



Fan Coil Units

# Technical Data

Concealed ceiling unit



ECDEN10-400

FWB-BT



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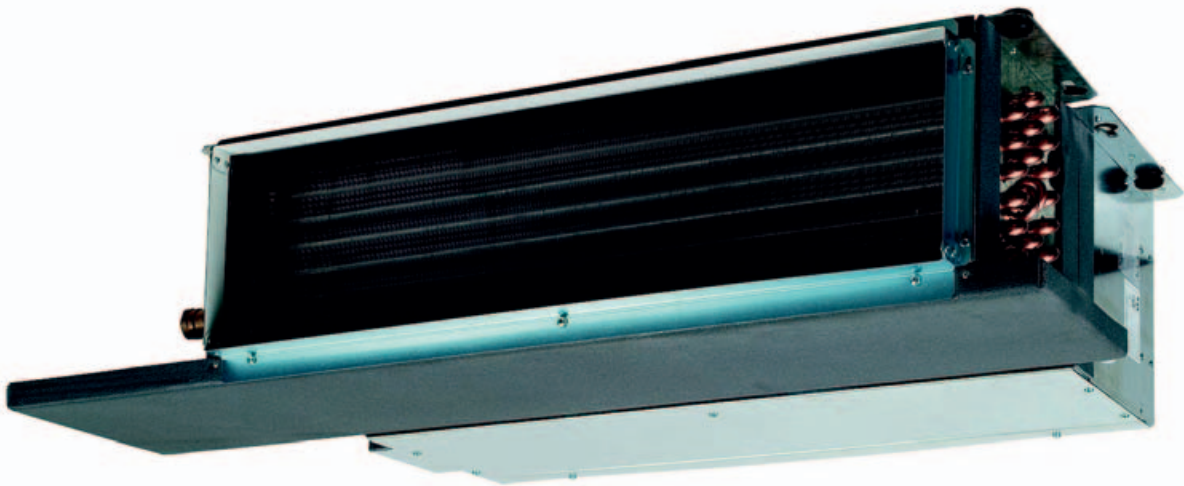
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# 1 Features

- Compact dimensions, can easily be mounted in a narrow ceiling void (unit height: 240mm)
- 3, 4 or 6 stage row cooling coil
- Drain pan to collect the condensate from: heat exchanger and regulating valves
- 7-speed electrical motors (with thermal protection on windings)
- All 7 speeds pre-wired in the factory in the terminal block of the switch box
- The air filter can easily be removed for cleaning



## 2 Specifications

2-1 Technical Specifications				FWB02BATN6V3	FWB03BATN6V3	FWB04BATN6V3	FWB05BATN6V3	FWB06BATN6V3	FWB07BATN6V3	FWB08BATN6V3	FWB09BATN6V3	FWB10BATN6V3	
Cooling capacity	Total capacity	High	kW	2.61 (1)	3.14 (1)	3.49 (1)	5.08 (1)	5.45 (1)	6.47 (1)	7.57 (1)	8.67 (1)	10.34 (1)	
		Nom.	kW	2.01 (1)	2.42 (1)	2.64 (1)	3.99 (1)	4.12 (1)	4.96 (1)	5.41 (1)	6.08 (1)	7.08 (1)	
		Low	kW	1.34 (1)	1.50 (1)	1.67 (1)	2.12 (1)	2.43 (1)	2.67 (1)	4.18 (1)	4.64 (1)	5.35 (1)	
	Sensible capacity	High	kW	1.88 (1)	2.16 (1)	2.34 (1)	3.6 (1)	3.87 (1)	4.4 (1)	5.23 (1)	5.96 (1)	6.9 (1)	
		Nom.	kW	1.46 (1)	1.66 (1)	1.77 (1)	2.84 (1)	2.96 (1)	3.37 (1)	3.78 (1)	4.2 (1)	4.72 (1)	
		Low	kW	0.95 (1)	1.02 (1)	1.1 (1)	1.52 (1)	1.67 (1)	1.78 (1)	2.95 (1)	3.21 (1)	3.57 (1)	
Heating capacity	2-Pipe	High	kW	5.47 (2)	6.01 (2)	6.47 (2)	10.31 (2)	11.39 (2)	12.28 (2)	15.05 (2)	16.85 (2)	18.78 (2)	
		Medium	kW	4.32 (2)	4.66 (2)	4.93 (2)	8.2 (2)	8.92 (2)	9.48 (2)	10.94 (2)	11.97 (2)	12.93 (2)	
		Low	kW	2.77 (2)	2.91 (2)	3.00 (2)	4.56 (2)	4.77 (2)	4.94 (2)	8.63 (2)	9.29 (2)	9.85 (2)	
	4-Pipe	High	kW	3.14 (2)			5.99 (2)			12.8 (2)			
		Medium	kW	2.68 (2)			5.14 (2)			9.55 (2)			
		Low	kW	1.95 (2)			3.38 (2)			7.67 (2)			
Power input	High	W	79			154			294				
	Low	W	28			64			155				
	Nom.	W	46			121			193				
Casing	Colour	-											
	Material	Galvanised sheet metal											
Dimensions	Unit	Height	mm	239									
		Width	mm	1,039			1,389			1,739			
		Depth	mm	609									
	Packed unit	Height	mm	305									
		Width	mm	1,100			1,450			1,800			
		Depth	mm	650									
Weight	Unit	kg	23	24	26	31	33	35	43	45	48		
	Operation weight	kg	24	26	28	33	35	38	45	48	52		
	Packed unit	kg	26	27	29	35	37	39	47	50	54		
Heat exchanger	Rows	Quantity	3	4	6	3	4	6	3	4	6		
	Stages	Quantity	3		4		6		5	6			
	Fin pitch	mm	2.1					2.5		2.1			
	Face area	m <sup>2</sup>	0.15			0.22			0.29				
	Water volume	l	1.1	1.5	2.2	1.6	2.1	3.2	2.1	2.8	4.2		
	Additional heat exchanger	Rows	Quantity	1						2			
Stages		Quantity	2			3			6				
Fin pitch		mm	1.8						2.1				
Face area		m <sup>2</sup>	0.14			0.24			0.35				
Water volume		l	0.4			0.6			1.7				
Water flow		Cooling	l/h	448	539	598	873	936	1,111	1,299	1,488	1,774	
	Heating	l/h	480	527	567	904	999	1,077	1,319	1,479	1,647		
	Additional heat exchanger	l/h	275			526			1,123				
Water pressure drop	Cooling	kPa	8	14	11	15	8	14	21		26		
	Heating	kPa	7	10	8	12	7	10	16	15	18		
	Additional heat exchanger	kPa	3			5			8				
Fan	Type	Centrifugal - forward blades - directly coupled on fan motor											
	Quantity	1			2			3					
	Air flow rate	High	m <sup>3</sup> /h	400			800			1,200			
		Medium	m <sup>3</sup> /h	300			600			800			
		Low	m <sup>3</sup> /h	180			300			600			
	Available pressure	High	Pa	71			65			59			
Medium		Pa	29			44			43				
Low		Pa	20			23			29				
Fan motor	Speed	Steps	7 (high:7, medium:4, low:1)										
	Model	Closed induction, B class insulation, winding thermal cut-out											
Sound power level	High	dBA	56			59			69				
	Nom.	dBA	45			52			58				
	Low	dBA	35			37			53				

## 2 Specifications

2-1 Technical Specifications				FWB02BATN6V3	FWB03BATN6V3	FWB04BATN6V3	FWB05BATN6V3	FWB06BATN6V3	FWB07BATN6V3	FWB08BATN6V3	FWB09BATN6V3	FWB10BATN6V3
Sound pressure level	High	dBA	44.5		47.5		57.5					
	Medium	dBA	33.5		40.5		46.5					
	Low	dBA	23.5		25.5		41.5					
Piping connections	Drain	OD	mm		16							
Insulation material				Class 1 self-extinguishing								
Vibration insulation				Rubber ring for fan motor								
Air filter				Standard filter class EU2								
Water connections	Std. heat exchanger	inch	3/4									
	Add. heat exchanger	inch	3/4						1			
Notes				(1) Cooling: 4 pipe: air 27°CDB, 19°CWB; entering water 7°C; leaving water 12°C								
				(2) Heating: 4 pipe: air 20°CDB; entering water 70°C; leaving water 60°C								
				(3) Air flow at 0P a ESP								

2-2 Electrical Specifications				FWB02BATN6V3	FWB03BATN6V3	FWB04BATN6V3	FWB05BATN6V3	FWB06BATN6V3	FWB07BATN6V3	FWB08BATN6V3	FWB09BATN6V3	FWB10BATN6V3
Power supply	Phase			1~								
	Frequency	Hz	50									
	Voltage	V	230									
Current input	High	A	0.36		0.73		1.28					
	Medium	A	0.21		0.60		0.90					
	Low	A	0.14		0.33		0.70					
Required wire section				mm <sup>2</sup>		1.5						
Required fuses				A		1		2				
Electric heater	Phase			1								
	Frequency	Hz	50									
	Voltage	V	230									
	Power input	kW	2		2.5		3					
	Current	A	8.7		10.9		13					
Notes				(4) The power consumption for the valve motor is 5W (peak) only during opening.								

### 3 Electrical data

#### 3 - 1 Electrical Data

FWB		Power input electric heater	Current Absorption	Power supply
Unit	Electric heater	kW	A	V / f / Hz
FWB02AT		2.0	8.7	230 - 1 - 50
FWB03AT		2.0	8.7	
FWB04AT		2.0	8.7	
FWB05AT		2.5	10.9	
FWB06AT		2.5	10.9	
FWB07AT		2.5	10.9	
FWB08AT		3.0	13.0	
FWB09AT		3.0	13.0	
FWB10AT		3.0	13.0	

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## 4 Options

### 4 - 1 Options

FWB	02	03	04	05	06	07	08	09	10	Comments	
Additional heat exchanger	EAH04A6		EAH07A6			EAH10A6					
3-way valve cooling h/e	Factory mounted										
capacity limitation	E2MV307A6					E2MV310A6					
2-way valve cooling h/e	Factory mounted										
2-way valve add. h/e	E2MV207A6					E2MC210A6					
Electric heater	Factory mounted										
Fan stop thermostat	YFSTA6										
Power interface	-					EPIA6					*
Master / Slave Interface	EPIMSA6										
Controller electronic - remote	ECFWER6										

\* In combination with ECFWER6, EPIA6 or EPIMSA6 must be installed for FWB 08-10

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FWB		Additional heat exchanger	3-way valve add. h/e	2-way valve add. h/e	Fan stop thermostat	Power interface	Master / Slave Interface	Controller electronic - remote
		EAH.A6	E2MV3.A6	E2MV2.A6	YFSTA6	EPIA6	EPIMSA6	ECFWER6
Additional heat exchanger	EAH.A6		X	X	X *	X	X	X
3-way valve add. h/e	E2MV3.A6	X				X	X	X
2-way valve add. h/e	E2MV2.A6	X				X	X	
Fan stop thermostat	YFSTA6					X *	X *	
Power interface	EPIA6	X	X	X	X *			X
Master / Slave Interface	EPIMSA6	X	X					X
Controller electronic - remote	ECFWER6	X	X			X	X	

\* = FWB used for heating only

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# 5 Capacity tables

## 5 - 1 Cooling Capacity Tables - 2-pipe

Air temperature (°C DB - °C WB) Water temperature (freezing °C - leaving °C)		25 - 18						9 - 14										
		6 - 11			7 - 12			8 - 13			9 - 14							
Model	Air flow m <sup>3</sup> /h	Total cooling capacity W	Seable cooling capacity W	Water pressure drop kPa	Water flow ℓ/h	Water pressure drop kPa	Total cooling capacity W	Seable cooling capacity W	Water pressure drop kPa	Water flow ℓ/h	Water pressure drop kPa	Total cooling capacity W	Seable cooling capacity W	Water pressure drop kPa	Water flow ℓ/h	Water pressure drop kPa		
FWB02	300	1900	1350	4	326	4	1590	1230	273	3	1410	1150	242	3	1230	1080	211	2
	400	2490	1750	7	427	7	2130	1610	366	5	1710	1440	294	4	1400	1330	240	3
	500	3020	2120	10	517	10	2610	1960	448	8	2150	1770	368	5	1760	1760	303	4
	300	2320	1560	8	398	8	2060	1440	353	6	1760	1320	302	5	1460	1200	250	3
	400	3020	2030	13	518	13	2690	1890	461	10	2320	1730	398	8	1890	1560	325	6
FWB03	500	3670	2470	18	630	18	3270	2300	561	15	2830	2120	487	11	2340	1920	402	8
	300	2540	1670	6	436	6	2270	1550	390	5	2000	1430	344	4	1770	1340	304	3
	400	3360	2210	10	576	10	3020	2060	518	8	2640	1890	453	7	2190	1710	377	5
	500	4140	2740	15	710	15	3730	2550	639	12	3270	2350	561	10	2750	2140	473	7
	600	3810	2650	9	653	9	3300	2440	566	7	2700	2210	464	5	2170	2170	372	3
FWB05	800	4870	3370	14	834	14	4250	3120	729	11	3560	2850	611	8	2710	2530	465	5
	1000	5830	4020	19	1000	19	5100	3730	875	15	4300	3420	739	11	3380	3070	581	7
	600	3870	2740	4	663	4	3280	2500	562	3	2910	2350	499	3	2530	2200	434	2
	800	5180	3610	7	889	7	4410	3290	757	5	3360	2870	577	3	2870	2690	493	2
	1000	6360	4380	10	1091	10	5480	4020	940	8	4450	3610	763	5	3680	3680	632	4
FWB07	600	4770	3180	8	817	8	4230	2940	727	7	3620	2680	622	5	3050	2450	523	4
	800	6230	4150	13	1069	13	5560	3860	955	11	4830	3550	829	9	3970	3200	681	6
	1000	7600	5070	19	1304	19	6800	4720	1167	16	5920	4350	1017	12	4930	3950	847	9
	1000	6250	4250	15	1072	15	5470	3930	939	12	4600	3590	790	9	3540	3180	607	5
	1200	7260	4910	19	1245	19	6370	4550	1093	15	5390	4160	926	11	4260	3730	732	7
FWB08	1400	8200	5510	24	1406	24	7210	5110	1237	19	6130	4690	1052	14	4900	4220	841	9
	1000	7120	4800	15	1220	15	6290	4450	1080	12	5380	4080	923	9	4280	3640	736	6
	1200	8330	5610	19	1428	19	7380	5210	1267	16	6340	4780	1089	12	5150	4310	884	8
	1400	9480	6370	24	1626	24	8410	5920	1443	19	7240	5440	1244	15	5930	4930	1019	10
	1000	8430	5530	19	1446	19	7610	5150	1306	15	6710	4760	1153	12	5690	4330	979	9
FWB10	1200	9970	6540	25	1711	25	9010	6100	1546	21	7960	5640	1367	17	6790	5150	1166	12
	1400	11470	7510	32	1967	32	10360	7010	1778	26	9160	6490	1572	21	7830	5940	1345	16

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# 5 Capacity tables

## 5 - 1 Cooling Capacity Tables - 2-pipe

Air temperature (°C DB - °C WB) Water temperature (Entering °C - leaving °C)		27 - 19						8 - 13						9 - 14							
		6 - 11		7 - 12		8 - 13		9 - 14		10 - 15		11 - 16		12 - 17		13 - 18		14 - 19			
Model	Air flow m <sup>3</sup> /h	Total cooling capacity W	Seable cooling capacity W	Water flow ℓ/h	Water pressure drop kPa	Total cooling capacity W	Seable cooling capacity W	Water flow ℓ/h	Water pressure drop kPa	Total cooling capacity W	Seable cooling capacity W	Water flow ℓ/h	Water pressure drop kPa	Total cooling capacity W	Seable cooling capacity W	Water flow ℓ/h	Water pressure drop kPa	Total cooling capacity W	Seable cooling capacity W	Water flow ℓ/h	Water pressure drop kPa
FWB02	300	2260	1560	388	6	2010	1460	345	5	1710	1340	293	4	1440	1230	247	3				
	400	2920	2010	501	9	2610	1880	448	8	2250	1740	386	6	1840	1580	315	4				
	500	3530	2430	605	13	3160	2270	542	11	2740	2110	470	8	2270	1930	390	6				
	600	4190	2990	719	16	3710	2710	636	14	3330	2580	554	11	2860	2300	463	8				
FWB03	300	2660	1760	456	10	2420	1660	415	9	2150	1540	369	7	1840	1420	317	5				
	400	3450	2290	591	16	3140	2160	539	14	2790	2010	479	11	2420	1860	416	8				
	500	4190	2790	719	23	3820	2630	655	19	3400	2450	583	15	2950	2270	507	12				
	600	4880	3380	854	28	4500	3220	780	24	4080	3060	707	19	3630	2880	824	15				
FWB04	300	2880	1880	494	8	2640	1770	453	7	2370	1650	407	6	2050	1520	353	4				
	400	3790	2490	651	13	3490	2340	598	11	3130	2190	538	9	2750	2030	472	7				
	500	4680	3070	802	18	4290	2890	737	16	3860	2700	663	13	3400	2510	584	10				
	600	5570	3740	959	23	5090	3560	886	21	4660	3370	1012	18	4240	3280	1161	13				
FWB05	600	4460	3030	765	12	3990	2840	685	10	3480	2630	597	8	2890	2410	497	6				
	800	5670	3840	972	18	5080	3600	873	15	4460	3350	765	12	3760	3090	646	9				
	1000	6780	4580	1162	25	6080	4300	1044	21	5340	4010	918	16	4540	3700	779	12				
	1200	7890	5320	1352	32	7080	5000	1215	28	6340	4700	1089	21	5540	4400	940	15				
FWB06	600	4680	3200	804	6	4120	2960	706	5	3420	2680	587	3	2970	2510	510	3				
	800	6130	4150	1053	9	5450	3870	936	8	4690	3560	805	6	3750	3200	644	4				
	1000	7470	5020	1282	13	6670	4680	1144	11	5780	4330	993	8	4770	3940	820	6				
	1200	8810	5890	1511	17	7890	5490	1352	15	6990	5140	1191	11	5980	4750	1000	9				
FWB07	600	5450	3590	935	11	4960	3370	852	9	4430	3140	760	7	3830	2890	657	6				
	800	7100	4680	1218	17	6470	4400	1111	14	5800	4110	995	12	5060	3810	868	9				
	1000	8660	5700	1486	24	7900	5370	1355	20	7080	5020	1215	17	6190	4660	1063	13				
	1200	10220	6810	1754	31	9440	6480	1602	27	8520	6030	1461	23	7400	5670	1271	17				
FWB08	1000	7260	4840	1245	19	6530	4540	1120	16	5740	4230	985	13	4870	3890	836	9				
	1200	8410	5580	1444	25	7570	5230	1299	21	6670	4880	1145	16	5680	4500	976	12				
	1400	9500	6260	1630	31	8550	5880	1468	25	7540	5480	1295	20	6440	5070	1107	15				
	1600	10600	7000	1816	38	9590	6620	1656	32	8580	6220	1484	26	7480	5810	1293	19				
FWB09	1000	8190	5440	1404	19	7410	5110	1272	16	6580	4760	1129	13	5660	4390	972	10				
	1200	9570	6350	1642	25	8670	5960	1488	21	7710	5570	1323	17	6650	5150	1143	13				
	1400	10890	7200	1868	31	9860	6770	1693	26	8770	6320	1507	21	7590	5860	1304	16				
	1600	12210	8110	2106	38	11070	7680	1908	33	9980	7330	1712	27	8600	6670	1509	20				
FWB10	1000	9510	6190	1632	23	8740	5830	1500	20	7900	5460	1358	16	7000	5080	1202	13				
	1200	11260	7320	1931	31	10340	6900	1774	26	9350	6470	1606	22	8290	6020	1423	18				
	1400	12950	8410	2221	39	11890	7930	2039	34	10750	7430	1846	28	9530	6920	1636	23				
	1600	14640	9400	2510	47	13440	8940	2316	42	12300	8440	2123	35	10700	7930	1866	28				

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## 5 Capacity tables

### 5 - 2 Capacity Correction Factor

**Cooling mode**

Glycol percentage in weight	Freezing temperature (°C)	Capacity correction factor	Pressure drop correction factor
0	0	1	1.00
10	-4	0.93	1.09
20	-10	0.84	1.18
30	-16	0.76	1.27
40	-24	0.76	1.36

**Heating mode**

Glycol percentage in weight	Freezing temperature (°C)	Capacity correction factor	Pressure drop correction factor
0	0	1	1.00
10	-4	0.98	1.08
20	-10	0.97	1.11
30	-16	0.94	1.22
40	-24	0.91	1.33

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Correction factors are based on an average value (at rated water flow rate). This can cause deviation depending on conditions used. The Fan Coil Selection software will provide an accurate result at all conditions.

# 5 Capacity tables

## 5 - 2 Capacity Correction Factor

ESP (Pa)	10		20		30		40		50		60		70		80		90		
	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2	
<b>FWB02</b>	Fan speed																		
	Min. (1)	0.83	0.85	0.67	0.74	0.51	0.62	0.35	0.46										
	Med. (4)	0.91	0.92	0.82	0.84	0.73	0.76	0.64	0.66	0.56	0.59	0.47	0.53	0.38	0.46	0.29	0.38	0.21	0.29
<b>FWB03</b>	Max. (7)	0.95	0.96	0.89	0.91	0.83	0.86	0.78	0.82	0.72	0.77	0.66	0.71	0.61	0.66	0.55	0.60	0.49	0.54
	Min. (1)	0.83	0.84	0.67	0.69	0.51	0.56	0.35	0.40										
	Med. (4)	0.91	0.92	0.82	0.84	0.73	0.75	0.64	0.67	0.56	0.58	0.47	0.49	0.38	0.42	0.29	0.34	0.21	0.25
<b>FWB04</b>	Max. (7)	0.95	0.95	0.89	0.91	0.83	0.86	0.78	0.81	0.72	0.76	0.66	0.71	0.61	0.65	0.55	0.59	0.49	0.53
	Min. (1)	0.83	0.84	0.67	0.70	0.51	0.55	0.35	0.39										
	Med. (4)	0.91	0.91	0.82	0.83	0.73	0.74	0.64	0.65	0.56	0.57	0.47	0.50	0.38	0.42	0.29	0.33	0.21	0.24
<b>FWB05</b>	Max. (7)	0.95	0.95	0.89	0.90	0.83	0.85	0.78	0.80	0.72	0.74	0.66	0.69	0.61	0.63	0.55	0.57	0.49	0.51
	Min. (1)	0.88	0.88	0.76	0.77	0.64	0.69	0.53	0.61	0.42	0.51	0.31	0.40						
	Med. (4)	0.96	0.96	0.91	0.93	0.86	0.89	0.82	0.84	0.76	0.80	0.71	0.75	0.65	0.69	0.59	0.63	0.53	0.57
<b>FWB06</b>	Max. (7)	0.96	0.97	0.92	0.93	0.87	0.90	0.83	0.86	0.78	0.82	0.73	0.78	0.68	0.74	0.63	0.69	0.58	0.65
	Min. (1)	0.88	0.92	0.76	0.83	0.64	0.74	0.53	0.64	0.42	0.53	0.31	0.40						
	Med. (4)	0.96	0.96	0.91	0.91	0.86	0.87	0.82	0.82	0.76	0.76	0.71	0.70	0.65	0.65	0.59	0.61	0.53	0.57
<b>FWB07</b>	Max. (7)	0.96	0.96	0.92	0.93	0.87	0.89	0.83	0.85	0.78	0.80	0.73	0.76	0.68	0.71	0.63	0.66	0.58	0.61
	Min. (1)	0.88	0.90	0.76	0.81	0.64	0.70	0.53	0.60	0.42	0.48	0.31	0.36						
	Med. (4)	0.96	0.96	0.91	0.92	0.86	0.87	0.82	0.83	0.76	0.78	0.71	0.73	0.65	0.67	0.59	0.61	0.53	0.54
<b>FWB08</b>	Max. (7)	0.96	0.96	0.92	0.93	0.87	0.89	0.83	0.85	0.78	0.81	0.73	0.76	0.68	0.71	0.63	0.67	0.58	0.62
	Min. (1)	0.91	0.92	0.81	0.83	0.71	0.73	0.60	0.62	0.48	0.51	0.35	0.41						
	Med. (4)	0.93	0.94	0.85	0.88	0.77	0.81	0.68	0.73	0.59	0.64	0.49	0.54	0.38	0.42	0.25	0.31		
<b>FWB09</b>	Max. (7)	0.95	0.96	0.89	0.92	0.84	0.88	0.77	0.83	0.71	0.77	0.64	0.71	0.57	0.64	0.49	0.57	0.40	0.48
	Min. (1)	0.91	0.92	0.81	0.82	0.71	0.72	0.60	0.61	0.48	0.51	0.35	0.40						
	Med. (4)	0.93	0.94	0.85	0.87	0.77	0.80	0.68	0.72	0.59	0.63	0.49	0.52	0.38	0.40	0.25	0.30		
<b>FWB10</b>	Max. (7)	0.95	0.96	0.89	0.91	0.84	0.86	0.77	0.81	0.71	0.76	0.64	0.70	0.57	0.63	0.49	0.55	0.40	0.46
	Min. (1)	0.91	0.91	0.81	0.82	0.71	0.72	0.60	0.60	0.48	0.50	0.35	0.38						
	Med. (4)	0.93	0.93	0.85	0.86	0.77	0.78	0.68	0.70	0.59	0.61	0.49	0.51	0.38	0.39	0.25	0.27		
Max. (7)	0.95	0.96	0.89	0.91	0.84	0.86	0.77	0.80	0.71	0.74	0.64	0.68	0.57	0.60	0.49	0.52	0.40	0.43	

4TW60298-1

Conditions

Cooling

Heating 2-pipe

Air: 27°C DB - 19°C WB - Water: entering 7°C - leaving 12°C

Air: 20°C Water: entering 50°C water flow as for cooling

F1 = correction factor for air flow

F2 = correction factor for capacities

Correction factors are based on an average value. This can cause deviation depending on conditions used. The Fan Coil Selection software will provide an accurate result at all conditions.

# 5 Capacity tables

## 5 - 3 Heating Capacity Tables - 2-pipes

Air temperature (°C) Water temperature (filtering °C - leaving °C)		19														
		50 - 45				60 - 50				70 - 60				90 - 70		
Model	Air flow m <sup>3</sup> /h	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa
FWB02	300	2230	388	5	3450	301	3	4420	388	5	5950	263	2	5950	263	2
	400	2830	493	8	4370	382	5	5600	491	7	7520	332	3	7520	332	3
	500	3380	588	10	5220	456	6	6690	587	9	8950	395	5	8950	395	5
FWB03	300	2420	421	7	3770	329	5	4770	419	7	6500	287	3	6500	287	3
	400	3120	543	11	4850	424	7	6150	540	10	8340	368	5	8340	368	5
	500	3780	657	16	5860	512	10	7450	654	14	10070	444	7	10070	444	7
FWB04	300	2560	445	5	4010	350	3	5040	442	5	6930	306	2	6930	306	2
	400	3360	585	9	5260	460	5	6620	581	8	9080	401	4	9080	401	4
	500	4140	720	12	6460	565	8	8150	715	11	11140	492	6	11140	492	6
FWB05	600	4250	739	9	6580	574	6	8400	737	9	11290	498	4	11290	498	4
	800	5340	928	14	8230	719	8	10550	926	13	14110	623	6	14110	623	6
	1000	6330	1100	19	9740	851	11	12520	1098	17	16680	737	8	16680	737	8
FWB06	600	4610	802	5	7150	624	3	9140	802	4	12340	545	2	12340	545	2
	800	5900	1026	7	9130	798	5	11660	1023	7	15690	692	3	15690	692	3
	1000	7080	1231	10	10940	955	6	14000	1229	9	18770	829	4	18770	829	4
FWB07	600	4930	856	8	7680	671	5	9710	852	7	13260	585	3	13260	585	3
	800	6380	1110	12	9930	868	7	12570	1103	11	17090	755	5	17090	755	5
	1000	7750	1348	17	12040	1053	10	15280	1341	15	20710	914	7	20710	914	7
FWB08	1000	6770	1177	14	10450	913	9	13380	1174	13	17920	791	6	17920	791	6
	1200	7790	1355	18	12010	1049	11	15400	1351	17	20570	908	8	20570	908	8
	1400	8750	1522	22	13470	1177	14	17310	1518	20	23070	1018	10	23070	1018	10
FWB09	1000	7520	1307	14	11660	1018	8	14820	1301	12	20020	884	6	20020	884	6
	1200	8740	1520	18	13540	1183	11	17250	1514	16	23240	1026	8	23240	1026	8
	1400	9910	1723	22	15320	1339	13	19570	1717	20	26290	1160	10	26290	1160	10
FWB10	1000	8270	1439	15	12920	1129	9	16280	1429	14	22270	983	7	22270	983	7
	1200	9770	1698	20	15230	1330	13	19220	1687	18	26230	1157	9	26230	1157	9
	1400	11210	1948	26	17450	1525	16	22070	1936	23	30030	1326	11	30030	1326	11

4TW60292-1 (Sheet 3/6)

# 5 Capacity tables

## 5 - 3 Heating Capacity Tables - 2-pipes

Air temperature (°C) Water temperature (Entering °C - leaving °C)		19													
		50 - 45				60 - 50				70 - 60				90 - 70	
Model	Air flow m <sup>3</sup> /h	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa		
EAH04AG	300	1350	236	3	2050	179	2	2750	241	3	3550	157	1		
	400	1590	277	4	2410	211	2	3220	282	4	4160	184	2		
	500	1790	312	5	2710	237	3	3610	317	4	4670	206	2		
EAH07AG	600	2630	457	4	3990	348	3	5270	462	4	6870	303	2		
	800	3070	533	6	4660	408	3	6140	538	5	7980	352	2		
	1000	3430	596	7	5210	455	4	6870	602	7	8900	393	3		
EAH10AG	1000	5800	1009	7	8900	778	4	11520	1011	6	15250	673	3		
	1200	6610	1149	9	10120	885	5	13120	1150	8	17330	765	4		
	1400	7350	1278	11	11260	984	6	14600	1281	10	19260	850	5		

4TW60292-1 (Sheet 5/6)

# 5 Capacity tables

## 5 - 3 Heating Capacity Tables - 2-pipes

Air temperature (°C) Water temperature (filtering °C - leaving °C)		20																																										
		50 - 45				60 - 50				70 - 60				90 - 70																														
		Model	Air flow m <sup>3</sup> /h	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Model	Air flow m <sup>3</sup> /h	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Model	Air flow m <sup>3</sup> /h	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Model	Air flow m <sup>3</sup> /h	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa																							
FWB02	300	2130	370	5	FWB03	300	2310	402	7	FWB04	300	2450	426	5	FWB05	600	4060	707	9	FWB06	600	4410	766	4	FWB07	600	4710	819	7	FWB08	1000	6470	1125	13	FWB09	1000	7190	1249	13	FWB10	1000	7920	1377	14
	400	2700	470	7		400	2980	519	11		400	3220	560	8		800	5100	886	13		800	5640	980	7		800	6040	1051	17		1200	7440	1294	17		1200	8360	1453	21		1200	9340	1625	19
	500	3230	562	10		500	3610	628	15		500	3960	689	12		600	5100	886	13		600	5640	980	7		600	6040	1051	17		800	7440	1294	17		800	8360	1453	21		800	9340	1625	19
	300	3350	292	3		300	3660	320	4		300	3890	340	3		400	5110	446	5		400	5640	774	4		400	6040	826	11		600	8850	774	4		600	9650	843	7		600	10720	1022	10
FWB02	300	2130	370	5	FWB03	300	2310	402	7	FWB04	300	2450	426	5	FWB05	600	4060	707	9	FWB06	600	4410	766	4	FWB07	600	4710	819	7	FWB08	1000	6470	1125	13	FWB09	1000	7190	1249	13	FWB10	1000	7920	1377	14
	400	2700	470	7		400	2980	519	11		400	3220	560	8		800	5100	886	13		800	5640	980	7		800	6040	1051	17		1200	7440	1294	17		1200	8360	1453	21		1200	9340	1625	19
	500	3230	562	10		500	3660	320	4		500	3960	689	12		600	5110	446	5		600	5640	774	4		600	6040	826	11		800	7440	1294	17		800	8360	1453	21		800	9340	1625	19
	300	3350	292	3		300	3660	320	4		300	3890	340	3		400	5110	446	5		400	5640	774	4		400	6040	826	11		600	8850	774	4		600	9650	843	7		600	10720	1022	10
FWB02	300	2130	370	5	FWB03	300	2310	402	7	FWB04	300	2450	426	5	FWB05	600	4060	707	9	FWB06	600	4410	766	4	FWB07	600	4710	819	7	FWB08	1000	6470	1125	13	FWB09	1000	7190	1249	13	FWB10	1000	7920	1377	14
	400	2700	470	7		400	2980	519	11		400	3220	560	8		800	5100	886	13		800	5640	980	7		800	6040	1051	17		1200	7440	1294	17		1200	8360	1453	21		1200	9340	1625	19
	500	3230	562	10		500	3660	320	4		500	3960	689	12		600	5110	446	5		600	5640	774	4		600	6040	826	11		800	7440	1294	17		800	8360	1453	21		800	9340	1625	19
	300	3350	292	3		300	3660	320	4		300	3890	340	3		400	5110	446	5		400	5640	774	4		400	6040	826	11		600	8850	774	4		600	9650	843	7		600	10720	1022	10
FWB02	300	2130	370	5	FWB03	300	2310	402	7	FWB04	300	2450	426	5	FWB05	600	4060	707	9	FWB06	600	4410	766	4	FWB07	600	4710	819	7	FWB08	1000	6470	1125	13	FWB09	1000	7190	1249	13	FWB10	1000	7920	1377	14
	400	2700	470	7		400	2980	519	11		400	3220	560	8		800	5100	886	13		800	5640	980	7		800	6040	1051	17		1200	7440	1294	17		1200	8360	1453	21		1200	9340	1625	19
	500	3230	562	10		500	3660	320	4		500	3960	689	12		600	5110	446	5		600	5640	774	4		600	6040	826	11		800	7440	1294	17		800	8360	1453	21		800	9340	1625	19
	300	3350	292	3		300	3660	320	4		300	3890	340	3		400	5110	446	5		400	5640	774	4		400	6040	826	11		600	8850	774	4		600	9650	843	7		600	10720	1022	10
FWB02	300	2130	370	5	FWB03	300	2310	402	7	FWB04	300	2450	426	5	FWB05	600	4060	707	9	FWB06	600	4410	766	4	FWB07	600	4710	819	7	FWB08	1000	6470	1125	13	FWB09	1000	7190	1249	13	FWB10	1000	7920	1377	14
	400	2700	470	7		400	2980	519	11		400	3220	560	8		800	5100	886	13		800	5640	980	7		800	6040	1051	17		1200	7440	1294	17		1200	8360	1453	21		1200	9340	1625	19
	500	3230	562	10		500	3660	320	4		500	3960	689	12		600	5110	446	5		600	5640	774	4		600	6040	826	11		800	7440	1294	17		800	8360	1453	21		800	9340	1625	19
	300	3350	292	3		300	3660	320	4		300	3890	340	3		400	5110	446	5		400	5640	774	4		400	6040	826	11		600	8850	774	4		600	9650	843	7		600	10720	1022	10
FWB02	300	2130	370	5	FWB03	300	2310	402	7	FWB04	300	2450	426	5	FWB05	600	4060	707	9	FWB06	600	4410	766	4	FWB07	600	4710	819	7	FWB08	1000	6470	1125	13	FWB09	1000	7190	1249	13	FWB10	1000	7920	1377	14
	400	2700	470	7		400	2980	519	11		400	3220	560	8		800	5100	886	13		800	5640	980	7		800	6040	1051	17		1200	7440	1294	17		1200	8360	1453	21		1200	9340	1625	19
	500	3230	562	10		500	3660	320	4		500	3960	689	12		600	5110	446	5		600	5640	774	4		600	6040	826	11		800	7440	1294	17		800	8360	1453	21		800	9340	1625	19
	300	3350	292	3		300	3660	320	4		300	3890	340	3		400	5110	446	5		400	5640	774	4		400	6040	826	11		600	8850	774	4		600	9650	843	7		600	10720	1022	10
FWB02	300	2130	370	5	FWB03	300	2310	402	7	FWB04	300	2450	426	5	FWB05	600	4060	707	9	FWB06	600	4410	766	4	FWB07	600	4710	819	7	FWB08	1000	6470	1125	13	FWB09	1000	7190	1249	13	FWB10	1000	7920	1377	14
	400	2700	470	7		400	2980	519	11		400	3220	560	8		800	5100	886	13		800	5640	980	7		800	6040	1051	17		1200	7440	1294	17		1200	8360	1453	21		1200	9340	1625	19
	500	3230	562	10		500	3660	320	4		500	3960	689	12		600	5110	446	5		600	5640	774	4		600	6040	826	11		800	7440	1294	17		800	8360	1453	21		800	9340	1625	19
	300	3350	292	3		300	3660	320	4		300	3890	340	3		400	5110	446	5		400	5640	774	4		400	6040	826	11		600	8850	774	4		600	9650	843	7		600	10720	1022	10
FWB02	300	2130	370	5	FWB03	300	2310	402	7	FWB04	300	2450	426	5	FWB05	600	4060	707	9	FWB06	600	4410	766	4	FWB07	600	4710	819	7	FWB08	1000	6470	1125	13	FWB09	1000	7190	1249	13	FWB10	1000	7920	1377	14
	400	2700	470	7		400	2980	519	11		400	3220	560	8		800	5100	886	13		800	5640	980	7		800	6040	1051	17		1200	7440	1294	17		1200	8360	1453	21		1200	9340	1625	19
	500	3230	562	10		500	3660	320	4		500	3960	689	12		600	5110	446	5		600	5640	774	4		600	6040	826	11		800	7440	1294	17		800	8360	1453	21		800	9340	1625	19
	300	3350	292	3		300	3660	320	4		300	3890	340	3		400	5110	446	5		400	5640	774	4		400	6040	826	11		600	8850	774	4		600	9650	843	7		600	10720	1022	10

## 5 Capacity tables

### 5 - 3 Heating Capacity Tables - 2-pipes

Air temperature (°C) Water temperature (Entering °C - leaving °C)		20											
		50 - 45			60 - 50			70 - 60			90 - 70		
Model	Air flow m <sup>3</sup> /h	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa	Heating capacity W	Water flow ℓ/h	Water pressure drop kPa
EAH04AG	300	1290	224	3	1980	173	2	2680	235	3	3480	153	1
	400	1510	263	3	2330	203	2	3140	275	3	4080	180	2
	500	1700	296	4	2620	229	3	3520	309	4	4580	202	2
EAH07AG	600	2500	434	4	3860	337	2	5140	451	4	6740	298	2
	800	2920	508	5	4510	394	3	5990	526	5	7830	346	2
	1000	3270	568	7	5040	441	4	6700	588	6	8740	386	3
EAH10AG	1000	5540	963	6	8620	753	4	11250	986	6	11250	986	6
	1200	6310	1096	8	9820	858	5	12800	1123	8	12800	1123	8
	1400	7020	1220	10	10910	954	6	14260	1250	9	14260	1250	9

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## 5 Capacity tables

### 5 - 4 Power Consumption

FWB02-04

Speed	7		6		5		4		3		2		1	
AP (Pa)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)
0	79	0.359	65	0.299	54	0.248	46	0.21	38	0.179	32	0.153	28	0.133
20	75	0.339	62	0.28	51	0.235	43	0.198	36	0.17	31	0.146	26	0.127
40	70	0.319	57	0.264	48	0.223	40	0.188	34	0.16	28	0.135		
60	66	0.303	54	0.248	44	0.203	36	0.168						
80	60	0.277	47	0.218	38	0.178	34	0.16						
100	51	0.242	41	0.204										

4TW60291-2A (1/3)

FWB05-07

Speed	7		6		5		4		3		2		1	
AP (Pa)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)
0	154	0.727	144	0.686	132	0.638	121	0.593	99	0.484	79	0.397	64	0.323
20	145	0.679	135	0.636	125	0.597	115	0.554	92	0.453	76	0.374	61	0.308
40	135	0.627	125	0.594	115	0.55	107	0.514	86	0.419	69	0.339	57	0.283
60	123	0.575	114	0.535	105	0.497	96	0.456	76	0.367	63	0.304	51	0.25
80	109	0.512	97	0.459	87	0.418	81	0.386	65	0.313	53	0.255		
100	85	0.407	77	0.369	71	0.337	65	0.31	53	0.258				

4TW60291-2A (2/3)

## 5 Capacity tables

### 5 - 4 Power Consumption

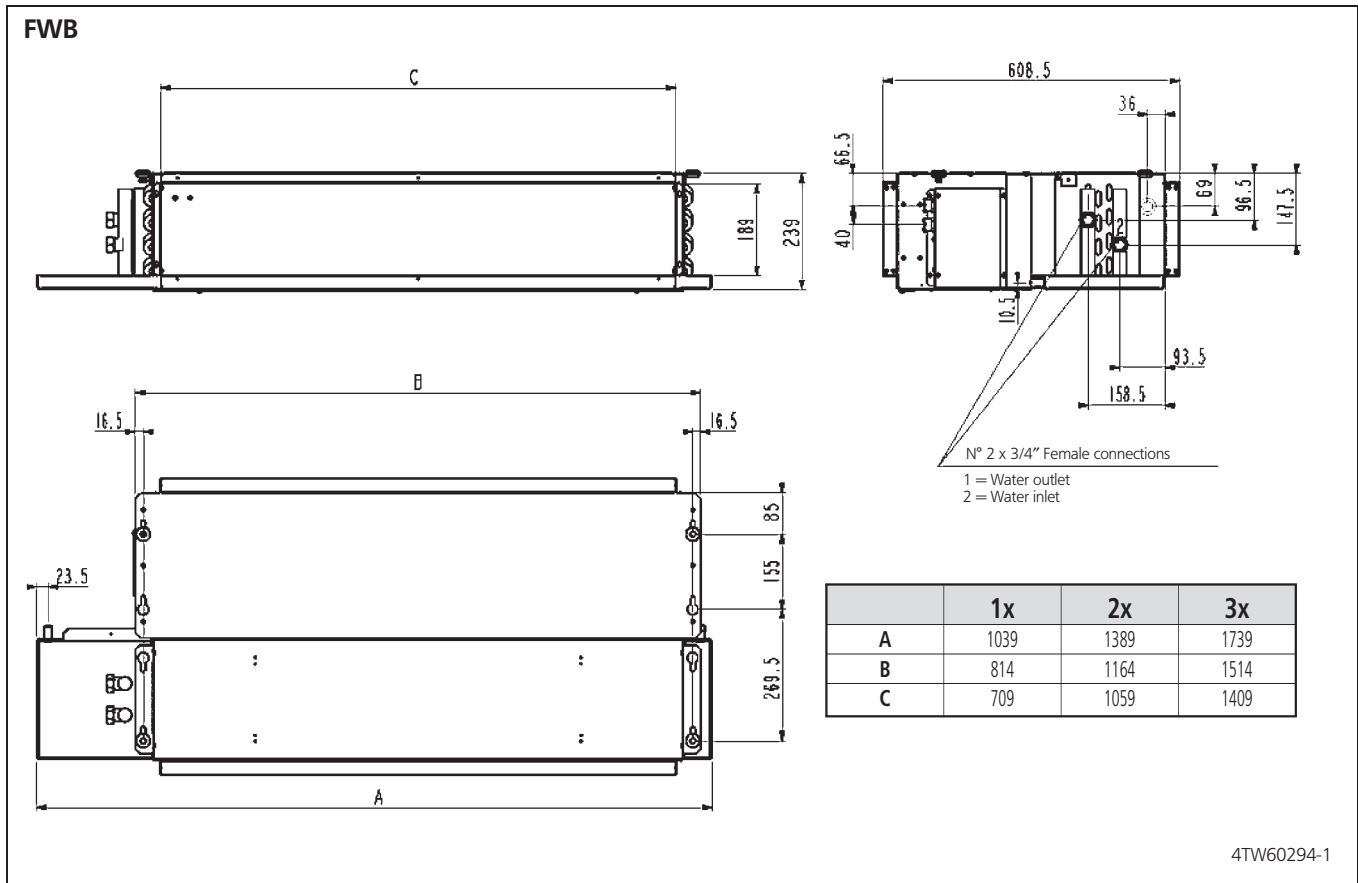
FWB08-10

Speed	7		6		5		4		3		2		1		
	AP (Pa)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)	Power input (W)	Current (A)
0		294	1.274	252	1.104	224	0.995	193	0.878	177	0.817	164	0.761	155	0.727
20		278	1.210	240	1.045	211	0.930	181	0.810	168	0.768	155	0.718	149	0.688
40		265	1.157	223	0.985	198	0.872	170	0.763	160	0.723	148	0.680	142	0.650
60		251	1.100	211	0.927	184	0.815	158	0.709	148	0.670	138	0.627	135	0.606
80		236	1.035	200	0.876	172	0.753	145	0.650	138	0.615				
100		224	0.980	186	0.815										

4TW60291-2A (3/3)

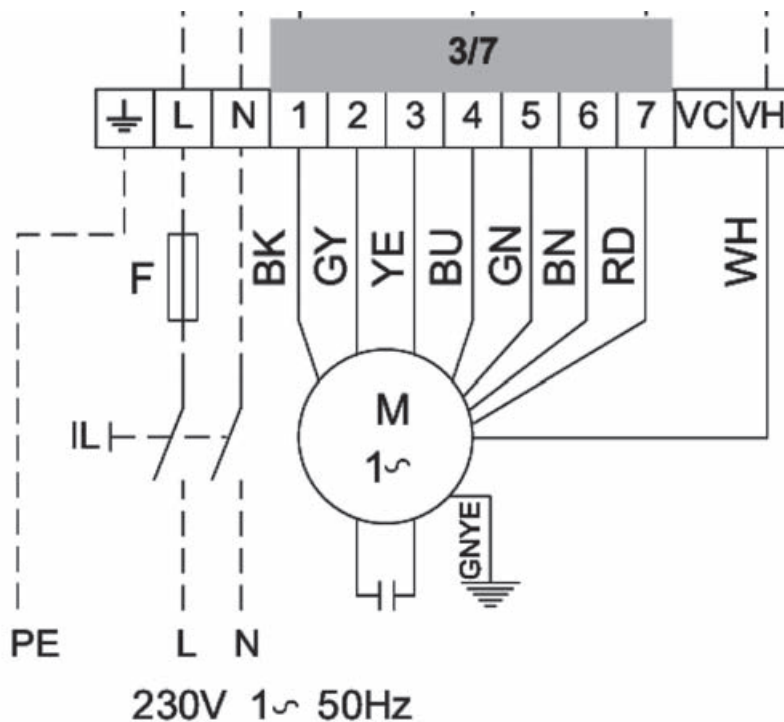
## 6 Dimensional drawings

### 6 - 1 Dimensional Drawings



## 7 Wiring diagrams

### 7 - 1 Wiring Diagrams - Single Phase



#### SYMBOLS

BK	Black = maximum speed
BU	Blue = medium speed
GNYE	Yellow/Green = earth connection
RD	Red = minimum speed
WH	White = common
---	Field wiring
F	Protection fuse (field supply)
IL	Main switch (field supply)
M	Fan motor
PE	Earth connection

4TW60296-1

## 8 Sound data

### 8 - 1 Sound Power Spectrum - 2-pipe

FWB02-04

	Lw tot dBA	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
		52	55	53	51	49	43	34	
7		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	48	52	50	48	46	41	31	-
	Structure	35	38	45	34	41	25	17	-
	Inlet	50	52	49	47	43	38	30	-
6		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	46	50	48	46	44	34	23	-
	Structure	33	35	42	31	38	18	-	-
	Inlet	48	50	47	44	41	31	21	-
5		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	42	46	43	41	39	31	21	-
	Structure	29	31	38	26	33	15	-	-
	Inlet	44	45	42	40	36	28	19	-
4		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	38	42	39	37	34	24	16	-
	Structure	26	27	34	23	28	-	-	-
	Inlet	40	42	39	36	31	22	15	-
3		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	36	40	37	34	30	20	15	-
	Structure	23	25	31	20	24	-	-	-
	Inlet	38	39	36	33	27	17	14	-
2		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	34	37	34	31	26	14	14	-
	Structure	21	22	29	17	21	-	-	-
	Inlet	36	37	33	30	23	12	13	-
1		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	30	34	30	27	22	12	14	-
	Structure	17	19	25	13	16	-	-	-
	Inlet	32	33	29	28	19	-	13	-

#### NOTES

To calculate the sound pressure you must define some conditions and use this formula

$$L_p = L_w - 10 \times \log_{10} \left( \frac{4\pi \times d^2}{Q} \right)$$

Where: **Q** = direction factor: is Q=4 if the air outlet/inlet is placed near the corner of 2 walls (vertical or floor-ceiling), Q=2 if the air outlet/inlet is placed at the center of the wall (at floor or ceiling but faraway the 2° wall)

**d** = distance (mt) from the sound source and the measure point

**Lp** = sound pressure (dBA)

**Lw** = sound power (dBA)

#### Conditions of measurements:

ISO3741 : the sound power is calculated WITHOUT any additional inlet or outlet grill or plenum

**blank** = Not Measurable

## 8 Sound data

### 8 - 1 Sound Power Spectrum - 2-pipe

FWB05-07

		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
7	Lw tot dBA	54	59	58	53	50	45	36	59
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	50	56	54	51	48	43	33	-
	Structure	37	41	49	36	42	27	19	-
	Inlet	52	55	54	49	45	41	32	-
6	Lw tot dBA	52	56	55	50	46	39	29	56
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	48	53	52	47	44	37	27	-
	Structure	35	38	46	33	38	22	12	-
	Inlet	50	52	51	46	41	35	25	-
5	Lw tot dBA	48	55	54	48	44	34	24	54
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	44	52	51	45	41	32	21	-
	Structure	32	37	45	30	36	17	7	-
	Inlet	46	51	50	44	38	30	20	-
4	Lw tot dBA	46	52	52	46	41	32	21	52
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	42	49	49	43	39	30	18	-
	Structure	29	35	43	28	33	14	4	-
	Inlet	44	49	48	42	36	28	17	-
3	Lw tot dBA	44	48	46	40	35	24	16	46
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	40	45	42	37	33	22	13	-
	Structure	27	30	37	23	27			-
	Inlet	42	45	42	36	30	20	12	-
2	Lw tot dBA	40	44	41	35	28	16	14	42
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	36	41	38	32	26	14	11	-
	Structure	23	27	33	18	20			-
	Inlet	38	41	37	31	23	11	10	-
1	Lw tot dBA	37	41	37	30	20	11	15	37
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	33	38	34	27	18	9	12	-
	Structure	20	23	29	13	12			-
	Inlet	35	37	33	26	15	6	11	-

#### NOTES

To calculate the sound pressure you must define some conditions and use this formula

$$L_p = L_w - 10 \times \log_{10} \left( \frac{4\pi \times d^2}{Q} \right)$$

Where: **Q** = direction factor: is Q=4 if the air outlet/inlet is placed near the corner of 2 walls (vertical or floor-ceiling), Q=2 if the air outlet/inlet is placed at the center of the wall (at floor or ceiling but faraway the 2° wall)

**d** = distance (mt) from the sound source and the measure point

**Lp** = sound pressure (dBA)

**Lw** = sound power (dBA)

#### Conditions of measurements:

ISO3741 : the sound power is calculated WITHOUT any additional inlet or outlet grill or plenum

blank = Not Measurable

## 8 Sound data

### 8 - 1 Sound Power Spectrum - 2-pipe

FWB08-10

		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dBA
7	Lw tot dBA	63	67	65	65	61	55	49	69
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	59	64	62	62	59	53	46	-
	Structure	46	49	57	47	53	38	32	-
	Inlet	61	63	61	61	56	51	45	-
6	Lw tot dBA	61	64	63	63	59	53	46	67
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	57	61	60	60	57	51	43	-
	Structure	44	47	55	46	51	35	29	-
	Inlet	59	61	59	59	54	48	42	-
5	Lw tot dBA	58	60	61	61	56	49	41	64
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	54	57	58	58	54	47	39	-
	Structure	41	43	52	43	48	31	24	-
	Inlet	56	57	57	57	51	44	37	-
4	Lw tot dBA	52	55	56	54	51	43	34	58
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	48	52	53	51	49	41	31	-
	Structure	35	37	47	37	43	26	17	-
	Inlet	50	51	52	50	45	39	30	-
3	Lw tot dBA	50	53	54	52	49	41	31	56
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	46	50	51	49	47	39	28	-
	Structure	33	35	46	34	41	23	14	-
	Inlet	48	49	50	48	44	36	27	-
2	Lw tot dBA	51	50	52	49	47	38	29	54
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	47	47	49	47	45	36	26	-
	Structure	34	33	44	32	39	21	11	-
	Inlet	49	47	48	45	42	34	25	-
1	Lw tot dBA	46	49	51	48	46	38	28	53
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
	Outlet	42	46	47	45	44	36	25	-
	Structure	29	31	42	31	38	20	11	-
	Inlet	44	46	47	44	41	33	24	-

#### NOTES

To calculate the sound pressure you must define some conditions and use this formula

$$L_p = L_w - 10 \times \log_{10} \left( \frac{4\pi \times d^2}{Q} \right)$$

Where: **Q** = direction factor: is Q=4 if the air outlet/inlet is placed near the corner of 2 walls (vertical or floor-ceiling), Q=2 if the air outlet/inlet is placed at the center of the wall (at floor or ceiling but faraway the 2° wall)

**d** = distance (mt) from the sound source and the measure point

**Lp** = sound pressure (dBA)

**Lw** = sound power (dBA)

#### Conditions of measurements:

ISO3741 : the sound power is calculated WITHOUT any additional inlet or outlet grill or plenum

**blank** = Not Measurable

## 9 Installation

### 9 - 1 Installation Method

#### BEFORE THE INSTALLATION

The equipment is to be installed and serviced exclusively by technical personnel who are qualified for using this type of machine, in compliance with the relevant local and national regulations.

On receiving the equipment, check its state ensuring that it was not damaged during transport. Refer to the associated technical sheets for the installation and use instructions of any accessories.

#### INTENDED CONDITIONS OF USE AND OPERATING LIMITS

No responsibility is assumed if the equipment is installed by unqualified personnel, if it is used improperly or under inadmissible conditions, if maintenance is not performed as envisaged in this manual or if original spare parts are not used. For the operating limits please refer to the appropriate chapter. Any other use is considered improper.

Keep the equipment inside the packing until it is ready to be installed so that dust will not infiltrate.

Air sucked by the equipment must always be filtered. Use, when possible, the specific accessories.

If not used during the winter, drain the water from the system to prevent damage caused by the formation of ice. If antifreeze solutions are used, check the freezing point.

**Do not change the internal wiring or other parts of the equipment.**

#### INSTALLATION WARNING:

**On the thermal-ventilating unit install a switch (IL) and/or all remote controls in a position out of the reach of persons who are in a bathtub or shower.**

The FWB units may be installed only in horizontal position. Check that the desired installation complies with one of the diagrams shown in the installation manual.

#### FIXING the unit

Fix the standard unit to the ceiling or wall using at least 4 of the 6 slots;

For the installation (ceiling-mounting) it is advisable to use M8 threaded bars, screw anchors suitable for the machine's weight, and to arrange for the positioning of the machine using 2 M8 bolts and a washer the diameter of which is suitable for inserting the slot and for then fixing the unit.

Before tightening the check nut, adjust the closing of the main nut so that the equipment will slant correctly, i.e. for facilitating the discharging of the condensate.

The correct slant is achieved by tilting the intake downwards as compared to the delivery, until a difference in level of about 10 mm is obtained from one end to the other. Make the hydraulic connections with the heat exchanger and, for cooling operations, with the condensate discharge.

Use one of the two drains of the auxiliary tank, visible on the outside of the unit's side panels and vertical condensate discharge.

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## 9 Installation

### 9 - 1 Installation Method

#### A few rules to follow

Carry out the heat exchanger's air exhaust, with pumps stopped, by means of the air valves located adjacent to the attachments of the heat exchanger itself.

When implementing a duct system, it is advisable to place the vibration-damping joints between the ducting and the unit. If you wish to install an electrical resistance module as accessory, the delivery vibration-damping joint should be heat-resistant. The ducting, especially the delivery one, should be insulated with anticondensing material.

Provide an inspection panel adjacent to the equipment for the maintenance and cleaning operations.

Install the control panel on the wall. Choose a position that is easy to access for the setting of the functions and, if contemplated, for the reading of the temperature. Try to avoid positions that are directly exposed to sun rays, or positions subject to direct hot or cold air currents, and do not place obstacles in the way that would prevent the correct reading of the temperature.

#### ELECTRICAL CONNECTIONS

Make the electrical connections with voltage OFF, in compliance with the relevant local and national regulations.

Exclusively qualified personnel should carry out the wiring operations. **Each fancoil unit requires a switch (IL) on the feeder line with a distance of at least 3 mm between the opening contacts, and a suitable safety fuse (F).**

Power consumption is shown on the data plate fixed to the unit. Make sure to carefully execute the wiring in function of the combination unit/controller and this according to the correct wiring diagram delivered with every accessory. In order to make the electrical connections you must remove the lower closing panel to access the terminal board. The power cables (power supply and control) must be routed to the terminal board through the cable grip that is on the side panel of the machine on the same side of the hydraulic connections.

#### WARNING

**The COMMON wire of the motor is the WHITE one: if connected incorrectly the motor would be damaged irreparably. See wiring diagrams for color codes.**

#### FUNCTIONAL CHECKS

Check that the equipment has been installed so that it guarantees the required slant.

Check that the condensate discharge is not clogged (by rubble deposits, etc.).

Check the seal of the hydraulic connections.

Check that all the wirings are tight (perform the check with voltage OFF).

Make sure air has been purged from the heat exchanger.

Power the equipment and check its working efficiency.

#### Installation & service distances for FWB units

Consider at least

- 500 mm free space on water connections side (piping & connections) measured from the boundary of the drain pan.
- 200 mm free space on the opposite side (to unscrew heat exchangers or fan deck in case of repairing)
- Possibility to extract filter for cleaning has to be considered
- Possibility to reach the unit for ordinary and extraordinary maintenance (for instance removing front panels) has to be considered

4TW60229-3 (Sheet 2/2)

## 10 Operation range

### 10 - 1 Operation Range

Minimum water temperature	<b>+5°C</b>
Maximum water temperature	<b>+95°C</b>
Maximum operating pressure	<b>10 bar</b>
Minimum air inlet temperature	<b>5°C</b>
Maximum air inlet temperature	<b>+43°C</b>
Power supply	<b>230V +-10% / 1~ / 50Hz</b>

4TW60293-1

# 11 Hydraulic performance

## 11 - 1 Water Pressure Drop Cooling - 2-pipe

FWB									
Water flow l/h	Water pressure drop								
	FWB02	FWB03	FWB04	FWB05	FWB06	FWB07	FWB08	FWB09	FWB10
	kPa	kPa	kPa	kPa	kPa	kPa	kPa	kPa	kPa
100	1	1	<1	<1	<1	<1	<1	<1	<1
200	2	2	2	1	<1	1	1	1	1
300	4	5	3	2	1	1	2	1	1
400	6	8	5	4	2	2	3	2	2
500	9	12	8	6	3	4	4	3	3
600	13	16	11	8	3	5	5	4	4
700	17	21	14	10	5	6	7	5	5
800	21	27	18	13	6	8	9	7	6
900	26	33	22	16	7	10	11	8	8
1000	32	40	27	19	9	12	13	10	10
1100	37	47	32	23	10	14	15	12	11
1200	44	55	37	26	12	16	18	14	13
1300	50	64	42	30	14	19	20	16	15
1400	57	72	48	35	15	21	23	18	17
1500	65	82	55	39	17	24	26	21	20
1600	72	92	61	44	20	27	29	23	22
1700	81	102	68	49	22	30	33	26	24
1800	89		75	54	24	33	36	29	27
1900	98		83	59	26	37	40	32	30
2000	107		91	65	29	40	44	34	32
2100			99	71	32	44	48	38	35
2200			107	77	34	48	52	41	38
2300				83	37	51	56	44	41
2400				89	40	55	60	48	45
2500				96	43	60	65	51	48
3000					59	82	89	70	66
3500					77	108	117	92	87
4000					98			117	110

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# 11 Hydraulic performance

## 11 - 2 Water Pressure Drop Heating - 2-pipe

Water flow l/h	FWB								
	Water pressure drop								
	FWB02	FWB03	FWB04	FWB05	FWB06	FWB07	FWB08	FWB09	FWB10
	kPa	kPa	kPa	kPa	kPa	kPa	kPa	kPa	kPa
100	<1	1	<1	<1	<1	<1	<1	<1	<1
200	2	2	1	1	<1	1	1	1	<1
300	3	4	3	2	1	1	1	1	1
400	5	7	4	3	1	2	2	2	2
500	8	10	7	5	2	3	3	3	2
600	11	13	9	6	3	4	4	3	3
700	14	17	12	8	4	5	6	5	4
800	17	22	15	11	5	7	7	6	5
900	21	27	18	13	6	8	9	7	7
1000	26	32	22	16	7	10	11	8	8
1100	30	38	26	18	8	12	13	10	9
1200	35	45	30	21	10	13	15	12	11
1300	40	51	34	25	11	15	17	13	13
1400	46	58	39	28	13	17	19	15	14
1500	52	66	44	32	14	20	22	17	16
1600	58	74	49	35	16	22	24	19	18
1700	65	82	55	39	18	25	27	21	20
1800	71	90	60	43	19	27	30	23	22
1900	78	99	66	48	21	30	32	26	24
2000	86	109	73	52	23	33	35	28	27
2100	93		79	57	25	35	39	31	29
2200	101		86	62	28	38	42	33	31
2300	110		93	67	30	41	45	36	34
2400			100	72	32	45	49	39	36
2500			107	77	35	48	52	41	39
3000				106	47	66	72	57	54
3500					62	86	94	74	70
4000					78	109	119	94	89
4500					96			115	109
5000					116				

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# 11 Hydraulic performance

## 11 - 3 Water Pressure Drop Curve Heating - Additional Heat Exchanger

FWB			
Water flow l/h	Water pressure drop		
	EAH04A6	EAH07A6	EAH10A6
	kPa	kPa	kPa
100	1	<1	<1
200	2	1	<1
300	4	2	1
400	7	3	1
500	10	5	2
600	13	7	3
700	17	9	3
800	22	11	4
900	27	13	5
1000	32	16	6
1100	38	19	8
1200	44	22	9
1300	51	25	10
1400	58	29	11
1500	66	32	13
1600	73	36	14
1700	82	40	16
1800	90	44	18
1900	99	49	19
2000	108	53	21
2100	118	58	23
2200		63	25
2300		68	27
2400		73	29
2500		79	31
3000		108	43
3500			56
4000			71
4500			87
5000			105

4TW60299-1 (Sheet 3/3)





Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.



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