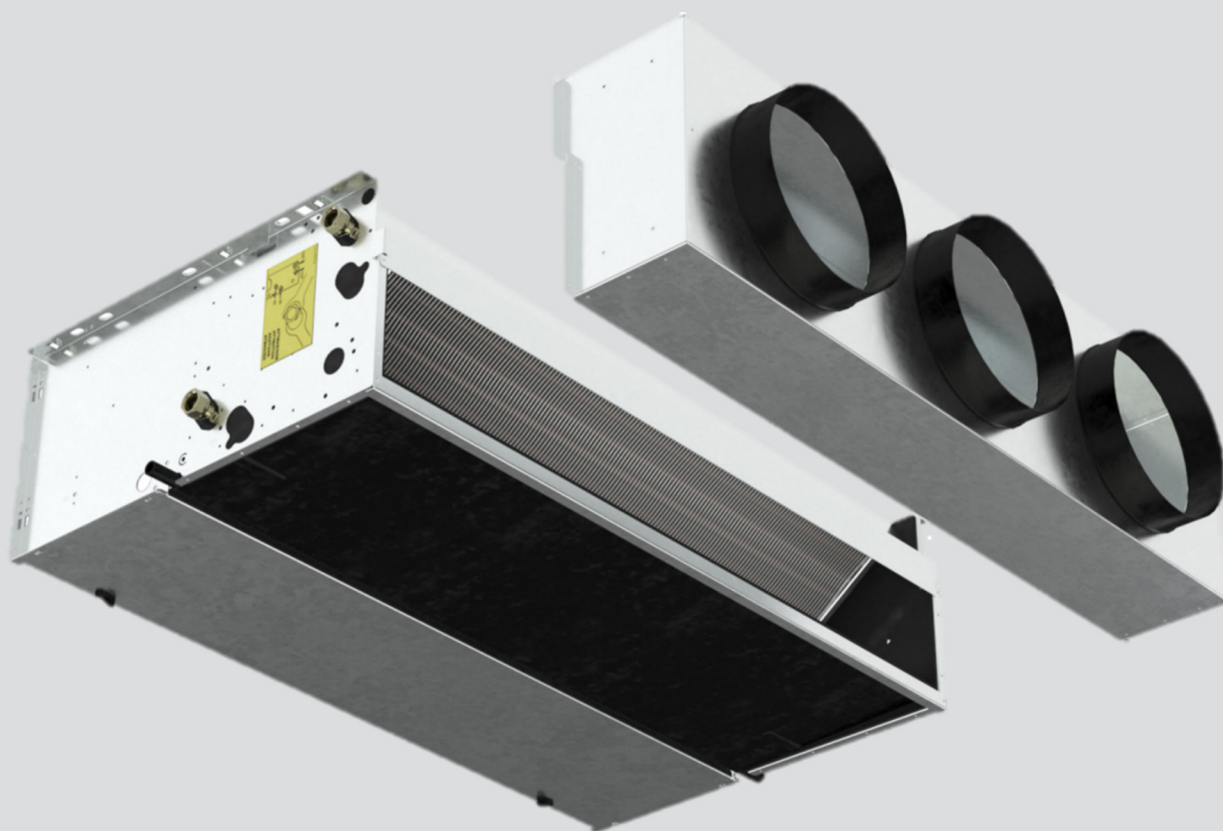




Technical catalogue
HPL / HPL-ECM
fan coil units

We care about healthy air





The descriptions and illustrations provided in this publication are not binding: we reserve the right, whilst maintaining the essential characteristics of the types described and illustrated, to make, at any time, without the requirement to promptly update this piece of literature, any changes that it considers useful for the purpose of improvement or for any other manufacturing or commercial requirements.

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INTRODUCTION

In line with innovative trends and modern industrial design, the HPL / HPL-ECM fan coil range meets today's demanding requirements of performance, size, acoustics, low energy, ease of installation and maintenance.

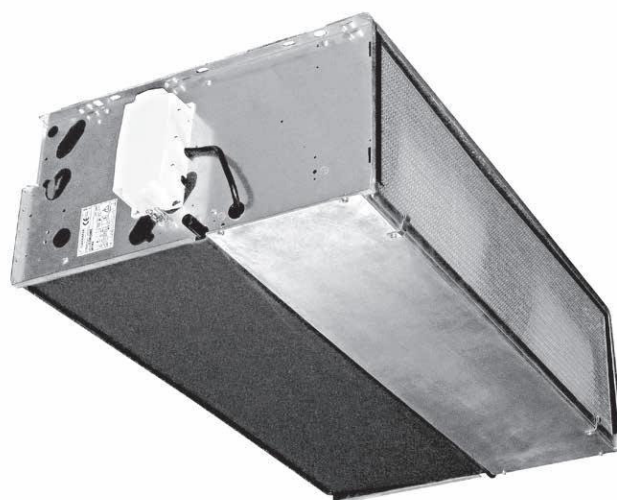
The fan coil unit has been designed around a platform of models, versions and accessories.

All fan coils with centrifugal fans are equipped with electric motors which reduce electrical consumption comparative to previous models and are available with both the asynchronous motor and the electronic one with inverter board.

New market trends have also led to an extension of the four pipe model which now has a two row LTHW battery giving improved outputs at lower flow and return temperatures.

A full range of control options is available offering greater flexibility in the installation of units, with the highest precision in monitoring and maintaining the desired comfort conditions.

The model is complemented with a full range of accessories: various types of adjustment valves, additional electric heater, auxiliary condensate pump, air inlet/outlet diffusers for fitted installations.



CONSTRUCTION FEATURES

Range includes 7 air flow rates (from 340 to 2100 m³/h), each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.

It is the most comprehensive range, perfect to meet all air-conditioning requirements of work environments like offices, shops, restaurants and hotel rooms featuring ducted installations with available pressure up to 80 Pa.

Compliant with Regulation (EU) No. 327/2011.

Casing

Made of 1 mm galvanized steel, a rear panel and two lateral sides insulated with 3 mm polyolefin (PO) foam B-s2-d0 EN 13501-1.

Fan assembly

The fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor

The motor is wired for single phase and has five speeds with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.

Coil

It is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The main coil and additional coil are equipped with two Ø 1/2" BSP female gas connections.

The coil has Ø 1/8" inch BSP air vent and drain.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

The connections are on the left side looking from the air outlet of the unit (see picture).

On request we can deliver the unit with the connections on the right end side. This operation can also be easily carried out on the construction site during installation.

Condensate collection tray

Made of plastic (ABS UL94 HB) for sizes 1÷4 and painted steel for sizes 5÷7 with a L-shaped fitted on the inner casing; the tray is insulated with 3 mm polyolefin (PO) foam B-s2-d0 EN 13501-1. The outside diameter of the condensate discharge pipe is 15 mm.

Filter

Polypropylene cellular fabric regenerating filter.

The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter.



TECHNICAL FEATURES

3 row coil - 2 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

MODEL Speed		HPL 13			HPL 23			HPL 33			HPL 43		
		1	4	5	1	4	5	1	4	5	1	4	5
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	205	290	315	395	575	625	380	720	790	600	850	980
Available pressure	Pa	25	50	58	26	50	58	14	50	60	23	50	65
Cooling total emission	kW	1,43	1,88	2,00	2,57	3,40	3,60	2,68	4,42	4,72	3,85	4,97	5,47
Cooling sensible emission	kW	1,01	1,35	1,44	1,85	2,53	2,70	1,90	3,30	3,55	2,82	3,77	4,22
Heating emission	kW	1,43	1,96	2,11	2,67	3,70	3,98	2,71	4,82	5,22	4,10	5,56	6,27
Dp Cooling	kPa	11,0	17,0	20,0	10,6	17,7	19,6	6,3	15,7	17,7	12,2	19,4	23,2
Dp Heating	kPa	9,0	16,0	18,0	8,9	16,1	18,3	5,1	14,3	16,6	10,7	18,6	23,0
Fan	W	27	45	51	59	87	94	50	96	110	89	120	146
Sound power outlet (Lw)	dB(A)	34	42	43	38	47	49	36	48	51	44	52	55
Sound power inlet + radiated (Lw)	dB(A)	42	50	52	45	55	56	43	56	58	51	59	62
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	25	33	34	29	38	40	27	39	42	35	43	46
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	33	41	43	36	46	47	34	47	49	42	50	53
Plenum code		9069191	9069191	9069191	9069222	9069222	9069222	9066368	9066368	9066368	9066368	9066368	9066368

MODEL Speed		HPL 53			HPL 63			HPL 73		
		1	4	5	1	4	5	1	3	4
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	475	810	970	580	1120	1240	905	1270	1425
Available pressure	Pa	18	50	70	15	50	60	26	50	63
Cooling total emission	kW	3,30	5,04	5,72	3,99	6,62	7,11	5,58	7,11	7,70
Cooling sensible emission	kW	2,31	3,64	4,19	2,83	4,94	5,36	4,06	5,37	5,89
Heating emission	kW	3,33	5,36	6,25	3,94	6,96	7,58	5,82	7,73	8,49
Dp Cooling	kPa	12,2	26,3	33,1	6,6	16,4	18,7	12,2	18,8	21,7
Dp Heating	kPa	9,7	23,0	30,4	5,1	14,2	16,5	10,3	17,1	20,2
Fan	W	65	110	140	66	125	145	155	177	186
Sound power outlet (Lw)	dB(A)	37	48	53	38	50	52	46	53	56
Sound power inlet + radiated (Lw)	dB(A)	43	56	60	46	58	60	53	60	63
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	28	39	44	29	41	43	37	44	47
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	34	47	51	37	49	51	44	51	54
Plenum code		9069195	9069195	9069195	9069196	9069196	9069196	9069196	9069196	9069196

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.
MIN-MED-MAX = Speeds connected in the factory

4 row coil - 2 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.

Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C

Water temperature: +45 °C E.W.T. +40 °C L.W.T.

MODEL Speed		HPL 14			HPL 24			HPL 34			HPL 44		
		1	4	5	1	4	5	1	4	5	1	4	5
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m³/h	205	290	315	395	575	625	380	720	790	600	850	980
Available pressure	Pa	25	50	58	26	50	58	14	50	60	23	50	65
Cooling total emission	kW	1,54	2,07	2,22	2,93	4,01	4,28	2,89	4,99	5,36	4,10	5,36	5,94
Cooling sensible emission	kW	1,07	1,46	1,57	2,03	2,84	3,04	2,00	3,55	3,84	2,95	3,97	4,46
Heating emission	kW	1,49	2,07	2,23	2,85	4,02	4,34	2,76	4,99	5,42	4,22	5,77	6,55
Dp Cooling	kPa	5,6	9,7	11,0	15,8	27,9	31,3	11,8	31,7	36,1	7,9	12,9	15,6
Dp Heating	kPa	5,1	9,2	10,5	12,3	22,8	26,2	8,6	24,9	28,9	6,6	11,5	14,5
Fan	W	27	45	51	59	87	94	50	96	110	89	120	146
Sound power outlet (Lw)	dB(A)	34	42	43	38	47	49	36	48	51	44	52	55
Sound power inlet + radiated (Lw)	dB(A)	42	50	52	45	55	56	43	56	58	51	59	62
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	25	33	34	29	38	40	27	39	42	35	43	46
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	33	41	43	36	46	47	34	47	49	42	50	53
Plenum code		9069191	9069191	9069191	9069222	9069222	9069222	9066368	9066368	9066368	9066368	9066368	9066368

MODEL Speed		HPL 54			HPL 64			HPL 74		
		1	4	5	1	4	5	1	3	4
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m³/h	475	810	970	580	1120	1240	905	1270	1425
Available pressure	Pa	18	50	70	15	50	60	26	50	63
Cooling total emission	kW	3,48	5,44	6,22	4,23	7,25	7,82	6,10	7,92	8,62
Cooling sensible emission	kW	2,43	3,89	4,52	2,96	5,26	5,72	4,34	5,80	6,38
Heating emission	kW	3,41	5,57	6,54	4,17	7,63	8,34	6,30	8,52	9,42
Dp Cooling	kPa	6,3	14,2	18,1	5,1	13,6	15,6	10,1	16,1	18,7
Dp Heating	kPa	5,2	12,5	16,7	4,3	12,7	15,0	9,0	15,6	18,6
Fan	W	65	110	140	66	125	145	155	177	186
Sound power outlet (Lw)	dB(A)	37	48	53	38	50	52	46	53	56
Sound power inlet + radiated (Lw)	dB(A)	43	56	60	46	58	60	53	60	63
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	28	39	44	29	41	43	37	44	47
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	34	47	51	37	49	51	44	51	54
Plenum code		9069195	9069195	9069195	9069196	9069196	9069196	9069196	9069196	9069196

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

MIN-MED-MAX = Speeds connected in the factory

3+1 row coil - 4 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

MODEL Speed		HPL 13+1			HPL 23+1			HPL 33+1			HPL 43+1		
		1	4	5	1	4	5	1	4	5	1	4	5
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	205	290	315	395	575	625	380	720	790	600	850	980
Available pressure	Pa	25	50	58	26	50	58	14	50	60	23	50	65
Cooling total emission	kW	1,43	1,88	2,00	2,57	3,40	3,60	2,68	4,42	4,72	3,85	4,97	5,47
Cooling sensible emission	kW	1,01	1,35	1,44	1,85	2,53	2,70	1,90	3,30	3,55	2,82	3,77	4,22
Heating emission	kW	1,30	1,66	1,76	2,22	2,85	3,02	2,38	3,68	3,91	3,26	4,10	4,49
Dp Cooling	kPa	10,5	17,4	19,5	10,6	17,7	19,6	6,3	15,7	17,7	12,2	19,4	23,2
Dp Heating	kPa	4,4	6,8	7,5	2,8	4,3	4,8	3,1	6,7	7,5	5,4	8,2	9,6
Fan	W	27	45	51	59	87	94	50	96	110	89	120	146
Sound power outlet (Lw)	dB(A)	34	42	43	38	47	49	36	48	51	44	52	55
Sound power inlet + radiated (Lw)	dB(A)	42	50	52	45	55	56	43	56	58	51	59	62
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	25	33	34	29	38	40	27	39	42	35	43	46
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	33	41	43	36	46	47	34	47	49	42	50	53
Plenum code		9069191	9069191	9069191	9069222	9069222	9069222	9066368	9066368	9066368	9066368	9066368	9066368

MODEL Speed		HPL 53+1			HPL 63+1			HPL 73+1		
		1	4	5	1	4	5	1	3	4
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	475	810	970	580	1120	1240	905	1270	1425
Available pressure	Pa	18	50	70	15	50	60	26	50	63
Cooling total emission	kW	3,32	5,10	5,78	3,99	6,62	7,11	5,58	7,11	7,70
Cooling sensible emission	kW	2,33	3,67	4,23	2,83	4,94	5,36	4,06	5,37	5,89
Heating emission	kW	2,85	4,11	4,63	3,48	5,44	5,80	4,72	5,90	6,35
Dp Cooling	kPa	12,3	26,7	33,7	6,6	16,4	18,7	12,2	18,8	21,7
Dp Heating	kPa	3,8	7,4	9,1	6,1	13,7	15,3	10,6	15,8	18,1
Fan	W	65	110	140	66	125	145	155	177	186
Sound power outlet (Lw)	dB(A)	37	48	53	38	50	52	46	53	56
Sound power inlet + radiated (Lw)	dB(A)	43	56	60	46	58	60	53	60	63
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	28	39	44	29	41	43	37	44	47
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	34	47	51	37	49	51	44	51	54
Plenum code		9069195	9069195	9069195	9069196	9069196	9069196	9069196	9069196	9069196

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.
MIN-MED-MAX = Speeds connected in the factory

MAIN PERFORMANCES AND TECHNICAL CHARACTERISTICS

3 row coil - 2 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.

Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C

Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Available pressure: 0 Pa

MODEL	Speed	HPL 13					HPL 23					HPL 33					HPL 43				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX
Air flow	m ³ /h	340	400	445	490	535	515	600	660	780	860	500	620	750	960	1115	655	815	955	1080	1340
Cooling total emission	kW	2,14	2,41	2,59	2,81	2,93	3,16	3,52	3,75	4,29	4,47	3,36	3,98	4,57	5,54	6,00	4,12	4,83	5,39	6,00	6,74
Cooling sensible emission	kW	1,57	1,78	1,94	2,09	2,24	2,33	2,63	2,84	3,23	3,49	2,44	2,93	3,43	4,19	4,72	3,04	3,65	4,15	4,58	5,43
Heating emission	kW	2,25	2,59	2,84	3,08	3,31	3,37	3,84	4,16	4,78	5,18	3,48	4,22	4,98	6,16	6,99	4,43	5,36	6,14	6,80	8,11
Dp Cooling	kPa	21,7	26,8	30,7	34,6	38,5	15,3	18,6	21,0	25,7	28,8	9,4	12,8	16,5	22,6	27,1	13,8	18,4	22,4	26,1	33,7
Dp Heating	kPa	20,2	26,0	30,6	35,4	40,3	13,6	17,2	19,8	25,4	29,4	8,0	11,3	15,2	22,3	28,0	12,3	17,4	22,2	26,7	36,6
Fan	W	28,0	35,0	41,0	47,0	55,0	62,0	74,0	82,0	98,0	110,0	50,0	64,0	80,0	106,0	126,0	93,0	110,0	127,0	142,0	175,0
Sound power (Lw)	dB(A)	40	43	46	48	51	42	46	48	52	55	38	43	48	54	57	45	51	55	58	63
Sound pressure (Lp) ⁽¹⁾	dB(A)	31	34	37	39	42	33	37	39	43	46	29	34	39	44	48	36	42	46	49	54

MODEL	Speed	HPL 53					HPL 63					HPL 73				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX
Air flow	m ³ /h	595	760	895	1030	1375	720	1015	1210	1425	1635	970	1190	1490	1810	2100
Cooling total emission	kW	3,98	4,82	5,43	6,11	7,24	4,77	6,19	7,01	7,97	8,56	5,87	6,78	7,90	9,22	9,89
Cooling sensible emission	kW	2,82	3,46	3,95	4,42	5,53	3,44	4,58	5,27	5,99	6,67	4,30	5,08	6,08	7,09	7,97
Heating emission	kW	4,08	5,06	5,84	6,59	8,38	4,77	6,41	7,43	8,49	9,50	6,18	7,32	8,80	10,29	11,54
Dp Cooling	kPa	17,0	24,1	29,9	35,7	50,6	9,0	14,5	18,1	22,1	26,1	13,4	17,4	22,9	28,8	34,1
Dp Heating	kPa	14,1	20,7	26,9	33,4	51,4	7,2	12,2	15,9	20,2	24,7	11,4	15,5	21,6	28,6	35,2
Fan	W	70,0	94,0	111,0	129,0	174,0	68,0	100,0	122,0	144,0	166,0	163,0	186,0	213,0	228,0	245,0
Sound power (Lw)	dB(A)	43	49	53	56	62	42	49	54	58	61	48	54	59	63	66
Sound pressure (Lp) ⁽¹⁾	dB(A)	34	40	44	47	53	33	40	45	48	52	39	45	49	53	57

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.
MIN-MED-MAX = Speeds connected in the factory

4 row coil - 2 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.

Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C

Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Available pressure: 0 Pa

MODEL	Speed	HPL 14					HPL 24					HPL 34					HPL 44				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX
Air flow	m ³ /h	340	400	445	490	535	515	600	660	780	860	500	620	750	960	1115	655	815	955	1080	1340
Cooling total emission	kW	2,39	2,71	2,94	3,21	3,37	3,69	4,16	4,48	5,18	5,45	3,71	4,44	5,17	6,34	6,95	4,41	5,20	5,84	6,53	7,42
Cooling sensible emission	kW	1,71	1,97	2,15	2,33	2,50	2,59	2,96	3,21	3,69	3,99	2,59	3,13	3,69	4,54	5,14	3,18	3,83	4,38	4,85	5,77
Heating emission	kW	2,39	2,78	3,06	3,33	3,60	3,63	4,18	4,56	5,29	5,76	3,57	4,34	5,17	6,43	7,32	4,57	5,56	6,41	7,12	8,57
Dp Cooling	kPa	12,3	15,5	17,9	20,5	23,0	23,8	29,6	33,8	42,4	48,3	18,4	25,4	33,6	47,1	57,4	9,0	12,2	15,0	17,7	23,2
Dp Heating	kPa	11,9	15,5	18,5	21,5	24,8	19,0	24,5	28,6	37,4	43,6	13,7	19,4	26,6	39,4	49,7	7,6	10,8	13,9	16,8	23,5
Fan	W	28,0	35,0	41,0	47,0	55,0	62,0	74,0	82,0	98,0	110,0	50,0	64,0	80,0	106,0	126,0	93,0	110,0	127,0	142,0	175,0
Sound power (Lw)	dB(A)	40	43	46	48	51	42	46	48	52	55	38	43	48	54	57	45	51	55	58	63
Sound pressure (Lp) ⁽¹⁾	dB(A)	31	34	37	39	42	33	37	39	43	46	29	34	39	44	48	36	42	46	49	54

MODEL	Speed	HPL 54					HPL 64					HPL 74				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX
Air flow	m ³ /h	595	760	895	1030	1375	720	1015	1210	1425	1635	970	1190	1490	1810	2100
Cooling total emission	kW	4,24	5,18	5,88	6,65	8,01	5,10	6,75	7,69	8,80	9,55	6,45	7,53	8,88	10,42	11,29
Cooling sensible emission	kW	2,98	3,69	4,24	4,76	6,02	3,60	4,86	5,62	6,42	7,18	4,61	5,48	6,60	7,74	8,72
Heating emission	kW	4,21	5,26	6,09	6,90	8,84	5,10	6,98	8,16	9,42	10,62	6,70	8,04	9,80	11,58	13,13
Dp Cooling	kPa	9,0	13,0	16,3	19,7	28,5	7,2	11,9	15,1	18,7	22,4	11,2	14,8	19,9	25,4	30,5
Dp Heating	kPa	7,6	11,3	14,7	18,4	28,8	6,2	10,9	14,4	18,6	23,1	10,1	14,0	20,0	27,0	33,9
Fan	W	70,0	94,0	111,0	129,0	174,0	68,0	100,0	122,0	144,0	166,0	163,0	186,0	213,0	228,0	245,0
Sound power (Lw)	dB(A)	43	49	53	56	62	42	49	54	58	61	48	54	59	63	66
Sound pressure (Lp) ⁽¹⁾	dB(A)	34	40	44	47	53	33	40	45	48	52	39	45	49	53	57

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

MIN-MED-MAX = Speeds connected in the factory

3+1 row coil - 4 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.

Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C

Water temperature: +65 °C E.W.T. +55 °C L.W.T.

Available pressure: 0 Pa

MODEL	Speed	HPL 13+1					HPL 23+1					HPL 33+1					HPL 43+1				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX
Air flow	m ³ /h	340	400	445	490	535	515	600	660	780	860	500	620	750	960	1115	655	815	955	1080	1340
Cooling total emission	kW	2,14	2,41	2,59	2,81	2,93	3,16	3,52	3,75	4,29	4,47	3,36	3,98	4,57	5,54	6,00	4,12	4,83	5,39	6,00	6,74
Cooling sensible emission	kW	1,57	1,78	1,94	2,09	2,24	2,33	2,63	2,84	3,23	3,49	2,44	2,93	3,43	4,19	4,72	3,04	3,65	4,15	4,58	5,43
Heating emission	kW	1,85	2,06	2,21	2,36	2,50	2,65	2,94	3,12	3,48	3,70	2,88	3,33	3,78	4,44	4,87	3,45	3,99	4,41	4,78	5,48
Dp Cooling	kPa	21,7	26,8	30,7	34,6	38,5	15,3	18,6	21,0	25,7	28,8	9,4	12,8	16,5	22,6	27,1	13,8	18,4	22,4	26,1	33,7
Dp Heating	kPa	8,3	10,0	11,4	12,8	14,1	3,8	4,6	5,1	6,2	6,9	4,3	5,6	7,1	9,4	11,2	6,0	7,8	9,3	10,8	13,8
Fan	W	28,0	35,0	41,0	47,0	55,0	62,0	74,0	82,0	98,0	110,0	50,0	64,0	80,0	106,0	126,0	93,0	110,0	127,0	142,0	175,0
Sound power (Lw)	dB(A)	40	43	46	48	51	42	46	48	52	55	38	43	48	54	57	45	51	55	58	63
Sound pressure (Lp) ⁽¹⁾	dB(A)	31	34	37	39	42	33	37	39	43	46	29	34	39	44	48	36	42	46	49	54

MODEL	Speed	HPL 53+1					HPL 63+1					HPL 73+1				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
		MIN			MED	MAX	MIN			MED	MAX	MIN			MED	MAX
Air flow	m ³ /h	595	760	895	1030	1375	720	1015	1210	1425	1635	970	1190	1490	1810	2100
Cooling total emission	kW	3,98	4,82	5,43	6,11	7,24	4,77	6,19	7,01	7,97	8,56	5,87	6,78	7,90	9,22	9,89
Cooling sensible emission	kW	2,82	3,46	3,95	4,42	5,53	3,44	4,58	5,27	5,99	6,67	4,30	5,08	6,08	7,09	7,97
Heating emission	kW	3,34	3,94	4,39	4,81	5,79	4,05	5,66	5,72	6,35	6,93	4,94	5,66	6,53	7,40	8,12
Dp Cooling	kPa	17,0	24,1	29,9	35,7	50,6	9,0	14,5	18,1	22,1	26,1	13,4	17,4	22,9	28,8	34,1
Dp Heating	kPa	5,1	6,8	8,3	9,8	13,7	8,0	14,7	14,9	18,1	21,1	11,5	14,7	19,0	23,8	28,1
Fan	W	70,0	94,0	111,0	129,0	174,0	68,0	100,0	122,0	144,0	166,0	163,0	186,0	213,0	228,0	245,0
Sound power (Lw)	dB(A)	43	49	53	56	62	42	49	54	58	61	48	54	59	63	66
Sound pressure (Lp) ⁽¹⁾	dB(A)	34	40	44	47	53	33	40	45	48	52	39	45	49	53	57

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

MIN-MED-MAX = Speeds connected in the factory

COOLING EMISSION

3 row coil units

Entering air temperature: 27 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vn		Qv m³/h	WT: 7 / 12 °C				WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
				Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa
HPL 13	5	MAX	535	3,22	2,27	554	44,1	2,89	2,15	497	36,1	2,23	1,94	384	22,5	1,66	1,66	285	13,0
	4	MED	490	3,08	2,12	530	39,6	2,77	2,00	477	32,5	2,15	1,80	369	20,2	1,60	1,56	276	11,6
	3		445	2,84	1,97	488	35,2	2,55	1,86	439	28,9	1,96	1,66	338	17,8	1,45	1,45	249	10,2
	2		400	2,63	1,81	453	30,6	2,37	1,70	408	25,3	1,82	1,52	313	15,6	1,34	1,34	230	8,9
	1	MIN	340	2,33	1,59	402	24,7	2,11	1,49	362	20,4	1,62	1,33	278	12,6	1,18	1,18	204	7,1
HPL 23	5	MAX	860	4,95	3,54	852	33,2	4,43	3,37	762	27,1	3,43	3,06	590	16,9	2,56	2,56	440	9,9
	4	MED	780	4,74	3,29	815	29,6	4,25	3,12	731	24,1	3,30	2,82	568	15,0	2,48	2,38	427	8,7
	3		660	4,14	2,89	712	24,1	3,71	2,73	638	19,7	2,86	2,45	492	12,2	2,11	2,11	364	7,0
	2		600	3,88	2,68	667	21,4	3,48	2,53	598	17,5	2,67	2,27	460	10,8	1,97	1,97	339	6,2
	1	MIN	515	3,47	2,38	597	17,5	3,12	2,24	537	14,4	2,40	1,99	412	8,9	1,76	1,76	302	5,0
HPL 33	5	MAX	1115	6,65	4,78	1144	31,4	5,94	4,53	1021	25,5	4,58	4,09	788	15,8	3,41	3,41	586	9,2
	4	MED	960	6,12	4,25	1052	26,2	5,47	4,02	940	21,2	4,24	3,61	729	13,1	3,16	3,06	544	7,6
	3		750	5,05	3,49	869	19,1	4,51	3,29	775	15,5	3,47	2,92	596	9,6	2,54	2,54	437	5,4
	2		620	4,38	2,98	754	14,8	3,92	2,81	675	12,1	3,01	2,48	518	7,4	2,20	2,20	378	4,2
	1	MIN	500	3,69	2,48	634	10,9	3,31	2,33	570	8,9	2,54	2,05	437	5,5	1,84	1,81	317	3,0
HPL 43	5	MAX	1340	7,49	5,50	1288	38,9	6,69	5,24	1151	31,6	5,19	4,77	892	19,8	3,88	3,88	668	11,6
	4	MED	1080	6,65	4,66	1144	30,2	5,95	4,42	1023	24,5	4,63	3,98	796	15,2	3,47	3,33	597	8,8
	3		955	5,99	4,23	1031	26,0	5,34	4,00	919	21,1	4,11	3,59	708	13,0	3,04	3,04	524	7,5
	2		815	5,37	3,73	923	21,3	4,78	3,52	823	17,3	3,68	3,14	633	10,7	2,70	2,70	465	6,1
	1	MIN	655	4,57	3,12	786	16,0	4,09	2,94	703	13,0	3,14	2,60	540	8,0	2,29	2,29	394	4,5
HPL 53	5	MAX	1375	7,99	5,63	1374	57,8	7,17	5,33	1234	47,4	5,55	4,85	955	29,6	4,14	4,14	713	17,3
	4	MED	1030	6,70	4,52	1152	40,6	6,05	4,25	1040	33,5	4,68	3,82	805	20,7	3,49	3,36	601	11,9
	3		895	5,94	4,05	1022	33,9	5,36	3,80	922	28,1	4,12	3,40	709	17,3	3,03	3,03	521	9,9
	2		760	5,26	3,55	905	27,3	4,76	3,34	818	22,6	3,65	2,96	629	14,0	2,67	2,64	460	7,9
	1	MIN	595	4,33	2,89	745	19,2	3,92	2,71	675	16,0	3,02	2,39	520	9,9	2,19	2,11	377	5,5
HPL 63	5	MAX	1635	9,45	6,74	1626	30,1	8,45	6,40	1453	24,5	6,53	5,81	1123	15,2	4,86	4,86	836	8,9
	4	MED	1425	8,76	6,07	1507	25,5	7,86	5,75	1352	20,8	6,09	5,19	1047	12,9	4,55	4,40	782	7,4
	3		1210	7,70	5,34	1324	20,8	6,90	5,05	1187	17,0	5,30	4,52	911	10,5	3,90	3,90	671	6,0
	2		1015	6,79	4,65	1168	16,6	6,10	4,38	1049	13,6	4,67	3,90	804	8,3	3,42	3,42	589	4,7
	1	MIN	720	5,20	3,50	895	10,3	4,70	3,28	808	8,5	3,59	2,90	618	5,2	2,61	2,56	449	2,9
HPL 73	5		2100	10,96	8,02	1885	39,2	9,79	7,67	1684	31,9	7,61	7,06	1308	20,1	5,73	5,73	985	11,9
	4	MAX	1810	10,20	7,19	1754	33,1	9,14	6,84	1572	26,9	7,12	6,25	1225	16,8	5,39	5,16	927	9,9
	3	MED	1490	8,78	6,21	1510	26,3	7,85	5,88	1350	21,4	6,06	5,33	1042	13,3	4,50	4,50	774	7,7
	2		1190	7,53	5,22	1295	20,0	6,75	4,93	1160	16,3	5,18	4,42	891	10,0	3,82	3,82	657	5,8
	1	MIN	970	6,50	4,44	1118	15,3	5,84	4,18	1005	12,6	4,48	3,72	770	7,7	3,28	3,28	564	4,4

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 23 must be subtracted from the total and sensible cooling emission

Entering air temperature: 26 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vn	Qv m³/h	WT: 7 / 12 °C				WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C				
			Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	
HPL 13	5	MAX	535	2,87	2,15	494	35,9	2,54	2,04	438	28,7	1,93	1,84	333	17,4	1,42	1,42	244	9,8
	4	MED	490	2,76	2,01	474	32,3	2,44	1,90	420	25,8	1,87	1,71	321	15,5	1,37	1,33	236	8,7
	3		445	2,54	1,86	436	28,7	2,24	1,76	386	22,9	1,70	1,58	292	13,7	1,23	1,23	212	7,7
	2		400	2,35	1,71	405	25,1	2,08	1,61	358	20,0	1,57	1,44	270	12,0	1,14	1,14	196	6,6
	1	MIN	340	2,09	1,50	360	20,3	1,85	1,41	318	16,2	1,39	1,25	240	9,6	1,00	1,00	172	5,3
HPL 23	5	MAX	860	4,40	3,37	757	26,9	3,90	3,21	671	21,6	2,98	2,91	512	13,1	2,19	2,19	377	7,5
	4	MED	780	4,23	3,12	727	24,0	3,76	2,97	646	19,2	2,88	2,68	496	11,6	2,14	2,04	367	6,6
	3		660	3,69	2,74	635	19,6	3,26	2,59	561	15,6	2,47	2,33	426	9,4	1,80	1,80	309	5,2
	2		600	3,45	2,54	594	17,4	3,05	2,40	525	13,9	2,31	2,14	397	8,3	1,67	1,67	288	4,6
	1	MIN	515	3,10	2,24	533	14,3	2,74	2,12	472	11,4	2,07	1,88	355	6,8	1,49	1,49	256	3,7
HPL 33	5	MAX	1115	5,90	4,54	1015	25,3	5,22	4,30	899	20,2	3,98	3,88	684	12,3	2,91	2,91	500	6,9
	4	MED	960	5,44	4,03	936	21,1	4,82	3,81	829	16,8	3,68	3,41	633	10,1	2,71	2,60	466	5,7
	3		750	4,48	3,30	771	15,4	3,96	3,11	682	12,3	2,99	2,76	514	7,3	2,15	2,15	370	4,0
	2		620	3,90	2,82	671	12,0	3,44	2,65	592	9,6	2,59	2,33	446	5,7	1,85	1,85	319	3,1
	1	MIN	500	3,29	2,34	566	8,9	2,91	2,19	500	7,0	2,18	1,92	375	4,2	1,55	1,55	267	2,2
HPL 43	5	MAX	1340	6,66	5,25	1145	31,5	5,90	5,00	1015	25,2	4,51	4,51	776	15,4	3,33	3,33	573	8,8
	4	MED	1080	5,92	4,42	1018	24,4	5,25	4,20	904	19,5	4,03	3,78	693	11,8	2,98	2,84	513	6,6
	3		955	5,31	4,01	914	20,9	4,70	3,79	809	16,7	3,56	3,40	613	10,1	2,59	2,59	445	5,6
	2		815	4,76	3,53	818	17,2	4,20	3,33	723	13,7	3,17	2,96	546	8,2	2,29	2,29	395	4,5
	1	MIN	655	4,06	2,95	699	12,9	3,59	2,77	617	10,3	2,70	2,45	465	6,1	1,94	1,94	333	3,3
HPL 53	5	MAX	1375	7,14	5,34	1228	47,2	6,32	5,08	1088	37,8	4,82	4,62	829	23,0	3,55	3,55	610	13,1
	4	MED	1030	6,01	4,26	1034	33,3	5,33	4,03	916	26,5	4,07	3,62	699	15,9	2,99	2,86	514	8,9
	3		895	5,33	3,82	916	27,9	4,71	3,60	810	22,2	3,56	3,22	612	13,3	2,57	2,57	442	7,3
	2		760	4,73	3,35	813	22,5	4,18	3,15	719	18,0	3,15	2,79	542	10,7	2,26	2,26	389	5,8
	1	MIN	595	3,89	2,72	669	15,8	3,46	2,55	594	12,7	2,59	2,25	446	7,5	1,85	1,85	317	4,0
HPL 63	5	MAX	1635	8,40	6,40	1446	24,3	7,44	6,09	1279	19,4	5,66	5,53	974	11,8	4,16	4,16	715	6,7
	4	MED	1425	7,81	5,75	1344	20,6	6,92	5,46	1190	16,4	5,29	4,92	909	9,9	3,90	3,76	671	5,6
	3		1210	6,86	5,05	1180	16,9	6,06	4,78	1042	13,4	4,58	4,28	787	8,0	3,32	3,32	571	4,5
	2		1015	6,06	4,39	1042	13,5	5,35	4,14	920	10,7	4,03	3,68	693	6,4	2,90	2,90	499	3,5
	1	MIN	720	4,67	3,30	803	8,4	4,12	3,09	708	6,7	3,09	2,72	531	4,0	2,19	2,19	377	2,1
HPL 73	5		2100	9,74	7,67	1675	31,8	8,64	7,35	1486	25,5	6,64	6,64	1142	15,7	4,94	4,94	849	9,1
	4	MAX	1810	9,09	6,84	1564	26,8	8,08	6,54	1390	21,5	6,23	5,97	1072	13,1	4,66	4,43	802	7,5
	3	MED	1490	7,81	5,89	1344	21,3	6,90	5,60	1187	17,0	5,25	5,07	903	10,3	3,85	3,85	662	5,8
	2		1190	6,71	4,94	1154	16,2	5,92	4,67	1019	12,9	4,48	4,19	771	7,7	3,25	3,25	559	4,3
	1	MIN	970	5,81	4,19	999	12,5	5,12	3,95	881	9,9	3,86	3,52	664	5,9	2,78	2,78	478	3,2

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 23 must be subtracted from the total and sensible cooling emission

Entering air temperature: 25 °C - R.H.: 50% - Available pressure: 0 Pa

Model		Vn	Qv m³/h	Pc kW	WT: 7 / 12 °C			Pc kW	WT: 8 / 13 °C			Pc kW	WT: 10 / 15 °C			Pc kW	WT: 12 / 17 °C		
					Ps kW	Qw l/h	Dp(c) kPa		Ps kW	Qw l/h	Dp(c) kPa		Ps kW	Qw l/h	Dp(c) kPa		Ps kW	Qw l/h	Dp(c) kPa
HPL 13	5	MAX	535	2,53	2,04	436	28,6	2,23	1,94	383	22,6	1,67	1,67	287	13,3	1,20	1,20	206	7,3
	4	MED	490	2,44	1,90	419	25,7	2,14	1,80	368	20,2	1,61	1,57	278	11,9	1,17	1,12	201	6,4
	3		445	2,23	1,76	384	22,8	1,96	1,66	337	17,9	1,46	1,46	251	10,5	1,04	1,04	179	5,6
	2		400	2,07	1,61	357	19,9	1,82	1,52	312	15,6	1,35	1,35	232	9,1	0,95	0,95	164	4,8
	1	MIN	340	1,84	1,41	317	16,1	1,61	1,33	277	12,6	1,19	1,18	205	7,3	0,84	0,84	144	3,8
HPL 23	5	MAX	860	3,89	3,21	669	21,5	3,42	3,05	588	17,0	2,58	2,58	443	10,1	1,92	1,92	330	5,9
	4	MED	780	3,74	2,96	643	19,1	3,30	2,82	567	15,1	2,50	2,40	430	8,9	1,84	1,75	317	5,0
	3		660	3,25	2,59	559	15,6	2,85	2,45	491	12,3	2,13	2,13	366	7,2	1,52	1,52	261	3,9
	2		600	3,04	2,40	523	13,8	2,67	2,27	459	10,9	1,98	1,98	341	6,3	1,41	1,41	242	3,4
	1	MIN	515	2,73	2,12	469	11,4	2,39	1,99	411	8,9	1,77	1,77	305	5,1	1,25	1,25	214	2,7
HPL 33	5	MAX	1115	5,20	4,30	895	20,2	4,58	4,08	787	15,9	3,43	3,43	590	9,4	2,68	2,68	461	6,0
	4	MED	960	4,81	3,81	827	16,8	4,23	3,60	727	13,2	3,18	3,08	548	7,7	2,43	2,32	417	4,6
	3		750	3,95	3,11	679	12,3	3,45	2,93	594	9,6	2,56	2,56	441	5,6	1,83	1,83	315	3,0
	2		620	3,43	2,65	590	9,5	3,00	2,49	516	7,5	2,21	2,19	381	4,3	1,54	1,54	265	2,2
	1	MIN	500	2,90	2,20	498	7,0	2,53	2,06	435	5,5	1,86	1,80	320	3,1	1,28	1,28	221	1,6
HPL 43	5	MAX	1340	5,89	4,99	1012	25,2	5,18	4,75	891	19,9	3,91	3,91	673	11,9	3,21	3,21	552	8,3
	4	MED	1080	5,24	4,20	901	19,4	4,62	3,98	794	15,3	3,49	3,35	601	9,0	2,74	2,60	472	5,7
	3		955	4,68	3,80	805	16,7	4,11	3,59	706	13,1	3,07	3,07	527	7,7	2,31	2,31	397	4,6
	2		815	4,19	3,33	721	13,7	3,67	3,14	631	10,7	2,73	2,73	469	6,2	1,98	1,98	341	3,5
	1	MIN	655	3,58	2,78	615	10,3	3,13	2,61	538	8,0	2,31	2,30	397	4,6	1,61	1,61	278	2,4
HPL 53	5	MAX	1375	6,30	5,08	1084	37,7	5,54	4,84	953	29,8	4,17	4,17	717	17,7	3,01	3,01	518	9,8
	4	MED	1030	5,31	4,04	913	26,5	4,67	3,82	804	20,8	3,52	3,39	605	12,2	2,54	2,41	437	6,5
	3		895	4,70	3,61	808	22,2	4,11	3,40	707	17,4	3,05	3,03	525	10,1	2,16	2,16	371	5,4
	2		760	4,16	3,15	716	17,9	3,65	2,97	627	14,0	2,69	2,63	463	8,1	1,89	1,89	325	4,2
	1	MIN	595	3,44	2,56	592	12,7	3,01	2,40	517	9,9	2,21	2,11	380	5,6	1,53	1,53	264	2,9
HPL 63	5	MAX	1635	7,41	6,09	1274	19,4	6,51	5,79	1119	15,3	4,89	4,89	841	9,1	3,68	3,68	634	5,4
	4	MED	1425	6,90	5,46	1187	16,4	6,07	5,18	1044	12,9	4,58	4,43	787	7,6	3,37	3,23	580	4,2
	3		1210	6,03	4,78	1038	13,4	5,28	4,52	909	10,5	3,94	3,94	677	6,1	2,80	2,80	481	3,3
	2		1015	5,33	4,14	916	10,7	4,66	3,91	802	8,4	3,45	3,45	594	4,8	2,43	2,43	419	2,6
	1	MIN	720	4,10	3,10	705	6,7	3,58	2,90	616	5,2	2,63	2,55	452	3,0	1,82	1,82	314	1,5
HPL 73	5		2100	8,61	7,34	1481	25,4	7,60	7,03	1307	20,2	5,77	5,77	992	12,2	4,64	4,64	798	8,2
	4	MAX	1810	8,05	6,53	1385	21,4	7,12	6,23	1224	16,9	5,43	5,20	934	10,1	4,24	4,02	730	6,3
	3	MED	1490	6,88	5,60	1183	17,0	6,04	5,32	1039	13,4	4,53	4,53	779	7,9	3,33	3,33	573	4,5
	2		1190	5,90	4,67	1015	12,9	5,17	4,42	888	10,1	3,85	3,85	662	5,9	2,74	2,74	471	3,2
	1	MIN	970	5,11	3,96	879	9,9	4,47	3,73	768	7,8	3,30	3,30	568	4,5	2,33	2,33	401	2,4

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 23 must be subtracted from the total and sensible cooling emission

4 row coil units

Entering air temperature: 27 °C - R.H.: 50% - Available pressure: 0 Pa

Model		Vn	Qv m³/h	Pc kW	WT: 7 / 12 °C				WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
					Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	
HPL 14	5	MAX	535	3,71	2,54	638	26,6	3,32	2,40	571	21,7	2,55	2,12	439	13,4	1,87	1,87	321	7,5	
	4	MED	490	3,52	2,37	605	23,6	3,16	2,23	543	19,3	2,44	1,97	419	11,9	1,79	1,74	308	6,7	
	3		445	3,23	2,18	555	20,7	2,89	2,05	498	16,9	2,22	1,81	382	10,4	1,62	1,60	278	5,8	
	2		400	2,97	2,00	511	17,8	2,67	1,88	459	14,6	2,05	1,65	352	9,0	1,49	1,45	256	5,0	
	1	MIN	340	2,60	1,74	448	14,1	2,35	1,63	403	11,6	1,80	1,43	310	7,2	1,30	1,25	224	4,0	
HPL 24	5	MAX	860	5,99	4,09	1031	55,2	5,40	3,85	929	45,6	4,16	3,41	716	28,3	3,06	3,03	526	16,1	
	4	MED	780	5,67	3,77	975	48,4	5,12	3,55	881	40,1	3,97	3,14	683	24,8	2,93	2,78	505	14,0	
	3		660	4,90	3,28	842	38,4	4,43	3,08	762	31,9	3,41	2,72	587	19,8	2,49	2,39	428	11,1	
	2		600	4,54	3,03	781	33,5	4,12	2,84	708	28,0	3,17	2,50	545	17,3	2,31	2,19	397	9,7	
	1	MIN	515	4,01	2,65	690	26,8	3,64	2,49	627	22,4	2,81	2,18	484	14,0	2,04	1,91	351	7,8	
HPL 34	5	MAX	1115	7,64	5,24	1314	65,8	6,86	4,93	1181	54,1	5,30	4,39	911	33,6	3,89	3,89	669	19,1	
	4	MED	960	6,94	4,63	1193	53,8	6,26	4,36	1077	44,4	4,85	3,86	833	27,5	3,57	3,42	615	15,5	
	3		750	5,64	3,77	970	38,1	5,11	3,54	878	31,7	3,93	3,11	676	19,6	2,86	2,73	492	11,0	
	2		620	4,82	3,19	829	28,7	4,37	2,99	752	24,0	3,37	2,62	580	14,9	2,44	2,29	420	8,3	
	1	MIN	500	4,01	2,64	690	20,7	3,65	2,48	628	17,3	2,82	2,16	486	10,8	2,04	1,88	351	6,0	
HPL 44	5	MAX	1340	8,25	5,88	1419	26,9	7,35	5,57	1265	21,7	5,67	5,00	975	13,5	4,19	4,19	721	7,8	
	4	MED	1080	7,23	4,95	1244	20,5	6,47	4,67	1113	16,6	5,00	4,17	861	10,2	3,72	3,57	639	5,8	
	3		955	6,49	4,48	1116	17,5	5,79	4,22	996	14,1	4,44	3,75	764	8,7	3,26	3,26	560	4,9	
	2		815	5,77	3,93	992	14,1	5,16	3,70	887	11,5	3,95	3,27	680	7,0	2,88	2,88	496	4,0	
	1	MIN	655	4,87	3,27	837	10,4	4,37	3,07	751	8,5	3,35	2,70	576	5,2	2,43	2,37	418	2,9	
HPL 54	5	MAX	1375	8,84	6,14	1521	32,8	7,93	5,80	1364	26,8	6,11	5,20	1050	16,6	4,51	4,51	775	9,5	
	4	MED	1030	7,30	4,87	1255	22,5	6,58	4,59	1132	18,5	5,08	4,07	875	11,4	3,75	3,61	646	6,4	
	3		895	6,44	4,34	1108	18,6	5,81	4,08	1000	15,3	4,46	3,60	767	9,4	3,25	3,19	559	5,3	
	2		760	5,66	3,78	974	14,7	5,13	3,55	882	12,2	3,93	3,13	677	7,5	2,85	2,75	491	4,2	
	1	MIN	595	4,61	3,05	794	10,2	4,18	2,87	720	8,5	3,22	2,51	554	5,3	2,33	2,19	400	2,9	
HPL 64	5	MAX	1635	10,51	7,28	1807	25,8	9,41	6,88	1618	21,0	7,23	6,16	1243	13,0	5,32	5,32	916	7,4	
	4	MED	1425	9,67	6,53	1663	21,6	8,68	6,15	1494	17,7	6,69	5,48	1150	10,8	4,94	4,80	850	6,1	
	3		1210	8,43	5,72	1450	17,3	7,58	5,38	1304	14,2	5,80	4,77	998	8,7	4,23	4,23	728	4,9	
	2		1015	7,37	4,95	1268	13,6	6,64	4,65	1143	11,2	5,09	4,10	875	6,9	3,70	3,62	636	3,8	
	1	MIN	720	5,54	3,67	953	8,1	5,02	3,45	864	6,8	3,85	3,02	662	4,2	2,78	2,64	478	2,3	
HPL 74	5		2100	12,49	8,84	2148	35,2	11,15	8,39	1919	28,6	8,61	7,59	1481	17,8	6,40	6,40	1101	10,3	
	4	MAX	1810	11,51	7,89	1980	29,3	10,32	7,46	1776	23,9	7,99	6,70	1374	14,7	5,97	5,74	1026	8,5	
	3	MED	1490	9,83	6,76	1691	22,9	8,81	6,38	1516	18,7	6,76	5,69	1163	11,5	4,97	4,97	854	6,5	
	2		1190	8,33	5,64	1433	17,0	7,48	5,30	1287	13,9	5,73	4,70	986	8,5	4,18	4,17	719	4,8	
	1	MIN	970	7,11	4,76	1223	12,8	6,42	4,47	1104	10,6	4,91	3,94	844	6,5	3,57	3,47	613	3,6	

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 23 must be subtracted from the total and sensible cooling emission

Entering air temperature: 26 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vn	Qv m³/h	WT: 7 / 12 °C					WT: 8 / 13 °C					WT: 10 / 15 °C					WT: 12 / 17 °C				
			Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa				
HPL 14	5	MAX	535	3,30	2,40	567	21,5	2,91	2,26	501	17,2	2,20	2,00	378	10,2	1,58	1,58	271	5,6			
	4	MED	490	3,14	2,23	540	19,1	2,78	2,10	478	15,3	2,11	1,85	362	9,1	1,52	1,47	261	4,9			
	3		445	2,88	2,06	495	16,8	2,54	1,93	437	13,4	1,91	1,70	329	8,0	1,36	1,36	234	4,3			
	2		400	2,65	1,88	456	14,5	2,34	1,76	403	11,6	1,76	1,55	303	6,9	1,25	1,25	215	3,7			
	1	MIN	340	2,33	1,64	401	11,5	2,06	1,53	355	9,2	1,55	1,34	266	5,4	1,09	1,09	188	2,9			
HPL 24	5	MAX	860	5,36	3,86	923	45,3	4,75	3,63	817	36,2	3,59	3,22	618	21,7	2,59	2,59	445	11,9			
	4	MED	780	5,09	3,56	876	39,8	4,52	3,35	778	31,8	3,44	2,95	591	19,0	2,49	2,39	428	10,3			
	3		660	4,40	3,10	757	31,7	3,90	2,90	670	25,4	2,94	2,55	505	15,1	2,09	2,09	360	8,1			
	2		600	4,09	2,86	703	27,7	3,62	2,67	623	22,2	2,73	2,34	469	13,2	1,93	1,93	333	7,1			
	1	MIN	515	3,62	2,50	622	22,2	3,21	2,34	552	17,9	2,42	2,04	415	10,6	1,70	1,70	293	5,6			
HPL 34	5	MAX	1115	6,82	4,95	1174	53,8	6,04	4,66	1039	42,9	4,57	4,14	786	25,8	3,30	3,30	567	14,2			
	4	MED	960	6,22	4,38	1071	44,2	5,52	4,11	949	35,2	4,19	3,63	721	21,1	3,03	2,93	522	11,4			
	3		750	5,07	3,55	872	31,5	4,49	3,33	772	25,2	3,38	2,92	581	15,0	2,40	2,40	413	8,0			
	2		620	4,34	3,01	746	23,8	3,85	2,81	663	19,1	2,90	2,45	498	11,3	2,04	2,04	351	6,0			
	1	MIN	500	3,62	2,49	622	17,1	3,22	2,33	555	13,9	2,42	2,02	417	8,2	1,70	1,70	292	4,3			
HPL 44	5	MAX	1340	7,31	5,58	1258	21,6	6,47	5,28	1112	17,3	4,91	4,74	844	10,4	3,57	3,57	615	5,8			
	4	MED	1080	6,43	4,68	1106	16,5	5,70	4,42	981	13,1	4,34	3,93	746	7,8	3,17	3,03	546	4,3			
	3		955	5,76	4,23	990	14,1	5,08	3,98	875	11,2	3,83	3,53	659	6,7	2,76	2,76	474	3,7			
	2		815	5,12	3,71	881	11,4	4,53	3,48	779	9,1	3,40	3,07	585	5,4	2,43	2,43	418	2,9			
	1	MIN	655	4,34	3,08	746	8,4	3,83	2,89	659	6,7	2,88	2,53	495	4,0	2,04	2,04	351	2,1			
HPL 54	5	MAX	1375	7,89	5,82	1356	26,7	6,97	5,50	1199	21,3	5,28	4,92	908	12,8	3,83	3,83	659	7,1			
	4	MED	1030	6,54	4,60	1125	18,4	5,79	4,33	997	14,6	4,40	3,83	756	8,7	3,19	3,06	549	4,8			
	3		895	5,78	4,09	993	15,2	5,11	3,85	878	12,1	3,84	3,39	660	7,2	2,74	2,74	471	3,9			
	2		760	5,09	3,57	876	12,1	4,50	3,34	774	9,7	3,38	2,93	581	5,7	2,40	2,40	412	3,1			
	1	MIN	595	4,15	2,88	714	8,4	3,68	2,69	633	6,7	2,76	2,35	474	4,0	1,94	1,94	334	2,1			
HPL 64	5	MAX	1635	9,35	6,89	1609	20,9	8,26	6,51	1420	16,6	6,24	5,82	1074	10,0	4,52	4,52	778	5,5			
	4	MED	1425	8,63	6,17	1485	17,6	7,64	5,81	1313	13,9	5,79	5,17	996	8,3	4,21	4,07	724	4,6			
	3		1210	7,53	5,39	1296	14,2	6,65	5,07	1144	11,3	4,99	4,49	859	6,7	3,58	3,58	615	3,6			
	2		1015	6,60	4,66	1135	11,2	5,82	4,37	1002	8,9	4,37	3,85	752	5,2	3,11	3,11	535	2,8			
	1	MIN	720	4,98	3,46	857	6,7	4,41	3,23	758	5,4	3,30	2,82	567	3,2	2,32	2,32	400	1,7			
HPL 74	5		2100	11,10	8,40	1910	28,4	9,82	7,98	1689	22,7	7,47	7,22	1285	13,8	5,46	5,46	940	7,8			
	4	MAX	1810	10,27	7,47	1766	23,7	9,10	7,07	1564	18,9	6,94	6,35	1194	11,4	5,11	4,89	880	6,3			
	3	MED	1490	8,76	6,39	1507	18,6	7,73	6,03	1330	14,8	5,83	5,38	1003	8,8	4,21	4,21	724	4,8			
	2		1190	7,44	5,32	1279	13,8	6,56	5,00	1129	11,0	4,93	4,42	848	6,5	3,53	3,53	607	3,5			
	1	MIN	970	6,37	4,49	1096	10,5	5,63	4,21	968	8,3	4,22	3,70	725	4,9	3,00	3,00	515	2,6			

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 23 must be subtracted from the total and sensible cooling emission

Entering air temperature: 25 °C - R.H.: 50% - Available pressure: 0 Pa

Model		Vn	Qv m³/h	Pc kW	WT: 7 / 12 °C				WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
					Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	
HPL 14	5	MAX	535	2,90	2,26	500	17,1	2,54	2,13	437	13,4	1,88	1,88	324	7,7	1,32	1,32	226	4,0	
	4	MED	490	2,77	2,10	476	15,2	2,43	1,97	418	11,9	1,81	1,74	310	6,8	1,27	1,23	219	3,5	
	3		445	2,53	1,94	435	13,4	2,21	1,82	381	10,5	1,63	1,60	281	6,0	1,13	1,13	195	3,1	
	2		400	2,33	1,77	401	11,5	2,04	1,66	351	9,0	1,50	1,45	258	5,1	1,03	1,03	178	2,6	
	1	MIN	340	2,05	1,54	353	9,2	1,79	1,43	309	7,2	1,32	1,25	226	4,1	0,90	0,90	155	2,0	
HPL 24	5	MAX	860	4,73	3,64	814	36,1	4,15	3,42	714	28,4	3,08	3,03	530	16,5	2,16	2,16	371	8,6	
	4	MED	780	4,50	3,35	774	31,7	3,96	3,15	681	24,9	2,95	2,77	508	14,4	2,09	1,99	360	7,4	
	3		660	3,88	2,91	667	25,3	3,40	2,73	585	19,8	2,51	2,39	431	11,4	1,73	1,73	298	5,8	
	2		600	3,60	2,68	620	22,1	3,16	2,51	543	17,4	2,32	2,19	400	9,9	1,60	1,60	275	5,0	
	1	MIN	515	3,19	2,35	549	17,8	2,80	2,19	481	14,0	2,06	1,91	354	7,9	1,40	1,40	241	4,0	
HPL 34	5	MAX	1115	6,02	4,67	1036	42,9	5,28	4,39	908	33,7	3,92	3,89	674	19,5	2,76	2,76	474	10,3	
	4	MED	960	5,50	4,12	946	35,2	4,83	3,87	831	27,6	3,61	3,41	620	15,9	2,55	2,44	438	8,2	
	3		750	4,47	3,34	769	25,1	3,91	3,12	673	19,7	2,88	2,73	496	11,2	1,98	1,98	341	5,7	
	2		620	3,83	2,82	659	19,0	3,36	2,64	577	14,9	2,46	2,29	424	8,5	1,68	1,68	289	4,2	
	1	MIN	500	3,21	2,33	551	13,8	2,81	2,18	483	10,8	2,06	1,88	354	6,1	1,38	1,38	238	3,0	
HPL 44	5	MAX	1340	6,44	5,28	1108	17,2	5,65	4,99	972	13,5	4,23	4,23	727	8,0	3,26	3,26	561	4,9	
	4	MED	1080	5,68	4,42	976	13,1	4,99	4,16	858	10,3	3,74	3,60	644	6,0	2,79	2,65	480	3,4	
	3		955	5,06	3,99	871	11,2	4,43	3,75	763	8,8	3,28	3,28	565	5,0	2,35	2,35	404	2,7	
	2		815	4,51	3,49	775	9,0	3,94	3,28	678	7,1	2,91	2,89	500	4,1	2,02	2,02	348	2,1	
	1	MIN	655	3,82	2,90	656	6,7	3,34	2,71	574	5,2	2,45	2,37	421	3,0	1,69	1,69	290	1,5	
HPL 54	5	MAX	1375	6,94	5,50	1194	21,2	6,09	5,20	1048	16,7	4,54	4,54	781	9,8	3,22	3,22	555	5,2	
	4	MED	1030	5,77	4,34	993	14,6	5,07	4,07	872	11,4	3,78	3,60	650	6,6	2,69	2,56	462	3,4	
	3		895	5,08	3,85	874	12,1	4,44	3,61	764	9,5	3,28	3,18	564	5,4	2,28	2,28	392	2,8	
	2		760	4,48	3,35	770	9,6	3,92	3,14	674	7,5	2,88	2,75	495	4,3	1,98	1,98	341	2,2	
	1	MIN	595	3,66	2,70	630	6,7	3,20	2,52	551	5,2	2,34	2,19	403	3,0	1,60	1,60	275	1,5	
HPL 64	5	MAX	1635	8,23	6,52	1415	16,6	7,21	6,15	1239	13,0	5,36	5,36	922	7,6	3,81	3,81	655	4,0	
	4	MED	1425	7,60	5,82	1308	13,9	6,67	5,48	1147	10,9	4,98	4,84	857	6,3	3,55	3,41	611	3,3	
	3		1210	6,62	5,08	1138	11,2	5,78	4,77	995	8,8	4,27	4,22	735	5,0	2,99	2,99	514	2,6	
	2		1015	5,80	4,38	997	8,8	5,07	4,11	871	6,9	3,72	3,61	640	3,9	2,58	2,58	444	2,0	
	1	MIN	720	4,38	3,24	754	5,3	3,83	3,03	659	4,2	2,80	2,64	482	2,4	1,91	1,91	329	1,2	
HPL 74	5		2100	9,79	7,98	1684	22,7	8,59	7,58	1478	17,9	6,45	6,45	1109	10,5	4,82	4,82	829	6,2	
	4	MAX	1810	9,06	7,08	1559	18,9	7,97	6,70	1372	14,8	6,01	5,78	1033	8,7	4,40	4,17	757	4,8	
	3	MED	1490	7,70	6,04	1325	14,7	6,75	5,70	1160	11,5	5,00	5,00	860	6,7	3,53	3,53	608	3,5	
	2		1190	6,54	5,01	1125	11,0	5,71	4,71	983	8,6	4,21	4,16	725	4,9	2,95	2,95	507	2,6	
	1	MIN	970	5,60	4,22	963	8,3	4,89	3,95	842	6,5	3,59	3,47	618	3,7	2,49	2,49	428	1,9	

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 23 must be subtracted from the total and sensible cooling emission

HEATING EMISSION

3 row coil units

Entering air temperature: 20 °C - Available pressure: 0 Pa

			WT: 70 / 60 °C			WT: 60 / 50 °C			WT: 55 / 45 °C			WT: 50 / 40 °C			WT: 50 / 45 °C			WT: 45 / 40 °C		
			Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)
Model		Vn	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa
HPL 13	5	MAX	6,67	574	37,7	5,12	440	24,2	4,34	374	18,4	3,57	307	13,1	4,09	703	57,8	3,31	569	40,3
	4	MED	6,19	532	33,0	4,76	409	21,3	4,04	348	16,1	3,32	285	11,5	3,79	652	50,5	3,08	530	35,4
	3		5,71	491	28,5	4,39	378	18,4	3,73	320	13,9	3,06	263	9,9	3,50	601	43,6	2,84	489	30,6
	2		5,21	448	24,2	4,01	345	15,6	3,41	293	11,9	2,80	240	8,5	3,19	549	37,1	2,59	446	26,0
	1	MIN	4,53	390	18,8	3,48	299	12,1	2,96	255	9,2	2,44	210	6,6	2,77	477	28,7	2,25	388	20,2
HPL 23	5	MAX	10,41	896	27,4	7,99	687	17,6	6,78	583	13,3	5,55	478	9,5	6,38	1098	42,0	5,18	891	29,4
	4	MED	9,62	828	23,8	7,39	636	15,3	6,26	539	11,6	5,13	441	8,2	5,90	1014	36,5	4,78	822	25,4
	3		8,38	721	18,5	6,43	553	11,9	5,46	469	9,0	4,48	386	6,4	5,13	883	28,4	4,16	715	19,8
	2		7,72	664	16,0	5,94	511	10,3	5,03	433	7,8	4,13	356	5,6	4,73	814	24,5	3,84	660	17,2
	1	MIN	6,78	583	12,7	5,21	448	8,1	4,42	381	6,2	3,63	312	4,4	4,15	713	19,3	3,37	580	13,6
HPL 33	5	MAX	14,09	1211	26,2	10,77	926	16,7	9,14	786	12,7	7,49	644	9,0	8,63	1484	40,2	6,99	1202	28,0
	4	MED	12,41	1067	20,9	9,53	819	13,4	8,07	694	10,1	6,62	569	7,2	7,60	1307	31,9	6,16	1059	22,3
	3		10,04	864	14,3	7,72	664	9,2	6,55	563	7,0	5,38	462	5,0	6,14	1057	21,8	4,98	857	15,2
	2		8,48	730	10,5	6,53	561	6,8	5,54	476	5,1	4,55	392	3,7	5,20	894	16,1	4,22	726	11,3
	1	MIN	6,99	601	7,4	5,38	463	4,8	4,57	393	3,6	3,76	323	2,6	4,28	737	11,4	3,48	598	8,0
HPL 43	5	MAX	16,36	1407	34,3	12,52	1077	22,0	10,59	911	16,5	8,68	746	11,8	10,03	1724	52,6	8,11	1395	36,6
	4	MED	13,72	1180	25,0	10,50	903	16,0	8,91	766	12,1	7,29	627	8,6	8,40	1445	38,3	6,80	1170	26,7
	3		12,36	1063	20,7	9,48	815	13,3	8,03	690	10,0	6,58	566	7,1	7,58	1303	31,8	6,14	1056	22,2
	2		10,80	929	16,3	8,28	712	10,4	7,02	604	7,9	5,76	495	5,6	6,61	1137	24,9	5,36	922	17,4
	1	MIN	8,92	767	11,5	6,84	589	7,4	5,81	499	5,6	4,77	410	4,0	5,46	938	17,6	4,43	762	12,3
HPL 53	5	MAX	16,88	1451	48,1	12,96	1114	30,9	10,99	945	23,4	9,03	776	16,7	10,33	1776	73,5	8,38	1442	51,4
	4	MED	13,25	1139	31,1	10,19	877	20,1	8,66	745	15,2	7,12	612	10,9	8,11	1395	47,6	6,59	1134	33,4
	3		11,75	1010	25,0	9,05	778	16,2	7,67	659	12,2	6,31	543	8,8	7,19	1237	38,3	5,84	1005	26,9
	2		10,18	875	19,3	7,84	674	12,5	6,67	574	9,5	5,49	472	6,8	6,24	1073	29,7	5,06	871	20,7
	1	MIN	8,19	704	13,1	6,31	543	8,5	5,37	462	6,4	4,43	381	4,6	5,01	862	20,0	4,08	702	14,1
HPL 63	5	MAX	19,13	1645	23,1	14,64	1259	14,8	12,41	1067	11,2	10,17	875	8,0	11,72	2015	35,5	9,50	1633	24,7
	4	MED	17,11	1472	18,9	13,13	1129	12,2	11,13	957	9,2	9,12	784	6,5	10,49	1805	29,1	8,49	1460	20,2
	3		14,97	1287	14,9	11,47	986	9,5	9,73	837	7,2	7,98	686	5,1	9,16	1576	22,8	7,43	1277	15,9
	2		12,91	1110	11,4	9,91	852	7,3	8,39	722	5,5	6,89	593	4,0	7,90	1359	17,5	6,41	1103	12,2
	1	MIN	9,59	825	6,7	7,37	634	4,3	6,26	538	3,3	5,15	443	2,3	5,87	1009	10,2	4,77	821	7,2
HPL 73	5		23,29	2003	33,0	17,83	1534	21,1	15,10	1298	15,9	12,34	1061	11,3	14,26	2454	50,5	11,54	1985	35,2
	4	MAX	20,73	1783	26,8	15,87	1365	17,1	13,45	1157	12,9	11,01	947	9,2	12,70	2185	41,0	10,29	1770	28,6
	3	MED	17,75	1526	20,2	13,61	1171	13,0	11,53	992	9,8	9,45	812	7,0	10,87	1870	31,0	8,80	1514	21,6
	2		14,76	1269	14,5	11,31	973	9,3	9,59	825	7,0	7,87	677	5,0	9,04	1556	22,2	7,32	1259	15,5
	1	MIN	12,41	1068	10,6	9,52	819	6,8	8,09	696	5,2	6,65	572	3,7	7,60	1307	16,3	6,18	1062	11,4

WT: Water temperature
Vn: Nominal speeds
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

4 row coil units

Entering air temperature: 20 °C - Available pressure: 0 Pa

			WT: 70 / 60 °C				WT: 60 / 50 °C			WT: 55 / 45 °C			WT: 50 / 40 °C			WT: 50 / 45 °C			WT: 45 / 40 °C		
			Qv m³/h	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa
Model		Vn																			
HPL 14	5	MAX	535	7,23	622	23,1	5,56	478	14,9	4,73	407	11,3	3,89	334	8,1	4,43	763	35,4	3,60	619	24,8
	4	MED	490	6,71	577	20,2	5,15	443	12,9	4,38	377	9,9	3,60	309	7,1	4,10	705	30,8	3,33	572	21,5
	3		445	6,15	529	17,2	4,73	407	11,1	4,02	345	8,4	3,30	284	6,0	3,76	646	26,3	3,06	526	18,5
	2		400	5,58	480	14,5	4,29	369	9,4	3,65	314	7,1	3,01	259	5,1	3,42	588	22,2	2,78	477	15,5
	1	MIN	340	4,81	414	11,1	3,70	319	7,2	3,16	271	5,5	2,60	223	3,9	2,95	507	17,0	2,39	412	11,9
HPL 24	5	MAX	860	11,57	995	40,6	8,92	767	26,3	7,59	652	20,0	6,25	537	14,4	7,08	1217	62,0	5,76	990	43,6
	4	MED	780	10,62	914	34,8	8,17	703	22,5	6,95	598	17,1	5,73	493	12,3	6,50	1117	53,2	5,29	909	37,4
	3		660	9,14	786	26,6	7,05	606	17,2	6,00	516	13,1	4,95	426	9,4	5,60	963	40,7	4,56	784	28,6
	2		600	8,39	721	22,8	6,47	557	14,8	5,51	474	11,3	4,55	391	8,1	5,14	884	34,9	4,18	720	24,5
	1	MIN	515	7,30	628	17,7	5,62	484	11,5	4,79	412	8,7	3,95	340	6,3	4,46	767	27,0	3,63	625	19,0
HPL 34	5	MAX	1115	14,71	1265	46,3	11,33	974	30,0	9,63	828	22,8	7,93	682	16,3	9,01	1550	71,0	7,32	1259	49,7
	4	MED	960	12,92	1111	36,7	9,95	856	23,7	8,47	728	18,1	6,97	600	13,0	7,91	1361	56,1	6,43	1105	39,4
	3		750	10,39	893	24,8	7,99	687	16,0	6,80	585	12,2	5,61	483	8,8	6,35	1092	37,8	5,17	889	26,6
	2		620	8,70	748	18,0	6,72	578	11,7	5,72	492	8,9	4,71	405	6,4	5,33	917	27,6	4,34	746	19,4
	1	MIN	500	7,15	615	12,7	5,53	475	8,2	4,71	405	6,3	3,88	334	4,5	4,38	754	19,4	3,57	614	13,6
HPL 44	5	MAX	1340	17,24	1482	21,9	13,23	1138	14,1	11,20	964	10,6	9,18	790	7,6	10,58	1820	33,7	8,57	1475	23,5
	4	MED	1080	14,35	1234	15,8	11,03	948	10,1	9,35	804	7,7	7,66	658	5,5	8,78	1511	24,1	7,12	1225	16,8
	3		955	12,88	1108	13,0	9,90	852	8,4	8,40	723	6,3	6,90	593	4,5	7,90	1358	19,9	6,41	1102	13,9
	2		815	11,21	964	10,1	8,60	740	6,5	7,30	628	4,9	6,00	516	3,5	6,85	1179	15,4	5,56	957	10,8
	1	MIN	655	9,20	791	7,1	7,07	608	4,6	6,00	516	3,5	4,94	425	2,5	5,62	967	10,8	4,57	786	7,6
HPL 54	5	MAX	1375	17,82	1533	27,0	13,68	1177	17,3	11,62	1000	13,2	9,53	820	9,4	10,91	1877	41,3	8,84	1521	28,8
	4	MED	1030	13,86	1192	17,2	10,67	917	11,1	9,06	779	8,4	7,45	641	6,0	8,50	1462	26,3	6,90	1186	18,4
	3		895	12,25	1053	13,7	9,42	810	8,9	8,02	690	6,7	6,59	567	4,8	7,49	1288	21,0	6,09	1048	14,7
	2		760	10,57	909	10,5	8,14	700	6,8	6,92	595	5,2	5,70	490	3,7	6,46	1112	16,1	5,26	905	11,3
	1	MIN	595	8,43	725	7,0	6,51	560	4,6	5,54	476	3,5	4,57	393	2,5	5,17	889	10,7	4,21	724	7,6
HPL 64	5	MAX	1635	21,35	1836	21,6	16,40	1410	13,9	13,91	1197	10,5	11,43	983	7,5	13,09	2251	33,0	10,62	1827	23,1
	4	MED	1425	18,99	1633	17,5	14,57	1253	11,2	12,37	1064	8,5	10,16	873	6,1	11,62	1998	26,7	9,42	1621	18,6
	3		1210	16,44	1414	13,5	12,63	1086	8,7	10,73	923	6,6	8,81	758	4,7	10,05	1729	20,6	8,16	1403	14,4
	2		1015	14,02	1206	10,1	10,79	928	6,5	9,16	788	5,0	7,55	650	3,6	8,59	1478	15,5	6,98	1200	10,9
	1	MIN	720	10,25	882	5,8	7,90	679	3,7	6,71	577	2,8	5,53	475	2,0	6,27	1078	8,8	5,10	878	6,2
HPL 74	5		2100	26,39	2270	31,6	20,23	1740	20,2	17,17	1477	15,3	14,06	1209	10,9	16,17	2781	48,4	13,13	2258	33,9
	4	MAX	1810	23,31	2005	25,3	17,87	1536	16,2	15,18	1305	12,3	12,44	1070	8,7	14,29	2458	38,7	11,58	1992	27,0
	3	MED	1490	19,70	1695	18,7	15,14	1302	12,0	12,83	1104	9,1	10,56	908	6,5	12,09	2079	28,6	9,80	1686	20,0
	2		1190	16,17	1390	13,1	12,43	1069	8,4	10,57	909	6,4	8,69	748	4,6	9,91	1705	20,0	8,04	1384	14,0
	1	MIN	970	13,46	1158	9,4	10,36	891	6,1	8,80	757	4,6	7,24	622	3,3	8,25	1419	14,4	6,70	1152	10,1

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

1 row additional coil units

For 3 or 4 row versions (3+1 or 4+1 rows)

Entering air temperature: 20 °C - Available pressure: 0 Pa

			WT: 80 / 70 °C				WT: 75 / 65 °C			WT: 70 / 60 °C			WT: 65 / 55 °C			WT: 60 / 50 °C			WT: 55 / 45 °C		
			Qv	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)
Model		Vn	m³/h	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa
HPL 1	5	MAX	535	3,53	303	25,1	3,18	274	21,2	2,84	244	17,5	2,50	215	14,1	2,15	185	11,0	1,81	155	8,2
	4	MED	490	3,33	286	22,6	3,01	259	19,1	2,68	231	15,8	2,36	203	12,8	2,03	175	9,9	1,71	147	7,4
	3		445	3,13	269	20,2	2,83	243	17,1	2,52	217	14,1	2,21	190	11,4	1,91	164	8,9	1,60	138	6,6
	2		400	2,91	251	17,8	2,64	227	15,1	2,35	202	12,5	2,06	178	10,0	1,78	153	7,8	1,50	129	5,8
	1	MIN	340	2,62	225	14,7	2,36	203	12,4	2,11	181	10,3	1,85	159	8,3	1,60	137	6,4	1,34	116	4,8
HPL 2	5	MAX	860	5,28	454	12,5	4,75	408	10,5	4,22	363	8,6	3,70	318	6,9	3,17	273	5,3	2,64	227	3,9
	4	MED	780	4,96	427	11,2	4,46	384	9,4	3,97	341	7,7	3,48	299	6,2	2,98	256	4,8	2,49	214	3,5
	3		660	4,46	383	9,2	4,01	345	7,8	3,57	307	6,4	3,12	269	5,1	2,68	230	3,9	2,24	192	2,9
	2		600	4,19	360	8,2	3,77	324	6,9	3,36	289	5,7	2,94	253	4,6	2,52	217	3,5	2,10	181	2,6
	1	MIN	515	3,78	325	6,9	3,41	293	5,8	3,03	261	4,8	2,65	228	3,8	2,28	196	2,9	1,90	164	2,2
HPL 3	5	MAX	1115	6,92	595	20,0	6,24	537	16,9	5,55	478	13,9	4,87	419	11,2	4,19	361	8,7	3,51	302	6,4
	4	MED	960	6,28	540	16,8	5,67	487	14,2	5,06	435	11,7	4,44	382	9,4	3,82	328	7,3	3,20	275	5,4
	3		750	5,35	460	12,6	4,83	416	10,6	4,31	370	8,8	3,78	325	7,1	3,25	280	5,5	2,73	235	4,1
	2		620	4,71	405	10,0	4,25	366	8,5	3,79	326	7,0	3,33	287	5,6	2,87	247	4,4	2,41	207	3,2
	1	MIN	500	4,08	351	7,7	3,67	316	6,5	3,28	282	5,4	2,88	248	4,3	2,48	213	3,4	2,08	179	2,5
HPL 4	5	MAX	1340	7,78	669	24,7	7,01	603	20,8	6,24	537	17,2	5,48	471	13,8	4,71	405	10,7	3,94	339	7,9
	4	MED	1080	6,78	583	19,3	6,11	526	16,2	5,44	468	13,4	4,78	411	10,8	4,11	354	8,4	3,45	297	6,2
	3		955	6,26	538	16,7	5,65	486	14,1	5,03	433	11,6	4,41	380	9,3	3,80	327	7,3	3,19	274	5,4
	2		815	5,65	486	13,9	5,10	438	11,7	4,55	391	9,7	3,99	343	7,8	3,43	295	6,1	2,88	248	4,5
	1	MIN	655	4,89	420	10,7	4,41	379	9,0	3,93	338	7,5	3,45	297	6,0	2,97	256	4,7	2,50	215	3,5
HPL 5	5	MAX	1375	8,18	703	24,2	7,37	634	20,4	6,59	567	17,0	5,79	498	13,7	4,99	429	10,6	4,19	361	7,9
	4	MED	1030	6,79	584	17,4	6,13	528	14,7	5,48	471	12,2	4,81	413	9,8	4,15	357	7,6	3,49	300	5,7
	3		895	6,19	532	14,7	5,59	481	12,4	4,99	429	10,3	4,39	377	8,3	3,79	326	6,5	3,19	274	4,8
	2		760	5,55	477	12,1	5,02	432	10,2	4,48	385	8,5	3,94	339	6,8	3,40	293	5,3	2,86	246	4,0
	1	MIN	595	4,71	405	9,0	4,25	366	7,6	3,80	327	6,3	3,34	287	5,1	2,89	249	4,0	2,43	209	3,0
HPL 6	5	MAX	1635	9,75	839	37,2	8,82	759	31,5	7,87	677	26,1	6,93	596	21,1	5,99	515	16,5	5,04	434	12,3
	4	MED	1425	8,94	769	31,8	8,08	695	26,9	7,21	620	22,3	6,35	547	18,1	5,49	472	14,1	4,62	398	10,5
	3		1210	8,04	691	26,3	7,27	625	22,3	6,49	558	18,5	5,72	492	14,9	4,94	425	11,7	4,17	359	8,8
	2		1015	7,95	684	25,8	7,20	619	21,8	6,42	552	18,1	5,66	487	14,7	4,89	420	11,5	4,12	354	8,6
	1	MIN	720	5,68	489	14,1	5,13	441	11,9	4,60	395	9,9	4,05	348	8,0	3,50	301	6,3	2,95	254	4,7
HPL 7	5		2100	11,45	985	49,7	10,35	890	42,0	9,23	794	34,8	8,12	699	28,1	7,03	604	22,0	5,91	508	16,4
	4	MAX	1810	10,41	895	41,8	9,41	809	35,4	8,40	723	29,4	7,40	637	23,8	6,39	550	18,6	5,38	463	13,9
	3	MED	1490	9,20	791	33,5	8,31	715	28,3	7,42	638	23,5	6,53	562	19,0	5,65	486	14,9	4,76	409	11,1
	2		1190	7,95	684	25,8	7,20	619	21,8	6,42	552	18,1	5,66	487	14,7	4,89	420	11,5	4,12	354	8,6
	1	MIN	970	6,95	598	20,2	6,28	540	17,1	5,62	483	14,2	4,94	425	11,5	4,28	368	9,0	3,61	310	6,8

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

2 row additional coil units

For 3 row versions only (3+2 rows)

Entering air temperature: 20 °C - Available pressure: 0 Pa

Model	Vn	Qv m³/h	WT: 65 / 55 °C				WT: 60 / 50 °C				WT: 55 / 45 °C				WT: 50 / 40 °C				WT: 45 / 40 °C				WT: 45 / 35 °C			
			Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa
HPL 1	5	MAX	535	4,06	349	9,8	3,50	301	7,6	2,94	253	5,7	2,39	205	3,9	2,27	391	12,7	1,83	157	2,5					
	4	MED	490	3,81	328	8,7	3,29	283	6,8	2,77	238	5,1	2,25	193	3,5	2,14	368	11,4	1,72	148	2,2					
	3		445	3,56	306	7,7	3,07	264	6,0	2,59	222	4,5	2,10	180	3,1	2,00	343	10,1	1,61	138	2,0					
	2		400	3,30	283	6,7	2,85	245	5,2	2,39	206	3,9	1,95	167	2,7	1,85	318	8,8	1,49	128	1,7					
	1	MIN	340	2,92	251	5,4	2,53	217	4,2	2,12	183	3,1	1,73	149	2,2	1,64	282	7,1	1,33	114	1,4					
HPL 2	5	MAX	860	6,35	546	27,8	5,50	473	21,8	4,64	399	16,4	3,78	325	11,5	3,57	614	36,5	2,92	251	7,4					
	4	MED	780	5,94	511	24,7	5,14	442	19,3	4,34	373	14,5	3,54	304	10,2	3,33	573	32,3	2,74	236	6,6					
	3		660	5,27	453	19,9	4,57	393	15,6	3,86	332	11,7	3,14	270	8,3	2,96	509	26,1	2,44	210	5,3					
	2		600	4,93	424	17,6	4,27	367	13,8	3,60	310	10,4	2,94	253	7,3	2,77	476	23,1	2,27	196	4,7					
	1	MIN	515	4,40	379	14,4	3,81	328	11,3	3,22	277	8,5	2,63	226	6,0	2,47	425	18,9	2,04	176	3,9					
HPL 3	5	MAX	1115	8,30	714	47,6	7,20	619	37,5	6,10	524	28,3	4,98	429	20,0	4,67	802	62,5	3,87	333	12,9					
	4	MED	960	7,49	644	39,5	6,48	557	31,0	5,49	472	23,4	4,49	386	16,6	4,20	722	51,7	3,49	300	10,7					
	3		750	6,26	538	28,6	5,43	467	22,6	4,60	396	17,0	3,77	324	12,1	3,52	605	37,6	2,93	252	7,8					
	2		620	5,44	468	22,2	4,72	406	17,5	4,00	344	13,3	3,27	281	9,4	3,06	526	29,2	2,55	220	6,1					
	1	MIN	500	4,62	397	16,6	4,01	345	13,1	3,40	292	9,9	2,79	240	7,0	2,60	447	21,8	2,17	187	4,6					
HPL 4	5	MAX	1340	9,42	810	59,7	8,16	702	47,0	6,89	593	35,3	5,65	486	25,1	5,29	909	78,3	4,38	376	16,1					
	4	MED	1080	8,12	698	45,7	7,03	605	35,9	5,95	512	27,1	4,87	419	19,2	4,56	785	60,1	3,78	325	12,4					
	3		955	7,45	640	39,1	6,46	555	30,8	5,46	470	23,2	4,48	385	16,5	4,18	720	51,4	3,48	299	10,7					
	2		815	6,64	571	31,9	5,77	496	25,1	4,89	420	19,0	4,00	344	13,5	3,74	643	41,9	3,11	267	8,7					
	1	MIN	655	5,67	487	23,9	4,92	423	18,9	4,17	358	14,3	3,41	293	10,1	3,18	547	31,4	2,65	228	6,6					

WT: Water temperature
Vn: Nominal speeds
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

CORRECTION FACTOR TABLES

Air flow depending on speed and requested available pressure

Air flow (m³/h)

Model	Speed	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
1	5	535	505	475	440	398	350	300	250	200
	4	490	460	425	387	340	293	243	194	142
	3	445	413	378	334	287	240	192	145	-
	2	400	362	317	267	218	172	127	-	-
	1	340	295	240	188	143	97	-	-	-
2	5	860	830	795	758	715	670	615	553	485
	4	780	750	713	675	630	580	525	465	400
	3	660	625	587	545	500	455	402	345	280
	2	600	558	515	470	423	374	323	270	-
	1	515	462	412	363	315	265	215	-	-
3	5	1115	1075	1030	980	925	868	803	735	660
	4	960	922	875	825	775	722	664	600	530
	3	750	700	650	602	555	505	455	400	340
	2	620	545	482	435	390	341	295	245	-
	1	500	404	342	288	240	192	-	-	-
4	5	1340	1300	1260	1214	1160	1100	1030	950	860
	4	1080	1050	1018	980	938	880	820	750	665
	3	950	920	885	850	805	760	705	640	575
	2	805	780	745	710	670	620	578	524	470
	1	655	620	585	550	515	480	440	397	345
5	5	1375	1335	1290	1240	1185	1115	1062	995	907
	4	1025	995	958	920	878	814	776	710	640
	3	895	855	820	780	735	690	640	590	520
	2	760	710	670	630	590	550	505	460	-
	1	595	530	475	423	380	330	-	-	-
6	5	1635	1575	1518	1450	1385	1312	1240	1155	1065
	4	1425	1376	1312	1250	1185	1120	1045	960	880
	3	1210	1160	1100	1042	980	920	850	775	690
	2	1015	946	882	823	760	700	640	570	495
	1	720	625	535	455	382	323	-	-	-
7	5	2100	2040	1980	1910	1840	1760	1680	1585	1480
	4	1810	1760	1707	1650	1585	1520	1440	1355	1260
	3	1490	1458	1420	1370	1322	1272	1217	1140	1050
	2	1190	1165	1140	1110	1070	1030	980	930	850
	1	970	945	922	897	862	830	790	742	680

Power absorption depending on air flow and available pressure

Power absorbed (Watt)

Model	Speed	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
1	5	55,0	54,0	53,5	52,7	52,0	51,0	50,0	48,7	48,0
	4	47,5	47,0	46,5	45,7	44,8	44,0	42,9	41,8	40,6
	3	41,0	40,5	40,2	39,5	38,7	38,0	37,0	36,2	-
	2	34,5	34,5	33,5	33,0	32,2	31,5	30,7	-	-
	1	27,5	27,5	27,0	26,2	25,5	24,8	-	-	-
2	5	111,0	108,0	105,0	103,0	100,0	96,5	93,0	89,0	85,0
	4	98,0	96,0	94,0	91,5	89,0	86,0	82,5	78,5	75,0
	3	82,0	80,0	78,5	76,0	74,0	71,0	68,0	65,0	61,0
	2	73,0	72,5	71,0	68,5	66,0	64,0	61,0	58,0	-
	1	62,0	61,0	60,0	58,0	56,0	53,0	51,0	-	-
3	5	127,0	123,0	120,0	117,5	115,0	111,5	108,0	104,5	101,0
	4	106,0	104,0	102,0	99,0	96,0	93,0	91,0	87,0	84,0
	3	80,0	79,0	77,0	75,0	73,0	71,0	69,0	66,0	63,0
	2	64,0	63,0	61,5	60,0	58,5	56,5	55,0	53,0	-
	1	50,0	50,0	49,0	47,5	46,0	45,0	-	-	-
4	5	175,0	171,0	167,0	163,0	159,0	153,0	148,0	141,0	135,0
	4	143,0	138,0	134,0	130,0	125,0	120,0	114,0	108,0	101,0
	3	126,0	123,0	119,0	115,0	111,0	106,0	101,0	95,0	89,0
	2	109,0	106,0	103,0	99,0	95,0	91,0	87,0	83,0	79,0
	1	95,0	91,0	89,0	86,0	83,0	81,0	77,0	73,0	69,0
5	5	174,0	170,0	166,0	161,0	156,0	150,0	146,0	140,0	134,0
	4	128,0	125,0	122,0	118,0	115,0	109,0	105,0	102,0	97,0
	3	111,0	108,0	105,0	102,0	98,0	95,0	91,0	88,0	84,0
	2	94,0	91,0	88,0	86,0	84,0	81,0	78,0	75,0	-
	1	70,0	69,0	67,0	65,0	63,0	60,0	-	-	-
6	5	166,0	163,0	160,0	156,0	153,0	148,0	144,0	139,0	134,0
	4	144,0	141,0	138,0	135,0	131,0	128,0	123,0	118,0	114,0
	3	122,0	120,0	117,0	115,0	112,0	109,0	106,0	102,0	97,0
	2	100,0	99,0	98,0	96,0	94,0	91,0	88,0	84,0	80,0
	1	68,0	68,0	67,0	65,0	63,0	61,0	-	-	-
7	5	245,0	240,0	236,0	231,0	226,0	219,0	212,0	205,0	196,0
	4	228,0	222,0	218,0	211,0	205,0	198,0	189,0	181,0	172,0
	3	213,0	207,0	202,0	195,0	188,0	181,0	172,0	164,0	153,0
	2	186,0	180,0	176,0	171,0	164,0	158,0	150,0	143,0	133,0
	1	163,0	158,0	154,0	149,0	144,0	138,0	133,0	126,0	117,0

Correction factors for Total cooling emission

Values in %

Model	Speed	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
1	5	1,00	0,97	0,94	0,90	0,85	0,79	0,71	0,63	0,54
	4	1,00	0,97	0,93	0,88	0,81	0,74	0,66	0,56	0,46
	3	1,00	0,96	0,92	0,85	0,78	0,69	0,60	0,50	-
	2	1,00	0,95	0,88	0,79	0,70	0,60	0,49	-	-
	1	1,00	0,93	0,82	0,70	0,59	0,45	-	-	-
2	5	1,00	0,98	0,96	0,94	0,91	0,87	0,83	0,78	0,71
	4	1,00	0,98	0,95	0,93	0,89	0,85	0,80	0,74	0,67
	3	1,00	0,97	0,94	0,90	0,86	0,81	0,75	0,68	0,59
	2	1,00	0,96	0,92	0,88	0,82	0,76	0,69	0,62	-
	1	1,00	0,94	0,89	0,82	0,75	0,67	0,59	-	-
3	5	1,00	0,98	0,96	0,93	0,90	0,87	0,83	0,79	0,74
	4	1,00	0,98	0,95	0,92	0,89	0,85	0,81	0,76	0,70
	3	1,00	0,96	0,93	0,89	0,85	0,80	0,75	0,69	0,62
	2	1,00	0,93	0,87	0,82	0,77	0,70	0,64	0,56	-
	1	1,00	0,89	0,81	0,72	0,64	0,55	-	-	-
4	5	1,00	0,98	0,97	0,95	0,93	0,90	0,87	0,82	0,78
	4	1,00	0,98	0,97	0,95	0,93	0,90	0,86	0,81	0,76
	3	1,00	0,98	0,96	0,94	0,92	0,89	0,85	0,80	0,75
	2	1,00	0,98	0,96	0,94	0,91	0,87	0,83	0,78	0,73
	1	1,00	0,97	0,94	0,91	0,88	0,84	0,80	0,75	0,68
5	5	1,00	0,98	0,97	0,95	0,92	0,89	0,87	0,84	0,79
	4	1,00	0,98	0,96	0,94	0,92	0,88	0,86	0,81	0,76
	3	1,00	0,98	0,95	0,93	0,90	0,87	0,83	0,79	0,73
	2	1,00	0,96	0,94	0,90	0,87	0,84	0,79	0,75	-
	1	1,00	0,94	0,89	0,83	0,77	0,71	-	-	-
6	5	1,00	0,98	0,96	0,94	0,92	0,89	0,86	0,82	0,78
	4	1,00	0,98	0,96	0,93	0,91	0,88	0,84	0,80	0,76
	3	1,00	0,98	0,95	0,92	0,89	0,86	0,82	0,77	0,72
	2	1,00	0,96	0,93	0,89	0,85	0,81	0,77	0,71	0,65
	1	1,00	0,93	0,85	0,77	0,69	0,61	-	-	-
7	5	1,00	0,98	0,97	0,95	0,93	0,91	0,89	0,86	0,82
	4	1,00	0,98	0,97	0,95	0,93	0,91	0,88	0,85	0,82
	3	1,00	0,99	0,97	0,96	0,94	0,92	0,90	0,86	0,82
	2	1,00	0,99	0,98	0,96	0,95	0,93	0,90	0,87	0,83
	1	1,00	0,99	0,97	0,96	0,94	0,92	0,90	0,86	0,82

Correction factors for Sensible cooling emission and Heating emission

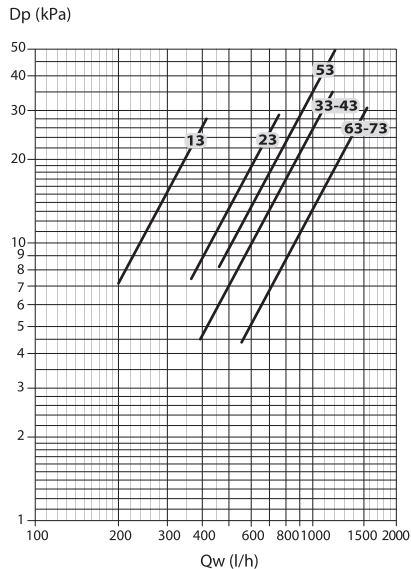
Values in %

Model	Speed	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
1	5	1,00	0,96	0,92	0,87	0,81	0,73	0,65	0,57	0,48
	4	1,00	0,96	0,90	0,85	0,77	0,69	0,59	0,50	0,39
	3	1,00	0,95	0,89	0,81	0,73	0,63	0,53	0,43	-
	2	1,00	0,93	0,85	0,75	0,64	0,53	0,42	-	-
	1	1,00	0,90	0,78	0,65	0,52	0,39	-	-	-
2	5	1,00	0,97	0,95	0,91	0,88	0,84	0,79	0,72	0,66
	4	1,00	0,97	0,94	0,90	0,86	0,81	0,75	0,68	0,61
	3	1,00	0,96	0,92	0,87	0,82	0,76	0,70	0,62	0,53
	2	1,00	0,95	0,90	0,84	0,78	0,71	0,63	0,55	-
	1	1,00	0,93	0,85	0,78	0,70	0,61	0,52	-	-
3	5	1,00	0,97	0,95	0,91	0,88	0,84	0,79	0,74	0,68
	4	1,00	0,97	0,94	0,90	0,86	0,82	0,77	0,71	0,65
	3	1,00	0,95	0,90	0,86	0,81	0,75	0,69	0,63	0,55
	2	1,00	0,91	0,84	0,77	0,71	0,64	0,57	0,50	-
	1	1,00	0,86	0,76	0,67	0,58	0,49	-	-	-
4	5	1,00	0,98	0,96	0,93	0,90	0,87	0,83	0,78	0,72
	4	1,00	0,98	0,96	0,93	0,91	0,86	0,82	0,77	0,70
	3	1,00	0,98	0,95	0,92	0,89	0,85	0,81	0,75	0,69
	2	1,00	0,98	0,95	0,92	0,88	0,83	0,79	0,73	0,67
	1	1,00	0,96	0,92	0,88	0,84	0,80	0,75	0,69	0,62
5	5	1,00	0,98	0,96	0,93	0,90	0,86	0,83	0,79	0,74
	4	1,00	0,98	0,95	0,93	0,90	0,85	0,82	0,77	0,71
	3	1,00	0,97	0,94	0,91	0,87	0,83	0,79	0,74	0,67
	2	1,00	0,95	0,91	0,88	0,83	0,79	0,74	0,69	-
	1	1,00	0,92	0,85	0,78	0,72	0,65	-	-	-
6	5	1,00	0,97	0,95	0,92	0,89	0,86	0,82	0,78	0,73
	4	1,00	0,97	0,94	0,91	0,88	0,84	0,80	0,75	0,70
	3	1,00	0,97	0,93	0,90	0,86	0,82	0,77	0,72	0,66
	2	1,00	0,95	0,91	0,86	0,81	0,76	0,71	0,65	0,59
	1	1,00	0,90	0,81	0,72	0,63	0,55	-	-	-
7	5	1,00	0,98	0,96	0,94	0,91	0,88	0,85	0,82	0,78
	4	1,00	0,98	0,96	0,94	0,91	0,88	0,85	0,81	0,77
	3	1,00	0,98	0,97	0,94	0,92	0,89	0,87	0,83	0,78
	2	1,00	0,98	0,97	0,95	0,93	0,90	0,87	0,84	0,78
	1	1,00	0,98	0,96	0,95	0,92	0,90	0,86	0,83	0,77

WATER SIDE PRESSURE DROP

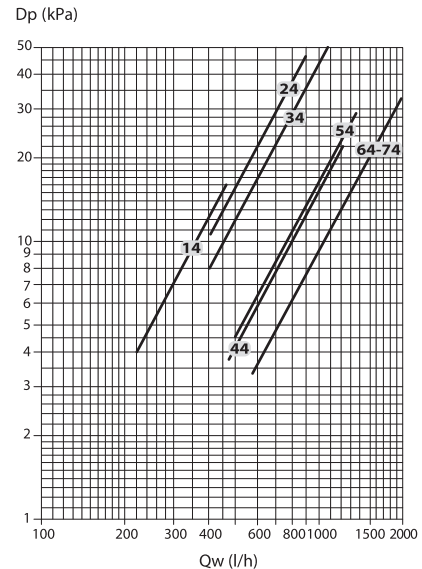
Main coil

3 row coil



Dp = pressure drop
Qw = water flow rate

4 row coil



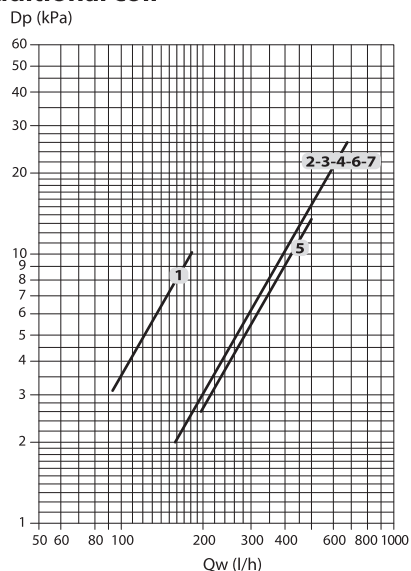
Dp = pressure drop
Qw = water flow rate

The water pressure drop figures refer to a mean water temperature of 10 °C; for different temperatures, multiply the pressure drop figures by the correction factors K.

	Mean water temperature (°C)						
	20	30	40	50	60	70	80
K correction factor	0,94	0,90	0,86	0,82	0,78	0,74	0,70

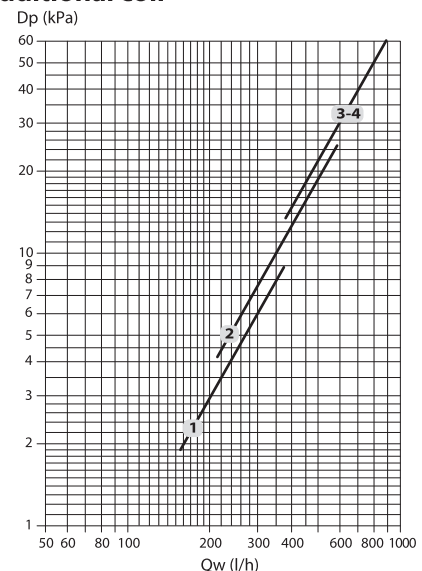
Additional coil

1 row additional coil



Dp = pressure drop
Qw = water flow rate

2 row additional coil



Dp = pressure drop
Qw = water flow rate

The water pressure drop figures refer to a mean water temperature of 60 °C; for different temperatures, multiply the pressure drop figures by the correction factors K.

K correction factor	Mean water temperature (°C)			
	40	50	70	80
	1,12	1,06	0,94	0,88

OPERATION LIMITS

Description		UoM	Value
Water flow	Coil maximum working pressure	bars	16
		kPa	1600
	Lowest water inlet temperature ⁽¹⁾	°C	+6
	Highest water inlet temperature	°C	+85
Power supply	Single-phase rated operating voltage	V/Hz	230/50

⁽¹⁾ for entering water temperatures below +6 °C, contact the technical department

Electric heater operation limits

Description		UoM	Value
Ambient air	Maximum temperature ⁽¹⁾	°C	+25
Power supply	Single-phase rated operating voltage	Vac/Ph/Hz	230/1/50

⁽¹⁾ with electric heating coil

Coils water flow limits

3 row coil

Model		HPL 13	HPL 23	HPL 33	HPL 43	HPL 53	HPL 63	HPL 73
Water flow rate Min.	l/h	100	150	200	250	300		
Water flow rate Max.	l/h	750	1000	2000	2500	3000		

4 row coil

Model		HPL 14	HPL 24	HPL 34	HPL 44	HPL 54	HPL 64	HPL 74
Water flow rate Min.	l/h	150	300	350	400			
Water flow rate Max.	l/h	1000	1500	2250	2750	3300		

1 row additional coil

Model		HPL 13+1	HPL 23+1	HPL 33+1	HPL 43+1	HPL 53+1	HPL 63+1	HPL 73+1
Water flow rate Min.	l/h	50	100					
Water flow rate Max.	l/h	350	590	750				1100

Model		HPL 14+1	HPL 24+1	HPL 34+1	HPL 44+1	HPL 54+1	HPL 64+1	HPL 74+1
Water flow rate Min.	l/h	50	100					
Water flow rate Max.	l/h	350	590	750	850	1100		

2 row additional coil

Model		HPL 13+2	HPL 23+2	HPL 33+2	HPL 43+2
Water flow rate Min.	l/h	100			
Water flow rate Max.	l/h	470	790	980	

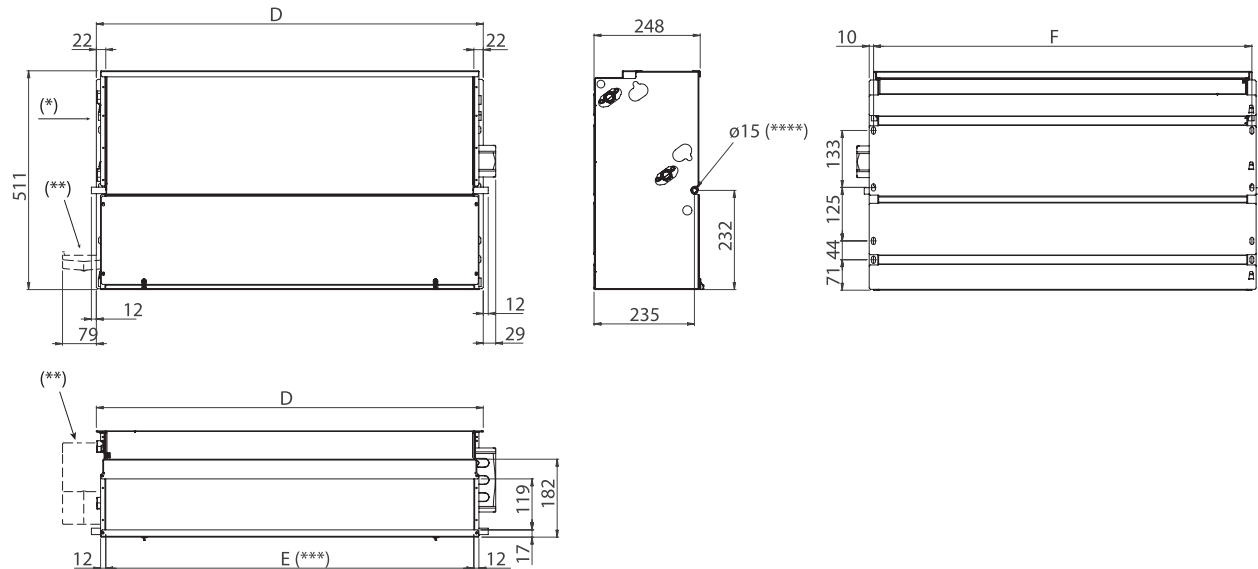
Motor electrical data - max. absorption

Model		HPL 1	HPL 2	HPL 3	HPL 4	HPL 5	HPL 6	HPL 7
Motor absorption	W	60,0	115,0	132,0	185,0	175,0	260,0	
Current absorbed	A	0,30	0,50	0,60	0,90	0,80	1,20	

DIMENSION, WEIGHT AND WATER CONTENT

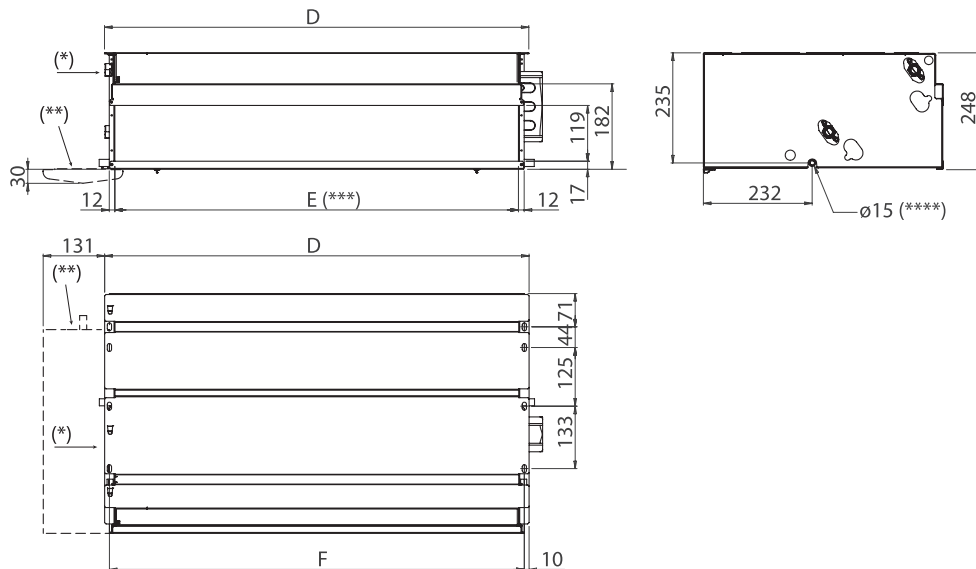
Dimensions

Vertical installation



- (*) = Hydraulic connections on the left
 (**) = Auxiliary condensate tray (optional)
 (***) = Supply frame dimension E x 119 mm
 (****) = External diameter

Horizontal installation

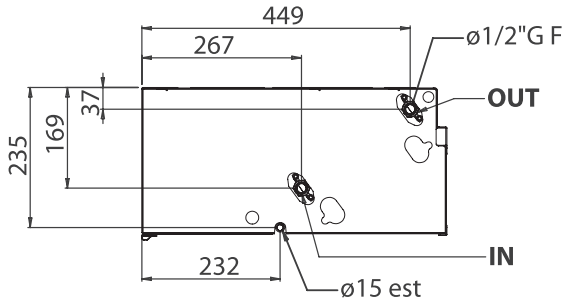


- (*) = Hydraulic connections on the left
 (**) = Auxiliary condensate tray (optional)
 (***) = Supply frame dimension E x 119 mm
 (****) = External diameter

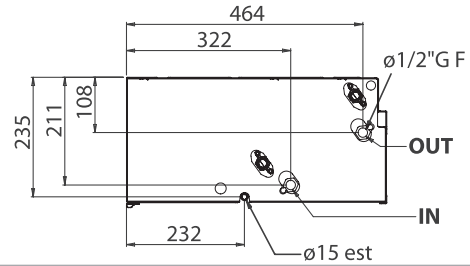
Model		HPL 1	HPL 2	HPL 3	HPL 4	HPL 5	HPL 6	HPL 7
D	mm	689	904	1119	1334	1549		
E	mm	645	860	1075	1290	1505		
F	mm	669	884	1099	1314	1529		

Hydraulic connections

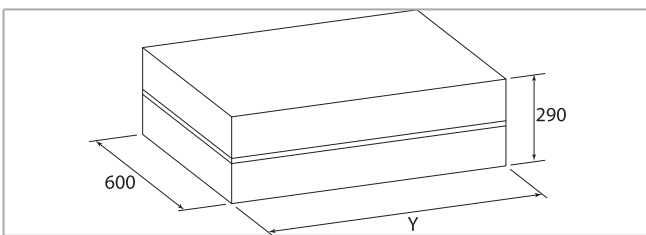
3 or 4 row coils



Heating additional coil (1 or 2 row coil)



Packed unit



Model		HPL 1	HPL 2	HPL 3	HPL 4	HPL 5	HPL 6	HPL 7
Y	mm	820	1035	1250	1580	1790		

Weight

Weight with packaging

Model		HPL 1	HPL 2	HPL 3	HPL 4	HPL 5	HPL 6	HPL 7
3 rows	kg	19,5	26,4	29,5	30,9	42,4	52,2	52,4
3+1 rows	kg	20,7	27,9	31,3	32,7	44,3	54,5	54,7
3+2 rows	kg	21,4	28,8	32,4	33,8	-	-	-
4 rows	kg	20,5	27,7	30,9	32,0	43,8	53,9	54,1
4+1 rows	kg	21,7	29,2	32,7	33,8	45,7	56,2	56,4

Weight without packaging

Model		HPL 1	HPL 2	HPL 3	HPL 4	HPL 5	HPL 6	HPL 7
3 rows	kg	18,5	25,4	26,5	27,9	38,4	47,2	47,4
3+1 rows	kg	19,7	26,9	28,3	29,7	40,3	49,5	49,7
3+2 rows	kg	20,4	27,8	29,4	30,8	-	-	-
4 rows	kg	19,5	26,7	27,9	29,0	39,8	48,9	49,1
4+1 rows	kg	20,7	28,2	29,7	30,8	41,7	51,2	51,4

Water content

Model		HPL 1	HPL 2	HPL 3	HPL 4	HPL 5	HPL 6	HPL 7
3 rows	l	0,9	1,6	1,9	1,9	2,6	3,2	3,2
4 rows	l	1,3	2,2	2,8	2,8	3,4	4,2	4,2
+1 row	l	0,3	0,5	0,6	0,6	0,8	0,9	0,9
+2 rows	l	0,6	1,0	1,2	1,2	-	-	-

ELECTRONIC WALL CONTROLS

All the **HPL** units can be supplied with a wide range of electronic wall controls that allows managing one single unit or several units (by using Dip-Switches or the power units).

The options range from the basic **WM-3V**, only for 3-speed control, to the highly sophisticated **WM-T**,

WM-TQR and **T2T** electronic room thermostats, that regulate the room temperature precisely and are suitable when the user wants to set the fan speed.

The most evolved **WM-AU**, **T-MB2 SW** and **WM-503-AC-EC** versions allow both the manual and the automatic speed switch.

Controls

WM-3V control

ID	Code
WM-3V	9066642



- ON/OFF switch
- Manual 3 speed switch without thermostatic control
- It does not control the valves
- It allows to control the low temperature cut-out thermostat TMM

Dimensions: 75x75x30 mm

WM-T control

ID	Code
WM-T	9066630E



- ON/OFF switch
- Manual 3 speed switch
- Manual Summer/Winter switch
- Electronic room thermostat for fan control (ON-OFF)
- Electronic room thermostat for valve control (ON-OFF) (the fan keeps working)
- It allows to control the low temperature cut-out thermostat TMM
- It allows to control the chilled water valve (ON-OFF) and the electric heater (BEL) only in case that hot water is not used in winter (otherwise please use WM-TQR control with on/off switch for the electric heater)
- Presence of a LED signal when the thermostat is on

Control power absorption: 0,25 VA

Dimensions: 135x86x31 mm

WM-TQR control

ID	Code
WM-TQR	9066631E



- ON/OFF switch
- Manual 3 speed switch
- Manual, automatic or centralized Summer/Winter switch
- Electric heater/electrostatic filter activation switch
- Electronic room thermostat for fan control (ON-OFF)
- Electronic room thermostat for water valve control (ON-OFF)
- Simultaneous thermostatic control of the valves and fan
- It allows to control the low temperature cut-out thermostat NTC
- It allows to control the water valves (ON-OFF) and the electric heater managed as main heating element or as an integration element
- Energy saving function
- Presence of a LED signal when the thermostat is on

Control power absorption: 1 VA

Dimensions: 135x86x31 mm

WM-AU controls

ID	Code
WM-AU	9066632E



The control must always be connected with UPM-AU power unit (fitted on the unit) or with UP-AU power unit (with separate packaging).

- ON/OFF switch
- Manual/automatic 3 speed switch
- Manual, automatic or centralized Summer/Winter switch
- Summer/Winter/Fan/Auto mode switch
- Electric heater/electrostatic filter activation switch
- Electronic room thermostat for fan and water valves control (ON-OFF)
- Simultaneous thermostatic control of the valves and fan
- It allows to use the low temperature cut-out thermostat NTC mounted on the power unit
- It allows to control the water valves (ON-OFF) and the electric heater managed as main heating element or as an integration element
- Energy saving function
- Presence of a LED signal when the thermostat is on

P.N.: with 4 pipe installations and continuous chilled and hot water supply, it allows the automatic summer winter change-over in accordance to the room temperature (-1 °C = Winter, +1 °C = Summer, Neutral Zone 2 °C)

Control power absorption: see the UP-AU power unit

Dimensions: 135x86x24 mm

T-MB2 SW control

ID	Code
T-MB2 SW	9066994ESW



The control must always be connected with UPM-AU power unit (fitted on the unit) or with UP-AU power unit (with separate packaging).

Control with TFT 2,4" coloured graphic display for wall installation.

The main characteristics are:

- Management by keyboard
- Management of one single unit or of several units in Master/Slave mode
- ON/OFF switch
- Operation mode setting
- Setpoint configuration or setpoint variation by supervisory program (+/- 3°C of the set)
- Room temperature internal sensor, which can be defined as a priority compared to the return air sensor on the fan coil
- Fan speed switch
- Advanced daily/weekly ON/OFF programming with 3 pre-settable weekly programs
- Viewing and editing of the unit operating parameters, alarm diagnostics and information about the unit (the viewable parameters depend from the control board model to which the T-MB2 SW control is connected)
- Activation/deactivation of the room temperature display
- Electric heater or electrostatic filter management
- Possibility to use the T1 sensor which allows the return air control (fitted on the power unit)

Control power absorption: see the UP-AU power unit

Dimensions: 115x72x20 mm

WM-503-AC-EC control

ID	Code
WM-503-AC-EC	9066686



The control must always be connected with UP-503-AC-EC power unit (separately delivered).

WM-503-AC-EC control allows to regulate the room temperature in both, the heating and the cooling modes, it can control one or two valves and fan coil units with asynchronous motor or fan coil units with EC electronic motors.

The WM-503-AC-EC control for fan coils with valves, is designed to be installed in a 503 wall box.

Easy to use, it is equipped with a large and efficient backlit LCD screen with 4 keys.

The kit lets the thermostat be suitable for all plaques on the market and it is composed by: coloured covers (white, silver and anthracite), frames and adaptators.

- Manual or automatic 3 speed motor control for asynchronous versions
- EC motor control with 0-10V signal for the ECM versions
- Power supply by UP-503-AC-EC by means of the two-core cable
- Input for return air/water/change over probe
- ON/OFF / SET Reduction / remote SUMMER-WINTER digital input
- User interface with LCD display with adjustable back-light and 4 keys
- 2 and 4 pipe fan coil units control
- Button lock controller

Control power absorption: see the UP-503-AC-EC power unit

Dimensions: 68x52.2x(wall protrusion=12) mm

T2T control

ID	Code
T2T	9060174



Only for 2 pipe units only.

- ON/OFF switch
- Manual 3 speed switch
- Manual Summer/Winter switch
- Thermostatic control on the fan
- Thermostatic control on the valve and continuous fan operation
- Simultaneous thermostatic control of the valve and fan
- Cannot be used with speed switch (master-slave)

Control power absorption: 1,5 VA

Dimensions: 128x75x25 mm

POWER UNITS AND SPEED SWITCHES

Power unit

UP-AU

ID	Code	Description
UPM-AU	9066641	UP-AU power unit for WM-AU and T-MB2 SW remote controls, fitted on the unit
UP-AU	9066640	UP-AU power unit for WM-AU and T-MB2 SW remote controls, not fitted on the unit



Power unit to be installed on the fan coil (fan coil interface).

- It controls the fan and the valves of the fan coil
- It is connected to the electric supply
- It receives the information required from the remote control
- Possibility to use the NTC low temperature cut-out thermostat (optional) for the T1 function which allows the return air control
- Possibility to use the NTC low temperature cut-out thermostat (optional) for the T2 function which controls the summer/winter switch.
- Possibility to use the NTC low temperature cut-out thermostat (optional) for the T3 function as low temperature cut-out thermostat.
- It allows to control up to 10 units (1 master and 9 slaves)
- Max. network length: 100 meters
- Max cable length between control and first connected power unit: 20 meters

Power unit absorption: 2,3 VA

UP-503-AC-EC

ID	Code
UP-503-AC-EC	9066687



Power unit to be installed on the fan coil (fan coil interface).

- It controls the fan and the valves of the fan coil
- It is connected to the electric supply
- It receives from the WM-503-AC-EC remote control the information required to control the valves and the motor
- It allows to control up to 5 units (1 master and 4 slaves)
- Max. Network length: 100 meters
- Max cable length between control and first connected power unit: 20 meters

Power unit absorption: 2 VA

Speed switches

SEL-CR

ID	Code
SEL-CR	9066311



- Speed switch (Slave)
- It allows to control up to 8 units with only one centralized wall control (1 speed switch for each unit)
- For WM-T and WM-TQR controls

ACCESSORIES FOR CONTROLS

TMM low temperature cut-out thermostat

ID	Code
TMM	9053048



- To be installed in contact with the hot water circuit
- For units working on heating only
- It stops the fan when the water temperature is lower than 30 °C and it starts the fan when is higher than 38 °C

To be used with the following control: WM-T.

NTC low temperature cut-out thermostat

ID	Code
NTC	3021090



- To be fitted between the coil fins
- When connecting the control, the NTC probe cable must be separated from the power supply wires
- It stops the fan when the water temperature is lower than 28 °C and it starts the fan when is higher than 33 °C

To use as:

- T1 function for the return air control
- T2 function which controls the summer/winter switch
- T3 function as low temperature cut-out thermostat

To be used with WM-TQR control and with UP-AU and UP-503-AC-EC power units.

Change-Over CH 15-25

ID	Code
CH 15-25	9053049

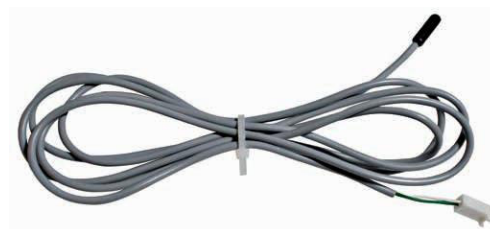


- Automatic summer/winter switch to be installed in contact with the water circuit
- For 2 tube installations only (not to be used with 2 way valve)

To be used with the following control: WM-TQR.

T2 sensor

ID	Code
T2	9025310



NTC probe type, to be placed on the water supply pipe upstream of the valves (not to be used with 2 way valves).

The T2 probe must be used as described below:

- Change-Over for the automatic switch of the operating mode. If water temperature is lower than 20 °C, cooling mode is set; on the other hand, if water temperature exceeds 30 °C, heating mode is set
- it can be used on units with electric heater and hot water supply. The T2 priority probe activates the electric heater or water valve, depending on the water temperature detected. If water temperature exceeds 34 °C, the water valve ON-OFF control is activated; on the other hand, if water temperature is lower than 30 °C, the electric heater is activated

CONSTRUCTION FEATURES

Range includes 6 sizes (from 120 to 2980 m³/h), each one equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.

It is the most comprehensive range, perfect to meet all air-conditioning requirements of work environments like offices, shops, restaurants and hotel rooms featuring ducted installations with available pressure up to 80 Pa.

Compliant with Regulation (EU) No. 327/2011.

Casing

Made of 1 mm galvanized steel, a rear panel and two lateral sides insulated with 3 mm polyolefin (PO) foam B-s2-d0 EN 13501-1.

Fan assembly

The fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor

Three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of 230 V and frequency of 50-60 Hz.

Coil

It is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The main coil and additional coil are equipped with two Ø 1/2" BSP female gas connections.

The coil has Ø 1/8" inch BSP air vent and drain.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

The connections are on the left side looking from the air outlet of the unit (see picture).

On request we can deliver the unit with the connections on the right end side. This operation can also be easily carried out on the construction site during installation.

Condensate collection tray

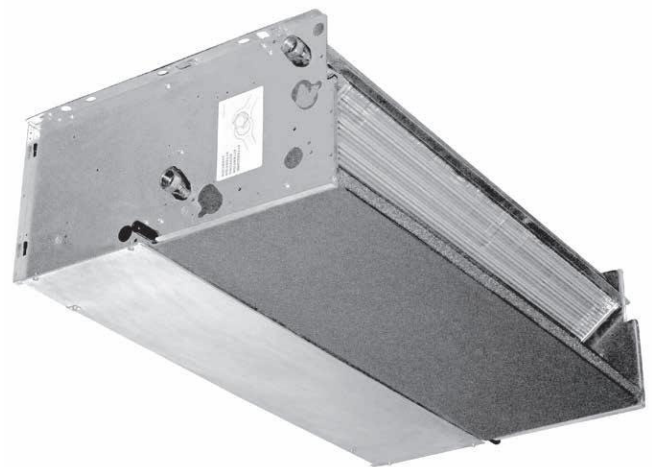
Made of plastic (ABS UL94 HB) for sizes 0÷4 and painted steel for the sizes 7-8 with a L-shaped fitted on the inner casing; the tray is insulated with 3 mm polyolefin (PO)

foam B-s2-d0 EN 13501-1. The outside diameter of the condensate discharge pipe is Ø 15 mm.

Filter

Polypropylene cellular fabric regenerating filter.

The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter.



TECHNICAL FEATURES

3 row coil - 2 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.

Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C

Water temperature: +45 °C E.W.T. +40 °C L.W.T.

MODEL		HPL-ECM 03			HPL-ECM 13			HPL-ECM 23		
Inverter power		1,5	5,5	8	4	6,3	8	4	6,5	8,5
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	110	225	290	240	305	360	430	540	630
Available pressure	Pa	10	50	75	32	50	68	34	50	70
Cooling total emission	kW	0,75	1,39	1,65	1,64	1,97	2,23	2,72	3,21	3,55
Cooling sensible emission	kW	0,55	1,00	1,30	1,17	1,42	1,63	1,99	2,38	2,68
Heating emission	kW	0,80	1,50	1,90	1,65	2,05	2,37	2,88	3,51	4,00
Dp Cooling	kPa	3,5	6,7	9,2	13,3	18,7	23,5	11,5	15,6	18,9
Dp Heating	kPa	1,7	5,5	8,0	11,6	17,0	22,1	10,2	14,6	18,5
Fan	W	7	21	37	18	29	39	26	43	64
Sound power outlet (Lw)	dB(A)	29	43	48	38	44	48	42	47	49
Sound power inlet + radiated (Lw)	dB(A)	36	50	55	45	51	55	48	55	58
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	20	34	39	29	35	39	33	38	40
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	27	41	46	36	42	46	39	46	49
Plenum code		9069190	9069190	9069190	9069191	9069191	9069191	9069222	9069222	9069222

MODEL		HPL-ECM 43			HPL-ECM 73			HPL-ECM 83		
Inverter power		3,5	7	9	2,5	5	8	5,5	7,5	9
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	595	835	960	900	1175	1410	1238	1638	1923
Available pressure	Pa	24	50	66	30	50	72	28	50	70
Cooling total emission	kW	3,84	4,94	5,43	5,66	6,81	7,67	6,75	8,60	10,00
Cooling sensible emission	kW	2,83	3,77	4,21	4,15	5,11	5,86	5,05	6,50	7,80
Heating emission	kW	4,07	5,56	6,27	5,69	7,09	8,24	7,00	9,25	10,70
Dp Cooling	kPa	11,8	18,9	22,5	12,1	17,1	21,4	19,0	29,0	39,0
Dp Heating	kPa	10,6	18,6	23,0	9,8	14,6	19,1	25,0	34,0	43,0
Fan	W	30	67	98	52	100	155	84	160	246
Sound power outlet (Lw)	dB(A)	44	52	55	47	54	57	49	56	59
Sound power inlet + radiated (Lw)	dB(A)	51	59	62	54	61	64	56	63	66
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	35	43	46	38	45	48	40	47	50
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	42	50	53	45	52	55	47	54	57
Plenum code		9066368	9066368	9066368	9069196	9069196	9069196	9069198	9069198	9069198

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

4 row coil - 2 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.

Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C

Water temperature: +45 °C E.W.T. +40 °C L.W.T.

MODEL		HPL-ECM 04			HPL-ECM 14			HPL-ECM 24		
Inverter power		1,5	5,5	8	4	6,3	8	4	6,5	8,5
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	110	225	290	240	305	360	430	540	630
Available pressure	Pa	10	50	75	32	50	68	34	50	70
Cooling total emission	kW	0,80	1,55	1,95	1,77	2,17	2,48	3,14	3,79	4,25
Cooling sensible emission	kW	0,60	1,15	1,45	1,25	1,54	1,78	2,20	2,68	3,04
Heating emission	kW	0,80	1,65	2,00	1,73	2,17	2,52	3,08	3,80	4,37
Dp Cooling	kPa	3,5	10,8	15,4	7,2	10,3	13,2	17,5	24,7	30,6
Dp Heating	kPa	2,6	8,1	12,3	6,7	9,9	13,1	14,1	20,6	26,6
Fan	W	7	21	37	18	29	39	26	43	64
Sound power outlet (Lw)	dB(A)	29	43	48	38	44	48	42	47	49
Sound power inlet + radiated (Lw)	dB(A)	36	50	55	45	51	55	48	55	58
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	20	34	39	29	35	39	33	38	40
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	27	41	46	36	42	46	39	46	49
Plenum code		9069190	9069190	9069190	9069191	9069191	9069191	9069222	9069222	9069222

MODEL		HPL-ECM 44			HPL-ECM 74			HPL-ECM 84		
Inverter power		3,5	7	9	2,5	5	8	5,5	7,5	9
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	595	835	960	900	1175	1410	1238	1638	1923
Available pressure	Pa	24	50	66	30	50	72	28	50	70
Cooling total emission	kW	4,09	5,34	5,91	6,12	7,46	8,47	7,20	9,25	10,60
Cooling sensible emission	kW	2,95	3,97	4,45	4,40	5,48	6,33	5,50	7,10	8,20
Heating emission	kW	4,19	5,77	6,55	6,26	7,96	9,35	8,00	10,00	11,50
Dp Cooling	kPa	7,7	12,6	15,2	9,9	14,3	18,1	20,0	30,0	40,0
Dp Heating	kPa	6,5	11,5	14,5	8,9	13,8	18,4	20,0	30,0	39,0
Fan	W	30	67	98	52	100	155	84	160	246
Sound power outlet (Lw)	dB(A)	44	52	55	47	54	57	49	56	59
Sound power inlet + radiated (Lw)	dB(A)	51	59	62	54	61	64	56	63	66
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	35	43	46	38	45	48	40	47	50
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	42	50	53	45	52	55	47	54	57
Plenum code		9066368	9066368	9066368	9069196	9069196	9069196	9069198	9069198	9069198

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

3+1 row coil - 4 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.

Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C

Water temperature: +65 °C E.W.T. +55 °C L.W.T.

MODEL		HPL-ECM 03+1			HPL-ECM 13+1			HPL-ECM 23+1		
Inverter power		1,5	5,5	8	4	6,3	8	4	6,5	8,5
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	110	225	290	240	305	360	430	540	630
Available pressure	Pa	10	50	75	32	50	68	34	50	70
Cooling total emission	kW	0,75	1,39	1,65	1,64	1,97	2,23	2,72	3,21	3,55
Cooling sensible emission	kW	0,55	1,00	1,30	1,17	1,42	1,63	1,98	2,38	2,67
Heating emission	kW	0,56	1,07	1,29	1,46	1,72	1,92	2,36	2,74	3,03
Dp Cooling	kPa	3,5	5,5	6,5	13,3	18,7	23,5	11,5	15,6	18,9
Dp Heating	kPa	1,1	2,4	3,2	5,4	7,2	8,9	3,1	4,0	4,8
Fan	W	7	21	37	18	29	39	26	43	64
Sound power outlet (Lw)	dB(A)	29	43	48	38	44	48	42	47	49
Sound power inlet + radiated (Lw)	dB(A)	36	50	55	45	51	55	48	55	58
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	20	34	39	29	35	39	33	38	40
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	27	41	46	36	42	46	39	46	49
Plenum code		9069190	9069190	9069190	9069191	9069191	9069191	9069222	9069222	9069222

MODEL		HPL-ECM 43+1			HPL-ECM 73+1			HPL-ECM 83+1		
Inverter power		3,5	7	9	2,5	5	8	5,5	7,5	9
		MIN	MED	MAX	MIN	MED	MAX	MIN	MED	MAX
Air flow	m ³ /h	595	835	960	900	1175	1410	1238	1638	1923
Available pressure	Pa	24	50	66	30	50	72	28	50	70
Cooling total emission	kW	3,84	4,88	5,35	5,66	6,81	7,67	6,75	8,60	10,00
Cooling sensible emission	kW	2,83	3,71	4,13	4,15	5,11	5,86	5,05	6,50	7,80
Heating emission	kW	3,09	3,87	4,22	4,70	5,60	6,31	6,00	7,00	7,80
Dp Cooling	kPa	11,8	18,4	21,9	12,1	17,1	21,4	19,0	29,0	39,0
Dp Heating	kPa	4,9	7,4	8,6	10,5	14,4	17,8	20,0	27,0	29,0
Fan	W	30	67	98	52	100	155	84	160	246
Sound power outlet (Lw)	dB(A)	44	52	55	47	54	57	49	56	59
Sound power inlet + radiated (Lw)	dB(A)	51	59	62	54	61	64	56	63	66
Sound pressure level outlet (Lp) ⁽¹⁾	dB(A)	35	43	46	38	45	48	40	47	50
Sound pressure level inlet + radiated (Lp) ⁽¹⁾	dB(A)	42	50	53	45	52	55	47	54	57
Plenum code		9066368	9066368	9066368	9069196	9069196	9069196	9069198	9069198	9069198

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

MAIN PERFORMANCES AND TECHNICAL CHARACTERISTICS

3 row coil - 2 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Available pressure: 0 Pa

MODEL		HPL-ECM 03					HPL-ECM 13					HPL-ECM 23				
Inverter power		1	3	5	7	10	1	3	5	7,5	10	1	3	5	7,5	10
Air flow	m ³ /h	120	299	364	452	567	330	440	560	650	650	550	710	880	1085	1235
Cooling total emission	kW	0,79	1,57	1,80	2,08	2,45	2,11	2,59	3,04	3,39	3,34	3,27	3,89	4,46	5,15	5,44
Cooling sensible emission	kW	0,56	1,18	1,37	1,60	1,93	1,54	1,94	2,34	2,62	2,62	2,44	2,98	3,51	4,09	4,48
Heating emission	kW	0,82	1,73	2,02	2,39	2,83	2,19	2,82	3,44	3,88	3,88	3,56	4,43	5,27	6,22	6,87
Dp Cooling	kPa	3,5	6,8	9,5	11,5	15,6	20,8	30,2	40,7	48,4	48,4	15,9	21,8	28,1	35,7	41,1
Dp Heating	kPa	1,8	7,1	9,4	12,9	17,7	19,2	30,1	43,1	53,7	53,7	15,0	22,2	30,3	40,9	48,9
Fan	W	5,2	14,1	21,2	33,4	55,5	14,0	21,0	37,0	54,0	54,0	21,0	33,0	54,0	92,0	132,0
Sound power (Lw)	dB(A)	30	43	51	55	61	41	48	54	58	58	45	51	55	60	64
Sound pressure (Lp) ⁽¹⁾	dB(A)	21	34	42	46	52	32	39	45	49	49	36	42	46	51	55

MODEL		HPL-ECM 43					HPL-ECM 73					HPL-ECM 83				
Inverter power		1	3	5	7,5	10	1	3	5	7,5	10	1	3	5	7,5	10
Air flow	m ³ /h	615	830	1055	1315	1390	880	1240	1605	2110	2460	400	1020	1540	2270	2980
Cooling total emission	kW	3,95	4,89	5,75	6,72	6,82	5,58	7,12	8,43	10,17	10,91	3,10	6,50	8,80	11,50	13,60
Cooling sensible emission	kW	2,92	3,73	4,51	5,33	5,54	4,09	5,39	6,57	8,07	9,00	2,10	4,60	6,40	8,60	10,30
Heating emission	kW	4,19	5,45	6,66	7,98	8,35	5,57	7,43	9,14	11,30	12,69	2,80	6,40	8,90	12,10	14,60
Dp Cooling	kPa	12,4	18,3	24,6	32,0	34,1	11,8	18,3	25,0	34,3	40,8	4,4	16,4	28,3	45,6	63,5
Dp Heating	kPa	11,1	17,9	25,7	35,6	38,5	9,5	15,9	23,1	33,9	41,7	3,2	13,2	24,2	42,0	60,9
Fan	W	20,0	34,0	57,0	101,0	136,0	29,0	55,0	98,0	173,0	277,0	10,4	29,5	79,7	218,2	461,4
Sound power (Lw)	dB(A)	44	51	57	63	64	48	56	61	67	70	32	48	59	67	72
Sound pressure (Lp) ⁽¹⁾	dB(A)	35	42	48	54	55	39	47	52	58	61	23	39	50	58	63

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

4 row coil - 2 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Available pressure: 0 Pa

MODEL		HPL-ECM 04					HPL-ECM 14					HPL-ECM 24				
Inverter power		1	3	5	7	10	1	3	5	7,5	10	1	3	5	7,5	10
Air flow	m ³ /h	120	299	364	452	567	330	440	560	650	650	550	710	880	1085	1235
Cooling total emission	kW	0,89	1,82	2,11	2,45	2,86	2,33	2,92	3,48	3,91	3,85	3,87	4,70	5,48	6,41	6,87
Cooling sensible emission	kW	0,61	1,30	1,50	1,77	2,08	1,67	2,13	2,60	2,93	2,93	2,75	3,40	4,04	4,76	5,25
Heating emission	kW	0,83	1,82	2,14	2,55	3,05	2,33	3,02	3,75	4,27	4,27	3,86	4,86	5,88	7,03	7,82
Dp Cooling	kPa	3,5	11,1	14,4	19,1	25,3	11,6	17,5	24,1	29,2	29,2	25,4	36,1	47,8	62,3	73,1
Dp Heating	kPa	2,6	9,6	12,9	17,8	24,9	11,3	18,1	26,7	33,7	33,7	21,2	32,1	45,2	62,5	75,6
Fan	W	5,2	14,1	21,2	33,4	55,5	14,0	21,0	37,0	54,0	54,0	21,0	33,0	54,0	92,0	132,0
Sound power (Lw)	dB(A)	30	43	51	55	61	41	48	54	58	58	45	51	55	60	64
Sound pressure (Lp) ⁽¹⁾	dB(A)	21	34	42	46	52	32	39	45	49	49	36	42	46	51	55

MODEL		HPL-ECM 44					HPL-ECM 74					HPL-ECM 84				
Inverter power		1	3	5	7,5	10	1	3	5	7,5	10	1	3	5	7,5	10
Air flow	m ³ /h	615	830	1055	1315	1390	880	1240	1605	2110	2460	400	1020	1540	2270	2980
Cooling total emission	kW	4,21	5,29	6,27	7,38	7,52	6,03	7,81	9,36	11,40	12,32	3,20	6,90	9,40	12,30	14,70
Cooling sensible emission	kW	3,05	3,93	4,77	5,67	5,90	4,34	5,78	7,10	8,79	9,83	2,20	4,80	6,70	8,90	10,90
Heating emission	kW	4,32	5,67	6,99	8,44	8,83	6,14	8,35	10,45	13,16	14,91	2,90	6,70	9,50	12,80	15,70
Dp Cooling	kPa	8,1	12,2	16,7	22,0	23,5	9,6	15,3	21,3	29,9	35,7	1,7	11,0	18,9	31,1	43,2
Dp Heating	kPa	6,8	11,1	16,3	22,8	24,8	8,6	15,0	22,5	34,0	42,6	2,0	8,7	16,0	28,0	40,9
Fan	W	20,0	34,0	57,0	101,0	136,0	29,0	55,0	98,0	173,0	277,0	10,4	29,5	79,7	218,2	461,4
Sound power (Lw)	dB(A)	44	51	57	63	64	48	56	61	67	70	32	48	59	67	72
Sound pressure (Lp) ⁽¹⁾	dB(A)	35	42	48	54	55	39	47	52	58	61	23	39	50	58	63

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

3+1 row coil - 4 pipe units

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C d.b. + 19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING

Entering air temperature: + 20 °C
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

Available pressure: 0 Pa

MODEL		HPL-ECM 03+1					HPL-ECM 13+1					HPL-ECM 23+1				
Inverter power		1	3	5	7	10	1	3	5	7,5	10	1	3	5	7,5	10
Air flow	m³/h	120	299	364	452	567	330	440	560	650	650	550	710	880	1085	1235
Cooling total emission	kW	0,89	1,82	2,11	2,45	2,86	2,11	2,59	3,04	3,39	3,34	3,27	3,89	4,46	5,15	5,44
Cooling sensible emission	kW	0,61	1,30	1,50	1,77	2,08	1,54	1,94	2,34	2,62	2,62	2,44	2,98	3,51	4,09	4,48
Heating emission	kW	0,74	1,42	1,61	1,85	2,12	1,82	2,20	2,57	2,82	2,82	2,78	3,27	3,75	4,28	4,64
Dp Cooling	kPa	2,4	11,1	14,4	19,1	25,3	20,8	30,2	40,7	48,4	48,4	15,9	21,8	28,1	35,7	41,1
Dp Heating	kPa	0,8	3,0	3,9	5,0	7,5	8,0	11,2	14,9	17,6	17,6	4,1	5,5	7,1	9,0	10,4
Fan	W	5,2	14,1	21,2	33,4	55,5	14,0	21,0	37,0	54,0	54,0	21,0	33,0	54,0	92,0	132,0
Sound power (Lw)	dB(A)	30	43	51	55	61	41	48	54	58	58	45	51	55	60	64
Sound pressure (Lp) ⁽¹⁾	dB(A)	21	34	42	46	52	32	39	45	49	49	36	42	46	51	55

MODEL		HPL-ECM 43+1					HPL-ECM 73+1					HPL-ECM 83+1				
Inverter power		1	3	5	7,5	10	1	3	5	7,5	10	1	3	5	7,5	10
Air flow	m³/h	615	830	1055	1315	1390	880	1240	1605	2110	2460	400	1020	1540	2270	2980
Cooling total emission	kW	3,95	4,89	5,75	6,72	6,82	5,58	7,12	8,43	10,17	10,91	3,10	6,60	8,90	11,60	13,80
Cooling sensible emission	kW	2,92	3,73	4,51	5,33	5,54	4,09	5,39	6,57	8,07	9,00	2,10	4,70	6,40	8,60	10,50
Heating emission	kW	3,16	3,85	4,49	5,17	5,35	4,64	5,80	6,85	8,16	8,97	3,10	6,30	8,40	10,80	12,70
Dp Cooling	kPa	12,4	18,3	24,6	32,0	34,1	11,8	18,3	25,0	34,3	40,8	4,5	17,1	29,4	47,6	66,0
Dp Heating	kPa	5,1	7,3	9,6	12,4	13,2	10,2	15,3	20,7	28,3	33,6	8,1	28,9	48,9	78,3	108,0
Fan	W	20,0	34,0	57,0	101,0	136,0	29,0	55,0	98,0	173,0	277,0	10,4	29,5	79,7	218,2	461,4
Sound power (Lw)	dB(A)	44	51	57	63	64	48	56	61	67	70	32	48	59	67	72
Sound pressure (Lp) ⁽¹⁾	dB(A)	35	42	48	54	55	39	47	52	58	61	23	39	50	58	63

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

COOLING EMISSION

3 row coil units

Entering air temperature: 27 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vdc	Qv m³/h	WT: 7 / 12 °C				WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
			Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa
HPL-ECM 03	10	567	2,60	1,87	468	17,4	2,34	1,81	396	14,4	1,91	1,59	324	10,0	1,53	1,41	288	6,7
	7	452	2,24	1,59	396	13,2	2,00	1,50	360	10,7	1,64	1,34	288	7,4	1,31	1,20	216	5,0
	5	364	1,94	1,36	324	10,1	1,74	1,27	288	8,2	1,40	1,14	252	5,6	1,13	1,02	190	3,8
	3	299	1,69	1,17	288	7,8	1,52	1,09	252	6,4	1,22	0,98	216	4,3	0,97	0,88	170	2,9
	1	120	0,85	0,56	144	1,4	0,77	0,53	144	1,2	0,61	0,46	108	0,9	0,47	0,40	78	0,6
HPL-ECM 13	10	650	3,67	2,63	631	55,7	3,28	2,50	565	45,4	2,55	2,28	438	28,5	1,90	1,90	328	16,7
	7,5	650	3,72	2,63	640	55,7	3,34	2,50	574	45,4	2,60	2,28	447	28,5	1,96	1,90	337	16,7
	5	560	3,32	2,35	571	46,6	2,98	2,22	512	38,1	2,30	2,02	396	23,8	1,71	1,71	295	13,8
	3	440	2,82	1,95	485	34,7	2,53	1,84	436	28,5	1,95	1,65	335	17,6	1,44	1,44	247	10,1
	1	330	2,28	1,55	393	23,7	2,06	1,46	354	19,6	1,58	1,29	272	12,1	1,16	1,15	199	6,8
HPL-ECM 23	10	1235	6,01	4,48	1034	47,1	5,38	4,31	926	38,4	4,21	4,00	724	24,5	3,20	3,20	550	14,8
	7,5	1085	5,65	4,08	971	40,9	5,06	3,90	871	33,3	3,97	3,61	682	21,1	3,02	2,93	520	12,6
	5	880	4,87	3,50	838	32,3	4,36	3,33	750	26,3	3,38	3,04	582	16,5	2,53	2,53	435	9,7
	3	710	4,23	2,98	728	25,1	3,79	2,82	652	20,5	2,93	2,55	503	12,7	2,17	2,17	374	7,4
	1	550	3,55	2,45	611	18,3	3,19	2,30	548	15,0	2,45	2,06	422	9,2	1,81	1,81	311	5,3
HPL-ECM 43	10	1390	7,53	5,56	1294	39,2	6,72	5,31	1156	31,9	5,22	4,85	897	20,0	3,92	3,92	675	11,9
	7,5	1315	7,37	5,33	1268	36,8	6,60	5,08	1135	29,9	5,13	4,63	883	18,7	3,87	3,77	666	11,0
	5	1055	6,31	4,50	1084	28,5	5,62	4,27	967	23,1	4,34	3,86	746	14,4	3,22	3,22	555	8,3
	3	830	5,35	3,73	920	21,2	4,77	3,52	820	17,2	3,67	3,15	631	10,6	2,70	2,70	465	6,1
	1	615	4,29	2,93	739	14,3	3,85	2,76	662	11,7	2,95	2,44	507	7,2	2,15	2,15	371	4,0
HPL-ECM 73	10	2460	12,08	9,00	2078	46,8	10,79	8,65	1857	38,0	8,43	8,02	1449	24,1	6,39	6,39	1098	14,5
	7,5	2110	11,15	8,04	1918	39,4	9,99	7,69	1718	32,0	7,81	7,09	1343	20,2	5,92	5,75	1018	12,0
	5	1605	9,22	6,57	1586	28,8	8,24	6,23	1418	23,4	6,36	5,67	1095	14,6	4,75	4,75	816	8,5
	3	1240	7,74	5,39	1332	21,0	6,94	5,09	1194	17,2	5,33	4,58	917	10,6	3,94	3,94	677	6,1
	1	880	6,04	4,10	1039	13,4	5,44	3,86	935	11,1	4,17	3,43	716	6,8	3,04	3,04	523	3,8
HPL-ECM 83	10	2980	14,73	10,31	2592	72,5	13,14	9,59	2340	59,2	10,58	8,57	1908	40,4	8,38	7,54	1512	27,0
	7,5	2270	12,39	8,55	2160	52,2	11,15	8,03	1944	43,1	8,89	7,11	1584	28,8	7,04	6,27	1260	19,1
	5	1540	9,51	6,37	1620	32,2	8,57	5,60	1476	26,6	6,79	5,29	1188	17,5	5,32	4,68	936	11,3
	3	1020	6,99	4,62	1188	18,6	6,34	4,31	1080	15,6	4,99	3,79	864	10,1	3,89	3,30	684	6,5
	1	400	3,28	2,10	540	5,0	2,99	1,97	504	4,2	2,37	1,71	396	1,5	1,82	1,49	324	1,1

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 55 must be subtracted from the total and sensible cooling emission

Entering air temperature: 26 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
		Qv m³/h	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa
HPL-ECM 03	10	567	2,33	1,79	396	14,3	2,10	1,68	360	11,9	1,70	1,52	288	8,2	1,35	1,35	252	5,4
	7	452	1,99	1,49	360	10,7	1,81	1,43	324	8,9	1,45	1,26	252	6,0	1,16	1,11	216	4,0
	5	364	1,72	1,27	288	8,2	1,56	1,21	288	6,8	1,24	1,07	216	4,5	1,00	0,94	180	3,0
	3	299	1,50	1,10	252	6,3	1,36	1,04	252	5,3	1,08	0,92	180	3,5	0,86	0,81	144	2,3
	1	120	0,76	0,53	144	1,2	0,68	0,49	108	1,0	0,53	0,43	95	0,7	0,42	0,38	72	0,5
HPL-ECM 13	10	650	3,27	2,50	562	45,2	2,89	2,38	498	36,2	2,21	2,17	381	22,2	1,63	1,63	281	12,7
	7,5	650	3,32	2,50	571	45,2	2,95	2,38	507	36,2	2,27	2,17	390	22,2	1,69	1,63	290	12,7
	5	560	2,96	2,23	510	37,9	2,62	2,12	451	30,3	2,00	1,92	344	18,4	1,46	1,46	252	10,4
	3	440	2,52	1,84	433	28,3	2,23	1,74	383	22,6	1,68	1,56	290	13,5	1,22	1,22	210	7,5
	1	330	2,05	1,46	352	19,5	1,81	1,37	311	15,5	1,36	1,22	234	9,2	0,98	0,98	168	5,0
HPL-ECM 23	10	1235	5,35	4,30	921	38,3	4,76	4,14	820	30,9	3,69	3,69	634	19,3	2,76	2,76	476	11,4
	7,5	1085	5,04	3,91	868	33,2	4,48	3,75	771	26,7	3,48	3,39	598	16,5	2,62	2,53	450	9,7
	5	880	4,34	3,33	747	26,2	3,84	3,18	661	21,0	2,94	2,91	506	12,9	2,17	2,17	374	7,4
	3	710	3,78	2,82	649	20,4	3,34	2,68	574	16,3	2,54	2,43	436	9,8	1,86	1,86	319	5,6
	1	550	3,17	2,31	545	14,9	2,80	2,18	482	11,9	2,12	1,95	364	7,1	1,53	1,53	264	3,9
HPL-ECM 43	10	1390	6,69	5,31	1151	31,7	5,94	5,07	1021	25,5	4,55	4,55	783	15,6	3,37	3,37	580	9,0
	7,5	1315	6,56	5,08	1128	29,8	5,83	4,85	1003	23,9	4,48	4,38	771	14,6	3,34	3,24	574	8,4
	5	1055	5,59	4,28	962	23,0	4,95	4,06	851	18,3	3,77	3,66	648	11,1	2,75	2,75	474	6,3
	3	830	4,74	3,53	816	17,1	4,19	3,34	721	13,6	3,17	2,98	545	8,2	2,30	2,30	395	4,5
	1	615	3,82	2,76	658	11,6	3,38	2,60	581	9,2	2,54	2,30	437	5,5	1,82	1,82	313	3,0
HPL-ECM 73	10	2460	10,75	8,65	1848	37,9	9,54	8,31	1641	30,4	7,37	7,37	1268	19,0	5,52	5,52	949	11,2
	7,5	2110	9,94	7,69	1710	31,9	8,84	7,37	1521	25,6	6,83	6,66	1175	15,8	5,13	4,95	882	9,2
	5	1605	8,21	6,24	1411	23,3	7,25	5,94	1248	18,6	5,52	5,40	950	11,3	4,06	4,06	699	6,4
	3	1240	6,91	5,10	1188	17,1	6,10	4,83	1049	13,6	4,61	4,34	793	8,2	3,35	3,35	577	4,6
	1	880	5,40	3,87	929	11,0	4,77	3,64	820	8,7	3,58	3,23	616	5,2	2,57	2,57	442	2,8
HPL-ECM 83	10	2980	13,02	9,64	2304	58,7	11,71	9,14	2088	48,7	9,39	8,07	1692	33,0	7,40	6,96	1332	21,9
	7,5	2270	11,04	7,95	1908	42,7	9,85	7,58	1728	34,8	7,86	6,60	1368	23,3	6,23	5,79	1116	15,5
	5	1540	8,49	6,03	1476	26,4	7,54	5,58	1296	21,4	5,97	4,95	1008	14,0	4,72	4,35	828	9,2
	3	1020	6,28	4,33	1080	15,4	5,59	4,03	972	12,5	4,39	3,56	756	8,1	3,44	3,13	576	5,2
	1	400	2,95	1,98	540	4,1	2,66	1,86	468	2,6	2,08	1,60	324	1,3	1,58	1,39	288	0,9

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 55 must be subtracted from the total and sensible cooling emission

Entering air temperature: 25 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vdc	Qv m³/h	WT: 7 / 12 °C				WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
			Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa
HPL-ECM 03	10	567	2,08	1,69	360	11,8	1,88	1,60	324	9,8	1,52	1,42	288	6,7	1,21	1,21	216	4,5
	7	452	1,80	1,44	324	8,9	1,61	1,35	288	7,3	1,30	1,20	216	5,0	1,03	1,03	180	3,3
	5	364	1,55	1,22	270	6,8	1,38	1,14	252	5,5	1,12	1,02	190	3,7	0,88	0,88	152	2,4
	3	299	1,35	1,05	252	5,2	1,20	0,98	216	4,3	0,97	0,87	170	2,9	0,76	0,76	130	1,4
	1	120	0,67	0,49	108	1,0	0,60	0,46	108	0,9	0,46	0,40	75	0,6	0,37	0,35	70	0,4
HPL-ECM 13	10	650	2,88	2,38	496	36,1	2,54	2,27	437	28,6	1,92	1,92	330	17,1	1,41	1,41	242	9,7
	7,5	650	2,94	2,38	505	36,1	2,59	2,27	446	28,6	1,97	1,92	339	17,1	1,46	1,41	252	9,7
	5	560	2,61	2,12	450	30,3	2,30	2,01	395	23,9	1,73	1,73	297	14,1	1,24	1,24	213	7,7
	3	440	2,22	1,74	381	22,5	1,94	1,65	334	17,7	1,45	1,45	249	10,3	1,03	1,03	177	5,5
	1	330	1,80	1,38	310	15,5	1,57	1,29	271	12,1	1,17	1,15	200	7,0	0,82	0,82	141	3,6
HPL-ECM 23	10	1235	4,75	4,14	817	30,9	4,20	3,98	723	24,6	3,22	3,22	553	15,1	2,65	2,65	455	10,5
	7,5	1085	4,48	3,74	770	26,7	3,96	3,59	682	21,2	3,04	2,95	523	12,9	2,42	2,33	417	8,4
	5	880	3,83	3,18	659	20,9	3,37	3,03	580	16,6	2,55	2,55	439	9,9	1,90	1,90	327	5,8
	3	710	3,32	2,68	572	16,2	2,92	2,55	502	12,8	2,19	2,19	377	7,5	1,57	1,57	271	4,1
	1	550	2,79	2,19	480	11,8	2,44	2,06	420	9,3	1,82	1,82	313	5,4	1,29	1,29	222	2,9
HPL-ECM 43	10	1390	5,92	5,06	1018	25,5	5,21	4,83	897	20,2	3,95	3,95	679	12,1	3,27	3,27	563	8,6
	7,5	1315	5,81	4,85	1000	23,9	5,13	4,62	882	18,9	3,90	3,80	671	11,3	3,20	3,10	551	7,8
	5	1055	4,93	4,06	849	18,3	4,33	3,85	744	14,4	3,25	3,25	559	8,5	2,50	2,50	431	5,3
	3	830	4,18	3,34	719	13,6	3,66	3,15	630	10,7	2,73	2,73	469	6,2	1,99	1,99	342	3,5
	1	615	3,36	2,60	579	9,2	2,94	2,44	506	7,2	2,17	2,16	374	4,1	1,52	1,52	261	2,1
HPL-ECM 73	10	2460	9,52	8,30	1637	30,5	8,41	7,98	1447	24,3	6,43	6,43	1106	14,8	5,41	5,41	931	10,8
	7,5	2110	8,82	7,37	1517	25,6	7,79	7,05	1340	20,3	5,96	5,79	1025	12,3	4,83	4,66	831	8,2
	5	1605	7,24	5,94	1245	18,6	6,35	5,65	1092	14,6	4,78	4,78	822	8,7	3,58	3,58	615	5,1
	3	1240	6,07	4,83	1044	13,6	5,32	4,57	915	10,6	3,97	3,97	682	6,2	2,83	2,83	487	3,4
	1	880	4,75	3,65	817	8,7	4,15	3,43	714	6,8	3,06	3,04	527	3,9	2,15	2,15	370	2,0
HPL-ECM 83	10	2980	11,63	9,18	2052	48,4	10,41	8,53	1872	39,8	8,33	7,58	1512	27,1	6,47	6,47	1188	17,6
	7,5	2270	9,81	7,65	1728	34,8	8,77	7,11	1548	28,5	6,99	6,30	1224	19,1	5,43	5,43	972	12,3
	5	1540	7,51	5,63	1296	21,3	6,72	5,31	1188	17,5	5,27	4,69	900	11,3	4,15	3,99	720	7,4
	3	1020	5,56	4,06	936	12,5	4,94	3,80	864	10,1	3,85	3,31	648	6,5	3,03	2,88	540	4,2
	1	400	2,64	1,84	468	2,1	2,34	1,73	396	1,6	1,81	1,48	288	1,1	1,39	1,29	252	0,8

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 55 must be subtracted from the total and sensible cooling emission

4 row coil units

Entering air temperature: 27 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vdc	Qv m³/h	WT: 7 / 12 °C				WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
			Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa
HPL-ECM 04	10	567	3,08	2,09	540	28,9	2,76	1,93	468	23,7	2,19	1,71	396	15,6	1,74	1,51	324	10,3
	7	452	2,64	1,77	468	21,7	2,37	1,64	396	17,8	1,87	1,44	324	11,6	1,47	1,28	252	7,5
	5	364	2,27	1,50	396	16,4	2,05	1,39	360	13,6	1,61	1,22	288	8,8	1,26	1,07	216	5,6
	3	299	1,96	1,28	324	12,6	1,78	1,21	324	10,5	1,40	1,05	252	6,8	1,09	0,92	180	4,3
	1	120	0,96	0,61	180	3,4	0,87	0,57	144	2,2	0,69	0,49	108	1,3	0,52	0,43	108	0,8
HPL-ECM 14	10	650	4,24	2,96	730	33,9	3,79	2,79	651	27,5	2,91	2,49	501	17,0	2,15	2,15	369	9,7
	7,5	650	4,30	2,96	739	33,9	3,84	2,79	660	27,5	2,97	2,49	510	17,0	2,20	2,15	379	9,7
	5	560	3,81	2,62	655	27,9	3,40	2,47	586	22,7	2,62	2,20	450	14,0	1,92	1,92	330	7,9
	3	440	3,17	2,15	546	20,1	2,85	2,02	490	16,5	2,19	1,78	376	10,1	1,59	1,57	274	5,7
	1	330	2,52	1,68	434	13,3	2,28	1,58	391	11,0	1,75	1,38	300	6,8	1,27	1,21	218	3,7
HPL-ECM 24	10	1235	7,56	5,32	1300	83,9	6,78	5,04	1167	68,8	5,26	4,55	904	43,0	3,91	3,91	673	25,1
	7,5	1085	7,00	4,81	1204	71,4	6,30	4,54	1084	58,6	4,90	4,08	842	36,6	3,65	3,56	628	21,2
	5	880	5,95	4,08	1024	54,6	5,37	3,84	923	45,1	4,14	3,42	711	28,0	3,04	3,04	524	16,0
	3	710	5,07	3,42	873	40,9	4,59	3,22	789	34,0	3,53	2,85	608	21,0	2,58	2,52	444	11,9
	1	550	4,16	2,76	715	28,6	3,77	2,60	649	23,9	2,91	2,28	500	14,8	2,11	2,00	364	8,3
HPL-ECM 44	10	1390	8,32	5,96	1431	27,3	7,42	5,65	1276	22,1	5,72	5,10	983	13,7	4,25	4,25	731	8,0
	7,5	1315	8,11	5,70	1396	25,5	7,24	5,40	1245	20,6	5,60	4,86	964	12,8	4,18	4,08	719	7,4
	5	1055	6,87	4,79	1182	19,4	6,13	4,52	1054	15,7	4,71	4,04	810	9,7	3,47	3,47	596	5,5
	3	830	5,77	3,95	992	14,1	5,16	3,71	887	11,5	3,95	3,29	680	7,1	2,89	2,89	497	4,0
	1	615	4,57	3,07	786	9,3	4,11	2,88	706	7,6	3,15	2,53	541	4,7	2,28	2,23	392	2,6
HPL-ECM 74	10	2460	13,64	9,91	2346	41,2	12,17	9,45	2093	33,4	9,44	8,62	1623	20,9	7,07	7,07	1215	12,3
	7,5	2110	12,53	8,83	2154	34,5	11,21	8,39	1928	28,0	8,69	7,60	1495	17,4	6,51	6,34	1121	10,1
	5	1605	10,24	7,14	1761	24,6	9,15	6,74	1575	20,0	7,04	6,04	1211	12,4	5,19	5,19	893	7,1
	3	1240	8,50	5,81	1461	17,6	7,62	5,47	1311	14,4	5,84	4,85	1005	8,8	4,28	4,28	736	5,0
	1	880	6,52	4,37	1122	10,9	5,88	4,10	1012	9,0	4,50	3,60	775	5,5	3,27	3,17	562	3,1
HPL-ECM 84	10	2980	15,81	10,75	2772	49,1	14,17	10,06	2520	40,5	11,27	8,90	2016	27,1	8,85	7,79	1620	17,8
	7,5	2270	13,24	8,87	2304	35,2	11,91	8,34	2088	29,1	9,44	7,27	1656	19,2	7,43	6,46	1332	12,6
	5	1540	10,10	6,66	1728	21,6	9,10	6,19	1584	17,9	7,23	5,42	1260	11,8	5,65	4,81	972	7,6
	3	1020	7,40	4,81	1260	12,4	6,71	4,50	1152	10,4	5,31	3,93	900	6,8	4,10	3,44	720	4,3
	1	400	3,44	2,16	576	1,8	3,14	2,04	540	1,6	2,50	1,77	432	1,2	1,91	1,52	324	0,8

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 55 must be subtracted from the total and sensible cooling emission

Entering air temperature: 26 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
		Qv m³/h	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa
HPL-ECM 04	10	567	2,74	1,95	468	23,5	2,44	1,83	432	19,1	1,94	1,63	360	12,6	1,53	1,42	288	8,2
	7	452	2,35	1,65	396	17,7	2,09	1,55	360	14,3	1,66	1,38	288	9,4	1,30	1,20	216	6,0
	5	364	2,02	1,40	360	13,4	1,80	1,32	324	10,8	1,41	1,14	252	6,9	1,11	1,02	185	4,5
	3	299	1,76	1,21	288	10,3	1,56	1,13	288	8,4	1,22	0,98	216	5,3	0,95	0,87	160	3,4
	1	120	0,86	0,57	144	2,0	0,77	0,53	144	1,5	0,60	0,46	108	1,1	0,46	0,40	72	0,7
HPL-ECM 14	10	650	3,77	2,80	648	27,3	3,33	2,64	572	21,8	2,52	2,36	433	13,1	1,82	1,82	314	7,2
	7,5	650	3,82	2,80	657	27,3	3,38	2,64	582	21,8	2,57	2,36	443	13,1	1,88	1,82	323	7,2
	5	560	3,38	2,48	582	22,5	2,99	2,33	514	18,0	2,26	2,07	388	10,7	1,63	1,63	280	5,9
	3	440	2,83	2,03	487	16,4	2,50	1,90	430	13,0	1,88	1,68	324	7,7	1,34	1,34	231	4,2
	1	330	2,26	1,59	389	10,9	2,00	1,48	344	8,7	1,50	1,30	258	5,1	1,06	1,06	182	2,7
HPL-ECM 24	10	1235	6,75	5,05	1161	68,4	5,98	4,79	1028	54,8	4,56	4,32	785	33,3	3,34	3,34	575	18,9
	7,5	1085	6,27	4,55	1079	58,4	5,57	4,31	957	46,7	4,26	3,87	732	28,3	3,12	3,03	537	15,8
	5	880	5,34	3,85	918	44,8	4,72	3,63	812	35,8	3,58	3,23	615	21,5	2,58	2,58	444	11,9
	3	710	4,56	3,23	785	33,8	4,04	3,04	694	27,0	3,05	2,68	524	16,1	2,18	2,18	375	8,8
	1	550	3,74	2,61	644	23,7	3,32	2,44	572	19,0	2,50	2,14	430	11,3	1,77	1,77	305	6,0
HPL-ECM 44	10	1390	7,37	5,66	1268	22,0	6,53	5,37	1122	17,5	4,96	4,84	853	10,6	3,63	3,63	624	6,0
	7,5	1315	7,20	5,41	1239	20,5	6,38	5,13	1097	16,4	4,87	4,61	837	9,9	3,58	3,48	616	5,6
	5	1055	6,10	4,53	1049	15,6	5,39	4,28	926	12,4	4,07	3,82	700	7,4	2,94	2,94	506	4,1
	3	830	5,13	3,72	882	11,4	4,53	3,50	779	9,1	3,41	3,10	586	5,4	2,44	2,44	419	2,9
	1	615	4,08	2,89	702	7,6	3,60	2,71	620	6,0	2,70	2,37	465	3,6	1,92	1,92	330	1,9
HPL-ECM 74	10	2460	12,12	9,46	2084	33,3	10,73	9,02	1846	26,6	8,21	8,21	1412	16,3	6,07	6,07	1043	9,4
	7,5	2110	11,14	8,39	1916	27,8	9,88	7,98	1699	22,2	7,57	7,22	1301	13,5	5,60	5,42	963	7,7
	5	1605	9,10	6,75	1566	19,9	8,04	6,38	1384	15,9	6,09	5,72	1047	9,5	4,42	4,42	760	5,3
	3	1240	7,58	5,48	1304	14,3	6,69	5,16	1151	11,4	5,04	4,57	866	6,8	3,62	3,62	622	3,7
	1	880	5,85	4,11	1005	9,0	5,16	3,86	888	7,1	3,87	3,38	665	4,2	2,75	2,75	472	2,2
HPL-ECM 84	10	2980	14,04	10,11	2484	40,2	12,52	9,51	2232	32,8	9,98	8,38	1764	22,1	7,80	7,25	1404	14,4
	7,5	2270	11,82	8,39	2052	28,9	10,53	7,90	1836	23,5	8,32	6,90	1440	15,5	6,55	6,03	1152	10,2
	5	1540	9,02	6,23	1548	17,7	8,04	5,79	1404	14,4	6,30	5,10	1080	9,3	4,92	4,48	864	6,0
	3	1020	6,65	4,52	1116	10,3	5,95	4,23	1044	8,4	4,64	3,66	792	5,4	3,59	3,19	612	3,4
	1	400	3,09	2,04	540	1,6	2,79	1,90	468	1,4	2,20	1,65	360	1,0	1,66	1,43	288	0,7

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 55 must be subtracted from the total and sensible cooling emission

Entering air temperature: 25 °C - R.H.: 50% - Available pressure: 0 Pa

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
		Qv m³/h	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa
HPL-ECM 04	10	567	2,43	1,85	432	19,0	2,16	1,73	396	15,4	1,72	1,51	288	10,2	1,34	1,34	252	6,5
	7	452	2,08	1,56	360	14,2	1,86	1,47	324	11,6	1,47	1,28	252	7,6	1,14	1,09	216	4,8
	5	364	1,79	1,32	324	10,7	1,59	1,24	288	8,7	1,25	1,08	216	5,6	0,98	0,93	180	3,6
	3	299	1,55	1,13	252	8,3	1,39	1,07	252	6,7	1,08	0,93	180	4,3	0,84	0,79	144	2,7
	1	120	0,77	0,54	144	1,5	0,68	0,50	108	1,3	0,52	0,43	72	0,9	0,40	0,37	72	0,6
HPL-ECM 14	10	650	3,32	2,64	570	21,7	2,91	2,49	500	17,1	2,16	2,16	372	9,9	1,56	1,56	268	5,4
	7,5	650	3,37	2,64	580	21,7	2,96	2,49	509	17,1	2,22	2,16	381	9,9	1,61	1,56	277	5,4
	5	560	2,98	2,34	513	17,9	2,61	2,20	449	14,0	1,93	1,93	333	8,1	1,36	1,36	234	4,3
	3	440	2,49	1,91	428	13,0	2,18	1,79	375	10,2	1,61	1,57	276	5,8	1,12	1,12	192	3,0
	1	330	1,99	1,49	342	8,7	1,74	1,39	299	6,8	1,28	1,21	219	3,8	0,87	0,87	150	1,9
HPL-ECM 24	10	1235	5,96	4,79	1026	54,8	5,24	4,54	902	43,3	3,94	3,94	678	25,6	2,83	2,83	486	13,9
	7,5	1085	5,55	4,32	954	46,7	4,88	4,08	840	36,8	3,68	3,59	633	21,6	2,65	2,56	455	11,6
	5	880	4,70	3,64	809	35,7	4,13	3,43	710	28,1	3,07	3,04	528	16,3	2,16	2,16	372	8,6
	3	710	4,02	3,04	692	26,9	3,52	2,86	606	21,1	2,61	2,52	448	12,2	1,82	1,82	312	6,3
	1	550	3,31	2,45	569	19,0	2,90	2,29	498	14,9	2,13	2,00	366	8,5	1,47	1,47	252	4,3
HPL-ECM 44	10	1390	6,50	5,37	1118	17,5	5,71	5,09	982	13,8	4,28	4,28	736	8,1	3,33	3,33	572	5,1
	7,5	1315	6,36	5,13	1093	16,3	5,60	4,86	962	12,9	4,21	4,11	724	7,6	3,25	3,15	560	4,7
	5	1055	5,37	4,28	923	12,4	4,70	4,04	808	9,7	3,49	3,49	600	5,6	2,55	2,55	438	3,2
	3	830	4,51	3,50	775	9,1	3,94	3,29	678	7,1	2,91	2,91	501	4,1	2,04	2,04	350	2,1
	1	615	3,59	2,72	617	6,0	3,13	2,54	539	4,7	2,30	2,22	396	2,7	1,59	1,59	273	1,3
HPL-ECM 74	10	2460	10,70	9,01	1840	26,6	9,42	8,59	1621	21,1	7,12	7,12	1224	12,6	5,63	5,63	968	8,2
	7,5	2110	9,86	7,98	1695	22,2	8,67	7,58	1491	17,5	6,56	6,39	1129	10,4	5,03	4,85	865	6,3
	5	1605	8,02	6,39	1380	15,8	7,02	6,04	1208	12,4	5,23	5,23	900	7,2	3,73	3,73	641	3,9
	3	1240	6,66	5,17	1146	11,3	5,83	4,86	1002	8,9	4,31	4,31	741	5,1	3,02	3,02	520	2,7
	1	880	5,14	3,86	883	7,1	4,49	3,62	773	5,6	3,29	3,17	567	3,1	2,27	2,27	391	1,6
HPL-ECM 84	10	2980	12,45	9,59	2232	32,7	11,11	8,89	1980	26,8	8,83	7,77	1584	18,0	6,83	6,83	1260	11,6
	7,5	2270	10,43	7,82	1836	23,3	9,35	7,38	1656	19,2	7,39	6,43	1296	12,7	5,76	5,53	1008	8,2
	5	1540	8,00	5,84	1404	14,4	7,13	5,49	1224	11,7	5,58	4,80	972	7,5	4,36	4,14	756	4,9
	3	1020	5,89	4,24	1008	8,3	5,24	3,93	900	6,8	4,06	3,45	684	4,3	3,15	2,96	540	2,1
	1	400	2,76	1,91	468	1,4	2,46	1,77	432	1,2	1,89	1,54	324	0,9	1,44	1,32	252	0,6

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

Note: the power absorption (Watt) at p. 55 must be subtracted from the total and sensible cooling emission

HEATING EMISSION

3 row coil units

Entering air temperature: 20 °C - Available pressure: 0 Pa

Model	Vdc	Qv m³/h	WT: 70 / 60 °C			WT: 60 / 50 °C			WT: 55 / 45 °C			WT: 50 / 40 °C			WT: 50 / 45 °C			WT: 45 / 40 °C		
			Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa
HPL-ECM 03	10	567	5,77	504	17,2	4,41	396	10,8	3,73	324	8,0	3,04	252	5,7	3,51	612	25,8	2,83	504	17,7
	7	452	4,86	432	12,5	3,72	324	7,8	3,15	288	5,9	2,58	216	4,2	2,95	504	18,6	2,39	432	12,9
	5	364	4,10	360	9,1	3,15	288	5,8	2,67	216	4,3	2,19	180	3,1	2,49	432	13,6	2,02	360	9,4
	3	299	3,51	324	6,8	2,69	252	4,3	2,29	196	3,3	1,88	160	2,3	2,13	360	10,2	1,73	288	7,1
HPL-ECM 13	1	120	1,62	144	1,7	1,26	108	1,1	1,07	95	0,8	0,89	72	0,6	0,98	180	2,5	0,80	144	1,8
	10	650	7,82	672	50,2	6,00	516	32,2	5,09	438	24,4	4,17	359	17,4	4,79	823	76,8	3,88	668	53,7
	7,5	650	7,82	672	50,2	6,00	516	32,2	5,09	438	24,4	4,17	359	17,4	4,79	823	76,8	3,88	668	53,7
	5	560	6,93	596	40,4	5,31	457	25,9	4,51	388	19,6	3,70	319	14,0	4,24	729	61,8	3,44	591	43,1
	3	440	5,66	487	28,1	4,34	374	18,0	3,69	317	13,7	3,03	261	9,8	3,47	596	43,0	2,82	484	30,1
HPL-ECM 23	1	330	4,41	380	17,9	3,40	292	11,6	2,89	248	8,8	2,37	204	6,3	2,70	465	27,5	2,19	377	19,2
	10	1235	13,86	1192	45,9	10,62	913	29,4	8,99	773	22,2	7,37	634	15,8	8,49	1460	70,2	6,87	1182	48,9
	7,5	1085	12,53	1078	38,3	9,60	826	24,5	8,14	700	18,5	6,67	573	13,2	7,68	1321	58,6	6,22	1070	40,9
	5	880	10,63	914	28,4	8,14	700	18,2	6,90	594	13,8	5,67	487	9,8	6,50	1118	43,4	5,27	906	30,3
	3	710	8,90	765	20,7	6,84	588	13,3	5,79	498	10,0	4,75	409	7,2	5,45	938	31,6	4,43	761	22,2
HPL-ECM 43	1	550	7,17	616	14,0	5,52	474	9,0	4,67	402	6,8	3,84	331	4,9	4,39	755	21,4	3,56	613	15,0
	10	1390	16,83	1447	36,1	12,88	1108	23,1	10,92	939	17,5	8,92	767	12,4	10,32	1775	55,4	8,35	1436	38,5
	7,5	1315	16,10	1384	33,3	12,32	1060	21,3	10,45	899	16,1	8,54	735	11,4	9,86	1697	51,1	7,98	1373	35,6
	5	1055	13,43	1155	24,1	10,30	886	15,5	8,72	750	11,7	7,15	615	8,3	8,23	1415	36,9	6,66	1146	25,7
	3	830	10,98	944	16,7	8,41	723	10,7	7,13	613	8,1	5,85	503	5,8	6,72	1155	25,6	5,45	937	17,9
HPL-ECM 73	1	615	8,44	725	10,4	6,47	557	6,7	5,50	473	5,1	4,52	388	3,6	5,16	887	15,9	4,19	720	11,1
	10	2460	25,63	2204	39,2	19,60	1686	25,0	16,56	1424	18,8	13,56	1166	13,4	15,69	2699	60,0	12,69	2183	41,7
	7,5	2110	22,78	1959	31,7	17,45	1501	20,3	14,76	1269	15,3	12,07	1038	10,8	13,96	2401	48,6	11,30	1944	33,9
	5	1605	18,43	1585	21,7	14,12	1214	13,9	11,95	1027	10,4	9,78	841	7,4	11,28	1940	33,1	9,14	1572	23,1
	3	1240	14,93	1284	14,8	11,46	985	9,5	9,71	835	7,2	7,96	684	5,1	9,16	1575	22,7	7,43	1277	15,9
HPL-ECM 83	1	880	11,22	965	8,9	8,62	741	5,7	7,32	629	4,3	5,99	516	3,1	6,87	1182	13,6	5,57	959	9,5
	10	2980	30,08	2664	58,0	23,03	2052	37,2	19,52	1728	28,3	15,99	1404	20,3	18,17	3240	86,8	14,69	2628	60,9
	7,5	2270	24,55	2160	39,8	18,89	1656	25,7	16,03	1404	19,6	13,20	1152	14,2	14,88	2628	59,5	12,08	2124	42,0
	5	1540	18,11	1584	22,9	13,98	1224	14,9	11,91	1008	11,4	9,83	864	8,3	10,99	1908	34,2	8,94	1548	24,2
	3	1020	12,91	1116	12,5	9,99	864	8,2	8,54	756	6,3	7,07	612	4,6	7,82	1368	18,6	6,39	1080	13,2
	1	400	5,72	504	3,0	4,46	360	2,0	3,83	324	1,5	3,19	252	1,1	3,46	576	4,4	2,83	468	3,2

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

4 row coil units

Entering air temperature: 20 °C - Available pressure: 0 Pa

Model	Vdc	Qv m³/h	WT: 70 / 60 °C			WT: 60 / 50 °C			WT: 55 / 45 °C			WT: 50 / 40 °C			WT: 50 / 45 °C			WT: 45 / 40 °C		
			Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa
HPL-ECM 04	10	567	6,21	540	24,1	4,77	432	15,2	4,05	360	11,5	3,33	288	8,2	3,76	648	35,8	3,05	540	24,9
	7	452	5,18	468	17,3	3,99	360	11,0	3,40	288	8,3	2,80	252	6,0	3,14	540	25,6	2,55	432	17,8
	5	364	4,35	396	12,5	3,36	288	8,0	2,86	252	6,0	2,36	216	4,3	2,63	468	18,5	2,14	360	12,9
	3	299	3,69	324	9,2	2,85	252	5,9	2,43	216	4,5	2,01	180	3,3	2,24	396	13,7	1,82	324	9,6
	1	120	1,67	144	2,2	1,30	108	1,4	1,11	108	1,1	0,93	72	0,8	1,01	180	3,2	0,83	144	2,6
HPL-ECM 14	10	650	8,57	737	31,4	6,59	566	20,2	5,58	480	15,3	4,59	395	10,9	5,25	904	48,1	4,27	734	33,7
	7,5	650	8,57	737	31,4	6,59	566	20,2	5,58	480	15,3	4,59	395	10,9	5,25	904	48,1	4,27	734	33,7
	5	560	7,53	648	24,9	5,79	498	16,0	4,91	423	12,1	4,04	347	8,7	4,62	795	38,1	3,75	645	26,7
	3	440	6,08	523	16,9	4,68	402	10,9	3,98	342	8,3	3,27	282	5,9	3,73	641	25,9	3,02	520	18,1
	1	330	4,68	402	10,5	3,60	310	6,8	3,07	264	5,2	2,53	217	3,7	2,87	493	16,1	2,33	400	11,3
HPL-ECM 24	10	1235	15,74	1354	70,7	12,11	1041	45,6	10,30	886	34,7	8,46	728	24,8	9,63	1656	108,0	7,82	1345	75,6
	7,5	1085	14,14	1216	58,2	10,87	935	37,5	9,25	795	28,6	7,61	654	20,5	8,65	1488	89,0	7,03	1209	62,5
	5	880	11,81	1016	42,1	9,08	781	27,1	7,72	664	20,6	6,36	547	14,8	7,22	1243	64,4	5,88	1011	45,2
	3	710	9,76	840	29,9	7,53	648	19,4	6,41	551	14,8	5,28	454	10,6	5,98	1029	45,8	4,86	836	32,1
	1	550	7,74	666	19,7	5,98	514	12,8	5,09	438	9,8	4,20	361	7,0	4,74	816	30,2	3,86	664	21,2
HPL-ECM 44	10	1390	17,79	1530	23,2	13,65	1174	14,9	11,56	994	11,2	9,47	814	8,0	10,89	1873	35,5	8,83	1518	24,8
	7,5	1315	17,00	1462	21,4	13,01	1119	13,7	11,03	948	10,3	9,04	777	7,4	10,41	1790	32,7	8,44	1451	22,8
	5	1055	14,06	1209	15,2	10,80	929	9,8	9,16	788	7,4	7,52	647	5,3	8,62	1483	23,3	6,99	1203	16,3
	3	830	11,39	979	10,4	8,75	752	6,7	7,44	639	5,1	6,10	524	3,6	6,98	1200	15,9	5,67	974	11,1
	1	615	8,68	746	6,4	6,68	575	4,1	5,68	488	3,1	4,67	402	2,2	5,32	914	9,8	4,32	743	6,8
HPL-ECM 74	10	2460	30,03	2583	39,8	23,02	1980	25,5	19,50	1677	19,3	15,98	1375	13,7	18,41	3166	61,1	14,91	2565	42,6
	7,5	2110	26,52	2281	31,8	20,33	1748	20,4	17,21	1480	15,4	14,12	1215	11,0	16,24	2794	48,8	13,16	2263	34,0
	5	1605	21,04	1810	21,0	16,14	1388	13,5	13,71	1179	10,2	11,25	967	7,3	12,89	2218	32,2	10,45	1798	22,5
	3	1240	16,81	1445	14,0	12,92	1111	9,0	10,97	943	6,8	9,01	775	4,9	10,28	1768	21,4	8,35	1436	15,0
	1	880	12,33	1060	8,0	9,49	817	5,2	8,07	694	3,9	6,65	572	2,8	7,55	1299	12,3	6,14	1055	8,6
HPL-ECM 84	10	2980	32,15	2844	38,9	24,72	2196	25,2	20,95	1872	19,1	17,24	1548	13,9	19,41	3456	58,1	15,71	2772	40,9
	7,5	2270	26,13	2304	26,6	20,13	1764	17,2	17,15	1512	13,2	14,13	1260	9,6	15,81	2772	39,6	12,84	2268	28,0
	5	1540	19,13	1692	15,2	14,81	1296	9,9	12,64	1116	7,6	10,46	900	5,6	11,59	2016	22,5	9,46	1656	16,0
	3	1020	13,55	1188	8,2	10,52	900	5,4	9,00	792	4,2	7,49	648	3,1	8,20	1440	12,1	6,71	1152	8,7
	1	400	5,99	540	1,9	4,64	396	1,3	3,99	360	1,0	3,33	288	0,8	3,58	612	2,8	2,94	504	2,0

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

1 row additional coil units

For 3 or 4 row versions (3+1 or 4+1 rows)

Entering air temperature: 20 °C - Available pressure: 0 Pa

		Qv	WT: 80 / 70 °C				WT: 75 / 65 °C			WT: 70 / 60 °C			WT: 65 / 55 °C			WT: 60 / 50 °C			WT: 55 / 45 °C		
			Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	Ph	Qw	Dp(h)	
Model	Vdc	m³/h	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	
HPL-ECM 0	10	567	3,08	288	9,5	2,76	252	7,9	2,44	216	6,4	2,12	180	5,1	1,80	150	3,8	1,48	130	2,8	
	7	452	2,68	252	7,3	2,40	216	6,0	2,12	180	4,9	1,85	160	3,9	1,57	135	3,0	1,30	108	2,2	
	5	364	2,33	216	5,6	2,09	180	4,7	1,85	160	3,8	1,61	144	3,0	1,38	120	2,3	1,14	98	1,7	
	3	299	2,04	175	4,4	1,83	144	3,7	1,62	144	3,0	1,42	108	2,4	1,21	105	1,8	1,00	85	1,3	
	1	120	1,06	100	1,3	0,95	80	1,1	0,84	72	0,9	0,74	65	0,7	0,63	55	0,6	0,53	40	0,4	
HPL-ECM 1	10	650	3,99	343	31,4	3,60	310	26,5	3,21	276	21,9	2,82	243	17,6	2,43	209	13,7	2,04	175	10,2	
	7,5	650	3,99	343	31,4	3,60	310	26,5	3,21	276	21,9	2,82	243	17,6	2,43	209	13,7	2,04	175	10,2	
	5	560	3,63	312	26,5	3,27	282	22,3	2,92	251	18,5	2,57	221	14,9	2,21	190	11,6	1,86	160	8,6	
	3	440	3,11	267	20,0	2,80	241	16,9	2,50	215	13,9	2,20	189	11,2	1,89	163	8,8	1,59	137	6,5	
	1	330	2,56	220	14,1	2,32	199	12,0	2,06	177	9,9	1,82	156	8,0	1,57	135	6,2	1,32	113	4,6	
HPL-ECM 2	10	1235	6,64	571	18,9	5,97	514	15,9	5,31	457	13,0	4,64	399	10,4	3,97	342	8,0	3,31	284	5,8	
	7,5	1085	6,12	526	16,3	5,50	473	13,7	4,90	421	11,3	4,28	368	9,0	3,67	315	6,9	3,05	263	5,1	
	5	880	5,35	460	12,8	4,82	415	10,8	4,29	369	8,9	3,75	322	7,1	3,21	276	5,5	2,68	230	4,0	
	3	710	4,67	402	10,0	4,20	361	8,4	3,74	322	6,9	3,27	281	5,5	2,81	241	4,3	2,34	201	3,1	
	1	550	3,95	340	7,4	3,56	306	6,3	3,17	272	5,1	2,78	239	4,1	2,38	205	3,2	1,99	171	2,3	
HPL-ECM 4	10	1390	7,58	652	23,6	6,84	588	19,9	6,09	524	16,4	5,35	460	13,2	4,60	395	10,2	3,85	331	7,6	
	7,5	1315	7,33	630	22,2	6,60	567	18,6	5,88	506	15,4	5,17	444	12,4	4,44	382	9,6	3,72	320	7,1	
	5	1055	6,36	547	17,2	5,73	493	14,5	5,11	439	12,0	4,49	386	9,6	3,86	332	7,5	3,24	278	5,5	
	3	830	5,46	469	13,0	4,92	423	11,0	4,39	377	9,1	3,85	331	7,3	3,31	285	5,7	2,78	239	4,2	
	1	615	4,47	385	9,1	4,04	347	7,7	3,60	310	6,4	3,16	272	5,1	2,72	234	4,0	2,29	197	3,0	
HPL-ECM 7	10	2460	12,67	1089	59,5	11,43	983	50,3	10,21	878	41,7	8,97	772	33,6	7,75	666	26,3	6,53	561	19,6	
	7,5	2110	11,49	988	49,9	10,38	892	42,2	9,28	798	35,1	8,16	702	28,3	7,03	605	22,1	5,94	511	16,5	
	5	1605	9,64	829	36,4	8,72	750	30,9	7,78	669	25,6	6,85	589	20,7	5,92	509	16,2	4,99	429	12,1	
	3	1240	8,18	703	27,1	7,39	635	22,9	6,59	567	19,0	5,80	499	15,3	5,02	432	12,0	4,23	364	9,0	
	1	880	6,51	560	18,0	5,89	507	15,3	5,26	452	12,6	4,64	399	10,2	4,01	345	8,0	3,38	291	6,0	
HPL-ECM 8	10	2980	18,06	1620	196,1	16,25	1476	164,1	14,46	1296	134,8	12,67	1152	108,0	10,87	972	83,8	9,08	828	62,3	
	7,5	2270	15,28	1368	141,8	13,78	1224	118,9	12,27	1080	97,7	10,77	972	78,3	9,29	828	61,1	7,78	684	45,4	
	5	1540	11,81	1044	87,7	10,67	936	73,7	9,52	828	60,7	8,37	720	48,9	7,22	648	38,1	6,07	540	28,4	
	3	1020	8,82	792	51,4	7,98	684	43,3	7,12	612	35,8	6,27	540	28,9	5,43	468	22,6	4,56	396	16,9	
	1	400	4,32	396	14,2	3,91	324	12,0	3,49	288	10,0	3,08	252	8,1	2,67	216	6,4	2,25	180	4,8	

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

2 row additional coil units

For 3 row versions only (3+2 rows)

Entering air temperature: 20 °C - Available pressure: 0 Pa

Model	Vdc	Qv m³/h	WT: 65 / 55 °C				WT: 60 / 50 °C				WT: 55 / 45 °C				WT: 50 / 40 °C				WT: 45 / 40 °C				WT: 45 / 35 °C			
			Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa
HPL-ECM 0	10	567	4,12	360	30,9	3,55	324	23,9	2,99	252	17,8	2,42	208	12,4	2,08	360	11,8	1,86	160	7,9						
	7	452	3,52	324	23,1	3,05	252	17,9	2,56	216	13,3	2,08	170	9,3	1,80	310	8,9	1,60	140	6,0						
	5	364	3,02	252	17,3	2,61	216	13,4	2,20	180	10,0	1,79	150	7,1	1,55	260	6,8	1,38	115	4,5						
	3	299	2,61	216	13,2	2,26	185	10,3	1,91	165	7,7	1,55	130	5,4	1,35	230	5,2	1,20	103	3,5						
	1	120	1,26	108	3,5	1,10	95	2,8	0,93	80	2,1	0,76	65	1,5	0,67	110	1,1	0,60	36	1,0						
HPL-ECM 1	10	650	4,97	428	14,0	4,28	368	10,9	3,60	309	8,1	2,92	251	5,7	2,78	479	18,3	2,23	192	3,6						
	7,5	650	4,97	428	14,0	4,28	368	10,9	3,60	309	8,1	2,92	251	5,7	2,78	479	18,3	2,23	192	3,6						
	5	560	4,47	385	11,6	3,87	333	9,1	3,25	279	6,8	2,64	227	4,7	2,51	431	15,2	2,02	173	3,0						
	3	440	3,77	324	8,5	3,25	280	6,7	2,73	235	5,0	2,22	191	3,5	2,11	363	11,1	1,70	147	2,2						
	1	330	3,04	262	5,8	2,63	226	4,5	2,21	190	3,4	1,80	155	2,4	1,71	293	7,6	1,38	119	1,5						
HPL-ECM 2	10	1235	8,74	751	49,4	7,55	650	38,7	6,37	548	28,9	5,19	446	20,4	4,90	843	64,7	4,00	344	13,0						
	7,5	1085	8,01	689	42,2	6,92	595	33,0	5,83	502	24,7	4,75	409	17,4	4,50	773	55,3	3,67	315	11,1						
	5	880	6,91	595	32,4	5,98	515	25,4	5,05	435	19,1	4,11	354	13,4	3,88	668	42,5	3,18	273	8,6						
	3	710	5,93	510	24,6	5,14	442	19,4	4,34	373	14,5	3,54	304	10,2	3,33	573	32,3	2,74	235	6,6						
	1	550	4,92	423	17,6	4,27	367	13,8	3,60	310	10,4	2,95	253	7,4	2,77	476	23,1	2,28	196	4,7						
HPL-ECM 4	10	1390	10,37	891	71,0	8,99	774	55,9	7,60	654	42,0	6,21	534	29,8	5,83	1002	93,3	4,82	415	19,2						
	7,5	1315	9,98	858	66,3	8,65	744	52,1	7,31	629	39,2	5,98	514	27,8	5,61	965	87,1	4,64	399	17,9						
	5	1055	8,54	734	50,1	7,41	637	39,5	6,28	540	29,8	5,13	441	21,1	4,80	826	65,9	3,98	342	13,6						
	3	830	7,19	619	36,8	6,23	536	28,9	5,28	454	21,8	4,32	372	15,5	4,04	696	48,4	3,36	289	10,1						
	1	615	5,76	495	24,6	4,99	429	19,4	4,22	363	14,6	3,46	298	10,4	3,23	555	32,2	2,70	232	6,8						

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

CORRECTION FACTOR TABLES

Air flow depending on speed and requested available pressure

Air flow m³/h

Model	Vdc	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
0	10	567	534	511	495	486	479	473	466	454
	9	525	492	471	456	446	436	422	401	370
	8	491	469	451	432	412	387	356	315	263
	7	452	430	410	389	364	333	292	238	169
	6	425	396	372	347	317	279	229	161	71
	5,5	406	376	345	313	274	225	168	94	-
	5	364	330	300	268	230	181	115	-	-
	4	335	294	262	226	176	102	-	-	-
	3	299	254	217	174	111	-	-	-	-
	2	245	195	165	119	-	-	-	-	-
	1,5	183	110	77	-	-	-	-	-	-
1	1	120	-	-	-	-	-	-	-	-
	10	650	636	618	595	572	543	513	481	440
	9,5	650	635	618	593	570	542	510	470	412
	9	650	634	617	592	568	540	504	450	350
	8,5	650	633	616	591	567	530	483	395	230
	8	650	632	615	590	560	516	443	282	-
	7,5	650	630	607	575	530	470	355	195	-
	7	650	627	542	550	490	405	265	-	-
	6,5	650	603	564	513	445	340	177	-	-
	6	610	575	530	473	392	262	-	-	-
	5,5	585	545	497	430	335	170	-	-	-
	5	560	514	460	385	265	50	-	-	-
	4	500	450	380	275	72	-	-	-	-
	3	440	380	287	93	-	-	-	-	-
2	2	380	310	170	-	-	-	-	-	-
	1	330	240	-	-	-	-	-	-	-
	10	1235	1203	1170	1130	1082	1030	966	886	870
	9,5	1228	1190	1148	1100	1048	900	905	808	675
	9	1218	1170	1120	1065	1000	925	830	717	656
	8,5	1170	1123	1072	1015	947	860	752	610	428
	8	1127	1080	1030	965	890	787	655	485	270
	7,5	1085	1035	980	911	825	713	563	370	-
	7	1042	992	930	857	762	635	460	220	-
	6,5	1000	946	882	800	695	545	350	-	-
	6	960	903	831	740	615	447	225	-	-
	5,5	920	860	785	682	540	345	-	-	-
	5	880	820	737	620	450	225	-	-	-
	4	795	725	625	470	245	-	-	-	-
4	3	710	625	485	275	-	-	-	-	-
	2	625	525	335	205	-	-	-	-	-
	1	550	425	185	-	-	-	-	-	-
	10	1390	1365	1350	1322	1290	1245	1180	1090	980
	9,5	1390	1360	1335	1300	1250	1190	1102	1005	905
	9	1390	1357	1315	1265	1200	1123	1035	940	832
	8,5	1390	1340	1280	1210	1140	1060	970	870	740
	8	1360	1295	1230	1160	1080	995	900	780	630
	7,5	1315	1245	1175	1100	1017	922	815	680	490
	7	1260	1190	1115	1035	950	850	725	560	260
	6,5	1200	1130	1055	970	875	760	620	415	-
	6	1155	1080	1000	910	800	680	510	240	-
	5,5	1102	1025	940	840	725	580	370	-	-
	5	1055	970	875	767	640	470	190	-	-
	4	950	850	740	610	440	150	-	-	-
	3	830	725	600	430	155	-	-	-	-
	2	730	602	450	195	-	-	-	-	-
	1	615	485	280	-	-	-	-	-	-

Model	Vdc	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
7	10	2460	2380	2295	2005	2115	2020	1920	1810	1700
	9,5	2390	2305	2220	2130	2035	1935	1825	1720	1600
	9	2320	2240	2140	2050	1950	1845	1740	1620	1490
	8,5	2070	2180	2095	2000	1895	1780	1665	1540	1400
	8	2220	2135	2040	1940	1835	1735	1580	1440	1290
	7,5	2110	2025	1935	1840	1725	1605	1480	1340	1180
	7	2010	1930	1840	1740	1630	1510	1380	1225	1060
	6,5	1920	1840	1750	1655	1540	1420	1290	1040	980
	6	1840	1760	1670	1575	1460	1340	1220	1060	900
	5,5	1700	1630	1550	1465	1370	1255	1120	960	785
	5	1605	1540	1465	1380	1280	1170	1025	860	675
	4	1422	1347	1265	1180	1085	980	850	660	380
	3	1240	1162	1082	1000	900	780	600	305	-
	2	1070	985	900	810	700	560	360	-	-
8	1	880	770	670	575	470	360	-	-	-
	10	2980	2906	2822	2734	2640	2542	2436	2323	2202
	9	2700	2614	2520	2421	2314	2200	2076	1941	1793
	8	2370	2280	2184	2079	1962	1830	1680	1502	1288
	7,5	2270	2168	2059	1938	1800	1639	1449	1214	921
	7	2060	1941	1816	1683	1538	1380	1204	1000	750
	6	1870	1732	1584	1421	1237	1021	747	293	-
	5,5	1550	1450	1341	1210	1047	827	498	-	-
	5	1540	1411	1234	1030	779	416	-	-	-
	4	1320	1115	872	531	-	-	-	-	-
	3	1020	758	366	-	-	-	-	-	-
	2	660	-	-	-	-	-	-	-	-
	1,5	600	-	-	-	-	-	-	-	-
	1	400	-	-	-	-	-	-	-	-

Power absorption depending on air flow and available pressure

Power absorbed (Watt)

Model	Vdc	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
0	10	58	56	55	55	56	57	58	58	58
	9	49	47	47	47	48	49	49	49	48
	8	39	39	39	39	39	39	39	38	36
	7	32	33	34	34	33	32	31	29	26
	6	28	28	27	27	27	26	24	22	18
	5,5	23	23	23	23	22	21	19	17	-
	5	21	21	21	20	19	18	16	-	-
	4	16	16	16	16	15	14	-	-	-
	3	14	14	14	14	14	-	-	-	-
	2	10	10	12	13	-	-	-	-	-
1	1,5	8	7	7	-	-	-	-	-	-
	1	5	-	-	-	-	-	-	-	-
	10	54	54	55	55	55	56	55	55	54
	9,5	53	54	55	55	55	55	55	53	50
	9	53	54	55	56	56	55	54	50	42
	8,5	53	54	55	55	54	53	50	43	31
	8	54	54	54	54	53	50	45	33	-
	7,5	54	53	53	51	48	44	35	26	-
	7	54	53	47	47	43	36	28	-	-
	6,5	51	48	45	42	37	30	22	-	-
2	6	46	43	40	36	31	24	-	-	-
	5,5	41	38	35	31	26	19	-	-	-
	5	37	34	31	27	21	15	-	-	-
	4	28	26	22	18	13	-	-	-	-
	3	21	19	16	12	-	-	-	-	-
	2	17	15	12	-	-	-	-	-	-
	1	14	11	-	-	-	-	-	-	-
	10	132	130	128	125	121	116	110	103	101
	9,5	129	126	122	118	113	98	98	89	77
	9	126	120	115	109	102	94	86	76	71
3	8,5	113	108	103	97	91	83	74	64	52
	8	102	97	92	86	80	72	63	53	41
	7,5	92	87	83	77	71	63	54	43	-
	7	82	79	74	69	62	54	44	34	-
	6,5	75	71	66	60	54	46	37	-	-
	6	67	63	58	52	46	38	29	-	-
	5,5	60	56	52	46	40	32	-	-	-
	5	54	50	46	40	34	27	-	-	-
	4	43	39	35	30	23	-	-	-	-
	3	33	30	25	20	-	-	-	-	-
4	2	26	23	19	17	-	-	-	-	-
	1	20	18	14	-	-	-	-	-	-
	10	136	136	136	135	134	132	129	122	112
	9,5	135	134	132	130	127	123	116	108	99
	9	134	131	127	123	117	111	104	96	87
	8,5	127	122	117	111	106	99	92	85	75
	8	117	111	106	101	94	88	81	73	63
	7,5	105	100	94	89	83	77	70	61	51
	7	94	88	83	78	72	66	59	50	36
	6,5	85	79	74	69	63	57	50	40	-
5	6	77	71	65	60	55	49	41	30	-
	5,5	67	63	58	53	48	41	32	-	-
	5	60	55	51	46	40	34	25	-	-
	4	46	19	37	33	28	20	-	-	-
	3	34	30	26	22	16	-	-	-	-
	2	26	23	19	15	-	-	-	-	-
	1	20	17	14	-	-	-	-	-	-
	10	136	136	136	135	134	132	129	122	112
	9,5	135	134	132	130	127	123	116	108	99
	9	134	131	127	123	117	111	104	96	87
6	8,5	127	122	117	111	106	99	92	85	75
	8	117	111	106	101	94	88	81	73	63
	7,5	105	100	94	89	83	77	70	61	51
	7	94	88	83	78	72	66	59	50	36
	6,5	85	79	74	69	63	57	50	40	-
	6	77	71	65	60	55	49	41	30	-
	5,5	67	63	58	53	48	41	32	-	-
	5	60	55	51	46	40	34	25	-	-
	4	46	19	37	33	28	20	-	-	-
	3	34	30	26	22	16	-	-	-	-
7	2	26	23	19	15	-	-	-	-	-
	1	20	17	14	-	-	-	-	-	-
	10	136	136	136	135	134	132	129	122	112
	9,5	135	134	132	130	127	123	116	108	99
	9	134	131	127	123	117	111	104	96	87
	8,5	127	122	117	111	106	99	92	85	75
	8	117	111	106	101	94	88	81	73	63
	7,5	105	100	94	89	83	77	70	61	51
	7	94	88	83	78	72	66	59	50	36
	6,5	85	79	74	69	63	57	50	40	-
8	6	77	71	65	60	55	49	41	30	-
	5,5	67	63	58	53	48	41	32	-	-
	5	60	55	51	46	40	34	25	-	-
	4	46	19	37	33	28	20	-	-	-
	3	34	30	26	22	16	-	-	-	-
	2	26	23	19	15	-	-	-	-	-
	1	20	17	14	-	-	-	-	-	-
	10	136	136	136	135	134	132	129	122	112
	9,5	135	134	132	130	127	123	116	108	99
	9	134	131	127	123	117	111	104	96	87
9	8,5	127	122	117	111	106	99	92	85	75
	8	117	111	106	101	94	88	81	73	63
	7,5	105	100	94	89	83	77	70	61	51
	7	94	88	83	78	72	66	59	50	36
	6,5	85	79	74	69	63	57	50	40	-
	6	77	71	65	60	55	49	41	30	-
	5,5	67	63	58	53	48	41	32	-	-
	5	60	55	51	46	40	34	25	-	-
	4	46	19	37	33	28	20	-	-	-
	3	34	30	26	22	16	-	-	-	-
10	2	26	23	19	15	-	-	-	-	-
	1	20	17	14	-	-	-	-	-	-
	10	136	136	136	135	134	132	129	122	112
	9,5	135	134	132	130	127	123	116	108	99
	9	134	131	127	123	117	111	104	96	87
	8,5	127	122	117	111	106	99	92	85	75
	8	117	111	106	101	94	88	81	73	63
	7,5	105	100	94	89	83	77	70	61	51
	7	94	88	83	78	72	66	59	50	36
	6,5	85	79	74	69	63	57	50	40	-
11	6	77	71	65	60	55	49	41	30	-
	5,5	67	63	58	53	48	41	32	-	-
	5	60	55	51	46	40	34	25	-	-
	4	46	19	37	33	28	20	-	-	-
	3	34	30	26	22	16	-	-	-	-
	2	26	23	19	15	-	-	-	-	-
	1	20	17	14	-	-	-	-	-	-
	10	136	136	136	135	134	132	129	122	112
	9,5	135	134	132	130	127	123	116	108	99
	9	134	131	127	123	117	111	104	96	87
12	8,5	127	122	117	111	106	99	92	85	75
	8	117	111	106	101	94	88	81	73	63
	7,5	105	100	94	89	83	77	70	61	51
	7	94	88	83	78	72	66	59	50	36
	6,5	85	79	74	69	63	57	50	40	-
	6	77	71	65	60	55	49	41	30	-
	5,5	67	63	58	53	48	41	32	-	-
	5	60	55	51	46	40	34	25	-	-
	4	46	19	37	33	28	20	-	-	-
	3	34	30	26	22	16	-	-	-	-
13	2	26	23	19	15	-	-	-	-	-
	1	20	17	14	-	-	-	-	-	-
	10	136	136	136	135	134	132	129	122	112
	9,5	135	134	132	130	127	123	116	108	99
	9	134	131	127	123	117	111	104	96	87
	8,5	127	122	117	111	106	99	92	85	75
	8	117	111	106	101	94	88	81	73	63
	7,5	105	100	94	89	83	77	70	61	51
	7	94	88	83	78	72	66	59	50	36
	6,5	85	79	74	69	63	57	50	40	-
14	6	77	71	65	60	55	49	41	30	-
	5,5	67	63	58	53	48	41	32	-	-
	5	60	55	51	46	40	34	25	-	-
	4	46	19	37	33	28	20	-	-	-

Model	Vdc	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
7	10	277	271	264	237	248	239	230	219	209
	9,5	259	251	244	236	228	219	210	201	191
	9	240	233	224	217	208	200	192	182	173
	8,5	207	213	208	202	195	187	179	169	159
	8	200	197	194	189	183	176	165	155	144
	7,5	173	174	173	171	166	159	150	141	129
	7	156	158	158	156	151	145	136	126	114
	6,5	140	143	144	142	138	132	124	107	103
	6	128	131	132	131	127	120	113	103	93
	5,5	111	114	115	115	113	108	102	93	84
	5	98	101	103	104	102	99	93	84	75
	4	71	74	77	79	79	78	75	68	57
	3	55	58	61	62	63	63	59	49	-
	2	41	43	46	48	49	49	44	-	-
8	1	29	30	32	34	36	36	-	-	-
	10	461	451	440	428	414	400	384	367	349
	9	341	332	321	310	297	284	269	252	235
	8	253	243	232	220	207	193	177	159	140
	7,5	218	209	199	188	175	161	144	124	101
	7	175	164	152	140	128	116	104	91	78
	6	130	119	108	96	84	72	60	45	-
	5,5	85	81	76	70	64	56	47	-	-
	5	80	74	66	59	50	40	-	-	-
	4	50	43	37	29	-	-	-	-	-
	3	30	24	19	-	-	-	-	-	-
	2	18	-	-	-	-	-	-	-	-
	1,5	15	-	-	-	-	-	-	-	-
	1	10	-	-	-	-	-	-	-	-

Correction factors for Total cooling emission

Values in %

Emission correction factors for high speed figures at 10 V signal

Model	Vdc	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
0	10	1,00	0,97	0,95	0,93	0,91	0,88	0,85	0,85	0,85
	9	0,95	0,93	0,91	0,89	0,85	0,83	0,80	0,77	0,73
	8	0,91	0,89	0,86	0,82	0,79	0,76	0,71	0,65	0,58
	7	0,85	0,82	0,79	0,76	0,72	0,68	0,62	0,55	0,44
	6	0,82	0,78	0,75	0,71	0,66	0,60	0,52	0,40	0,21
	5,5	0,79	0,75	0,71	0,66	0,60	0,57	0,42	0,34	-
	5	0,74	0,69	0,65	0,59	0,52	0,44	0,32	-	-
	4	0,69	0,66	0,60	0,53	0,45	0,34	-	-	-
	3	0,64	0,57	0,49	0,42	0,33	-	-	-	-
	2	0,56	0,48	0,39	0,32	-	-	-	-	-
	1,5	0,45	0,31	0,23	-	-	-	-	-	-
1	1	0,32	-	-	-	-	-	-	-	-
	10	1,00	0,99	0,97	0,94	0,92	0,88	0,85	0,81	0,76
	9,5	1,00	0,98	0,97	0,94	0,91	0,88	0,85	0,80	0,73
	9	1,00	0,98	0,97	0,94	0,91	0,88	0,84	0,77	0,64
	8,5	1,00	0,98	0,96	0,94	0,91	0,87	0,81	0,70	0,46
	8	1,00	0,98	0,96	0,94	0,90	0,85	0,77	0,54	-
	7,5	1,00	0,98	0,95	0,92	0,87	0,80	0,65	0,40	-
	7	1,00	0,98	0,88	0,89	0,82	0,72	0,52	-	-
	6,5	1,00	0,95	0,91	0,85	0,77	0,63	0,37	-	-
	6	0,96	0,92	0,87	0,80	0,70	0,51	-	-	-
	5,5	0,93	0,89	0,83	0,75	0,62	0,36	-	-	-
2	5	0,90	0,85	0,79	0,69	0,52	-	-	-	-
	4	0,83	0,77	0,68	0,53	0,17	-	-	-	-
	3	0,76	0,68	0,55	0,21	-	-	-	-	-
	2	0,68	0,58	0,36	-	-	-	-	-	-
	1	0,61	0,48	-	-	-	-	-	-	-
	10	1,00	0,98	0,97	0,94	0,92	0,89	0,85	0,80	0,79
	9,5	1,00	0,98	0,95	0,93	0,90	0,81	0,81	0,75	0,66
	9	0,99	0,97	0,94	0,91	0,87	0,83	0,77	0,69	0,65
	8,5	0,97	0,94	0,91	0,88	0,84	0,79	0,71	0,61	0,46
	8	0,94	0,92	0,89	0,85	0,80	0,74	0,65	0,51	0,32
	7,5	0,92	0,89	0,86	0,82	0,76	0,69	0,58	0,41	-
4	7	0,89	0,87	0,83	0,78	0,72	0,63	0,49	0,27	-
	6,5	0,87	0,84	0,80	0,75	0,67	0,56	0,39	-	-
	6	0,85	0,81	0,77	0,71	0,62	0,48	0,27	-	-
	5,5	0,82	0,79	0,74	0,67	0,56	0,39	-	-	-
	5	0,80	0,76	0,70	0,62	0,48	0,27	-	-	-
	4	0,74	0,70	0,62	0,50	0,29	-	-	-	-
	3	0,69	0,62	0,51	0,32	-	-	-	-	-
	2	0,62	0,55	0,38	0,25	-	-	-	-	-
	1	0,57	0,46	0,23	-	-	-	-	-	-
	10	1,00	0,99	0,98	0,97	0,95	0,93	0,90	0,85	0,79
	9,5	1,00	0,98	0,97	0,96	0,93	0,90	0,85	0,80	0,74
4	9	1,00	0,98	0,96	0,94	0,91	0,87	0,82	0,77	0,70
	8,5	1,00	0,98	0,95	0,91	0,87	0,83	0,78	0,72	0,64
	8	0,98	0,95	0,92	0,89	0,84	0,80	0,74	0,67	0,57
	7,5	0,96	0,93	0,89	0,85	0,81	0,75	0,69	0,60	0,47
	7	0,94	0,90	0,86	0,82	0,77	0,71	0,63	0,52	0,28
	6,5	0,91	0,87	0,83	0,78	0,73	0,66	0,56	0,41	-
	6	0,88	0,84	0,80	0,75	0,68	0,60	0,48	0,26	-
	5,5	0,85	0,81	0,77	0,71	0,63	0,53	0,37	-	-
	5	0,83	0,78	0,73	0,66	0,57	0,45	0,21	-	-
	4	0,77	0,71	0,64	0,55	0,43	0,17	-	-	-
	3	0,70	0,63	0,55	0,42	0,18	-	-	-	-
4	2	0,64	0,55	0,43	0,22	-	-	-	-	-
	1	0,56	0,46	0,29	-	-	-	-	-	-

Model	Vdc	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
7	10	1	0,98	0,96	0,87	0,91	0,88	0,85	0,81	0,77
	9,5	0,98	0,96	0,94	0,91	0,88	0,85	0,81	0,78	0,74
	9	0,97	0,94	0,91	0,89	0,85	0,82	0,79	0,75	0,70
	8,5	0,89	0,92	0,90	0,87	0,84	0,80	0,76	0,72	0,67
	8	0,94	0,91	0,88	0,85	0,82	0,79	0,73	0,68	0,63
	7,5	0,90	0,88	0,85	0,82	0,78	0,74	0,70	0,65	0,59
	7	0,87	0,85	0,82	0,79	0,75	0,71	0,66	0,60	0,54
	6,5	0,85	0,82	0,79	0,76	0,72	0,68	0,63	0,53	0,51
	6	0,82	0,79	0,76	0,73	0,69	0,65	0,60	0,54	0,47
	5,5	0,77	0,75	0,72	0,69	0,66	0,61	0,56	0,50	0,42
	5	0,74	0,72	0,69	0,66	0,62	0,58	0,52	0,45	0,37
	4	0,68	0,65	0,62	0,59	0,55	0,51	0,45	0,37	0,23
	3	0,61	0,58	0,55	0,51	0,47	0,42	0,34	0,19	-
	2	0,54	0,51	0,47	0,43	0,38	0,32	0,22	-	-
8	1	0,46	0,41	0,37	0,33	0,27	0,22	-	-	-
	10	1,00	0,98	0,97	0,95	0,92	0,90	0,87	0,84	0,82
	9	0,94	0,92	0,90	0,87	0,85	0,82	0,79	0,73	0,71
	8	0,86	0,84	0,82	0,79	0,76	0,73	0,68	0,63	0,56
	7,5	0,84	0,82	0,79	0,76	0,72	0,63	0,61	0,54	0,44
	7	0,79	0,76	0,73	0,69	0,64	0,59	0,54	0,47	0,37
	6	0,74	0,70	0,66	0,61	0,55	0,47	0,37	0,17	-
	5,5	0,65	0,62	0,58	0,54	0,49	0,40	0,27	-	-
	5	0,65	0,61	0,55	0,48	0,39	0,23	-	-	-
	4	0,58	0,51	0,42	0,28	-	-	-	-	-
	3	0,48	0,38	0,21	-	-	-	-	-	-
	2	0,34	-	-	-	-	-	-	-	-
	1,5	0,31	-	-	-	-	-	-	-	-
	1	0,22	-	-	-	-	-	-	-	-

Correction factors for Sensible cooling emission and Heating emission

Values in %

Emission correction factors for high speed figures at 10 V signal

Model	Vdc	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
0	10	1,00	0,96	0,94	0,92	0,90	0,87	0,85	0,84	0,84
	9	0,95	0,92	0,90	0,88	0,85	0,82	0,79	0,76	0,72
	8	0,90	0,88	0,85	0,82	0,78	0,74	0,69	0,63	0,56
	7	0,85	0,82	0,79	0,75	0,71	0,66	0,60	0,52	0,41
	6	0,81	0,77	0,73	0,69	0,64	0,57	0,49	0,37	0,18
	5,5	0,78	0,74	0,69	0,64	0,57	0,49	0,39	0,32	-
	5	0,72	0,68	0,62	0,57	0,50	0,41	0,29	-	-
	4	0,68	0,64	0,58	0,51	0,42	0,31	-	-	-
	3	0,62	0,54	0,46	0,39	0,30	-	-	-	-
	2	0,53	0,45	0,36	0,29	-	-	-	-	-
	1,5	0,42	0,28	0,20	-	-	-	-	-	-
1	1	0,29	-	-	-	-	-	-	-	-
	10	1,00	0,98	0,96	0,93	0,91	0,87	0,83	0,79	0,74
	9,5	1,00	0,98	0,96	0,93	0,90	0,87	0,83	0,78	0,70
	9	1,00	0,98	0,96	0,93	0,90	0,87	0,82	0,75	0,61
	8,5	1,00	0,98	0,96	0,93	0,90	0,85	0,79	0,68	0,43
	8	1,00	0,98	0,96	0,93	0,89	0,84	0,74	0,51	-
	7,5	1,00	0,98	0,95	0,91	0,85	0,78	0,62	0,37	-
	7	1,00	0,97	0,87	0,88	0,80	0,69	0,49	-	-
	6,5	1,00	0,94	0,90	0,83	0,74	0,60	0,34	-	-
	6	0,95	0,91	0,85	0,78	0,67	0,48	-	-	-
	5,5	0,92	0,87	0,81	0,72	0,59	0,33	-	-	-
2	5	0,89	0,83	0,76	0,66	0,49	-	-	-	-
	4	0,81	0,75	0,65	0,50	0,15	-	-	-	-
	3	0,74	0,65	0,52	0,19	-	-	-	-	-
	2	0,65	0,55	0,33	-	-	-	-	-	-
	1	0,58	0,45	-	-	-	-	-	-	-
	10	1,00	0,98	0,96	0,93	0,90	0,87	0,83	0,77	0,76
	9,5	1,00	0,97	0,95	0,92	0,88	0,78	0,79	0,72	0,62
	9	0,99	0,96	0,93	0,89	0,85	0,80	0,73	0,65	0,61
	8,5	0,96	0,93	0,90	0,86	0,82	0,76	0,68	0,57	0,42
	8	0,93	0,90	0,87	0,83	0,78	0,70	0,61	0,47	0,28
	7,5	0,91	0,87	0,84	0,79	0,73	0,65	0,54	0,37	-
4	7	0,88	0,84	0,80	0,75	0,69	0,59	0,45	0,24	-
	6,5	0,85	0,81	0,77	0,71	0,64	0,52	0,36	-	-
	6	0,82	0,79	0,74	0,67	0,58	0,44	0,24	-	-
	5,5	0,80	0,76	0,70	0,63	0,52	0,35	-	-	-
	5	0,77	0,73	0,67	0,58	0,44	0,24	-	-	-
	4	0,71	0,66	0,58	0,46	0,26	-	-	-	-
	3	0,65	0,58	0,47	0,29	-	-	-	-	-
	2	0,58	0,50	0,34	0,22	-	-	-	-	-
	1	0,53	0,42	0,20	-	-	-	-	-	-
	10	1,00	0,99	0,98	0,96	0,94	0,92	0,88	0,83	0,76
	9,5	1,00	0,98	0,97	0,95	0,92	0,89	0,83	0,78	0,71
4	9	1,00	0,98	0,96	0,93	0,89	0,85	0,79	0,74	0,67
	8,5	1,00	0,97	0,94	0,90	0,86	0,81	0,75	0,69	0,61
	8	0,98	0,95	0,91	0,87	0,82	0,77	0,71	0,63	0,53
	7,5	0,96	0,92	0,88	0,83	0,78	0,72	0,66	0,56	0,43
	7	0,93	0,89	0,84	0,79	0,74	0,68	0,59	0,48	0,25
	6,5	0,89	0,85	0,81	0,75	0,69	0,62	0,52	0,37	-
	6	0,87	0,82	0,77	0,72	0,65	0,56	0,44	0,23	-
	5,5	0,83	0,79	0,74	0,67	0,59	0,49	0,33	-	-
	5	0,81	0,75	0,69	0,62	0,54	0,41	0,19	-	-
	4	0,74	0,69	0,61	0,51	0,39	0,15	-	-	-
	3	0,66	0,59	0,51	0,38	0,16	-	-	-	-
4	2	0,60	0,51	0,40	0,19	-	-	-	-	-
	1	0,52	0,42	0,26	-	-	-	-	-	-

Model	Vdc	Available pressure (Pa)								
		0	10	20	30	40	50	60	70	80
7	10	1,00	0,97	0,95	0,85	0,89	0,85	0,82	0,78	0,74
	9,5	0,98	0,95	0,92	0,89	0,86	0,83	0,79	0,75	0,71
	9	0,95	0,93	0,90	0,86	0,83	0,79	0,76	0,71	0,67
	8,5	0,87	0,91	0,88	0,85	0,81	0,77	0,73	0,69	0,63
	8	0,92	0,89	0,86	0,83	0,79	0,76	0,70	0,65	0,59
	7,5	0,89	0,86	0,83	0,79	0,75	0,71	0,66	0,61	0,55
	7	0,85	0,82	0,79	0,76	0,72	0,67	0,63	0,57	0,50
	6,5	0,82	0,79	0,76	0,73	0,69	0,64	0,59	0,49	0,47
	6	0,79	0,76	0,73	0,70	0,66	0,61	0,56	0,50	0,43
	5,5	0,74	0,72	0,69	0,66	0,62	0,58	0,52	0,46	0,38
	5	0,71	0,69	0,66	0,63	0,59	0,54	0,49	0,42	0,34
	4	0,64	0,61	0,58	0,55	0,51	0,47	0,41	0,33	0,20
	3	0,57	0,54	0,51	0,48	0,43	0,38	0,30	0,16	-
	2	0,50	0,47	0,43	0,40	0,35	0,28	0,19	-	-
	1	0,43	0,38	0,33	0,29	0,24	0,19	-	-	-

Cooling sensible emission Model 8

Model	Vdc	Pa								
		0	10	20	30	40	50	60	70	80
8	10	1,00	0,96	0,94	0,92	0,90	0,87	0,85	0,84	0,84
	9	0,93	0,92	0,90	0,88	0,85	0,82	0,79	0,76	0,72
	8	0,85	0,88	0,85	0,82	0,78	0,74	0,69	0,63	0,56
	7,5	0,83	0,88	0,85	0,82	0,78	0,74	0,69	0,63	0,56
	7	0,77	0,82	0,79	0,75	0,71	0,66	0,60	0,52	0,41
	6	0,71	0,77	0,73	0,69	0,64	0,57	0,49	0,37	-
	5,5	0,63	0,74	0,69	0,64	0,57	0,49	0,39	-	-
	5	0,62	0,68	0,62	0,57	0,50	0,41	-	-	-
	4	0,55	0,64	0,58	0,51	-	-	-	-	-
	3	0,45	0,54	0,46	-	-	-	-	-	-
	2	0,31	-	-	-	-	-	-	-	-
	1,5	0,29	-	-	-	-	-	-	-	-
	1	0,20	-	-	-	-	-	-	-	-

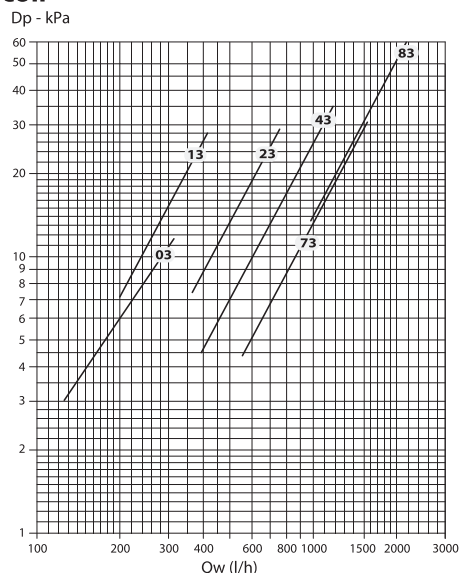
Heating emission Model 8

Model	Vdc	Pa								
		0	10	20	30	40	50	60	70	80
8	10	1,00	0,98	0,96	0,94	0,91	0,89	0,86	0,83	0,80
	9	0,93	0,91	0,89	0,86	0,83	0,80	0,77	0,73	0,68
	8	0,85	0,83	0,80	0,77	0,74	0,70	0,65	0,60	0,53
	7,5	0,83	0,80	0,77	0,73	0,69	0,64	0,58	0,50	0,40
	7	0,77	0,73	0,70	0,66	0,61	0,56	0,50	0,43	0,34
	6	0,71	0,67	0,63	0,58	0,51	0,44	0,34	0,15	-
	5,5	0,62	0,59	0,55	0,51	0,45	0,37	0,24	-	-
	5	0,61	0,57	0,52	0,44	0,35	0,20	-	-	-
	4	0,54	0,48	0,39	0,25	-	-	-	-	-
	3	0,44	0,35	0,18	-	-	-	-	-	-
	2	0,31	-	-	-	-	-	-	-	-
	1,5	0,28	-	-	-	-	-	-	-	-
	1	0,20	-	-	-	-	-	-	-	-

WATER SIDE PRESSURE DROP

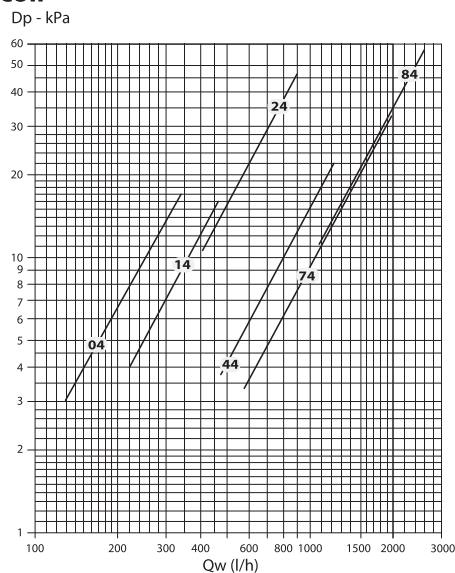
Main coil

3 row coil



Dp = pressure drop
Qw = water flow rate

4 row coil



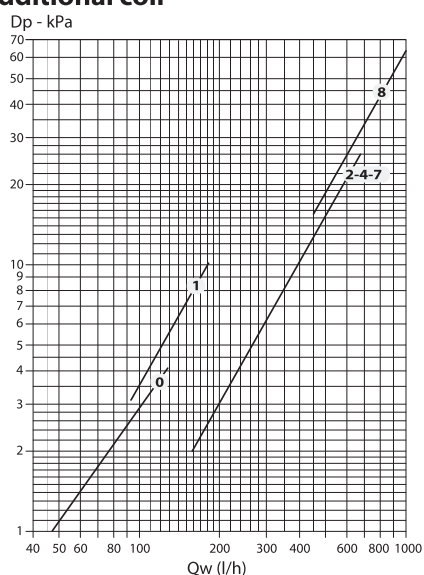
Dp = pressure drop
Qw = water flow rate

The water pressure drop figures refer to a mean water temperature of 10 °C; for different temperatures, multiply the pressure drop figures by the correction factors K.

K correction factor	Mean water temperature (°C)						
	20	30	40	50	60	70	80
	0,94	0,90	0,86	0,82	0,78	0,74	0,70

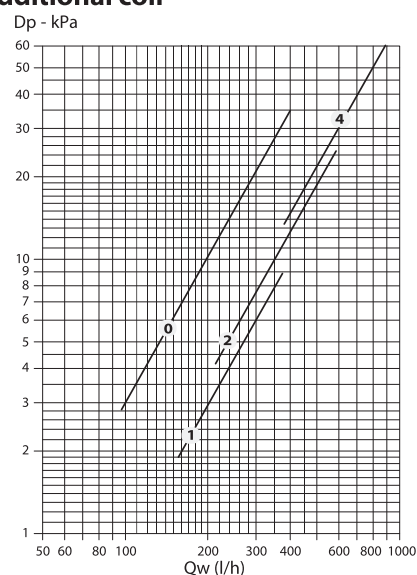
Additional coil

1 row additional coil



Dp = pressure drop
Qw = water flow rate

2 row additional coil



Dp = pressure drop
Qw = water flow rate

The water pressure drop figures refer to a mean water temperature of 60 °C; for different temperatures, multiply the pressure drop figures by the correction factors K.

K correction factor	Mean water temperature (°C)			
	40	50	70	80
	1,12	1,06	0,94	0,88

OPERATION LIMITS

Description		UoM	Value
Water flow	Coil maximum working pressure	bars	16
		kPa	1600
	Lowest water inlet temperature ⁽¹⁾	°C	+6
	Highest water inlet temperature	°C	+85
Power supply	Single-phase rated operating voltage	V/Hz	230/50

⁽¹⁾ for entering water temperatures below +6 °C, contact the technical department

Electric heater operation limits

Description		UoM	Value
Ambient air	Maximum temperature ⁽¹⁾	°C	+25
Power supply	Single-phase rated operating voltage	Vac/Ph/Hz	230/1/50

⁽¹⁾ with electric heating coil

Coils water flow limits

3 row coil

Model		HPL-ECM 03	HPL-ECM 13	HPL-ECM 23	HPL-ECM 43	HPL-ECM 73	HPL-ECM 83
Water flow rate Min.	l/h	60	100	150	200	300	250
Water flow rate Max.	l/h	500	750	1000	2000	3000	3300

4 row coil

Model		HPL-ECM 04	HPL-ECM 14	HPL-ECM 24	HPL-ECM 44	HPL-ECM 74	HPL-ECM 84
Water flow rate Min.	l/h	60	150		300	400	300
Water flow rate Max.	l/h	750	1000	1500	2250	3300	3500

1 row additional coil

Model		HPL-ECM 03+1	HPL-ECM 13+1	HPL-ECM 23+1	HPL-ECM 43+1	HPL-ECM 73+1	HPL-ECM 83+1
Water flow rate Min.	l/h	30	50	100			
Water flow rate Max.	l/h	300	350	590	750	1100	1650

Model		HPL-ECM 04+1	HPL-ECM 14+1	HPL-ECM 24+1	HPL-ECM 44+1	HPL-ECM 74+1	HPL-ECM 84+1
Water flow rate Min.	l/h	30	50	100			
Water flow rate Max.	l/h	300	350	590	750	1100	1650

2 row additional coil

Model		HPL-ECM 03+2	HPL-ECM 13+2	HPL-ECM 23+2	HPL-ECM 43+2
Water flow rate Min.	l/h	40	100		
Water flow rate Max.	l/h	360	470	790	980

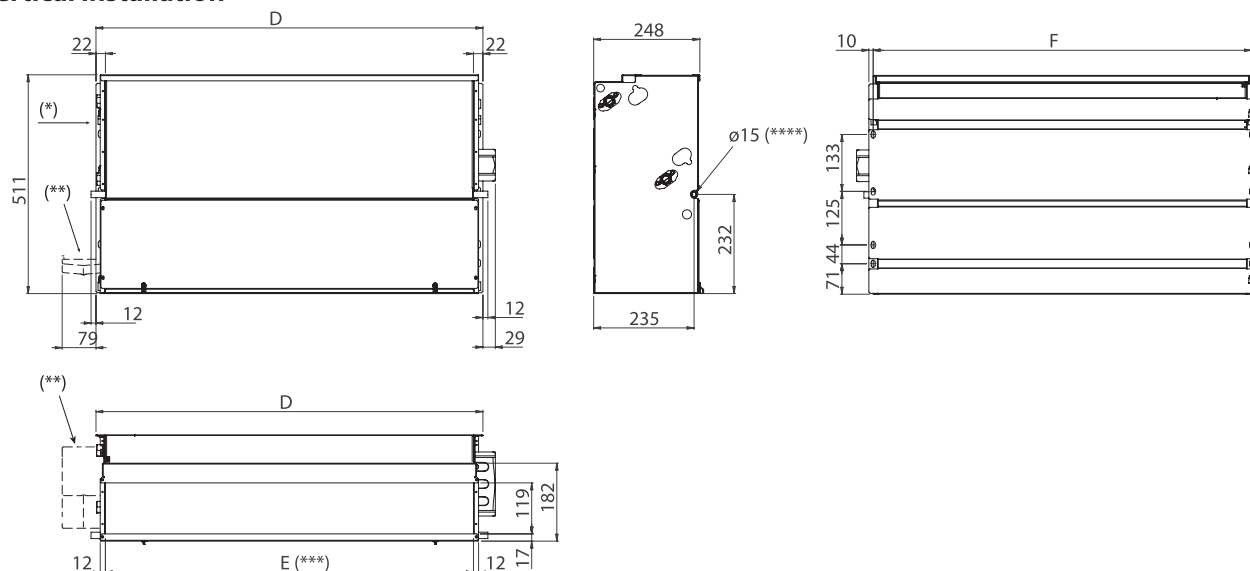
Motor electrical data - max. absorption

Model		HPL-ECM 0	HPL-ECM 1	HPL-ECM 2	HPL-ECM 4	HPL-ECM 7	HPL-ECM 8
Motor absorption	W	55,5	52,0	134,0	131,0	303,0	420,0
Current absorbed	A	0,50	0,40	1,10		1,40	2,60

DIMENSION, WEIGHT AND WATER CONTENT

Dimensions

Vertical installation



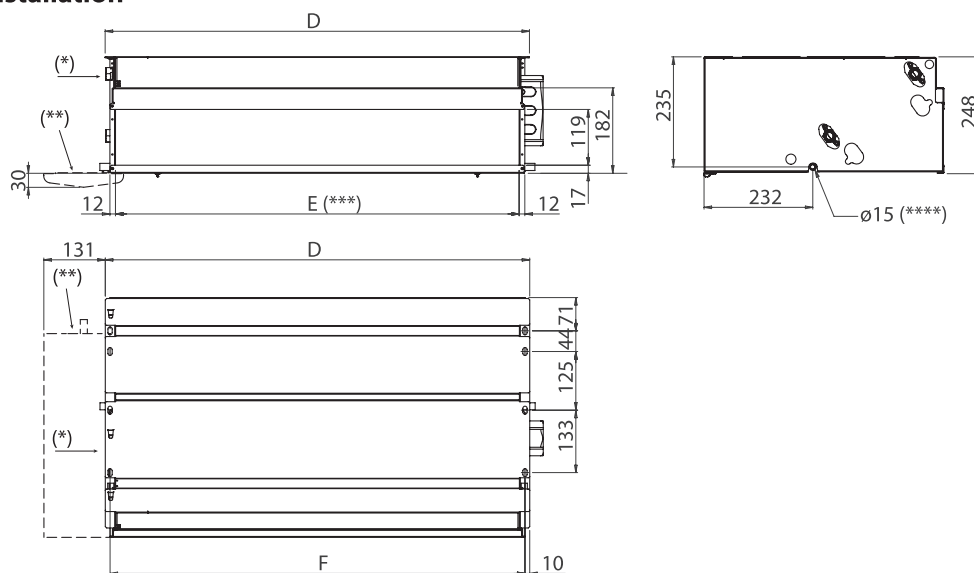
(*) = Hydraulic connections on the left

(**) = Auxiliary condensate tray (optional)

(***) = Supply frame dimension E x 119 mm

(****) = External diameter

Horizontal installation



(*) = Hydraulic connections on the left

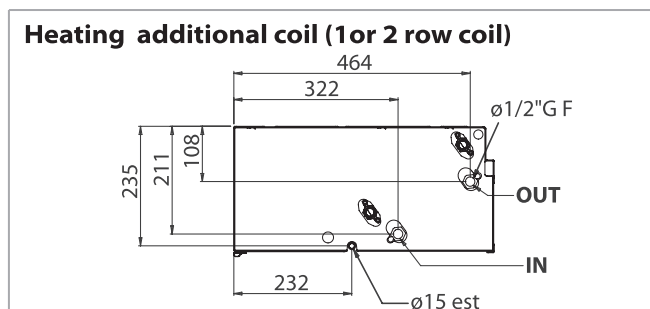
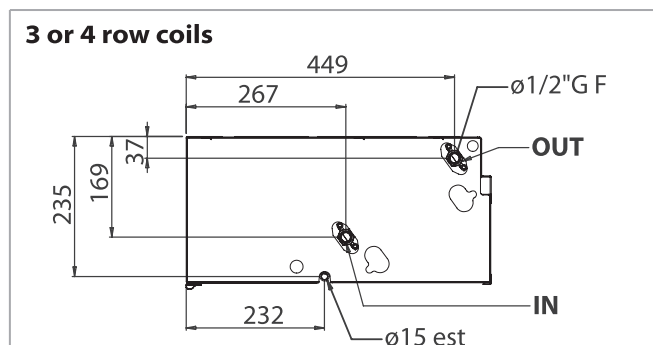
(**) = Auxiliary condensate tray (optional)

(***) = Supply frame dimension E x 119 mm

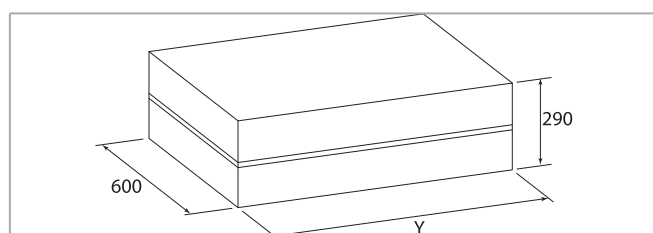
(****) = External diameter

Model		HPL-ECM 0	HPL-ECM 1	HPL-ECM 2	HPL-ECM 4	HPL-ECM 7	HPL-ECM 8
D	mm	474	689	904	1119	1549	1764
E	mm	430	645	860	1075	1505	1720
F	mm	454	669	884	1099	1529	1744

Hydraulic connections



Packed unit



Model		HPL-ECM 0	HPL-ECM 1	HPL-ECM 2	HPL-ECM 4	HPL-ECM 7	HPL-ECM 8
Y	mm	820	1035	1250	1790	2090	

Weight

Weight with packaging

Model		HPL-ECM 0	HPL-ECM 1	HPL-ECM 2	HPL-ECM 4	HPL-ECM 7	HPL-ECM 8
3 rows	kg	15,8	18,9	25,6	29,4	49,9	53,1
3+1 rows	kg	16,5	20,1	27,1	31,2	52,2	55,5
3+2 rows	kg	17,0	20,8	28,0	32,3	-	-
4 rows	kg	16,3	19,9	26,9	30,5	51,6	55,8
4+1 rows	kg	17,0	21,1	28,4	32,3	53,9	58,2

Weight without packaging

Model		HPL-ECM 0	HPL-ECM 1	HPL-ECM 2	HPL-ECM 4	HPL-ECM 7	HPL-ECM 8
3 rows	kg	13,8	17,9	24,6	26,4	44,9	48,9
3+1 rows	kg	14,5	19,1	26,1	28,2	47,2	51,3
3+2 rows	kg	15,0	19,8	27,0	29,3	-	-
4 rows	kg	14,3	18,9	25,9	27,5	46,6	51,6
4+1 rows	kg	15,0	20,1	27,4	29,3	48,9	54,0

Water content

Model		HPL-ECM 0	HPL-ECM 1	HPL-ECM 2	HPL-ECM 4	HPL-ECM 7	HPL-ECM 8
3 rows	l	0,5	0,9	1,6	1,9	3,2	3,7
4 rows	l	0,7	1,3	2,2	2,8	4,2	4,8
+1 row	l	0,2	0,3	0,5	0,6	0,9	1,0
+2 rows	l	0,4	0,6	1,0	1,2	-	-

ELECTRONIC WALL CONTROLS

All the **HPL-ECM** units can be supplied with a wide range of electronic wall controls that allows managing one single unit or several units (by using the power units).

The room temperature can be controlled through wall electronic room thermostats, with different solutions according to every ambient conditions.

Controls

WM-AU controls

ID	Code
WM-AU	9066632E



The control must always be connected with UPM-AU power unit (fitted on the unit) or with UP-AU power unit (with separate packaging).

- ON/OFF switch
- Manual/automatic 3 speed switch
- Manual, automatic or centralized Summer/Winter switch
- Summer/Winter/Fan/Auto mode switch
- Electric heater/electrostatic filter activation switch
- Electronic room thermostat for fan and water valves control (ON-OFF)
- Simultaneous thermostatic control of the valves and fan
- It allows to use the low temperature cut-out thermostat NTC mounted on the power unit
- It allows to control the water valves (ON-OFF) and the electric heater managed as main heating element or as an integration element
- Energy saving function
- Presence of a LED signal when the thermostat is on

P.N.: with 4 pipe installations and continuous chilled and hot water supply, it allows the automatic summer winter change-over in accordance to the room temperature (-1 °C = Winter, +1 °C = Summer, Neutral Zone 2 °C)

Control power absorption: see the UP-AU power unit

Dimensions: 135x86x24 mm

T-MB2 SW control

ID	Code
T-MB2 SW	9066994ESW



The control must always be connected with UPM-AU power unit (fitted on the unit) or with UP-AU power unit (with separate packaging).

Control with TFT 2,4" coloured graphic display for wall installation.

The main characteristics are:

- Management by keyboard
- Management of one single unit or of several units in Master/Slave mode
- ON/OFF switch
- Operation mode setting
- Setpoint configuration or setpoint variation by supervisory program (+/- 3°C of the set)
- Room temperature internal sensor, which can be defined as a priority compared to the return air sensor on the fan coil
- Fan speed switch
- Advanced daily/weekly ON/OFF programming with 3 pre-settable weekly programs
- Viewing and editing of the unit operating parameters, alarm diagnostics and information about the unit (the viewable parameters depend from the control board model to which the T-MB2 SW control is connected)
- Activation/deactivation of the room temperature display
- Electric heater or electrostatic filter management
- Possibility to use the T1 sensor which allows the return air control (fitted on the power unit)

Control power absorption: see the UP-AU power unit

Dimensions: 115x72x20 mm

WM-503-AC-EC control

ID	Code
WM-503-AC-EC	9066686



The control must always be connected with UP-503-AC-EC power unit (separately delivered).

WM-503-AC-EC control allows to regulate the room temperature in both, the heating and the cooling modes, it can control one or two valves and fan coil units with asynchronous motor or fan coil units with EC electronic motors.

The WM-503-AC-EC control for fan coils with valves, is designed to be installed in a 503 wall box.

Easy to use, it is equipped with a large and efficient backlit LCD screen with 4 keys.

The kit lets the thermostat be suitable for all plaques on the market and it is composed by: coloured covers (white, silver and anthracite), frames and adaptors.

- Manual or automatic 3 speed motor control for asynchronous versions
- EC motor control with 0-10V signal for the ECM versions
- Power supply by UP-503-AC-EC by means of the two-core cable
- Input for return air/water/change over probe
- ON/OFF / SET Reduction / remote SUMMER-WINTER digital input
- User interface with LCD display with adjustable backlight and 4 keys
- 2 and 4 pipe fan coil units control
- Button lock controller

Control power absorption: see the UP-503-AC-EC power unit

Dimensions: 68x52.2x(wall protrusion=12) mm

WM-S-ECM control

ID	Code
WM-S-ECM	9066644



0-10V control with display designed to be mounted on the wall or to be installed on a 503 wall box.

- ON/OFF switch
- Manual 3 speed switch or automatic continuous speed control
- Manual Summer/Winter switch
- Summer/Winter/Fan/Auto mode switch
- Electronic room thermostat for fan control (ON-OFF)
- Electronic room thermostat for water valve control (ON-OFF)
- Simultaneous thermostatic control of the valves and fan
- It allows to control the low temperature cut-out thermostat NTC

Control power absorption: 1,2 VA

Dimensions: 132x87x23,6 mm

Power unit

UP-AU

ID	Code	Description
UPM-AU	9066641	UP-AU power unit for WM-AU and T-MB2 SW remote controls, fitted on the unit
UP-AU	9066640	UP-AU power unit for WM-AU and T-MB2 SW remote controls, not fitted on the unit



Power unit to be installed on the fan coil (fan coil interface).

- It controls the fan and the valves of the fan coil
- It is connected to the electric supply
- It receives the information required from the remote control
- Possibility to use the NTC low temperature cut-out thermostat (optional) for the T1 function which allows the return air control
- Possibility to use the NTC low temperature cut-out thermostat (optional) for the T2 function which controls the summer/winter switch.
- Possibility to use the NTC low temperature cut-out thermostat (optional) for the T3 function as low temperature cut-out thermostat.
- It allows to control up to 10 units (1 master and 9 slaves)
- Max. network length: 100 meters
- Max cable length between control and first connected power unit: 20 meters

Power unit absorption: 2,3 VA

UP-503-AC-EC

ID	Code
UP-503-AC-EC	9066687



Power unit to be installed on the fan coil (fan coil interface).

- It controls the fan and the valves of the fan coil
- It is connected to the electric supply
- It receives from the WM-503-AC-EC remote control the information required to control the valves and the motor
- It allows to control up to 5 units (1 master and 4 slaves)
- Max. Network length: 100 meters
- Max cable length between control and first connected power unit: 20 meters

Power unit absorption: 2 VA

Accessories for controls

NTC low temperature cut-out thermostat

ID	Code
NTC	3021090



- To be fitted between the coil fins
- When connecting the control, the NTC probe cable must be separated from the power supply wires
- It stops the fan when the water temperature is lower than 28 °C and it starts the fan when is higher than 33 °C

To use as:

- T1 function for the return air control
- T2 function which controls the summer/winter switch
- T3 function as low temperature cut-out thermostat

To be used with WM-S-ECM control and with UP-AU power unit.

T2 sensor

ID	Code
T2	9025310



NTC probe type, to be placed on the water supply pipe upstream of the valves (not to be used with 2 way valves).

The T2 probe must be used as described below:

- Change-Over for the automatic switch of the operating mode. If water temperature is lower than 20 °C, cooling mode is set; on the other hand, if water temperature exceeds 30 °C, heating mode is set
- it can be used on units with electric heater and hot water supply. The T2 priority probe activates the electric heater or water valve, depending on the water temperature detected. If water temperature exceeds 34 °C, the water valve ON-OFF control is activated; on the other hand, if water temperature is lower than 30 °C, the electric heater is activated

To be used with the UP-AU power unit.

CONTROLS AND UNITS MB VERSION

All the **HPL** units can be supplied with a wide range of controls, which allows managing one single unit or several units by using the Modbus RTU - RS 485.

The groups of units can be managed according to the Master/Slave logic (up to 20 units) or by supervisory components.

The system consists in a MB board and a series of controls, such as the **T-MB2 SW** wall control, the **infra-red remote control**, the **PSM-DI** multifunction control and the **NET** supervisory program.

MB electronic board

ID		Code	
MB-M	mounted	9066332	with electric asynchronous motor
MB-S	not mounted	9066333	
MB-ECM-M	mounted	9066334	with electronic motor and inverter board
MB-ECM-S	not mounted	9066335	



The MB electronic board is set to carry out different functions and adjustment modes, in order to meet the installation requirements. These modes are selected by setting the configuration dip switches on the board.

- 2/4 pipe system
- Electronic room thermostat for fan control (ON-OFF)
- Valve ON/OFF thermostatic control and continuous ventilation
- Valve and simultaneous ventilation ON/OFF thermostatic control
- Fan operation control depending on the coil temperature (T3 probe fitted), which can be activated only in heating mode or heating and cooling mode
- Automatic switch of the operating mode by means of T2 water probe (optional) applied on the 2 pipe system
- Seasonal switch by means of remote contact
- Forced fan coil switching off by remote contact (window contact or contact by clock)
- Electric heater or electronic filter control (the simultaneous control of the heater and of the filter is not possible)

By activating the T3 probe function, the fan is stopped in winter when the coil temperature is lower than 32 °C and started when the temperature reaches 36 °C.

In summer mode, the fan stops when the temperature inside the coil exceeds 22 °C and starts when it drops below 18 °C.

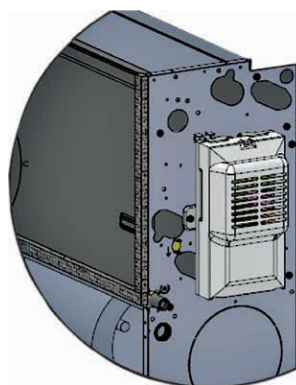
The following connections are located on the power board:

- receiver for infra-red remote control
- T-MB2 SW wall control
- RS 485 serial connection to manage several fan coils in Master/Slave configuration or to create a supervisory network

NTC probe included for T1 function (return air control).

NTC probe included for T3 function (low temperature cut-out thermostat).

Possibility to use the NTC low temperature cut-out thermostat (optional) for the T2 function which controls the summer/winter switch.



Note: MB electronic board has to be mounted on the fan coil internal unit.

T-MB2 SW control

To be used with MB electronic board.

ID	Code
T-MB2 SW	9066994ESW



Control with TFT 2,4" coloured graphic display for wall installation.

The main characteristics are:

- Management by keyboard
- Management of one single unit or of several units in Master/Slave mode
- ON/OFF switch
- Operation mode setting
- Setpoint configuration or setpoint variation by supervisory program (+/- 3°C of the set)
- Room temperature internal sensor, which can be defined as a priority compared to the return air sensor on the fan coil
- Fan speed switch
- Advanced daily/weekly ON/OFF programming with 3 pre-settable weekly programs
- Viewing and editing of the unit operating parameters, alarm diagnostics and information about the unit (the viewable parameters depend from the control board model to which the T-MB2 SW control is connected)
- Activation/deactivation of the room temperature display
- Electric heater or electrostatic filter management
- Possibility to use the T1 sensor which allows the return air control (fitted on the MB electronic board)

Dimensions: 115x72x20 mm

Infra-red remote control

To be used with MB electronic board only.

ID	Code	
RS-RT03	9066337	Infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03 / RR03	3021203	Infra-red remote control supplied with separate packaging (to be used with MB board only)
RT04	3021216	Infra-red remote control supplied with separate packaging (to be used with MB board only) - Available from April 2025
RS	9066338	Receiver for infra-red remote control supplied with separate packaging (to be used with MB board only)

The infra-red remote control allows setting by a remote position the fan coil operation parameters.

The remote control features the following functions:

- switch the unit ON and OFF
- temperature set
- set the fan speed (low, medium, high or auto fan)
- set the operation mode (fan only, cooling, heating; auto for 4 pipe systems with mode selection depending on the air temperature)
- time setting
- 24 hours ON/OFF program

RT03 / RR03 remote control



RT04 infra-red remote control



Available from April 2025

Installation examples with infra-red remote control



More fan coils with MB board can be connected with the Bus communication protocol and can be managed at the same time by a T-MB2 SW single control or by only one infra-red remote control.

Using the special jumper present on the MB board, one unit must be configured as the master, and all the others as slaves.

It is clear that the remote control must be pointed at the receiver on the master unit.

To avoid problems, it is recommended to install and connect the receiver only on the master unit.

with T-MB2 SW control

One control for each unit
(Maximum length of the connection cable = 20 m)



One control for more units (20 units max.)
(Maximum total length of the connection cable = 800 m)



with infra-red remote control

One control for each unit

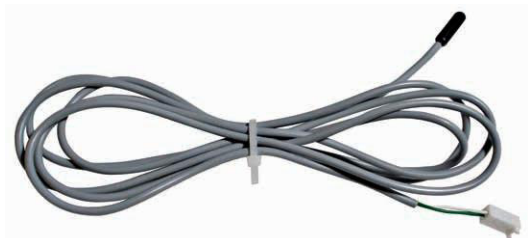


One control for more units (20 units max.)
(Maximum total length of the connection cable = 800 m)



T2 accessory for units with MB electronic board

ID	Code
T2	9025310



NTC probe type, to be placed on the water supply pipe upstream of the valves (not to be used with 2 way valves).

The T2 probe must be used as described below:

- Change-Over for 2 pipe systems, for the automatic switch of the operating mode. If water temperature is lower than 20 °C, cooling mode is set; on the other hand, if water temperature exceeds 30 °C, heating mode is set
- it can be used on units with electric heater and hot water supply (EXCEPT Topline). The T2 priority probe activates the electric heater or water valve, depending on the water temperature detected. If water temperature exceeds 34 °C, the water valve ON-OFF control is activated; on the other hand, if water temperature is lower than 30 °C, the electric heater is activated

PSM-DI multifunction control panel

ID	Code	
PSM-DI	3021293	Multifunction control panel (to be used with MB board or MB versions only)



Another option available for the serial communication between the units is the possibility to connect up to 60 double insulated panel fan coils in series and manage them with just one multifunction control panel.

The wall mounted controller can be used to set the operating mode for each individual unit connected, display the operating conditions of each individual unit, and set the ON/OFF time sets for each day of the week (the program can be set for all the units and for a maximum of ten groups of units).

If more than 60 units need to be connected, two or more PSM-DI control panels must be used.

Each unit must have a MB board.

The PSM-DI control is used to manage a series of fan coils, up to a maximum of 60 units (the maximum length of the RS 485 connection cable must not exceed 800 m), from one single control point.

The PSM-DI control communicates via a serial line with all the units connected, with the possibility of controlling them all together or individually.

In fact, the unique address of each individual fan coil means that all the units can be called at the same time, or the individual unit called, to perform the following functions:

- display the current operating mode, the fan speed, the set point
- display the room temperature measured on the individual unit
- turn all the units ON and OFF at the same time or alternatively each unit individually
- change the operating mode (fan only, heating, cooling, automatic change-over)
- change the set point and modify the values and operation parameters of the fan speed

Each function can then be sent to all the units connected, or alternatively to each individual unit.

Different set points or operating modes can be set for each individual unit.

The PSM-DI panel can also be used for the time management of the units over the week.

Four ON times and four OFF times can be set on the units for each day of the week.

A different temperature set that will be considered as Operation set for all connected appliances, can be set for each event.

If the temperature set is not entered for the individual event, it must be set during programming for each individual unit or for the entire network.

Units without receiver or with receiver can be connected within the network: the former can receive instructions only from the PSM-DI wall mounted panel; while the latter can receive information from both the wall mounted panel (PSM-DI) and infra-red remote control. Use the infra-red remote control to force ON mode of the individual unit, if ON/OFF daily time programming has been set.

The unit will regain the settings from the PSM-DI panel during execution of successive start-up program.

The PSM-DI panel cannot be used together with the management program NET.

Notes:

- set the Dip Switches of each fan coil as illustrated in the remote control installation manual, based on the required solutions
- only one SIOS board is allowed to be used per each PSM-DI control panel
- about "Priority pump function": when just one unit calls for, the relay RL1 on the SIOS board is automatically activated to connect a hot water pump
- the RS 485 network's overall length must not exceed 700/800 metres

T-DI Touch screen multifunction control panel

ID	Code
T-DI	9066685



The T-DI multifunction control panel lets supervise and control more units with MB or SIOS boards; the panel is equipped with a 7 inches touch screen display and a serie of graphical pages that allows an easy reading of the data sent by the fan coils and the management of up to 60 units (max. 60 units: SIOS + MB).

With the multifunction control panel T-DI it is also possible to control the units from a distance with the specific Cloud App for Android and iOS.

The Cloud APP is simple to use and lets have complete control of all the connected units.

Web gateway for Cloud

ID	Code
Web gateway	9066892



With the Web gateway for "Cloud" it is possible to control remotely up to 60 units, equipped with MB or SIOS boards (max. 60 units: SIOS + MB).

The "Cloud" APP is simple to use and lets have complete control of all the connected units.

NET program for managing a network of MB fan coils

Hardware/software supervisory system (to be used with MB board and MB versions only)

ID	Code
NET	9079118



NET is a centralised control system for networks of MB fan coils, based on software that runs on LINUX™ operating system (the program is provided pre-installed on a PC) and it works in a "stand alone" way, as an ordinary computer, so that it can be connected to a monitor, to a mouse and to a keyboard.

By connecting an Ethernet cable is instead possible to work at a distance and visualize the entire program setting-up through whatever browsers.

The NET software offers a practical and economical solution for managing the units, with the simple click of the mouse.

The main characteristics are:

- simplicity of use
- an extremely complete and functional weekly program
- possibility to access the historical operating data for each individual unit connected
- possibility of data saving on USB key
- visualization of the saved configuration on a new ASUS PC

The program takes advantage from all features of our units with fitted MB board.

The program can be used to:

- create uniform groups (groups of units on individual floors, in offices or rooms)
- save weekly programs configured for different types of operation (summer, winter, mid seasons, closing periods etc.); these can then be recalled and activated with a simple click of the mouse. Weekly on/off cycles can be set for individual units or groups of units
- set the operating conditions for each individual unit or groups of units (operating mode, fan speed, temperature setting)
- set the set point limits for each individual unit or groups of units

- switch each individual unit or groups of units ON or OFF

With the NET multifunction control panel it is also possible to control the units from a distance with the specific APP Cloud for Android and iOS.

The Cloud APP is simple to use and lets have complete control of all the connected units.

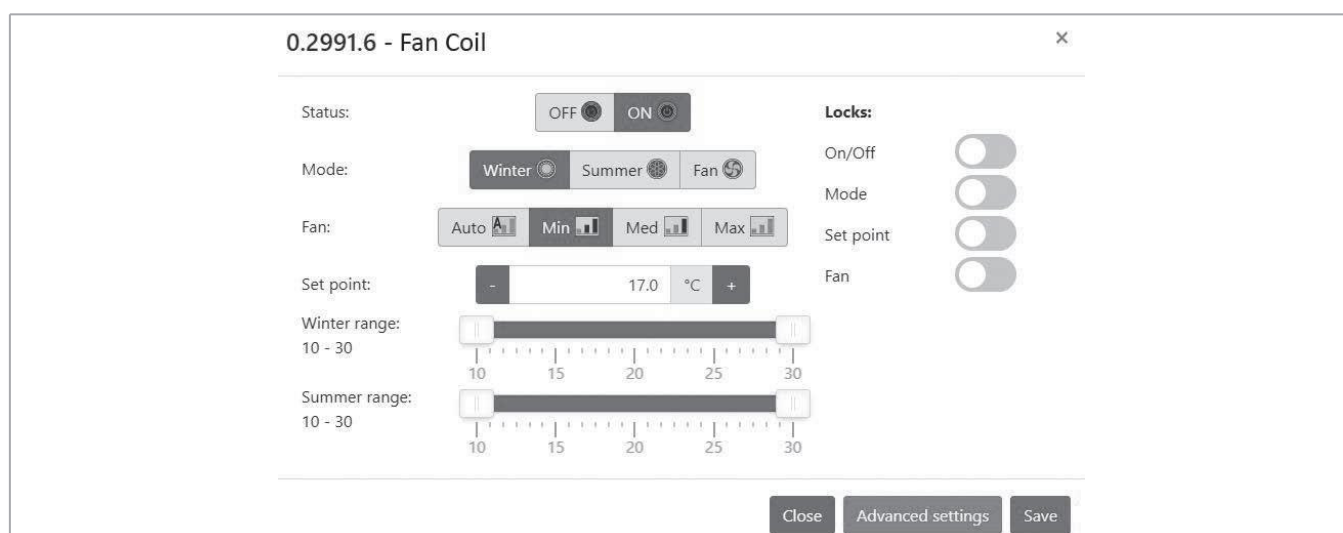
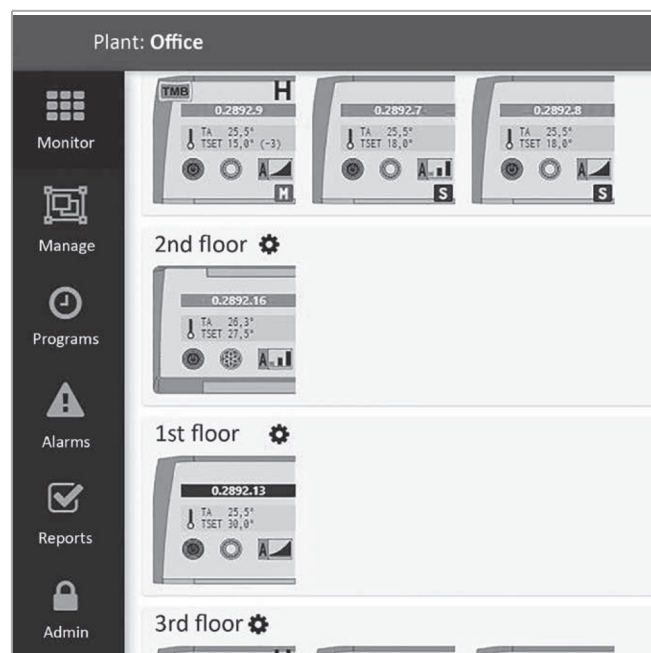
Graphical pages

The main program screen can display and interact with the entire network of units.

An individual unit, a group of units or the entire network can be called so as to make modifications to the operating mode and the set point.

The user can then check the operating status of each individual unit, read the room temperature, the coil temperature and the operating status of the condensate drain pump or any alarms.

The **"Monitoring"** Screen shows the units that are connected to the network and scanned by the program.



The icon of the terminal unit provides the following information:

- unit name (0.2766.8)
- set temperature (SETP)
- room temperature (AT)
- unit status:



ON (GREEN)



OFF (RED)

- mode:



Summer



Winter



Auto



Fan only

- fan speed:



Low



Medium



High



Auto Fan

The **"Programs"** Screen, can be used to set the unit operating parameters for each day of the week. Several weekly programs can be set.

Time bands are available for each day of the week. The time and the type of operation to be performed by the unit can be set for each band.

The time and the operating parameters can then be displayed before being sent to the unit and implemented.

Programs / Edit

Program name: **prova 12** Program type: **Weekly** Unit type: **Units**

Edit program name Copy day

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
0:00							
1:00							
2:00							
3:00							
4:00	   17°C	   17°C	   17°C	   17°C	   17°C		
5:00							
6:00							
7:00							
8:00							
9:00							
10:00							

Every time that the reading of the set up Dip Switches results not easy (as for example by the false ceiling installations), it is always possible to display them directly through the NET program.

0.2991.6 - Fan Coil

Unit status Configuration Parameters

ON

Dip	OFF option	ON option
1: OFF	2 pipe units	4 pipe units
2: OFF	Thermal power station with valves	Thermal power station with Fan
3: OFF	T3 disabled	T3 enabled
4: OFF	T3 only Winter when enabled	T3 Winter and Summer when enabled
5: OFF	Continuous ventilation	Simultaneous ventilation of valves
6: OFF	Unit without electrical heater	Resistance-coils Management
7: OFF	T2 as CH Change-Over (resistance phase II)	Resistance-coils with T2
8: OFF	RL7 (D0-D0) according to the state of the controller	RL7 (D0-D0) according to the pump
9: OFF	CA = Remote ON/OFF	CA = Remote Summer/Winter
10: OFF	Master	Slave

0.2991.6 - Fan Coil

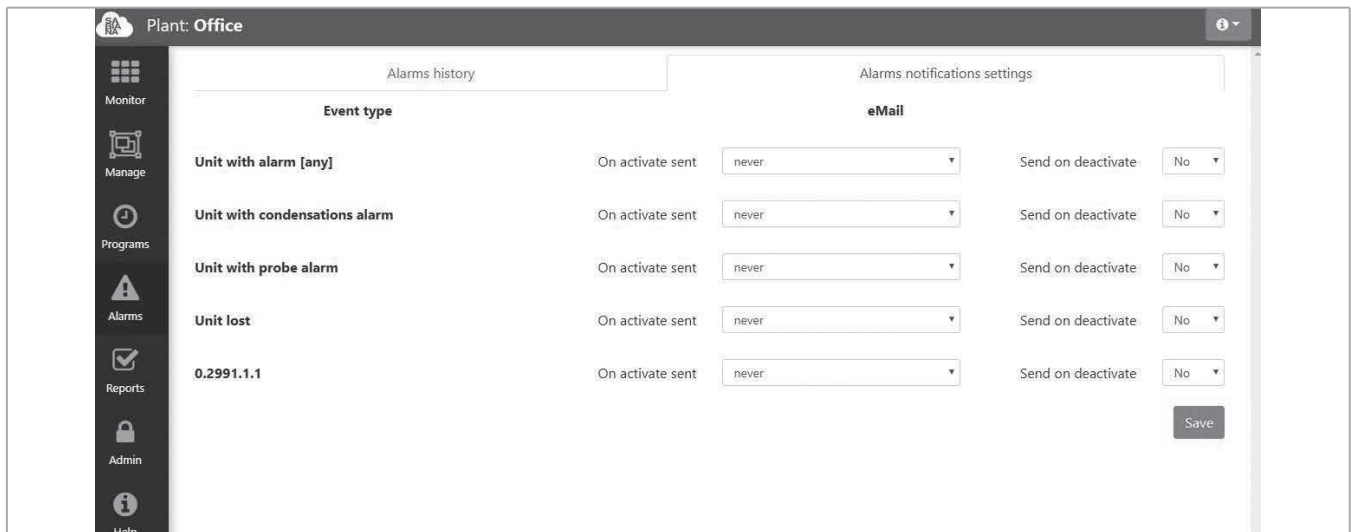
Unit status Configuration Parameters

T3 fan on heating	- 34.0 °C +	T3 fan on cooling	- 22.0 °C +
T3 fan control hysteresis	- 5.0 °C +	Fan maximum off time for antistratification	- 10 min. +
Antistratification on time	- 60 sec. +	Post-ventilation time	- 180 sec. +
ECM voltage MIN speed	- 1.0 V +	ECM voltage MED speed	- 5.0 V +
ECM voltage MAX speed	- 10.0 V +	Pump, delay time	- 150 sec. +

« 1 2 3 4 »

Close Set TMB time Save

In addition to the alarm set on the **"Alarms"** Screen, it is possible to send the ON-OFF alarm notification via E-mail and sms.



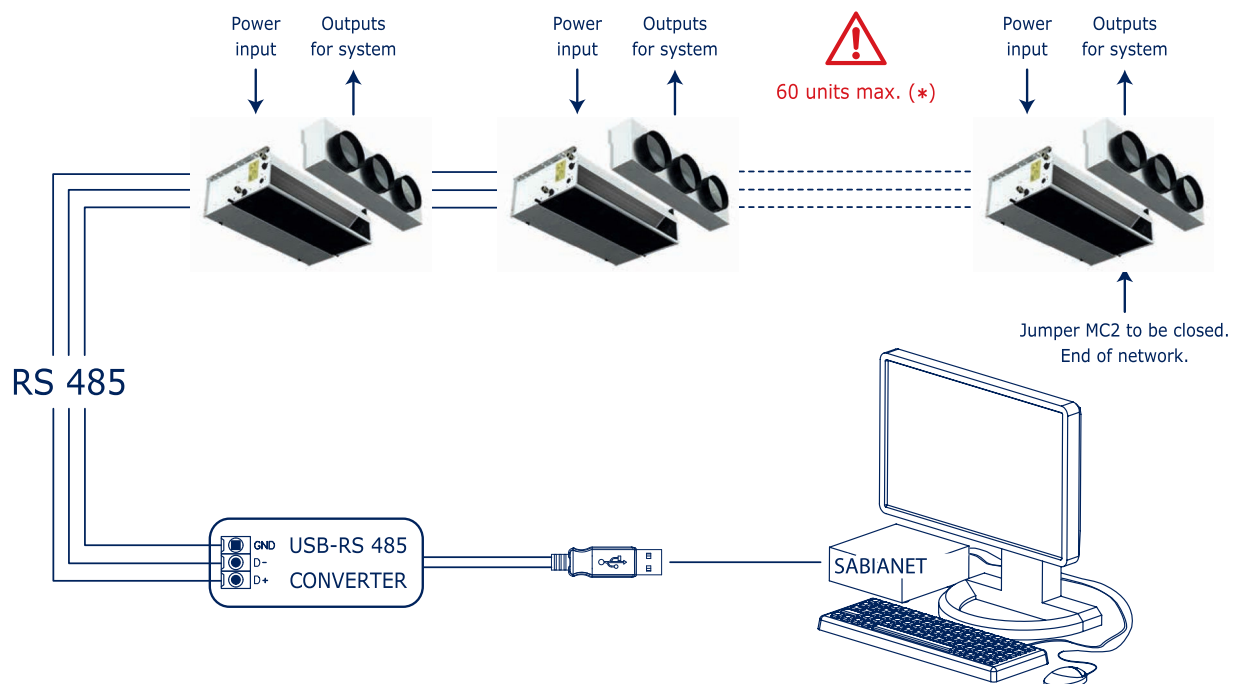
RS 485 serial connection cable

Shielded cable to be used: RS-485, 1x2x24 AWG SFTP, 120 Ohm.



PC NET Software

Installation example with a HPL / HPL-ECM network with MB board.



(*) In the event of more than 60 units, add one or more Router-S (see next page).

MB and NET accessories

SIOS board

ID	Code
SIOS	3021292



SIOS is a board equipped with 8 relays with potential free contact to control the activation or deactivation of remote electric utilities.

Moreover, the board has 8 digital inlets to display the actuators or external consents, such as motor or other.

The SIOS boards can be connected:

- inside a network managed by NET
- inside a network managed by T-DI
- inside a network managed by Web gateway
- to a PSM-DI panel (one SIOS for each PSM-DI panel)

Router-S

ID	Code
Router-S	3021290



The Router-S is an electronic board that allows to control several units inside a network managed by NET(default) or within a sub-network managed by BMS systems, that are not provided (it is necessary to operate on a Dip Switch on the board).

Managed by NET

The Router-S in the standard version is an electronic board that:

- allows creating networks with more than 60 units (minimum 2 Router-S are required) or to divide the network (per floor, building, ecc.).
- allows creating a Master/Slave sub-network to be controlled as an independent group

The number of Router-S to be used is:

- up to 60 units: no Router-S
- from 61 to 120 units: 2 Router-S
- every 60 subsequent units: 1 additional Router-S

Managed by BMS systems which are not provided

The Router-S becomes an electronic board to use with BMS systems not supplied, only after having set the Dip Switch on the board and so creating a Master/Slave sub-network to be controlled as an independent group.

The number of Router-S to be used is:

- max 14 Router-S
- maximum 15 Fan Coils per Router-S

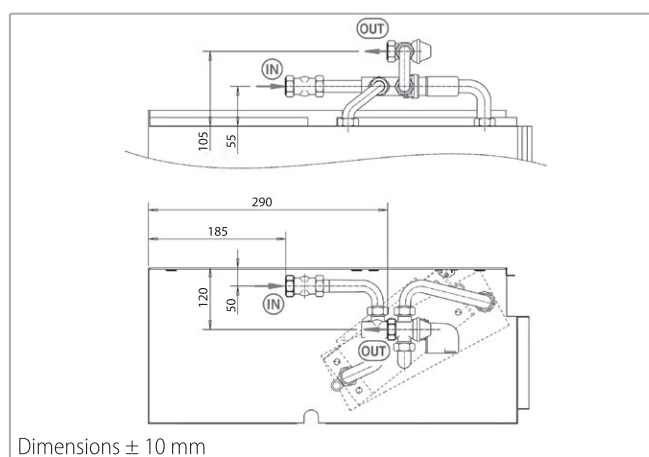
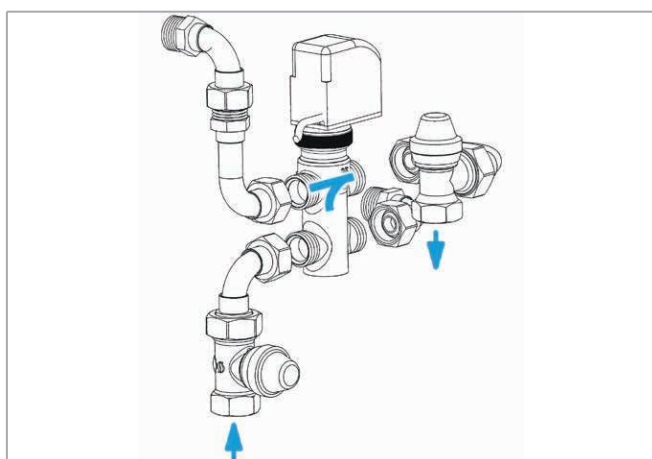
ACCESSORIES

VBP main coil 3 way valve

3 way water valve ON-OFF 230 V and mounting kit with micrometric lockshield valve - Models 1÷7

Control valve kit: 3 way valve, ON-OFF 230 V, with electric motor and mounting kit with micrometric lockshield valve.

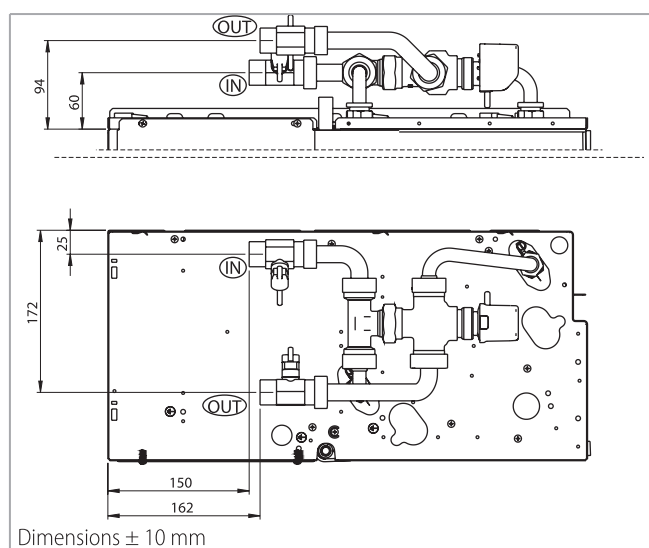
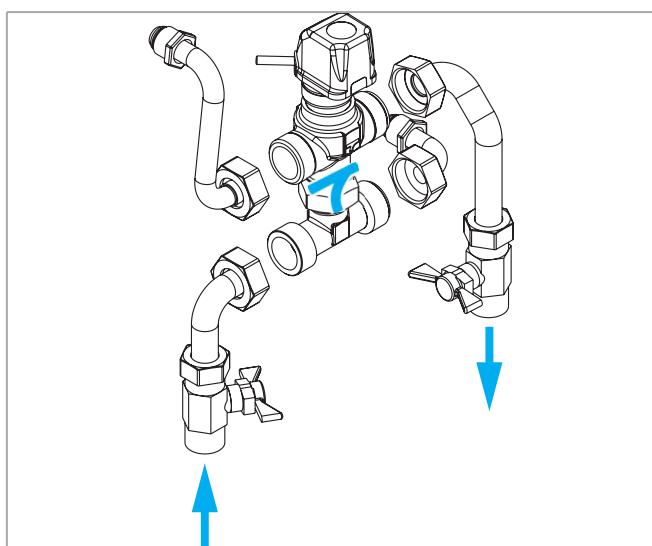
Model	FITTED		NOT FITTED		Valve			Micrometric lockshield valve		
	ID	Code	ID	Code	DN	(Ø)	Kvs	DN	(Ø)	Kvs
0-1	VBPM-C G1-5	9066561	VBPS-C G1-5	9066560	15	1/2"	1,6	15	1/2" F	2
2-3-4-5	VBPM-C G6-9	9060471	VBPS-C G6-9	9060474	20	3/4"	2,5	15	1/2" F	2
6-7	VBPM-C SL6-7	9069208	VBPS-C SL6-7	9069206	20	3/4"	4	20	3/4" F	3,5



Water side pressure drop (Kvs) diagrams to p. 84

3 way water valve ON-OFF 230 V and mounting kit with ball valve - Model 8

Model	FITTED		NOT FITTED		Valve			Ball valve	
	ID	Code	ID	Code	DN	(Ø)	Kvs	(Ø)	
8	VBPM-C SL8	9069213W	VBPS-C SL8	9069217W	25	1"	4,5	3/4" M	



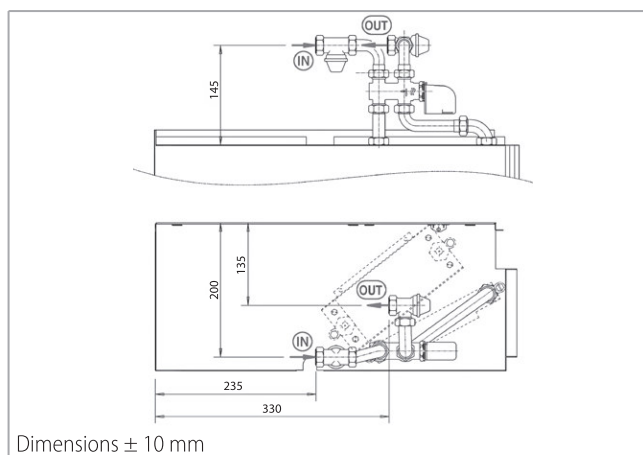
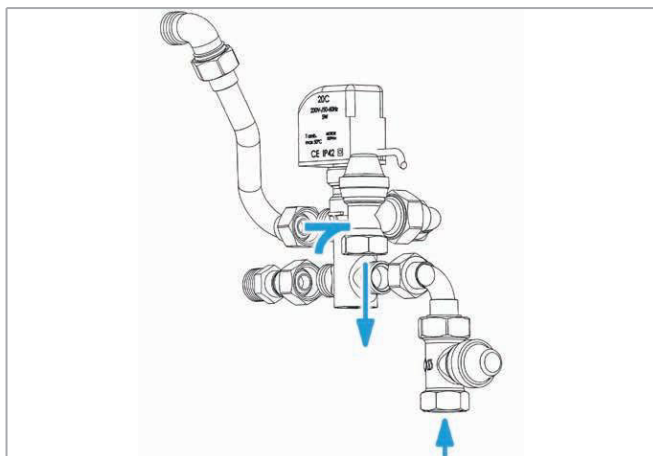
Water side pressure drop (Kvs) diagrams to p. 84

VBA additional coil 3 way valve

3 way water valve ON-OFF 230 V and mounting kit with micrometric lockshield valve - Models 1÷7

Control valve kit: 3 way valve, ON-OFF 230 V, with electric motor and mounting kit with micrometric lockshield valve.

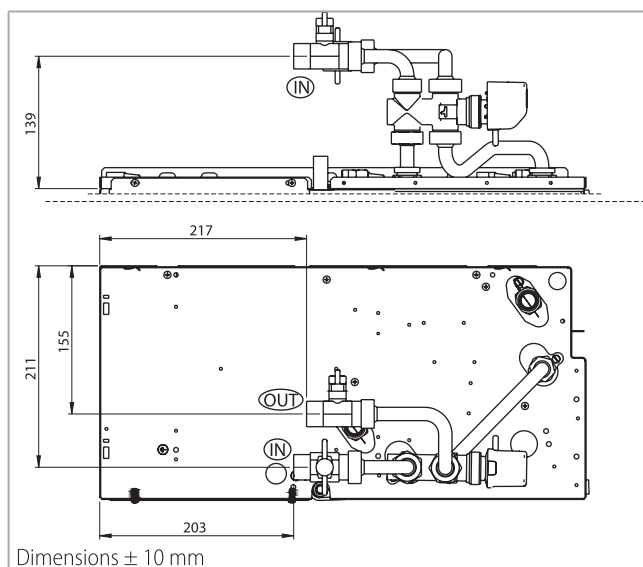
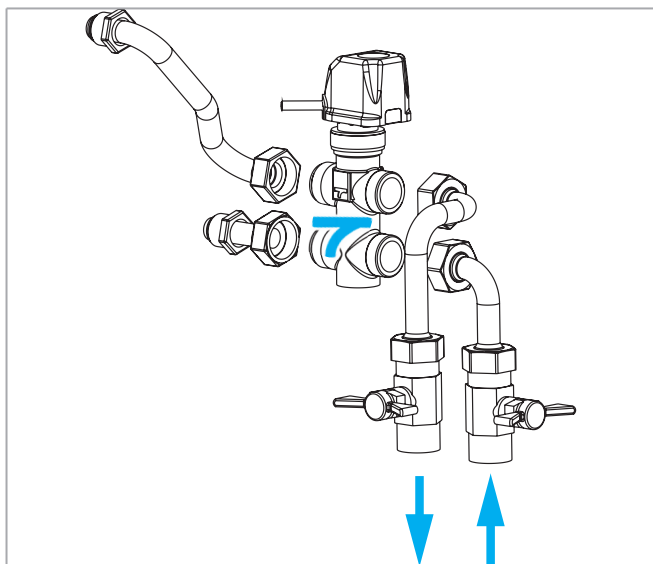
Model	FITTED		NOT FITTED		Valve			Micrometric lockshield valve		
	ID	Code	ID	Code	DN	(Ø)	Kvs	DN	(Ø)	Kvs
0 ÷ 7	VBAM-C G1-9	9060472	VBAS-C G1-9	9060475	15	1/2"	1,6	15	1/2"F	2



Water side pressure drop (Kvs) diagrams to p. 84

3 way water valve ON-OFF 230 V and mounting kit with ball valve - Model 8

Model	FITTED		NOT FITTED		Valve			Ball valve	
	ID	Code	ID	Code	DN	(Ø)	Kvs	(Ø)	
8	VBAM-C SL8	9069214W	VBAS-C SL8	9069218W	20	3/4"	2,5	3/4"M	



Water side pressure drop (Kvs) diagrams to p. 84

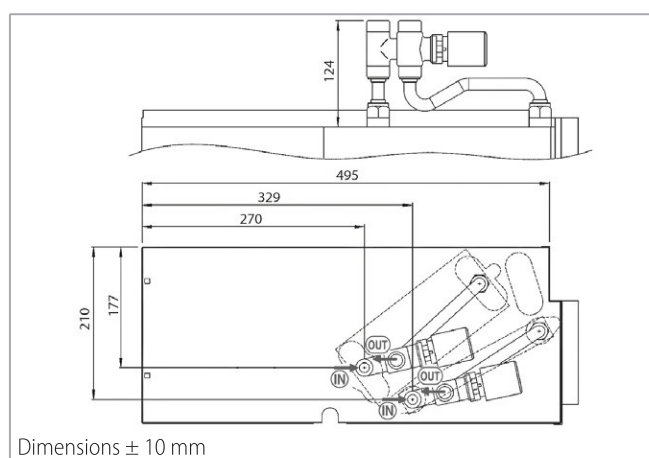
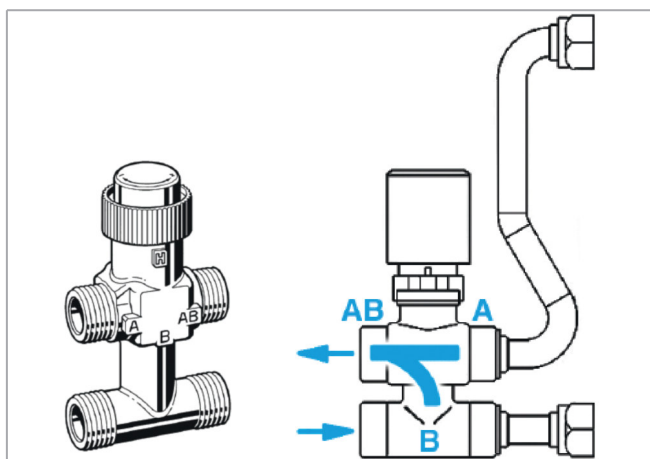
VS simplified kit for 3 way valve

Valve with flat connection.

3 way water valve ON-OFF 230 V and mounting kit without micrometric lockshield valve - Models 1÷7

3 way valve, ON-OFF 230 V with electric motor and mounting kit without micrometric lockshield valve.

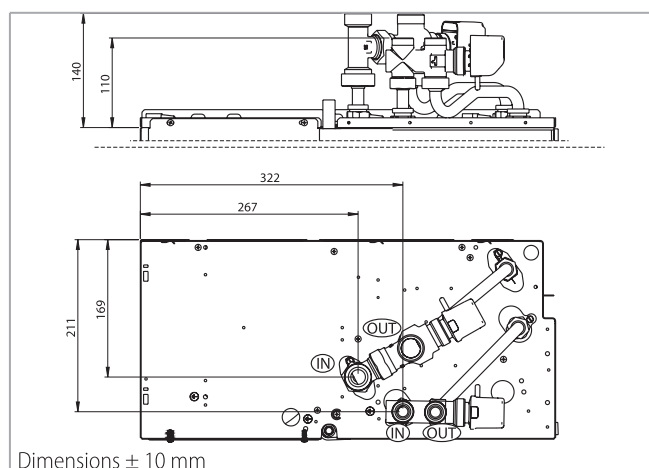
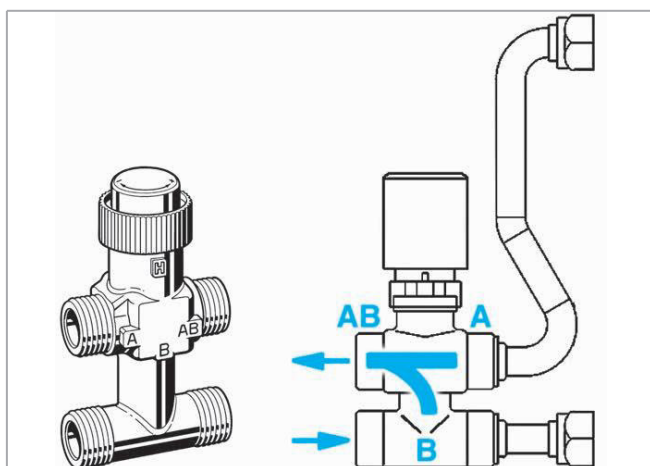
Model	MAIN COIL				DN	(Ø)	Kvs
	FITTED		NOT FITTED				
	ID	Code	ID	Code			
0 - 1	VSPM-C G1-5	9066571	VSPS-C G1-5	9066570	15	1/2"	1,6
2 - 3 - 4 - 5	VSPM-C G6-9	9060484	VSPS-C G6-9	9060481	20	3/4"	2,5
6 - 7	VSPM-C SL6-7	9069211	VSPS-C SL6-7	9069210	20	3/4"	4,0
	ADDITIONAL COIL						
0 ÷ 7	VSAM-C G1-9	9060483	VSAS-C G1-9	9060480	15	1/2"	1,6



Water side pressure drop (Kvs) diagrams to p. 84

3 way water valve ON-OFF 230 V and mounting kit without ball valve - Model 8

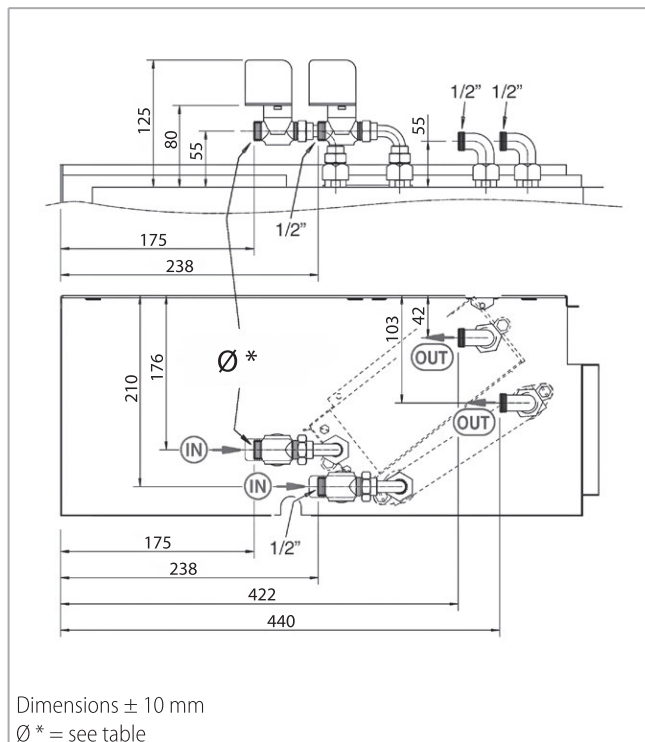
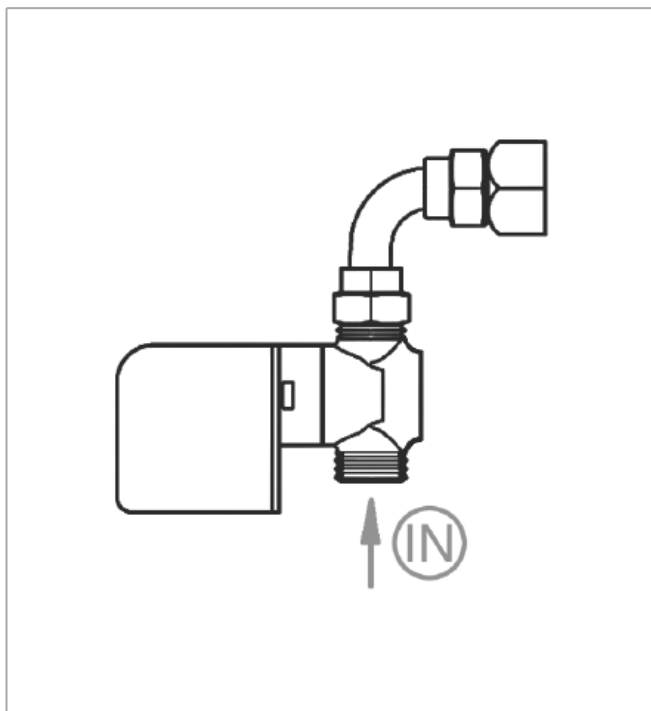
Model	MAIN COIL				DN	(Ø)	Kvs
	FITTED		NOT FITTED				
	ID	Code	ID	Code			
8	VSPM-C SL8	9069215W	VSPS-C SL8	9069219W	25	1"	4,5
	ADDITIONAL COIL						
8	VSAM-C SL8	9069216W	VSAS-C SL8	9069220W	20	3/4"	2,5



Water side pressure drop (Kvs) diagrams to p. 84

V2 2 way valve for main and additional coil

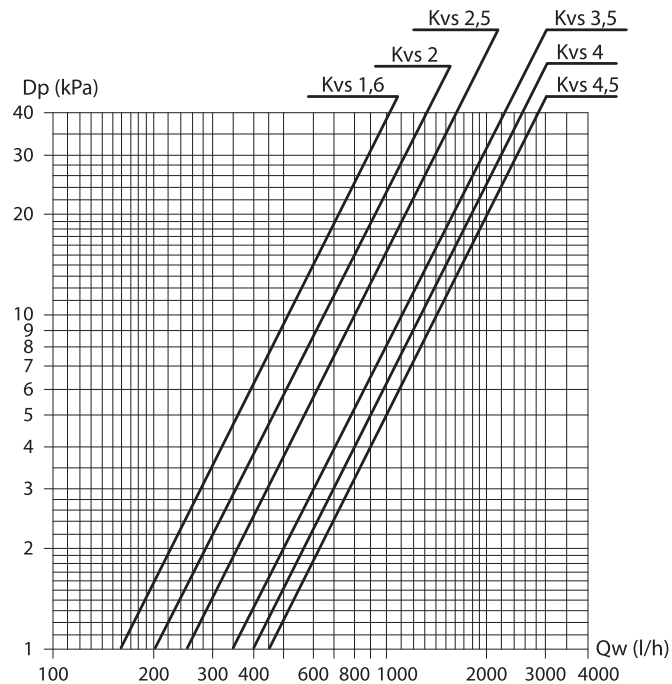
2 way valve ON-OFF 230 V



Model	MAIN COIL				DN	(Ø)	Kvs
	FITTED		NOT FITTED				
	ID	Code	ID	Code			
0 - 1	V2M-C G1-5	9060476W	V2S-C G1-5	9060478W	15	1/2"	1,7
2 - 3 - 4 - 5	V2M-C G6-9	9060477W	V2S-C G6-9	9060479W	20	3/4"	2,8
6 - 7	V2M-C SL6-7	9069203	V2S-C SL6-7	9069201	25	1"	4,0
8	V2M-C SL8	9069203W	V2S-C SL8	9069201W	25	1"	4,5
	ADDITIONAL COIL						
0 ÷ 7	V2M-C G1-5	9060476W	V2S-C G1-5	9060478W	15	1/2"	1,7
8	V2M-C G6-9	9060477W	V2S-C G6-9	9060479W	20	3/4"	2,8

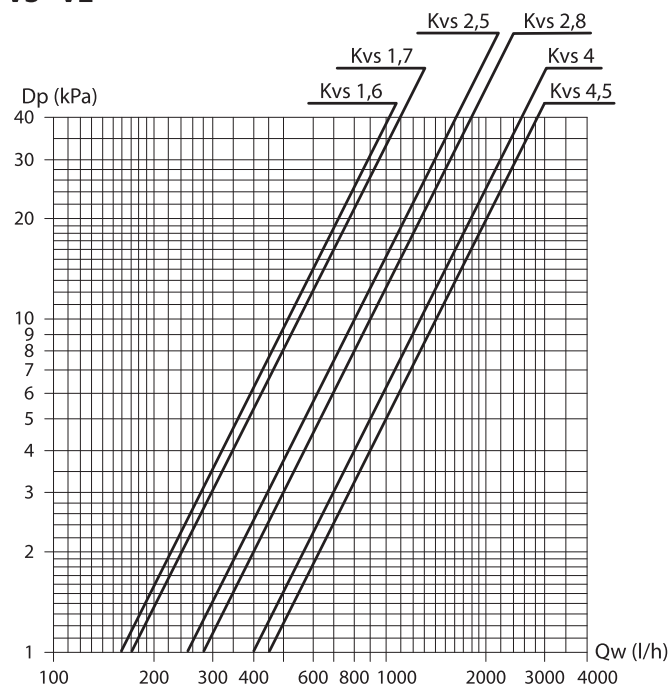
Water side pressure drop (Kvs) diagrams to p. 84

Water side pressure drop VBP - VBA



Dp = pressure drop
Qw = water flow rate

Water side pressure drop VS - V2



Dp = pressure drop
Qw = water flow rate

3 way double valve kit for 4 tube installation and single coil

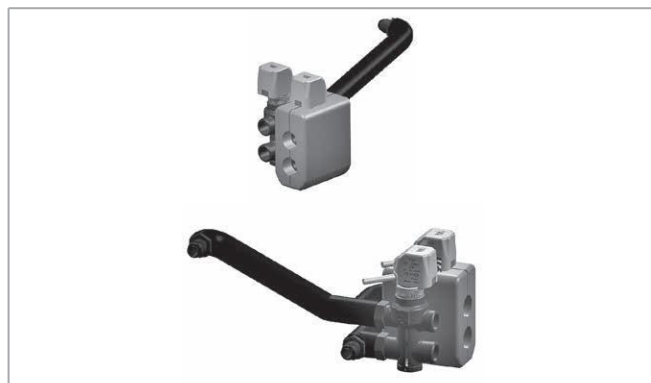
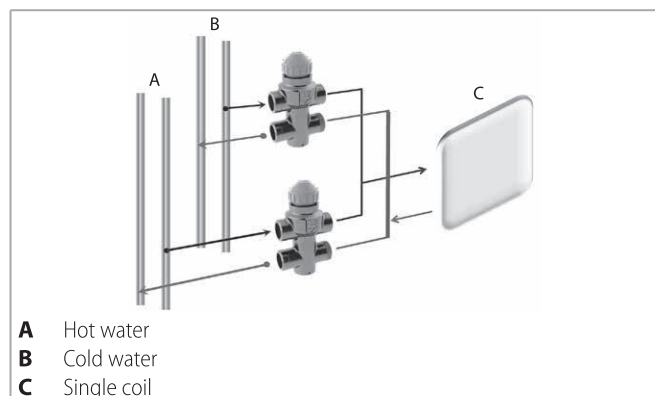
The kit consists of:

- Nr 2 special 3 way valves.
- 2 230 Volt ON-OFF actuators with internal safety micro switch.
- Insulated pipe kit.
- External valve insulation sleeve.

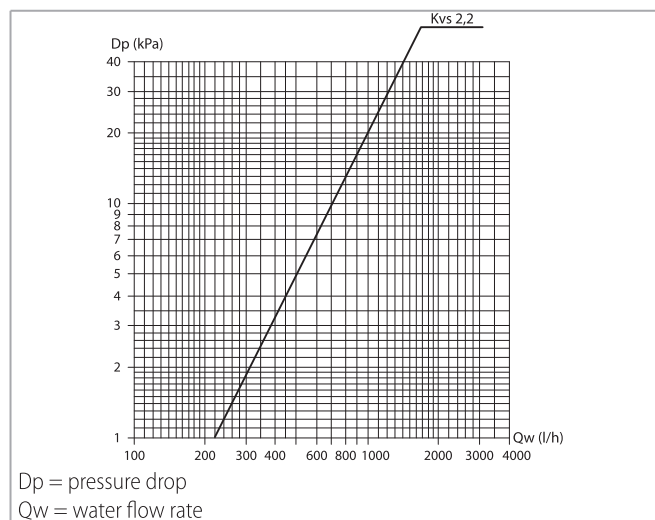
The kit uses a special 3 way valve which allows the transformation of the fan coil, equipped with one single coil, into a 4 tube installation.

The new 4X2 valve has been designed to keep the water flow between flow and return perfectly separated, allowing its use in parallel.

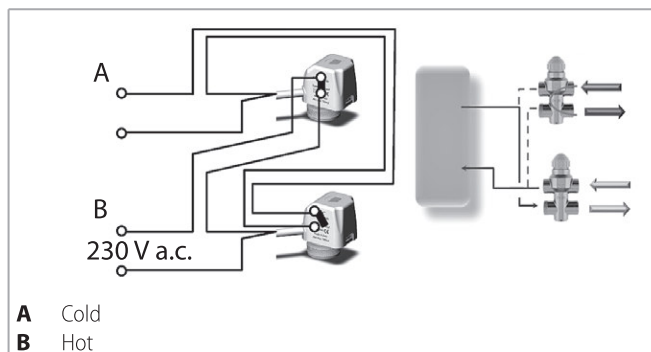
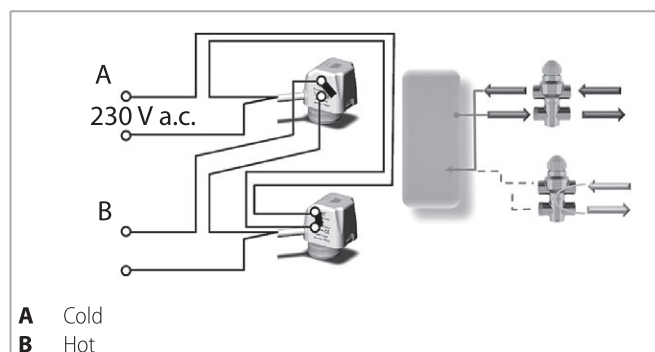
Therefore, it can be used on 4 pipe fan coil systems with one single heat-exchange coil on board the fan coil.



Model	FITTED		NOT FITTED		(Ø)	Kvs
	ID	Code	ID	Code		
0 ÷ 7	V3M4X2	9066572W	V3S4X2	9066562W	3/4"	2,2



Double actuator electrical connections

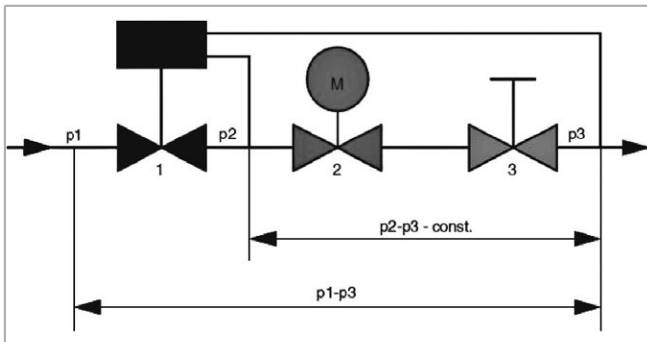


Balancing valves independent from the system pressure

- The balancing valve and a combined 2 way valve allow the regulation of the water flow value autonomously, regardless of the system pressure, and the control of the flow by using an ON/OFF electro-thermal actuator.
- The balancing valve allows you to balance the hydraulic system by supplying the required water flow, for each fan-coil, and to maintain it even under partial load conditions.

Valve operation logic

- "p1" the valve inlet pressure.
- "p3" the outlet pressure.
- "p2" the diaphragm activation pressure, which allows differential pressure "p2" – "p3" to be maintained at a constant value, in order to guarantee the water to flow at the set value.



The minimum differential pressure "p1" – "p3", required to guarantee the correct value of the set water flow rate, is indicated in the diagrams and in the related tables. This is an essential factor to size the system pressure drop and pump pressure head. The flow rate is kept at a constant value only if the valve pressure drop is higher than the indicated value.

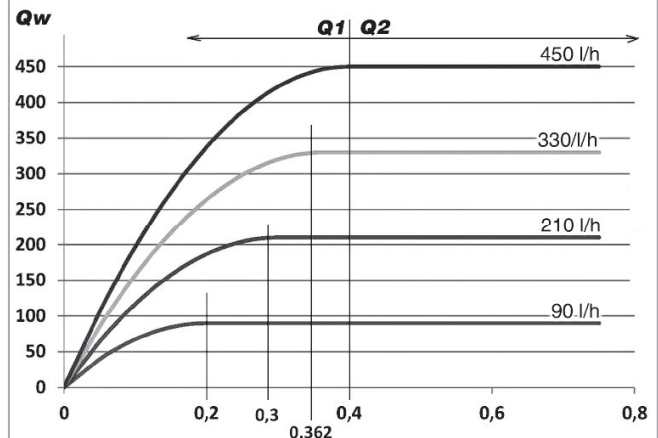
Minimum operating differential pressure

The minimum differential pressure and the balancing valve pressure drop must be considered to size the system pumps.

Flow rate is constant if the pressure drop is higher than that indicated in the diagrams and into the related tables.

The following diagram shows an example of the flow rate trend according to the pressure drop and calibration required.

Example



Qw = Water flow rate

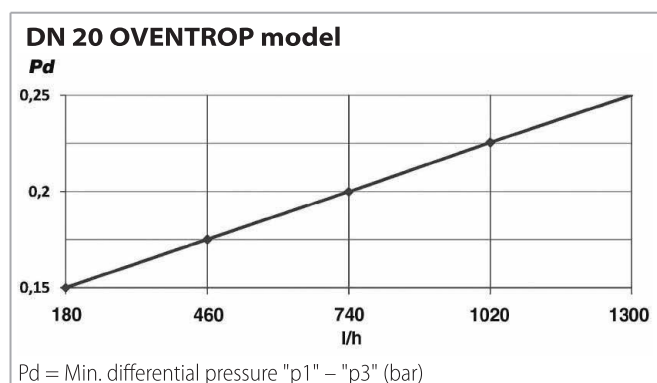
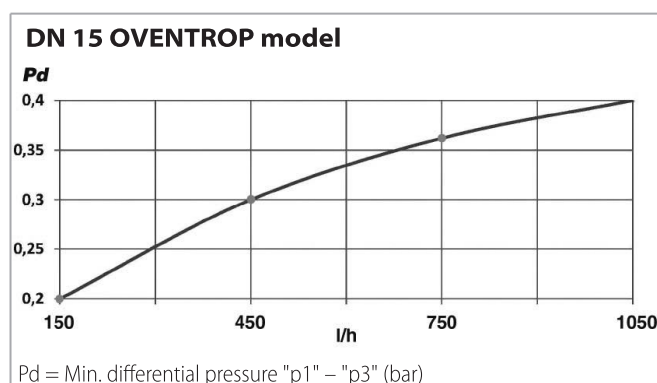
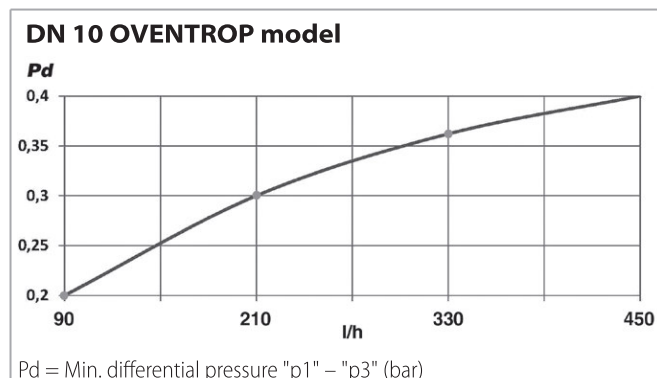
Pd = Min. differential pressure "p1" - "p3" (bar)

Q1 = Area with inconstant water flow

Q2 = Area with constant water flow

Kit with OVENTROP valve

In case of Oventrop valves, the valve upstream-downstream minimum differential pressure ("p1" – "p3"), which depends on the valve calibration value, must be exceeded to access the constant flow rate field.



E.g., when sizing the system pump, in which the DN 10 valves will be installed and in which 210 l/h are constantly required for each device, consider a useful pressure of 0.3 bar (to compensate the pressure drop of the valve) for each balancing valve. Therefore, the pressure drop values produced by the system balancing valves must be summed and the pump must be sized to produce a pressure equal to or greater than the value obtained previously.

OVENTROP technical characteristics

DN model	Flow rate range (l/h)	Kvs
DN 10	90 - 450	1,1
DN 15	150 - 1050	1,8
DN 20	180 - 1300	2,5

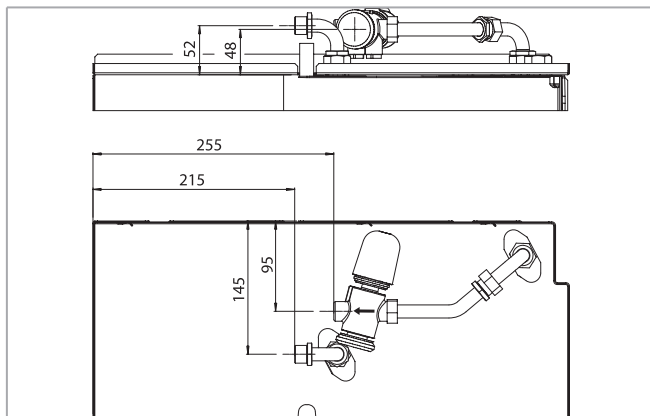
Operation limits of the balancing valves

- Maximum operating temperature: 120 °C
- Highest working pressure: 16 bar
- Maximum % of water/glycol mixture: 50%
- Minimum operating temperature: -10 °C
- Maximum differential pressure: 4 bar

Balancing valves for OVENTROP main coil

2 way valve for main coil and assembly kit.

The valve is supplied equipped with 230 Volt electro-thermal actuator for the ON/OFF control.

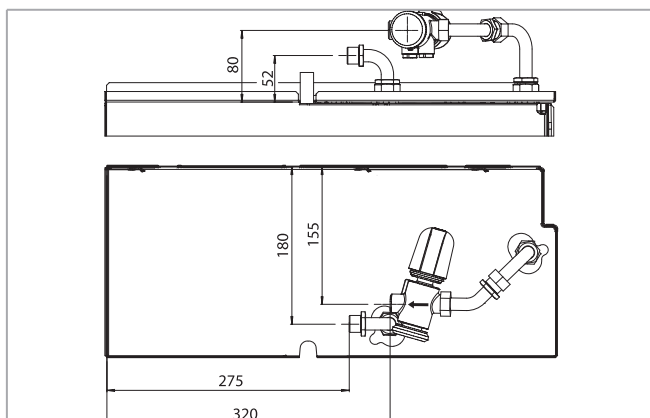


Model	FITTED		NOT FITTED		DN	(Ø)	Range (l/h)
	ID	Code	ID	Code			
0 - 1	V20VBPM 90-450	9066660	V20VBPS 90-450	9066650	10	1/2"	90-450
2 - 3 - 4	V20VBPM 150-1050	9066661	V20VBPS 150-1050	9066651	15	3/4"	150-1050
5 - 6 - 7	V20VBPM 180-1300	9066662	V20VBPS 180-1300	9066652	20	1"	180-1300

Balancing valves for OVENTROP additional coil

2 way valve for additional coil and assembly kit.

The valve is supplied equipped with 230 Volt electro-thermal actuator for the ON/OFF control.



Model	FITTED		NOT FITTED		DN	(Ø)	Range (l/h)
	ID	Code	ID	Code			
0 - 1 - 2 - 3 - 4	V20VBAM 90-450	9066663	V20VBAS 90-450	9066653	10	1/2"	90-450
5 - 6 - 7	V20VBAM 150-1050	9066664	V20VBAS 150-1050	9066654	15	3/4"	150-1050

Kit with DANFOSS valve

The flow rate can be calculated without any special tools. In order to modify the presetting (the factory value is 100%), go ahead as follow:

1. Remove the blue protective cover or the actuator fitted on the unit
2. Lift up the indicator (DN 25-32)
3. Turn (clockwise to decrease) on the new value
4. Set off the grey indicator again into the closed position (DN 25-32)

The presetting range shows flow rate values between 10-0 (DN 15-20). The clockwise rotation reduces the requested flow rate value whereas the counterclockwise rotation increases it.



DANFOSS technical characteristics

Nominal diameter		DN	15	15HF	20HF
Flow rate range		l/h	650	1200	1900
Adjustment range		%	10-100		
Differential pressure	Dp min.	kPa	16	25	25
	Dp max.		600		
Nominal pressure		PN	25		

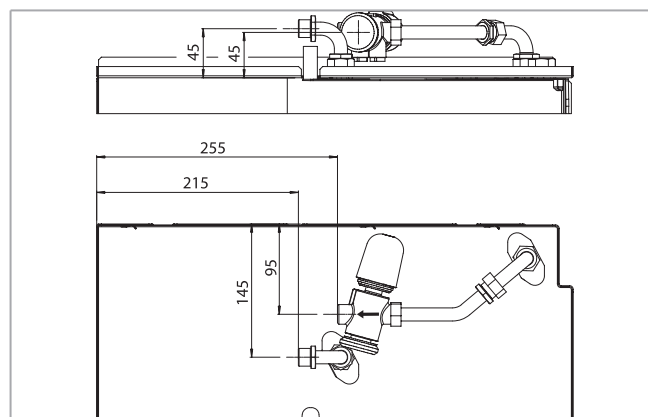
Operation limits of the DANFOSS balancing valves

- Maximum operating temperature: 120 °C
- Maximum % of water/glycol mixture: 50%
- Minimum operating temperature: -10 °C

Balancing valves for DANFOSS main coil

2 way valve for main coil and assembly kit.

The valve is supplied equipped with 230 Volt electro-thermal actuator for the ON/OFF control.



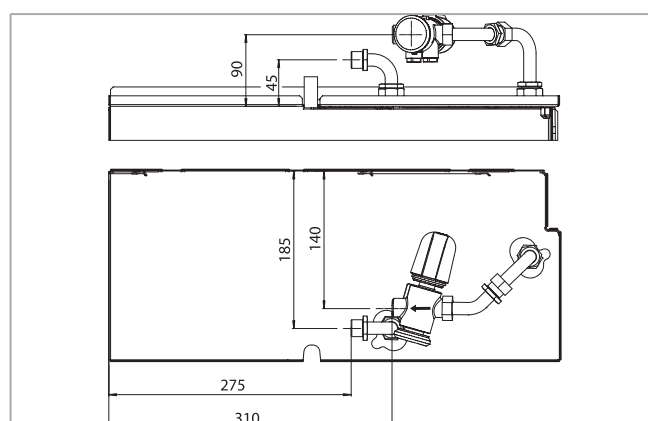
Model	FITTED		NOT FITTED		DN	(Ø)	Range (l/h)
	ID	Code	ID	Code			
0 - 1	V2DFBPM 90-450	9066665	V2DFBPS 90-450	9066655	15	3/4"	90-450
2 - 3 - 4	V2DFBPM 150-1050	9066666	V2DFBPS 150-1050	9066656	15HF	3/4"	150-1050
5 - 6 - 7	V2DFBPM 190-1300	9066667	V2DFBPS 190-1300	9066657	20	1"	190-1300

Attention: the DN 15 valve diameter, unlike the Oventrop model, is of 3/4

Balancing valves for DANFOSS additional coil

2 way valve for additional coil and assembly kit.

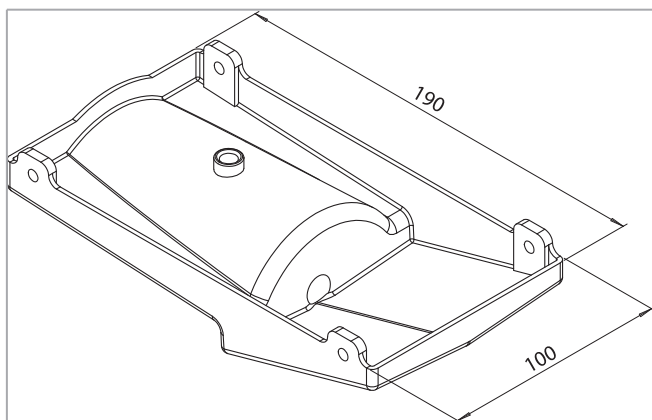
The valve is supplied equipped with 230 Volt electro-thermal actuator for the ON/OFF control.



Model	FITTED		NOT FITTED		DN	(Ø)	Range (l/h)
	ID	Code	ID	Code			
0 - 1 - 2 - 3 - 4	V2DFBAM 90-450	9066668	V2DFBAS 90-450	9066658	15	3/4"	90-450
5 - 6 - 7	V2DFBAM 150-1050	9066669	V2DFBAS 150-1050	9066659	15HF	3/4"	150-1050

BSV extension condensate collection tray to cover valve assembly

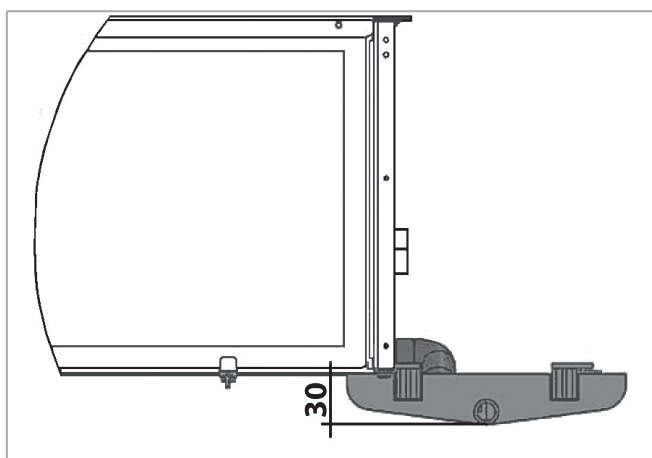
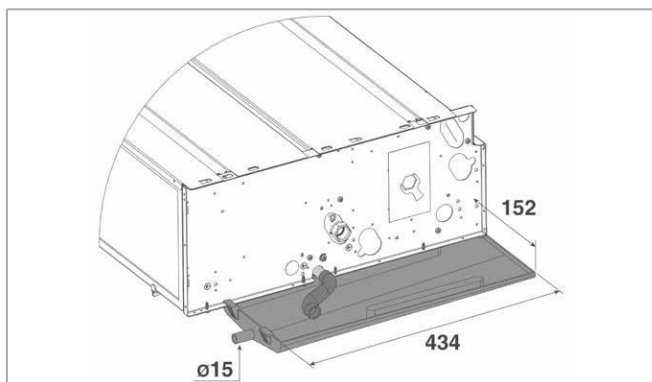
(for vertical units)



Model	ID	Code
0 ÷ 8	BSV-C	6060400

BSI-C extension condensate collection tray to cover valve assembly

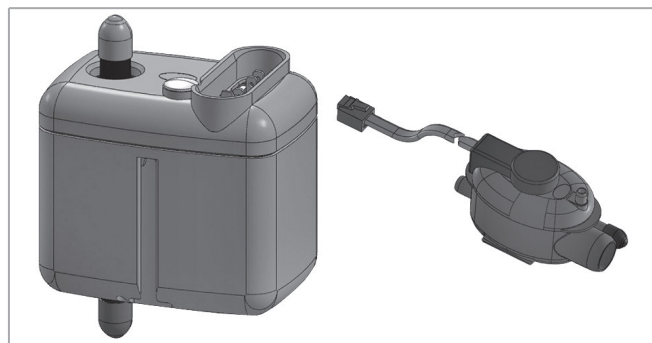
(for horizontal units)



Model	ID	Code
0 ÷ 8	BSI-C	6066039

DRPV-C condensate pump

(for vertical units)

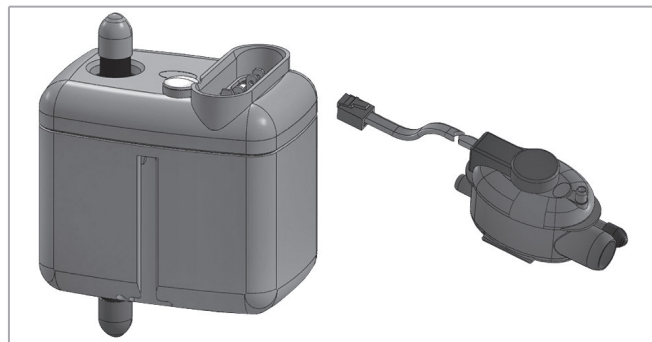


Model	FITTED		NOT FITTED	
	ID	Code	ID	Code
0 ÷ 8	DRPV-C-M	9066297	DRPV-C-S	9066296

Height for vertical flow (m)	Water flow (l/h) depending on the length of horizontal flow	
	5 m	10 m
1	7,6	7,2
2	5,6	5,2
3	4,0	3,7
4	3,2	2,9

DRPI-C condensate pump

(for horizontal units)

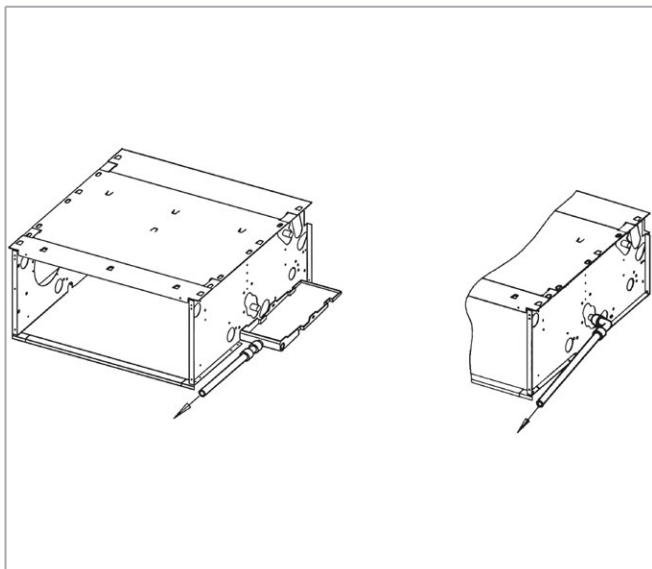


Model	FITTED		NOT FITTED	
	ID	Code	ID	Code
0 ÷ 8	DRPI-C-M	9066298	DRPI-C-S	9066180

Height for vertical flow (m)	Water flow (l/h) depending on the length of horizontal flow	
	5 m	10 m
1	7,6	7,2
2	5,6	5,2
3	4,0	3,7
4	3,2	2,9

SCR plastic condensate drain pipe with fast connection

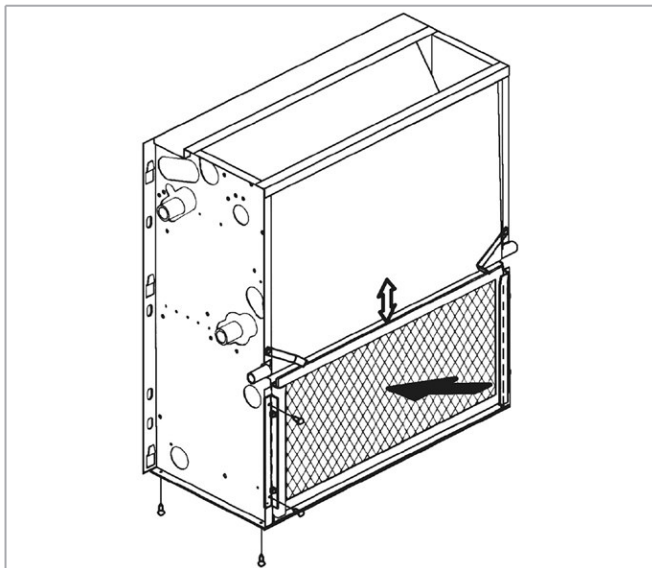
(allows correct condensate drain)



Model	ID	Code
0 ÷ 8	SCR-C	6060420

KAF frontal air inlet kit

Bottom closing panel and filter sliding guides.



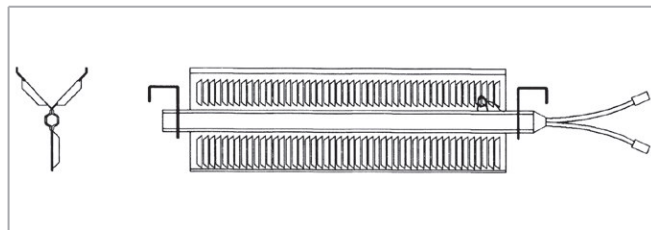
Model	ID	FITTED	Code
1	KAF-S SL1		9069361
2	KAF-S G2		9069072
3 - 4	KAF-S G3		9069073
5	KAF-S SL5		9069365
6 - 7	KAF-S SL6-7		9069366

BEL electric heater

1 PHASE 230 V.

Safety thermostat and relay control integrated.

The electric heater must be fitted in the factory during the production of the fan coil and can not be added later.

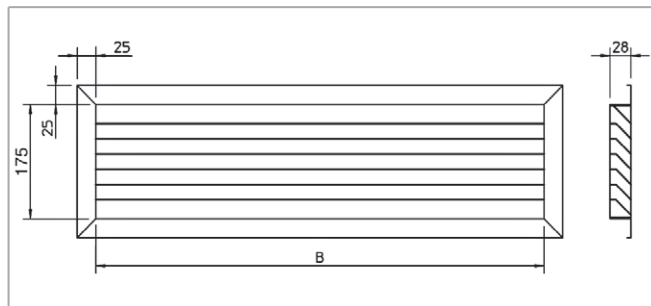


Model	ID	Code	Watt (W)
0	BEL-I G2 / 10	9066612	1000
	BEL-I G2 / 06	9066602	600
	BEL-I G2 / 04	9066592	400
1	BEL-I G3-4 / 15	9066613	1500
	BEL-I G3-4 / 09	9066603	900
	BEL-I G3-4 / 06	9066593	600
2	BEL-I G5-6 / 20	9066615	2000
	BEL-I G5-6 / 12	9066605	1250
	BEL-I G5-6 / 07	9066595	750
3 - 4	BEL-I G7-9 / 25	9066617	2500
	BEL-I G7-9 / 15	9066607	1500
	BEL-I G7-9 / 10	9066597	1000
5	BEL-I SL5 / 27	9038037	2750
	BEL-I SL5 / 16	9038038	1650
	BEL-I SL5 / 11	9038039	1100
6 - 7	BEL-I SL6-7 / 35	9038047	3500

GRAG air inlet grid

To be fitted to the FRD straight inlet flange.

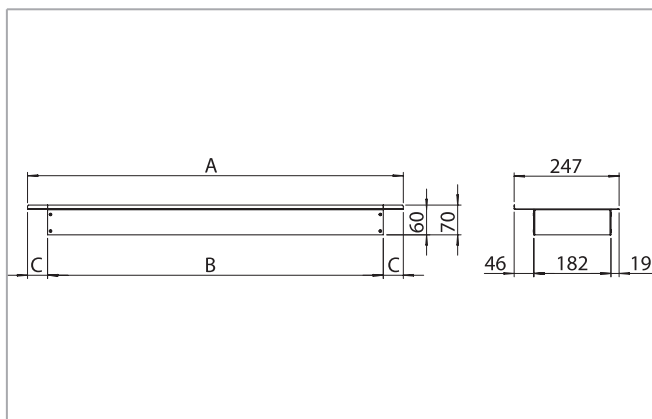
Made of anodized aluminium.



Model	ID	Code	B mm
0	GRAG-C - 2	9060764	375
1	GRAG-C 3-4	9060765	575
2	GRAG-C 5-6	9060766	775
3 - 4	GRAG-C 7-9	9060767	975
5	GRAG-C SL5	9069145	1175
6 - 7	GRAG-C SL6-7	9038042	1425
8	GRAG-C SL8	9069148	1625

FRD straight inlet flange

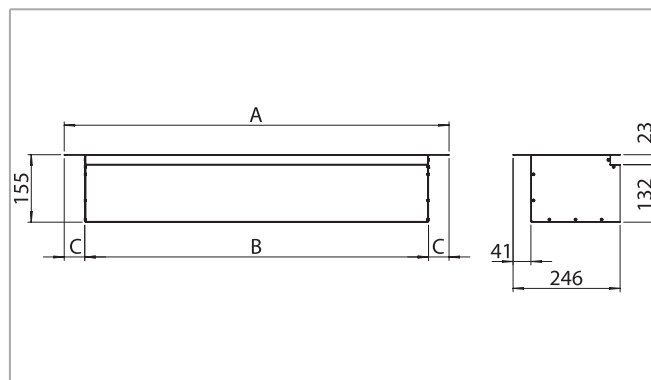
Can be used together with GRAG air inlet grid.
Made of galvanized steel.



Model	ID	Code	A mm	B mm	C mm
0	FRD-C SL0	9069370	454	390	32
1	FRD-C SL1	9069371	669	589	40
2	FRD-C SL2	9038002	884	790	47
3 - 4	FRD-C 8-9	9060724	1099	989	55
5	FRD-C SL5	9069375	1314	1190	62
6 - 7	FRD-C SL6-7	9069376	1529	1439	45
8	FRD-C SL8	9069378	1744	1642	51

FR 90 90° inlet flange

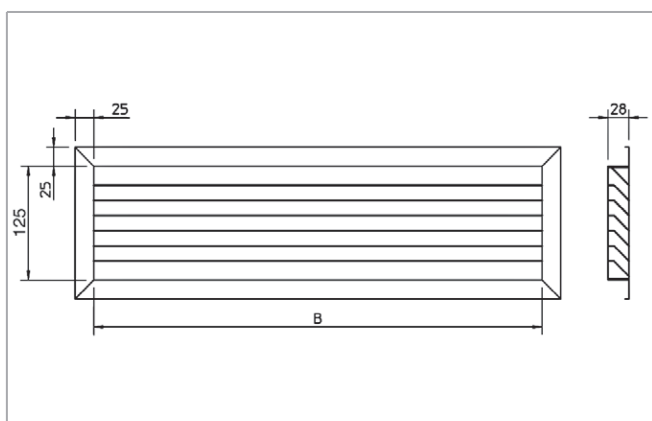
Can be used together with GRAP air inlet grid.
Made of galvanized steel.



Model	ID	Code	A mm	B mm	C mm
0	FR90-C SL0	9069380	454	390	32
1	FR90-C SL1	9069381	669	589	40
2	FR90-C 45	9038001	884	790	47
3 - 4	FR90-C 8-9	9060714	1099	989	55
5	FR90-C SL5	9069385	1314	1190	62
6 - 7	FR90-C SL6-7	9069386	1529	1439	45
8	FR90-C SL8	9069388	1744	1642	51

GRAP air inlet grid

To be fitted to the FR 90 90° inlet flange.
Made of anodized aluminium.

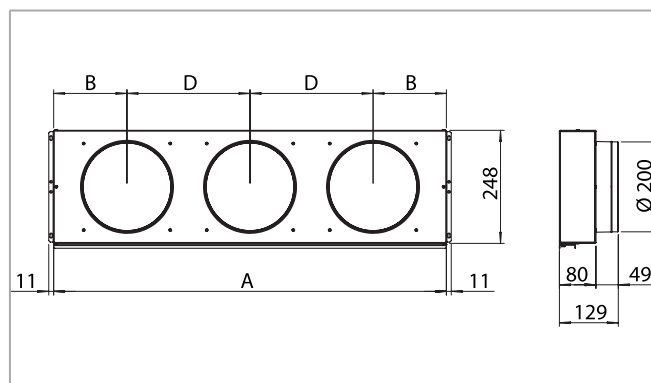


Model	ID	Code	B mm
0	GRAP-C 2	9060760	375
1	GRAP-C 3-4	9060761	575
2	GRAP-C 5-6	9060762	775
3 - 4	GRAP-C 7-9	9060763	975
5	GRAP-C SL5	9069155	1175
6 - 7	GRAP-C SL6-7	9038041	1425
8	GRAP-C SL8	9069158	1625

PRC air inlet spigot plenum

Made of galvanized steel insulated with polyethylene lining.

All the plenums are supplied with spigots for the connection of flexible ducts.

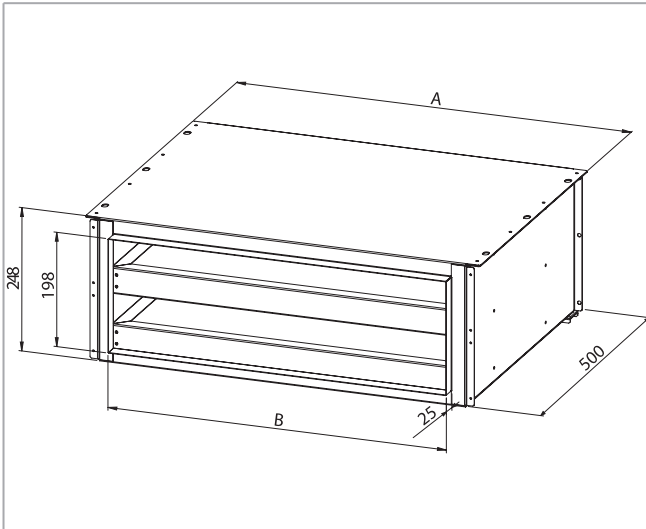


Model	ID	Code	A mm	B mm	D mm	Spigots n°
0	PRC-C SL0	9069180	432	108	216	2
1	PRC-C SL1	9069181	647	167	313	2
2	PRC-C SL2	9038050	862	161	270	3
3 - 4	PRC-C 8-9	9066468	1077	190	348	3
5	PRC-C SL5	9069185	1292	181	310	4
6 - 7	PRC-C SL6-7	9069186	1507	223	354	4
8	PRC-C SL8	9069188	1722	221	320	5

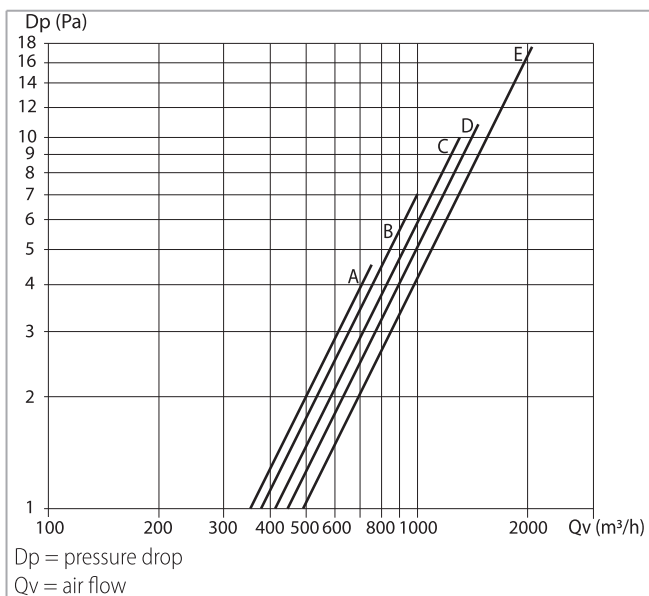
BRS air inlet silencer plenum

Made of galvanised steel metal sheet that is lined internally with a 3 sound-absorbing materials with a high sound absorption coefficient, made of 50 mm thick and 30 kg/m³ dense glass fibre reinforced on both sides with a black thin layer.

Frequency	Hz	125	250	500	1000	2000	4000	8000	Global
Sound attenuation	dB	0,5	7,4	9,5	10,4	8,6	6,8	7,2	8,5



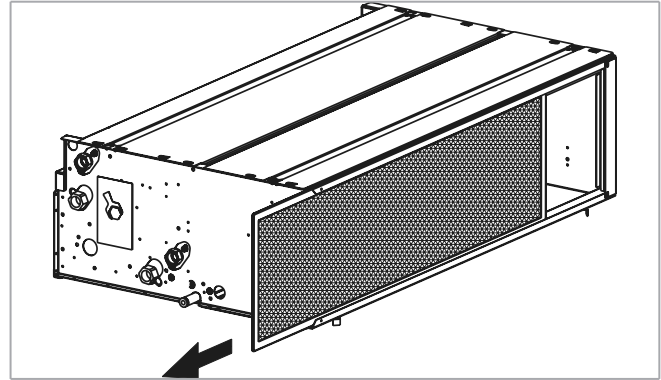
Model	ID	Code	A mm	B mm
1	BRS-A	9069461	689	591
2	BRS-B	9069462	904	806
3-4	BRS-C	9069463	1119	1021
5	BRS-D	9069465	1334	1236
6-7	BRS-E	9069466	1549	1451



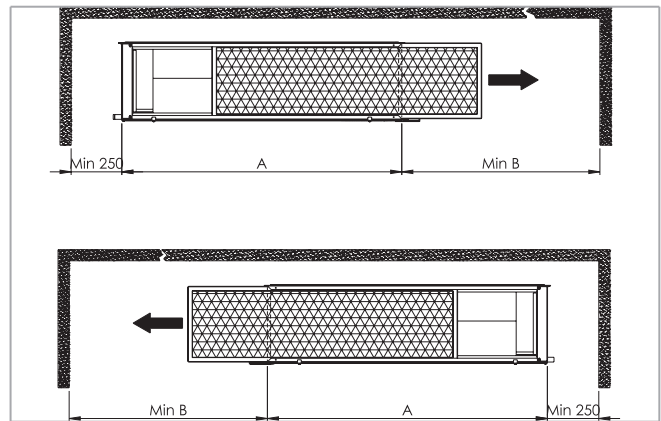
Lateral filter removal kit

The filter extraction side can be defined on the construction site.

To leave a technical room on the side where the filter is removed. The technical room must be of the same dimension or larger than the unit.



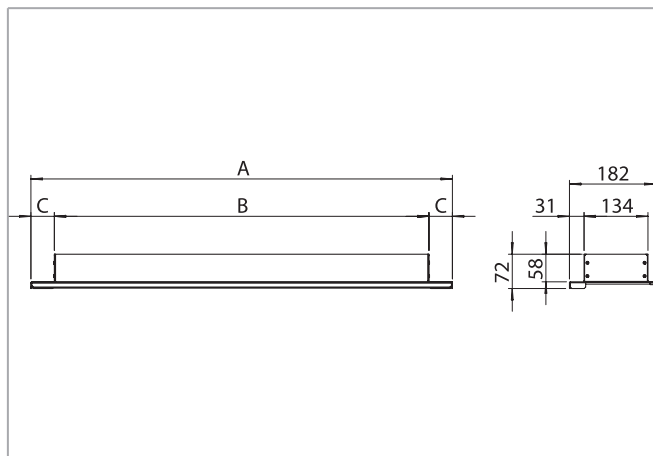
Recommended dimensions for the filter extraction.



Model	ID	Code	A mm	B mm
0	KEL-C SL0	9069530	454	490
1	KEL-C SL1	9069531	669	705
2	KEL-C SL2	9069532	884	920
3-4	KEL-C SL3-4	9069533	1099	1135
5	KEL-C SL5	9069535	1314	1350
6-7	KEL-C SL6-7	9069536	1529	1565
8	KEL-C SL8	9069538	1744	1780

FMD straight outlet flange

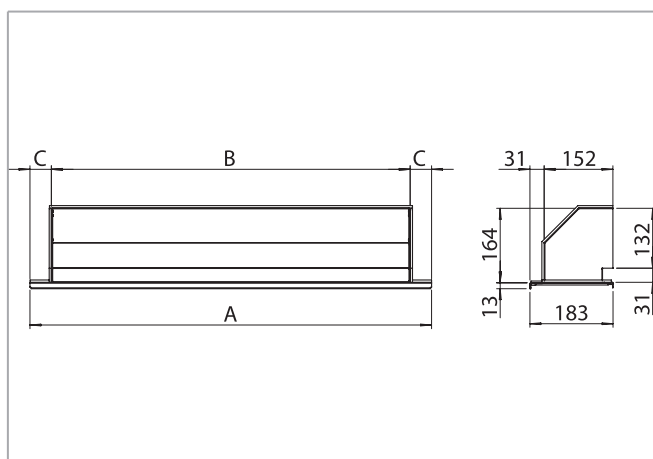
Made of galvanized steel.



Model	ID	Code	A mm	B mm	C mm
0	FMD-CSL0	9069390	452	390	31
1	FMD-CSL1	9069391	673	589	42
2	FMD-CSL2	9069232	888	790	49
3 - 4	FMD-C 8-9	9066378	1103	989	57
5	FMD-CSL5	9069395	1318	1190	64
6 - 7	FMD-CSL6-7	9069396	1533	1439	47
8	FMD-CSL8	9069398	1748	1642	53

FM 90 90° outlet flange

Made of galvanized steel insulated with polyethylene lining.

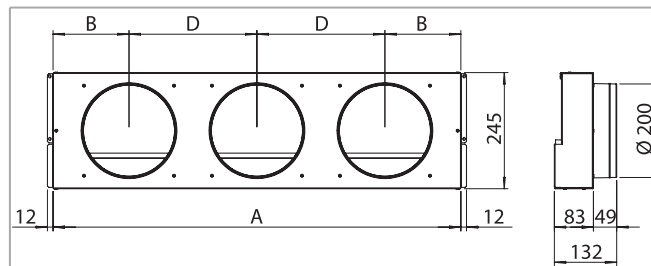


Model	ID	Code	A mm	B mm	C mm
0	FM90-CSL0	9069400	452	390	31
1	FM90-CSL1	9069401	669	589	40
2	FM90-CSL2	9069242	884	790	47
3 - 4	FM90-C 8-9	9066388	1099	989	55
5	FM90-CSL5	9069405	1314	1190	62
6 - 7	FM90-CSL6-7	9069406	1529	1439	45
8	FM90-CSL8	9069408	1744	1642	51

PMC spigot diffuser

Made of galvanized steel insulated with polyethylene lining.

All the plenums are supplied with spigots for the connection of flexible ducts.

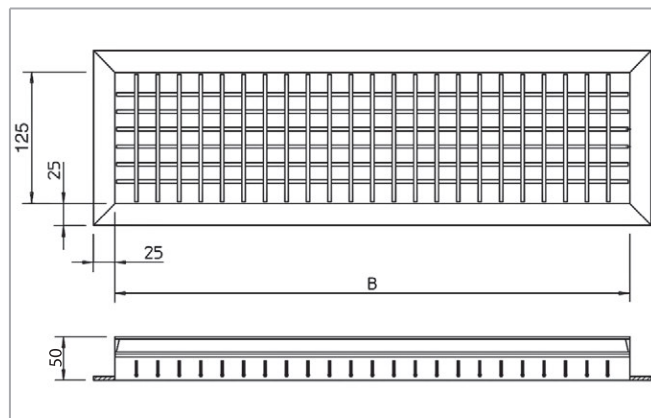


Model	ID	Code	A mm	B mm	D mm	Spigots n°
0	PMC-CSL0	9069190	430	107	216	2
1	PMC-CSL1	9069191	645	166	313	2
2	PMC-CSL2	9069222	860	160	270	3
3 - 4	PMC-C 8-9	9066368	1075	189	348	3
5	PMC-CSL5	9069195	1290	180	310	4
6 - 7	PMC-CSL6-7	9069196	1505	222	354	4
8	PMC-CSL8	9069198	1728	224	320	5

BMA air outlet grid

Double louvre grid to be fitted to the duct, to the FMD straight outlet flange or to the FM 90 90° outlet flange.

Made of anodized aluminium.



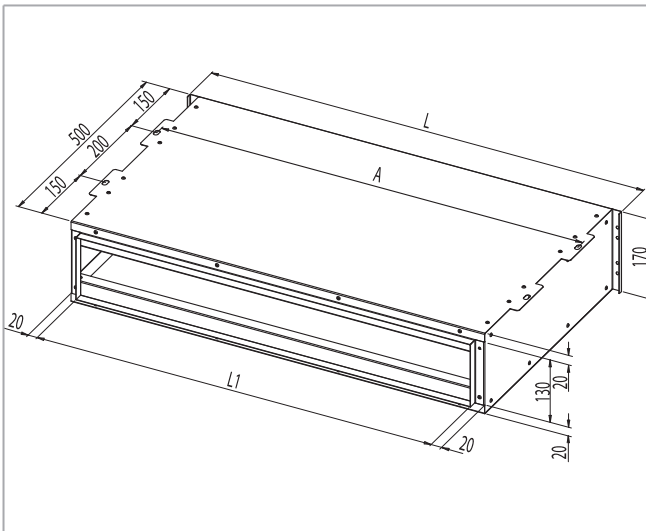
Model	ID	Code	B mm
0	BMA-C 2	9060750	375
1	BMA-C 3-4	9060751	575
2	BMA-C 5-6	9060752	775
3 - 4	BMA-C 7-9	9060753	975
5	BMA-CSL5	9069415	1175
6 - 7	BMA-CSL6-7	9038040	1425
8	BMA-CSL8	9069418	1625

BXS air outlet silencer plenum

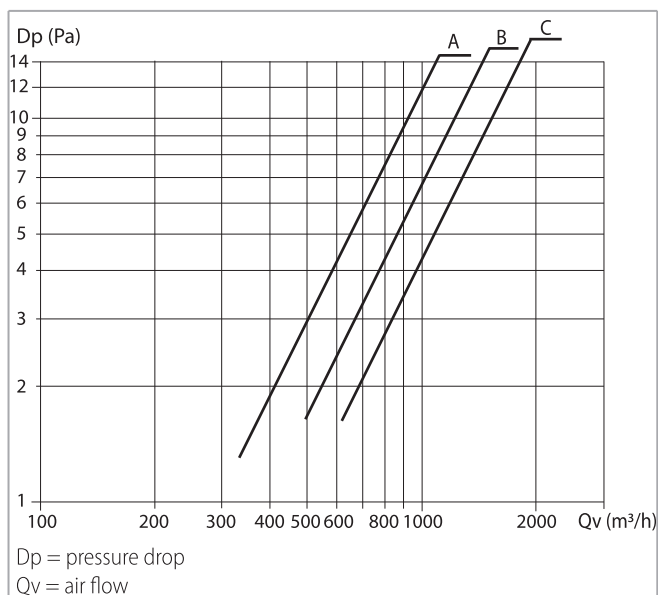
Sound attenuator module made of galvanised steel metal sheet, lined internally with a reinforced glass wool mat on both sides with a black glass coating; the 50 mm and 30 kg/m³ density lining ensures high noise reduction with very low pressure drops.

Frequency	Hz	125	250	500	1000	2000	4000	8000	Global
Sound attenuation	dB	2,5	5,0	11,5	14,0	13,5	12,0	11,0	5,5

NOTE: the silencer plenum reduces the sound levels only on the supply side; the sound levels on the return side are not affected by the silencer.



Model	ID	Code	A mm	L mm	L1 mm
1	BXS-A	9069081	653	675	597
2	BXS-B	9069082	868	890	812
3 - 4	BXS-C	9069083	1083	1105	1027



FLEXI air inlet/outlet plenum

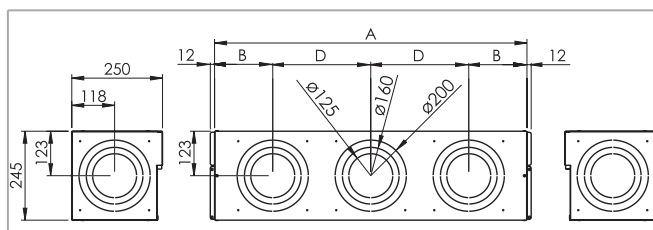
FLEXI is an air inlet and air outlet plenum range to be used with the ductable Carisma HPL / HPL-ECM fan coils, that allows the distribution and return of the ambient air in an extremely flexible way and easy in terms of installation.

Each plenum is equipped with pre-punched holes of approx 200 mm, 160 mm and 125 mm of diameter on the frontal wall and on the lateral walls, in order to allow the selection of the diameter and of the most suitable duct position for each installation.

Especially for the air inlet plenum, the whole of 125 mm is intended for the connection of the fresh air supply duct.

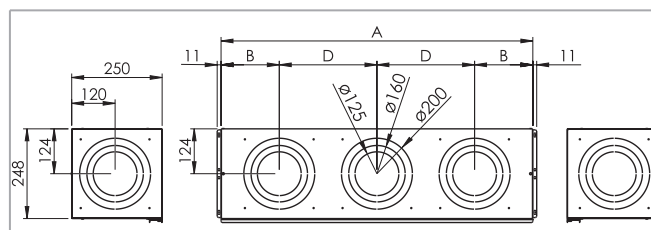
After having removed the pre-punched hole, the air distribution connection kits available into the 3 necessary diameters must be fixed.

FLEXI air outlet plenum



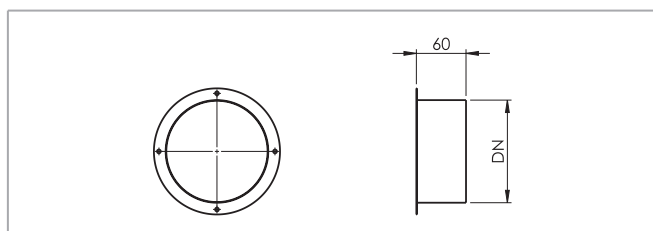
Model	ID	Code	A mm	B mm	D mm	Pre-punched holes n°
0	PM-FL 0	9069650	430	107	216	4
1	PM-FL 1	9069651	645	166	313	4
2	PM-FL 2	9069652	860	160	270	5
3-4	PM-FL 3-4	9069653	1075	189	348	5
5	PM-FL 5	9069655	1290	180	310	6
6-7	PM-FL 6-7	9069656	1505	222	354	6
8	PM-FL 8	9069658	1720	220	320	7

FLEXI air inlet plenum

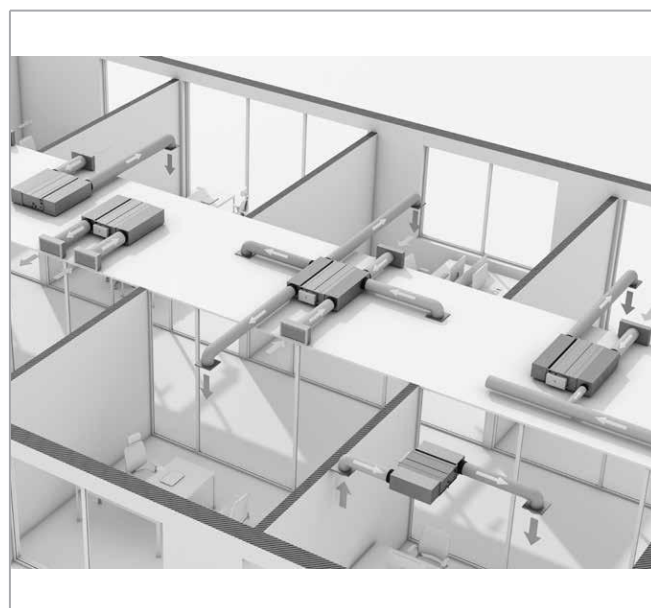


Model	ID	Code	A mm	B mm	D mm	Pre-punched holes n°
0	PR-FL 0	9069660	432	108	216	4
1	PR-FL 1	9069661	647	167	313	4
2	PR-FL 2	9069662	862	161	270	5
3-4	PR-FL 3-4	9069663	1077	190	348	5
5	PR-FL 5	9069665	1292	181	310	6
6-7	PR-FL 6-7	9069666	1507	223	354	6
8	PR-FL 8	9069668	1722	221	320	7

Spigot for FLEXI plenum



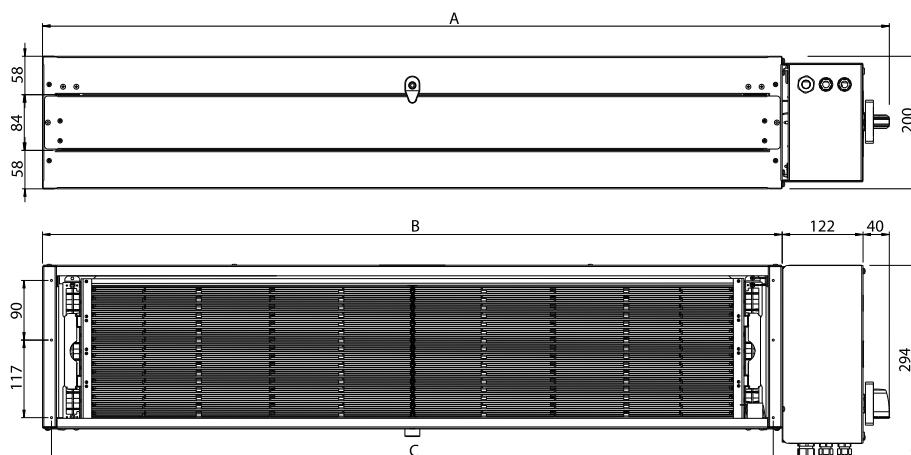
ID	Code	DN
FR-FL 125	6069321	125
FR-FL 160	6069322	160
FR-FL 200	6069323	200



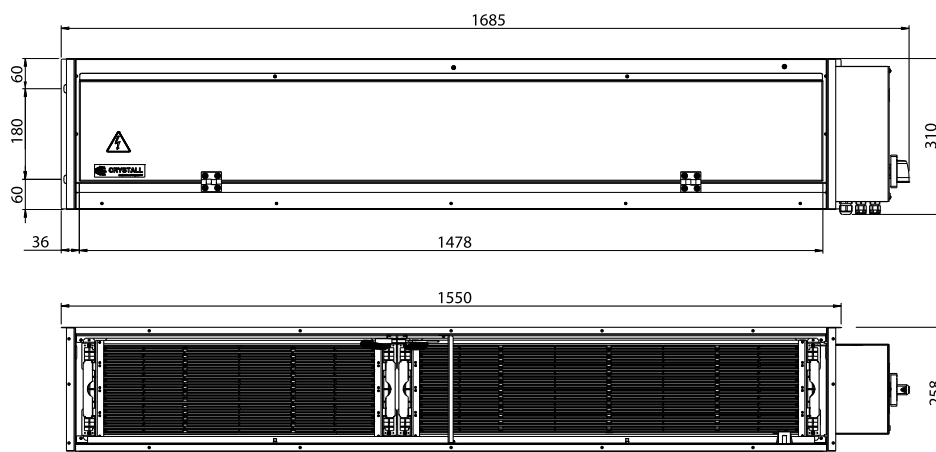
CRY-SL ELECTROSTATIC FILTER

Filtering active electrostatic plenum for terminal unit HPL/HPL-ECM.

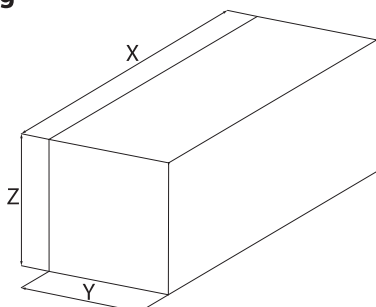
CRY-SL 1÷5



CRY-SL 6-7



Packaging



Model		1	2	3	4	5	6	7
A	mm	848	1063	1278	1278	1493	-	-
B	mm	686	901	1116	1116	1331	-	-
C	mm	659	874	1089	1089	1304	-	-
X	mm	860	1075	1290	1290	1505	1700	1700
Y	mm	210	210	210	210	210	305	305
Z	mm	305	305	305	305	305	330	330
Weight without packaging	kg	9,0	11,0	13,0	13,0	15,0	20,0	20,0
Weight with packaging	kg	10,4	12,6	14,9	14,9	17,2	22,8	22,8

CRY-SL is an innovative filtering system to be used with the high pressure fan coil units HPL/HPL-ECM.

It is composed of three elements:

1. active electrostatic filtering assembly made of ionizing frame and filter pack

2. metal covering frame properly equipped with flanges to allow an easy combination either towards the terminal unit and in regard to the duct or to any accessories such as flanges, silencers and plenums for a total adaptability
3. Wired control and power box available into the "fitted" on the plenum version

Technical characteristics

The active electrostatic filter allows a consistent reduction of the fine particles existing in the environment thanks to the high efficiency filtration, performance certified in accordance to the Standard in force EN ISO 16890:2016.

It is also recalled that the WHO (World Health Organization) classified the PM (Particulate Matter) as certainly carcinogenic of group 1 as well as a vector of biological substances pathogenic to humans.

The particulate matters can be both solid and liquid : above all the liquid aerosols (droplets), like the ones produced during breathing and during other anthropomorphic activities, are the main vector of pathogenic Viruses and Bacteria and in some cases lethal to humans. It is now recognised by the world scientific community that all biological contaminants such as viruses and bacteria are mainly spread by the aerosol produced in the environment by infected people through breathing, coughing, sneezing or even simply speaking, with greater risk of spread indoors where we normally spend more than 80% of our time.

The most recent recommendations from WHO (Roadmap to improve and ensure good indoor ventilation in the context of COVID-19, March 1st, 2021) and the Prime Ministerial Decrees issued by the Italian Government (Guide Lines on Re-Opening Manufacturing) require, where possible, increasing the filtering efficiency of the equipment that handles indoor air and especially on air conditioning units in order to remove the smallest potentially infected particles from the air (containing pathogenic agents).

It is therefore suitable for different types of buildings, for example schools, hospitals and care homes, (hallways, waiting rooms, hospital ward rooms), doctor's offices, hotels and everywhere it is necessary to improve the quality of the indoor air.

Tests and Certifications

The solution has gone through numerous tests and efficiency and efficacy testing to assess its function and performance level in real conditions of use.

At various accredited agencies, efficiency and pressure drop tests were conducted, according to product standards EN ISO 16890:2016 and that are able to classify performance.

The active electrostatic filter is able to guarantee a Most Penetrating Particle Size filtering efficiency level (MPPS - i.e. with an aerodynamic diameter between 0.2 and 0.4 μm) equal to semi-absolute filter E11 (MPPS $\geq 95\%$ - E11 @ EN 1822-1).

Also, the University of Ancona (the online scientific publication "Bacteria Removal and Viability Attenuation by Means of an Electrostatic Barrier" can be consulted by purchasing the Indoor and Built Environment magazine from the web-site) conducted more than 180 laboratory tests on microbiological substances (total airborne microbiological load), which include bacteria, mould, fungi, etc. and that confirmed, through the statistical processing of the data carried out with the specific Fischer test, the efficacy of the active electrostatic filter in reducing the bacterial load.

Benefits

- No impact over the thermal and aerodynamic balance system
- Negligible pressure drop (also with dirty filter)
- Demonstrated bactericidal action (sustainable IAQ)
- Easy and chip maintenance
- Very low power consumption
- Efficiency performances certified according to the Product Standard EN ISO 16890:2016
- In accordance with the Standards in force for electromagnetic compatibility and safety (by accredited institutions)
- Solution technologically sustainable and patented

Main components of the filtering assembly

The first element is the active electrostatic assembly with aluminium modular cells which is composed of two separate and distinct sections, one of which is active (polarisation section) attached to the load-bearing structure and the other is passive, with induced anode (collection or header section) that can be removed for maintenance.

The first section composed of electrodes and insulating parts does not require maintenance, while the second section, intended for the collection of organic and inorganic particulate, requires periodic cleaning.

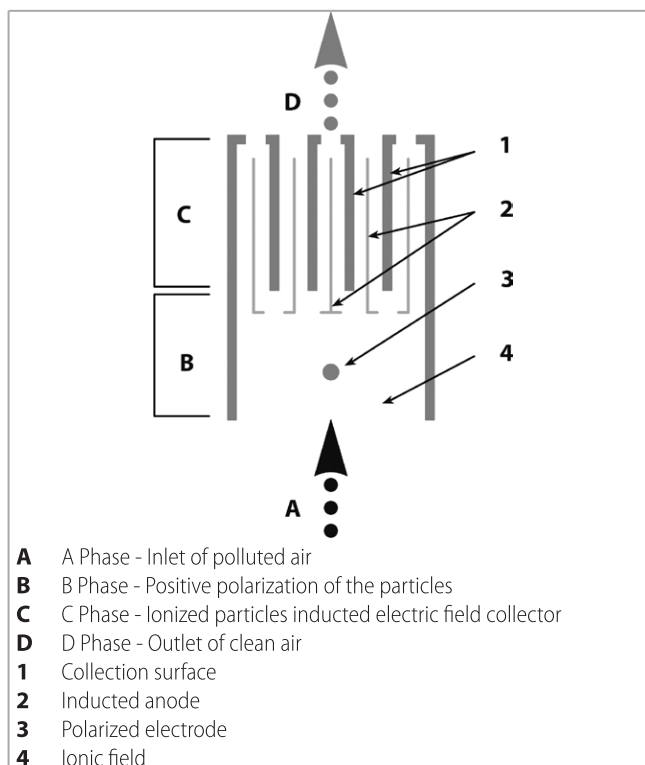
Its extremely contained depth (just 50 mm) combined with its great dimensional flexibility, makes it suitable for satisfying the most diverse construction requirements, that have the aim of obtaining a high filtering level of the recirculation/secondary air (according to the definition provided by standard EN 16798.3).

The second component is the wired control and power box, available "fitted on the unit" or at a distance, that allows the management and the inspection of the filtering assembly operating status.

Active plate electrostatic filter of Femec type

The active electrostatic filter is based on the principle of separation of the particles contained in the air through electrical polarisation and their subsequent treatment on counterposed metal surfaces, with opposite polarity. It is built with thin metal blades tapered together, forming numerous and intense electrical fields. The polluting particles that transit there, charged by a special electrode, are attracted and captured, as though by small magnets, on the counterposed surfaces of the blades. The power required for this process is low, approximately 4/7 W for every 1000 m³/h of handled air.

The patented solution makes it possible to achieve electrical fields on opposing surfaces without the need for additional electrical power supply, making every zone of the header (collection section) independent, thereby preventing the accidental short circuit of one section from compromising the operation of the entire filter.



Wired control and power box

The main element is the high voltage electronic power board required to feed the active electrostatic filter, an on/off disconnecting switch and a LED light to locally monitor the correct operating status.

The correct operation is possible at a distance also with a SPDT relay contact. The power supply is 230 Vca 50/60 Hz.

Filtration efficiencies

Model	Flow rate (m ³ /h)	Δ_{pi} Filter (**) Electrostatic (Pa)	Efficiency class (*)
HPL Size 1 HPL-ECM Size 1	485	3	ePM ₁ 95% - ePM _{2,5} 95% - ePM ₁₀ 95% - MPPS 96% (E11 @ EN 1822-1)
	635	4	ePM ₁ 90% - ePM _{2,5} 90% - ePM ₁₀ 90% - MPPS 85% (E10 @ EN 1822-1)
	840	6	ePM ₁ 80% - ePM _{2,5} 85% - ePM ₁₀ 85% - MPPS 69%
HPL Size 2 HPL-ECM Size 2	655	3	ePM ₁ 95% - ePM _{2,5} 95% - ePM ₁₀ 95% - MPPS 96% (E11 @ EN 1822-1)
	855	4	ePM ₁ 90% - ePM _{2,5} 90% - ePM ₁₀ 90% - MPPS 85% (E10 @ EN 1822-1)
	1130	6	ePM ₁ 80% - ePM _{2,5} 85% - ePM ₁₀ 85% - MPPS 69%
	1285	7	ePM ₁ 80% - ePM _{2,5} 80% - ePM ₁₀ 85% - MPPS 63%
HPL Sizes 3-4 HPL-ECM Size 4	820	3	ePM ₁ 95% - ePM _{2,5} 95% - ePM ₁₀ 95% - MPPS 96% (E11 @ EN 1822-1)
	1075	4	ePM ₁ 90% - ePM _{2,5} 90% - ePM ₁₀ 90% - MPPS 85% (E10 @ EN 1822-1)
	1420	6	ePM ₁ 80% - ePM _{2,5} 85% - ePM ₁₀ 85% - MPPS 69%
HPL Size 5	975	3	ePM ₁ 95% - ePM _{2,5} 95% - ePM ₁₀ 95% - MPPS 96% (E11 @ EN 1822-1)
	1275	4	ePM ₁ 90% - ePM _{2,5} 90% - ePM ₁₀ 90% - MPPS 85% (E10 @ EN 1822-1)
	1685	6	ePM ₁ 80% - ePM _{2,5} 85% - ePM ₁₀ 85% - MPPS 69%
HPL Sizes 6-7 HPL-ECM Size 7	1015	3	ePM ₁ 95% - ePM _{2,5} 95% - ePM ₁₀ 95% - MPPS 96% (E11 @ EN 1822-1)
	1325	4	ePM ₁ 90% - ePM _{2,5} 90% - ePM ₁₀ 90% - MPPS 85% (E10 @ EN 1822-1)
	1760	6	ePM ₁ 80% - ePM _{2,5} 85% - ePM ₁₀ 85% - MPPS 69%
	1990	7	ePM ₁ 80% - ePM _{2,5} 80% - ePM ₁₀ 85% - MPPS 63%
	2660	11	ePM ₁ 70% - ePM _{2,5} 75% - ePM ₁₀ 80% - MPPS 60%

(*) Performant test according to EN ISO 16890:2016

(**) Pressure drop evaluated on the basis of the efficiency performant test according to EN ISO 16890:2016

