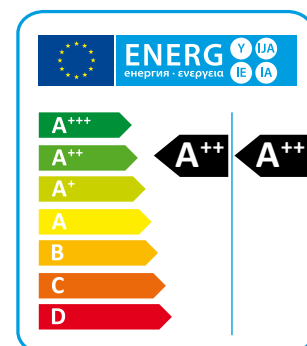


## LZT

### High efficiency air to water heat pumps with E.V.I. compressors



The LZT series of high efficiency heat pumps has been specifically designed for use with radiant floor heating systems or those applications where it is necessary to have maximum efficiency when heating.

They have been optimized on heating mode, are able to produce water up to 65°C and can operate down to -20°C ambient temperature.

All versions are supplied with reverse cycle valve used for winter defrost; the HH version is suitable for use in those countries that have support schemes for use of heat pump technology for heating. The RV versions are also able to produce cold water. The HH heating only versions is factory set and locked to operate only in heating mode whilst.

The noise in XL and NN versions is extremely low thanks to the use of a special floating vibration damping system which allows a noise reduction of about 6-8 dB(A).

#### Versions

<b>HH</b>	Heating only.
<b>RV</b>	Reversible heating/cooling.
<b>SA</b>	Standard efficiency, AC fans.
<b>SE</b>	Standard efficiency, EC fans.
<b>HA</b>	High efficiency, AC fans.
<b>HE</b>	High efficiency, EC fans.
<b>LS</b>	Low noise.
<b>XL</b>	Super low noise.
<b>NN</b>	Ultra low noise.
<b>P2U</b>	2 pipe systems without domestic hot water production.
<b>P2S</b>	2 pipe systems with domestic hot water production by external 3 way valve.

## Heating only version (HH)

SA/LS/HH - P2S/P2U		252	302	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	23,7	28,3	42,1	50,9	55,0	67,8	74,5
Total input power (EN14511) <sup>(1)</sup>	kW	5,5	6,8	10,3	12,3	13,4	16,3	18,3
COP (EN14511) <sup>(1)</sup>	W/W	4,31	4,16	4,11	4,14	4,12	4,16	4,07
Energy Class in low temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,75	3,77	3,39	3,33	3,49	3,70	3,62
$\eta_{s,h}$ low temperature <sup>(2)</sup>	%	147	148	133	130	137	145	142
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,04	3,07	2,89	2,87	2,93	3,06	3,03
$\eta_{s,h}$ medium temperature <sup>(2)</sup>	%	119	120	112	112	114	119	118
Sound power <sup>(3)</sup>	dB (A)	78	78	79	80	80	80	80
Sound pressure <sup>(4)</sup>	dB (A)	46	46	47	48	48	48	48
SE/LS/HH - P2S/P2U		252	302	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	23,7	28,3	42,1	50,5	55,2	67,8	74,7
Total input power (EN14511) <sup>(1)</sup>	kW	5,3	6,7	9,9	12,8	13,8	16,1	18,2
COP (EN14511) <sup>(1)</sup>	W/W	4,47	4,22	4,25	3,95	4,00	4,21	4,10
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A+	A+	A+	A+	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,95	3,87	3,58	3,45	3,59	3,79	3,68
$\eta_{s,h}$ low temperature <sup>(2)</sup>	%	155	152	140	135	141	149	144
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,17	3,13	3,02	2,99	3,02	3,13	3,10
$\eta_{s,h}$ medium temperature <sup>(2)</sup>	%	124	122	118	116	118	122	121
Sound power <sup>(3)</sup>	dB (A)	78	78	79	80	80	80	80
Sound pressure <sup>(4)</sup>	dB (A)	46	46	47	48	48	48	48
Power supply	V/Ph/Hz	400/3+N/50	400/3+N/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Fans	n°	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	10,0	10,0	10,0	12,0	12,0	18,0	19,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	20,88	20,88	20,88	25,05	25,05	37,58	39,67
Water tank volume	l	100	100	100	100	100	300	300

SA/LS/HH - P2S/P2U		1002	1202	1454	1654	1854	2154
Heating capacity (EN14511) <sup>(1)</sup>	kW	88,5	102,5	145,3	162,9	180,2	205,4
Total input power (EN14511) <sup>(1)</sup>	kW	21,1	25,8	35,2	41,2	43,6	52,9
COP (EN14511) <sup>(1)</sup>	W/W	4,21	3,98	4,13	3,96	4,13	3,88
Energy Class in low temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,61	3,60	3,44	3,42	3,43	3,42
$\eta_{s,h}$ low temperature <sup>(2)</sup>	%	141	141	135	134	134	134
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,01	2,99	2,85	2,90	2,92	2,95
$\eta_{s,h}$ medium temperature <sup>(2)</sup>	%	117	117	111	113	114	115
Sound power <sup>(3)</sup>	dB (A)	80	80	87	87	88	89
Sound pressure <sup>(4)</sup>	dB (A)	48	48	55	55	56	57
SE/LS/HH - P2S/P2U		1002	1202	1454	1654	1854	2154
Heating capacity (EN14511) <sup>(1)</sup>	kW	88,2	102,5	146,0	164,3	181,3	208,1
Total input power (EN14511) <sup>(1)</sup>	kW	20,7	25,4	33,6	39,03	41,91	50,66
COP (EN14511) <sup>(1)</sup>	W/W	4,26	4,03	4,35	4,21	4,33	4,11
Energy Class in low temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,69	3,70	3,63	3,57	3,69	3,63
$\eta_{s,h}$ low temperature <sup>(2)</sup>	%	145	145	142	140	145	142
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,10	3,06	2,95	2,99	3,06	3,07
$\eta_{s,h}$ medium temperature <sup>(2)</sup>	%	121	120	115	117	120	120
Sound power <sup>(3)</sup>	dB (A)	80	80	86	87	88	89
Sound pressure <sup>(4)</sup>	dB (A)	48	48	54	55	56	57
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	4/2	4/2	4/2	4/2
Fans	n°	3	4	4	4	4	4
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	23,0	23,0	45,0	45,0	50,0	50,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	48,02	48,02	93,96	93,96	104,40	104,40
Water tank volume	l	300	300	500	500	500	500

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, variable - Reg EU 811/2013

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

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

Heating only version (HH)

HA/LS/HH - P2S/P2U		252	302	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	23,8	29,4	41,6	51,2	58,0	66,7	80,8
Total input power (EN14511) <sup>(1)</sup>	kW	5,3	6,8	9,7	12,4	13,0	15,6	19,6
COP (EN14511) <sup>(1)</sup>	W/W	4,51	4,31	4,29	4,12	4,45	4,29	4,13
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A+	A+	A++	A++	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,96	3,89	3,63	3,553	3,94	3,95	3,76
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	155	153	142	139	155	155	147
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A++	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,18	3,15	2,99	2,98	3,21	3,16	3,01
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	124	123	117	116	126	123	117
Sound power <sup>(3)</sup>	dB (A)	78	78	78	79	80	80	83
Sound pressure <sup>(4)</sup>	dB (A)	46	46	46	47	48	48	51
HE/LS/HH - P2S/P2U		252	312	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	24,0	29,5	41,8	50,3	58,3	66,9	81,3
Total input power (EN14511) <sup>(1)</sup>	kW	5,2	6,7	9,5	12,2	12,8	15,3	18,9
COP (EN14511) <sup>(1)</sup>	W/W	4,61	4,38	4,40	4,12	4,56	4,37	4,31
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,10	3,96	3,87	3,83	4,08	4,06	3,83
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	161	156	152	150	160	159	150
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A+	A+	A++	A++	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,25	3,21	3,12	3,15	3,29	3,23	3,07
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	127	125	122	123	129	126	120
Sound power <sup>(3)</sup>	dB (A)	78	78	78	79	80	80	83
Sound pressure <sup>(4)</sup>	dB (A)	46	46	46	47	48	48	51
Power supply	V/Ph/Hz	400/3+N/50	400/3+N/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Fans	n°	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	10,0	10,0	14,5	12,0	18,0	23,0	23,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	20,88	20,88	30,27	25,05	37,58	48,02	48,02
Water tank volume	l	100	100	100	100	300	300	300

HA/LS/HH - P2S/P2U		1002	1202	1454	1654	1854	2154
Heating capacity (EN14511) <sup>(1)</sup>	kW	88,4	102,5	145,6	163,7	181,9	210,2
Total input power (EN14511) <sup>(1)</sup>	kW	21,4	25,3	35,2	40,7	43,8	52,2
COP (EN14511) <sup>(1)</sup>	W/W	4,13	4,05	4,14	4,02	4,16	4,02
Energy Class in low temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,80	3,78	3,74	3,65	3,79	3,78
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	149	148	147	143	149	148
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,05	3,06	3,05	3,03	3,12	3,16
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	119	120	119	118	122	123
Sound power <sup>(3)</sup>	dB (A)	83	83	84	85	85	85
Sound pressure <sup>(4)</sup>	dB (A)	51	51	52	53	53	53
HE/LS/HH - P2S/P2U		1002	1202	1454	1654	1854	2154
Heating capacity (EN14511) <sup>(1)</sup>	kW	88,5	102,7	145,2	163,2	181,3	209,6
Total input power (EN14511) <sup>(1)</sup>	kW	20,6	24,6	33,4	38,9	41,9	50,5
COP (EN14511) <sup>(1)</sup>	W/W	4,31	4,17	4,35	4,19	4,33	4,15
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,85	3,84	3,88	3,88	3,89	3,89
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	151	151	152	152	153	153
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,14	3,13	3,10	3,15	3,17	3,19
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	123	122	121	123	124	124
Sound power <sup>(3)</sup>	dB (A)	83	83	84	85	85	85
Sound pressure <sup>(4)</sup>	dB (A)	51	51	52	53	53	53
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	4/2	4/2	4/2	4/2
Fans	n°	2	2	3	3	3	3
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	27,0	27,0	45,0	45,0	50,0	50,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	56,37	56,37	93,96	93,96	104,40	104,40
Water tank volume	l	300	300	500	500	500	500

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, variable - Reg EU 811/2013

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

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

Heating only version (HH)

HA/XL/HH - P2S/P2U		252	302	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	24,0	29,6	41,1	48,9	57,4	65,5	80,1
Total input power (EN14511) <sup>(1)</sup>	kW	5,5	7,0	9,5	12,1	12,9	15,2	18,4
COP (EN14511) <sup>(1)</sup>	W/W	4,40	4,24	4,35	4,04	4,46	4,31	4,35
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,83	3,84	3,84	3,83	4,03	4,01	3,83
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	150	151	151	150	158	158	150
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A++	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,05	3,13	3,11	3,14	3,27	3,20	3,13
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	119	122	121	122	128	125	122
Sound power <sup>(3)</sup>	dB (A)	72	72	73	74	74	74	74
Sound pressure <sup>(4)</sup>	dB (A)	40	40	41	42	42	42	42
HE/XL/HH - P2S/P2U		252	312	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	24,0	30,0	41,2	49,2	57,4	65,6	79,9
Total input power (EN14511) <sup>(1)</sup>	kW	5,2	6,8	9,2	11,8	12,6	15,1	17,8
COP (EN14511) <sup>(1)</sup>	W/W	4,64	4,39	4,49	4,16	4,57	4,35	4,49
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,10	3,87	4,00	3,84	4,21	4,16	4,04
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	161	152	157	151	165	163	159
Energy Class in medium temperature <sup>(2)</sup>		A++	A+	A++	A++	A++	A++	A++
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,24	3,14	3,24	3,16	3,38	3,29	3,26
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	127	123	127	123	132	129	127
Sound power <sup>(3)</sup>	dB (A)	71	72	73	74	73	73	74
Sound pressure <sup>(4)</sup>	dB (A)	39	40	41	42	41	41	42
Power supply	V/Ph/Hz	400/3+N/50	400/3+N/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Fans	n°	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	10,0	10,0	14,5	12,0	18,0	23,0	23,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	20,88	20,88	30,27	25,05	37,58	48,02	48,02
Water tank volume	l	100	100	100	100	300	300	300

HA/XL/HH - P2S/P2U		1002	1202	1454	1654	1854	2154
Heating capacity (EN14511) <sup>(1)</sup>	kW	87,3	100,7	147,8	166,9	187,4	218,2
Total input power (EN14511) <sup>(1)</sup>	kW	20,0	23,8	33,5	38,7	43,1	51,3
COP (EN14511) <sup>(1)</sup>	W/W	4,37	4,23	4,41	4,31	4,35	4,25
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,91	3,84	3,93	3,90	3,88	3,88
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	153	151	154	153	152	152
Energy Class in medium temperature <sup>(2)</sup>		A++	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,21	3,18	3,16	3,17	3,10	3,13
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	126	124	123	124	121	122
Sound power <sup>(3)</sup>	dB (A)	75	75	79	79	80	80
Sound pressure <sup>(4)</sup>	dB (A)	43	43	47	47	48	48
HE/XL/HH - P2S/P2U		1002	1202	1454	1654	1854	2154
Heating capacity (EN14511) <sup>(1)</sup>	kW	87,2	100,7	147,6	166,6	187,6	218,2
Total input power (EN14511) <sup>(1)</sup>	kW	19,4	23,5	32,3	37,6	41,2	49,5
COP (EN14511) <sup>(1)</sup>	W/W	4,49	4,29	4,57	4,43	4,55	4,41
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,06	3,93	4,10	4,00	3,94	3,92
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	160	154	161	157	154	154
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,33	3,25	3,28	3,29	3,28	3,28
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	130	127	128	129	128	128
Sound power <sup>(3)</sup>	dB (A)	75	75	79	79	80	80
Sound pressure <sup>(4)</sup>	dB (A)	43	43	47	47	48	48
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	4/2	4/2	4/2	4/2
Fans	n°	2	2	4	4	6	6
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	27,0	27,0	50,0	50,0	55,0	55,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	56,37	56,37	104,40	104,40	114,84	114,84
Water tank volume	l	300	300	500	500	500	500

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, variable - Reg EU 811/2013

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

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

## Heating only version (HH)

HE/NN/HH - P2S/P2U		252	312	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	23,4	30,5	41,1	54,2	60,7	70,4	79,5
Total input power (EN14511) <sup>(1)</sup>	kW	5,0	6,4	8,8	11,7	12,4	14,7	17,41
COP (EN14511) <sup>(1)</sup>	W/W	4,69	4,75	4,69	4,64	4,89	4,78	4,56
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,30	4,35	4,23	4,10	4,37	4,40	4,22
$\eta_{s,h}$ low temperature <sup>(2)</sup>	%	169	171	166	161	172	173	166
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,34	3,48	3,42	3,34	3,47	3,45	3,38
$\eta_{s,h}$ medium temperature <sup>(2)</sup>	%	131	136	134	131	136	135	132
Sound power <sup>(3)</sup>	dB (A)	68	69	71	71	71	72	72
Sound pressure <sup>(4)</sup>	dB (A)	36	37	39	39	39	40	40
Power supply	V/Ph/Hz	400/3+N/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Fans	n°	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	10,0	10,0	18,0	23,0	18,0	23,0	23,0
Global warming potential (GWP)		2088,0	2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	20,88	20,88	37,58	48,02	37,58	48,02	48,02
Water tank volume	l	100	100	100	100	300	300	300

HE/NN/HH - P2S/P2U		1002	1202	1454	1654	1854	2154
Heating capacity (EN14511) <sup>(1)</sup>	kW	90,3	104,9	146,7	165,1	184,7	214,0
Total input power (EN14511) <sup>(1)</sup>	kW	18,6	22,1	31,5	36,6	40,0	48,0
COP (EN14511) <sup>(1)</sup>	W/W	4,87	4,75	4,66	4,51	4,62	4,46
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,42	4,31	4,31	4,15	4,23	4,12
$\eta_{s,h}$ low temperature <sup>(2)</sup>	%	174	169	169	163	166	162
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,52	3,50	3,41	3,40	3,47	3,42
$\eta_{s,h}$ medium temperature <sup>(2)</sup>	%	138	137	134	133	136	134
Sound power <sup>(3)</sup>	dB (A)	72	72	74	74	75	75
Sound pressure <sup>(4)</sup>	dB (A)	40	40	42	42	43	43
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	4/2	4/2	4/2	4/2
Fans	n°	3	3	4	4	6	6
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	36,0	36,0	50,0	50,0	55,0	55,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	75,16	75,16	104,40	104,40	114,84	114,84
Water tank volume	l	300	300	500	500	500	500

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, variable - Reg EU 811/2013

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

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

Reversible heating/cooling version (RV)

SA/LS/RV - P2S/P2U		252	302	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	23,7	28,3	42,1	50,9	55,0	67,8	74,5
Total input power (EN14511) <sup>(1)</sup>	kW	5,5	6,8	10,3	12,3	13,4	16,3	18,3
COP (EN14511) <sup>(1)</sup>	W/W	4,31	4,16	4,11	4,14	4,12	4,16	4,07
Energy Class in low temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,75	3,77	3,39	3,33	3,49	3,70	3,62
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	147	148	133	130	137	145	142
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,04	3,07	2,89	2,87	2,93	3,06	3,03
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	119	120	112	112	114	119	118
Cooling capacity (EN14511) <sup>(3)</sup>	kW	22,5	29,5	36,4	46,1	53,6	61,6	74,3
Total input power (EN14511) <sup>(3)</sup>	kW	7,1	9,1	12,9	16,4	19,3	22,3	25,5
EER (EN14511) <sup>(3)</sup>	W/W	3,15	3,24	2,82	2,80	2,78	2,76	2,91
Sound power <sup>(4)</sup>	dB (A)	78	78	79	80	80	80	80
Sound pressure <sup>(5)</sup>	dB (A)	46	46	47	48	48	48	48
<b>SE/LS/RV - P2S/P2U</b>		<b>252</b>	<b>302</b>	<b>432</b>	<b>492</b>	<b>592</b>	<b>752</b>	<b>852</b>
Heating capacity (EN14511) <sup>(1)</sup>	kW	23,7	28,3	42,1	50,5	55,2	67,8	74,7
Total input power (EN14511) <sup>(1)</sup>	kW	5,3	6,7	9,9	12,8	13,8	16,1	18,2
COP (EN14511) <sup>(1)</sup>	W/W	4,47	4,22	4,25	3,95	4,00	4,21	4,10
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A+	A+	A+	A+	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,95	3,87	3,58	3,45	3,59	3,79	3,68
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	155	152	140	135	141	149	144
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,17	3,13	3,02	2,99	3,02	3,13	3,10
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	124	122	118	116	118	122	121
Cooling capacity (EN14511) <sup>(3)</sup>	kW	22,65	29,92	36,5	46,43	53,75	61,94	74,64
Total input power (EN14511) <sup>(3)</sup>	kW	7,1	9,0	12,8	16,2	19,2	21,9	25,4
EER (EN14511) <sup>(3)</sup>	W/W	3,19	3,32	2,86	2,86	2,81	2,83	2,94
Sound power <sup>(4)</sup>	dB (A)	78	78	79	80	80	80	80
Sound pressure <sup>(5)</sup>	dB (A)	46	46	47	48	48	48	48
Power supply	V/Ph/Hz	400/3+N/50	400/3+N/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Fans	n°	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	10,0	10,0	10,0	12,0	12,0	18,0	19,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	20,88	20,88	20,88	25,05	25,05	37,58	39,67
Water tank volume	l	100	100	100	100	100	300	300
<b>SA/LS/RV - P2S/P2U</b>		<b>1002</b>	<b>1202</b>	<b>1454</b>	<b>1654</b>	<b>1854</b>	<b>2154</b>	
Heating capacity (EN14511) <sup>(1)</sup>	kW	88,5	102,5	145,3	162,9	180,2	205,4	
Total input power (EN14511) <sup>(1)</sup>	kW	21,1	25,8	35,2	41,2	43,6	52,9	
COP (EN14511) <sup>(1)</sup>	W/W	4,21	3,98	4,13	3,96	4,13	3,88	
Energy Class in low temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,61	3,60	3,44	3,42	3,43	3,42	
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	141	141	135	134	134	134	
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,01	2,99	2,85	2,90	2,92	2,95	
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	117	117	111	113	114	115	
Cooling capacity (EN14511) <sup>(3)</sup>	kW	77,9	90,4	125,8	142,0	155,1	177,9	
Total input power (EN14511) <sup>(3)</sup>	kW	26,9	32,6	44,1	51,7	55,3	68,6	
EER (EN14511) <sup>(3)</sup>	W/W	2,89	2,77	2,85	2,75	2,80	2,59	
Sound power <sup>(4)</sup>	dB (A)	80	80	87	87	88	89	
Sound pressure <sup>(5)</sup>	dB (A)	48	48	55	55	56	57	
<b>SE/LS/RV - P2S/P2U</b>		<b>1002</b>	<b>1202</b>	<b>1454</b>	<b>1654</b>	<b>1854</b>	<b>2154</b>	
Heating capacity (EN14511) <sup>(1)</sup>	kW	88,2	102,5	146,0	164,3	181,3	208,1	
Total input power (EN14511) <sup>(1)</sup>	kW	20,7	25,4	33,6	39,03	41,91	50,66	
COP (EN14511) <sup>(1)</sup>	W/W	4,26	4,03	4,35	4,21	4,33	4,11	
Energy Class in low temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,69	3,70	3,63	3,57	3,69	3,63	
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	145	145	142	140	145	142	
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,10	3,06	2,95	2,99	3,06	3,07	
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	121	120	115	117	120	120	
Cooling capacity (EN14511) <sup>(3)</sup>	kW	78,1	90,9	126,4	143,1	156,3	179,3	
Total input power (EN14511) <sup>(3)</sup>	kW	25,0	32,1	41,7	49,5	53,5	66,1	
EER (EN14511) <sup>(3)</sup>	W/W	3,13	2,83	3,03	2,89	2,92	2,71	
Sound power <sup>(4)</sup>	dB (A)	80	80	86	87	88	89	
Sound pressure <sup>(5)</sup>	dB (A)	48	48	54	55	56	57	
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
Compressors / Circuits	n° / n°	2 / 1	2 / 1	4/2	4/2	4/2	4/2	
Fans	n°	3	4	4	4	4	4	
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	
Refrigerant charge	kg	23,0	23,0	45,0	45,0	50,0	50,0	
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	
Equivalent CO <sub>2</sub> charge	t	48,02	48,02	93,96	93,96	104,40	104,40	
Water tank volume	l	300	300	500	500	500	500	

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, 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.

Reversible heating/cooling version (RV)

HA/LS/RV - P2S/P2U		252	302	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	23,8	29,4	41,6	51,2	58,0	66,7	80,8
Total input power (EN14511) <sup>(1)</sup>	kW	5,3	6,8	9,7	12,4	13,0	15,6	19,6
COP (EN14511) <sup>(1)</sup>	W/W	4,51	4,31	4,29	4,12	4,45	4,29	4,13
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A+	A+	A++	A++	A+
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,96	3,89	3,63	3,55	3,94	3,95	3,76
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	155	153	142	139	155	155	147
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A++	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,18	3,15	2,99	2,98	3,21	3,16	3,01
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	124	123	117	116	126	123	117
Cooling capacity (EN14511) <sup>(3)</sup>	kW	22,9	30,1	37,5	46,7	52,8	62,5	71,6
Total input power (EN14511) <sup>(3)</sup>	kW	7,0	9,0	12,7	16,1	18,1	21,6	24,6
EER (EN14511) <sup>(3)</sup>	W/W	3,25	3,36	2,97	2,90	2,91	2,89	2,91
Sound power <sup>(4)</sup>	dB (A)	78	78	78	79	80	80	83
Sound pressure <sup>(5)</sup>	dB (A)	46	46	46	47	48	48	51
HE/LS/RV - P2S/P2U		252	312	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	24,0	29,5	41,8	50,3	58,3	66,9	81,3
Total input power (EN14511) <sup>(1)</sup>	kW	5,2	6,7	9,5	12,2	12,8	15,3	18,9
COP (EN14511) <sup>(1)</sup>	W/W	4,61	4,38	4,40	4,12	4,56	4,37	4,31
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,10	3,96	3,87	3,83	4,08	4,06	3,83
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	161	156	152	150	160	159	150
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A+	A+	A++	A++	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,25	3,21	3,12	3,15	3,29	3,23	3,07
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	127	125	122	123	129	126	120
Cooling capacity (EN14511) <sup>(3)</sup>	kW	22,9	30,2	37,5	45,6	52,9	62,5	71,6
Total input power (EN14511) <sup>(3)</sup>	kW	7,0	8,8	12,7	16,7	17,9	21,3	24,4
EER (EN14511) <sup>(3)</sup>	W/W	3,27	3,42	2,96	2,73	2,95	2,64	2,94
Sound power <sup>(4)</sup>	dB (A)	78	78	78	79	80	80	83
Sound pressure <sup>(5)</sup>	dB (A)	46	46	46	47	48	48	51
Power supply	V/Ph/Hz	400/3+N/50	400/3+N/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Fans	n°	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	10,0	10,0	14,5	12,0	18,0	23,0	23,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	20,88	20,88	30,27	25,05	37,58	48,02	48,02
Water tank volume	l	100	100	100	100	300	300	300
HA/LS/RV - P2S/P2U		1002	1202	1454	1654	1854	2154	
Heating capacity (EN14511) <sup>(1)</sup>	kW	88,4	102,5	145,6	163,7	181,9	210,2	
Total input power (EN14511) <sup>(1)</sup>	kW	21,4	25,3	35,2	40,7	43,8	52,2	
COP (EN14511) <sup>(1)</sup>	W/W	4,13	4,05	4,14	4,02	4,16	4,02	
Energy Class in low temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,80	3,78	3,74	3,65	3,79	3,78	
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	149	148	147	143	149	148	
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,05	3,06	3,05	3,03	3,12	3,16	
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	119	120	119	118	122	123	
Cooling capacity (EN14511) <sup>(3)</sup>	kW	78,1	90,2	127,4	143,5	157,8	180,9	
Total input power (EN14511) <sup>(3)</sup>	kW	26,6	32,2	42,4	50,8	53,6	66,5	
EER (EN14511) <sup>(3)</sup>	W/W	2,94	2,80	3,01	2,82	2,94	2,72	
Sound power <sup>(4)</sup>	dB (A)	83	83	84	85	85	85	
Sound pressure <sup>(5)</sup>	dB (A)	51	51	52	53	53	53	
HE/LS/RV - P2S/P2U		1002	1202	1454	1654	1854	2154	
Heating capacity (EN14511) <sup>(1)</sup>	kW	88,5	102,7	145,2	163,2	181,3	209,6	
Total input power (EN14511) <sup>(1)</sup>	kW	20,6	24,6	33,4	38,9	41,9	50,5	
COP (EN14511) <sup>(1)</sup>	W/W	4,31	4,17	4,35	4,19	4,33	4,15	
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,85	3,84	3,88	3,88	3,89	3,89	
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	151	151	152	152	153	153	
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A+	A+	
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,14	3,13	3,10	3,15	3,17	3,19	
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	123	122	121	123	124	124	
Cooling capacity (EN14511) <sup>(3)</sup>	kW	78,2	90,8	126,8	142,8	157,0	180,1	
Total input power (EN14511) <sup>(3)</sup>	kW	26,1	31,3	42,0	50,5	53,4	66,2	
EER (EN14511) <sup>(3)</sup>	W/W	3,00	2,90	3,02	2,83	2,94	2,72	
Sound power <sup>(4)</sup>	dB (A)	83	83	84	85	85	85	
Sound pressure <sup>(5)</sup>	dB (A)	51	51	52	53	53	53	
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
Compressors / Circuits	n° / n°	2 / 1	2 / 1	4 / 2	4 / 2	4 / 2	4 / 2	
Fans	n°	2	2	3	3	3	3	
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	
Refrigerant charge	kg	27,0	27,0	45,0	45,0	50,0	50,0	
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	
Equivalent CO <sub>2</sub> charge	t	56,37	56,37	93,96	93,96	104,40	104,40	
Water tank volume	l	300	300	500	500	500	500	

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, 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.

Reversible heating/cooling version (RV)

HA/XL/RV - P2S/P2U		252	302	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	24,0	29,6	41,1	48,9	57,4	65,5	80,1
Total input power (EN14511) <sup>(1)</sup>	kW	5,5	7,0	9,5	12,1	12,9	15,2	18,4
COP (EN14511) <sup>(1)</sup>	W/W	4,40	4,24	4,35	4,04	4,46	4,31	4,35
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,83	3,84	3,84	3,83	4,03	4,01	3,83
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	150	151	151	150	158	158	150
Energy Class in medium temperature <sup>(2)</sup>		A+	A+	A+	A+	A++	A+	A+
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,05	3,13	3,11	3,14	3,27	3,20	3,13
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	119	122	121	122	128	125	122
Cooling capacity (EN14511) <sup>(3)</sup>	kW	22,0	28,3	36,8	45,5	52,1	62,0	71,2
Total input power (EN14511) <sup>(3)</sup>	kW	7,1	9,1	13,2	16,1	18,9	21,9	23,7
EER (EN14511) <sup>(3)</sup>	W/W	3,10	3,13	2,78	2,82	2,75	2,83	3,00
Sound power <sup>(4)</sup>	dB (A)	72	72	73	74	74	74	74
Sound pressure <sup>(5)</sup>	dB (A)	40	40	41	42	42	42	42
HE/XL/RV - P2S/P2U		252	312	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	24,0	30,0	41,2	49,2	57,4	65,6	79,9
Total input power (EN14511) <sup>(1)</sup>	kW	5,2	6,8	9,2	11,8	12,6	15,1	17,8
COP (EN14511) <sup>(1)</sup>	W/W	4,64	4,39	4,49	4,16	4,57	4,35	4,49
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,10	3,87	4,00	3,84	4,21	4,16	4,04
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	161	152	157	151	165	163	159
Energy Class in medium temperature <sup>(2)</sup>		A++	A+	A++	A++	A++	A++	A++
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,24	3,14	3,24	3,16	3,38	3,29	3,26
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	127	123	127	123	132	129	127
Cooling capacity (EN14511) <sup>(3)</sup>	kW	21,0	28,9	37,2	45,7	52,0	62,1	70,6
Total input power (EN14511) <sup>(3)</sup>	kW	7,0	9,1	12,7	16,0	18,8	21,8	24,2
EER (EN14511) <sup>(3)</sup>	W/W	2,98	3,17	2,93	2,85	2,78	2,85	2,92
Sound power <sup>(4)</sup>	dB (A)	71	72	73	74	73	73	74
Sound pressure <sup>(5)</sup>	dB (A)	39	40	41	42	41	41	42
Power supply	V/Ph/Hz	400/3+N/50	400/3+N/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Fans	n°	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	10,0	10,0	14,5	12,0	18,0	23,0	23,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	20,88	20,88	30,27	25,05	37,58	48,02	48,02
Water tank volume	l	100	100	100	100	300	300	300
HA/XL/RV - P2S/P2U		1002	1202	1454	1654	1854	2154	
Heating capacity (EN14511) <sup>(1)</sup>	kW	87,3	100,7	147,8	166,9	187,4	218,2	
Total input power (EN14511) <sup>(1)</sup>	kW	20,0	23,8	33,5	38,7	43,1	51,3	
COP (EN14511) <sup>(1)</sup>	W/W	4,37	4,23	4,41	4,31	4,35	4,25	
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	
SCOP low temperature <sup>(2)</sup>	kWh/kWh	3,91	3,84	3,93	3,90	3,88	3,88	
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	153	151	154	153	152	152	
Energy Class in medium temperature <sup>(2)</sup>		A++	A+	A+	A+	A+	A+	
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,21	3,18	3,16	3,17	3,10	3,13	
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	126	124	123	124	121	122	
Cooling capacity (EN14511) <sup>(3)</sup>	kW	77,1	88,7	126,6	143,4	158,7	184,3	
Total input power (EN14511) <sup>(3)</sup>	kW	26,2	32,6	40,9	48,1	49,7	61,3	
EER (EN14511) <sup>(3)</sup>	W/W	2,95	2,72	3,10	2,98	3,19	3,01	
Sound power <sup>(4)</sup>	dB (A)	75	75	79	79	80	80	
Sound pressure <sup>(5)</sup>	dB (A)	43	43	47	47	48	48	
HE/XL/RV - P2S/P2U		1002	1202	1454	1654	1854	2154	
Heating capacity (EN14511) <sup>(1)</sup>	kW	87,2	100,7	147,6	166,6	187,6	218,2	
Total input power (EN14511) <sup>(1)</sup>	kW	19,4	23,5	32,3	37,6	41,2	49,5	
COP (EN14511) <sup>(1)</sup>	W/W	4,49	4,29	4,57	4,43	4,55	4,41	
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,06	3,93	4,10	4,00	3,94	3,92	
η <sub>s,h</sub> low temperature <sup>(2)</sup>	%	160	154	161	157	154	154	
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,33	3,25	3,28	3,29	3,28	3,28	
η <sub>s,h</sub> medium temperature <sup>(2)</sup>	%	130	127	128	129	128	128	
Cooling capacity (EN14511) <sup>(3)</sup>	kW	76,9	88,1	126,5	142,7	158,7	184,3	
Total input power (EN14511) <sup>(3)</sup>	kW	26,3	32,9	40,3	48,4	49,7	60,3	
EER (EN14511) <sup>(3)</sup>	W/W	2,92	2,68	3,14	2,95	3,19	3,05	
Sound power <sup>(4)</sup>	dB (A)	75	75	79	79	80	80	
Sound pressure <sup>(5)</sup>	dB (A)	43	43	47	47	48	48	
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
Compressors / Circuits	n° / n°	2 / 1	2 / 1	4/2	4/2	4/2	4/2	
Fans	n°	2	2	4	4	6	6	
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	
Refrigerant charge	kg	27,0	27,0	50,0	50,0	55,0	55,0	
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088	
Equivalent CO <sub>2</sub> charge	t	56,37	56,37	104,40	104,40	114,84	114,84	
Water tank volume	l	300	300	500	500	500	500	

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, 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.

Reversible heating/cooling version (RV)

HE/NN/RV - P2S/P2U		252	312	432	492	592	752	852
Heating capacity (EN14511) <sup>(1)</sup>	kW	23,4	30,5	41,1	54,2	60,7	70,4	79,5
Total input power (EN14511) <sup>(1)</sup>	kW	5,0	6,4	8,8	11,7	12,4	14,7	17,41
COP (EN14511) <sup>(1)</sup>	W/W	4,69	4,75	4,69	4,64	4,89	4,78	4,56
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,30	4,35	4,23	4,10	4,37	4,40	4,22
$\eta_{s,h}$ low temperature <sup>(2)</sup>	%	169	171	166	161	172	173	166
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++	A++
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,34	3,48	3,42	3,34	3,47	3,45	3,38
$\eta_{s,h}$ medium temperature <sup>(2)</sup>	%	131	136	134	131	136	135	132
Cooling capacity (EN14511) <sup>(3)</sup>	kW	22,1	28,5	37,0	46,4	53,3	61,6	72,9
Total input power (EN14511) <sup>(3)</sup>	kW	6,9	9,1	12,6	14,9	16,8	20,9	25,1
EER (EN14511) <sup>(3)</sup>	W/W	3,20	3,15	2,93	3,11	3,18	2,95	2,90
Sound power <sup>(4)</sup>	dB (A)	68	69	71	71	71	72	72
Sound pressure <sup>(5)</sup>	dB (A)	36	37	39	39	39	40	40
Power supply	V/Ph/Hz	400/3+N/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Fans	n°	2	2	2	2	2	2	2
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	10,0	10,0	18,0	23,0	18,0	23,0	23,0
Global warming potential (GWP)		2088,0	2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	20,88	20,88	37,58	48,02	37,58	48,02	48,02
Water tank volume	l	100	100	100	100	300	300	300

HE/NN/RV - P2S/P2U		1002	1202	1454	1654	1854	2154
Heating capacity (EN14511) <sup>(1)</sup>	kW	90,3	104,9	146,7	165,1	184,7	214,0
Total input power (EN14511) <sup>(1)</sup>	kW	18,6	22,1	31,5	36,6	40,0	48,0
COP (EN14511) <sup>(1)</sup>	W/W	4,87	4,75	4,66	4,51	4,62	4,46
Energy Class in low temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++
SCOP low temperature <sup>(2)</sup>	kWh/kWh	4,42	4,31	4,31	4,15	4,23	4,12
$\eta_{s,h}$ low temperature <sup>(2)</sup>	%	174	169	169	163	166	162
Energy Class in medium temperature <sup>(2)</sup>		A++	A++	A++	A++	A++	A++
SCOP medium temperature <sup>(2)</sup>	kWh/kWh	3,52	3,50	3,41	3,40	3,47	3,42
$\eta_{s,h}$ medium temperature <sup>(2)</sup>	%	138	137	134	133	136	134
Cooling capacity (EN14511) <sup>(3)</sup>	kW	79,0	91,9	124,7	139,5	156,5	179,9
Total input power (EN14511) <sup>(3)</sup>	kW	24,7	29,8	41,5	50,9	50,8	63,3
EER (EN14511) <sup>(3)</sup>	W/W	3,20	3,08	3,01	2,74	3,08	2,84
Sound power <sup>(4)</sup>	dB (A)	72	72	74	74	75	75
Sound pressure <sup>(5)</sup>	dB (A)	40	40	42	42	43	43
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Compressors / Circuits	n° / n°	2 / 1	2 / 1	4/2	4/2	4/2	4/2
Fans	n°	3	3	4	4	6	6
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant charge	kg	36,0	36,0	50,0	50,0	55,0	55,0
Global warming potential (GWP)		2088	2088	2088	2088	2088	2088
Equivalent CO <sub>2</sub> charge	t	75,16	75,16	104,40	104,40	114,84	114,84
Water tank volume	l	300	300	500	500	500	500

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, 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.

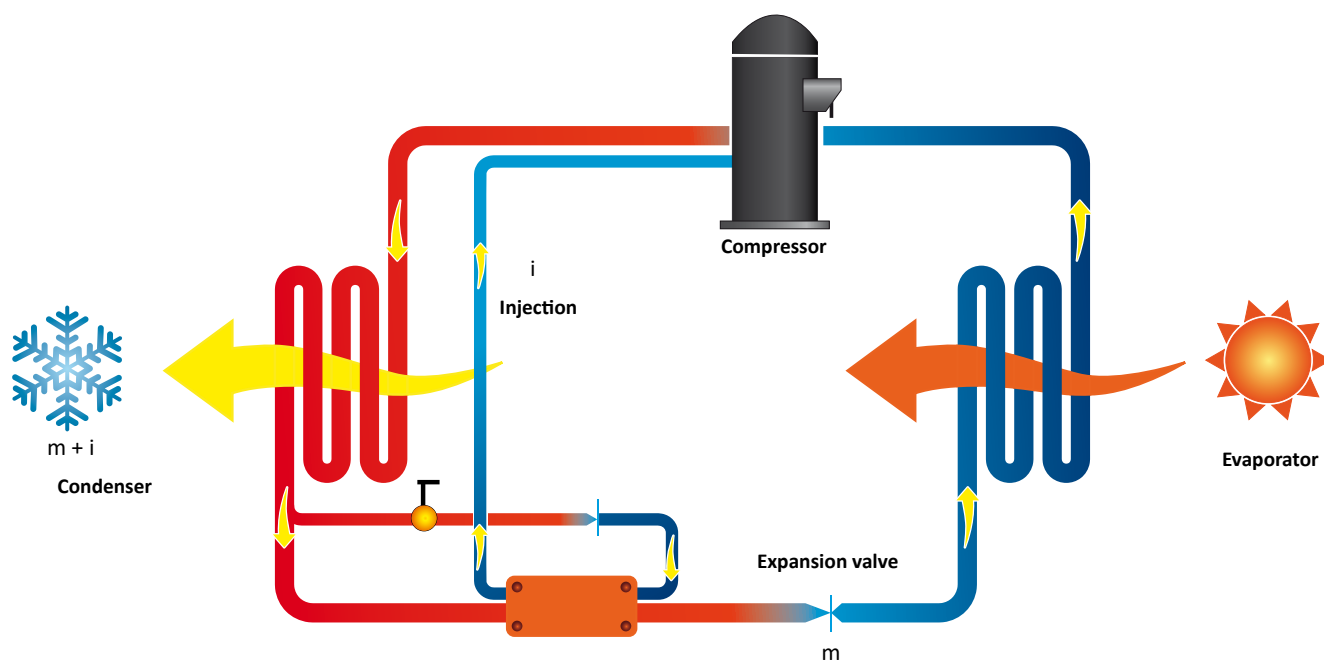
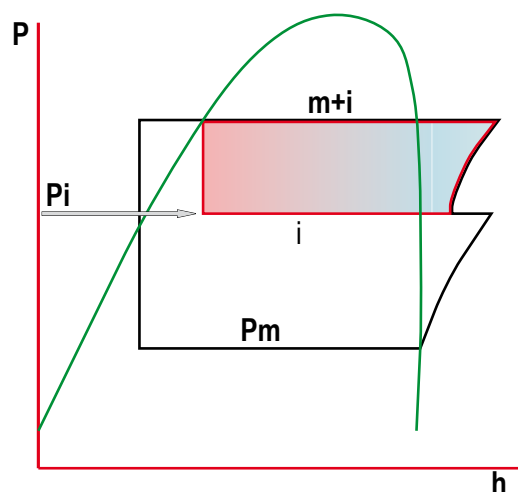
(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

## What is the E.V.I. Technology (Enhanced Vapour Injection)?

Heat pumps utilise scroll compressors that are equipped with E.V.I. technology, a versatile method of improving system capacity and efficiency. EVI stands for “Economised Vapour Injection.”

The technology involves injecting refrigerant vapour into the middle of the compression process, a procedure that significantly boosts capacity and efficiency. Each scroll compressor used in these units is similar to a two-stage compressor with built-in inter-stage cooling. The process begins when a portion of the condenser liquid is extracted and expanded through an expansion valve.

The low temperature liquid/gas mixture produced is injected into a heat exchanger that operates as a sub cooler. Any liquid is evaporated and the vapour produced is superheated.



The superheated vapour is then injected into an intermediate port in the scroll compressor. This cold vapour reduces the temperature of the compressed gas thus enabling the compressor to raise the pressure to levels (and temperatures) beyond that possible with a single stage scroll. The additional sub cooling of the main volume of liquid refrigerant increases the evaporator capacity. This compressor technology generates a larger pressure ratio between condensing and evaporating pressures, with significant performance

improvement. Using this technology enables Hidros units to produce hot water up to 65°C and the ability to operate down to -20°C ambient temperature.

## 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 utilised is R410A. 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 circuit includes: sight glass, filter drier, two thermal expansion valves (one for cooling mode, one for heating mode) with external equalizer, 4 way reversing valve, check valves, liquid receiver, Schrader valves for maintenance and control, pressure safety device (for compliance with PED regulations). The circuit also includes an AISI316 stainless steel heat exchanger that is used as an economizer plus an additional expansion valve for refrigerant vapour injection.

## Compressors

Units use scroll compressors that are equipped with E.V.I. technology, a versatile method of improving system capacity and efficiency. EVI stands for "Enhanced Vapour Injection." The technology involves injecting refrigerant vapour into the middle of the compression process, a procedure that significantly boosts capacity and efficiency. Each scroll compressor used in these units is similar to a two-stage compressor with built-in inter-stage cooling. The process begins when a portion of the condenser liquid is extracted and expanded through an expansion valve. The low temperature liquid/gas mixture produced is injected into a heat exchanger that operates as a sub cooler. Any liquid is evaporated and the vapour produced is superheated.

The superheated vapour is then injected into an intermediate port in the scroll compressor. This cold vapour reduces the temperature of the compressed gas thus enabling the compressor to raise the pressure to levels (and temperatures) beyond that possible with a single stage scroll. The additional sub cooling of the main volume of liquid refrigerant increases the evaporator capacity. This compressor technology generates a larger pressure ratio between condensing and evaporating pressures, with significant performance improvement. In all units the compressors are connected in tandem. The compressors are all supplied with a crankcase heater and thermal overload protection by a klixon embedded in the motor winding. They are mounted in a separate enclosure in order to be separated from the air stream thus enabling them to be maintained even if the unit is operating. Access to this enclosure is by the front panel of the unit. The crankcase heater is always powered when the compressor is in stand-by.

## Source heat exchanger

The source heat exchanger is made from copper pipes and aluminium fins. Dimensioning of the copper pipes and the aluminium fins is optimized in order to obtain excellent performance. The tubes are mechanically expanded into the 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. All heat exchangers are supplied standard with fins hydrophilic coating.

## User heat exchangers

The user heat exchanger is a braze welded, plate type heat ex-

changer, 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 aluminium 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 antivibration mountings. In the LS versions the fans are 6 poles type (approx 900 rpm), in the XL versions the fans are 8 poles type (approx 600 rpm), in the NN versions the fans are 12 poles type (approx 450 rpm). 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 complete with control panel. 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 (only for RV versions).

The control also manages the anti-legionella program, the integration with other heating sources (electric heaters, boilers, solar panels etc), the operation of a three port modulating valve (for diverting to DHW or heating) 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 CEE EN60204. 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), overload switches, control circuit automatic breakers, compressor contactors, automatic switches 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 supplied with the following controls and protections: user water return temperature sensor, antifreeze protection temperature sensor installed on users water output, domestic hot water supply and return temperature sensors (only versions P2S), high pressure manual reset, low pressure automatic reset, compressor thermal protection, air fan, thermal protection, pressure transducer (used to optimize the defrost cycle and to adjust the fan speed depending on ambient conditions), flow switch. All

units are also fitted with a temperature probe sensor with “Energy Saving” function, supplied in a separate plastic box, which can be used to stop the pump use during periods of stand-by, when the water temperature reaches the set point. Doing this the power consumption of the unit is strongly reduced. The probe sensor

must be positioned in the hydraulic compensator present at the screening technique. The domestic hot water circuit (only versions P2S) is already equipped with this probe, but it must be installed in the user circuit.

## Versions

### Version HH

HH heating only versions are available in the P2U and P2S configuration only.

### Version RV

This version uses 2 hydraulic connections and is able to produce hot water in winter and cold water in summer. The unit is combined with a 2-pipe system.

### SA Version

Standard efficiency version, according to current standard. Unit equipped with AC fans.

### SE Version

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

### HA Version

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

### HE Version

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

### Version LS

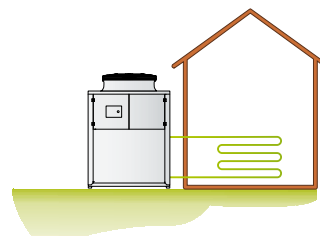
This version includes the complete acoustic insulation of the unit with compressor jackets and insulating material made with high density media and the interposition of heavy bitumen layer.

### Super low noise and ultra low noise versions XL and NN

All units in XL and NN versions are supplied, as standard, with the latest ‘Floating Frame’ technology that completely isolates the compressors from the main casing, thereby eliminating vibration and noise from this source. The ‘Floating Frame’ is a special vibration and acoustic damping system that consists of a base plate and acoustic enclosure that houses the compressors. The base plate is separated from the supporting frame of the unit by soft steel springs that have a high damping power. Within the enclosure, the compressors are mounted on rubber shock absorbers on the floating base plate. The enclosure is manufactured from galvanized steel sandwich panels that have a micro-perforated inner skin and a core of 30 mm thick, high density (25 kg/m<sup>3</sup>). The entire arrangement provides a double damping system and acoustic attenuation. The compressor refrigerant pipes are connected to the refrigerant circuit through “anaconda” flexible connections. Flexible connections are also used on the water pipework within the unit. The

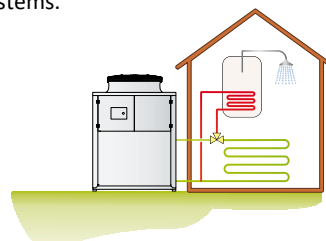
### P2U Version

This is a two pipe version that can produce hot water for heating (HH heating only) and hot or cold water in the RV version. The RV is used with two pipe water based change-over systems. It is not able to produce domestic hot water.

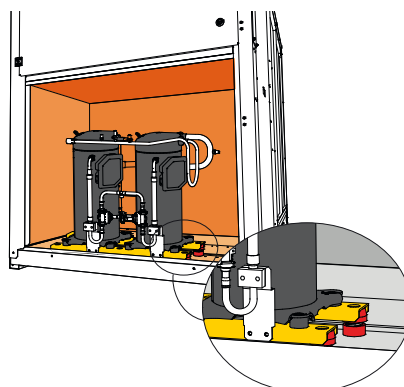


### P2S Version

This is a two pipe version that can, in addition to producing hot water for heating (HH version) and hot and cold water in the RV version can also generate domestic hot water. The controller has dual heating set points (heating and DHW) and can also control a three port diverting valve that directs the DHW to the cylinder. DHW production has priority irrespective of the mode of operation of the unit. The unit is normally used with two pipe water based change-over systems.

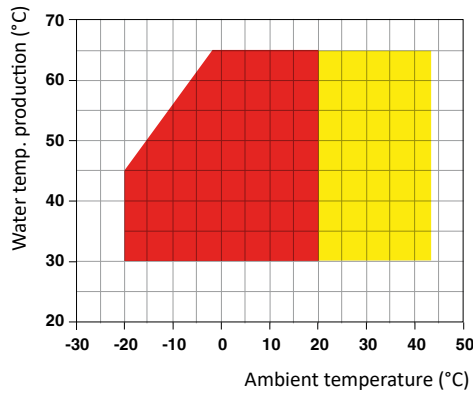


combination of these systems results in an overall noise reduction in the region of 6-8 dB(A).

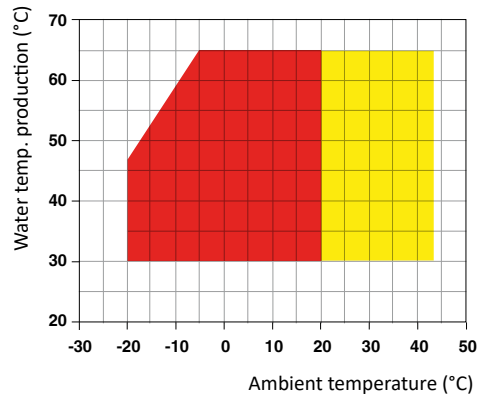


## Operation limits

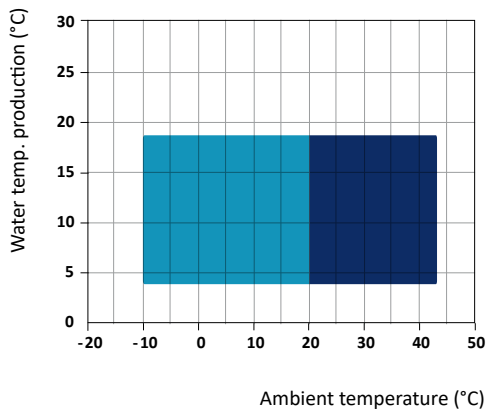
(SA/SE versions)







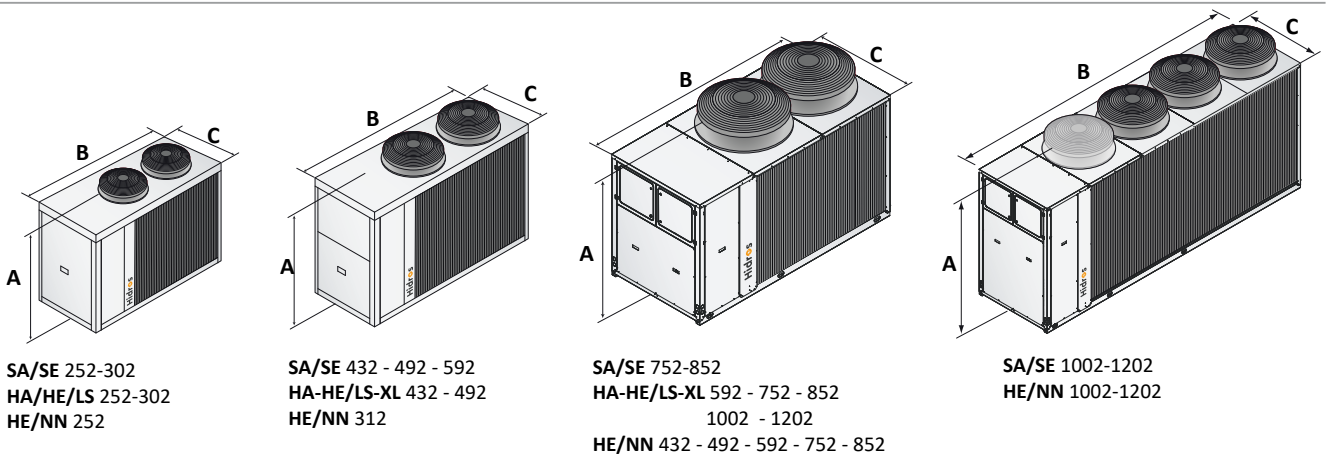
(HA/HE versions)



(RV versions Only)



-  Heating mode
-  Heating mode with head pressure control (DCCF)
-  Cooling with head pressure control (DCCF)
-  Cooling mode



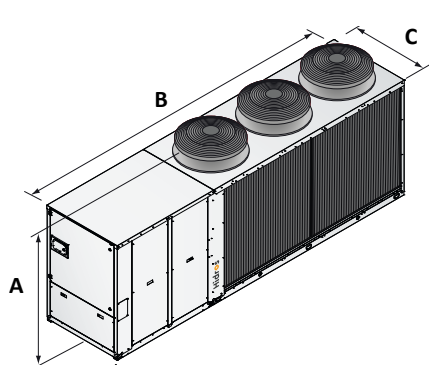
		252	302	312	432	492	592	752	852
A	SA-SE/LS	1490	1490	--	1670	1670	1670	1840	1840
B	SA-SE/LS	1915	1915	--	2400	2400	2400	2905	2905
C	SA-SE/LS	875	875	--	1145	1145	1145	1145	1145
kg	SA-SE/LS	1000	1000	--	1500	1500	1500	2000	2000
A	HA-HE/LS	1490	1490	--	1670	1670	1840	1840	1840
B	HA-HE/LS	1915	1915	--	2400	2400	2905	2905	2905
C	HA-HE/LS	875	875	--	1145	1145	1145	1145	1145
kg	HA-HE/LS	1000	1000	--	1500	1500	2000	2000	2000
A	HA-HE/XL	1490	1490	--	1670	1670	1840	1840	1840
B	HA-HE/XL	1915	1915	--	2400	2400	2905	2905	2905
C	HA-HE/XL	875	875	--	1145	1145	1145	1145	1145
kg	HA-HE/XL	1000	1000	--	1500	1500	2000	2000	2000
A	HE/NN	1490	--	1670	1840	1840	1840	1840	1840
B	HE/NN	1915	--	2400	2905	2905	2905	2905	2905
C	HE/NN	875	--	1145	1145	1145	1145	1145	1145
kg	HE/NN	1000	--	1500	2000	2000	2000	2000	2000

LZT		252	302	312	432	492	592	752	852	1002	1202	1454	1654	1854	2154
Flow switch		●	●	●	●	●	●	●	●	●	●	●	●	●	●
“Floating frame” Technology - LS Version		-	-	-	-	-	-	-	-	-	-	-	-	-	-
“Floating frame” Technology - XL - NN Version		●	●	●	●	●	●	●	●	●	●	●	●	●	●
E.C. fans - SA/LS versions	VECE	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E.C. fans - SE/LS versions	VECE	●	●	●	●	●	●	●	●	●	●	●	●	●	●
E.C. fans - HA/LS - HA/XL versions	VECE	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E.C. fans - HE/LS - HE/XL - HE/NN versions	VECE	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Condensate discharge drip tray with antifreeze heater	BRCA	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cond.pressure control - transducer & EC Fans (only for SE and HE)	VECE	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fans regulation by phase cut (only SA - HA)	DCCF	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Antifreeze kit for 2 pipe units	RAEV2	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Electronic soft starter	DSSE	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Serial interface card RS485	INSE	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Rubber anti-vibration mountings	KAVG	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Remote control panel	PCRL	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Electronic expansion valve	VTEE	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Cascade control system via RS485	SGRS	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit with one pump with tank *	A1ZZU	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit with two pumps with tank *	A2ZZU	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit with one pump without tank *	A1NTU	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Hydraulic kit with two pumps without tank *	A2NTU	○	○	○	○	○	○	○	○	○	○	○	○	○	○

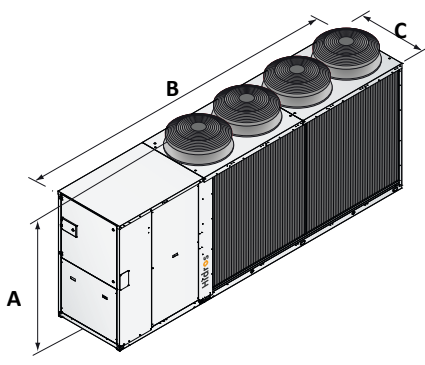
\* Not available for NN versions

X Necessary for P2S version  
Optional for P2U version

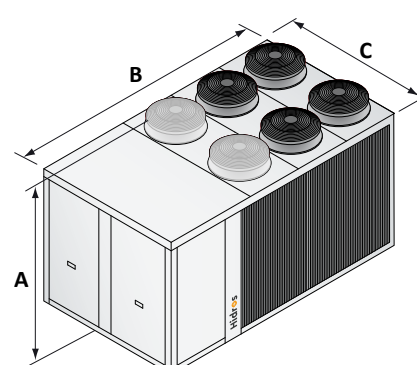
● Standard ○ Optional – Not available



HA-HE/LS 1454 - 1654  
1854 - 2154



SA-SE/LS 1454 - 1654  
1854 - 2154



HA-HE/XL 1454 - 1654 - 1854 - 2154  
HE/NN 1454 - 1654 - 1854 - 2154

		1002	1202	1454	1654	1854	2154
A	SA-SE/LS	1890	1890	2305	2305	2305	2305
B	SA-SE/LS	3905	3905	5295	5295	5295	5295
C	SA-SE/LS	1145	1145	1145	1145	1145	1145
kg	SA-SE/LS	2000	2000	2500	2540	2580	2620
A	HA-HE/LS	1840	1840	1895	1895	1895	1895
B	HA-HE/LS	2905	2905	4695	4695	4695	4695
C	HA-HE/LS	1145	1145	1145	1145	1145	1145
kg	HA-HE/LS	2000	2000	2580	2640	2720	2760
A	HA-HE/XL	1840	1840	2355	2355	2355	2355
B	HA-HE/XL	2905	2905	4205	4205	4205	4205
C	HA-HE/XL	1145	1145	2190	2190	2190	2190
kg	HA-HE/XL	2000	2000	2500	2540	2580	2620
A	HE/NN	1890	1890	2355	2355	2355	2355
B	HE/NN	3905	3905	4205	4205	4205	4205
C	HE/NN	1145	1145	2190	2190	2190	2190
kg	HE/NN	2000	2000	2750	2800	2840	2890