

Air conditioner units

Janus ECM





TABLE OF CONTENTS

Janus ECM

Introduction	4
Construction features	5
Main performances and technical characteristics	6
Cooling capacity	10
Heating capacity	13
Water side pressure drop	15
Operation limits	16
Dimensions	17
Configuration	18
JETSTREAM induction flow optimizer	20
Accessories	22
Controls	29

INTRODUCTION

Since **1950** Sabiana has been manufacturing **hot water, high temperature hot water and steam unit heaters** for heating industrial and commercial environments, with proprietary manufacturing technology and a wide range of solutions.

Janus ECM units can be used not only to heat but also to economically cool industrial, commercial and sporting facilities, transforming a traditional heating system using unit heaters into a system that can also be used in summer months, significantly improving the working conditions.

A further development is proposed in this catalogue: every model is provided with an electronic motor controlled by a built-in inverter.

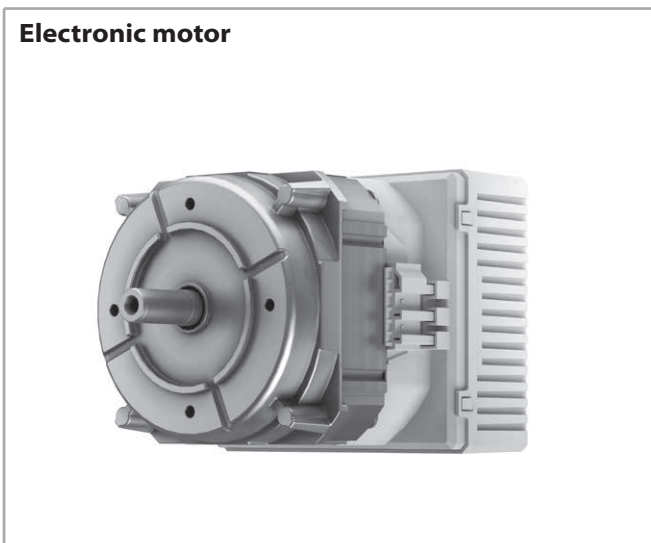
The ECM motors allow electric energy saving if compared to traditional asynchronous motors and they enable to **continuously adjust** the air flow and **control** the ambient temperature **with precision**, with further benefits in terms of very low noise.

All range is compliant with the **Regulation (EU) No. 327/2011** which requires **very low electric consumption ratings** in relation to aeraulic performance provided.

Sabiana is the leading manufacturer of unit heaters, and competes worldwide providing the latest technology in environmental comfort.



Electronic motor



Helicoidal fan



CONSTRUCTION FEATURES

The Janus ECM units are made in 4 sizes, each with 3 and 4 row coils (a total of 8 models) with heat outputs from 7 to 71 kW (with water to 65/55 °C) and cooling capacities from 4 to 27 kW (with water to 7/12 °C).

The Janus ECM units are suitable for hot water and chilled water supply.

They are not suitable for steam supply.

Casing

The main casing is manufactured from galvanized pre-painted steel finished in a light grey colour (RAL 9002) and is assembled from three component parts. The steel is 1 mm thick and prepainted before manufacture to prevent the material being subjected to oxidation. The component parts are held together by anti vibration screws that allow easy and fast access and maintenance of the unit and coil.

The use of steel with 200 g/m² (according to Euronorm 142 - 79) and prepainting guarantees a perfect finish and superior protection against corrosion.

Coil

The heat exchanger (3 or 4 rows) is manufactured from the highest quality copper tube. The fins are pressed from aluminium sheet, bonded onto the tubes facilitating the maximum transfer contact possible.

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

Condensate collection tray

Condensate collection tray, fitted inside the unit.

Electronic motor

Single phase permanent magnet brushless electronic motor, IP 44 protection and class B insulation. It is controlled with reconstructed current according to a sinusoidal wave.

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

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

Helicoidal fan

The fan, made of plastic material with glass reinforced plastic for the sizes 2-4-6 and of aluminium for the size 9, has a high-capacity profile that provides the maximum air volume with the minimum energy consumption.

The finger proof guard is painted with electroplating treatment, that ensures more protection against corrosion.

The air flow is uniformly distributed through the whole coil and consequently the unit is very quiet.

Fan/Motor assembly support

The finger proof guard also acts as the main support and fixing frame.

This frame, made from galvanized steel, is mounted onto the main casing via residually anti-vibration rubber mountings.

Louvres

Louvres are made from a profiled prepainted steel sheet with a design that allows excellent direction of air flow.

The adjustable louvres are held in place by spring loaded pivots which allow the rotation of every single louvre in the desired position without vibrations.

Fourway distribution is achieved by the addition of a second set of louvres to the front of the unit, generally for downward application.



MAIN PERFORMANCES AND TECHNICAL CHARACTERISTICS

Cooling mode

Entering air temperature: 28 °C - R.H.: 55 %

MODEL		F-ECM 23			F-ECM 24		
Inverter speed signal (Vdc)		1	2	4	1	2	4
Speed	rpm	500	600	800	500	600	800
Air flow	m ³ /h	700	865	1175	635	785	1070
WT 7/12°C - ΔT=5°C Total capacity	kW	3,53	3,96	4,65	4,08	4,64	5,59
WT 7/12°C - ΔT=5°C Sensible capacity	kW	2,31	2,66	3,25	2,57	2,98	3,71
WT 7/12°C - ΔT=5°C Leaving air temperature	°C	17,90	18,60	19,60	15,60	16,40	17,40
WT 11/15°C - ΔT=4°C Total capacity	kW	2,50	2,82	3,29	2,89	3,29	3,93
WT 11/15°C - ΔT=4°C Sensible capacity	kW	1,99	2,33	2,90	2,16	2,54	3,21
WT 11/15°C - ΔT=4°C Leaving air temperature	°C	19,30	19,80	20,50	17,60	18,10	18,80
WT 9/14°C - ΔT=5°C Total capacity	kW	2,83	3,19	3,74	3,31	3,75	4,48
WT 9/14°C - ΔT=5°C Sensible capacity	kW	2,07	2,40	2,99	2,29	2,68	3,35
WT 9/14°C - ΔT=5°C Leaving air temperature	°C	18,90	19,50	20,20	17,00	17,60	18,40
Fan	W	17,0	22,0	42,0	17,0	22,0	42,0
Sound power (Lw)	dB(A)	48,0	52,5	61,5	48,0	52,5	61,5
Sound pressure (Lp) ⁽¹⁾	dB(A)	26,0	30,5	39,5	26,0	30,5	39,5
Wall installation : Throw	m	5,0	5,5	6,5	4,5	5,0	6,0
Wall installation : Height	m	2,5 ÷ 4					

⁽¹⁾ The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

WT Water temperature

MODEL		F-ECM 43			F-ECM 44		
Inverter speed signal (Vdc)		1	2	4	1	2	4
Speed	rpm	500	600	800	500	600	800
Air flow	m ³ /h	1110	1345	1825	1010	1225	1660
WT 7/12°C - ΔT=5°C Total capacity	kW	6,21	6,90	8,11	7,19	8,11	9,71
WT 7/12°C - ΔT=5°C Sensible capacity	kW	3,99	4,53	5,52	4,41	5,06	6,25
WT 7/12°C - ΔT=5°C Leaving air temperature	°C	17,00	17,70	18,70	14,70	15,40	16,40
WT 11/15°C - ΔT=4°C Total capacity	kW	4,42	4,90	5,77	11,20	12,73	15,67
WT 11/15°C - ΔT=4°C Sensible capacity	kW	3,39	3,89	4,85	5,14	5,78	6,90
WT 11/15°C - ΔT=4°C Leaving air temperature	°C	18,70	19,20	19,90	3,68	4,25	5,33
WT 9/14°C - ΔT=5°C Total capacity	kW	5,05	5,64	6,45	5,91	6,63	7,90
WT 9/14°C - ΔT=5°C Sensible capacity	kW	3,56	4,08	5,01	3,92	4,51	5,62
WT 9/14°C - ΔT=5°C Leaving air temperature	°C	18,20	18,70	19,60	16,20	16,70	17,60
Fan	W	19,0	29,0	63,0	19,0	29,0	63,0
Sound power (Lw)	dB(A)	53,5	58,5	66,5	53,5	58,5	66,5
Sound pressure (Lp) ⁽¹⁾	dB(A)	31,5	36,5	44,5	31,5	36,5	44,5
Wall installation : Throw	m	6,5	7,5	9,0	6,0	7,0	8,5
Wall installation : Height	m	3 ÷ 4,5					

⁽¹⁾ The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

WT Water temperature

Cooling mode

Entering air temperature: 28 °C - R.H.: 55 %

MODEL		F-ECM 63			F-ECM 64		
Inverter speed signal (Vdc)		1	2	4	1	2	4
Speed	rpm	500	600	800	500	600	800
Air flow	m ³ /h	1670	2035	2760	1520	1850	2510
WT 7/12°C - ΔT=5°C Total capacity	kW	9,74	10,90	12,84	11,10	12,60	15,12
WT 7/12°C - ΔT=5°C Sensible capacity	kW	6,14	7,01	8,54	6,74	7,77	9,61
WT 7/12°C - ΔT=5°C Leaving air temperature	°C	16,70	17,50	18,50	14,40	15,10	16,30
WT 11/15°C - ΔT=4°C Total capacity	kW	6,97	7,78	9,14	7,99	9,04	10,80
WT 11/15°C - ΔT=4°C Sensible capacity	kW	5,14	5,92	7,35	5,58	6,48	8,13
WT 11/15°C - ΔT=4°C Leaving air temperature	°C	18,60	19,10	19,80	16,80	17,30	18,10
WT 9/14°C - ΔT=5°C Total capacity	kW	8,00	8,92	10,45	9,19	10,39	12,38
WT 9/14°C - ΔT=5°C Sensible capacity	kW	5,49	6,28	7,68	6,00	6,93	8,58
WT 9/14°C - ΔT=5°C Leaving air temperature	°C	18,00	18,60	19,50	15,90	16,60	17,50
Fan	W	29,0	43,0	99,0	29,0	43,0	99,0
Sound power (Lw)	dB(A)	57,5	62,5	70,5	57,5	62,5	70,5
Sound pressure (Lp) ⁽¹⁾	dB(A)	35,5	40,5	48,5	35,5	40,5	48,5
Wall installation : Throw	m	6,5	8,0	10,5	6,0	7,5	9,5
Wall installation : Height	m	3 ÷ 5					

⁽¹⁾ The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

WT Water temperature

MODEL		F-ECM 93			F-ECM 94		
Inverter speed signal (Vdc)		1	2	4	1	2	4
Speed	rpm	600	635	710	600	635	710
Air flow	m ³ /h	4760	5030	5620	4430	4700	5275
WT 7/12°C - ΔT=5°C Total capacity	kW	21,06	21,70	22,90	24,93	25,72	27,42
WT 7/12°C - ΔT=5°C Sensible capacity	kW	14,20	14,74	15,79	16,17	16,81	18,17
WT 7/12°C - ΔT=5°C Leaving air temperature	°C	18,90	19,10	19,50	16,90	17,10	17,50
WT 11/15°C - ΔT=4°C Total capacity	kW	15,05	16,07	16,27	17,67	18,27	19,39
WT 11/15°C - ΔT=4°C Sensible capacity	kW	12,44	13,25	13,94	13,87	14,49	15,75
WT 11/15°C - ΔT=4°C Leaving air temperature	°C	21,00	20,00	20,50	18,50	18,60	18,90
WT 9/14°C - ΔT=5°C Total capacity	kW	17,09	17,55	18,43	20,20	20,82	22,35
WT 9/14°C - ΔT=5°C Sensible capacity	kW	12,85	13,33	14,33	14,57	15,18	16,57
WT 9/14°C - ΔT=5°C Leaving air temperature	°C	19,80	19,90	20,30	18,00	18,20	18,50
Fan	W	135,0	155,0	207,0	135,0	155,0	207,0
Sound power (Lw)	dB(A)	65,0	70,0	75,0	65,0	70,0	75,0
Sound pressure (Lp) ⁽¹⁾	dB(A)	43,0	48,0	53,0	43,0	48,0	53,0
Wall installation : Throw	m	13,0	14,0	16,5	11,0	12,5	15,0
Wall installation : Height	m	3,5 ÷ 5,5					

⁽¹⁾ The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

WT Water temperature

Heating mode

Entering air temperature: 15 °C

MODEL		F-ECM 23						F-ECM 24					
Inverter speed signal (Vdc)		1	2	4	6	8	10	1	2	4	6	8	10
Speed	rpm	500	600	800	1010	1210	1300	500	600	800	1010	1210	1300
Air flow	m ³ /h	700	865	1175	1485	1815	1960	635	785	1070	1350	1650	1780
WT=45/40°C Heating capacity	kW	4,19	4,87	6,03	7,01	7,97	8,30	4,55	5,35	6,74	7,92	9,10	9,52
WT=45/40°C Leaving air temperature	°C	32,6	31,5	30,0	28,8	27,8	27,5	36,0	35,0	33,4	32,2	31,1	30,8
WT=65/55°C Heating capacity	kW	6,88	7,99	9,88	11,49	13,05	13,60	7,49	8,80	11,06	13,02	14,93	15,60
WT=65/55°C Leaving air temperature	°C	43,9	42,1	39,6	37,7	36,1	35,5	49,6	47,9	45,3	43,3	41,5	40,9
WT=85/65°C Heating capacity	kW	9,07	10,51	12,95	15,03	17,05	17,75	9,94	11,65	14,58	17,11	19,57	20,48
WT=85/65°C Leaving air temperature	°C	53,1	50,7	47,2	44,7	42,5	41,8	60,9	58,5	54,9	52,1	49,7	49,4
Fan	W	17,0	22,0	42,0	77,0	132,0	157,0	17,0	22,0	42,0	77,0	132,0	157,0
Sound power (Lw)	dB(A)	48,0	52,5	61,5	66,5	70,5	72,0	48,0	52,5	61,5	66,5	70,5	72,0
Sound pressure (Lp) ⁽¹⁾	dB(A)	26,0	30,5	39,5	44,5	48,5	50,0	26,0	30,5	39,5	44,5	48,5	50,0
Wall installation : Throw	m	5,0	5,5	6,5	7,0	8,0	8,5	5,0	6,0	6,5	7,5	8,0	
Wall installation : Height	m	2,5 ÷ 4											

⁽¹⁾ The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

WT Water temperature

MODEL		F-ECM 43						F-ECM 44					
Inverter speed signal (Vdc)		1	2	4	6	8	10	1	2	4	6	8	10
Speed	rpm	500	600	800	1010	1210	1300	500	600	800	1010	1210	1300
Air flow	m ³ /h	1110	1345	1825	2310	2765	2980	1010	1225	1660	2100	2515	2710
WT=45/40°C Heating capacity	kW	6,77	7,75	9,56	11,16	12,56	13,16	7,37	8,53	10,69	12,65	14,35	15,09
WT=45/40°C Leaving air temperature	°C	32,8	31,9	30,4	29,2	28,3	27,9	36,3	34,4	33,9	32,7	31,7	31,3
WT=65/55°C Heating capacity	kW	11,12	12,73	15,67	18,32	20,60	21,56	12,13	14,03	17,55	20,79	23,58	24,76
WT=65/55°C Leaving air temperature	°C	44,3	42,7	40,2	38,3	36,8	36,2	50,1	48,6	46,1	44,1	42,4	41,8
WT=85/65°C Heating capacity	kW	14,72	16,81	20,65	24,06	27,00	28,24	16,19	18,67	23,29	27,47	31,08	32,65
WT=85/65°C Leaving air temperature	°C	53,7	51,6	48,2	45,6	43,6	42,8	61,8	59,7	56,2	53,4	51,2	50,3
Fan	W	19,0	29,0	63,0	119,0	192,0	232,0	19,0	29,0	63,0	119,0	192,0	232,0
Sound power (Lw)	dB(A)	53,5	58,5	66,5	72,5	77,0	79,0	53,5	58,5	66,5	72,5	77,0	79,0
Sound pressure (Lp) ⁽¹⁾	dB(A)	31,5	36,5	44,5	50,5	55,0	57,0	31,5	36,5	44,5	50,5	55,0	57,0
Wall installation : Throw	m	6,5	7,5	9,0	11,0	12,5	13,0	6,0	7,0	8,5	10,0	11,5	12,0
Wall installation : Height	m	3 ÷ 4,5											

⁽¹⁾ The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

WT Water temperature

MODEL		F-ECM 63						F-ECM 64					
Inverter speed signal (Vdc)		1	2	4	6	8	10	1	2	4	6	8	10
Speed	rpm	500	600	800	1010	1210	1300	500	600	800	1010	1210	1300
Air flow	m ³ /h	1670	2035	2760	3500	4200	4530	1520	1850	2510	3180	3820	4120
WT=45/40°C Heating capacity	kW	10,26	11,80	14,58	17,08	19,22	20,15	11,12	12,95	16,25	19,28	21,87	23,03
WT=45/40°C Leaving air temperature	°C	33,0	32,0	30,5	29,3	28,3	28,0	36,4	35,5	34,0	32,7	31,7	31,3
WT=65/55°C Heating capacity	kW	16,85	19,41	23,91	28,01	31,48	33,01	18,32	21,31	26,07	31,67	35,95	37,77
WT=65/55°C Leaving air temperature	°C	44,5	42,9	40,4	38,4	36,9	36,3	50,3	48,7	46,2	44,1	42,5	41,8
WT=85/65°C Heating capacity	kW	22,39	25,70	31,61	36,09	41,47	43,47	24,50	28,41	35,49	41,96	47,56	50,00
WT=85/65°C Leaving air temperature	°C	54,3	52,0	48,6	45,9	43,8	43,0	62,3	60,0	56,5	53,6	51,4	50,5
Fan	W	29,0	43,0	99,0	195,0	322,0	393,0	29,0	43,0	99,0	195,0	322,0	393,0
Sound power (Lw)	dB(A)	57,5	62,5	70,5	76,5	81,0	83,0	57,5	62,5	70,5	76,5	81,0	83,0
Sound pressure (Lp) ⁽¹⁾	dB(A)	35,5	40,5	48,5	54,5	59,0	61,0	35,5	40,5	48,5	54,5	59,0	61,0
Wall installation : Throw	m	6,5	8,0	10,5	13,0	15,5	16,5	6,0	7,5	9,5	12,0	14,5	15,5
Wall installation : Height	m	3 ÷ 5											

⁽¹⁾ The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

WT Water temperature

Heating mode

Entering air temperature: 15 °C

MODEL	Inverter speed signal (Vdc)	F-ECM 93						F-ECM 94					
		1	2	4	6	8	10	1	2	4	6	8	10
Speed	rpm	600	635	710	785	860	950	600	635	710	785	860	950
Air flow	m ³ /h	4760	5030	5620	6210	6790	7440	4430	4700	5275	5855	6430	7085
WT=45/40°C Heating capacity	kW	27,98	29,07	31,35	33,52	35,57	37,78	31,01	32,43	35,29	38,06	40,67	43,53
WT=45/40°C Leaving air temperature	°C	32,2	31,9	31,3	30,8	30,3	29,8	35,5	35,2	34,6	34,0	33,5	33,0
WT=65/55°C Heating capacity	kW	15,96	47,73	51,50	55,04	58,37	61,97	51,02	53,31	58,03	62,55	66,81	71,49
WT=65/55°C Leaving air temperature	°C	43,2	42,8	41,8	40,9	40,1	39,4	48,7	48,2	47,1	46,2	45,4	44,5
WT=85/65°C Heating capacity	kW	60,62	62,89	67,77	72,34	76,64	81,28	67,71	70,62	76,80	82,64	88,20	94,21
WT=85/65°C Leaving air temperature	°C	52,2	51,6	50,3	49,1	48,0	47,0	59,7	58,9	57,6	56,3	55,1	53,9
Fan	W	135,0	155,0	207,0	271,0	345,0	450,0	135,0	155,0	207,0	271,0	345,0	450,0
Sound power (Lw)	dB(A)	65,0	70,0	75,0	79,0	81,0	84,0	65,0	70,0	75,0	79,0	81,0	84,0
Sound pressure (Lp) ⁽¹⁾	dB(A)	43,0	48,0	53,0	57,0	59,0	62,0	43,0	48,0	53,0	57,0	59,0	62,0
Wall installation : Throw	m	13,0	14,0	16,5	18,5	21,0	23,0	12,5	15,0	17,5	19,5	22,0	
Wall installation : Height	m	3,5 ÷ 5,5											

⁽¹⁾ The sound pressure levels dB(A) are measured at a distance of 5 m, directional factor Q = 2, compliant with the EN 3744 standard.

WT Water temperature

COOLING CAPACITY

Entering air temperature: 26 °C - R.H.: 55 %

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C					WT: 10 / 15 °C					WT: 12 / 17 °C				
		Qv m ³ /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			
F-ECM 23	4	1175	3,68	2,97	632	4,0	3,27	2,91	563	4,0	2,62	2,62	450	2,0	2,04	2,04	351	1,0			
	2	865	3,13	2,40	539	3,0	2,79	2,34	480	3,0	2,19	2,19	377	2,0	1,69	1,69	290	1,0			
	1	700	2,79	2,07	480	3,0	2,48	2,01	427	2,0	1,94	1,89	333	1,0	1,48	1,48	254	1,0			
F-ECM 24	4	1070	4,40	3,35	756	4,0	3,90	3,22	671	3,0	3,04	3,01	522	2,0	2,32	2,32	398	1,0			
	2	785	3,69	2,68	634	3,0	3,28	2,56	564	2,0	2,52	2,35	433	1,0	1,89	1,89	326	1,0			
	1	635	3,24	2,29	558	2,0	2,88	2,18	495	2,0	2,20	1,98	379	1,0	1,64	1,64	283	1,0			
F-ECM 43	4	1825	6,48	5,02	1115	9,0	5,78	4,88	994	7,0	4,56	4,56	785	4,0	3,53	3,53	608	3,0			
	2	1345	5,50	4,06	946	6,0	4,91	3,93	844	5,0	3,83	3,69	659	3,0	2,93	2,93	505	2,0			
	1	1110	4,96	3,57	852	5,0	4,41	3,43	759	4,0	3,42	3,19	588	3,0	2,60	2,60	447	2,0			
F-ECM 44	4	1660	7,77	5,62	1336	8,0	6,92	5,39	1190	7,0	5,37	4,96	923	4,0	4,06	4,06	698	3,0			
	2	1225	6,51	4,53	1120	6,0	5,79	4,30	996	5,0	4,45	3,90	766	3,0	3,33	3,33	573	2,0			
	1	1010	5,79	3,94	996	5,0	5,14	3,73	885	4,0	3,95	3,35	679	2,0	2,93	2,93	504	1,0			
F-ECM 63	4	2760	10,29	7,69	1769	16,0	9,21	7,44	1584	13,0	7,28	7,11	1252	9,0	5,65	5,65	972	5,0			
	2	2035	8,77	6,29	1509	12,0	7,82	6,01	1345	10,0	6,14	5,65	1055	6,0	4,69	4,69	807	4,0			
	1	1670	7,85	5,51	1351	10,0	7,01	5,22	1205	8,0	5,45	4,85	938	5,0	4,14	4,14	713	3,0			
F-ECM 64	4	2510	12,17	8,62	2093	16,0	10,86	8,24	1868	13,0	8,45	7,58	1453	8,0	6,41	6,41	1102	5,0			
	2	1850	10,18	6,96	1751	11,0	9,09	6,59	1563	9,0	7,02	5,97	1207	6,0	5,26	5,26	904	3,0			
	1	1520	9,00	6,03	1549	9,0	8,03	5,69	1382	7,0	6,18	5,10	1063	5,0	4,60	4,60	791	3,0			
F-ECM 93	4	5620	18,18	14,29	3127	8,0	16,32	14,06	2808	6,0	12,96	12,96	2229	4,0	10,12	10,12	1740	3,0			
	2	5030	17,18	13,24	2954	7,0	15,50	13,05	2667	6,0	12,18	12,18	2094	4,0	9,45	9,45	1626	2,0			
	1	4760	16,69	12,75	2870	7,0	14,95	12,49	2571	5,0	11,79	11,79	2029	3,0	9,15	9,15	1574	2,0			
F-ECM 94	4	5275	22,19	16,66	3817	8,0	19,43	15,88	3341	6,0	15,16	14,85	2607	4,0	11,57	11,57	1990	2,0			
	2	4700	20,51	15,19	3527	7,0	18,22	14,59	3134	6,0	14,16	13,56	2436	4,0	10,77	10,77	1852	2,0			
	1	4430	19,82	14,55	3408	7,0	17,66	13,99	3037	5,0	13,65	12,93	2348	3,0	10,37	10,37	1784	2,0			

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

Entering air temperature: 27 °C - R.H.: 55 %

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C					WT: 10 / 15 °C				WT: 12 / 17 °C			
		Qv m ³ /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	
F-ECM 23	4	1175	4,14	3,08	712	5,0	3,71	2,98	638	4,0	2,97	2,90	510	3,0	2,32	2,32	399	2,0	
	2	865	3,53	2,52	608	4,0	3,16	2,40	544	3,0	2,49	2,29	429	2,0	1,93	1,93	332	1,0	
	1	700	3,16	2,19	543	3,0	2,82	2,07	484	3,0	2,23	1,96	383	2,0	1,70	1,70	292	1,0	
F-ECM 24	4	1070	4,95	3,49	852	5,0	4,47	3,36	768	4,0	3,43	3,10	591	2,0	2,66	2,66	458	2,0	
	2	785	4,16	2,82	716	3,0	3,72	2,68	641	3,0	2,90	2,46	499	2,0	2,19	2,19	377	1,0	
	1	635	3,66	2,42	629	3,0	3,28	2,29	564	2,0	2,54	2,08	437	1,0	1,89	1,89	326	1,0	
F-ECM 43	4	1825	7,31	5,26	1257	11,0	6,51	5,01	1119	9,0	5,17	4,79	890	6,0	4,03	4,03	693	4,0	
	2	1345	6,20	4,30	1066	8,0	5,62	4,09	966	7,0	4,38	3,82	753	4,0	3,37	3,37	580	3,0	
	1	1110	5,57	3,78	959	7,0	5,00	3,56	860	5,0	3,93	3,31	675	3,0	3,00	3,00	516	2,0	
F-ECM 44	4	1660	8,72	5,92	1500	10,0	7,83	5,62	1346	8,0	6,14	5,17	1057	5,0	4,69	4,69	806	3,0	
	2	1225	7,30	4,79	1256	7,0	6,57	4,52	1129	6,0	5,13	4,09	882	4,0	3,87	3,73	666	2,0	
	1	1010	6,48	4,18	1114	6,0	5,84	3,93	1005	5,0	4,56	3,53	784	3,0	3,42	3,19	588	2,0	
F-ECM 63	4	2760	11,53	8,11	1984	20,0	10,38	7,69	1785	16,0	8,24	7,30	1417	11,0	6,44	6,44	1108	7,0	
	2	2035	9,96	6,73	1713	15,0	8,85	6,29	1522	12,0	6,98	5,83	1201	8,0	5,38	5,38	926	5,0	
	1	1670	8,78	5,83	1511	12,0	7,93	5,50	1363	10,0	6,24	5,04	1073	7,0	4,77	4,71	821	4,0	
F-ECM 64	4	2510	13,62	9,11	2342	19,0	12,30	8,61	2115	16,0	9,68	7,91	1665	10,0	7,41	7,33	1275	6,0	
	2	1850	11,38	7,37	1958	14,0	10,28	6,94	1768	12,0	8,07	6,27	1388	7,0	6,10	5,71	1050	4,0	
	1	1520	10,03	6,39	1725	11,0	9,10	6,02	1564	9,0	7,13	5,38	1227	6,0	5,36	4,85	922	3,0	
F-ECM 93	4	5620	20,49	15,00	3524	9,0	18,33	14,32	3152	8,0	14,63	13,90	2516	5,0	11,49	11,49	1976	3,0	
	2	5030	19,37	13,96	3332	9,0	17,32	13,26	2979	7,0	13,82	12,82	2376	5,0	10,77	10,77	1853	3,0	
	1	4760	18,82	13,46	3237	8,0	16,82	12,76	2893	7,0	13,91	12,57	2392	5,0	10,43	10,43	1793	3,0	
F-ECM 94	4	5275	25,03	17,48	4306	10,0	22,28	16,61	3831	8,0	17,16	15,33	2951	5,0	13,29	13,29	2287	3,0	
	2	4700	23,08	15,95	3969	9,0	20,66	15,18	3553	7,0	16,15	14,07	2777	5,0	12,39	12,39	2132	3,0	
	1	4430	22,32	15,31	3838	8,0	19,99	14,55	3438	7,0	15,63	13,46	2688	4,0	11,96	11,96	2057	3,0	

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

Entering air temperature: 28 °C - R.H.: 55 %

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C				WT: 10 / 15 °C				WT: 12 / 17 °C			
		Qv m ³ /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
F-ECM 23	4	1175	4,65	3,25	800	7,0	4,18	3,08	718	6,0	3,34	2,95	575	4,0	2,63	2,63	453	2,0
	2	865	3,96	2,66	681	5,0	3,56	2,51	613	4,0	2,84	2,35	488	3,0	2,21	2,21	380	2,0
	1	700	3,53	2,31	607	4,0	3,19	2,19	549	3,0	2,52	2,02	434	2,0	1,93	1,90	332	1,0
F-ECM 24	4	1070	5,59	3,71	961	6,0	5,00	3,49	860	5,0	3,97	3,24	682	3,0	3,03	3,02	521	2,0
	2	785	4,64	2,98	799	4,0	4,21	2,82	724	4,0	3,36	2,58	579	2,0	2,53	2,36	434	1,0
	1	635	4,08	2,57	702	3,0	3,70	2,42	636	3,0	2,92	2,18	502	2,0	2,22	1,99	382	1,0
F-ECM 43	4	1825	8,11	5,52	1395	13,0	7,33	5,24	1261	11,0	5,82	4,89	1001	7,0	4,59	4,59	789	4,0
	2	1345	6,90	4,53	1187	10,0	6,26	4,29	1077	8,0	4,97	3,94	855	5,0	3,86	3,73	664	3,0
	1	1110	6,21	3,99	1068	8,0	5,64	3,78	970	7,0	4,48	3,43	770	4,0	3,46	3,22	594	3,0
F-ECM 44	4	1660	9,71	6,25	1670	12,0	8,82	5,91	1516	10,0	7,01	5,39	1205	7,0	5,40	4,99	929	4,0
	2	1225	8,11	5,06	1394	9,0	7,38	4,78	1270	7,0	5,88	4,30	1011	5,0	4,49	3,92	772	3,0
	1	1010	7,19	4,41	1236	7,0	6,56	4,17	1128	6,0	5,23	3,72	899	4,0	3,98	3,36	684	2,0
F-ECM 63	4	2760	12,84	8,54	2209	24,0	11,65	8,11	2003	20,0	9,32	7,47	1604	13,0	7,33	7,19	1260	9,0
	2	2035	10,90	7,01	1875	18,0	9,92	6,64	1706	15,0	7,94	6,02	1366	10,0	6,18	5,69	1063	6,0
	1	1670	9,74	6,14	1676	15,0	8,88	5,81	1527	12,0	7,11	5,23	1223	8,0	5,50	4,88	945	5,0
F-ECM 64	4	2510	15,12	9,61	2601	23,0	13,77	9,09	2368	19,0	11,04	8,25	1899	13,0	8,51	7,63	1464	8,0
	2	1850	12,60	7,77	2167	17,0	11,51	7,35	1979	14,0	9,23	6,58	1587	9,0	7,07	5,98	1216	6,0
	1	1520	11,10	6,74	1910	13,0	10,16	6,37	1747	11,0	8,17	5,67	1405	8,0	6,24	5,11	1073	5,0
F-ECM 93	4	5620	22,90	15,79	3939	12,0	20,68	14,99	3557	10,0	16,53	14,17	2843	6,0	13,04	13,04	2242	4,0
	2	5030	21,70	14,74	3733	11,0	19,57	13,96	3366	9,0	15,64	13,10	2690	6,0	12,26	12,26	2109	4,0
	1	4760	21,06	14,20	3622	10,0	19,14	13,52	3291	8,0	15,03	12,50	2586	5,0	11,88	11,88	2043	3,0
F-ECM 94	4	5275	27,42	18,17	4716	12,0	25,24	17,44	4341	10,0	19,68	15,94	3384	7,0	15,24	14,98	2621	4,0
	2	4700	25,72	16,81	4424	11,0	23,31	15,92	4009	9,0	18,50	14,65	3182	6,0	14,26	13,68	2453	4,0
	1	4430	24,93	16,17	4288	10,0	22,55	15,28	3878	8,0	17,87	14,00	3074	5,0	13,78	13,05	2370	3,0

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

HEATING CAPACITY

Entering air temperature: 15 °C

Model	Vdc	WT: 70 / 55 °C				WT: 65 / 55 °C			WT: 50 / 40 °C			WT: 45 / 40 °C		
		Qv m ³ /h	Ph kW	Qw l/h	LAT °C	Ph kW	Qw l/h	LAT °C	Ph kW	Qw l/h	LAT °C	Ph kW	Qw l/h	LAT °C
F-ECM 23	10	1960	13,95	800	36,1	13,61	1170	35,6	8,55	735	27,9	8,31	1429	27,6
	8	1815	13,40	768	36,6	13,06	1123	36,1	8,21	706	28,3	7,97	1371	27,9
	6	1485	11,81	677	38,3	11,49	988	37,7	7,25	623	29,3	7,01	1206	28,9
	4	1175	10,18	584	40,4	9,88	850	39,6	6,26	538	30,6	6,03	1037	30,0
	2	865	8,27	474	43,1	7,99	687	42,1	5,09	438	32,3	4,87	838	31,6
	1	700	7,13	409	45,0	6,88	592	43,9	4,39	378	33,5	4,19	721	32,6
F-ECM 24	10	1780	16,09	923	41,7	15,61	1343	41,0	9,88	850	31,4	9,52	1637	30,8
	8	1650	15,38	882	42,3	14,93	1284	41,5	9,46	814	31,8	9,10	1565	31,2
	6	1350	13,44	771	44,2	13,02	1120	43,3	8,27	711	33,0	7,93	1363	32,2
	4	1070	11,47	658	46,4	11,06	951	45,3	7,06	607	34,3	6,74	1159	33,5
	2	785	9,16	525	49,2	8,80	757	47,9	5,65	486	36,1	5,36	921	35,0
	1	635	7,81	448	51,1	7,49	644	49,6	4,83	415	37,3	4,55	783	36,0
F-ECM 43	10	2980	22,22	1274	36,9	21,57	1855	36,2	13,69	1177	28,5	13,16	2264	28,0
	8	2765	21,24	1218	37,5	20,60	1772	36,8	13,08	1125	28,9	12,57	2162	28,3
	6	2310	18,91	1084	39,1	18,32	1576	38,3	11,67	1004	29,9	11,17	1921	29,2
	4	1825	16,23	931	41,2	15,68	1348	40,3	10,03	863	31,2	9,56	1645	30,4
	2	1345	13,23	759	43,8	12,74	1095	42,8	8,18	703	32,8	7,76	1334	31,9
	1	1110	11,59	664	45,5	11,13	957	44,3	7,17	617	33,9	6,78	1166	32,8
F-ECM 44	10	2710	25,68	1472	42,8	24,77	2130	41,8	15,87	1365	32,2	15,09	2595	31,3
	8	2515	24,47	1403	43,5	23,59	2029	42,5	15,13	1301	32,6	14,35	2469	31,7
	6	2100	21,61	1239	45,2	20,79	1788	44,1	13,37	1150	33,7	12,65	2176	32,7
	4	1660	18,31	1050	47,5	17,56	1510	46,1	11,35	976	35,1	10,69	1839	34,0
	2	1225	14,68	842	50,2	14,03	1207	48,6	9,11	783	36,8	8,53	1467	35,4
	1	1010	12,74	730	51,9	12,14	1044	50,2	7,91	681	37,9	7,37	1268	36,4

WT: Water temperature
 Vdc: Inverter speed signal (Vdc)
 Qv: Air flow
 Ph: Heating capacity
 Qw: Water flow rate
 LAT: Leaving air temperature

Correction factors (for working conditions different from those shown in the table)

T _{air}	70/55 ΔT _{acqua} 15° C					65/55 ΔT _{acqua} 10° C					45/40 ΔT _{acqua} 5° C				
	65/50	70/55	75/60	80/65	85/70	55/45	60/50	65/55	70/60	75/65	35/30	40/35	45/40	50/45	55/50
-5	1,32	1,42	1,53	1,63	1,74	1,22	1,33	1,44	1,56	1,67	1,36	1,55	1,73	1,91	2,09
0	1,21	1,32	1,42	1,53	1,63	1,11	1,22	1,33	1,44	1,56	1,18	1,36	1,55	1,73	1,91
5	1,11	1,21	1,32	1,42	1,53	1,00	1,11	1,22	1,33	1,44	1,00	1,18	1,36	1,55	1,73
10	1,00	1,11	1,21	1,32	1,42	0,89	1,00	1,11	1,22	1,33	0,82	1,00	1,18	1,36	1,55
15	0,89	1,00	1,11	1,21	1,32	0,78	0,89	1,00	1,11	1,22	0,64	0,82	1,00	1,18	1,36
20	0,79	0,89	1,00	1,11	1,21	0,67	0,78	0,89	1,00	1,11	0,45	0,64	0,82	1,00	1,18
25	0,68	0,79	0,89	1,00	1,11	0,56	0,67	0,78	0,89	1,00	0,27	0,45	0,64	0,82	1,00

Entering air temperature: 15 °C

Model	Vdc	WT: 70 / 55 °C				WT: 65 / 55 °C			WT: 50 / 40 °C			WT: 45 / 40 °C		
		Qv m ³ /h	Ph kW	Qw l/h	LAT °C	Ph kW	Qw l/h	LAT °C	Ph kW	Qw l/h	LAT °C	Ph kW	Qw l/h	LAT °C
F-ECM 63	10	4530	34,24	1963	37,1	33,02	2840	36,3	21,18	1822	28,7	20,15	3466	28,0
	8	4200	32,67	1873	37,7	31,49	2708	36,9	20,22	1739	29,1	19,23	3307	28,4
	6	3500	29,11	1669	39,4	28,01	2409	38,4	18,03	1551	30,1	17,09	2939	29,3
	4	2760	24,89	1427	41,5	23,92	2057	40,4	15,46	1329	31,4	14,58	2508	30,5
	2	2035	20,25	1161	44,2	19,41	1669	43,0	12,58	1082	33,1	11,81	2031	32,0
	1	1670	17,63	1011	45,9	16,86	1450	44,6	10,96	943	34,2	10,26	1766	33,0
F-ECM 64	10	4120	39,37	2257	43,0	37,78	3249	41,9	24,40	2099	32,3	23,04	3963	31,4
	8	3820	37,45	2147	43,7	35,95	3092	42,5	23,23	1997	32,8	21,88	3763	31,8
	6	3180	33,06	1895	45,4	31,67	2724	44,2	20,54	1766	33,9	19,29	3318	32,8
	4	2510	27,96	1603	47,7	26,71	2297	46,3	17,37	1493	35,3	16,25	2795	34,0
	2	1850	22,36	1282	50,4	21,31	1833	48,8	13,93	1198	37,1	12,95	2228	35,5
	1	1520	19,28	1105	52,2	18,32	1576	50,4	12,02	1034	38,2	11,12	1913	36,5
F-ECM 93	10	7440	63,93	3666	40,1	61,97	5330	39,4	39,38	3387	30,5	37,78	6498	29,9
	8	6790	60,28	3456	41,0	58,37	5020	40,1	37,13	3193	31,0	35,57	6117	30,3
	6	6210	56,90	3262	41,8	55,04	4734	40,9	35,05	3014	31,5	33,52	5766	30,8
	4	5620	53,25	3053	42,7	51,50	4429	41,8	32,87	2827	32,1	31,35	5392	31,3
	2	5030	49,50	2838	43,8	47,73	4105	42,8	30,53	2626	32,8	29,07	5000	31,9
	1	4760	47,63	2731	44,3	45,97	3953	43,2	29,42	2530	33,1	27,98	4813	32,2
F-ECM 94	10	7085	74,09	4248	45,6	71,49	6148	44,5	45,70	3930	33,9	43,53	7488	33,0
	8	6430	69,30	3973	46,5	66,81	5746	45,4	42,75	3677	34,4	40,67	6995	33,5
	6	5855	64,93	3723	47,4	62,55	5379	46,3	40,09	3448	35,0	38,06	6546	34,0
	4	5275	60,34	3460	48,5	58,03	4990	47,2	37,26	3204	35,7	35,29	6070	34,6
	2	4700	55,53	3184	49,6	53,31	4585	48,2	34,32	2952	36,4	32,43	5578	35,2
	1	4430	53,20	3050	50,1	51,02	4388	48,7	32,90	2829	36,7	31,01	5334	35,5

WT: Water temperature
Vdc: Inverter speed signal (Vdc)
Qv: Air flow
Ph: Heating capacity
Qw: Water flow rate
LAT: Leaving air temperature

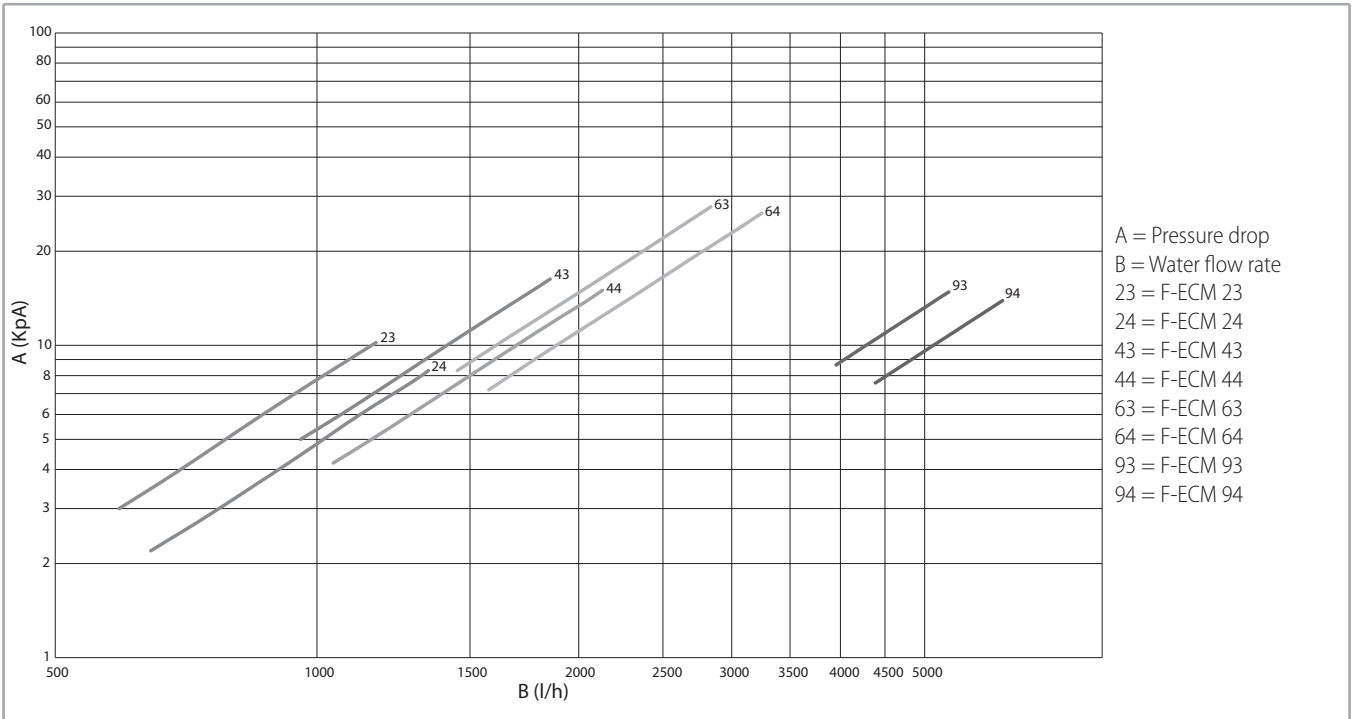
Correction factors (for working conditions different from those shown in the table)

T _{air}	70/55 ΔT _{acqua} 15° C					65/55 ΔT _{acqua} 10° C					45/40 ΔT _{acqua} 5° C				
	65/50	70/55	75/60	80/65	85/70	55/45	60/50	65/55	70/60	75/65	35/30	40/35	45/40	50/45	55/50
-5	1,32	1,42	1,53	1,63	1,74	1,22	1,33	1,44	1,56	1,67	1,36	1,55	1,73	1,91	2,09
0	1,21	1,32	1,42	1,53	1,63	1,11	1,22	1,33	1,44	1,56	1,18	1,36	1,55	1,73	1,91
5	1,11	1,21	1,32	1,42	1,53	1,00	1,11	1,22	1,33	1,44	1,00	1,18	1,36	1,55	1,73
10	1,00	1,11	1,21	1,32	1,42	0,89	1,00	1,11	1,22	1,33	0,82	1,00	1,18	1,36	1,55
15	0,89	1,00	1,11	1,21	1,32	0,78	0,89	1,00	1,11	1,22	0,64	0,82	1,00	1,18	1,36
20	0,79	0,89	1,00	1,11	1,21	0,67	0,78	0,89	1,00	1,11	0,45	0,64	0,82	1,00	1,18
25	0,68	0,79	0,89	1,00	1,11	0,56	0,67	0,78	0,89	1,00	0,27	0,45	0,64	0,82	1,00

WATER SIDE PRESSURE DROP

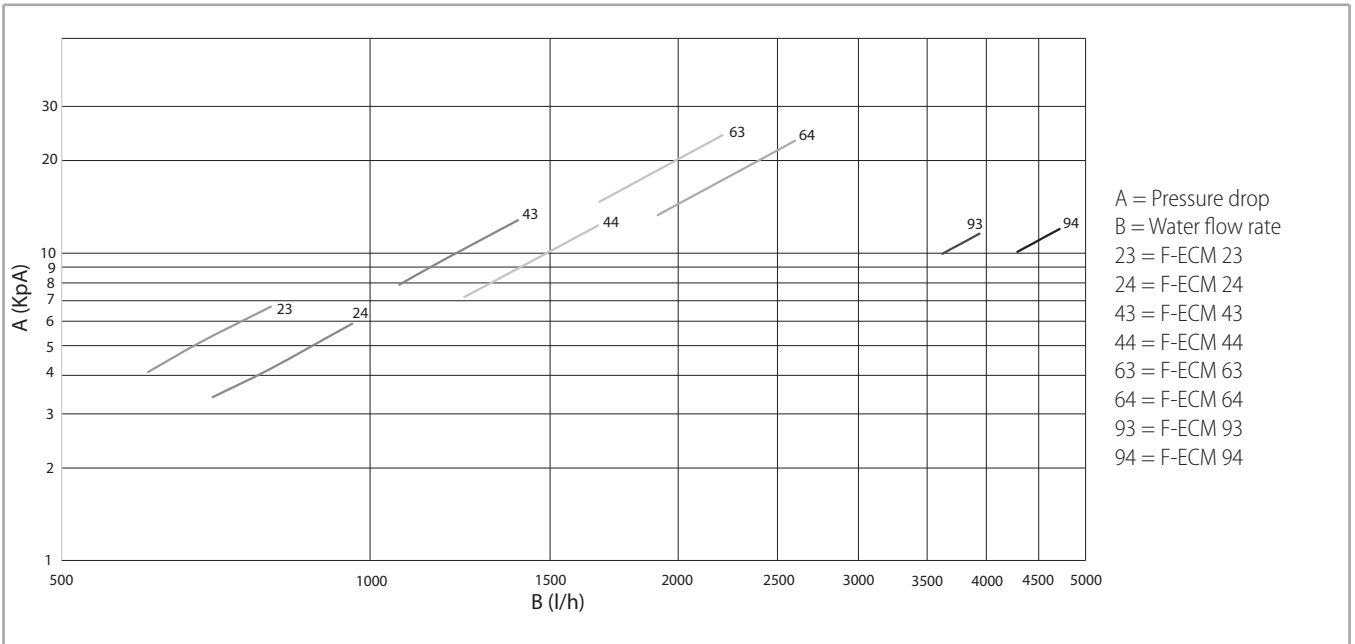
Heating

The water pressure drop figures refer to a mean water temperature of 60 °C.



Cooling

The water pressure drop figures refer to a mean water temperature of 10 °C.



OPERATION LIMITS

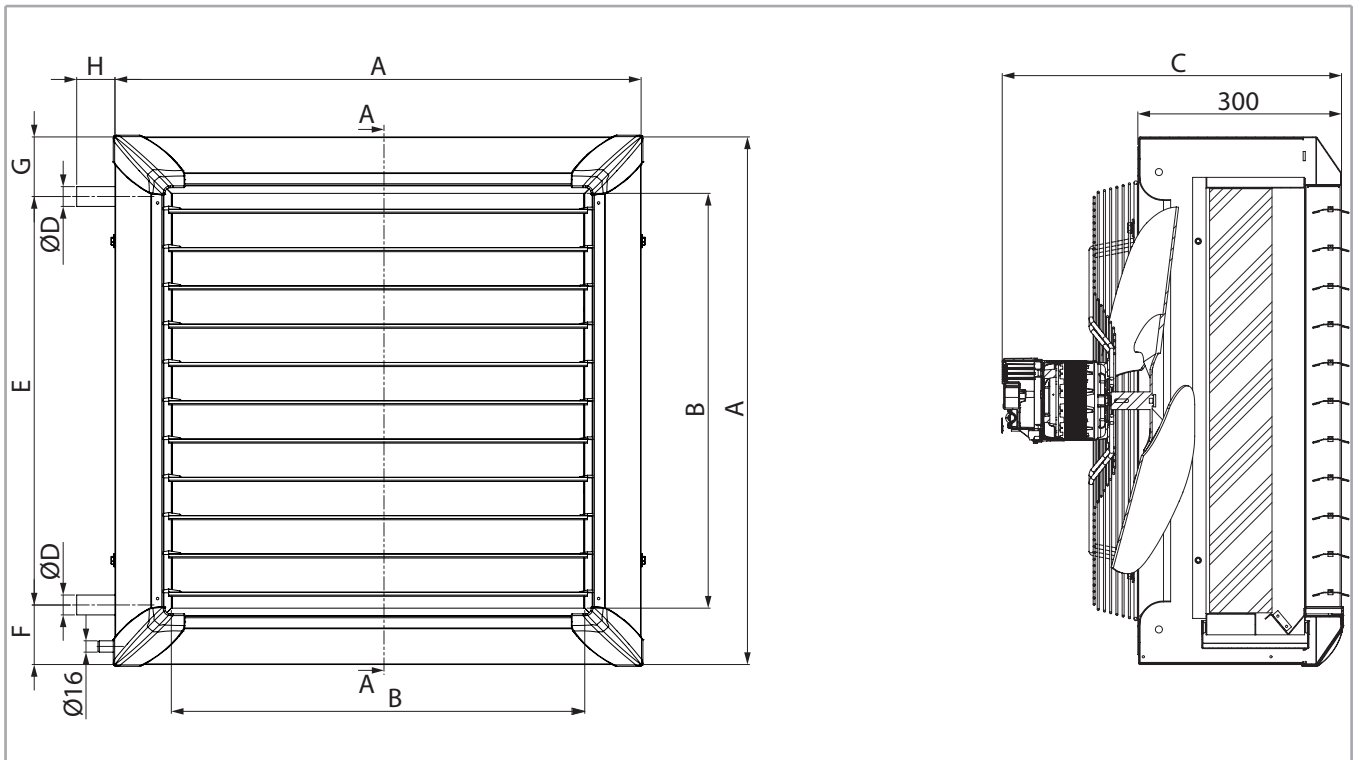
Description	UoM	Value	
Water flow	Coil maximum working pressure	bars	16
		kPa	1600
	Lowest water inlet temperature	°C	+7
	Highest water inlet temperature	°C	+85

Into the cooling mode, the relative humidity in the ambient into which the Janus ECM unit heater has been installed must not exceed 55%, in order to avoid any possible condensation problems on the product outer casing and consequent leakages.
For the same reason it is necessary to avoid to supply external not treated fresh air near the Janus ECM unit heater.

Motor electrical data (max. absorption)

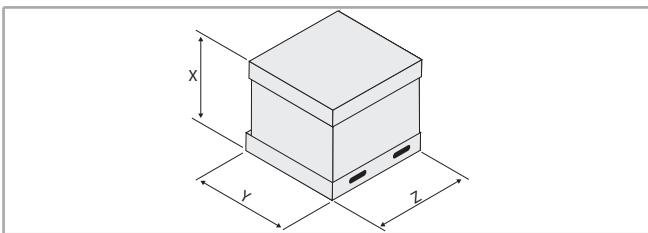
Model		F-ECM 2	F-ECM 4	F-ECM 6	F-ECM 9
Motor power input current	W	157	232	393	450
Power input current_	A	1,20	1,74	2,75	3,40

DIMENSIONS



Model		F-ECM 2	F-ECM 4	F-ECM 6	F-ECM 9
A	mm	526	634	742	1010
B	mm	390	498	606	874
C	mm	491	491	491	575
ØD	"	1	1	1	1¼
E	mm	376	476	576	818
F	mm	78	76	83	90
G	mm	72	82	83	102
H	mm	55	55	55	63

Packed unit



Model		F-ECM 2	F-ECM 4	F-ECM 6	F-ECM 9
X	mm	520		540	705
Y	mm	680	785	885	1140
Z	mm	590	700	810	1215

Weight

Model		F-ECM 23	F-ECM 24	F-ECM 43	F-ECM 44	F-ECM 63	F-ECM 64	F-ECM 93	F-ECM 94
Weight with packaging	kg	24,3	25,3	30,7	32,2	38,7	40,7	73,5	77,5
Weight without packaging	kg	22,0	23,0	27,7	29,2	35,1	37,1	67,5	71,5

Water content

Model		F-ECM 23	F-ECM 24	F-ECM 43	F-ECM 44	F-ECM 63	F-ECM 64	F-ECM 93	F-ECM 94
Water content	l	1,7	2,2	2,7	3,4	4,0	5,1	7,6	9,8

CONFIGURATION

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

Configuration - sizes 2-4-6

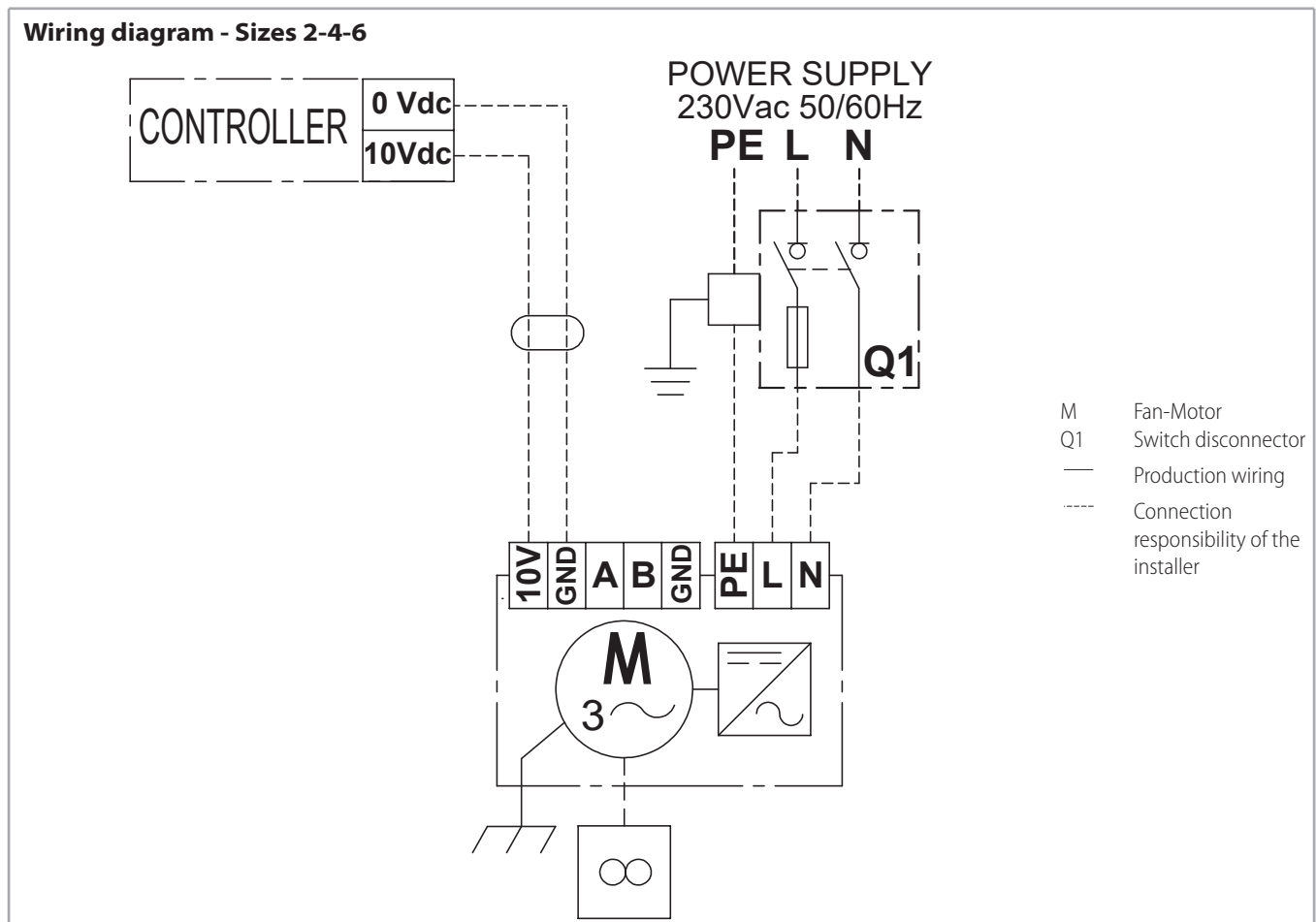
Controller characteristics

- 0÷10 Vdc Circuit Input Impedance Value = 10 kOhm
- Maximum speed 10 Vdc
- Fan OFF with $V < 1$ Vdc
- Fan ON with $V > 1.2$ Vdc

⚠ The speed range to use depends from the type of operating mode:

- for the heating mode the range is included between 1.2 V (minimum speed) and 10 V (maximum speed)
- for the cooling mode the range is included between 1.2 V (minimum speed) and 4 V (maximum speed)

Wiring diagram - Sizes 2-4-6



Configuration - size 9

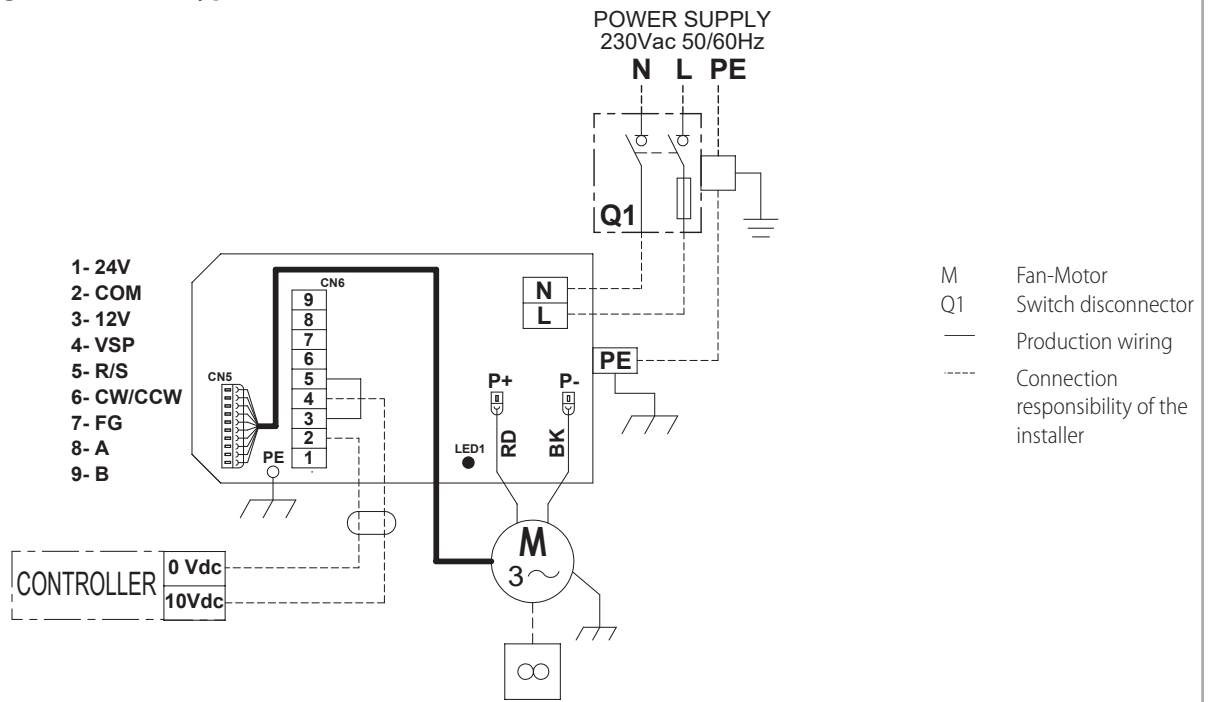
Controller characteristics

- 0÷10 Vdc Circuit Input Impedance Value = 10 kOhm
- Maximum speed 10 Vdc
- Minimum speed 1 Vdc
- Fan OFF = < 0,7 Vdc

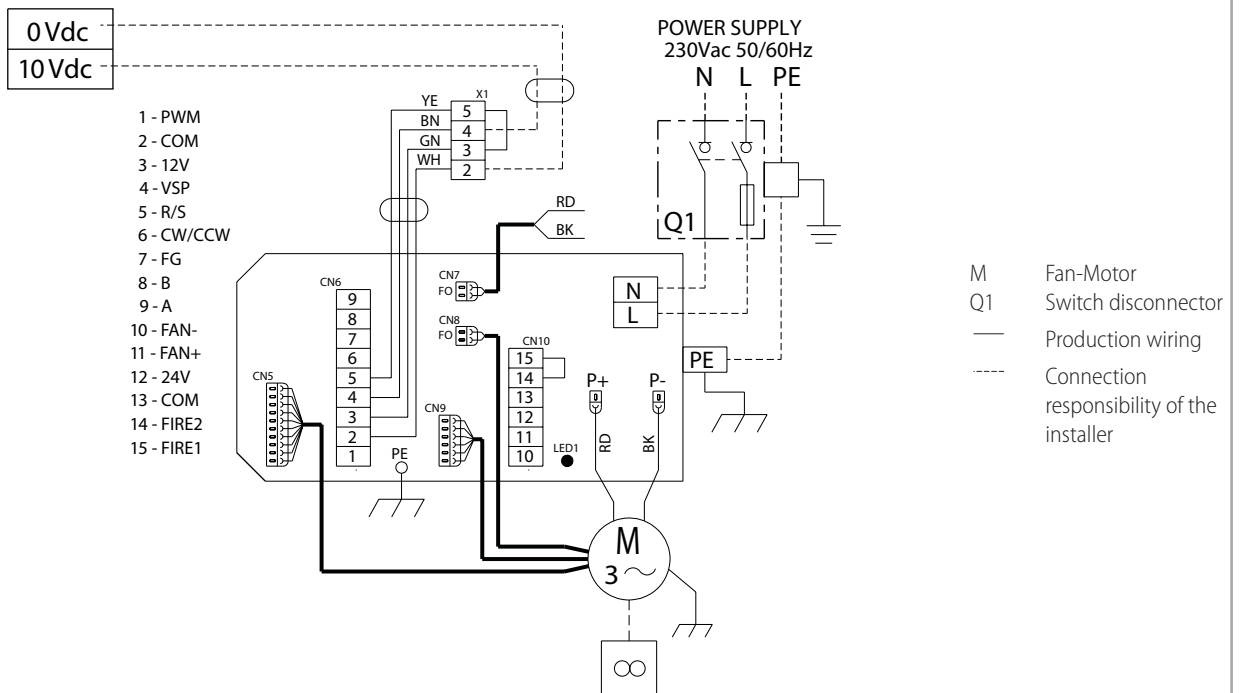
⚠ The speed range to use depends from the type of operating mode:

- for the heating mode the range is included between 1 V (minimum speed) and 10 V (maximum speed)
- for the cooling mode the range is included between 1 V (minimum speed) and 4 V (maximum speed)

Wiring diagram - Size 9 - Type WT90ECI05V18T1B5S1CX



Wiring diagram - Size 9 - Type WT90ECI05V18T1B5S1CA



JETSTREAM INDUCTION FLOW OPTIMIZER

Construction features

The **Jetstream** induction flow optimizer allows the reduction of the mean leaving air temperature from the Janus ECM Sabiana unit heaters and to increase the throw of the equipment with considerable advantages both in terms of energy saving and environment comfort.

The **Jetstream** induction flow optimizers increase the air speed thanks to the special shape of its deflecting louvres which allow the creation of various streams of hot air at the unit heater outlet.

The depression created between the layers induces a lateral aspiration of ambient air that mixes with the air heated by the unit, thus reducing the leaving air temperature and increasing the throw.

The leaving air temperature from the units has a decisive influence on hot air stratification and consequently on energy saving: for each degree of decrease in ambient temperature there is a 1.5% decrease in energy consumption.

The use of **Jetstream** induction flow optimizer has the following advantages:

Energy saving:

- reduced hot air stratification within the building;
- reduced operating time of the units with the same ambient temperature.

Energy saving varies between a minimum of 5% and a maximum of 15%, with maximum payback in two seasons.

Environmental comfort advantages:

- increased floor temperature uniformity with greater comfort area;
- possibility to install smaller and quieter units, due to the increase of the throw.

Available versions

Two versions are available:

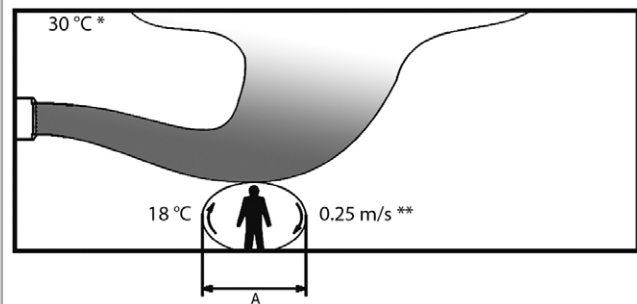
- Manual for horizontal discharge
- Motorized for horizontal discharge

The **manually controlled** version provides the manual adjustment of the louvres and their locking with a special threaded rod.

The **motorized** version is supplied with single phase 230V motor that can be controlled by the remote switch.

Air flow produced by a unit heater WITHOUT induction flow optimizer

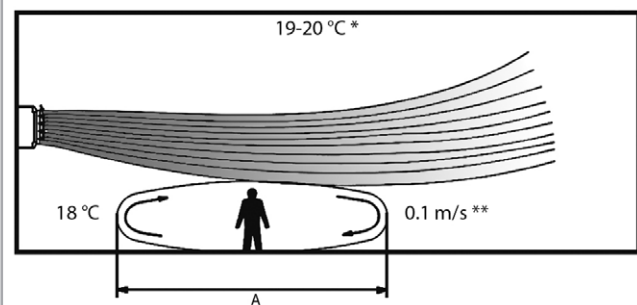
Time necessary to reach the room temperature of 18 °C = 40 minutes



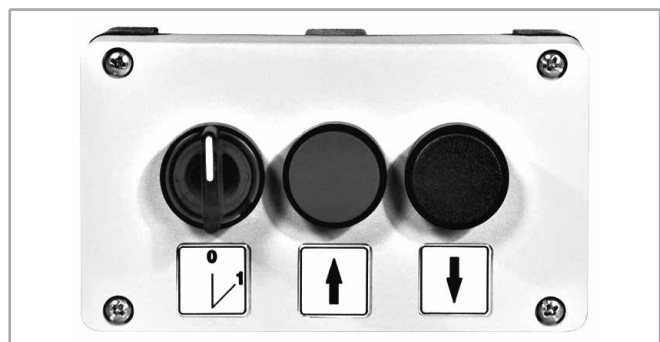
A = influence area ** = air speed
* = temperature under the ceiling

Air flow produced by a unit heater WITH induction flow optimizer

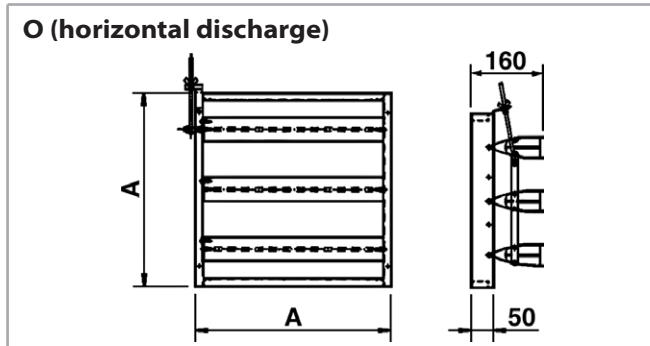
Time necessary to reach the room temperature of 18 °C = 25 minutes



A = influence area ** = air speed
* = temperature under the ceiling

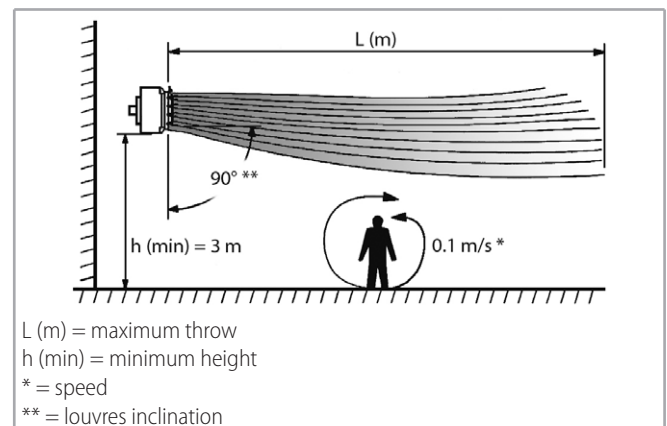


Dimension and weight



Model	A mm	Weight kg
0-2	422	1,7
0-4	530	2,0
0-6	638	2,4
0-9	906	3,4

Mounting heights and air throw



MODEL		F-ECM 23						F-ECM 24					
Inverter speed signal (Vdc)		1	2	4	6	8	10	1	2	4	6	8	10
Speed	rpm	500	600	800	1010	1210	1300	500	600	800	1010	1210	1300
Air flow	m ³ /h	700	865	1175	1485	1815	1960	635	785	1070	1350	1650	1780
Air throw	m	5,0	5,5	6,5	7,0	8,0	8,5	4,5	5,0	6,0	6,5	7,5	8,0
L air throw with optimizer	m	7,0	8,0	9,5	10,5	12,0	13,0	6,5	7,5	8,5	10,0	11,5	12,0

MODEL		F-ECM 43						F-ECM 44					
Inverter speed signal (Vdc)		1	2	4	6	8	10	1	2	4	6	8	10
Speed	rpm	500	600	800	1010	1210	1300	500	600	800	1010	1210	1300
Air flow	m ³ /h	1110	1345	1825	2310	2765	2980	1010	1225	1660	2100	2515	2710
Air throw	m	6,5	7,5	9,0	11,0	12,5	13,0	6,0	7,0	8,5	10,0	11,5	12,0
L air throw with optimizer	m	8,0	9,0	11,5	13,5	15,0	16,0	7,0	8,5	10,5	12,5	14,5	15,0

MODEL		F-ECM 63						F-ECM 64					
Inverter speed signal (Vdc)		1	2	4	6	8	10	1	2	4	6	8	10
Speed	rpm	500	600	800	1010	1210	1300	500	600	800	1010	1210	1300
Air flow	m ³ /h	1670	2035	2760	3500	4200	4530	1520	1850	2510	3180	3820	4120
Air throw	m	6,5	8,0	10,5	13,0	15,5	16,5	6,0	7,5	9,5	12,0	14,5	15,5
L air throw with optimizer	m	7,5	9,5	12,0	15,5	19,0	20,5	7,0	8,5	11,0	14,0	17,0	18,5

MODEL		F-ECM 93						F-ECM 94					
Inverter speed signal (Vdc)		1	2	4	6	8	10	1	2	4	6	8	10
Speed	rpm	600	635	710	785	860	950	600	635	710	785	860	950
Air flow	m ³ /h	4760	5030	5620	6210	6790	7440	4430	4700	5275	5855	6430	7085
Air throw	m	13,0	14,0	16,5	18,5	21,0	23,0	11,0	12,5	15,0	17,5	19,5	22,0
L air throw with optimizer	m	15,0	16,5	18,5	22,5	25,5	28,5	12,5	14,5	17,5	21,0	24,0	27,5

ACCESSORIES

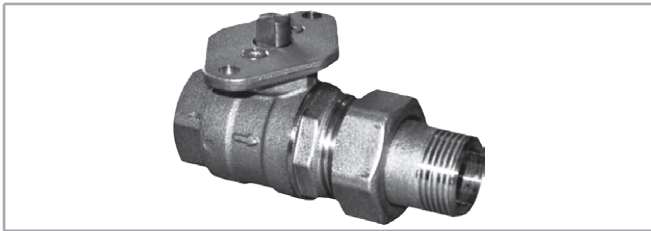
Valves

2 way water valves

Components:

- one 2 way valve
- an ON-OFF 230 V actuator

Model	NOT FITTED		DN	Kvs m ³ /h	Actuator V
	ID	Code			
2-4-6-9	VA2V - 1"	9008111	1"	50,0	230V
2-4-6-9	VA2V - 3/4"	9008110	3/4"	30,0	230V



	Heating	Cooling (*)
	°C	°C
Min. entering water temperature	15	5
Max. entering water temperature	90	90

(*) Note: for cooling, the valve must be combined with extension kit - code 6034258.

3 way water valves

Components:

- one 3 way valve
- an ON-OFF 230 V actuator

Model	NOT FITTED		DN	Kvs m ³ /h	Actuator V
	ID	Code			
2-4-6-9	VA3V - 3/4"	9008112	3/4"	8,5	230V



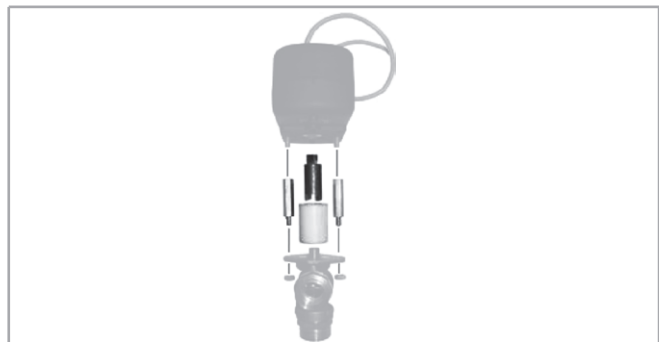
	Heating	Cooling (*)
	°C	°C
Min. entering water temperature	15	5
Max. entering water temperature	90	90

(*) Note: for cooling, the valve must be combined with extension kit - code 6034258.

Extension kit

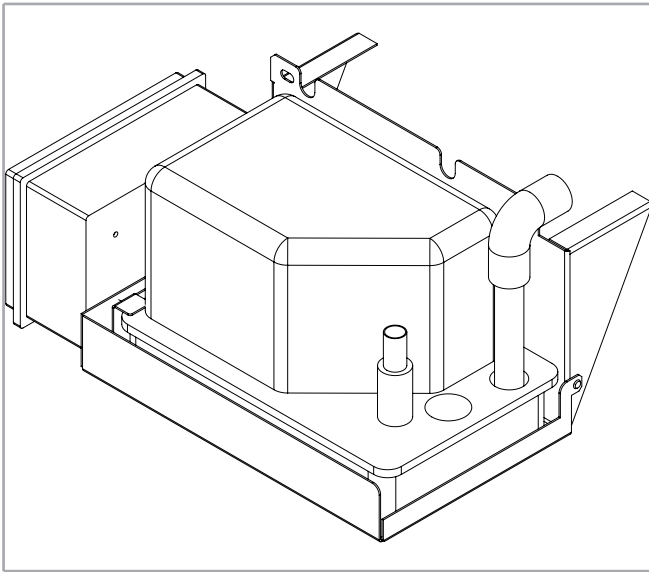
Mandatory for cooling.

Model	ID	Code
2-4-6-9	KIT - VA	6034258



Condensate drain pump

Condensate pump provided with mounting bracket and electrical terminal board



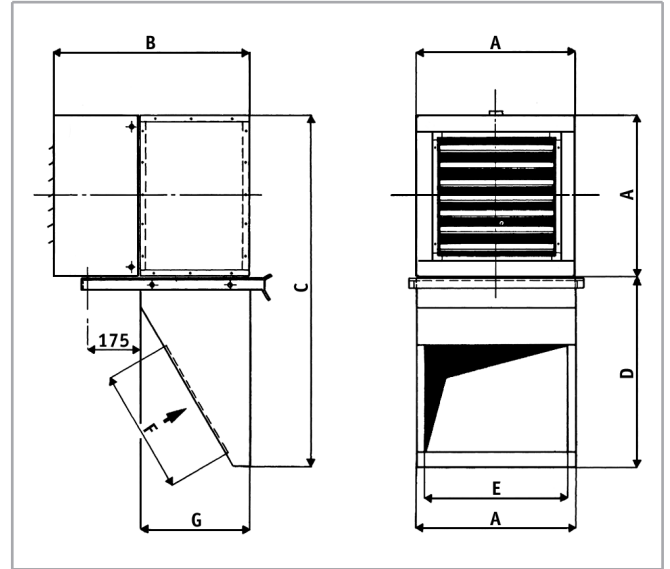
Model	ID	Code
2-4-6-9	PSCSM	9007675

Height for vertical flow (m)	Water flow (l/h) depending on the length of horizontal flow			
	5 m	10 m	20 m	30 m
1	460	380	280	200
2	390	320	240	180
3	300	250	190	150
4	200	180	130	100
5	90	80	60	50

The water pressure drop reported in this table is calculated by using a 10 mm diameter flexible pipe.

ARC air box

Simple intake hood fitted underneath.
Wall bracket included.
Prepainted steel thickness 1 mm.



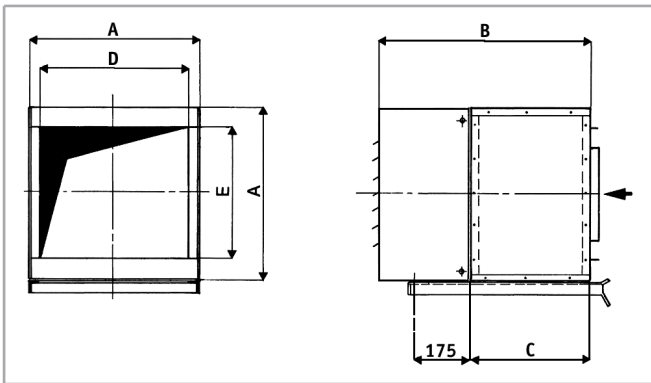
Model	ID	Code
2	ARC-2	9007452
4	ARC-4	9007454
6	ARC-6	9007456
9	ARC-9	9007459

Model	A	B	C	D	E	F	G	Weight
	mm	mm	mm	mm	mm	mm	mm	kg
2	526	660	1126	600	476	410	370	18,7
4	634	760	1534	900	584	510	470	30,8
6	742	760	1642	900	692	610	470	35,2
9	1010	960	2210	1200	910	910	670	63,8

K correction factors		
Air flow	K	0,90
Heat capacity	K	0,95

AE air box

Fresh air box.
Prepainted steel thickness 1 mm.



Model	ID	Code
2	AE-2	9007472
4	AE-4	9007474
6	AE-6	9007476
9	AE-9	9007479

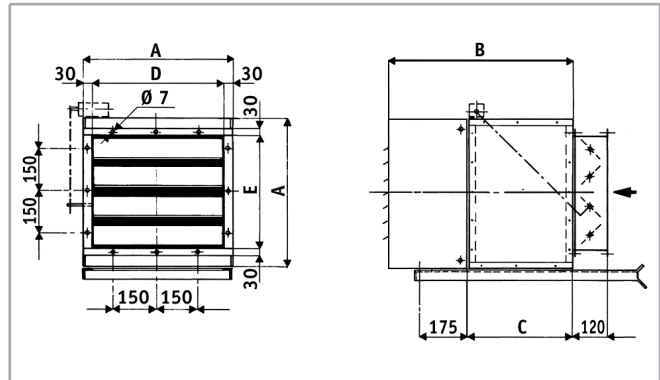
Model	A mm	B mm	C mm	D mm	E mm	Weight kg
2	526	660	370	466	410	9,9
4	634	760	470	574	510	14,3
6	742	760	470	682	610	16,5
9	1010	960	670	910	910	30,8

K correction factors

Air flow	K	0,95
Heat capacity	K	0,97

AES air box

Fresh air box with manually operated damper (can be motorized by the customer).
Prepainted steel thickness 1 mm.



Model	ID	Code
2	AES-2	9007482
4	AES-4	9007484
6	AES-6	9007486
9	AES-9	9007489

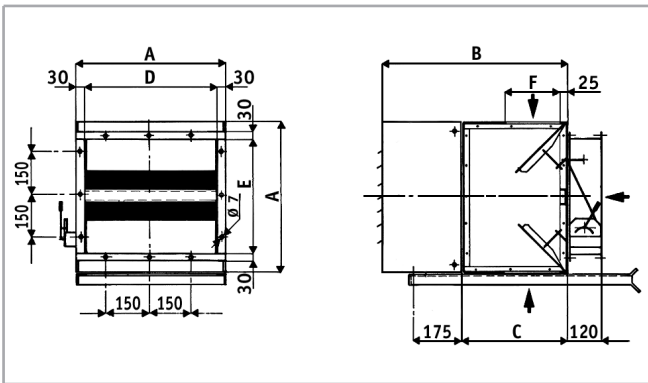
Model	A mm	B mm	C mm	D mm	E mm	Weight kg
2	526	660	370	466	410	16,5
4	634	760	470	574	510	24,2
6	742	760	470	682	610	28,6
9	1010	960	670	910	910	47,3

K correction factors

Air flow	K	0,90
Heat capacity	K	0,95

AM air box

Internal/external air mixing box manually controlled.
Prepainted steel thickness 1 mm.



Model	ID	Code
2	AM-2	9007492
4	AM-4	9007494
6	AM-6	9007496
9	AM-9	9007499

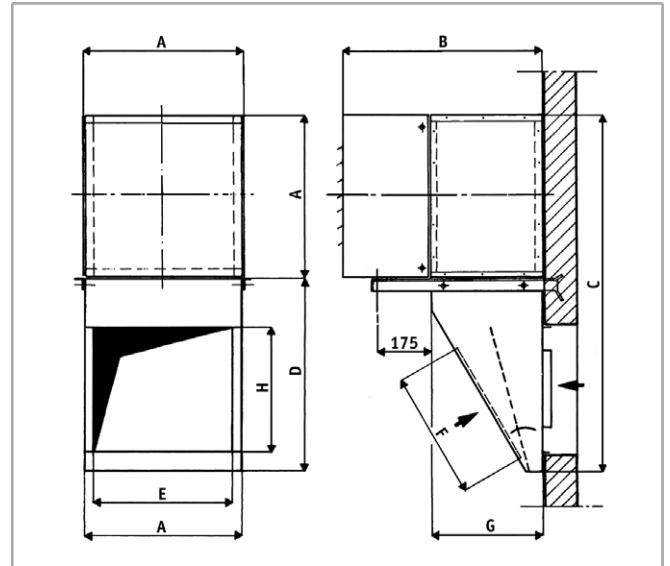
Model	A	B	C	D	E	F	Weight
	mm	mm	mm	mm	mm	mm	kg
2	526	660	370	466	410	190	13,2
4	634	760	470	574	510	270	18,7
6	742	760	470	682	610	300	22,0
9	1010	960	670	910	910	350	38,5

K correction factors

Air flow	K	0,90
Heat capacity	K	0,95

AMC air box

Double intake hood with internal/external air mixing, manually controlled damper.
Wall bracket included.
Prepainted steel thickness 1 mm.



Model	ID	Code
2	AMC-2	9007462
4	AMC-4	9007464
6	AMC-6	9007466
9	AMC-9	9007469

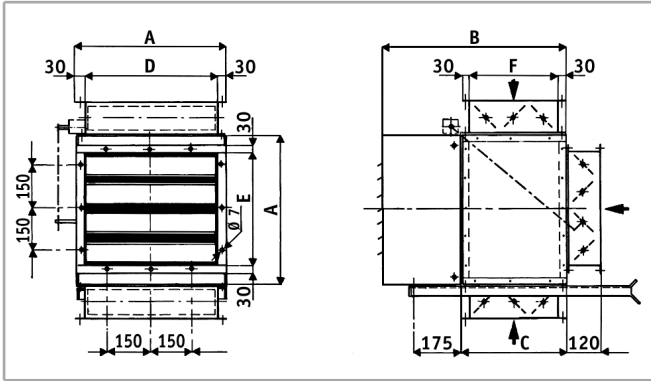
Model	A	B	C	D	E	F	G	H	Weight
	mm	mm	mm	mm	mm	mm	mm	mm	kg
2	526	660	1126	600	466	410	370	410	19,8
4	634	760	1534	900	574	510	470	510	31,9
6	742	760	1642	900	682	610	470	610	36,3
9	1010	960	2210	1200	910	910	670	910	66,0

K correction factors

Air flow	K	0,90
Heat capacity	K	0,95

AMS air box

Internal/external air mixing box, manually controlled (can be motorized by customer).
 Prepainted steel thickness 1 mm.



Model	ID	Code
2	AMS-2	9007502
4	AMS-4	9007504
6	AMS-6	9007506
9	AMS-9	9007509

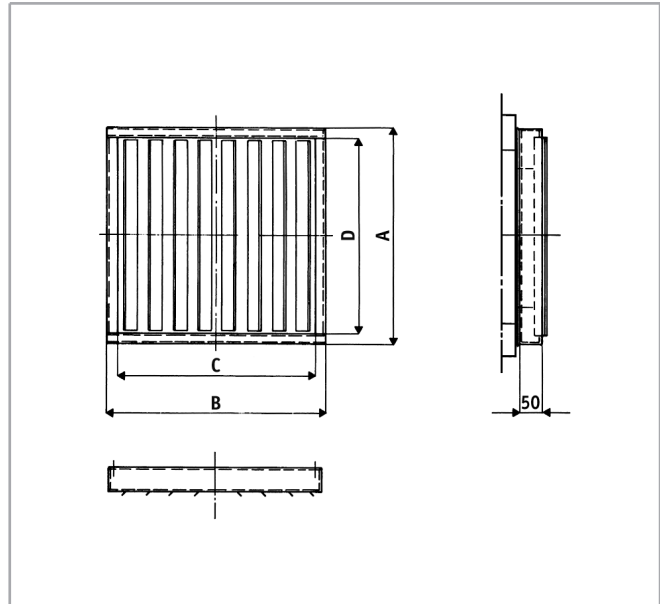
Model	A mm	B mm	C mm	D mm	E mm	F mm	Weight kg
2	526	660	370	466	410	310	23,1
4	634	760	470	574	510	410	33,0
6	742	760	470	682	610	410	37,4
9	1010	960	670	910	910	610	61,6

K correction factors

Air flow	K	0,90
Heat capacity	K	0,95

AD accessory

4 way diffuser.
 To be used with unit heaters for vertical discharge, placed at standard heights.
 For normal heights of installation.

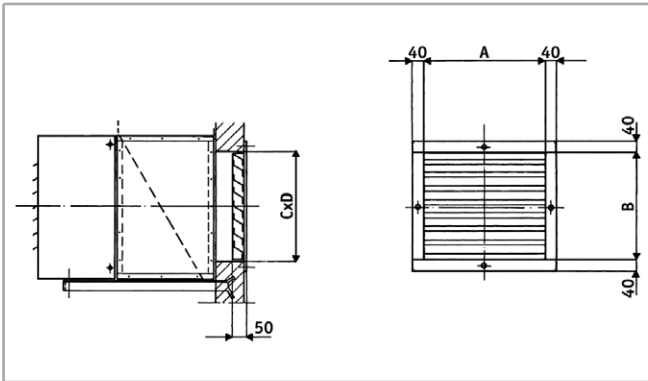


Model	ID	Code
2	AD-2	9007382
4	AD-4	9007384
6	AD-6	9007386
9	AD-9	9007389

Model	A mm	B mm	Weight kg
2	426	390	1,3
4	534	498	1,8
6	642	606	2,1
9	910	874	3,0

AG accessory - Rainproof grid

External air intake grille suitable with air boxes.
Prepainted steel thickness 1 mm.



Model	ID	Code
2	AG-2	9007512
4	AG-4	9007514
6	AG-6	9007516
9	AG-9	9007519

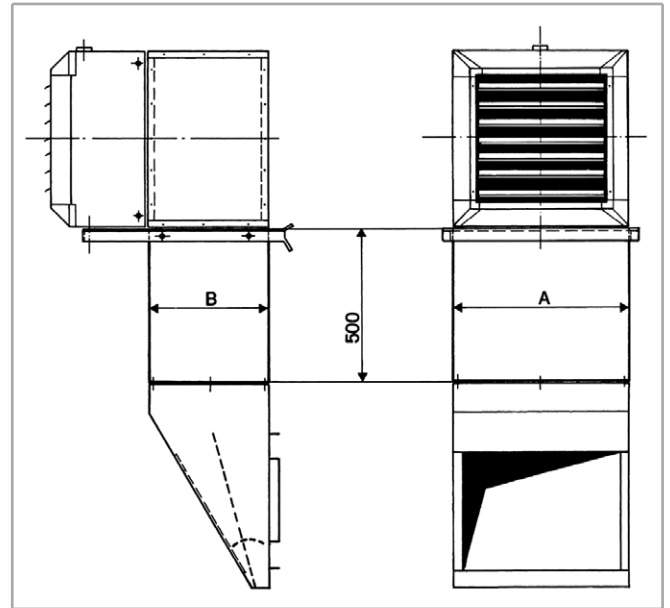
Model	A mm	B mm	C mm	D mm	Weight kg
2	456	400	410	466	4,6
4	564	500	510	574	6,2
6	672	600	610	682	7,7
9	902	902	912	912	13,2

K correction factors

Air flow	K	0,97
Heat capacity	K	0,97

AP accessory

Intermediate section for ARC and AMC air boxes.
Prepainted steel thickness 1 mm.



Model	ID	Code
2	AP-2	9007522
4	AP-4	9007524
6	AP-6	9007526
9	AP-9	9007529

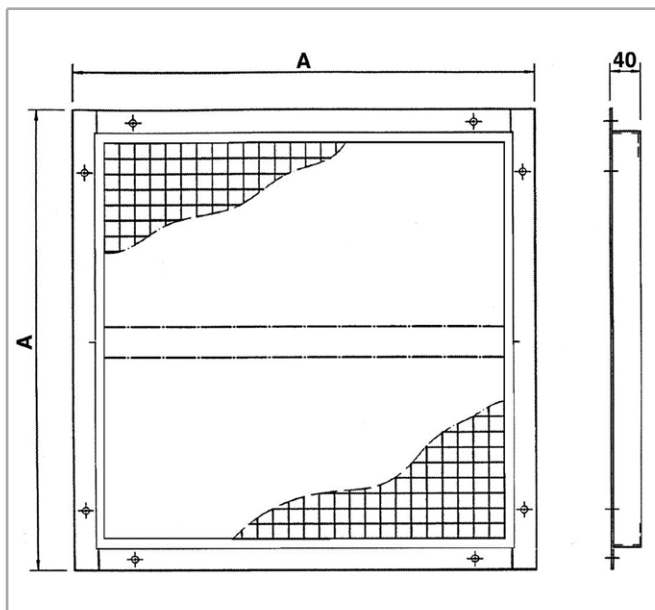
Model	A mm	B mm	Weight kg
2	526	370	9,9
4	634	470	12,1
6	742	470	13,2
9	1010	670	18,7

K correction factors

Air flow	K	0,96
Heat capacity	K	0,97

APP accessory - Ball protection grid

Ball protection grid.

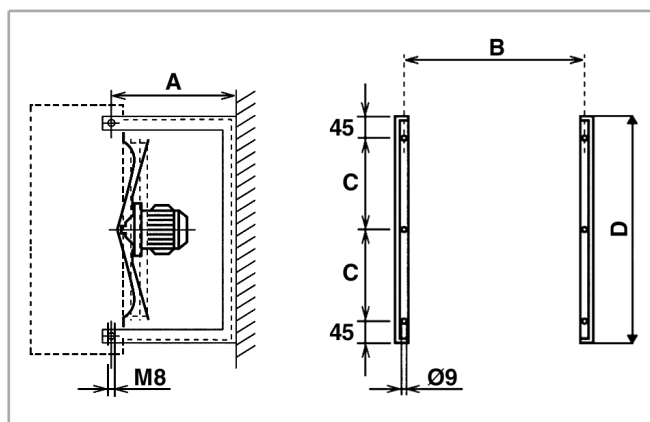


Model	ID	Code
2	APP-2	9007822
4	APP-4	9007824
6	APP-6	9007826
9	APP-9	9007829

Model	A mm	Weight kg
2	426	3,4
4	534	5,1
6	642	7,0
9	914	12,9

AMP accessory

Wall brackets.
Horizontal air discharge.



Model	ID	Code
2	AMP-2	6007102
4	AMP-4	6007104
6	AMP-6	6007106
9	AMP-9	6007109

Model	mm	mm	mm	mm
2	340	496	184,5	459
4	390	604	238,5	567
6	390	712	292,5	675
9	520	980	426,5	943

CONTROLS

WM-UH-ECM2 control board

Model	ID	Code
2-4-6-9	WM-UH-ECM2	9008137



- Wall control panel
- Plastic casing with transparent cover
- Opening to the electrical terminal board connection
- T-MB2 mounted with possibility of remote control
- Air temperature probe included
- Defaulted control of until 12 unit heaters

The main characteristics are:

- Selection of the operation mode among: summer/winter/ventilation only
- Configuration of temperature set
- Manual setting of the fan speed switch, progressive at 0,5 Volt steps or automatic
- Weekly operation program
- Night mode setting activable by an external free voltage DO (Digital Output)
- Management of the antifreeze mode in accordance with the detected room temperature, activable by a free voltage DO (Digital Output)

Fan speed control

- The speed range to choose depends from the selected operating mode:
- Heating - the fan works at a minimum - maximum motor range and it uses the complete one 1 - 10 V
- Cooling - the fan works only at a minimum speed range included between 1 - 4 V

The regulation board can be set for the room temperature control by means of:

- Fan ON/OFF control
- Valve ON/OFF control and continuous ventilation
- Simultaneous control of the valve and fan.

Control mode:

- Relay to manage the water valve actuator on On/Off mode
- Management of the free voltage of the 230 V winding of an external remote control switch for the power supply to the fan motor range

- 0-10 V signal for the fan motors control with inverter board
 - Max. number of connectable unit heaters: 12
- In1 digital input to set as:
- Remote ON/OFF control
 - Summer/Winter switch
- In2 digital input to set as:
- Nightly mode activation (set reduction and fan speed setting at 3 V)
 - Antifreeze mode activation (it opens the water valve and starts the fan at the minimum speed)

LC-P220

Model	ID	Code
2-4-6-9	LC-P220	9008135



0-10 V / 230 V signal generator

The output signal value can be adjusted by means of the frontal handle, the % range shows the set voltage value.

Note:

- The electronic motor starts at a minimum voltage value of 1 V. Below this value it stops.
- By the cooling mode the value to set can not overcome 4 V.

NTC remote probe 10K IP55 for WM-UH-ECM2 control board

Model	ID	Code
2-4-6-9	NTC-10K-WM	9008136



Air probe to control at a distance for WM-UH-ECM2 control board.

WM-S-ECM control

Model	ID	Code
2-4-6-9	WM-S-ECM	9066644



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

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

Control power absorption: 1,2 VA

Dimensions: 132x87x23,6 mm



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CERTIFICATO N. **ICIM-9001-000545-10**
CERTIFICATE No. _____

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITÀ DI
WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY

SABIANA S.P.A.

SEDE CENTRALE / HEADQUARTER

VIA PIAVE, 53 20011 CORBETTA MI IT - Italia

PER LE UNITÀ OPERATIVE VEDERE L'ALLEGATO
FOR OPERATIVE UNITS SEE ATTACHMENT

È CONFORME ALLA NORMA / IS IN COMPLIANCE WITH THE STANDARD

UNI EN ISO 9001:2015

Sistema di Gestione per la Qualità / Quality Management System

PER LE SEGUENTI ATTIVITÀ / FOR THE FOLLOWING ACTIVITIES

EA: 18

Progettazione, produzione e assistenza di apparecchiature per il riscaldamento e il condizionamento dell'aria (aerotermi, termostrisce radianti, ventilconvettori e unità trattamento aria). Progettazione e produzione di canne fumarie.

Design, production and service of heating and air conditioning equipment (unit heaters, radiant panels, fan coil units and air handling units). Design and production of chimneys.

Riferirsi alla documentazione del Sistema di Gestione per la Qualità aziendale per l'applicabilità dei requisiti della norma di riferimento.
Refer to the documentation of the Quality Management System for details of application to reference standard requirements.

Il presente certificato è soggetto al rispetto del documento ICIM "Regolamento per la certificazione dei sistemi di gestione" e al relativo Schema specifico.
The use and the validity of this certificate shall satisfy the requirements of the ICIM document "Rules for the certification of company management systems" and specific Scheme.

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Piazza Don Enrico Magelli, 75 - 20099 Sesto San Giovanni (MI)
www.icim.it



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SABIANA SpA

Società a socio unico

via Piave 53 - 20011 Corbetta (MI) Italy

T. +39 02 97203 1 r.a. - F. +39 02 9777282

info@sabiana.it

www.sabiana.it



Sabiana 2 and Sabiana 3 - Operative unit "via Virgilio 2 - Magenta (MI)"

Sabiana 4 - Operative unit "via Zanella 27 - Corbetta (MI)"