	613	729	848	981	1.159	1.269	1.772	2.223	2.449	2.970	2.970	2.869	3.420	3.420
Part-Winding inrush current (opt.)	A	418	494	585	700	828	911	–	–	–	–	–	–	–	–
Delta-Star inrush current (opt.)	A	–	–	–	–	–	–	795	956	1.070	1.255	1.255	1.490	1.705	1.705
Sound pressure level 2)	dB(A)	79	79	80	80	83	84	85	86	87	88	90	89	90	92
Dimensions															
Length	mm	3.860	3.860	3.860	3.900	3.900	3.900	5.200	5.200	5.200	5.200	5.200	5.200	5.200	5.200
Width	mm	900	900	900	1.000	1.000	1.000	1.300	1.300	1.300	1.300	1.300	2.000	2.000	2.000
Height	mm	1.790	1.790	1.790	1.990	1.990	1.990	2.370	2.370	2.370	2.370	2.370	2.370	2.370	2.370
Dimensions with CF/CFU															
Length	mm	3.860	3.860	3.860	3.990	3.990	3.990	5.200	5.200	5.200	5.200	5.200	5.200	5.200	5.200
Width	mm	900	900	900	1.000	1.000	1.000	1.300	1.300	1.300	1.300	1.300	2.000	2.000	2.000
Height	mm	1.840	1.840	1.840	1.990	1.990	1.990	2.450	2.450	2.450	2.450	2.450	2.450	2.450	2.450
Transport weight 3)	kg	2.348	2.376	2.425	3.376	3.426	3.895	6.026	6.104	6.483	7.006	7.184	9.834	10.195	10.523
Working weight	kg	2.535	2.569	2.623	3.651	3.706	4.309	6.475	6.548	6.952	7.693	7.884	10.789	11.165	11.523
Refrigerant charge for each circuit	kg	55	54	52	50	48	96	87	86	63	73	90	69	80	95
Power supply		400 V / 50 Hz / 3 Ph + T													

– = not available
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

PWH…Ka Technical data with refrigerant R134a

MODEL	PWH…	91 Ka	111 Ka	131 Ka	151 Ka	171 Ka	211 Ka	241 Ka	271 Ka	321 Ka	361 Ka	421 Ka	481 Ka	541 Ka	621 Ka	182 Ka	222 Ka
Cooling capacity 1)	kW	74,5	92,4	109	129	142	168	184	239	267	303	353	409	459	506	150	184
Absorbed power 1)	kW	23,1	28,6	35,4	38,9	43,9	51,4	57,3	70,5	79	90	103	118	137	150	46,1	57,3
Heating capacity	kW	97,6	121	144	168	186	219	241	310	346	393	456	528	596	656	196	241
C.O.P	kW/kW	3,2	3,2	3,1	3,3	3,2	3,3	3,2	3,4	3,4	3,4	3,4	3,5	3,4	3,4	3,3	3,2
Shell and tube evaporator																	
Quantity	n	1	1	1	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	1	2	2
Water flow rate 1)	l/s	3,56	4,41	5,21	6,16	6,78	8,03	8,79	11,42	12,76	14,48	16,87	19,54	21,93	24,18	7,17	8,79
Water flow rate 1)	m^3/h	12,8	15,9	18,7	22,2	24,4	28,9	31,6	41,1	45,9	52,1	60,7	70,3	78,9	87,0	25,8	31,6
Pressure drop 1)	kPa	43	39,0	48	42	39	40	48	44	42	35	35	43	44	44	35	48
Shell and tube condenser																	
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Water flow rate 1)	l/s	4,66	5,78	6,88	8,03	8,89	10,46	11,51	14,81	16,53	18,78	21,79	25,23	28,48	31,34	9,36	11,51
Water flow rate 1)	m^3/h	16,8	20,8	24,8	28,9	32,0	37,7	41,5	53,3	59,5	67,6	78,4	90,8	102,5	112,8	33,7	41,5
Pressure drop 1)	kPa	20	23	25	27	27	22	20	20	26	27	26	25	25	24	15	23
Screw compressors																	
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Standard steps capacity	n	3	3	3	3	3	3	3	3	3	3	3	3	3	3	6	6
Continuous control capacity (option)	%	0 - 25 ÷ 100															
Nominal absorbed current 1)	A	43	50	61	69	77	88	95	120	136	154	170	189	227	247	85	101
Maximum absorbed current	A	56	65	79	98	124	144	162	182	215	231	280	310	310	360	112	130
Inrush current	A	305	338	355	449	485	585	686	801	943	1.023	1.364	1.442	1.853	2.029	361	403
Part-Winding inrush current (opt.)	A	153	169	206	267	290	350	423	520	612	665	–	–	–	–	209	234
Delta-Star inrush current (opt.)	A	–	–	–	–	–	–	–	–	–	–	436	465	586	650	–	–
Sound pressure level 2)	dB(A)	68	74	74	74	75	76	78	79	77	78	78	79	80	81	71	77
Dimensions																	
Length	mm	2.430	2.430	2.430	2.430	2.430	3.350	3.350	3.350	3.350	3.350	3.700	3.700	3.700	3.700	3.750	3.750
Width	mm	800	800	800	800	800	800	800	800	800	800	1.300	1.300	1.300	1.300	750	750
Height	mm	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.900	1.900	1.900	1.900	1.710	1.710
Dimensions with CF/CFU																	
Length	mm	2.430	2.430	2.430	2.430	2.430	3.350	3.350	3.350	3.350	3.350	3.700	3.700	3.700	3.700	3.750	3.750
Width	mm	800	800	800	800	800	850	850	850	850	850	1.300	1.300	1.300	1.300	750	750
Height	mm	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.900	1.900	1.900	1.900	1.710	1.710
Transport weight 3)	kg	674	683	1.113	1.187	1.197	1.254	1.264	1.707	1.732	1.755	3.239	3.268	3.453	3.505	1.255	1.261
Working weight	kg	725	733	1.164	1.288	1.299	1.329	1.342	1.863	1.882	1.903	3.453	3.481	3.792	3.841	1.334	1.337
Refrigerant charge for each circuit	kg	15	14	30	31	30	62	60	60	61	61	61	60	61	60	30	31
Power supply		400 V / 50 Hz / 3 Ph + T															

PWH…Ka Technical data with refrigerant R134a

MODEL	PWH…	252 Ka	292 Ka	332 Ka	412 Ka	472 Ka	542 Ka	642 Ka	732 Ka	842 Ka	972 Ka	1092 Ka	1232 Ka	1253 Ka	1453 Ka	1633 Ka	1793 Ka
Cooling capacity 1)	kW	218	259	284	331	367	481	535	603	701	814	920	1.009	1.057	1.233	1.369	1.502
Absorbed power 1)	kW	70,7	77,5	87,8	103,0	115,0	141,0	158	180	206	237	274	299	310	355	410	449
Heating capacity	kW	289	337	371	434	482	623	692	784	907	1.051	1.193	1.308	1.367	1.588	1.779	1.951
C.O.P	kW/kW	3,1	3,3	3,2	3,2	3,2	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,5	3,3	3,3
Shell and tube evaporator																	
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Circuits	n	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Water flow rate 1)	l/s	10,42	12,37	13,57	15,81	17,53	22,98	25,56	28,81	33,49	38,89	43,96	48,21	50,50	58,91	65,41	71,76
Water flow rate 1)	m^3/h	37,5	44,5	48,8	56,9	63,1	82,7	92,0	103,7	120,6	140,0	158,2	173,5	181,8	212,1	235,5	258,3
Pressure drop 1)	kPa	37	40	31	42	38	40	30	41	33	33	64	37	67	66	35	42
Shell and tube condenser																	
Quantity	n	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Water flow rate 1)	l/s	13,81	16,10	17,73	20,74	23,03	29,77	33,06	37,46	43,33	50,21	57,00	62,49	65,31	75,87	85,00	93,21
Water flow rate 1)	m^3/h	49,7	58,0	63,8	74,6	82,9	107,2	119,0	134,8	156,0	180,8	205,2	225,0	235,1	273,1	306,0	335,6
Pressure drop 1)	kPa	20	18	22	21	20	21	26	27	25	25	25	24	26	26	25	24
Screw compressors																	
Quantity	n	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Standard steps capacity	n	6	6	6	6	6	6	6	6	6	6	6	6	9	9	9	9
Continuous control capacity (option)	%													0 - 8 ÷ 100			
Nominal absorbed current 1)	A	122	137	153	176	189	239	272	307	339	378	455	493	509	568	682	740
Maximum absorbed current	A	158	196	248	288	324	364	430	462	560	620	620	720	840	930	930	1080
Inrush current	A	434	547	609	729	848	983	1.158	1.254	1.644	1.752	2.163	2.389	1924	2062	2473	2749
Part-Winding inrush current (opt.)	A	285	365	414	494	585	702	–	–	–	–	–	–	–	–	–	–
Delta-Star inrush current (opt.)	A	–	–	–	–	–	–	827	896	716	775	896	1.010	996	1.085	1.206	1.370
Sound pressure level 2)	dB(A)	77	77	78	78	81	82	80	81	81	82	83	84	86	87	88	89
Dimensions																	
Length	mm	3.860	3.860	3.860	3.860	3.860	3.900	3.900	3.900	5.200	5.200	5.200	5.200	5.200	5.200	5.200	5.200
Width	mm	900	900	900	900	900	1.000	1.000	1.000	1.300	1.300	1.300	1.300	2.000	2.000	2.000	2.000
Height	mm	1.790	1.790	1.790	1.790	1.790	1.990	1.990	1.990	2.370	2.370	2.370	2.370	2.370	2.370	2.370	2.370
Dimensions with CF/CFU																	
Length	mm	3.860	3.860	3.860	3.860	3.860	3.990	3.990	3.990	5.200	5.200	5.200	5.200	5.200	5.200	5.200	5.200
Width	mm	900	900	900	900	900	1.000	1.000	1.000	1.300	1.300	1.300	1.300	2.000	2.000	2.000	2.000
Height	mm	1.790	1.790	1.790	1.840	1.840	1.990	2.030	2.030	2.450	2.450	2.450	2.450	2.450	2.450	2.450	2.450
Transport weight 3)	kg	1.807	1.851	1.863	2.386	2.414	3.329	3.516	3.556	5.562	5.958	6.132	6.229	8.221	8.528	8.764	8.993
Working weight	kg	1.961	2.005	2.016	2.542	2.571	3.551	3.856	3.894	5.902	6.499	6.666	6.764	8.769	9.296	9.548	9.776
Refrigerant charge for each circuit	kg	30	29	29	61	60	60	62	61	60	59	59	58	59	64	62	61
Power supply		400 V / 50 Hz / 3 Ph + T															

– = not available
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

PWH… Technical data with refrigerant R22

MODEL	PWH…	131	161	191	221	251	311	361	411	551	641	731	811	911	262	322
Cooling capacity 1)	kW	112	140	165	187	216	268	309	356	463	533	611	682	767	223	279
Absorbed power 1)	kW	37,7	46,2	52,8	62,4	70,1	83,2	97,3	110	140	166	186	212	237	75,2	92,3
Heating capacity	kW	150	186	217	250	286	352	406	465	604	699	798	893	1.004	298	371
C.O.P	kW/kW	3,0	3,0	3,1	3,0	3,1	3,2	3,2	3,2	3,3	3,2	3,3	3,2	3,2	3,0	3,0
Shell and tube evaporator																
Quantity	n	1	1	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	2	2
Water flow rate 1)	l/s	5,35	6,69	7,88	8,93	10,3	12,8	14,8	17,0	22,1	25,5	29,2	32,6	36,6	10,7	13,3
Water flow rate 1)	m^3/h	19,3	24,1	28,4	32,2	37,2	46,1	53,1	61,2	79,6	91,7	105,1	117,3	131,9	38,4	48,0
Pressure drop 1)	kPa	19	20	26	29	24	17	19	24	35	33	46	33	52	69	47
Shell and tube condenser																
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Water flow rate 1)	l/s	7,17	8,89	10,4	11,9	13,7	16,8	19,4	22,2	28,9	33,4	38,1	42,7	48,0	14,2	17,7
Water flow rate 1)	m^3/h	25,8	32,0	37,3	43,0	49,2	60,5	69,8	80,0	103,9	120,2	137,3	153,6	172,7	51,3	63,8
Pressure drop 1)	kPa	27	27	26	26	26	26	24	27	29	27	29	28	28	21	22
Screw compressors																
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Standard steps capacity	n	3	3	3	3	3	3	3	3	3	3	3	3	3	6	6
Continuous control capacity (option)	%	0 - 25 ÷ 100														
Nominal absorbed current 1)	A	65	79	89,5	105	114	139	163	183	224	271	303	345	382	130	158
Maximum absorbed current	A	86	108	128	144	162	180	216	246	330	370	420	450	450	172	216
Inrush current	A	411	508	485	585	686	801	943	1023	1.442	1.853	2.029	2.520	2.520	497	616
Part-Winding inrush current (opt.)	A	218	269	290	350	423	520	612	665	–	–	–	–	–	304	377
Delta-Star inrush current (opt.)	A	–	–	–	–	–	–	–	–	465	586	650	805	805	–	–
Sound pressure level 2)	dB(A)	70	76	76	76	77	77	80	81	79	80	81	82	84	73	79
Dimensions																
Length	mm	2.430	2.430	2.430	2.430	2.430	3.350	3.350	3.350	3.700	3.700	3.700	3.700	3.700	3.750	3.750
Width	mm	800	800	800	800	800	800	800	800	1.300	1.300	1.300	1.300	1.300	750	750
Height	mm	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.525	1.900	1.900	1.900	1.900	1.900	1.710	1.710
Dimensions with CF/CFU																
Length	mm	2.430	2.430	2.430	2.430	2.430	3.350	3.350	3.350	3.700	3.700	3.700	3.700	3.700	3.750	3.750
Width	mm	800	800	800	800	800	850	850	850	1.300	1.300	1.300	1.300	1.300	750	750
Height	mm	1.530	1.530	1.530	1.530	1.530	1.525	1.525	1.525	1.900	1.900	1.900	1.900	1.900	1.710	1.710
Transport weight 3)	kg	900	914	1.204	1.220	1.242	1.707	1.742	1.765	3.273	3.417	3.446	3.675	3.730	1.288	1.367
Working weight	kg	953	967	1.308	1.328	1.349	1.863	1.897	1.918	3.489	3.761	3.787	4.019	4.074	1369	1526
Refrigerant charge for each circuit	kg	29	29	29	28	28	60	59	59	59	58	58	105	104	29	29
Power supply		400 V / 50 Hz / 3 Ph + T														

PWH… Technical data with refrigerant R22

MODEL	PWH…	382	442	502	622	702	812	1102	1282	1462	1632	1832	1903	2193	2433	2753
Cooling capacity 1)	kW	325	379	435	533	610	709	922	1.068	1.219	1.354	1.518	1.613	1.830	2.034	2.297
Absorbed power 1)	kW	106	125	140	166	194	220	281	332	373	423	474	498	559	635	711
Heating capacity	kW	430	503	575	700	805	928	1203	1399	1592	1777	1992	2111	2389	2669	3008
C.O.P	kW/kW	3,1	3,0	3,1	3,2	3,1	3,2	3,3	3,2	3,3	3,2	3,2	3,2	3,3	3,2	3,2
Shell and tube evaporator																
Quantity	n	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Circuits	n	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Water flow rate 1)	l/s	15,5	18,1	20,8	25,5	29,1	33,9	44,1	51,0	58,2	64,7	72,5	77,1	87,4	97,2	109,7
Water flow rate 1)	m^3/h	55,9	65,2	74,8	91,7	104,9	121,9	158,6	183,7	209,7	232,9	261,1	277,4	314,8	349,8	395,1
Pressure drop 1)	kPa	42	40	32	35	55	30	41	32	45	23	33	48	62	77	32
Shell and tube condenser																
Quantity	n	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Water flow rate 1)	l/s	20,5	24,0	27,5	33,4	38,5	44,3	57,5	66,8	76,1	84,9	95,2	100,9	114,1	127,5	143,7
Water flow rate 1)	m^3/h	74,0	86,5	98,9	120,4	138,5	159,6	206,9	240,6	273,8	305,6	342,6	363,1	410,9	459,1	517,4
Pressure drop 1)	kPa	29	22	22	26	24	27	29	27	29	27	27	28	29	28	28
Screw compressors																
Quantity	n	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3
Standard steps capacity	n	6	6	6	6	6	6	6	6	6	6	6	9	9	9	9
Continuous control capacity (option)	%												0 - 8 ÷ 100			
Nominal absorbed current 1)	A	180	209	227	279	326	366	448	543	606	689	764	815	909	1.034	1.146
Maximum absorbed current	A	256	288	324	360	432	492	660	740	840	900	900	1.110	1.260	1.350	1.350
Inrush current	A	613	729	848	981	1159	1269	1.772	2.223	2.449	2.970	2.970	2.593	2.869	3.420	3.420
Part-Winding inrush current (opt.)	A	418	494	585	700	828	911	–	–	–	–	–	–	–	–	–
Delta-Star inrush current (opt.)	A	–	–	–	–	–	–	795	956	1.070	1.255	1.255	1.326	1.490	1.705	1.705
Sound pressure level 2)	dB(A)	79	79	80	80	83	84	82	83	84	85	87	88	89	90	92
Dimensions																
Length	mm	3.860	3.860	3.860	3.900	3.900	3.900	5.200	5.200	5.200	5.200	5.200	5.200	5.200	5.200	5.200
Width	mm	900	900	900	1.000	1.000	1.000	1.300	1.300	1.300	1.300	1.300	2.000	2.000	2.000	2.000
Height	mm	1.790	1.790	1.790	1.990	1.990	2.030	2.370	2.370	2.370	2.370	2.370	2.370	2.370	2.370	2.370
Dimensions with CF/CFU																
Length	mm	3.860	3.860	3.860	3.990	3.990	3.990	5.200	5.200	5.200	5.200	5.200	5.200	5.200	5.200	5.200
Width	mm	900	900	900	1.000	1.000	1.000	1.300	1.300	1.300	1.300	1.300	2.000	2.000	2.000	2.000
Height	mm	1.790	1.790	1.840	1.990	1.990	2.030	2.450	2.450	2.450	2.450	2.450	2.450	2.450	2.450	2.450
Transport weight 3)	kg	1.863	1.904	2.545	3.322	3.371	3.519	5.968	6.060	6.110	6.562	6.664	8.656	8.720	9.481	9.768
Working weight	kg	2016	2063	2773	3549	3604	3867	6.514	6.604	6.656	7.119	7.227	9.455	9.535	10.310	10.587
Refrigerant charge for each circuit	kg	29	27	60	59	58	59	58	57	56	102	99	60	57	104	103
Power supply		400 V / 50 Hz / 3 Ph + T														

– = not available
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