



Technical catalogue

We care about healthy air

FHW

high wall
fan coil units



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FHW-ECM

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INTRODUCTION

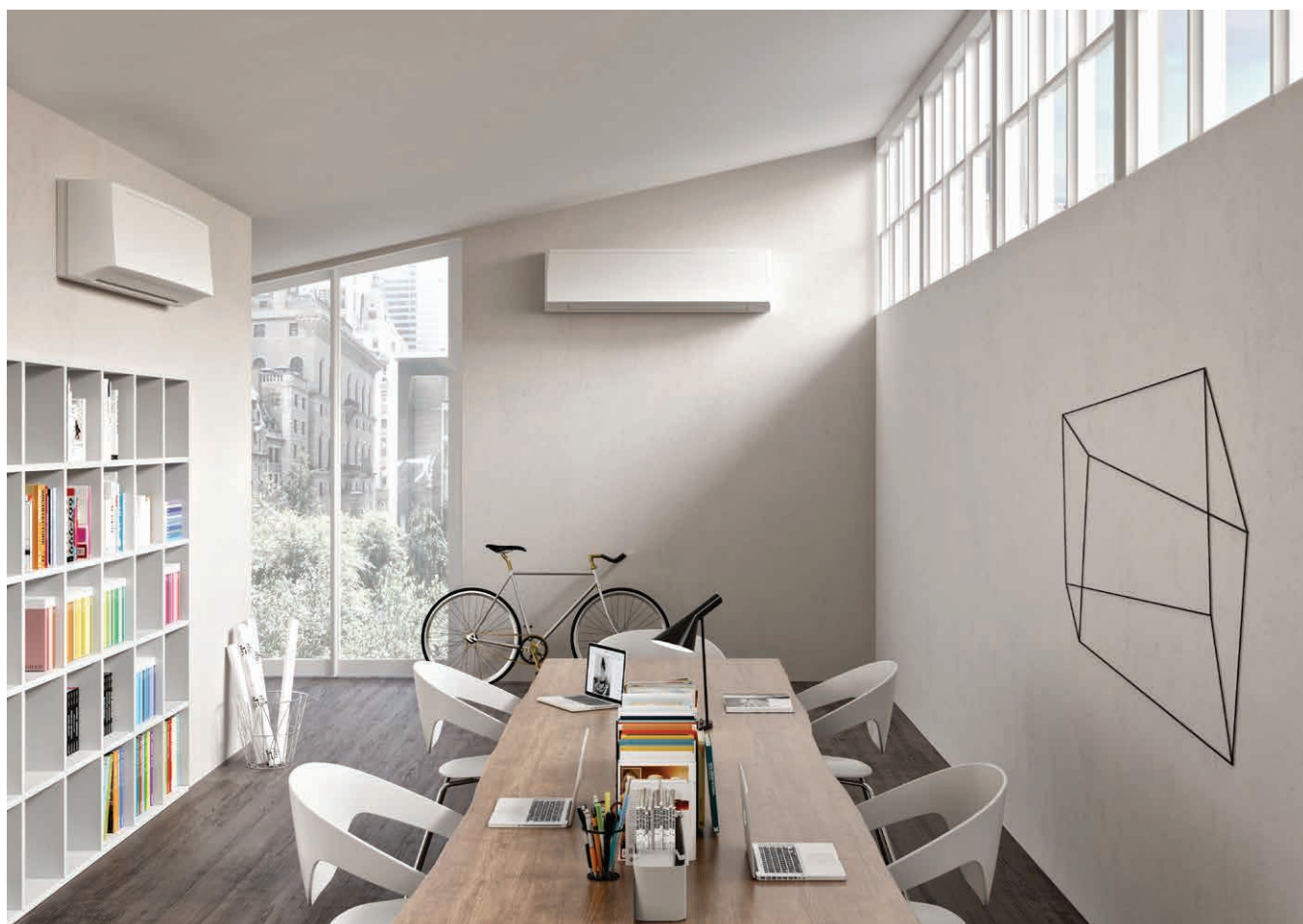
This high wall fan coil unit is designed and manufactured in Italy, in 4 sizes and many different models.

It is easy to install like a standard fan coil: without decreasing the emission and without any extra frame, 2 way or 3 way valves and condensate pump can be mounted into the casing.

The modern and appealing design of the unit in white RAL 9003 colour allows the use of these units in any environment, both residential and hotel, with great satisfaction.

It is available with standard AC motors or low energy EC motors with inverter board in the following versions: with wired wall control, infra-red remote control, MB electronic board for Modbus management and electric heating coil.

The units are for 2 pipe installations only. All the models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.



VERSION AND MAIN COMPONENTS

Versions without electric heater

All versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.

There are four sizes available in the following versions:

FHW without infra-red remote control and without valve

FHW-2V without infra-red remote control with fitted 2 way valve

FHW-3V without infra-red remote control with fitted 3 way valve

FHW-T with infra-red remote control and without valve

FHW-T-2V with infra-red remote control with fitted 2 way valve

FHW-T-3V with infra-red remote control with fitted 3 way valve

FHW-MB with MB electronic board and without valve

FHW-MB-2V with MB electronic board with fitted 2 way valve

FHW-MB-3V with MB electronic board with fitted 3 way valve

Versions with electric heater

All versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.

There are four sizes available in the following versions:

FHW-E without infra-red remote control and without valve

FHW-E-2V without infra-red remote control with fitted 2 way valve

FHW-E-3V without infra-red remote control with fitted 3 way valve

FHW-T-E with infra-red remote control and without valve

FHW-T-E-2V with infra-red remote control with fitted 2 way valve

FHW-T-E-3V with infra-red remote control with fitted 3 way valve

FHW-MB-E with MB electronic board and without valve

FHW-MB-E-2V with MB electronic board with fitted 2 way valve

FHW-MB-E-3V with MB electronic board with fitted 3 way valve

Main components

Casing

Made of auto-extinguishing ABS UL94 HB plastic with high specifications and great resistance to aging. In RAL 9003, shiny surface.

The diffusion flap is adjusted manually (not motorised flap) in FHW version, on the contrary it is adjusted by

remote control in FHW-T version or with T-MB wall control in FHW-MB version (both with motorised flap).

Filter

Washable-regenerable synthetic filter, readily accessible.

Fan assembly

Made of plastic tangential fan.

Electric motor

The motor is wired for single phase supply and has six speeds, three of which are connected, 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.

The speeds connected in the factory are indicated by "MIN, MED and MAX" in the following tables.

Coil

It is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two Ø 1/2 inch BSP internal 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 facing the unit only.

Condensate collection tray

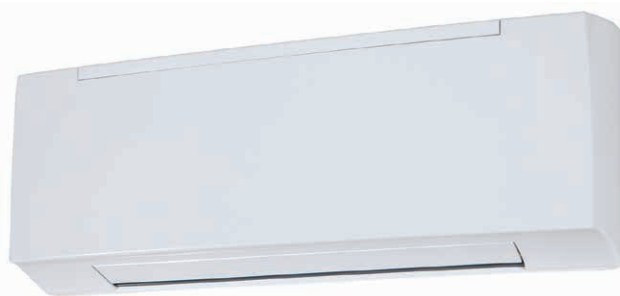
The outside diameter of the condensate discharge pipe is Ø 16 mm.

Installation template

A cardboard installation template is supplied with every unit to help the mounting on the wall.

Electric heater

For the electric heater see p. 16



TECHNICAL FEATURES

2 pipe unit

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		FHW 1						FHW 2					
Speed		1	2	3	4	5	6	1	2	3	4	5	6
		MIN	MED		MAX			MIN		MED		MAX	
Air flow	m ³ /h	205	270	340	375	470	500	250	305	365	400	480	545
Cooling total emission	kW	1,23	1,49	1,74	1,85	2,13	2,20	1,42	1,62	1,82	1,93	2,16	2,32
Cooling sensible emission	kW	0,91	1,13	1,34	1,44	1,70	1,77	1,06	1,23	1,41	1,51	1,73	1,89
Heating emission	kW	1,34	1,68	2,02	2,18	2,58	2,71	1,58	1,85	2,13	2,29	2,62	2,88
Dp Cooling	kPa	4,8	6,8	9,0	10,1	12,9	13,8	6,2	7,9	9,8	10,8	13,2	15,1
Dp Heating	kPa	4,5	6,8	9,4	10,8	14,7	15,9	6,1	8,1	10,4	11,8	15,1	17,8
Fan	W	12	14	17	18	24	30	12	14	18	20	24	32
Sound power (Lw)	dB(A)	35	41	46	48	52	53	39	43	47	49	53	55
Sound pressure (Lp) ⁽¹⁾	dB(A)	26	32	37	39	43	44	30	34	38	40	44	46

MODEL		FHW 3						FHW 4					
Speed		1	2	3	4	5	6	1	2	3	4	5	6
		MIN	MED		MAX			MIN		MED		MAX	
Air flow	m ³ /h	280	375	480	545	730	780	300	440	500	610	675	790
Cooling total emission	kW	1,87	2,30	2,75	3,00	3,59	3,73	1,97	2,60	2,83	3,23	3,43	3,76
Cooling sensible emission	kW	1,33	1,67	2,03	2,24	2,77	2,90	1,41	1,91	2,10	2,44	2,62	2,93
Heating emission	kW	1,89	2,37	2,93	3,23	4,04	4,24	2,00	2,73	3,02	3,53	3,80	4,28
Dp Cooling	kPa	11,2	16,2	22,5	26,3	36,4	39,1	14,1	23,0	27,2	34,0	38,5	45,1
Dp Heating	kPa	9,1	13,8	20,1	24,1	35,9	39,2	12,7	22,2	26,7	35,2	40,4	49,8
Fan	W	16	21	26	29	38	46	17	23	27	32	35	48
Sound power (Lw)	dB(A)	35	40	45	51	55	57	36	43	46	51	54	57
Sound pressure (Lp) ⁽¹⁾	dB(A)	26	31	36	42	46	48	27	34	37	42	45	48

(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

Entering air temperature: 27 °C – R.H.: 50%

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	
FHW 1	6		500	2,37	1,73	413	15,8	2,12	1,65	370	12,9	1,66	1,56	291	8,3	1,28	1,28	224	5,2	
	5		470	2,29	1,66	399	14,8	2,05	1,59	357	12,1	1,61	1,49	281	7,8	1,23	1,23	216	4,8	
	4	MAX	375	2,00	1,42	347	11,6	1,79	1,35	311	9,5	1,39	1,25	243	6,0	1,06	1,06	185	3,6	
	3		340	1,88	1,32	326	10,3	1,68	1,25	292	8,4	1,31	1,16	228	5,3	0,99	0,99	173	3,2	
	2	MED	270	1,61	1,11	279	7,8	1,44	1,05	250	6,4	1,12	0,96	194	4,0	0,84	0,84	146	2,4	
	1	MIN	205	1,32	0,90	229	5,5	1,19	0,85	207	4,5	0,92	0,76	160	2,8	0,68	0,68	120	1,7	
FHW 2	6		545	2,49	1,83	434	17,3	2,23	1,76	390	14,2	1,75	1,66	307	9,1	1,35	1,35	237	5,7	
	5	MAX	480	2,32	1,69	404	15,2	2,08	1,61	361	12,4	1,63	1,51	284	7,9	1,25	1,25	219	4,9	
	4		400	2,08	1,49	362	12,5	1,86	1,41	324	10,2	1,45	1,31	253	6,5	1,11	1,11	194	3,9	
	3	MED	365	1,97	1,39	341	11,2	1,76	1,32	306	9,1	1,37	1,22	239	5,8	1,04	1,04	182	3,5	
	2		305	1,75	1,22	303	9,0	1,57	1,15	272	7,4	1,21	1,06	211	4,7	0,92	0,92	160	2,8	
	1	MIN	250	1,52	1,05	264	7,1	1,37	0,99	238	5,8	1,06	0,90	184	3,6	0,79	0,79	138	2,2	
FHW 3	6		780	4,01	2,86	698	44,5	3,61	2,71	629	36,6	2,83	2,53	495	23,6	2,17	2,17	381	14,6	
	5		730	3,86	2,74	671	41,4	3,47	2,59	604	34,1	2,72	2,41	475	21,9	2,08	2,08	365	13,5	
	4	MAX	545	3,22	2,23	558	29,7	2,90	2,10	504	24,6	2,26	1,92	393	15,6	1,71	1,71	299	9,4	
	3		480	2,95	2,02	512	25,4	2,66	1,91	463	21,1	2,07	1,73	360	13,3	1,56	1,56	273	8,0	
	2	MED	375	2,46	1,66	427	18,3	2,22	1,56	386	15,2	1,73	1,40	300	9,6	1,29	1,27	225	5,7	
	1	MIN	280	2,00	1,33	347	12,6	1,82	1,26	315	10,6	1,41	1,12	245	6,7	1,05	1,00	183	3,9	
FHW 4	6	MAX	790	4,04	2,88	704	51,3	3,63	2,73	633	42,2	2,85	2,56	499	27,2	2,19	2,19	384	16,9	
	5		675	3,69	2,60	640	43,2	3,32	2,45	576	35,7	2,59	2,27	452	22,8	1,98	1,98	346	14,0	
	4	MED	610	3,46	2,42	601	38,6	3,12	2,28	542	31,9	2,44	2,10	424	20,4	1,85	1,85	324	12,4	
	3		500	3,04	2,09	527	30,4	2,74	1,97	476	25,2	2,13	1,79	371	16,0	1,61	1,61	281	9,6	
	2	MIN	440	2,78	1,90	482	26,0	2,51	1,79	436	21,5	1,95	1,62	340	13,6	1,47	1,47	256	8,1	
	1		300	2,11	1,41	365	15,8	1,91	1,33	332	13,2	1,49	1,18	258	8,3	1,10	1,06	193	4,9	

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

Entering air temperature 26 °C – R.H.: 50%

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
FHW 1	6		500	2,11	1,65	368	12,9	1,88	1,60	329	10,4	1,46	1,46	256	6,6	1,11	1,11	196	4,1
	5		470	2,04	1,58	355	12,0	1,82	1,53	316	9,7	1,41	1,41	246	6,1	1,07	1,07	188	3,8
	4	MAX	375	1,78	1,35	310	9,4	1,58	1,30	275	7,6	1,22	1,20	213	4,7	0,92	0,92	161	2,8
	3		340	1,67	1,25	291	8,4	1,48	1,20	258	6,7	1,14	1,11	199	4,2	0,86	0,86	150	2,5
	2	MED	270	1,43	1,05	249	6,4	1,27	1,00	221	5,1	0,97	0,92	169	3,1	0,72	0,72	127	1,8
	1	MIN	205	1,18	0,85	205	4,5	1,04	0,80	182	3,6	0,79	0,73	139	2,2	0,59	0,59	103	1,3
FHW 2	6		545	2,22	1,75	387	14,1	1,98	1,70	345	11,4	1,54	1,54	270	7,3	1,18	1,18	208	4,5
	5	MAX	480	2,07	1,61	360	12,3	1,84	1,56	320	10,0	1,43	1,43	250	6,3	1,09	1,09	191	3,9
	4		400	1,86	1,41	323	10,1	1,65	1,36	287	8,2	1,27	1,27	222	5,1	0,96	0,96	169	3,1
	3	MED	365	1,75	1,32	304	9,1	1,55	1,27	270	7,3	1,20	1,18	209	4,6	0,90	0,90	158	2,7
	2		305	1,56	1,15	270	7,4	1,38	1,10	240	5,9	1,06	1,01	184	3,6	0,79	0,79	139	2,2
	1	MIN	250	1,36	0,99	236	5,8	1,20	0,94	209	4,6	0,92	0,86	160	2,8	0,68	0,68	120	1,7
FHW 3	6		780	3,59	2,71	625	36,5	3,20	2,62	558	29,6	2,49	2,45	435	18,8	1,89	1,89	333	11,5
	5		730	3,46	2,59	601	34,0	3,08	2,50	536	27,5	2,39	2,32	417	17,4	1,81	1,81	318	10,6
	4	MAX	545	2,88	2,10	501	24,5	2,56	2,01	446	19,7	1,97	1,84	344	12,3	1,48	1,48	259	7,3
	3		480	2,65	1,91	460	21,0	2,35	1,82	409	16,9	1,80	1,66	315	10,4	1,35	1,35	236	6,2
	2	MED	375	2,21	1,57	384	15,1	1,96	1,48	341	12,2	1,50	1,33	261	7,5	1,11	1,11	194	4,4
	1	MIN	280	1,80	1,26	313	10,5	1,61	1,18	279	8,5	1,22	1,05	213	5,2	0,90	0,90	157	3,0
FHW 4	6	MAX	790	3,62	2,73	630	42,1	3,22	2,64	562	34,1	2,51	2,47	439	21,7	1,90	1,90	336	13,2
	5		675	3,30	2,45	574	35,5	2,93	2,36	511	28,6	2,27	2,18	397	18,0	1,72	1,72	302	10,9
	4	MED	610	3,10	2,29	539	31,8	2,76	2,19	480	25,7	2,13	2,02	372	16,0	1,61	1,61	282	9,6
	3		500	2,72	1,97	473	25,1	2,42	1,88	420	20,2	1,86	1,71	324	12,5	1,39	1,39	243	7,4
	2	MIN	440	2,49	1,79	433	21,4	2,22	1,70	385	17,2	1,70	1,54	296	10,6	1,26	1,26	221	6,2
	1		300	1,90	1,33	329	13,1	1,69	1,25	293	10,6	1,28	1,12	224	6,4	0,95	0,95	166	3,7

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

Entering air temperature: 25 °C – R.H.: 50%

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
FHW 1	6		500	1,87	1,60	328	10,4	1,66	1,55	290	8,3	1,28	1,28	225	6,9	1,06	1,06	188	3,7
	5		470	1,81	1,53	315	9,7	1,60	1,48	279	7,8	1,23	1,23	216	6,4	1,00	1,00	177	3,4
	4	MAX	375	1,58	1,30	274	7,6	1,39	1,25	242	6,0	1,06	1,06	186	4,9	0,81	0,81	143	2,3
	3		340	1,48	1,20	257	6,7	1,30	1,15	227	5,3	0,99	0,99	173	4,3	0,74	0,74	130	1,9
	2	MED	270	1,26	1,00	220	5,1	1,11	0,96	193	4,0	0,84	0,84	147	3,2	0,62	0,62	109	1,4
	1	MIN	205	1,04	0,81	181	3,6	0,91	0,76	159	2,8	0,69	0,69	120	2,2	0,50	0,50	89	1,0
FHW 2	6		545	1,97	1,70	345	11,4	1,75	1,65	306	9,2	1,35	1,35	238	7,7	1,13	1,13	201	4,2
	5	MAX	480	1,83	1,55	319	9,9	1,62	1,50	283	8,0	1,25	1,25	219	6,6	1,03	1,03	181	3,5
	4		400	1,64	1,36	286	8,1	1,45	1,31	253	6,5	1,11	1,11	194	5,3	0,86	0,86	152	2,5
	3	MED	365	1,55	1,27	269	7,3	1,36	1,22	238	5,8	1,04	1,04	182	4,7	0,79	0,79	139	2,2
	2		305	1,37	1,11	239	5,9	1,21	1,06	210	4,7	0,92	0,92	160	3,8	0,68	0,68	120	1,7
	1	MIN	250	1,20	0,95	208	4,6	1,05	0,90	183	3,6	0,80	0,80	139	2,9	0,59	0,59	103	1,3
FHW 3	6		780	3,19	2,61	556	29,5	2,82	2,52	493	23,7	2,18	2,18	382	17,8	1,64	1,64	290	9,0
	5		730	3,07	2,49	534	27,4	2,72	2,40	474	22,0	2,09	2,09	366	16,5	1,57	1,57	277	8,2
	4	MAX	545	2,55	2,01	444	19,7	2,25	1,92	392	15,7	1,72	1,72	300	11,5	1,28	1,28	225	5,6
	3		480	2,34	1,82	407	16,9	2,06	1,73	359	13,4	1,57	1,57	274	9,8	1,16	1,16	204	4,8
	2	MED	375	1,96	1,48	340	12,2	1,72	1,40	299	9,6	1,29	1,27	226	6,9	0,95	0,95	167	3,3
	1	MIN	280	1,60	1,19	277	8,4	1,40	1,12	244	6,7	1,05	1,00	183	4,8	0,77	0,77	135	2,2
FHW 4	6	MAX	790	3,21	2,64	560	34,0	2,84	2,54	497	27,3	2,19	2,19	385	20,5	1,66	1,66	293	10,4
	5		675	2,92	2,35	509	28,6	2,58	2,26	450	22,9	1,98	1,98	347	17,0	1,49	1,49	262	8,5
	4	MED	610	2,75	2,19	478	25,6	2,43	2,10	423	20,4	1,86	1,86	325	15,1	1,39	1,39	244	7,5
	3		500	2,41	1,88	419	20,2	2,12	1,79	370	16,0	1,61	1,61	282	11,7	1,20	1,20	211	5,7
	2	MIN	440	2,21	1,70	384	17,2	1,94	1,62	338	13,6	1,47	1,47	257	9,9	1,09	1,09	191	4,8
	1		300	1,68	1,26	292	10,5	1,48	1,18	257	8,3	1,11	1,06	193	5,9	0,81	0,81	142	2,8

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

HEATING EMISSION

Entering air temperature: 20 °C

Model		Vn	Qv m³/h	WT: 70 / 60 °C			WT: 60 / 50 °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
FHW 1	6		500	5,46	470	15,0	4,22	363	9,7	2,96	254	5,3	3,32	571	22,6	2,71	465	15,9
	5		470	5,22	449	13,8	4,03	346	9,0	2,83	244	4,9	3,17	546	20,8	2,58	444	14,7
	4	MAX	375	4,40	378	10,1	3,40	293	6,6	2,40	206	3,6	2,67	460	15,3	2,18	375	10,8
	3		340	4,07	350	8,8	3,16	271	5,8	2,23	191	3,2	2,48	426	13,3	2,02	347	9,4
	2	MED	270	3,39	292	6,4	2,63	226	4,2	1,86	160	2,3	2,06	354	9,6	1,68	289	6,8
	1	MIN	205	2,71	233	4,2	2,11	181	2,8	1,50	129	1,6	1,64	283	6,4	1,34	231	4,5
FHW 2	6		545	5,82	501	16,8	4,49	386	10,9	3,15	271	6,0	3,54	609	25,4	2,88	496	17,8
	5	MAX	480	5,30	456	14,2	4,09	352	9,2	2,87	247	5,0	3,22	554	21,4	2,62	451	15,1
	4		400	4,62	397	11,1	3,57	307	7,2	2,52	216	4,0	2,81	483	16,7	2,29	394	11,8
	3	MED	365	4,31	370	9,8	3,33	287	6,4	2,35	202	3,5	2,62	450	14,7	2,13	367	10,4
	2		305	3,74	322	7,6	2,90	249	4,9	2,05	176	2,7	2,27	391	11,4	1,85	319	8,1
	1	MIN	250	3,19	274	5,7	2,47	213	3,7	1,75	151	2,1	1,93	333	8,5	1,58	272	6,1
FHW 3	6		780	8,54	734	36,7	6,61	569	24,0	4,68	403	13,4	5,19	893	55,5	4,24	729	39,2
	5		730	8,13	699	33,6	6,31	542	22,0	4,46	384	12,3	4,94	850	50,8	4,04	694	35,9
	4	MAX	545	6,51	560	22,5	5,06	435	14,8	3,59	309	8,3	3,95	680	34,0	3,23	556	24,1
	3		480	5,89	507	18,8	4,58	394	12,4	3,26	280	7,0	3,57	615	28,4	2,93	503	20,1
	2	MED	375	4,78	411	12,9	3,72	320	8,5	2,66	229	4,8	2,90	498	19,4	2,37	408	13,8
	1	MIN	280	3,79	326	8,5	2,96	255	5,7	2,13	183	3,2	2,30	395	12,8	1,89	324	9,1
FHW 4	6	MAX	790	8,62	741	46,6	6,68	574	30,5	4,72	406	16,9	5,24	902	70,5	4,28	736	49,8
	5		675	7,66	659	37,7	5,95	511	24,7	4,21	362	13,8	4,66	801	57,0	3,80	654	40,3
	4	MED	610	7,11	611	32,9	5,52	475	21,6	3,92	337	12,1	4,32	743	49,7	3,53	607	35,2
	3		500	6,08	523	24,9	4,73	407	16,4	3,37	290	9,2	3,69	635	37,5	3,02	520	26,6
	2	MIN	440	5,49	472	20,7	4,28	368	13,7	3,05	262	7,7	3,34	574	31,2	2,73	469	22,2
	1		300	4,02	346	11,8	3,14	270	7,8	2,25	193	4,4	2,43	419	17,7	2,00	344	12,7

WT: Water temperature

Vn: Nominal speeds

Qv: Air flow

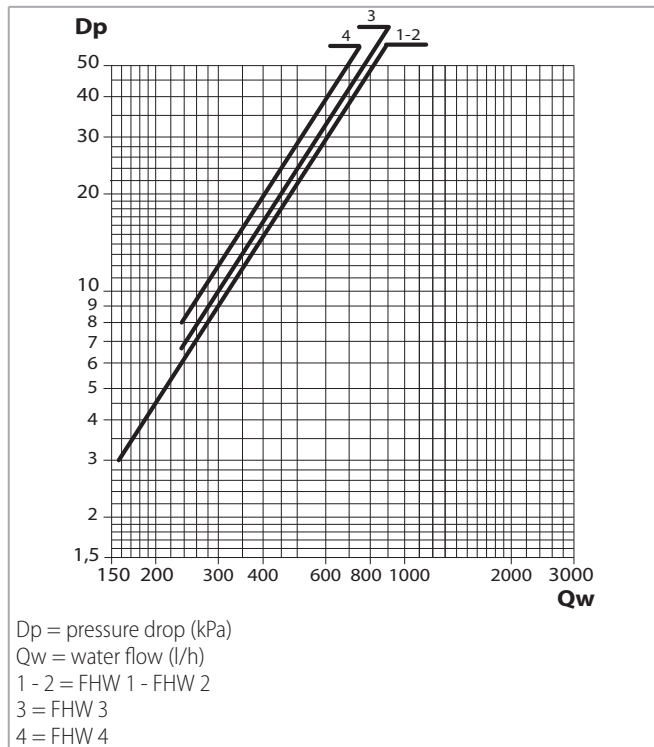
Ph: Heating emission

Qw: Water flow rate

Dp(h): Dp Heating

WATER SIDE PRESSURE DROP

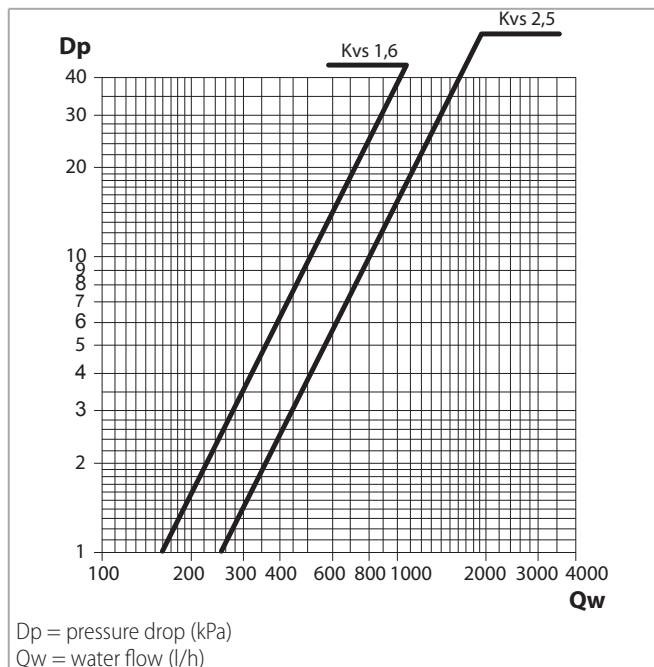
Coil pressure drop



Pressure drop for mean water temperature of 10 °C, for different temperatures multiply the pressure drop figure by the K correction factors in the table.

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

Valves pressure drop



OPERATION LIMITS

Description		UoM	Value
Water flow	Coil maximum working pressure	bars	10
		kPa	1000
	Lowest water inlet temperature ⁽¹⁾	°C	+6
	Highest water inlet temperature	°C	+70
Power supply	Single-phase rated operating voltage	V/Hz	230/50

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

Installation height

Model		FHW 1	FHW 2	FHW 3	FHW 4
Minimum installation height	m		2		
Maximum installation height	m		3		

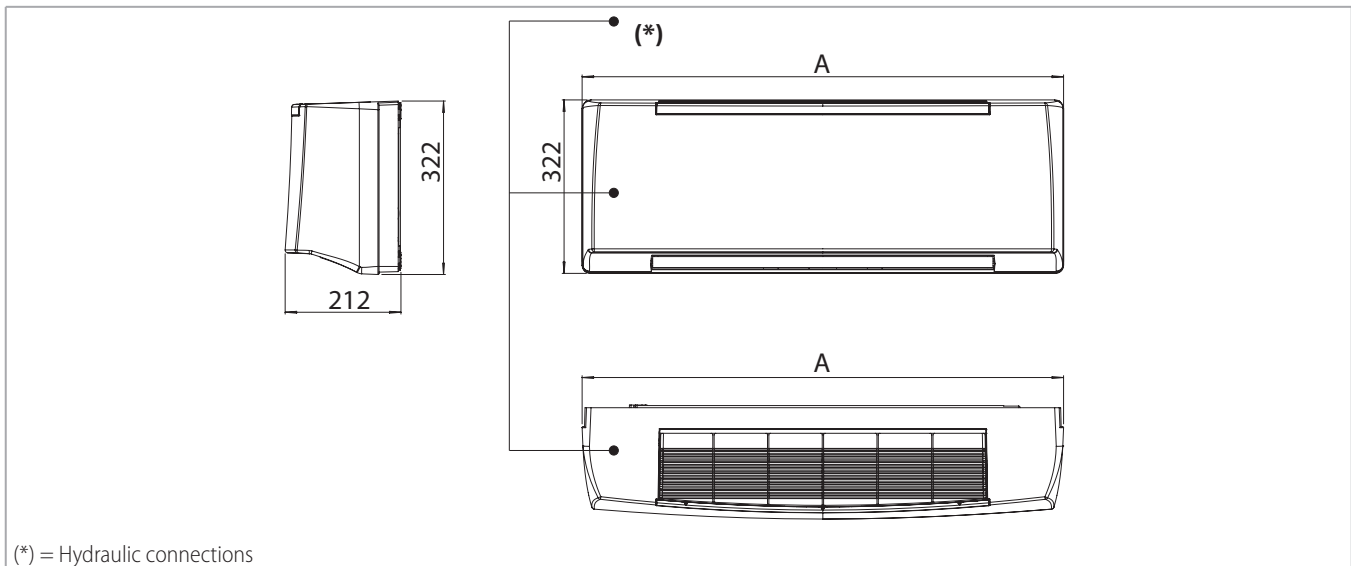
Motor electrical data - max. absorption

Model		FHW 1	FHW 2	FHW 3	FHW 4
Motor absorption	W	30	32	46	48
Current absorbed	A	0,16		0,23	



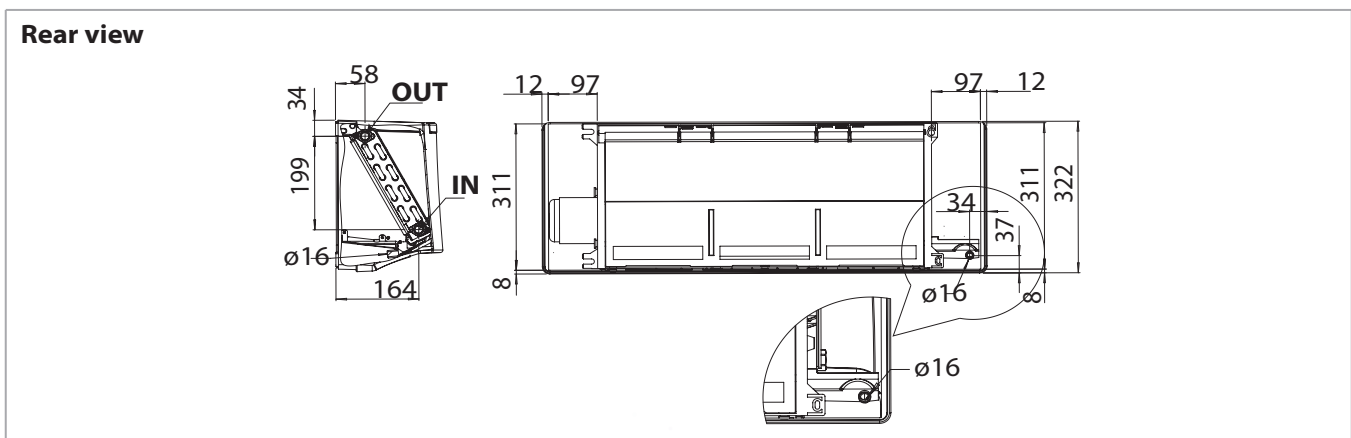
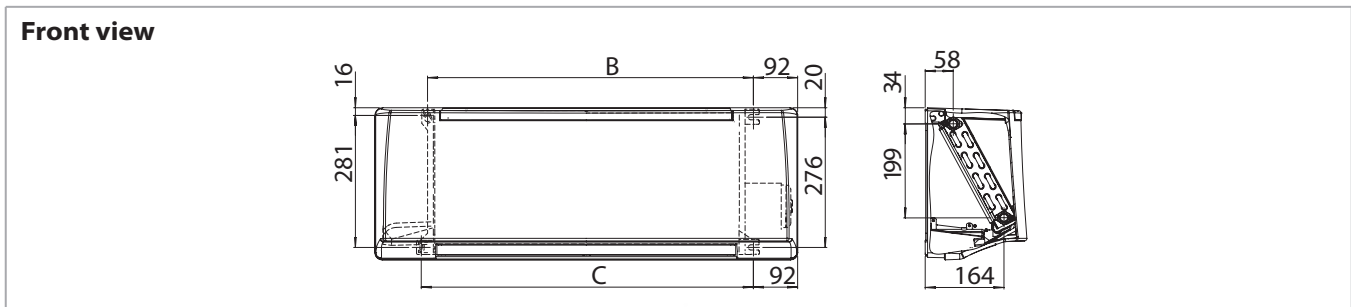
DIMENSION, WEIGHT AND WATER CONTENT

Dimensions



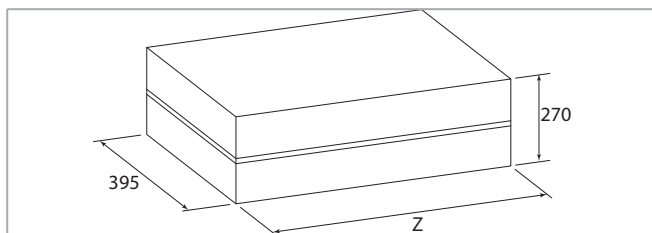
Model		FHW 1	FHW 2	FHW 3	FHW 4
A	mm	880		1185	

Fixing dimensions



Model		FHW 1	FHW 2	FHW 3	FHW 4
B	mm	678		983	
C	mm	691		996	

Packed unit



Model		FHW 1	FHW 2	FHW 3	FHW 4
Z	mm	950		1255	

Weight

Weight with packaging

Model		FHW 1	FHW 2	FHW 3	FHW 4
Weight with packaging without valves	kg	12		16	
Weight with packaging with valves	kg	13		17	

Weight without packaging

Model		FHW 1	FHW 2	FHW 3	FHW 4
Weight without packaging without valves	kg	10		13	
Weight without packaging with valves	kg	11		14	

Water content

Model		FHW 1	FHW 2	FHW 3	FHW 4
Water content	l	0,9		1,3	

ELECTRONIC WALL CONTROLS

All the units of the **FHW** range can be supplied with a wide range of controls that allows managing one single unit or several units (with the use of speed switches). The options range from the basic **WM-3V**, for 3 speed control only, to the highly sophisticated **WM-T**, **WM-TQR**

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

Note: all the controls are described in detail in the "Fan Coil Control Range literature".

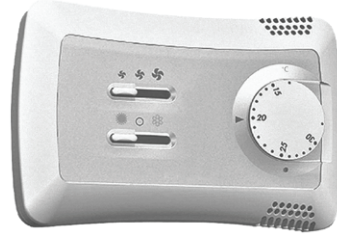
Controls

WM-3V control



230V 50Hz

WM-T control



230V 50-60Hz

WM-TQR control



230V 50-60Hz

T2T control



230V 50-60Hz

ELECTRIC HEATER

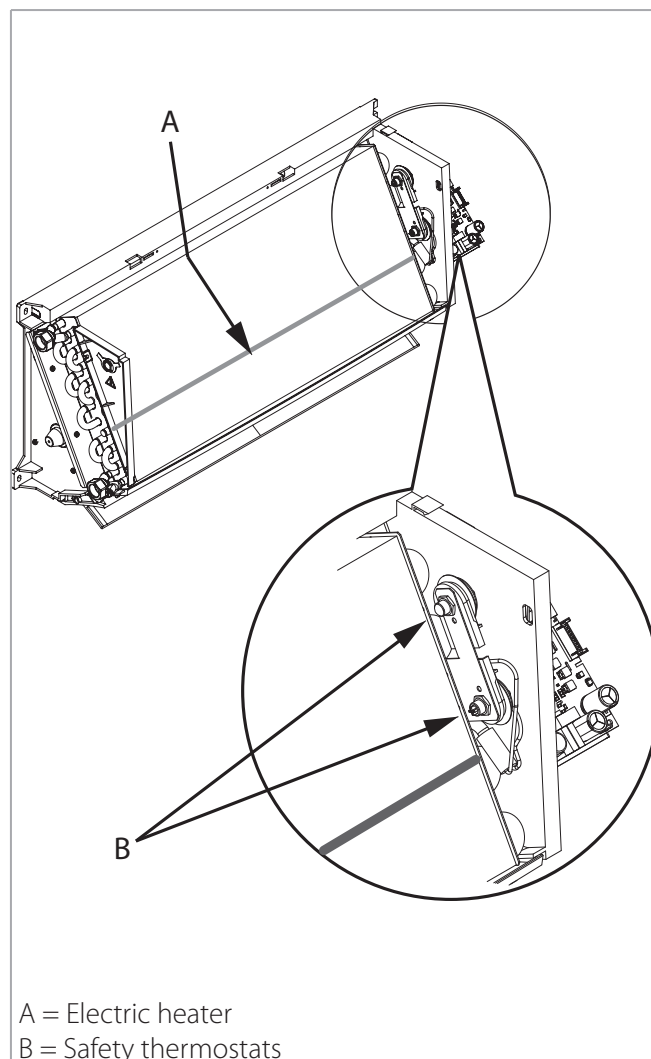
According to the control provided, the electrical heater can be used as an alternative or as a supplement to the hot water; in the first case controls for example like the **WM-T** can be chosen, in the second case controls for example like **WM-TQR**.

The heater is hermetically sealed and supplied inside the coil pipes and therefore can be only factory mounted.

The electric heaters of these units are single phase 230V supply.

The electric heater is fitted with a overheat protection. The unit is fitted with two safety thermostats:

- one thermostat with manual reset.
- one thermostat with automatic reset.



Constructional features of the main components

Model		FHW 1	FHW 2	FHW 3	FHW 4
Nominal installed power	W	1000		1500	
Maximum current absorbed	A	4,5		7,0	
Recommended fuse ⁽¹⁾	A	6 ⁽²⁾		8 ⁽²⁾	
Power supply	V/ph/Hz	230/1/50			
Connecting wires	n x mm ²	3 x 1,5			

(1) for the overload protection; gG type

(2) gG type for overload protection

Operating limits with electric heater

Max. ambient temperature for FHW with electric heater in heating mode: 25 °C.

VERSION AND MAIN COMPONENTS

Versions without electric heater

All versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.

There are four sizes available in the following versions:

FHW-ECM without infra-red remote control and without valve

FHW-ECM-2V without infra-red remote control with fitted 2 way valve

FHW-ECM-3V without infra-red remote control with fitted 3 way valve

FHW-ECM-T with infra-red remote control and without valve

FHW-ECM-T-2V with infra-red remote control with fitted 2 way valve

FHW-ECM-T-3V with infra-red remote control with fitted 3 way valve

FHW-ECM-MB with MB electronic board and without valve

FHW-ECM-MB-2V with MB electronic board with fitted 2 way valve

FHW-ECM-MB-3V with MB electronic board with fitted 3 way valve

Versions with electric heater

All versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.

There are four sizes available in the following versions:

FHW-ECM-E without infra-red remote control and without valve

FHW-ECM-E-2V without infra-red remote control with fitted 2 way valve

FHW-ECM-E-3V without infra-red remote control with fitted 3 way valve

FHW-ECM-T-E with infra-red remote control and without valve

FHW-ECM-T-E-2V with infra-red remote control with fitted 2 way valve

FHW-ECM-T-E-3V with infra-red remote control with fitted 3 way valve

FHW-ECM-MB-E with MB electronic board and without valve

FHW-ECM-MB-E-2V with MB electronic board with fitted 2 way valve

FHW-ECM-MB-E-3V with MB electronic board with fitted 3 way valve

Main components

Casing

Made of auto-extinguishing ABS UL94 HB plastic with high specifications and great resistance to aging. In RAL 9003, shiny surface.

The diffusion flap is adjusted manually (not motorised flap) in FHW-ECM version, on the contrary it is adjusted by remote control in FHW-ECM-T version or with T-MB wall control in FHW-ECM-MB version (both with motorised flap).

Filter

Washable-regenerable synthetic filter, readily accessible.

Fan assembly

Made of plastic tangential fan.

Electronic motor

Electronic motor with 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 - 240 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 coil has two Ø 1/2 inch BSP internal 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 facing the unit only.

Condensate collection tray

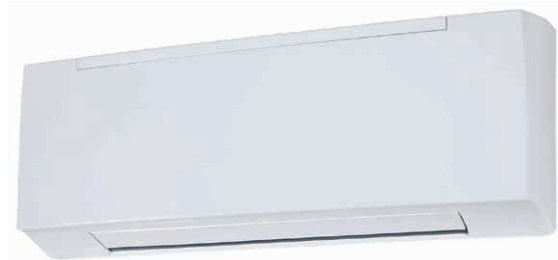
The outside diameter of the condensate discharge pipe is Ø 16mm.

Installation template

A cardboard installation template is supplied with every unit to help the mounting on the wall.

Electric heater

For the electric heater see p. 28



TECHNICAL FEATURES

2 pipe unit

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		FHW-ECM 1					FHW-ECM 2				
Inverter power		1	3	5	7,5	10	1	3	5	7,5	10
		MIN		MED		MAX	MIN		MED		MAX
Air flow	m ³ /h	190	240	290	355	415	260	315	375	440	510
Cooling total emission	kW	1,16	1,38	1,57	1,80	1,98	1,46	1,66	1,86	2,05	2,24
Cooling sensible emission	kW	0,85	1,03	1,19	1,39	1,56	1,09	1,27	1,45	1,63	1,81
Heating emission	kW	1,26	1,53	1,78	2,09	2,35	1,63	1,90	2,18	2,46	2,74
Dp Cooling	kPa	5,0	5,9	7,7	9,4	11,2	6,9	8,2	10,1	12,0	14,1
Dp Heating	kPa	4,0	5,7	7,5	10,0	12,4	6,4	8,4	10,8	13,4	16,3
Fan	W	6	7	9	11	15	7	9	12	16	21
Sound power (Lw)	dB(A)	35	39	46	48	52	40	44	47	51	55
Sound pressure (Lp) ⁽¹⁾	dB(A)	26	30	37	39	43	31	35	38	42	46

MODEL		FHW-ECM 3					FHW-ECM 4				
Inverter power		1	3	5	7,5	10	1	3	5	7,5	10
		MIN		MED		MAX	MIN		MED		MAX
Air flow	m ³ /h	270	345	420	520	620	375	465	550	665	770
Cooling total emission	kW	1,82	2,19	2,52	2,92	3,27	2,33	2,71	3,03	3,41	3,72
Cooling sensible emission	kW	1,30	1,59	1,85	2,17	2,48	1,69	2,00	2,27	2,61	2,89
Heating emission	kW	1,83	2,24	2,63	3,11	3,57	2,40	2,85	3,26	3,76	4,20
Dp Cooling	kPa	10,7	14,8	19,0	24,8	30,4	16,5	21,6	26,6	32,9	38,7
Dp Heating	kPa	8,7	12,5	16,6	22,5	28,8	14,1	19,3	24,4	31,7	38,6
Fan	W	6	8	11	15	20	9	12	16	22	30
Sound power (Lw)	dB(A)	37	42	45	49	53	43	46	49	53	57
Sound pressure (Lp) ⁽¹⁾	dB(A)	28	33	36	40	44	34	37	40	44	48

(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

Emissions

Entering air temperature: 27 °C – R.H.: 50%

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
FHW-ECM 1	10	415	2,14	1,53	370	12,9	1,91	1,46	331	10,5	1,49	1,36	259	6,7	1,14	1,14	198	4,1
	7,5	355	1,94	1,37	335	10,8	1,74	1,30	300	8,8	1,35	1,20	234	5,6	1,03	1,03	178	3,4
	5	290	1,69	1,18	293	8,5	1,52	1,11	263	7,0	1,18	1,02	204	4,4	0,89	0,89	154	2,6
	3	240	1,49	1,02	257	6,7	1,34	0,96	231	5,5	1,03	0,88	179	3,4	0,77	0,77	134	2,0
	1	190	1,25	0,85	217	4,9	1,13	0,80	196	4,1	0,87	0,72	151	2,5	0,65	0,65	113	1,5
FHW-ECM 2	10	510	2,41	1,76	418	16,1	2,16	1,69	375	13,2	1,69	1,59	295	8,5	1,30	1,30	227	5,3
	7,5	440	2,21	1,59	383	13,8	1,98	1,52	343	11,2	1,55	1,42	269	7,2	1,18	1,18	206	4,4
	5	375	2,01	1,43	347	11,5	1,80	1,35	311	9,4	1,40	1,26	243	6,0	1,07	1,07	185	3,6
	3	315	1,79	1,26	309	9,4	1,61	1,19	278	7,7	1,25	1,09	216	4,8	0,94	0,94	164	2,9
	1	260	1,57	1,09	271	7,4	1,41	1,03	244	6,1	1,09	0,94	189	3,8	0,82	0,82	142	2,3
FHW-ECM 3	10	620	3,51	2,46	607	34,6	3,16	2,32	547	28,6	2,47	2,14	428	18,2	1,88	1,88	327	11,1
	7,5	520	3,13	2,16	541	28,1	2,83	2,04	489	23,3	2,20	1,86	381	14,8	1,67	1,67	289	8,9
	5	420	2,70	1,84	467	21,5	2,44	1,74	422	17,9	1,90	1,57	329	11,3	1,43	1,43	247	6,7
	3	345	2,35	1,58	405	16,7	2,13	1,49	367	13,9	1,65	1,34	286	8,8	1,24	1,21	214	5,2
	1	270	1,96	1,30	338	12,0	1,78	1,23	307	10,1	1,38	1,09	239	6,4	1,03	0,98	178	3,7
FHW-ECM 4	10	770	4,00	2,85	693	44,0	3,60	2,70	624	36,2	2,83	2,53	491	23,3	2,17	2,17	378	14,4
	7,5	665	3,67	2,58	634	37,5	3,30	2,43	571	30,9	2,58	2,26	448	19,8	1,97	1,97	343	12,1
	5	550	3,25	2,25	562	30,1	2,93	2,12	507	24,9	2,29	1,95	396	15,8	1,73	1,73	301	9,6
	3	465	2,90	1,99	501	24,5	2,62	1,87	453	20,3	2,04	1,70	353	12,8	1,54	1,54	267	7,7
	1	375	2,50	1,69	431	18,7	2,26	1,59	390	15,5	1,75	1,43	303	9,8	1,32	1,30	228	5,8

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

Entering air temperature 26 °C – R.H.: 50%

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
FHW-ECM 1	10	415	1,90	1,46	330	10,5	1,69	1,40	293	8,5	1,31	1,31	227	5,3	0,99	0,99	173	3,2
	7,5	355	1,73	1,30	299	8,8	1,53	1,25	265	7,1	1,18	1,16	205	4,4	0,89	0,89	155	2,6
	5	290	1,51	1,12	261	6,9	1,34	1,07	232	5,5	1,03	0,98	178	3,4	0,77	0,77	134	2,0
	3	240	1,33	0,97	230	5,5	1,17	0,92	203	4,4	0,90	0,84	155	2,7	0,67	0,67	116	1,6
	1	190	1,12	0,81	194	4,1	0,99	0,76	172	3,2	0,76	0,69	131	2,0	0,56	0,56	97	1,1
FHW-ECM 2	10	510	2,15	1,68	373	13,1	1,91	1,63	333	10,6	1,49	1,49	260	6,7	1,14	1,14	199	4,1
	7,5	440	1,97	1,52	342	11,2	1,75	1,47	304	9,0	1,36	1,36	236	5,7	1,03	1,03	180	3,5
	5	375	1,79	1,35	310	9,4	1,59	1,30	275	7,5	1,22	1,21	213	4,7	0,92	0,92	161	2,8
	3	315	1,60	1,19	276	7,6	1,42	1,14	245	6,1	1,09	1,05	188	3,8	0,82	0,82	142	2,3
	1	260	1,40	1,03	243	6,1	1,24	0,98	215	4,8	0,95	0,89	165	3,0	0,71	0,71	123	1,7
FHW-ECM 3	10	620	3,15	2,32	545	28,5	3,27	2,48	565	30,4	2,16	2,05	375	14,4	1,83	1,83	318	26,6
	7,5	520	2,81	2,04	486	23,2	2,92	2,17	504	24,8	1,92	1,78	333	11,6	1,62	1,62	282	21,4
	5	420	2,43	1,74	420	17,8	2,52	1,85	436	19,0	1,65	1,49	286	8,8	1,39	1,39	242	16,2
	3	345	2,11	1,50	365	13,8	2,19	1,59	379	14,8	1,44	1,27	248	6,8	1,21	1,19	209	12,5
	1	270	1,76	1,23	304	10,0	1,83	1,31	316	10,7	1,20	1,03	207	4,9	1,01	0,96	174	9,0
FHW-ECM 4	10	770	3,58	2,70	621	36,0	3,19	2,61	554	29,2	2,48	2,43	432	18,5	1,89	1,89	330	11,3
	7,5	665	3,28	2,44	568	30,7	2,92	2,34	506	24,8	2,26	2,17	393	15,6	1,71	1,71	298	9,4
	5	550	2,91	2,13	504	24,8	2,59	2,03	449	20,0	2,00	1,87	346	12,4	1,50	1,50	261	7,4
	3	465	2,60	1,88	450	20,2	2,32	1,79	400	16,3	1,78	1,63	308	10,0	1,33	1,33	231	5,9
	1	375	2,24	1,60	387	15,4	2,00	1,51	345	12,4	1,53	1,36	264	7,6	1,13	1,13	196	4,4

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

Entering air temperature: 25 °C – R.H.: 50%

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
FHW-ECM 1	10	415	1,68	1,40	292	8,5	1,49	1,35	258	6,7	1,14	1,14	199	4,2	0,90	0,90	157	2,7
	7,5	355	1,53	1,25	264	7,1	1,35	1,20	233	5,6	1,03	1,03	179	3,4	0,77	0,77	135	2,1
	5	290	1,33	1,07	231	5,5	1,17	1,02	203	4,4	0,89	0,89	155	2,7	0,66	0,66	116	1,6
	3	240	1,17	0,92	202	4,4	1,03	0,87	178	3,4	0,78	0,78	135	2,1	0,57	0,57	100	1,2
	1	190	0,99	0,76	171	3,2	0,87	0,72	150	2,5	0,65	0,65	113	1,5	0,48	0,48	83	0,9
FHW-ECM 2	10	510	1,90	1,63	331	10,6	1,69	1,58	294	8,5	1,31	1,31	228	5,3	1,09	1,09	191	3,9
	7,5	440	1,75	1,46	303	9,0	1,54	1,41	268	7,2	1,19	1,19	207	4,5	0,95	0,95	166	3,0
	5	375	1,58	1,30	274	7,5	1,40	1,25	242	6,0	1,07	1,07	186	3,7	0,82	0,82	143	2,3
	3	315	1,41	1,14	244	6,1	1,24	1,09	215	4,9	0,95	0,95	164	3,0	0,71	0,71	123	1,7
	1	260	1,24	0,98	214	4,8	1,09	0,93	188	3,8	0,82	0,82	143	2,3	0,61	0,61	106	1,3
FHW-ECM 3	10	620	2,79	2,23	483	22,9	2,46	2,13	427	18,3	1,89	1,89	328	11,3	1,42	1,42	247	6,7
	7,5	520	2,49	1,95	430	18,6	2,19	1,86	380	14,8	1,67	1,67	290	9,0	1,25	1,25	217	5,3
	5	420	2,15	1,65	371	14,3	1,89	1,57	328	11,3	1,43	1,42	248	6,8	1,06	1,06	185	4,0
	3	345	1,87	1,41	323	11,1	1,65	1,34	284	8,8	1,24	1,20	215	5,3	0,91	0,91	159	3,0
	1	270	1,57	1,16	270	8,1	1,37	1,09	237	6,4	1,03	0,97	178	3,8	0,75	0,75	131	2,1
FHW-ECM 4	10	770	3,18	2,60	551	29,1	2,82	2,51	490	23,4	2,17	2,17	379	14,6	1,64	1,64	288	8,8
	7,5	665	2,91	2,34	504	24,8	2,57	2,25	446	19,8	1,98	1,98	344	12,3	1,49	1,49	259	7,3
	5	550	2,58	2,03	447	19,9	2,28	1,95	395	15,9	1,74	1,74	302	9,7	1,30	1,30	226	5,7
	3	465	2,31	1,79	399	16,2	2,03	1,70	351	12,9	1,54	1,54	268	7,8	1,15	1,15	199	4,6
	1	375	1,99	1,51	343	12,4	1,75	1,43	302	9,8	1,32	1,29	229	5,9	0,97	0,97	169	3,4

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

HEATING EMISSION

Emissions

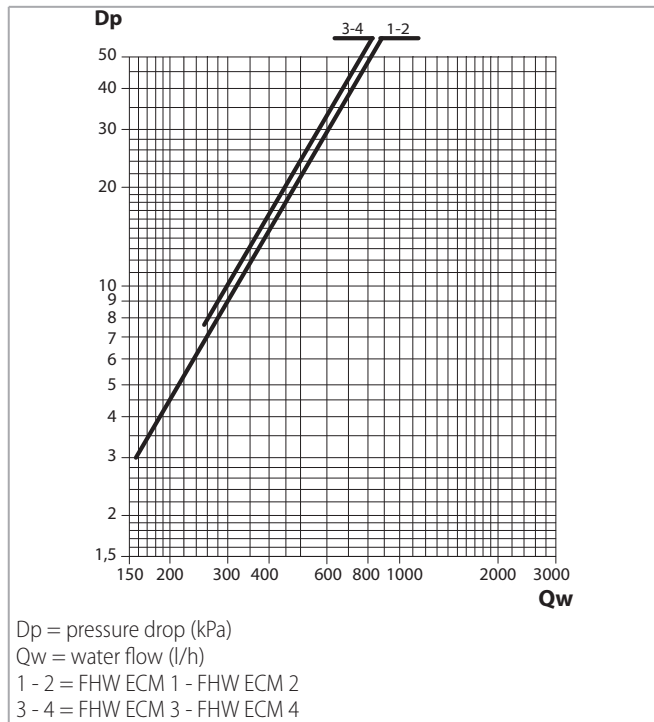
Entering air temperature: 20 °C

Model	Vdc	Qv m³/h	WT: 70 / 60 °C			WT: 60 / 50 °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
FHW-ECM 1	10	415	4,75	409	11,7	3,67	316	7,6	2,58	222	4,2	2,89	497	17,6	2,35	405	12,4
	7,5	355	4,22	363	9,4	3,26	281	6,1	2,30	198	3,4	2,56	441	14,2	2,09	359	10,0
	5	290	3,59	309	7,0	2,79	240	4,6	1,97	169	2,6	2,18	375	10,6	1,78	306	7,5
	3	240	3,08	265	5,3	2,39	206	3,5	1,70	146	2,0	1,87	322	8,1	1,53	263	5,7
	1	190	2,54	219	3,8	1,98	170	2,5	1,41	121	1,4	1,54	265	5,7	1,26	217	4,0
FHW-ECM 2	10	510	5,55	477	15,4	4,28	368	10,0	3,00	258	5,5	3,37	580	23,3	2,74	472	16,3
	7,5	440	4,97	427	12,6	3,83	330	8,2	2,70	232	4,5	3,02	519	19,1	2,46	423	13,4
	5	375	4,40	378	10,1	3,40	293	6,6	2,40	206	3,6	2,67	460	15,3	2,18	375	10,8
	3	315	3,84	330	7,9	2,97	256	5,2	2,10	181	2,9	2,33	401	12,0	1,90	327	8,4
	1	260	3,29	283	6,0	2,55	220	3,9	1,81	156	2,2	2,00	344	9,1	1,63	281	6,4
FHW-ECM 3	10	620	7,19	618	26,9	5,58	480	17,7	3,96	340	9,9	4,36	751	40,6	3,57	614	28,8
	7,5	520	6,27	539	21,1	4,87	419	13,8	3,47	298	7,8	3,81	655	31,8	3,11	536	22,5
	5	420	5,29	455	15,5	4,12	354	10,2	2,94	253	5,8	3,21	553	23,4	2,63	452	16,6
	3	345	4,51	388	11,6	3,52	303	7,7	2,52	216	4,4	2,74	471	17,5	2,24	386	12,5
	1	270	3,68	316	8,1	2,87	247	5,4	2,06	177	3,1	2,23	383	12,1	1,83	315	8,7
FHW-ECM 4	10	770	8,45	727	36,1	6,55	564	23,6	4,64	399	13,1	5,14	884	54,5	4,20	722	38,6
	7,5	665	7,58	652	29,6	5,88	506	19,4	4,17	359	10,8	4,61	792	44,7	3,76	647	31,7
	5	550	6,55	563	22,8	5,09	438	15,0	3,62	311	8,4	3,98	685	34,4	3,26	560	24,4
	3	465	5,74	494	18,0	4,47	384	11,8	3,18	274	6,7	3,49	600	27,1	2,85	491	19,3
	1	375	4,83	415	13,2	3,76	324	8,7	2,69	231	4,9	2,93	504	19,8	2,40	413	14,1

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

WATER SIDE PRESSURE DROP

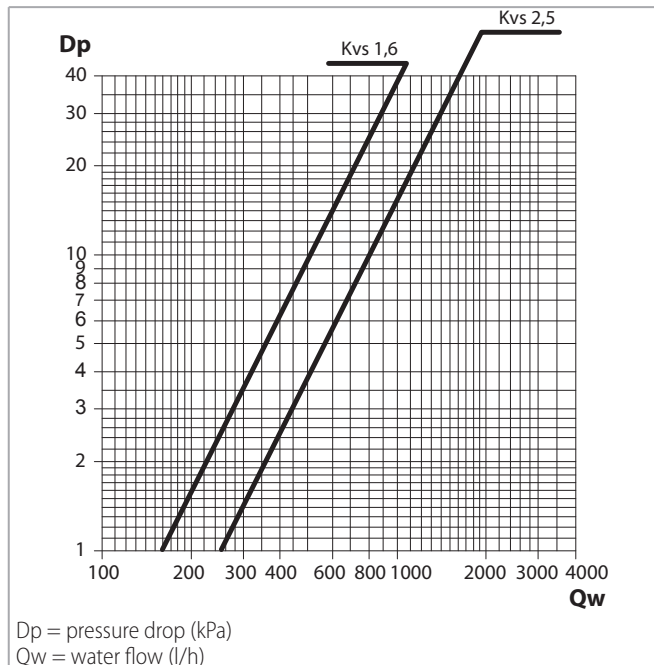
Coil pressure drop



Pressure drop for mean water temperature of 10 °C, for different temperatures multiply the pressure drop figure by the K correction factors in the table.

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

Valves pressure drop



OPERATION LIMITS

Description		UoM	Value
Water flow	Coil maximum working pressure	bars	10
		kPa	1000
	Lowest water inlet temperature	°C	+ 6 °C
	Highest water inlet temperature	°C	+ 70 °C
Power supply	Single-phase rated operating voltage	V/Hz	230/50

Installation height

Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
Minimum installation height	m	2			
Maximum installation height	m	3			

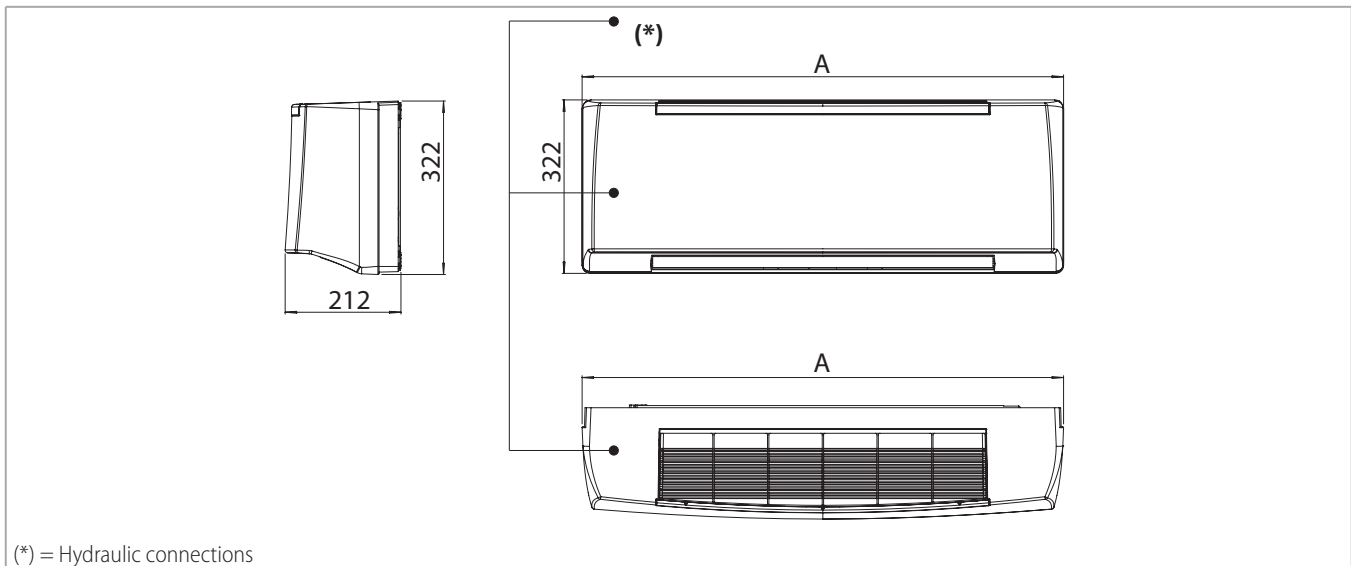
Motor electrical data - max. absorption

Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
Motor absorption	W	15	21	20	30
Current absorbed	A	0,14	0,19	0,18	0,26



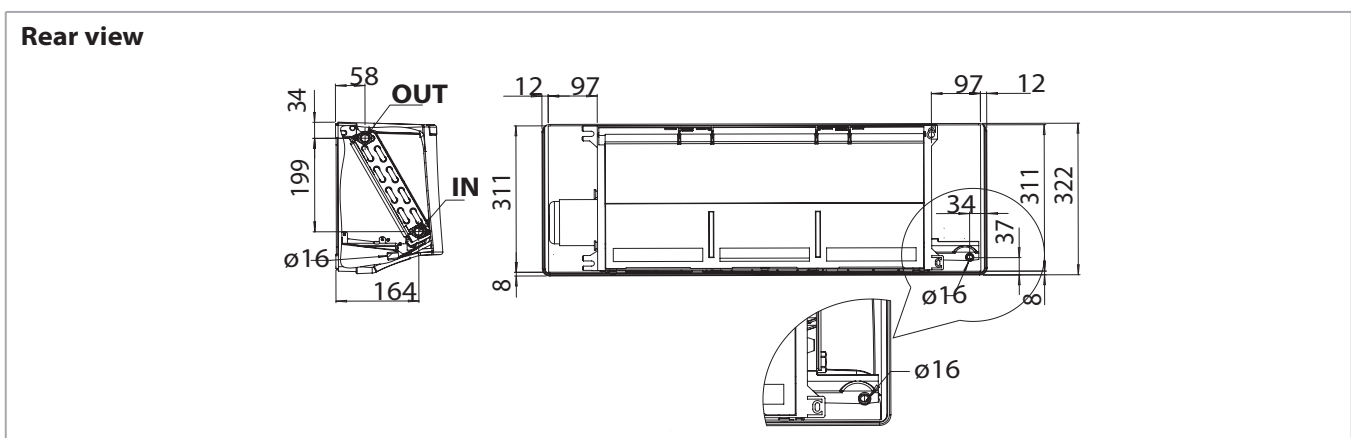
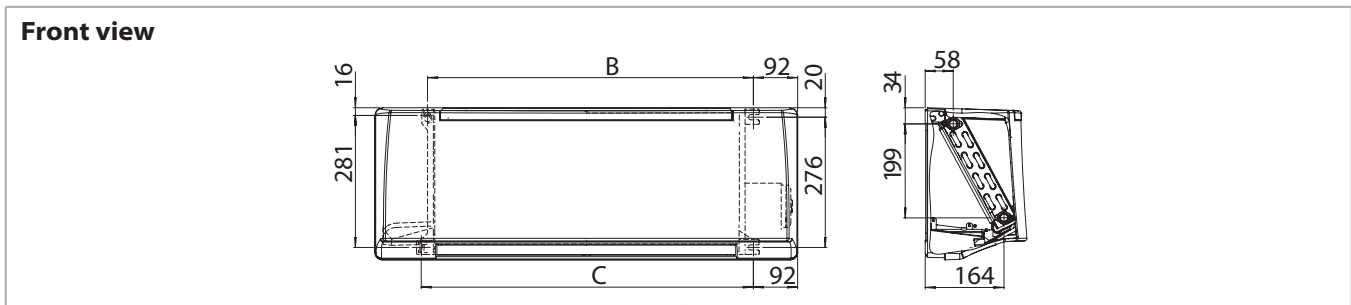
DIMENSION, WEIGHT AND WATER CONTENT

Dimensions



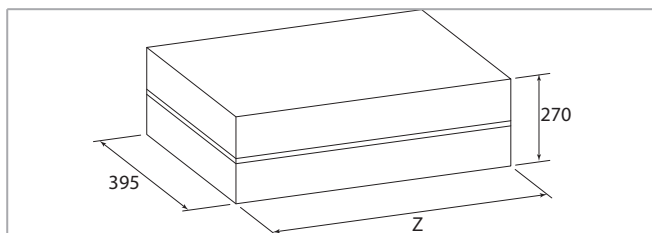
Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
A	mm	880		1185	

Fixing dimensions



Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
B	mm	678		983	
C	mm	691		996	

Packed unit



Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
Z	mm	950		1255	

Weight

Weight with packaging

Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
Weight with packaging without valves	kg	12		16	
Weight with packaging with valves	kg	13		17	

Weight without packaging

Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
Weight without packaging without valves	kg	10		13	
Weight without packaging with valves	kg	11		14	

Water content

Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
Water content	l	0,9		1,3	

ELECTRONIC WALL CONTROLS

FHW-ECM configuration

For this fan coil configuration, the 1-10 Vdc signal, which controls the inverter, must be supplied by a controller with the following signal specifications:

Fan Drive Signal

Fan OFF = 0 Vdc

Fan ON > 1 Vdc

Max. speed = 10 Vdc

ECM Blac inverter board

0÷10 Vdc Circuit Input Impedance Value = 68 kOhm

Controls

The room temperature can be controlled through the WM-S-ECM electronic wall thermostat, with different solutions according to every ambient conditions.

The WM-S-ECM electronic room thermostat regulates the room temperature and is suitable when the user wants to set the fan speed manually or automatically.

Note: the control and its functions are described in detail in the "Fan Coil Control Range literature".

WM-S-ECM control



230V 50Hz

ELECTRIC HEATER

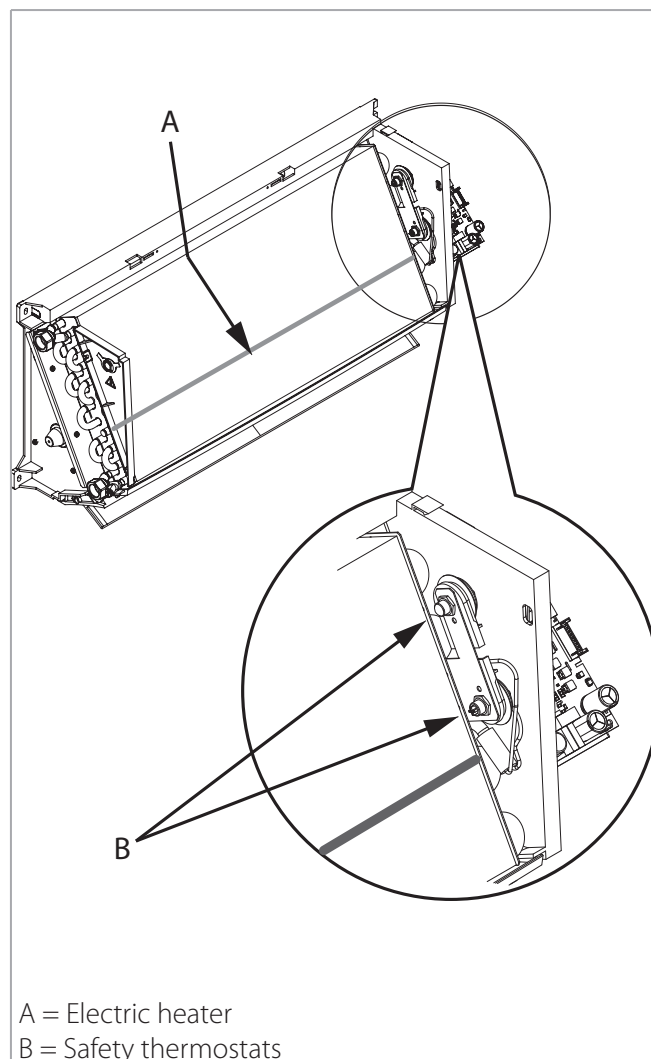
The heater is hermetically sealed and supplied inside the coil pipes and therefore can be only factory mounted.

The electric heaters of the FHW-ECM units are single phase 230 V supply.

The electric heater is fitted with a overheat protection.

The unit is fitted with two safety thermostats:

- one thermostat with manual reset.
- one thermostat with automatic reset.



Constructional features of the main components

Model		FHW-ECM 1	FHW-ECM 2	FHW-ECM 3	FHW-ECM 4
Nominal installed power	W	1000		1500	
Maximum current absorbed	A	4,5		7,0	
Recommended fuse ⁽¹⁾	A	6 ⁽²⁾		8 ⁽²⁾	
Power supply	V/ph/Hz	230/1/50			
Connecting wires	n x mm ²	3 x 1,5			

(1) for the overload protection; gG type

(2) gG type for overload protection

Operating limits with electric heater

Max. ambient temperature for FHW-ECM with electric coil in heating mode: 25 °C.

CONTROLS AND UNITS MB VERSION

All the **FHW** and the **FHW-ECM** units can be supplied in the **T version** and in the **MB version**.

The **T version** includes the infra-red remote control that allows the management of a single unit (the units can not be controlled in a network).

The **MB version** includes a wide range of controls, including the **RT03 infra-red remote control** (optional extra), which allows to manage one single unit or several units by using the Modbus RTU - RS 485 communication protocol.

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

The system includes a **MB** power board (mounted on the **FHW-MB** and **FHW-ECM-MB** models) and a range of technical devices to be used with:

- the **T-MB** wall control and the **RT03 infra-red remote control** to manage single units;
- the **PSM-DI** multifunctional panel, the **NET** supervisory system, the **T-DI** Touch screen multifunction control panel and the Web Gateway for Cloud, to manage one single unit or several units.

Note: all the controls are described in detail in the "Fan Coil Control Range literature".

Controls

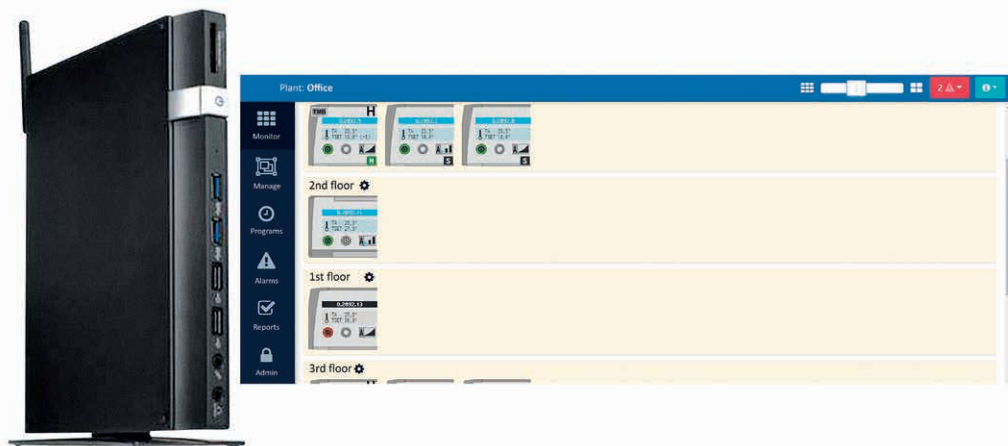
T-MB control



RT03 remote control



PC and NET screenshot



T-DI Touch screen multifunction control panel

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 **T-DI** multifunction control panel it is also possible to control the units remotely with the specific **Cloud** for Android and iOS.

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

T-DI Touch screen multifunction control panel



Web gateway for Cloud

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

Web gateway for Cloud



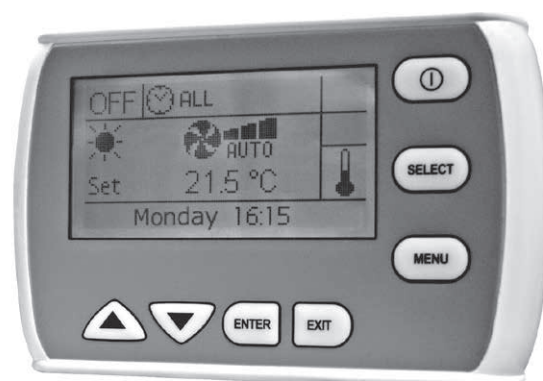
PSM-DI Multifunction control panel

With the **PSM-DI** multifunction control panel it is possible to control up to 60 units equipped with MB or SIOS boards (max. 60 units: SIOS + MB).

The **PSM-DI** multifunction control panel lets have complete control of all the connected units.

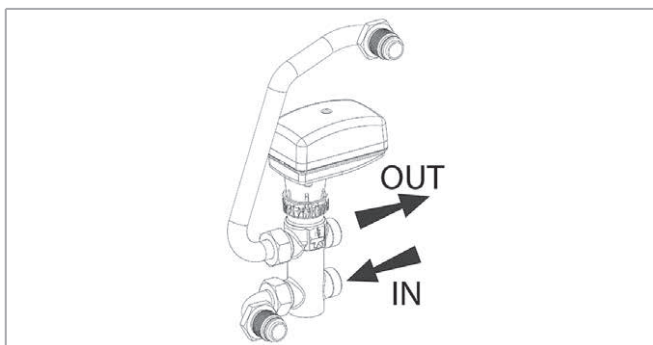
The remote connection (stand-alone) is not possible.

PSM-DI multifunction control panel



ACCESSORIES

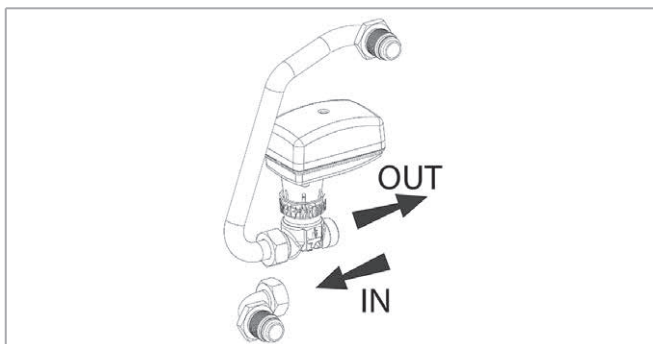
FV3S 3 way valves



Model	Valve			NOT FITTED	
	DN	(Ø)	Kvs	Code	ID
1-2	15	1/2"	1,6	9025321W	FV3S 1-2
3-4	20	3/4"	2,5	9025323W	FV3S 3-4

For the water side pressure drop diagrams, see at p. 11 or p. 23

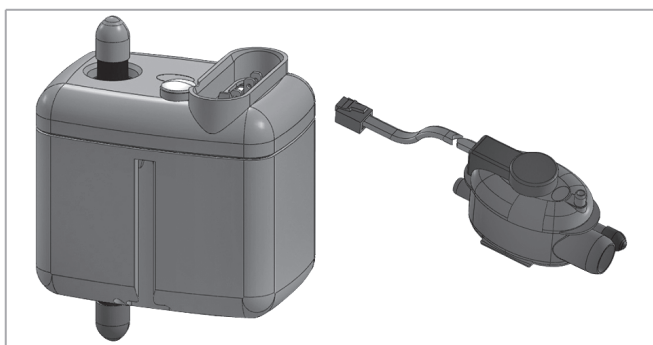
FV2S 2 way valve



Model	Valve			NOT FITTED	
	DN	(Ø)	Kvs	Code	ID
1-2	15	1/2"	1,6	9025311W	FV2S 1-2
3-4	20	3/4"	2,5	9025313W	FV2S 3-4

For the water side pressure drop diagrams, see at p. 11 or p. 23

PCF condensate drain pump



Model	FITTED		NOT FITTED	
	ID	Code	ID	Code
1 ÷ 4	PCF-M	9025319	PCF-S	9025309

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

KIF wall or concealed installation kit

Model	ID	Code
1-2	KIF 1-2	9025191
3-4	KIF 3-4	9025193

Wall or concealed installation kit to be used as an installation template or in case the right connections are previously designed (the units are provided only with left connections).

The technical space within the frame allows to unit the right connections of the installation and the left connections of the unit.

Two variants are available:

- Recessed box installation.
- Wall installation with aesthetic frame.

In the first case the frame is recessed, whereas in the second case it fits the unit esthetically.

The aesthetic frame characteristics are:

- Galvanized steel painted RAL 9003
- Pre-drilled panels for cables and ductworks
- Internal insulation.

Wall installation

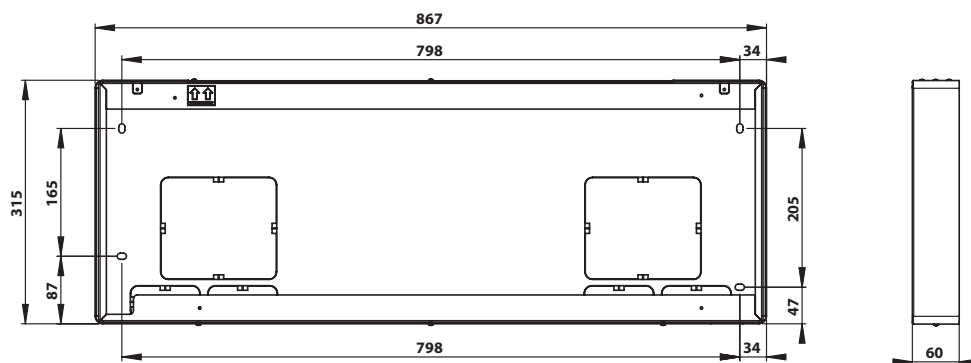


Concealed installation

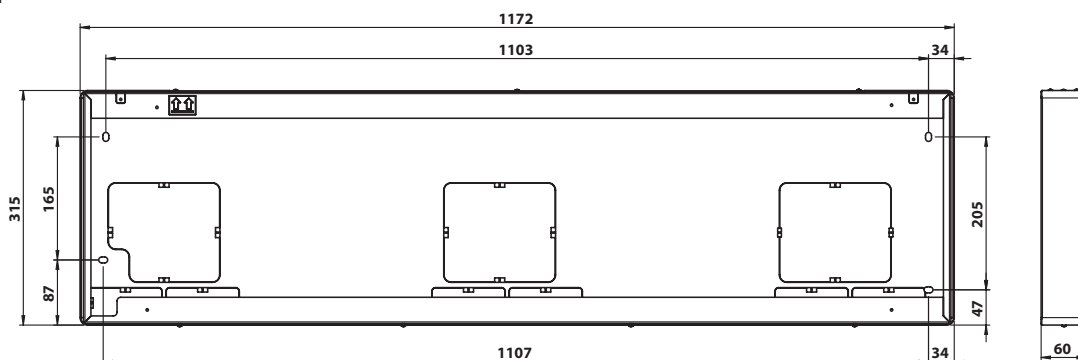


Dimensions

Sizes 1 - 2



Sizes 3 - 4



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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