

> RMA

AIR-WATER CHILLERS AND HEAT PUMPS FOR OUTDOOR INSTALLATION



Available range

Unit type

IR	Chiller
IP	Heat pump (reversible on the refrigerant side)
BR	Chiller Brine
BP	Heat pump Brine (reversible on the refrigerant side)

Versions

VB	Base Version
VP	Pump version
VA	Tank version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of small and medium size.

All the units are suitable for outdoor installation and can be applied to fan coil plants, radiant floor plants and high efficiency radiators plants.

The refrigerant circuit, contained in a compartment protected from the air flow to simplify the maintenance operations, is equipped with scroll compressor mounted on damper supports, brazed plate heat

exchanger, thermostatic expansion valve, reverse cycle valve, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins. The circuit is protected by high and low pressure switches and differential pressure switch on the plate heat exchanger. The plate heat exchanger and all the hydraulic pipes are thermally insulated in order to avoid condensate generation and to reduce thermal losses.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), reducing the rotational speed of the fans and mounting sound jackets on the compressors.

All the units are supplied with an outdoor temperature sensor, already installed on the unit, in order to realize the climatic control.

All the units are provided with a phase presence and correct sequence controller device.

All the units are accurately built and individually tested in the factory. Only electric and hydraulic connections are required for installation.

Options

Storing and pumping module

- not present (VB - base version)
- standard, high head or modulating pump (VP - pump version)
- tank and standard, high head or modulating pump (VA - tank version)

Integrative electrical heaters

- not present
- standard in the tank

Compressor starting

- standard (contactors)
- soft starter

Fans control

- on-off control
- modulating control (condensation / evaporation control)

Accessories

Rubber vibration dampers

Coil protection grille

Tank antifreeze electrical heater

Remote control

Modbus serial interface on RS485

Programmer clock

Phase sequence and voltage controller

NOMINAL performances - Standard plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,9	22,1	25,8	30,8	35,6	40,2	kW
	Power input	6,82	7,50	8,76	10,8	12,3	13,9	kW
	EER	2,92	2,95	2,95	2,85	2,89	2,89	-
	Water flow rate	3432	3809	4444	5319	6143	6932	l/h
	Pressure drops	26	31	26	36	31	38	kPa
	Available static head (standard pump)	146	135	130	104	130	111	kPa
IR	Low noise acoustic setting up (AS)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,1	21,2	24,8	29,6	34,2	38,6	kW
	Power input	7,34	8,09	9,42	11,6	13,3	15,0	kW
	EER	2,60	2,62	2,63	2,55	2,57	2,57	-
	Water flow rate	3295	3655	4273	5113	5903	6658	l/h
	Pressure drops	24	29	24	33	28	36	kPa
	Available static head (standard pump)	150	139	134	111	135	118	kPa
IP	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,5	21,7	25,3	30,2	34,9	39,4	kW
	Power input	6,75	7,42	8,66	10,7	12,2	13,8	kW
	EER	2,89	2,92	2,92	2,82	2,86	2,86	-
	Water flow rate	3363	3741	4358	5216	6023	6795	l/h
	Pressure drops	25	30	25	35	29	37	kPa
	Available static head (standard pump)	148	137	132	108	132	114	kPa
A7W45	Heating capacity	21,0	23,3	27,1	32,5	37,6	42,4	kW
	Power input	6,49	7,14	8,33	10,3	11,7	13,4	kW
	COP	3,24	3,26	3,25	3,16	3,21	3,16	-
	Water flow rate	3568	3961	4610	5515	6386	7188	l/h
	Pressure drops	27	33	27	38	33	41	kPa
	Available static head (standard pump)	143	131	126	99	125	105	kPa
IP	Low noise acoustic setting up (AS)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	18,7	20,8	24,3	29,1	33,6	37,8	kW
	Power input	7,27	8,00	9,33	11,4	13,1	14,9	kW
	EER	2,57	2,60	2,60	2,55	2,56	2,54	-
	Water flow rate	3226	3586	4187	5010	5783	6520	l/h
	Pressure drops	23	28	23	32	27	34	kPa
	Available static head (standard pump)	152	142	137	114	137	121	kPa
A7W45	Heating capacity	19,9	22,2	25,8	31,0	35,8	40,3	kW
	Power input	6,22	6,85	7,98	9,88	11,3	12,8	kW
	COP	3,20	3,24	3,23	3,14	3,17	3,15	-
	Water flow rate	3381	3773	4388	5259	6078	6847	l/h
	Pressure drops	25	30	25	35	30	37	kPa
	Available static head (standard pump)	149	137	132	107	132	114	kPa

Data declared according to EN 14511. The values are referred to units without options and accessories.

NOMINAL performances - Standard plants - EUROVENT certified data

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	20,0	22,	25,9	31,0	35,8	40,4	kW
	Power input	6,74	7,39	8,65	10,6	12,1	13,7	kW
	EER	2,97	3,00	2,99	2,92	2,96	2,95	-
	ESEER	3,36	3,39	3,38	3,30	3,34	3,33	-
	Pressure drops	26	31	25	36	30	38	kPa
IP	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W7	Cooling capacity	19,6	21,8	25,4	30,4	35,1	39,6	kW
	Power input	6,67	7,32	8,56	10,5	12,0	13,6	kW
	EER	2,94	2,98	2,97	2,90	2,93	2,91	-
	ESEER	3,32	3,37	3,36	3,28	3,31	3,29	-
	Pressure drops	25	30	25	34	29	37	kPa
A7W45	Heating capacity	20,9	23,2	27,0	32,3	37,4	42,1	kW
	Power input	6,40	7,02	8,21	10,1	11,5	13,1	kW
	COP	3,27	3,30	3,29	3,20	3,25	3,21	-
	Pressure drops	28	34	27	39	33	41	kPa

A35W7 = source : air in 35°C d.b. / plant : water in 12°C out 7°C

A35W18 = source : air in 35°C d.b. / plant : water in 23°C out 18°C

A7W45 = source : air in 7°C d.b. 6°C w.b. / plant : water in 40°C out 45°C

A7W35 = source : air in 7°C d.b. 6°C w.b. / plant : water in 30°C out 35°C

NOMINAL performances - Radiant plants

IR	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W18	Cooling capacity	24,6	27,3	31,9	38,1	44,1	49,6	kW
	Power input	7,09	7,81	9,11	11,2	12,8	14,6	kW
	EER	3,47	3,50	3,50	3,40	3,45	3,40	-
	Water flow rate	4259	4723	5513	6595	7625	8604	l/h
	Pressure drops	39	47	38	54	46	58	kPa
	Available static head (standard pump)	120	104	99	65	93	66	kPa
IR	Low noise acoustic setting up (AS)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W18	Cooling capacity	23,7	26,2	30,7	36,7	42,4	47,7	kW
	Power input	7,62	8,41	9,79	12,0	13,8	15,6	kW
	EER	3,11	3,12	3,14	3,06	3,07	3,06	-
	Water flow rate	4087	4534	5307	6354	7333	8261	l/h
	Pressure drops	36	43	36	50	43	54	kPa
	Available static head (standard pump)	126	111	105	73	101	76	kPa
IP	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W18	Cooling capacity	24,2	26,8	31,3	37,4	43,2	48,7	kW
	Power input	7,01	7,73	9,01	11,1	12,7	14,4	kW
	EER	3,45	3,47	3,47	3,37	3,40	3,38	-
	Water flow rate	4173	4637	5410	6475	7471	8432	l/h
	Pressure drops	37	45	37	52	44	56	kPa
	Available static head (standard pump)	123	107	102	69	97	71	kPa
A7W35	Heating capacity	21,40	23,80	27,70	33,20	38,40	43,30	kW
	Power input	5,48	6,03	7,03	8,71	9,91	11,30	kW
	COP	3,91	3,95	3,94	3,81	3,87	3,83	-
	Water flow rate	3651	4063	4731	5657	6549	7371	l/h
	Pressure drops	29	35	29	40	34	43	kPa
	Available static head (standard pump)	140	127	122	95	121	100	kPa
IP	Low noise acoustic setting up (AS)	19.1	22.1	26.1	30.1	35.1	40.1	
A35W18	Cooling capacity	23,2	25,7	30,1	35,9	41,5	46,7	kW
	Power input	7,55	8,32	9,69	11,9	13,7	15,5	kW
	EER	3,07	3,09	3,11	3,02	3,03	3,01	-
	Water flow rate	4002	4448	5204	6217	7179	8089	l/h
	Pressure drops	34	42	34	48	41	51	kPa
	Available static head (standard pump)	129	114	108	77	105	81	kPa
A7W35	Heating capacity	20,3	22,6	26,3	31,6	36,5	41,2	kW
	Power input	5,24	5,77	6,73	8,34	9,49	10,9	kW
	COP	3,87	3,92	3,91	3,79	3,85	3,78	-
	Water flow rate	3463	3857	4491	5383	6223	7011	l/h
	Pressure drops	26	32	26	37	31	39	kPa
	Available static head (standard pump)	146	134	129	103	128	109	kPa

Data declared according to **EN 14511**. The values are referred to units without options and accessories.

Acoustic performances

	Base acoustic setting up (AB)	19.1	22.1	26.1	30.1	35.1	40.1	
	Sound power level	77	77	78	81	82	82	dB(A)
	Sound pressure level at 1 metre	61	62	62	65	66	66	dB(A)
	Sound pressure level at 5 metres	51	51	52	55	55	56	dB(A)
	Sound pressure level at 10 metres	46	46	47	50	50	50	dB(A)
	Low noise acoustic setting up (AS)	19.1	22.1	26.1	30.1	35.1	40.1	
	Sound power level	74	74	75	78	79	79	dB(A)
	Sound pressure level at 1 metre	58	59	59	62	63	63	dB(A)
	Sound pressure level at 5 metres	48	48	49	52	53	53	dB(A)
	Sound pressure level at 10 metres	43	43	44	47	48	48	dB(A)

The acoustic performances are referred to units operating in cooling mode at nominal conditions A35W7.

Unit placed in free field on reflecting surface (directional factor equal to 2).

The sound power level is measured according to ISO 3744 standard.

The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

OPERATING LIMITS	Unit type	Cooling		Heating		
		min	max	min	max	
Outdoor air inlet temperature	IR, BR, IP, BP	5	48	-15	42	°C
Water outlet temperature	IR, IP	5	25	30	55	°C
Water outlet temperature	BR, BP	-12	25	30	55	°C

