

PAE N

HIGH EFFICIENCY AIR TO WATER HEAT PUMPS EQUIPPED WITH SCROLL COMPRESSOR AND AXIAL FANS WITH LOW GWP REFRIGERANT

Heating power from 78 kW to 1200 kW

R410A

R454B



Packaged air cooled heat pumps of PAE N Kc/Kr series are suitable for outdoor installation and can be used to cool and heat fluid solutions for air conditioning or in industrial applications. Multiscroll technology allows to reach great efficiency improvements at part load. All the units are totally factory assembled and tested, following specific quality procedures. Besides they are totally hydraulic, cooling and electrical connected permitting a quick installation once on site. Before the test the cooling circuits of each unit are subjected to a pressure test and then charged with Refrigerant R410A or R454B and non-freezing oil.

VERSIONS

- RP** With partial heat recovery.
- HE** High efficiency, EC fans.
- U** Ultra low noise.

TECHNICAL DATA

PAE N Kc		601	801	1001	1201	1401	1601	1801	1802	2002	2101	2302	2502	2802
Heating capacity (EN14511) ⁽¹⁾	kW	79,8	98,4	124,0	149,0	175,0	199,0	224,0	215,0	267,0	254,0	278,0	305,0	348,0
Total input power (EN14511) ⁽¹⁾	kW	19,5	24,8	30,8	37,0	44,2	49,6	54,6	57,4	72,8	62,4	69,5	78,5	91,9
Input current	A	41,1	48,4	60,2	69,2	82,6	91,3	99,6	112,0	121,0	114,0	131,0	145,0	169,0
COP (EN14511) ⁽¹⁾	W/W	4,09	3,97	4,03	4,03	3,96	4,01	4,10	3,75	3,67	4,07	4,00	3,89	3,79
SCOP	W/W	3,30	3,27	3,36	3,58	3,43	3,43	3,59	3,21	3,50	3,55	3,48	3,50	3,35
η _{s,h} ⁽²⁾	%	129	128	131	140	134	134	141	125	137	139	136	137	131
Cooling capacity (EN14511) ⁽³⁾	kW	69,1	85,8	103,0	126,0	145,0	173,0	188,0	183,0	206,0	213,0	234,0	252,0	295,0
Total input power (EN14511) ⁽³⁾	kW	22,7	30,4	35,9	44,1	50,8	59,6	66,4	63,3	67,5	72,1	77,2	86,6	103,0
Input current	A	44,4	55,6	65,8	77,5	90,0	104,0	115,0	118,0	122,0	126,0	138,0	153,0	182,0
EER	W/W	3,04	2,82	2,87	2,86	2,85	2,90	2,83	2,89	3,05	2,95	3,03	2,91	2,86
Sound power ⁽⁴⁾	dB(A)	83	86	86	88	89	90	90	88	90	91	90	90	91
Sound pressure ⁽⁵⁾	dB(A)	51	54	54	56	57	58	58	56	58	59	58	58	58
Power supply	V/ph/Hz	400/3/50												
Circuits	n°	1	1	1	1	1	1	1	2	2	1	1	1	1
Compressors	n°	2	2	2	2	2	2	2	4	4	2	2	2	2
Fans	n°	2	2	2	2	3	3	3	6	6	4	6	6	8
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	23	22	33	45	50	50	66	62	94	66	94	94	88
Global warming potential	GWP	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088
Equivalent CO ₂ charge	t	47	47	70	94	104	104	139	130	196	138	196	196	183
Frame		1	1	1	1	2	2	2	4	4	3	3	3	5
Transport weight	kg	977	1041	1117	1298	1432	1446	1725	1802	2066	1707	2018	2488	2641
Operating weight	kg	983	1047	1124	1305	1440	1455	1736	1814	2078	1719	2034	2505	2658

PAE N Kc		3202	3602	4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	11004
Heating capacity (EN14511) ⁽¹⁾	kW	393,0	438,0	481,0	585,0	628,0	674,0	723,0	805,4	869,4	960,4	1092,8	1171,4	1256,6
Total input power (EN14511) ⁽¹⁾	kW	104,0	111,0	123,0	146,0	161,0	174,0	192,0	206,6	222,2	248,2	267,8	288,2	322,4
Input current	A	188,0	201,0	221,0	265,0	289,0	311,0	326,0	378,0	399,2	440,8	501,6	532,0	572,6
COP (EN14511) ⁽¹⁾	W/W	3,78	3,95	3,91	4,01	3,90	3,87	3,77	3,90	3,91	3,87	4,08	4,06	3,90
SCOP	W/W	3,48	3,56	3,60	3,61	3,52	3,42	3,41	-	-	-	-	-	-
η _{s,h} ⁽²⁾	%	136	139	141	141	138	134	-	-	-	-	-	-	-
Cooling capacity (EN14511) ⁽³⁾	kW	336,0	382,0	427,0	497,0	555,0	600,0	646,0	701,1	765,6	852,4	951,2	1001,6	1114,0
Total input power (EN14511) ⁽³⁾	kW	113,0	131,0	144,0	172,0	189,0	205,0	220,0	234,2	260,4	288,4	322,4	341,0	376,0
Input current	A	197,0	227,0	249,0	299,0	325,0	353,0	368,0	420,0	451,2	496,8	554,3	594,4	648,0
EER	W/W	2,97	2,92	2,97	2,89	2,94	2,93	2,94	2,99	2,94	2,96	2,95	2,94	2,96
Sound power ⁽⁴⁾	dB(A)	90	92	94	92	94	94	96	93	93	96	95	95	96
Sound pressure ⁽⁵⁾	dB(A)	58	59	62	60	62	62	63	60	60	63	62	62	63
Power supply	V/ph/Hz	400/3/50												
Circuits	n°	1	1	1	1	2	2	1	4	4	4	4	4	4
Compressors	n°	2	2	2	2	4	4	2	8	8	8	12	12	12
Fans	n°	8	8	8	10	10	12	12	16	16	16	20	20	20
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	132	131	175	214	213	193	258	252	257	296	283	325	330
Global warming potential	GWP	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088
Equivalent CO ₂ charge	t	276	274	365	446	446	402	538	525	536	619	591	678	689
Frame		5	5	5	6	6	7	7	9	9	9	10	10	10
Transport weight	kg	3101	3115	3578	4204	4230	4455	4964	7406	7480	7794	8690	9062	9153
Operating weight	kg	3120	3150	3613	4249	4280	4505	5023	7446	7530	7854	8750	9122	9243

Performances are referred to the following conditions:

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Average conditions, low temperature, variable - Reg EU 811/2013

(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

PAE N U Kc		601	801	1001	1201	1401	1601	1801	1802	2002	2101	2302	2502	2802
Heating capacity (EN14511) ⁽¹⁾	kW	78,8	102,0	123,0	154,0	178,0	203,0	227,0	221,0	245,0	252,0	281,0	296,0	349,0
Total input power (EN14511) ⁽¹⁾	kW	18,4	23,6	29,4	36,7	42,5	47,6	54,2	55,6	62,4	59,8	67,9	78,1	89,1
Input current	A	37,0	44,5	55,7	67,5	76,7	85,1	96,4	105,0	111,0	106,0	123,0	141,0	160,0
COP (EN14511) ⁽¹⁾	W/W	4,28	4,32	4,18	4,20	4,19	4,26	4,19	3,97	3,93	4,21	4,14	3,79	3,92
SCOP	W/W	3,63	3,69	3,68	3,67	3,74	3,74	3,73	3,53	3,65	3,76	3,76	3,48	3,68
η _{s,h} ⁽²⁾	%	142	145	144	144	147	147	146	138	143	147	147	136	144
Cooling capacity (EN14511) ⁽³⁾	kW	67,8	84,4	101,0	125,0	147,0	170,0	187,0	185	202,0	209,0	231,0	251,0	294,0
Total input power (EN14511) ⁽³⁾	kW	22,1	28,4	35,2	43,0	49,6	58,5	63,7	59,5	67,1	72,3	76,5	87,4	98,9
Input current	A	41,6	50,7	62,9	74,7	85,5	99,5	109,0	109,0	118,0	122,0	133,0	152,0	170,0
EER	W/W	3,07	2,97	2,87	2,91	2,96	2,91	2,94	3,11	3,01	2,89	3,02	2,87	2,97
Sound power ⁽⁴⁾	dB(A)	80	82	82	84	85	86	86	83	84	87	84	84	85
Sound pressure ⁽⁵⁾	dB(A)	49	50	50	51	53	53	53	50	52	55	52	52	52
Power supply	V/ph/Hz	400/3/50												
Circuits	n°	1	1	1	1	1	1	1	2	2	1	2	2	2
Compressors	n°	2	2	2	2	2	2	2	4	4	2	4	4	4
Fans	n°	2	2	2	3	3	3	4	6	6	4	6	8	8
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	23	34	45	50	67	67	66	94	94	89	126	88	131
Global warming potential	GWP	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088
Equivalent CO ₂ charge	t	47	70	93	105	140	140	138	196	196	186	263	183	274
Frame		1	1	1	2	2	2	3	4	4	3	3	5	5
Transport weight	kg	999	1075	1151	1327	1473	1486	1746	1824	2044	1793	2229	2503	2712
Operating weight	kg	1005	1082	1158	1334	1481	1496	1757	1836	2056	1805	2246	2520	2729

PAE N U Kc		3202	3602	4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	11004
Heating capacity (EN14511) ⁽¹⁾	kW	389,0	433,0	496,0	579,0	622,0	670,0	720,0	780,0	857,2	986,0	1094,8	1152,0	1228,4
Total input power (EN14511) ⁽¹⁾	kW	102,0	108,0	123,0	145,0	159,0	169,0	176,0	196,0	216,4	246,2	273,7	288,4	318,6
Input current	A	178,0	191,0	215,0	257,0	280,0	296,0	305,0	352,0	380,0	440,8	501,6	515,0	550,8
COP (EN14511) ⁽¹⁾	W/W	3,81	4,01	4,03	3,99	3,91	3,96	4,09	3,98	3,96	4,00	4,00	3,99	3,86
SCOP	W/W	3,69	3,76	3,65	3,68	3,61	4,46	3,86	-	-	-	-	-	-
η _{s,h} ⁽²⁾	%	145	147	143	144	141	175	-	-	-	-	-	-	-
Cooling capacity (EN14511) ⁽³⁾	kW	328,0	383,0	432,0	508,0	559,0	604,0	637,0	700,0	760,0	865,0	953,0	1011,0	1127,2
Total input power (EN14511) ⁽³⁾	kW	113,0	129,0	145,0	171,0	191,0	206,0	216,0	234,9	258,2	289,6	323,1	343,4	379,4
Input current	A	193,0	219,0	246,0	292,0	324,0	347,0	363,0	407,0	440,4	491,2	554,3	587,2	646,8
EER	W/W	2,90	2,97	2,98	2,97	2,93	2,93	2,95	2,98	2,94	2,99	2,95	2,94	2,97
Sound power ⁽⁴⁾	dB(A)	84	86	88	86	88	88	90	89	90	93	94	91	93
Sound pressure ⁽⁵⁾	dB(A)	52	53	56	53	56	56	57	55	56	60	61	57	60
Power supply	V/ph/Hz	400/3/50												
Circuits	n°	2	2	2	2	2	2	2	4	4	4	4	4	4
Compressors	n°	4	4	4	6	6	6	6	8	8	8	12	12	12
Fans	n°	8	8	10	12	12	12	14	16	16	20	24	24	24
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	176	175	159	194	193	259	229	253	292	320	395	468	473
Global warming potential	GWP	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088
Equivalent CO ₂ charge	t	367	365	332	405	402	541	479	529	609	668	825	977	987
Frame		5	5	6	7	7	7	8	9	9	10	11	11	11
Transport weight	kg	3171	3185	3582	4204	4230	4550	4955	7057	7406	8398	9162	9775	9842
Operating weight	kg	3190	3220	3617	4250	4279	4600	5014	7097	7456	8458	9222	9845	9932

Performances are referred to the following conditions:

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Average conditions, low temperature, variable - Reg EU 811/2013

(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

PAE N HE Kc		1001	1201	1401	1601	1802	2002	2302	2502	2802	3202	3602
Heating capacity (EN14511) ⁽¹⁾	kW	131,0	161,0	186,0	214,0	227,0	257,0	287,0	317,0	357,0	400,0	460,0
Total input power (EN14511) ⁽¹⁾	kW	30,6	35,5	43,1	49,2	54,5	60,5	68,4	78,6	89,8	102,0	114,0
Input current	A	57,0	65,9	76,4	86,3	101,0	108,0	122,0	139,0	157,0	177,0	197,0
COP (EN14511) ⁽¹⁾	W/W	4,28	4,41	4,32	4,35	4,17	4,25	4,20	4,03	3,98	3,92	4,04
SCOP	W/W	3,32	3,76	3,53	3,56	3,45	3,69	3,69	3,63	3,62	3,77	3,62
η _{s,h} ⁽²⁾	%	130	147	138	139	135	145	145	142	142	148	142
Cooling capacity (EN14511) ⁽³⁾	kW	107,0	133,0	153,0	181,0	193,0	215,0	235,0	268,0	304,0	342,0	383,0
Total input power (EN14511) ⁽³⁾	kW	35,7	43,2	50,3	58,1	62,9	68,6	77,7	86,7	101,0	114,0	130,0
Input current	A	63,5	74,4	85,9	98,2	113,0	119,0	134,0	150,0	172,0	193,0	220,0
EER	W/W	3,00	3,08	3,04	3,12	3,07	3,13	3,02	3,09	3,01	3,00	2,95
Sound power ⁽⁴⁾	dB(A)	84	87	87	88	89	91	91	91	91	91	92
Sound pressure ⁽⁵⁾	dB(A)	52	55	55	56	57	58	58	59	59	58	60
Power supply	V/ph/Hz	400/3/50										
Circuits	n°	1	1	1	1	2	2	2	2	2	2	2
Compressors	n°	2	2	2	2	4	4	4	4	4	4	4
Fans	n°	3	3	4	4	6	6	6	8	8	8	10
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	50	67	66	89	94	126	126	132	131	176	161
Global warming potential	GWP	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088
Equivalent CO ₂ charge	t	104	140	138	186	196	263	263	276	274	367	335
Frame		2	2	3	3	4	4	4	5	5	5	6
Transport weight	kg	1325	1452	1644	1787	2185	2431	2431	2852	3034	3482	3610
Operating weight	kg	1334	1463	1655	1804	2202	2447	2447	2871	3056	3506	3645

PAE N HE Kc		4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	
Heating capacity (EN14511) ⁽¹⁾	kW	516,0	625,0	674,0	693,0	734,0	808,8	920,0	1032,2	1098,3	1200,0	
Total input power (EN14511) ⁽¹⁾	kW	126,0	128,0	140,0	177,0	191,0	203,2	228,0	252,0	274,6	302,0	
Input current	A	217,0	262,0	285,0	305,0	326,0	350,0	392,0	432,0	501,6	518,2	
COP (EN14511) ⁽¹⁾	W/W	4,10	4,88	4,81	3,92	3,84	3,98	4,04	4,10	4,00	3,97	
SCOP	W/W	3,82	3,58	3,52	3,21	3,30	-	-	-	-	-	
η _{s,h} ⁽²⁾	%	150	140	138	-	-	-	-	-	-	-	
Cooling capacity (EN14511) ⁽³⁾	kW	435,0	517,0	565,0	612,0	650,0	704,0	762,0	867,6	956,0	1033,6	
Total input power (EN14511) ⁽³⁾	kW	145,0	171,0	188,0	202,0	218,0	234,7	260,0	289,0	312,4	341,4	
Input current	A	243,0	289,0	317,0	339,0	365,0	396,0	439,2	486,2	554,3	575,6	
EER	W/W	3,00	3,02	3,01	3,03	2,98	3,00	2,93	3,00	3,06	3,03	
Sound power ⁽⁴⁾	dB(A)	94	92	95	95	96	95	96	97	95	96	
Sound pressure ⁽⁵⁾	dB(A)	62	60	62	62	63	62	63	64	62	63	
Power supply	V/ph/Hz	400/3/50										
Circuits	n°	2	2	2	2	2	4	4	4	4	4	
Compressors	n°	4	6	6	6	6	8	8	8	12	12	
Fans	n°	10	12	14	14	14	16	20	20	24	24	
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	
Refrigerant charge	kg	214	259	229	308	308	293	280	321	397	470	
Global warming potential	GWP	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	
Equivalent CO ₂ charge	t	446	541	479	643	643	611	584	671	828	981	
Frame		6	7	8	8	8	9	10	10	11	11	
Transport weight	kg	3955	4597	4697	5190	5220	7316	7698	8314	9081	9690	
Operating weight	kg	3995	4646	4756	5248	5279	7360	7749	8364	9747	9133	

Performances are referred to the following conditions:

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Average conditions, low temperature, variable - Reg EU 811/2013

(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

PAE N HE U Kc		1001	1201	1401	1601	1802	2002	2302	2502	2802	3202	3602
Heating capacity (EN14511) ⁽¹⁾	kW	130,0	156,0	181,0	207,0	219,0	248,0	276,0	307,0	344,0	384,0	444,0
Total input power (EN14511) ⁽¹⁾	kW	28,4	34,1	40,1	45,8	50,4	56,4	64,9	72,3	83,8	94,8	105,0
Input current	A	53,6	62,4	72,1	81,5	95,1	102,0	116,0	130,0	148,0	166,0	184,0
COP (EN14511) ⁽¹⁾	W/W	4,58	4,57	4,51	4,52	4,35	4,40	4,25	4,25	4,11	4,05	4,23
SCOP	W/W	3,88	4,17	4,08	4,05	3,94	4,11	4,07	3,97	4,11	4,05	3,99
$\eta_{s,h}$ ⁽²⁾	%	152	164	160	159	155	161	160	156	161	159	157
Cooling capacity (EN14511) ⁽³⁾	kW	107,0	131,0	153,0	181,0	192,0	213,0	231,0	264,0	300,0	335,0	377,0
Total input power (EN14511) ⁽³⁾	kW	32,9	40,7	46,5	54,3	57,9	64,4	73,9	81,1	95,2	110,0	124,0
Input current	A	59,7	71,1	80,9	93,2	106,0	113,0	129,0	142,0	164,0	187,0	211,0
EER	W/W	3,25	3,22	3,29	3,33	3,32	3,31	3,13	3,26	3,15	3,05	3,04
Sound power ⁽⁴⁾	dB(A)	80	82	82	83	82	84	84	84	85	84	86
Sound pressure ⁽⁵⁾	dB(A)	48	49	50	50	49	52	52	52	52	52	53
Power supply	V/ph/Hz	400/3/50										
Circuits	n°	1	1	1	1	2	2	2	2	2	2	2
Compressors	n°	2	2	2	2	4	4	4	4	4	4	4
Fans	n°	3	3	4	4	6	6	6	8	8	8	10
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	50	67	66	89	94	126	126	132	131	176	161
Global warming potential	GWP	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088
Equivalent CO ₂ charge	t	104	140	138	186	196	263	263	276	274	367	335
Frame		2	2	3	3	4	4	4	5	5	5	6
Transport weight	kg	1347	1474	1666	1809	2207	2453	2453	2874	3056	3504	3632
Operating weight	kg	1356	1485	1677	1826	2224	2469	2469	2893	3078	3528	3667

PAE N HE U Kc		4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	
Heating capacity (EN14511) ⁽¹⁾	kW	497,0	575,0	621,0	664,0	703,0	806,5	905,6	1011,8	1091,4	1175,8	
Total input power (EN14511) ⁽¹⁾	kW	118,0	140,0	151,0	167,0	175,0	194,8	210,0	236,0	260,1	280,2	
Input current	A	204,0	246,0	266,0	289,0	304,0	340,0	366,0	405,6	501,6	486,8	
COP (EN14511) ⁽¹⁾	W/W	4,21	4,11	4,09	3,98	4,02	4,14	4,31	4,29	4,20	4,20	
SCOP	W/W	4,08	3,96	3,95	3,82	3,87	-	-	-	-	-	
$\eta_{s,h}$ ⁽²⁾	%	160	155	155	-	-	-	-	-	-	-	
Cooling capacity (EN14511) ⁽³⁾	kW	427,0	508,0	555,0	596,0	635,0	702,0	754,0	853,8	950,0	1011,0	
Total input power (EN14511) ⁽³⁾	kW	140,0	164,0	180,0	196,0	213,0	227,9	247,8	279,6	310,5	330,4	
Input current	A	236,0	279,0	306,0	331,0	357,0	389,0	423,2	472,4	554,3	563,0	
EER	W/W	3,05	3,10	3,08	3,04	2,98	3,08	3,04	3,05	3,06	3,06	
Sound power ⁽⁴⁾	dB(A)	88	86	88	88	92	89	90	93	91	91	
Sound pressure ⁽⁵⁾	dB(A)	56	54	56	56	60	56	57	60	58	58	
Power supply	V/ph/Hz	400/3/50										
Circuits	n°	2	2	2	2	2	4	4	4	4	4	
Compressors	n°	4	6	6	6	6	8	8	8	12	12	
Fans	n°	10	12	14	14	14	16	20	20	24	24	
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	
Refrigerant charge	kg	214	259	229	308	308	292	279	320	395	468	
Global warming potential	GWP	2088	2088	2088	2088	2088	2088	2088	2088	2088	2088	
Equivalent CO ₂ charge	t	446	541	479	643	643	610	582	669	826	978	
Frame		6	7	8	8	8	9	10	10	11	11	
Transport weight	kg	3977	4619	4719	5212	5242	7421	7804	8418	9180	9795	
Operating weight	kg	4017	4668	4778	5270	5301	7465	7855	8468	9232	9851	

Performances are referred to the following conditions:

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Average conditions, low temperature, variable - Reg EU 811/2013

(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

PAE N Kr		601	801	1001	1201	1401	1601	1801	1802	2002	2101	2302	2502	2802
Heating capacity (EN14511) ⁽¹⁾	kW	73,1	89,7	119,0	146,0	169,0	191,0	214,0	212,0	251,0	244,0	274,0	298,0	323,0
Total input power (EN14511) ⁽¹⁾	kW	19,3	23,5	30,1	36,9	42,3	48,2	53,4	56,1	64,8	60,4	69,8	75,6	87,2
Input current	A	40,4	48,8	59,6	70,4	79,7	92,4	98,2	108,0	120,0	115,0	131,0	142,0	158,0
COP (EN14511) ⁽¹⁾	W/W	3,79	3,82	3,95	3,96	4,00	3,96	4,01	3,78	3,87	4,04	3,93	3,94	3,70
SCOP	W/W	3,22	3,35	3,33	3,48	3,56	3,50	3,62	3,20	3,31	3,58	3,60	3,72	3,53
η _{s,h} ⁽²⁾	%	126	131	130	136	139	137	142	125	130	140	141	146	138
Cooling capacity (EN14511) ⁽³⁾	kW	62,2	77,3	103,0	126,0	149,0	169,0	186,0	181,0	210,0	215,0	233,0	253,0	288,0
Total input power (EN14511) ⁽³⁾	kW	21,5	27,4	35,0	43,7	49,6	57,2	62,5	64,1	70,3	68,3	77,8	85,8	99,9
Input current	A	42,2	52,8	64,4	77,4	87,1	102,0	109,0	116,0	124,0	123,0	138,0	152,0	172,0
EER	W/W	2,89	2,82	2,94	2,88	3,00	2,95	2,98	2,82	2,99	3,15	2,99	2,95	2,88
Sound power ⁽⁴⁾	dB(A)	83	86	86	88	89	90	90	88	90	91	90	90	91
Sound pressure ⁽⁵⁾	dB(A)	51	54	54	56	57	58	58	56	58	59	58	58	58
Power supply	V/ph/Hz	400/3/50												
Circuits	n°	1	1	1	1	1	1	1	2	2	1	2	2	2
Compressors	n°	2	2	2	2	2	2	2	4	4	2	4	4	4
Fans	n°	2	2	2	2	3	3	3	6	6	4	6	6	8
Refrigerant		R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B
Refrigerant charge	kg	22	22	34	45	51	50	67	95	94	31	95	95	88
Global warming potential	GWP	466	466	466	466	466	466	466	466	466	466	466	466	466
Equivalent CO ₂ charge	t	10	10	16	21	24	23	31	44	44	14	44	44	41
Frame		1	1	1	1	2	2	2	4	4	3	4	4	5
Transport weight	kg	977	1041	1117	1298	1432	1446	1725	1802	2066	1701	2018	2488	2641
Operating weight	kg	983	1047	1124	1305	1440	1455	1736	1814	2078	1719	2034	2505	2658

PAE N Kr		3202	3602	4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	11004
Heating capacity (EN14511) ⁽¹⁾	kW	376,0	422,0	470,0	562,0	606,0	646,0	702,0	782,0	844,1	932,4	1060,9	1137,3	1220,0
Total input power (EN14511) ⁽¹⁾	kW	97,6	108,0	116,0	140,0	150,0	165,0	177,0	201,5	214,4	239,8	266,6	285,0	310,1
Input current	A	170,0	193,0	215,0	245,0	268,0	298,0	315,0	368,6	385,1	425,8	499,2	526,0	550,7
COP (EN14511) ⁽¹⁾	W/W	3,85	3,91	4,05	4,01	4,04	3,92	3,97	3,88	3,94	3,89	3,98	3,99	3,93
SCOP	W/W	3,66	3,76	3,91	3,73	3,79	3,62	3,50	-	-	-	-	-	-
η _{s,h} ⁽²⁾	%	143	147	154	146	149	142	-	-	-	-	-	-	-
Cooling capacity (EN14511) ⁽³⁾	kW	324,0	372,0	413,0	487,0	527,0	569,0	853,0	680,7	743,3	827,6	923,5	972,4	1081,6
Total input power (EN14511) ⁽³⁾	kW	108,0	123,0	136,0	162,0	177,0	193,0	207,0	219,0	244,7	271,1	305,1	321,3	352,8
Input current	A	182,0	212,0	239,0	271,0	302,0	334,0	355,0	392,6	424,0	467,0	524,5	560,0	608,0
EER	W/W	3,00	3,02	3,04	3,01	2,98	2,95	4,12	3,11	3,04	3,05	3,03	3,03	3,07
Sound power ⁽⁴⁾	dB(A)	90	92	94	92	94	94	96	95	95	97	98	98	98
Sound pressure ⁽⁵⁾	dB(A)	58	59	62	60	62	62	63	62	62	65	65	65	65
Power supply	V/ph/Hz	400/3/50												
Circuits	n°	2	2	2	2	2	2	2	4	4	4	4	4	4
Compressors	n°	4	4	4	6	6	6	6	8	8	8	12	12	12
Fans	n°	8	8	8	10	10	12	12	16	16	16	20	20	20
Refrigerant		R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B
Refrigerant charge	kg	133	131	175	214	213	193	258	248	253	292	279	320	325
Global warming potential	GWP	466	466	466	466	466	466	466	466	466	466	466	466	466
Equivalent CO ₂ charge	t	62	61	81	100	99	90	120	116	118	136	130	149	151
Frame		5	5	5	6	6	7	7	9	9	9	10	10	10
Transport weight	kg	3101	3115	3578	4204	4230	4455	4964	7535	7610	7930	8841	9220	9312
Operating weight	kg	3120	3150	3613	4249	4280	4505	5023	7575	7660	7990	8901	9280	9402

Performances are referred to the following conditions:

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Average conditions, low temperature, variable - Reg EU 811/2013

(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

PAE N U Kr		601	801	1001	1201	1401	1601	1801	1802	2002	2101	2302	2502	2802
Heating capacity (EN14511) ⁽¹⁾	kW	72,6	89,8	120,0	147,0	170,0	191,0	215,0	214,0	249,0	244,0	274,0	295,0	326,0
Total input power (EN14511) ⁽¹⁾	kW	18,3	22,7	29,6	36,6	40,5	46,4	52,5	53,4	61,9	57,4	67,0	76,6	83,9
Input current	A	36,4	45,3	56,1	68,7	73,6	86,4	94,4	101,0	111,0	106,0	123,0	138,0	148,0
COP (EN14511) ⁽¹⁾	W/W	3,97	3,96	4,05	4,02	4,20	4,12	4,10	4,01	4,02	4,24	4,09	3,95	3,89
SCOP	W/W	3,50	3,76	3,86	3,77	3,97	3,96	3,87	3,84	3,86	4,00	3,96	3,77	3,94
η _{s,h} ⁽²⁾	%	137	147	151	148	156	155	152	151	151	157	156	148	155
Cooling capacity (EN14511) ⁽³⁾	kW	62,2	77,3	104,0	126,0	150,0	169,0	186,0	181,0	210,0	214,0	233,0	253,0	288,0
Total input power (EN14511) ⁽³⁾	kW	20,8	25,6	33,9	42,5	48,2	56,2	59,9	59,8	70,5	67,3	77,8	85,8	99,9
Input current	A	38,9	48,4	60,8	74,6	82,3	97,9	103,0	108,0	121,0	118,0	138,0	152,0	172,0
EER	W/W	2,99	3,02	3,07	2,96	3,11	3,01	3,11	3,03	2,98	3,18	2,99	2,95	2,88
Sound power ⁽⁴⁾	dB(A)	80	82	82	84	85	86	86	83	84	87	84	84	85
Sound pressure ⁽⁵⁾	dB(A)	49	50	50	51	53	53	53	50	52	55	52	52	52
Power supply	V/ph/Hz	400/3/50												
Circuits	n°	1	1	1	1	1	1	1	2	2	1	2	2	2
Compressors	n°	2	2	2	2	2	2	2	4	4	2	4	4	4
Fans	n°	2	2	2	3	3	3	4	6	6	4	6	8	8
Refrigerant		R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B
Refrigerant charge	kg	22	34	45	51	68	67	67	95	95	89	126	89	132
Global warming potential	GWP	466	466	466	466	466	466	466	466	466	466	466	466	466
Equivalent CO ₂ charge	t	10	16	21	24	32	31	31	44	44	42	59	41	62
Frame		1	1	1	2	2	2	3	4	4	3	4	5	5
Transport weight	kg	999	1075	1151	1327	1473	1486	1746	1824	2044	1793	2229	2503	2712
Operating weight	kg	1005	1082	1158	1334	1481	1496	1757	1836	2056	1805	2246	2520	2729

PAE N U Kr		3202	3602	4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	11004
Heating capacity (EN14511) ⁽¹⁾	kW	378,0	419,0	465,0	560,0	600,0	633,0	706,0	757,3	832,2	957,3	1062,9	1118,4	1192,6
Total input power (EN14511) ⁽¹⁾	kW	95,0	104,0	115,0	137,0	148,0	158,0	179,0	184,6	203,1	232,0	259,7	273,6	293,7
Input current	A	161,0	183,0	209,0	234,0	258,0	282,0	319,0	331,6	356,6	415,3	475,9	488,5	507,7
COP (EN14511) ⁽¹⁾	W/W	3,98	4,03	4,04	4,09	4,05	4,01	3,94	4,10	4,10	4,13	4,09	4,09	4,06
SCOP	W/W	3,96	4,05	4,04	3,93	3,99	3,97	3,39	-	-	-	-	-	-
η _{s,h} ⁽²⁾	%	155	159	159	154	157	156	-	-	-	-	-	-	-
Cooling capacity (EN14511) ⁽³⁾	kW	324,0	372,0	413,0	487,0	527,0	569,0	853,0	676,3	734,3	835,7	920,8	976,8	1089,1
Total input power (EN14511) ⁽³⁾	kW	108,0	123,0	136,0	162,0	177,0	193,0	207,0	226,2	246,2	274,9	307,1	326,2	361,7
Input current	A	182,0	212,0	239,0	271,0	302,0	334,0	355,0	391,9	419,9	466,3	526,9	557,7	616,6
EER	W/W	3,00	3,02	3,04	3,01	2,98	2,95	4,12	2,99	2,98	3,04	3,00	2,99	3,01
Sound power ⁽⁴⁾	dB(A)	84	86	88	86	88	88	90	91	92	95	97	94	96
Sound pressure ⁽⁵⁾	dB(A)	52	53	56	53	56	56	57	57	58	62	64	60	63
Power supply	V/ph/Hz	400/3/50												
Circuits	n°	2	2	2	2	2	2	2	4	4	4	4	4	4
Compressors	n°	4	4	4	6	6	6	6	8	8	12	12	12	12
Fans	n°	8	8	10	12	12	12	14	16	16	20	24	24	24
Refrigerant		R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B
Refrigerant charge	kg	176	175	159	194	193	259	229	250	288	316	390	462	467
Global warming potential	GWP	466	466	466	466	466	466	466	466	466	466	466	466	466
Equivalent CO ₂ charge	t	82	81	74	90	90	121	107	117	134	147	182	215	217
Frame		5	5	6	7	7	7	8	9	9	10	11	11	11
Transport weight	kg	3171	3185	3582	4204	4230	4550	4955	7180	7535	8544	9321	9945	10013
Operating weight	kg	3190	3220	3617	4250	4279	4600	5014	7220	7585	8604	9381	10015	10103

Performances are referred to the following conditions:

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Average conditions, low temperature, variable - Reg EU 811/2013

(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

PAE N HE Kr		1001	1201	1401	1601	1802	2002	2302	2502	2802	3202	3602
Heating capacity (EN14511) ⁽¹⁾	kW	124,0	154,0	175,0	203,0	220,0	253,0	277,0	305,0	339,0	376,0	433,0
Total input power (EN14511) ⁽¹⁾	kW	30,5	37,4	42,3	48,1	54,4	62,2	69,1	76,0	86,0	96,1	106,0
Input current	A	56,7	67,6	74,4	87,1	101,0	110,0	123,0	138,0	149,0	160,0	185,0
COP (EN14511) ⁽¹⁾	W/W	4,07	4,12	4,14	4,22	4,04	4,07	4,01	4,01	3,94	3,91	4,08
SCOP	W/W	3,26	3,63	3,45	3,51	3,45	3,59	3,63	3,61	3,64	3,70	3,66
$\eta_{s,h}$ ⁽²⁾	%	127	142	135	137	135	141	142	141	142	145	143
Cooling capacity (EN14511) ⁽³⁾	kW	104,0	128,0	150,0	174,0	185,0	209,0	229,0	261,0	291,0	321,0	366,0
Total input power (EN14511) ⁽³⁾	kW	33,1	41,5	46,5	52,3	59,7	68,9	76,7	81,9	94,8	107,0	121,0
Input current	A	59,8	72,6	79,6	92,2	107,0	119,0	133,0	145,0	161,0	176,0	206,0
EER	W/W	3,14	3,08	3,23	3,33	3,10	3,03	2,99	3,19	3,07	3,00	3,02
Sound power ⁽⁴⁾	dB(A)	84	87	87	88	89	91	91	91	91	91	92
Sound pressure ⁽⁵⁾	dB(A)	52	55	55	56	57	58	52	59	59	58	60
Power supply	V/ph/Hz	400/3/50										
Circuits	n°	1	1	1	1	2	2	2	2	2	2	2
Compressors	n°	2	2	2	2	4	4	4	4	4	4	4
Fans	n°	3	3	4	4	6	6	6	8	8	8	10
Refrigerant		R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B
Refrigerant charge	kg	51	67	67	89	95	126	126	132	132	176	161
Global warming potential	GWP	466	466	466	466	466	466	466	466	466	466	466
Equivalent CO ₂ charge	t	24	31	31	41	44	59	59	62	62	82	75
Frame		2	2	3	3	4	4	4	5	5	5	6
Transport weight	kg	1325	1452	1644	1787	2185	2431	2431	2852	3034	3482	3610
Operating weight	kg	1334	1463	1655	1804	2202	2447	2447	2871	3056	3506	3645

PAE N HE Kr		4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	
Heating capacity (EN14511) ⁽¹⁾	kW	488,0	563,0	609,0	665,0	708,0	785,2	893,2	1002,1	1066,3	1165,0	
Total input power (EN14511) ⁽¹⁾	kW	117,0	141,0	153,0	166,0	178,0	202,0	226,7	248,5	271,6	294,2	
Input current	A	210,0	237,0	264,0	291,0	317,0	347,9	389,8	426,1	496,1	504,8	
COP (EN14511) ⁽¹⁾	W/W	4,17	3,99	3,98	4,01	3,98	3,89	3,94	4,03	3,93	3,96	
SCOP	W/W	3,92	3,59	3,25	3,29	3,38	-	-	-	-	-	
$\eta_{s,h}$ ⁽²⁾	%	154	141	-	-	-	-	-	-	-	-	
Cooling capacity (EN14511) ⁽³⁾	kW	418,0	483,0	531,0	576,0	620,0	683,5	739,8	842,3	928,2	1003,5	
Total input power (EN14511) ⁽³⁾	kW	134,0	159,0	175,0	187,0	200,0	220,6	247,2	274,9	300,0	322,1	
Input current	A	232,0	262,0	294,0	320,0	346,0	372,3	417,6	462,5	532,3	543,1	
EER	W/W	3,12	3,04	3,03	3,08	3,10	3,10	2,99	3,06	3,09	3,12	
Sound power ⁽⁴⁾	dB(A)	94	92	95	95	96	97	98	99	98	99	
Sound pressure ⁽⁵⁾	dB(A)	62	60	62	62	63	64	65	66	65	66	
Power supply	V/ph/Hz	400/3/50										
Circuits	n°	2	2	2	2	2	4	4	4	4	4	
Compressors	n°	4	6	6	6	6	8	8	8	12	12	
Fans	n°	10	12	14	14	14	16	20	20	24	24	
Refrigerant		R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	
Refrigerant charge	kg	214	259	229	308	308	288	275	316	390	462	
Global warming potential	GWP	466	466	466	466	466	466	466	466	466	466	
Equivalent CO ₂ charge	t	100	121	107	144	144	134	128	147	182	215	
Frame		6	7	8	8	8	9	10	10	11	11	
Transport weight	kg	3955	4597	4697	5190	5220	7550	7940	8564	9340	9965	
Operating weight	kg	3995	4646	4756	5248	5279	7594	7990	8614	9391	10021	

Performances are referred to the following conditions:

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Average conditions, low temperature, variable - Reg EU 811/2013

(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

PAE N HE U Kr		1001	1201	1401	1601	1802	2002	2302	2502	2802	3202	3602
Heating capacity (EN14511) ⁽¹⁾	kW	125,0	156,0	177,0	203,0	221,0	255,0	278,0	307,0	340,0	377,0	433,0
Total input power (EN14511) ⁽¹⁾	kW	27,9	34,9	39,3	45,2	50,0	58,3	65,1	70,7	79,5	90,1	99,6
Input current	A	53,0	64,0	69,9	82,8	94,0	104,0	117,0	130,0	140,0	151,0	175,0
COP (EN14511) ⁽¹⁾	W/W	4,48	4,47	4,50	4,49	4,42	4,37	4,27	4,34	4,28	4,18	4,35
SCOP	W/W	4,04	4,19	4,20	4,20	3,93	3,84	4,12	4,25	4,28	4,24	4,30
η _{s,h} ⁽²⁾	%	159	165	165	165	154	151	162	167	168	167	169
Cooling capacity (EN14511) ⁽³⁾	kW	104,0	127,0	151,0	173,0	184,0	208,0	226,0	260,0	291,0	321,0	365,0
Total input power (EN14511) ⁽³⁾	kW	31,6	40,2	44,6	51,7	57,8	66,9	75,1	79,4	91,7	104,0	117,0
Input current	A	57,5	70,6	76,7	91,2	104,0	115,0	130,0	140,0	15,0	171,0	200,0
EER	W/W	3,29	3,16	3,39	3,35	3,18	3,11	3,01	3,27	3,17	3,09	3,12
Sound power ⁽⁴⁾	dB(A)	80	82	82	83	82	84	84	84	85	84	86
Sound pressure ⁽⁵⁾	dB(A)	48	49	50	50	49	52	52	52	52	52	53
Power supply	V/ph/Hz	400/3/50										
Circuits	n°	1	1	1	1	2	2	2	2	2	2	2
Compressors	n°	2	2	2	2	4	4	4	4	4	4	4
Fans	n°	3	3	4	4	6	6	6	8	8	8	10
Refrigerant		R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B
Refrigerant charge	kg	51	67	67	89	95	126	126	132	132	176	161
Global warming potential	GWP	466	466	466	466	466	466	466	466	466	466	466
Equivalent CO ₂ charge	t	24	31	31	41	44	59	59	62	62	82	75
Frame		2	2	3	3	4	4	4	5	5	5	6
Transport weight	kg	1347	1474	1666	1809	2207	2453	2453	2874	3056	3504	3632
Operating weight	kg	1356	1485	1677	1826	2224	2469	2469	2893	3078	3528	3667

PAE N HE U Kr		4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	
Heating capacity (EN14511) ⁽¹⁾	kW	489,0	566,0	611,0	656,0	689,0	785,2	893,2	1002,1	1066,3	1165,0	
Total input power (EN14511) ⁽¹⁾	kW	110,0	131,0	142,0	154,0	166,0	202,0	226,7	248,5	271,6	294,2	
Input current	A	199,0	222,0	247,0	274,0	300,0	347,9	389,8	426,1	496,1	504,8	
COP (EN14511) ⁽¹⁾	W/W	4,45	4,32	4,30	4,26	4,15	3,89	3,94	4,03	3,93	3,96	
SCOP	W/W	4,47	4,27	3,38	3,92	4,00	-	-	-	-	-	
η _{s,h} ⁽²⁾	%	176	168	-	-	-	-	-	-	-	-	
Cooling capacity (EN14511) ⁽³⁾	kW	414,0	480,0	528,0	573,0	609,0	683,5	739,8	842,3	928,2	1003,5	
Total input power (EN14511) ⁽³⁾	kW	131,0	155,0	156,0	170,0	182,0	220,6	247,2	274,9	300,0	322,1	
Input current	A	228,0	256,0	286,0	313,0	344,0	372,3	417,6	462,5	532,3	543,1	
EER	W/W	3,16	3,10	3,38	3,37	3,35	3,10	2,99	3,06	3,09	3,12	
Sound power ⁽⁴⁾	dB(A)	88	86	88	88	92	97	98	99	98	99	
Sound pressure ⁽⁵⁾	dB(A)	56	54	56	56	60	64	65	66	65	66	
Power supply	V/ph/Hz	400/3/50										
Circuits	n°	2	2	2	2	2	4	4	4	4	4	
Compressors	n°	4	6	6	6	6	8	8	8	12	12	
Fans	n°	10	12	14	14	14	16	20	20	24	24	
Refrigerant		R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	R454B	
Refrigerant charge	kg	214	259	259	308	308	288	275	316	390	462	
Global warming potential	GWP	466	466	466	466	466	466	466	466	466	466	
Equivalent CO ₂ charge	t	100	121	107	144	144	134	128	147	182	215	
Frame		6	7	8	8	8	9	10	10	11	11	
Transport weight	kg	3977	4619	4719	5212	5242	7550	7940	8564	9340	9965	
Operating weight	kg	4017	4668	4778	5270	5301	7594	7990	8614	9391	10021	

Performances are referred to the following conditions:

(1) Heating: Ambient temperature 7°C DB, 6°C WB, water temperature 30/35°C.

(2) Average conditions, low temperature, variable - Reg EU 811/2013

(3) Cooling: ambient air temperature 35°C, evaporator water temperature in/out 12/7 °C (only rv versions).

(4) Sound power level in accordance with ISO 3744.

(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

COMPONENTS

FRAME

All units are made from hot-galvanised sheet steel, painted with polyurethane powder enamel and stoved at 180°C to provide maximum protection against corrosion. The frame is self-supporting with removable panels. All screws and rivets used are made from stainless steel. The standard colour of the units is RAL9018.

REFRIGERANT CIRCUIT

The refrigerant circuit is assembled using internationally recognised brand name components with all brazing and welding being performed in accordance with ISO 97/23. The refrigerant utilised are R410A or R454B. The refrigerant circuit includes: sight glass, filter drier, electronic expansion valves, 4 way reversing valve, check valves, liquid receiver, liquid separator, schrader valves for maintenance and control, pressure safety device (for compliance with PED regulations).

COMPRESSORS

The compressors are scroll type, with crankcase resistance and thermal protection, installed in a separate compartment from the airflow in order to reduce noise. When the unit is on stand-by mode, the crankcase heater is always powered. Through the unit's front panel, it is possible to inspect and repair the compressors even when the unit is running.

The compressors used are tandem type. This solution allows a significantly higher efficiency with partial loads compared to the option with independent refrigerant circuits. The control system constantly monitors the discharge temperature of the single compressors.

SOURCE HEAT EXCHANGER

The source heat exchanger is made from 3/8" copper pipes and 0,1mm at least thick aluminium fins with the tubes being mechanically expanded into the aluminium fins in order to maximise heat transfer. Furthermore, the design guarantees a low air side pressure drop thus enabling the use of low rotation speed (and hence low noise) fans.

USER CIRCUIT HEAT EXCHANGERS

The user heat exchanger is a braze welded, plate type heat exchanger, manufactured from AISI 316 stainless steel. The use of this type of exchanger results in a massive reduction of the refrigerant charge of the unit compared to a traditional shell-in-tube type. A further advantage is a reduction in the overall dimensions of the unit. The exchangers are factory insulated with flexible close cell material and can be fitted with an antifreeze heater (accessory). Each exchanger is fitted with a temperature sensor on the discharge water side for antifreeze protection.

FANS

The fans are direct drive axial type with aerofoil blades, are statically and dynamically balanced and are supplied complete with a safety fan guard complying with the requirements of EN 60335. They are fixed to the unit frame via rubber anti-vibration mountings. The electric motors, in standard versions are 6 poles type with a phase-cut regulator controls or inverter, which modulates its rotation speed according to the air temperature. In the HE versions, the fans are electronic type, with permanent magnet motors with an integrated driver that modulates the speed of rotation. The motors are fitted with integrated thermal overload protection and have a moisture protection rating of IP 54.

MICROPROCESSORS

All units are supplied as standard with microprocessor controls. The microprocessor controls the following functions: control of the water temperature, antifreeze protection, compressor timing, compressor automatic starting sequence (For multiple compressors), alarm reset.

The control panel is supplied with display showing all operational icons. The microprocessor is set for automatic defrost (when operating in severe ambient conditions) and for summer/ winter change over. The control also manages the integration with other heating sources (electric heaters, boilers, solar panels etc) and both the heating circuit pump and the domestic hot water circuit pump. If required (available as an option), the microprocessor can be configured in order for it to connect to a site BMS system thus enabling remote control and management.

ELECTRIC ENCLOSURE

The enclosure is manufactured in order to comply with the requirements of the electromagnetic compatibility standards 2014/35/UE and 2014/30/UE. Access to the enclosure is achieved by removing the front panel of the unit. The following components are supplied as standard on all units: main switch, a sequence relay that disables the power supply in the event that the phase sequence is incorrect (scroll compressors can be damaged if they rotate in the wrong direction), thermal overloads (protection of pumps and fans), compressor fuses, control circuit automatic breakers, compressor contactors, fan contactors and pump contactors. The terminal board has volt free contacts for remote ON-OFF, Summer/ winter change over (heat pumps only) and general alarm.

CONTROL AND PROTECTION DEVICES

All units are standardly equipped with several control and safety devices: water return temperature sensor, installed on the water return pipe of the system, and anti-freeze probe, installed on the water supply pipe to the system high-pressure switch with automatic reset. There are also included a low-pressure automatic reset, pressure transducer (used to optimize the defrosting cycle and modulate the rotation speed of the fans according to external conditions), Freon side safety device, compressor thermal protection, fan thermal protection, flow switch.

LEAK DETECTOR (R454B VERSION ONLY)

When the unit is powered ON, the sensor is warmed up/initialised (duration approx. 1min.). During this period, the LEDs inside the sensor blink, the refrigerant leakage alarm is notified and the 24Vac auxiliary circuit is switched off. After this period, if in the absence of any further feedback from the sensor, the PLC control is powered up and the unit is ready to operate. If refrigerant leaks occur, the sensor is activated and the power supply to the control PLC is immediately switched off until the sensor indicates the refrigerant is still present.

VERSION

Ultrasilenced version (U)

The remarkably low sound level is reached on U versions without sacrificing performance or working limits.

This is done by:

- Adopting refrigerant/air exchangers with wider surfaces than those of the units in standard version.
- Soundproof compressor casing with higher thickness of the soundproof material;
- Fan speed control through variable fixed drive.

Version with total heat recovery RT

Each model of the range is available in total heat recovery version. In such setting, each cooling circuit is equipped with a refrigerant/water exchanger on gas discharge line. Such exchanger, installed in parallel to the air condenser, it is dimensioned to recover 100% condensing heat for hot sanitary water production.

Version with partial heat recovery RP

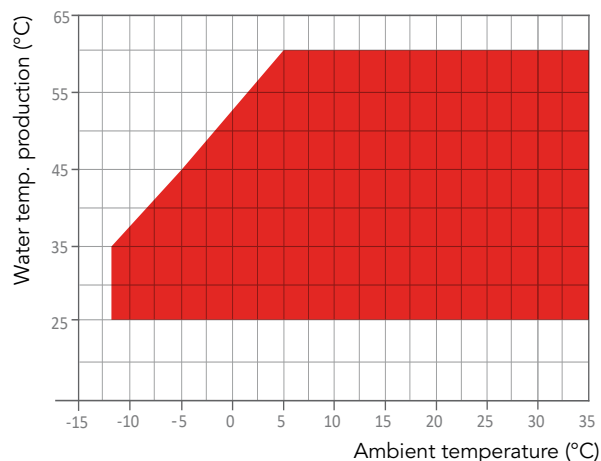
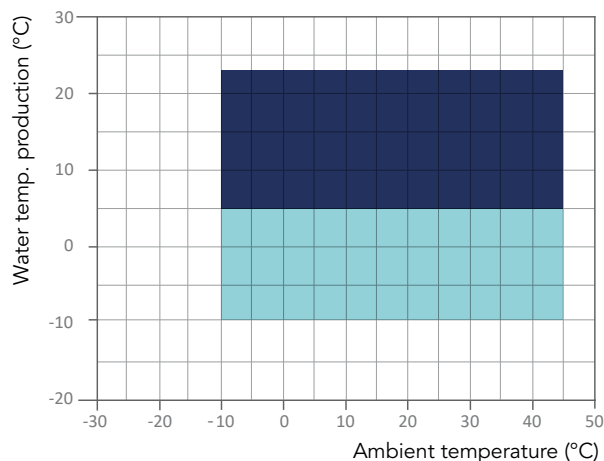
In this configuration, a refrigerant/water heat exchanger is installed on each cooling circuit on gas discharge line. Such exchanger, placed in series and before the air condenser, is sized to recover about 20% of the condensing heat to produce hot sanitary water at medium / high temperatures.

HE Version

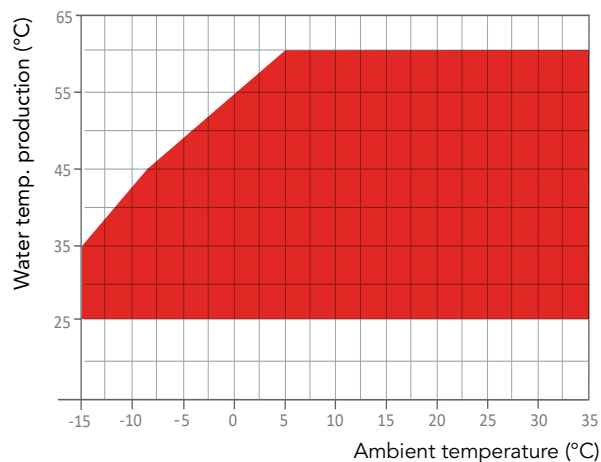
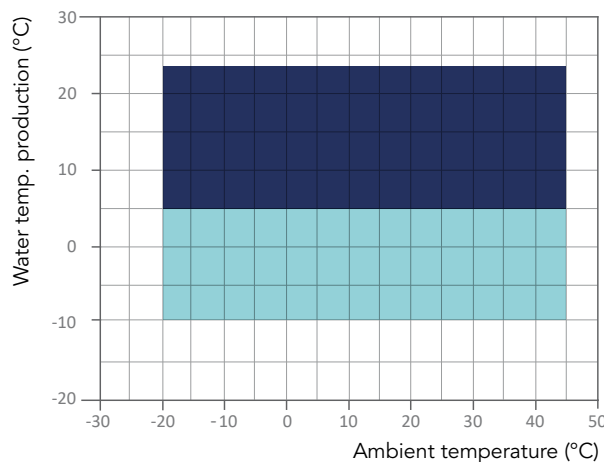
High efficiency version, according to current standard. Unit equipped with EC fans.

OPERATION LIMITS

Standard version



HE version



Cooling mode
 Glycol set-up

Heating mode

ACCESSORIES

PAE N Kc/Kr		601	801	1001	1201	1401	1601	1801	1802	2002	2101	2302	2502	2802
Amperometer	A	○	○	○	○	○	○	○	○	○	○	○	○	○
Electrical power supply different than standard	AE	○	○	○	○	○	○	○	○	○	○	○	○	○
Electrofin Coil Treatment	BEF	○	○	○	○	○	○	○	○	○	○	○	○	○
Operation in cooling mode down to -20°C	BF ⁽¹⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Operation in cooling mode down to -10°C	BT ⁽¹⁾	●	●	●	●	●	●	●	●	●	●	●	●	●
Soundproofed compressors cabinet with standard material	CF	●	●	●	●	●	●	●	●	●	●	●	●	●
Soundproofed compressors cabinet with higher thickness material	CFU ⁽²⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Soundproofing jacket on compressors	CI	○	○	○	○	○	○	○	○	○	○	○	○	○
Compressors inrush counter	CS	○	○	○	○	○	○	○	○	○	○	○	○	○
Refrigerant leakage detector	DR ⁽³⁾	●	●	●	●	●	●	●	●	●	●	●	●	●
Axial fans with electronic commutated motor	EC ⁽⁴⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Condensing coil protection grid	GP	○	○	○	○	○	○	○	○	○	○	○	○	○
Anti-intrusion grid	GP2 ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Anti-intrusion grid	GP3	○	○	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation on pump side	I1	○	○	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation buffer tank side	I2	○	○	○	○	○	○	○	○	○	○	○	○	○
RS 485 Serial interface	IH	○	○	○	○	○	○	○	○	○	○	○	○	○
Seawood packing	IM	○	○	○	○	○	○	○	○	○	○	○	○	○
TCP/IP Protocol serial interface	IWG	○	○	○	○	○	○	○	○	○	○	○	○	○
Phase monitor	MF	○	○	○	○	○	○	○	○	○	○	○	○	○
Buffer tank module	MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump group	P1	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump + tank	P1+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump Variable flow 2 Poles high prevalence	P12HVS ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump Variable flow 2 Poles high prevalence + tank	P12HVS+MV ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump Variable flow 2 Poles	P12VS ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump Variable flow 2 Poles + tank	P12VS+MV ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure pump group	P1H	○	○	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure pump group + tank	P1H+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group	P2	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group + tank	P2+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group Variable flow 2 Poles	P22HVS ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group Variable flow 2 Poles + tank	P22HVS+MV ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group Variable flow 2 Poles	P22VS ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group Variable flow 2 Poles + tank	P22VS+MV ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure double pump group	P2H	○	○	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure double pump group + tank	P2H+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Rubber-type vibration dampers	PA	○	○	○	○	○	○	○	○	○	○	○	○	○
Spring-type vibration dampers	PM	○	○	○	○	○	○	○	○	○	○	○	○	○
Remote display	PQ	○	○	○	○	○	○	○	○	○	○	○	○	○
In-line twin pump group (only one working)	PT	○	○	○	○	○	○	○	○	○	○	○	○	○
In-line twin pump group (only one working) + tank	PT+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
In-line twin pump group Variable flow	PTVS	○	○	○	○	○	○	○	○	○	○	○	○	○
In-line twin pump group Variable flow + tank	PTVS+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Anti-freeze heater on evaporator	RA	○	○	○	○	○	○	○	○	○	○	○	○	○
Shut-off valve on compressors discharge side	RD	○	○	○	○	○	○	○	○	○	○	○	○	○
Power factor correction system cosφ ≥ 0,9	RF	○	○	○	○	○	○	○	○	○	○	○	○	○
Shut-off valve on compressors suction side	RH	○	○	○	○	○	○	○	○	○	○	○	○	○
Compressor overload relays	RL	○	○	○	○	○	○	○	○	○	○	○	○	○
Prepainted fins coil	RM	○	○	○	○	○	○	○	○	○	○	○	○	○
Partial heat recovery	RP ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Copper/Copper coil	RR	○	○	○	○	○	○	○	○	○	○	○	○	○
Electronic thermostatic valve	TE	●	●	●	●	●	●	●	●	●	●	●	●	●
Voltmeter	V	○	○	○	○	○	○	○	○	○	○	○	○	○
Brine Version	VB	○	○	○	○	○	○	○	○	○	○	○	○	○
Solenoid valve	VS	○	○	○	○	○	○	○	○	○	○	○	○	○

(1) Not available for HE versions

(2) Standard for U versions

(3) Available only with R454B (Kr)

(4) Standard for HE versions

(5) In U versions, available only with R410A (Kc)

(6) 4 poles for U versions (P14 / P24)

● Standard ○ Optional – Not available

PAE N Kc/Kr		3202	3602	4202	4802	5202	5602	6002	7004	7504	8504	9504	10004	11004
Amperometer	A	○	○	○	○	○	○	○	○	○	○	○	○	○
Electrical power supply different than standard	AE	○	○	○	○	○	○	○	○	○	○	○	○	○
Electrofin Coil Treatment	BEF	○	○	○	○	○	○	○	○	○	○	○	○	○
Operation in cooling mode down to -20°C	BF ⁽¹⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Operation in cooling mode down to -10°C	BT ⁽¹⁾	●	●	●	●	●	●	○	○	○	○	○	○	○
Soundproofed compressors cabinet with standard material	CF	●	●	●	●	●	●	●	●	●	●	●	●	●
Soundproofed compressors cabinet with higher thickness material	CFU ⁽²⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Soundproofing jacket on compressors	CI	○	○	○	○	○	○	○	○	○	○	○	○	○
Compressors inrush counter	CS	○	○	○	○	○	○	○	○	○	○	○	○	○
Refrigerant leakage detector	DR ⁽³⁾	●	●	●	●	●	●	●	●	●	●	●	●	●
Axial fans with electronic commutated motor	EC ⁽⁴⁾	○	○	○	○	○	○	●	●	●	●	●	●	●
Condensing coil protection grid	GP	○	○	○	○	○	○	○	○	○	○	○	○	○
Anti-intrusion grid	GP2 ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Anti-intrusion grid	GP3	○	○	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation on pump side	I1	○	○	○	○	○	○	○	○	○	○	○	○	○
Victaulic insulation buffer tank side	I2	○	○	○	○	○	○	○	○	○	○	○	○	○
RS 485 Serial interface	IH	○	○	○	○	○	○	○	○	○	○	○	○	○
Seawood packing	IM	○	○	○	○	○	○	○	○	○	○	○	○	○
TCP/IP Protocol serial interface	IWG	○	○	○	○	○	○	○	○	○	○	○	○	○
Phase monitor	MF	○	○	○	○	○	○	○	○	○	○	○	○	○
Buffer tank module	MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump group	P1	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump + tank	P1+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump Variable flow 2 Poles high prevalence	P12HVS ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump Variable flow 2 Poles high prevalence + tank	P12HVS+MV ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump Variable flow 2 Poles	P12VS ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Pump Variable flow 2 Poles + tank	P12VS+MV ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure pump group	P1H	○	○	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure pump group + tank	P1H+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group	P2	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group + tank	P2+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group Variable flow 2 Poles	P22HVS ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group Variable flow 2 Poles + tank	P22HVS+MV ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group Variable flow 2 Poles	P22VS ⁽⁶⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Double pump group Variable flow 2 Poles + tank	P22VS+MV ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure double pump group	P2H	○	○	○	○	○	○	○	○	○	○	○	○	○
Higher available pressure double pump group + tank	P2H+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Rubber-type vibration dampers	PA	○	○	○	○	○	○	○	○	○	○	○	○	○
Spring-type vibration dampers	PM	○	○	○	○	○	○	○	○	○	○	○	○	○
Remote display	PQ	○	○	○	○	○	○	○	○	○	○	○	○	○
In-line twin pump group (only one working)	PT	○	○	○	○	○	○	○	○	○	○	○	○	○
In-line twin pump group (only one working) + tank	PT+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
In-line twin pump group Variable flow	PTVS	○	○	○	○	○	○	○	○	○	○	○	○	○
In-line twin pump group Variable flow + tank	PTVS+MV	○	○	○	○	○	○	○	○	○	○	○	○	○
Anti-freeze heater on evaporator	RA	○	○	○	○	○	○	○	○	○	○	○	○	○
Shut-off valve on compressors discharge side	RD	○	○	○	○	○	○	○	○	○	○	○	○	○
Power factor correction system cosfi ≥0,9	RF	○	○	○	○	○	○	○	○	○	○	○	○	○
Shut-off valve on compressors suction side	RH	○	○	○	○	○	○	○	○	○	○	○	○	○
Compressor overload relays	RL	○	○	○	○	○	○	○	○	○	○	○	○	○
Prepainted fins coil	RM	○	○	○	○	○	○	○	○	○	○	○	○	○
Partial heat recovery	RP ⁽⁵⁾	○	○	○	○	○	○	○	○	○	○	○	○	○
Copper/Copper coil	RR	○	○	○	○	○	○	○	○	○	○	○	○	○
Electronic thermostatic valve	TE	●	●	●	●	●	●	●	●	●	●	●	●	●
Voltmeter	V	○	○	○	○	○	○	○	○	○	○	○	○	○
Brine Version	VB	○	○	○	○	○	○	○	○	○	○	○	○	○
Solenoid valve	VS	○	○	○	○	○	○	○	○	○	○	○	○	○

(1) Not available for HE versions

(2) Standard for U versions

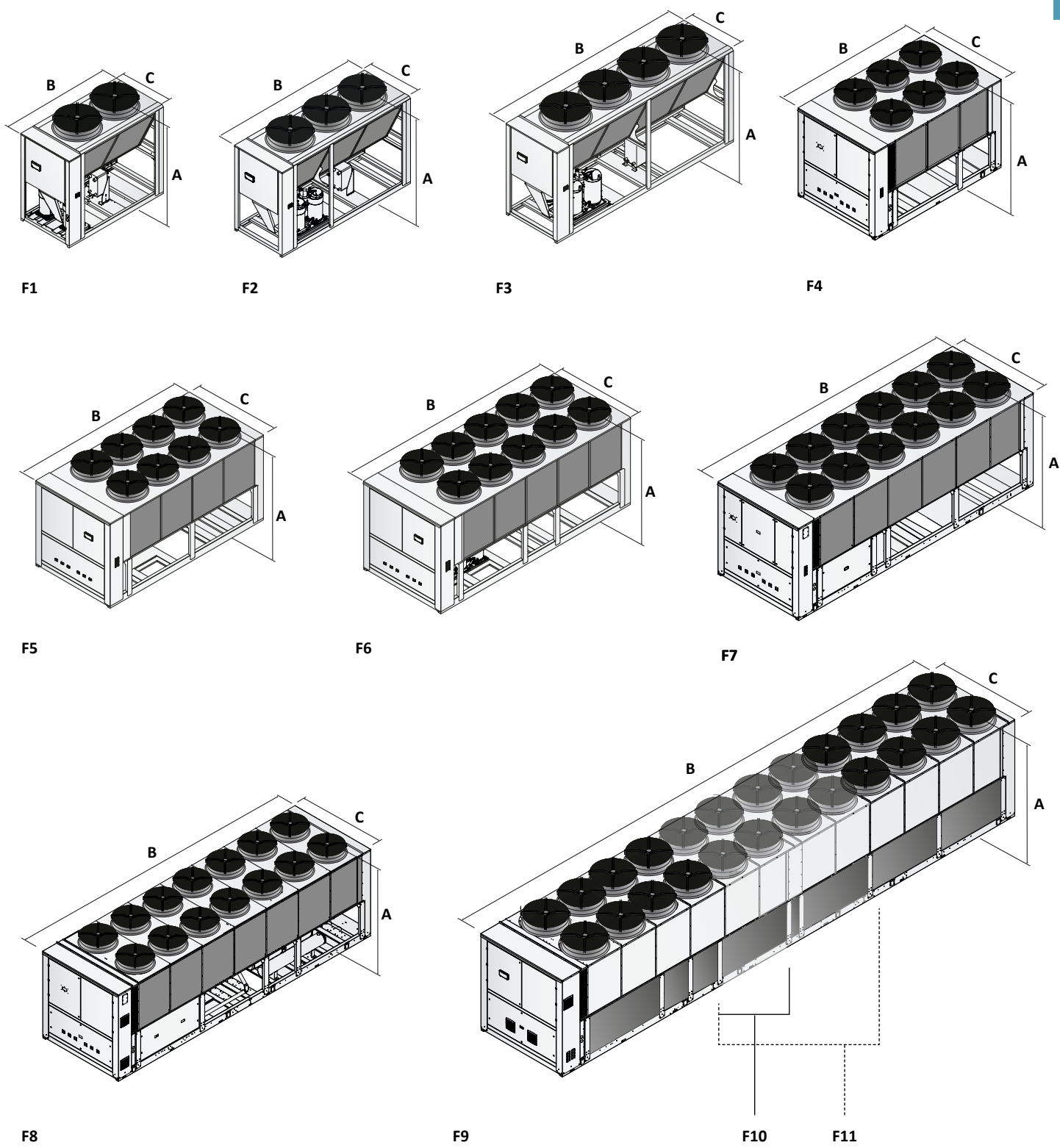
(3) Available only with R454B (Kr)

(4) Standard for HE versions

(5) In U versions, available only with R410A (Kc)

(6) 4 poles for U versions (P14 / P24)

● Standard ○ Optional – Not available



FRAME	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
A (mm)	2420	2420	2420	2560	2560	2560	2560	2560	2560	2560	2560
B (mm)	2660	3700	4740	3775	4750	5725	6700	7250	9800	10680	12780
C (mm)	1370	1370	1370	2300	2300	2300	2300	2300	2300	2300	2300