

Applied Systems  
Technical Data

# FWR-AT/AF



- > FWR02AATV3
- > FWR03AATV3
- > FWR06AATV3
- > FWR08AATV3
- > FWR02AAFV3
- > FWR03AAFV3

- > FWR06AAFV3
- > FWR08AAFV3



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## FWR-AT/AF

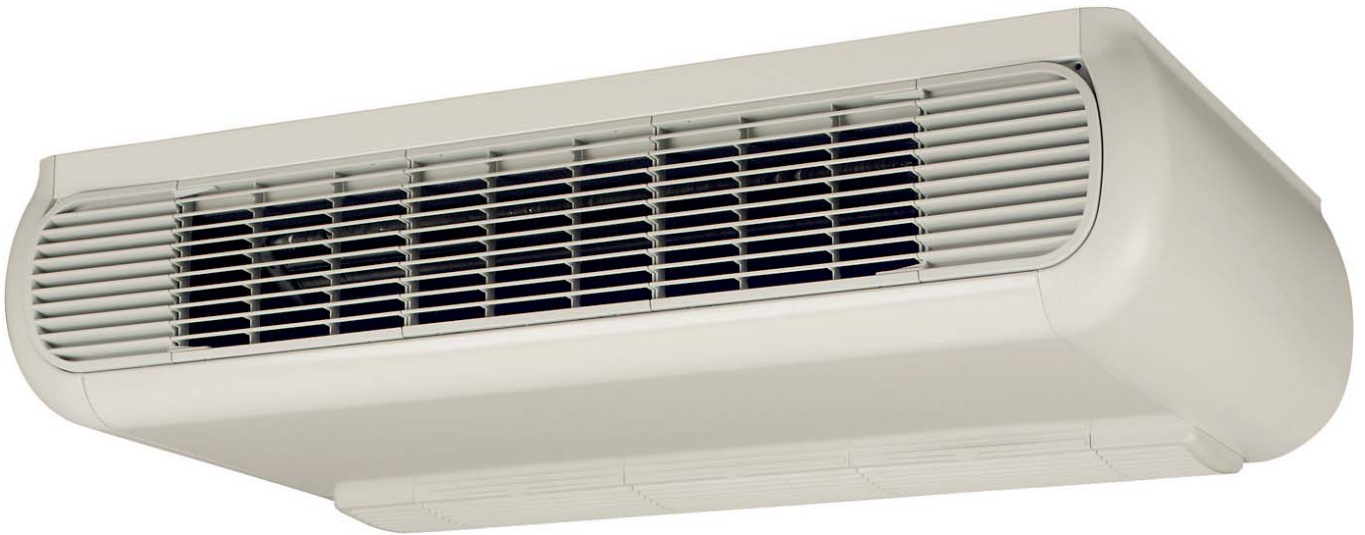
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# 1 Features

## 1 - 1 FWR-AF

- For wall or ceiling mounted installation: ideal solution for spaces with no false ceilings
- Up to 70% energy savings with brushless DC motor technology compared to traditional technology
- Instant adjustment to temperature and relative humidity changes
- Low operating sound level
- Highly flexible solutions: multiple sizes, piping topologies and connection valves
- Requires very little installation space

1



# 1 Features

## 1 - 2 FWR-AT

- For wall or ceiling mounted installation: ideal solution for spaces with no false ceilings
- Up to 70% energy savings with brushless DC motor technology compared to traditional technology
- Instant adjustment to temperature and relative humidity changes
- Low operating sound level
- Highly flexible solutions: multiple sizes, piping topologies and connection valves
- Requires very little installation space



## 2 Specifications

2-1 Technical Specifications FWR-AT/AF				02	03	06	08	02	03	06	08	
Cooling capacity (standard conditions)	Latent capacity 2-pipe	High	kW	0.54 (1)	0.82 (1)	0.98 (1)	2.06 (1)	-				
		High	kW	-				0.33 (1)	0.80 (1)	1.19 (1)	2.03 (1)	
	Sensible capacity 2-pipe	Low	kW	1.04 (1)	1.25 (1)	2.31 (1)	3.04 (1)	-				
		Medium	kW	1.30 (1)	1.69 (1)	2.90 (1)	4.59 (1)	-				
		High	kW	1.49 (1)	2.09 (1)	3.62 (1)	5.87 (1)	-				
	Sensible capacity 4-pipe	Low	kW	-				0.97 (1)	1.23 (1)	2.27 (1)	3.01 (1)	
		Medium	kW	-				1.21 (1)	1.65 (1)	2.85 (1)	4.54 (1)	
		High	kW	-				1.44 (1)	2.06 (1)	3.54 (1)	5.76 (1)	
	Total capacity 2-pipe	Low	kW	1.35 (1)	1.75 (1)	2.99 (1)	4.10 (1)	-				
		Medium	kW	1.69 (1)	2.37 (1)	3.64 (1)	6.20 (1)	-				
		High	kW	1.94 (1)	2.91 (1)	4.48 (1)	7.93 (1)	-				
	Total capacity 4-pipe	Low	kW	-				1.25 (1)	1.72 (1)	3.10 (1)	4.06 (1)	
Medium		kW	-				1.55 (1)	2.32 (1)	3.79 (1)	6.12 (1)		
High		kW	-				1.77 (1)	2.86 (1)	4.64 (1)	7.79 (1)		
Heating capacity (standard conditions)	Capacity 2-pipe	Low	kW	1.50 (2)	1.76 (2)	3.36 (2)	4.39 (2)	-				
		Medium	kW	1.81 (2)	2.37 (2)	4.11 (2)	6.53 (2)	-				
		High	kW	2.15 (2)	2.94 (2)	4.88 (2)	8.37 (2)	-				
	Capacity 4-pipe	Low	kW	-				1.36 (3)	1.88 (3)	3.55 (3)	4.85 (3)	
		Medium	kW	-				1.56 (3)	2.31 (3)	4.07 (3)	6.29 (3)	
		High	kW	-				1.76 (3)	2.68 (3)	4.64 (3)	7.35 (3)	
Power input	Low	kW	0.01			0.013	0.01			0.013		
	Medium	kW	0.01		0.02	0.038	0.01		0.02	0.038		
	High	kW	0.019	0.016	0.033	0.087	0.019	0.016	0.033	0.087		
Dimensions	Unit	Height	mm	564								
		Width	mm	774	984	1,190	1,404	774	984	1,190	1,404	
		Depth	mm	246			271	246			271	
Weight	Unit	kg	21.2	27.5	33.6	43.1	21.2	27.5	33.6	43.1		
Casing	Colour	White - RAL9010				-	White - RAL9010					
	Material	Plastic + sheet metal				Galvanise d steel	Plastic + sheet metal				Galvanise d steel	
Heat exchanger	Type	Cross fin coil										
	Rows	Quantity	3									
	Fin	Type	Aluminium									
	Tube material	Copper										
	Water volume	l	1			1.43	1			1.43		
Additional heat exchanger	Rows	Quantity	-				1					
	Water volume	l	-				0			0.53		
Water flow	Cooling	Low	l/h	234 (1)	302 (1)	515 (1)	706 (1)	216 (1)	297 (1)	535 (1)	699 (1)	
		Medium	l/h	292 (1)	408 (1)	628 (1)	1,071 (1)	267 (1)	400 (1)	654 (1)	1,058 (1)	
		High	l/h	337 (1)	503 (1)	774 (1)	1,376 (1)	307 (1)	493 (1)	802 (1)	1,352 (1)	
	Heating	High	l/h	373 (2)	506 (2)	866 (2)	1,455 (2)	154 (3)	234 (3)	406 (3)	643 (3)	
		Low	l/h	260 (2)	301 (2)	575 (2)	764 (2)	119 (3)	165 (3)	311 (3)	425 (3)	
		Medium	l/h	315 (2)	408 (2)	709 (2)	1,135 (2)	136 (3)	202 (3)	357 (3)	551 (3)	
	Water pressure drop	Cooling	Low	kPa	6 (1)	5 (1)	7 (1)	6 (1)	7 (1)	5 (1)	7 (1)	5 (1)
			Medium	kPa	9 (1)	8 (1)	10 (1)	13 (1)	10 (1)	8 (1)	10 (1)	
			High	kPa	12 (1)	11 (1)	14 (1)	20 (1)	13 (1)	11 (1)	14 (1)	16 (1)
		Heating	Low	kPa	6 (2)	5 (2)	7 (2)	6 (2)	5 (3)	2 (3)	5 (3)	14 (3)
Medium			kPa	9 (2)	8 (2)	10 (2)	12 (2)	5 (3)	3 (3)	6 (3)	22 (3)	
High			kPa	12 (2)	11 (2)	14 (2)	18 (2)	6 (3)	4 (3)	8 (3)	29 (3)	
Fan	Type	Centrifugal										
	Quantity	1		2			1	2				
	Air flow rate	Low	m³/h	211	241	470	642	205	237	460	636	
		Medium	m³/h	271	341	605	1,022	261	332	593	1,007	
High		m³/h	344	442	785	1,393	327	431	763	1,362		
Air filter	Type	Polypropylene net				-	Polypropylene net					

## 2 Specifications

2-1 Technical Specifications FWR-AT/AF				02	03	06	08	02	03	06	08	
Total sound power level	Low	dBA		40 (4)	36 (4)	43 (4)	49 (4)	38 (4)	33 (4)	48 (4)		
	Medium	dBA		44 (4)	42 (4)	49 (4)	60 (4)	44 (4)	41 (4)	53 (4)	58 (4)	
	High	dBA		50 (4)	48 (4)	56 (4)	67 (4)	50 (4)	47 (4)	58 (4)	66 (4)	
Sound pressure level	Low	dBA		35 (5)	31 (5)	38 (5)	44 (6)	33 (5)	28 (5)	43 (5)	43 (6)	
	Medium	dBA		39 (5)	37 (5)	44 (5)	55 (6)	39 (5)	36 (5)	48 (5)	53 (6)	
	High	dBA		45 (5)	43 (5)	51 (5)	62 (6)	45 (5)	42 (5)	54 (5)	61 (6)	
Piping connections	Drain	OD	mm	16								
Insulation material				Closed cells poliethilene				-	Closed cells poliethilene			-
Water connections	Primary coil		inch	1/2"			3/4 "	1/2"			3/4 "	
	Additional coil		inch	-	1/2"	-	1/2"					
Allowed water temperature	Cooling	Min.	°C	5								
		Max.	°C	95.0								
	Heating	Min.	°C	5.00								
		Max.	°C	95.000								
Water content	Primary coil		dm <sup>3</sup>	0.70	1.06	1.43		0.70	1.06	1.43		
	Additional coil		dm <sup>3</sup>	-				0.18	0.29	0.40	0.53	
FCEER CLASS				B	A		-	B	A		-	
FCCOP CLASS				B	A		-	B	A		-	

2-2 Electrical Specifications FWR-AT/AF				02	03	06	08	02	03	06	08	
Fan motor	Control Voltage	Low	V	5.2	3.8	5.0	-	5.2	3.8	5.0	-	
		Medium	V	6.9	5.7	6.7	-	6.9	5.7	6.7	-	
		High	V	8.4	7.3	8.9	-	8.4	7.3	8.9	-	
Electric heater	Type	230 / 1 / 50					-	230 / 1 / 50				
	Phase	1					-	1				
	Frequency	Hz	50					-	50			
	Voltage	V	230					-	230			
	Power input	kW	1.5	1.6	2.0	-	1.5	1.6	2.0	-		
	Current	A	6.8	7.3	9.1	-	6.8	7.3	9.1	-		
Power supply	Type	230 / 1 / 50										
	Phase	1~										
	Frequency	Hz	50									
	Voltage	V	230									
Required wire section		mm <sup>2</sup>	0.5				-	0.5				
Maximum absorbed current		A	0.520	0.650	0.910	-	0.520	0.650	0.910	-		

### Notes

- (1) Cooling: indoor temp. 27°CDB, 19°CWB; entering water temp. 7°C, water temperature rise 5K.
- (2) Heating: indoor temp. 20°CDB, 15°CWB; entering water temp. 45°C, water temperature drop 5K.
- (3) Heating: indoor temp. 20°CDB, 15°CWB; entering water temp. 65°C, water temperature drop 10K.
- (4) Sound power level according to ISO3741
- (5) The sound pressure level is measured via a microphone at 1m distance of the unit.
- (6) SL: The silent fan level of the air flow rate setting

# 3 Options

## 3 - 1 Options

3

FWZ-AT/AF  
FWR-AT/AF  
FWS-AT/AF

Accessories table

Description	Daikin	F4	F6	F9	F10	FWZ	FWR	FWS	Notes/remarks
FCU unit	FWZ+FWR+FWS	2	3	6	8				
Additional single row heat exchanger	ESRH02A6	ESRH03A6	ESRH06A6	ESRH10A6		X	X	X	Can not be used in combination with electric heater
Electric heater	EEH02A6	EEH03A6	EEH06A6	EEH10A6		X	X	X	Can not be used in combination with additional H/E requires electronic controller
2-pipe 230V ON-OFF 3 way motor driven valve complete with mounting kit	E2MV.A6	E2MV03A6	E2MV06A6	E2MV10A6		X	X	X	Requires electronic controller
4-pipe 230V ON-OFF 3 way motor driven valve complete with mounting kit	E4MV.A6	E4MV03A6	E4MV06A6	E4MV10A6		X	X	X	Requires electronic controller
2-pipe 230V ON-OFF 3 way motor driven valve complete with simplified mounting kit	E2MVD.A6	E2MVD03A6	E2MVD06A6	E2MVD10A6		X	X	X	Requires electronic controller
4-pipe 230V ON-OFF 3 way motor driven valve complete with simplified mounting kit	E4MVD.A6	E4MVD03A6	E4MVD06A6	E4MVD10A6		X	X	X	Requires electronic controller
2-pipe 24V ON-OFF 3 way motor driven valve complete with mounting kit	E2M2V.A6	E2M2V03A6	E2M2V06A6	E2M2V10A6		X	X	X	Independent power supply is necessary as fan coil units have not any 230V-24V transformer
4-pipe 24V ON-OFF 3 way motor driven valve complete with mounting kit	E4M2V.A6	E4M2V03A6	E4M2V06A6	E4M2V10A6		X	X	X	Independent power supply is necessary as fan coil units have not any 230V-24V transformer
230V ON-OFF 2 way motor driven valve complete with mounting kit (cooling h/e)	E2MV2B.A6	E2MV2B07A6	E2MV2B07A6	E2MV2B10A6		X	X	X	Requires electronic controller
24V ON-OFF 2 way motor driven valve complete with mounting kit (additional h/e)	E2M2V2.A6	E2M2V207A6	E2M2V207A6	E2M2V210A6		X	X	X	Requires electronic controller
24V ON-OFF 2 way motor driven valve complete with mounting kit (cooling h/e)	E2M2V2.A6	E2M2V207A6	E2M2V207A6	E2M2V210A6		X	X	X	Independent power supply is necessary as fan coil units have not any 230V-24V transformer
24V ON-OFF 2 way motor driven valve complete with mounting kit (additional h/e)	E2M2V2.A6	E2M2V207A6	E2M2V207A6	E2M2V210A6		X	X	X	Independent power supply is necessary as fan coil units have not any 230V-24V transformer
Air intake & discharge grill + front Filter fixing kit for concealed models	EADF.A6	EADF02A6	EADF03A6	EADF06A6	EADF10A6			X	
Supporting feet ( =supporting brackets + covers)	ESFY.A6	ESFY06A6	ESFY06A6	ESFY06A6	ESFY10A6	X		X	Covers can not be used for FWS
Supporting feet + grill	ESFVG.A6	ESFVG02A6	ESFVG03A6	ESFVG06A6	ESFVG10A6	X			
Fresh air intake louvers (manual)	EFA.A6	EFA02A6	EFA03A6	EFA06A6	EFA10A6	X			
Rear panel for vertical mounted models	ERP.V.A6	ERP.V02A6	ERP.V03A6	ERP.V06A6	ERP.V10A6	X	X		Only for vertical mounted units
Plenum box with circular connections	EPCC.A6	EPCC02A6	EPCC03A6	EPCC06A6	EPCC10A6			X	
Vertical Drain Pan	EDP.VA6		EDP.VA6			X	X	X	
Horizontal Drain Pan	EDP.HA6		EDP.HA6				X	X	
Fcu controller - Advanced plus version	FWEC3A		FWEC3A			X	X	X	Water probe included
Fcu temperature sensor kit	FWT.SKA		FWT.SKA			X	X	X	
Fcu relative humidity sensor kit	FWH.SKA		FWH.SKA			X	X	X	
On board fcu controller installation kit	FWECKA		FWECKA			X	X	X	
Wall mounting kit for electronic controller	FWFCKA		FWFCKA				X	X	

4TW60019-2A(1/2)





### 3 Options

#### 3 - 1 Options

3

FWZ-AT  
FWR-AT  
FWS-AT

Accessory: electric heater

Unit	Electric heater	Power input electric heater	
		kW	Current Absorption A
FW02	EEH02A6	1.5	6.52
FW03	EEH03A6	1.6	6.95
FW06	EEH06A6	2.0	8.69
FW08	EEH10A6	3.0	13.00

Power supply = 230 V +/- 10% / 1~ / 50Hz

4TW60011-3A

# 4 Capacity tables

## 4 - 1 Cooling Capacity Tables - 2-pipe

FWZ-AT  
FWR-AT  
FWS-AT

Air Temperature (°C DB - °C WB)		22 - 16															
Water Temperature (Entering °C - leaving °C)		6 - 11				7 - 12				8 - 13				9 - 14			
Model		Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop
		KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa
FW 02 T	Max	1.63	1.40	0.078	9	1.39	1.39	0.066	7	1.25	1.25	0.060	5	1.11	1.11	0.053	4
	Min	0.47	0.36	0.220	1	0.41	0.30	0.020	1	0.36	0.28	0.017	1	0.30	0.25	0.014	1
FW 03 T	Max	3.10	2.58	0.148	13	2.57	2.57	0.122	9	3.31	2.31	0.110	7	2.05	2.05	0.058	6
	Min	0.68	0.47	0.032	1	0.60	0.43	0.029	1	0.53	0.40	0.025	1	0.44	0.36	0.021	1
FW 06 T	Max	3.89	3.44	0.186	10	3.23	3.23	0.154	7	2.89	2.89	0.138	6	2.54	2.54	0.121	5
	Min	0.92	0.63	0.044	1	0.82	0.59	0.039	1	0.71	0.54	0.034	1	0.60	0.49	0.029	1
FW 08 T	Max	6.33	5.33	0.301	14	5.11	5.11	0.244	10	4.59	4.59	0.219	8	4.04	4.04	0.193	6
	Min	1.38	0.96	0.066	1	1.23	0.89	0.059	1	1.07	0.82	0.510	1	0.89	0.74	0.043	1

Air flow at 0Pa

4TW60012-1A(1/10)

FWZ-AT  
FWR-AT  
FWS-AT

Air Temperature (°C DB - °C WB)		27 - 19															
"Water Temperature (Entering °C - leaving °C)"		6 - 11				7 - 12				8 - 13				9 - 14			
Model		Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop
		KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa
FW 02 T	Max	2.99	2.08	0.143	25	2.65	1.95	0.126	20	2.29	1.82	0.109	16	1.91	1.68	0.091	11
	Min	0.66	0.43	0.031	2	0.61	0.41	0.029	2	0.56	0.39	0.027	1	0.50	0.36	0.024	1
FW 03 T	Max	5.58	3.84	0.266	35	4.98	3.60	0.237	29	4.33	3.35	0.207	22	3.64	3.09	0.174	16
	Min	0.95	0.61	0.045	2	0.88	0.58	0.042	1	0.81	0.55	0.038	1	0.73	0.52	0.035	1
FW 06 T	Max	7.12	5.11	0.339	29	6.34	4.80	0.302	24	5.51	4.49	0.263	18	4.16	4.16	0.220	13
	Min	1.28	0.83	0.061	1	1.19	0.79	0.057	1	1.09	0.74	0.052	1	0.99	0.70	0.047	1
FW 08 T	Max	11.28	7.90	0.538	38	10.10	7.42	0.482	32	8.83	6.92	0.421	25	7.45	6.40	0.355	18
	Min	1.94	1.26	0.092	2	1.79	1.20	0.086	2	1.65	1.13	0.079	1	1.49	1.06	0.071	1

Air flow at 0Pa

4TW60012-1A(3/10)

# 4 Capacity tables

## 4 - 1 Cooling Capacity Tables - 2-pipe

4

FWZ-AT  
FWR-AT  
FWS-AT

Air Temperature (°C DB - °C WB)		30 - 22															
Water Temperature (Entering °C - leaving °C)		6 - 11				7 - 12				8 - 13				9 - 14			
Model		Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop
		KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa
FW 02 T	Max	4.42	2.46	0.211	50	4.11	2.34	0.196	44	3.78	2.22	0.180	38	3.43	2.10	0.164	31
	Min	0.87	0.49	0.042	3	0.82	0.47	0.039	3	0.77	0.44	0.037	2	0.72	0.42	0.034	2
FW 03 T	Max	8.05	4.49	0.384	67	7.50	4.28	0.357	59	6.93	4.06	0.330	51	6.33	3.85	0.302	43
	Min	1.24	0.69	0.059	3	1.18	0.66	0.056	2	1.11	0.63	0.053	2	1.03	0.60	0.049	2
FW 06 T	Max	10.30	5.94	0.491	56	9.59	5.67	0.457	49	8.86	5.40	0.423	42	8.11	5.12	0.387	36
	Min	1.69	0.94	0.080	2	1.60	0.90	0.076	2	1.50	0.86	0.072	2	1.40	0.81	0.067	2
FW 08 T	Max	16.11	9.19	0.767	72	15.04	8.76	0.717	63	13.93	8.33	0.664	55	12.77	7.90	0.609	47
	Min	2.55	1.43	0.122	3	2.41	1.36	0.115	3	2.27	1.30	0.108	2	2.12	1.24	0.101	2

Air flow at 0Pa

4TW60012-1A(5/10)

# 4 Capacity tables

## 4 - 2 Cooling Capacity Tables - 4-pipe

**FWZ-AF**  
**FWR-AF**  
**FWS-AF**

Air Temperature (°C DB - °C WB)		22 - 16															
Water Temperature (Entering °C - leaving °C)		6 - 11				7 - 12				8 - 13				9 - 14			
Model		Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop
		KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa
FW 02 F	Max	1.63	1.40	0.078	9	1.39	1.39	0.066	7	1.25	1.25	0.060	5	1.11	1.11	0.053	4
	Min	0.47	0.36	0.220	1	0.41	0.30	0.020	1	0.36	0.28	0.017	1	0.30	0.25	0.014	1
FW 03 F	Max	3.10	2.58	0.148	13	2.57	2.57	0.122	9	2.31	2.31	0.110	7	2.05	2.05	0.098	9
	Min	0.68	0.47	0.032	1	0.60	0.43	0.029	1	0.53	0.40	0.025	1	0.44	0.36	0.021	1
FW 06 F	Max	3.89	3.44	0.186	10	3.23	3.23	0.154	7	2.89	2.89	0.138	6	2.54	2.54	0.121	5
	Min	0.92	0.63	0.044	1	0.82	0.59	0.039	1	0.71	0.54	0.034	1	0.60	0.49	0.029	1
FW 08 F	Max	6.33	5.33	0.301	14	5.11	5.11	0.244	11	4.59	4.59	0.219	8	4.04	4.04	0.193	6
	Min	1.38	0.96	0.066	1	1.23	0.89	0.059	1	1.07	0.82	0.051	1	0.89	0.74	0.043	1

Air flow at 0Pa

4TW60012-1A(2/10)

**FWZ-AF**  
**FWR-AF**  
**FWS-AF**

Air Temperature (°C DB - °C WB)		27 - 19															
Water Temperature (Entering °C - leaving °C)		6 - 11				7 - 12				8 - 13				9 - 14			
Model		Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop
		KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa
FW 02 F	Max	2.99	2.08	0.143	25	2.65	1.95	0.126	20	2.29	1.82	0.109	16	1.91	1.68	0.091	11
	Min	0.66	0.43	0.031	2	0.61	0.41	0.029	2	0.56	0.39	0.027	1	0.50	0.36	0.024	1
FW 03 F	Max	5.58	3.84	0.266	35	4.98	3.60	0.237	29	4.33	3.35	0.207	22	3.64	3.09	0.174	16
	Min	0.95	0.61	0.045	2	0.88	0.58	0.042	1	0.81	0.55	0.038	1	0.73	0.52	0.035	1
FW 06 F	Max	7.12	5.11	0.339	29	6.34	4.80	0.302	24	5.51	4.49	0.263	18	4.61	4.16	0.220	13
	Min	1.28	0.83	0.061	1	1.19	0.79	0.057	1	1.09	0.74	0.052	1	0.99	0.70	0.047	1
FW 08 F	Max	11.28	7.90	0.538	38	10.10	7.42	0.482	32	8.83	6.92	0.421	25	7.45	6.40	0.355	18
	Min	1.94	1.26	0.092	2	1.79	1.20	0.086	2	1.65	1.13	0.079	1	1.49	1.06	0.071	1

Air flow at 0Pa

4TW60012-1A(4/10)

# 4 Capacity tables

## 4 - 2 Cooling Capacity Tables - 4-pipe

4

FWZ-AF  
FWR-AF  
FWS-AF

Air Temperature (°C DB - °C WB)		30-22															
Water Temperature (Entering °C - leaving °C)		6 - 11				7 - 12				8 - 13				9 - 14			
Model		Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop	Total cooling cap	Sensible cooling cap	Water flow	Water pressure drop
		KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa	KW	KW	l/sec	kPa
FW 02 F	Max	4.42	2.46	0.211	50	4.11	2.34	0.196	44	3.78	2.22	0.180	38	3.43	2.10	0.164	31
	Min	0.87	0.49	0.042	3	0.82	0.47	0.039	3	0.77	0.44	0.037	2	0.72	0.42	0.034	2
FW 03 F	Max	8.05	4.49	0.384	67	7.50	4.28	0.357	59	6.93	4.06	0.330	51	6.33	3.85	0.302	43
	Min	1.24	0.69	0.059	3	1.18	0.66	0.056	2	1.11	0.63	0.053	2	1.03	0.60	0.049	2
FW 06 F	Max	10.30	5.94	0.491	56	9.59	5.67	0.457	49	8.86	5.40	0.423	42	8.11	5.12	0.387	36
	Min	1.69	0.94	0.080	2	1.60	0.90	0.076	2	1.50	0.86	0.072	2	1.40	0.81	0.067	2
FW 08 F	Max	16.11	9.19	0.767	72	15.04	8.76	0.717	63	13.93	8.33	0.664	55	12.77	7.90	0.609	47
	Min	2.55	1.43	0.122	3	2.41	1.36	0.115	3	2.27	1.30	0.108	2	2.12	1.24	0.101	2

Air flow at 0Pa

4TW60012-1A(6/10)

# 4 Capacity tables

## 4 - 3 Heating Capacity Tables - 2-pipe

FWZ-AT  
FWR-AT  
FWS-AT

Air Temperature (°C)		20								
Water Temperature (Entering °C - leaving °C)		50 - 45			60 - 50			70 - 60		
Model		Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop
		KW	l/sec	kPa	KW	l/sec	kPa	KW	l/sec	kPa
FW 02 T	Max	3.61	0.175	29	4.56	0.111	13	5.94	0.145	20
	Min	0.69	0.033	2	0.90	0.022	1	1.15	0.028	1
FW 03 T	Max	6.62	0.321	39	8.40	0.204	17	10.91	0.266	27
	Min	0.95	0.046	1	1.26	0.030	1	1.59	0.039	1
FW 06 T	Max	7.93	0.384	29	10.43	0.243	13	13.05	0.318	20
	Min	1.29	0.063	1	1.69	0.041	1	2.15	0.052	1
FW 08 T	Max	11.32	0.548	32	14.35	0.348	14	18.63	0.454	22
	Min	1.93	0.930	1	2.48	0.060	1	3.20	0.078	1

Air flow at 0Pa

4TW60012-1A(7/10)

FWZ-AT  
FWR-AT  
FWS-AT

Air Temperature (°C)		22								
Water Temperature (Entering °C - leaving °C)		50 - 45			60 - 50			70 - 60		
Model		Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop
		KW	l/sec	kPa	KW	l/sec	kPa	KW	l/sec	kPa
FW 02 T	Max	3.33	0.161	25	4.27	0.104	11	5.66	0.138	18
	Min	0.06	0.031	1	0.09	0.021	1	1.09	0.027	1
FW 03 T	Max	6.11	0.296	34	7.88	0.191	16	10.38	0.253	24
	Min	0.88	0.043	1	1.18	0.029	1	1.51	0.037	1
FW 06 T	Max	7.32	0.354	25	9.41	0.228	11	12.42	0.303	18
	Min	1.20	0.058	1	1.59	0.039	1	2.05	0.050	1
FW 08 T	Max	10.45	0.506	28	13.46	0.327	13	17.74	0.432	20
	Min	1.78	0.086	1	2.33	0.056	1	3.05	0.074	1

Air flow at 0Pa

4TW60012-1A(8/10)

# 4 Capacity tables

## 4 - 4 Heating Capacity Tables - 4-pipe

4

**FWZ-AF**  
**FWR-AF**  
**FWS-AF**

Air Temperature (°C)		20								
Water Temperature (Entering °C - leaving °C)		50 - 45			60 - 50			70 - 60		
Model		Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop
		KW	l/sec	kPa	KW	l/sec	kPa	KW	l/sec	kPa
FW 02 F	Max	1.50	0.073	16	1.83	0.044	6	2.46	0.060	11
	Min	0.50	0.024	1	0.61	0.015	1	0.82	0.020	2
FW 03 F	Max	2.56	0.124	14	3.09	0.075	5	4.19	0.102	9
	Min	0.72	0.035	1	0.85	0.021	1	1.18	0.029	1
FW 06 F	Max	3.94	0.191	21	4.82	0.117	9	6.45	0.157	14
	Min	1.06	0.051	2	1.32	0.032	1	1.76	0.043	1
FW 08 F	Max	6.14	0.297	68	7.62	0.185	29	10.05	0.245	45
	Min	1.71	0.083	7	2.18	0.053	3	2.83	0.069	5

Air flow at 0Pa

4TW60012-1A(9/10)

**FWZ-AF**  
**FWR-AF**  
**FWS-AF**

Air Temperature (°C)		22								
Water Temperature (Entering °C - leaving °C)		50 - 45			60 - 50			70 - 60		
Model		Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop
		KW	l/sec	kPa	KW	l/sec	kPa	KW	l/sec	kPa
FW 02 F	Max	1.38	0.067	14	1.71	0.046	6	2.33	0.057	10
	Min	0.46	0.022	1	0.06	0.014	1	0.78	0.019	1
FW 03 F	Max	2.35	0.114	12	2.86	0.069	5	3.98	0.097	8
	Min	0.65	0.032	1	0.78	0.019	1	1.12	0.027	1
FW 06 F	Max	3.62	0.175	18	4.50	0.109	8	6.13	0.149	13
	Min	0.98	0.047	2	1.22	0.030	1	1.67	0.041	1
FW 08 F	Max	5.66	0.274	59	7.14	0.173	26	9.57	0.233	42
	Min	1.58	0.076	6	2.04	0.049	3	2.69	0.066	5

Air flow at 0Pa

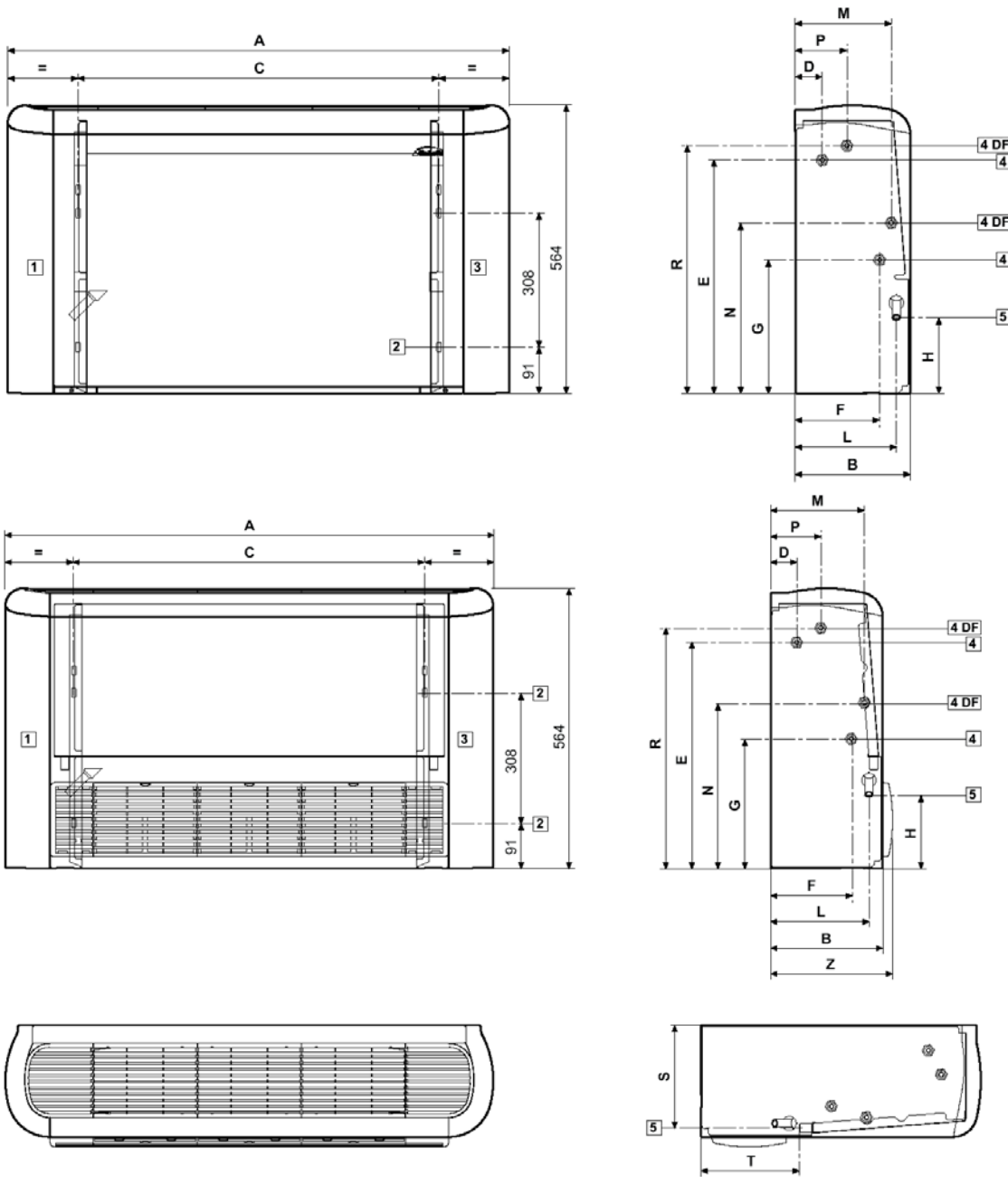
4TW60012-1A(10/10)



# 5 Dimensional drawings

## 5 - 1 Dimensional Drawings

FWZ-AT/AF  
FWR-AT/AF



	A	B	C	D	E	F	G	H	L	M	N	P	R	S	T	Z
FWZ+FWR 02	774	226	498	51	458	163	263	149	198	187	335	99	486	208	198	246
FWZ+FWR 03	987	226	708	51	458	163	263	149	198	187	335	99	486	208	198	246
FWZ+FWR 06	1194	226	918	51	458	163	263	149	198	187	335	99	486	208	198	246
FWZ+FWR 08	1404	251	1128	48	497	185	259	155	220	195	348	120	478	234	208	271

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# 5 Dimensional drawings

## 5 - 1 Dimensional Drawings

5

FWZ-AT/AF  
FWR-AT/AF  
FWS-AT/AF

### Minimum required installation space

Keep at least 100 mm of free space at air inlet for a proper air suction and an easy removal of the filter. For ducted units the outlet/inlet grill surface must be at least equal to the outlet/inlet surface of the unit to avoid extra noise and strong performances reduction.

### Legenda

- 1 Clear space for hydraulic connections(\*)
- 2 Slots for wall/ceiling mounting 9 x 20 mm
- 3 Clear space for electric connections(\*)
- 4 Hydraulic connections (4 DF = 4 pipe system)
- 5 Condensate drainage for vertical installation
- 6 Air outlet for concealed models
- 7 Air suction for concealed models
- 8 Condensate draining for horizontal installation
- 9 Air outlet
- 10 Air inlet

(\*) Indications applicable to units with hydraulic connections on the left side; in case of right side connections the indications for "clear space" are reversed.

### Hydraulic connections

#### Standard Heat exchanger: connection female

FW02	FW03	FW06	FW08
1/2"	1/2"	1/2"	3/4"

#### Additional Heat exchanger: connection female

FW02	FW03	FW06	FW08
1/2"	1/2"	1/2"	1/2"

# 6 Sound data

## 6 - 1 Sound Level Data - 2-pipe

FWZ-AT  
FWR-AT  
FWS-AT

Sound power level and Spectrum								
FW02 T								
Sound Power Levels dB(A)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw
max	41.8	55.1	57.2	56.8	53.5	45.2	31	62.0
min	-	19.9	25.3	21.6	16.1	-	-	28.0
FW03 T								
Sound Power Levels dB(A)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw
max	47.2	59.6	65.2	65.9	63.3	55.8	43.6	70.3
min	-	20.8	25.4	21.2	14.3	-	-	28.0
FW06 T								
Sound Power Levels dB(A)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw
max	41.1	55.0	59.2	59.3	56.4	48.4	36.1	64.0
min	-	21.0	24.9	21.1	17.8	-	-	28.0
FW08 T								
Sound Power Levels dB(A)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw
max	46.6	61.0	65.3	66.7	63.8	56.7	46.7	70.9
min	-	21.5	24.7	21.9	15.2	-	-	28.0
Conditions of measurements	ISO3741: in case of (M) models the sound power is calculated WITHOUT any additional inlet or outlet grill or plenum!							

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 FCU is installed near 2 walls (vertical or floor-ceiling), Q=2 if the FCU is installed near 1 wall (at floor or ceiling but faraway the 2<sup>o</sup> wall)  
 d = distance (mt) from the sound source and the measure point  
 Lp = sound pressure (dB A)  
 Lw = sound power (dB A)

# 6 Sound data

## 6 - 2 Sound Level Data - 4-pipe

6

FWZ-AF  
FWR-AF  
FWS-AF

Sound power level and Spectrum								
FW02 F								
Sound Power Levels dB(A)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw
max	41,8	55,1	57,2	56,8	53,5	45,2	31	62,0
min	-	19,9	25,3	21,6	16,1	-	-	28,0
FW03 F								
Sound Power Levels dB(A)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw
max	47,2	59,6	65,2	65,9	63,3	55,8	43,6	70,3
min	-	20,8	25,4	21,2	14,3	-	-	28,0
FW06 F								
Sound Power Levels dB(A)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw
max	41,1	55,0	59,2	59,3	56,4	48,4	36,1	64,0
min	-	21,0	24,9	21,1	17,8	-	-	28,0
FW08 F								
Sound Power Levels dB(A)	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	Global Lw
max	46,6	61,0	65,3	66,7	63,8	56,7	46,7	70,9
min	-	21,5	24,7	21,9	15,2	-	-	28,0
Conditions of measurements	ISO3741: in case of (M) models the sound power is calculated WITHOUT any additional inlet or outlet grill or plenum!							

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 FCU is installed near 2 walls (vertical or floor-ceiling), Q=2 if the FCU is installed near 1 wall (at floor or ceiling but faraway the 2° wall)  
 d = distance (m) from the sound source and the measure point  
 Lp = sound pressure (dB A)  
 Lw = sound power (dB A)

## 7 Hydraulic performance

### 7 - 1 Water Pressure Drop Curve Evaporator - Cooling 2-pipe

FWZ-AT  
FWR-AT  
FWS-AT

Water Flow l/h	Water Pressure Drop			
	FW2	FW3	FW6	FW8
	kPa	kPa	kPa	kPa
50	0.41	0.19	0.1	0.05
100	1.42	0.66	0.35	0.16
200	4.81	2.25	1.21	0.56
300	9.81	4.6	2.46	1.14
400	16.27	7.63	4.09	1.9
500	24.09	11.3	6.06	2.82
600	33.19	15.57	8.35	3.89
800	55.02	25.82	13.84	6.44
1000	81.4	38.2	20.5	9.54
1500	165.77	77.83	41.8	19.46
2000		128.9	69.27	32.27
2500			102.47	47.75
3000			141.09	65.76
4000				108.92
5000				161.06

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## 7 Hydraulic performance

### 7 - 2 Water Pressure Drop Curve Evaporator - Heating 2-pipe

FWZ-AT  
FWR-AT  
FWS-AT

7

Water Flow l/h	Water Pressure Drop			
	FW2	FW3	FW6	FW8
	kPa	kPa	kPa	kPa
50	0.36	0.17	0.09	0.04
100	1.19	0.56	0.31	0.14
200	3.94	1.86	1.01	0.47
300	7.97	3.75	2.04	0.96
400	13.14	6.18	3.36	1.57
500	19.39	9.12	4.95	2.32
600	26.64	12.53	6.79	3.18
800	44.01	20.69	11.2	5.24
1000	64.97	30.54	16.52	7.72
1500		62.01	33.49	15.64
2000		102.52	55.34	25.84
2500			81.71	38.15
3000			112.36	52.45
4000				86.7
5000				

4TW60019-1A(2/3)

## 7 Hydraulic performance

### 7 - 3 Water Pressure Drop Curve Evaporator - Heating 4-pipe

FWZ-AF  
FWR-AF  
FWS-AF

Water Flow l/h	Water Pressure Drop			
	FW2	FW3	FW6	FW8
	kPa	kPa	kPa	kPa
50	0.84	0.28	0.25	0.32
100	2.78	0.94	0.82	1.05
200	9.27	3.13	2.72	3.47
300	18.76	6.33	5.48	6.99
400	30.96	10.43	9.03	11.49
500	45.69	15.39	13.3	16.9
600	62.8	21.14	18.26	23.19
800	103.76	34.91	30.12	38.2
1000		51.53	44.43	56.31
1500		104.6	90.1	114.07

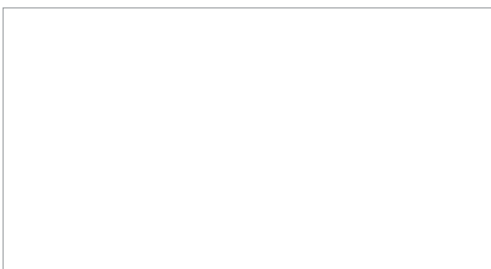
4TW60019-1A(3/3)







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