

> RLA HE

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)

Version

VB	Base version
VD	Desuperheater version
VR	Total recovery version

Acoustic setting up

AB	Base setting up
AS	Low noise setting up
AX	eXtra low noise setting up

Source temperature level

M	Medium temperature level
A	High temperature level

Unit description

This series of air-water chillers and heat pumps satisfies the cooling and heating requirements of residential plants of medium-large 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 compressors mounted on damper supports, brazed plate heat exchanger, electronic expansion valve, reverse cycle valve, dehydrator filter, axial fans with safety protection grilles, finned coil made of copper pipes

and aluminium louvered fins with sub-cooling section. The circuit is protected by a safety gas valve, 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 and the technical compartment is clad with soundproofing material of suitable thickness.

The eXtra low noise acoustic setting up (AX) is obtained, starting from the low noise setting up (AS), further reducing the rotational speed of the fans and using finned coil with bigger surface.

All the units are supplied with a management and control electrical panel containing general switch, phase presence and correct sequence controller, microprocessor controller with display and all the other electrical components with IP54 minimum protection degree.

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 available in the configurations :

- storage tank arranged as buffer on the flow or as primary-secondary buffer

- 1 or 2 pumps

- standard or high head pump

Refrigerant circuit pressures visualization

- high and low pressure gauges

- high and low pressure transducers

High temperature thermostat

Compressor starting

- standard (contactors)

- soft starter

Fans control

- on-off control

- modulating control (condensation / evaporation control)

Compressor power factor correction

Electrical load protection

- fuses

- thermal magnetic circuit breakers

Coil condensate tray

Accessories

Rubber vibration dampers

Spring vibration dampers

Coil protection grilles

Tank antifreeze electrical heater

Remote control

Modbus serial interface on RS485

Programmer clock

Phase sequence and voltage controller

Water flow switch

Victaulic hydraulic fittings

NOMINAL performances - Standard plants

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7	Cooling capacity	168	191	214	241	271	309	348	396	kW
	Power input	54,1	61,3	68,0	76,7	86,8	98,2	109	127	kW
	EER	3,11	3,12	3,15	3,14	3,12	3,15	3,19	3,12	-
	ESEER	4,47	4,49	4,53	4,52	4,50	4,53	4,60	4,49	-
	Pressure drops	43	44	47	48	45	43	44	38	kPa
IR	Low noise setting up (AS)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7	Cooling capacity	160	181	203	229	257	294	331	376	kW
	Power input	55,3	62,9	70,1	79,4	88,9	101	112	130	kW
	EER	2,89	2,88	2,90	2,88	2,89	2,91	2,96	2,89	-
	ESEER	4,34	4,32	4,34	4,33	4,34	4,37	4,43	4,34	-
	Pressure drops	39	40	42	43	40	38	40	34	kPa
IR	eXtra low noise setting up (AX)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7	Cooling capacity	158	180	201	227	255	290	327	372	kW
	Power input	55,9	63,8	71,2	80,8	90,1	103	114	132	kW
	EER	2,83	2,82	2,82	2,81	2,83	2,82	2,87	2,82	-
	ESEER	4,52	4,51	4,52	4,50	4,53	4,50	4,59	4,51	-
	Pressure drops	38	40	41	42	40	38	39	33	kPa
IP	Base acoustic setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7	Cooling capacity	165	187	209	236	263	302	341	389	kW
	Power input	52,9	60,1	66,6	75,4	84,3	96,3	107	125	kW
	EER	3,12	3,11	3,14	3,13	3,12	3,14	3,19	3,11	-
	ESEER	4,49	4,48	4,52	4,51	4,49	4,52	4,59	4,48	-
	Pressure drops	42	43	44	46	42	41	42	36	kPa
A7W45	Heating capacity	174	198	221	251	280	320	361	412	kW
	Power input	54,1	61,5	68,4	77,2	87,2	99,1	111	128	kW
	COP	3,22	3,22	3,23	3,25	3,21	3,23	3,25	3,22	-
	Pressure drops	47	48	50	52	48	46	48	41	kPa
IP	Low noise setting up (AS)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7	Cooling capacity	157	178	199	224	250	287	324	370	kW
	Power input	53,9	61,6	68,6	78,0	86,2	99,0	110	128	kW
	EER	2,91	2,89	2,90	2,87	2,90	2,90	2,95	2,89	-
	ESEER	4,37	4,33	4,35	4,31	4,35	4,35	4,42	4,34	-
	Pressure drops	38	39	40	41	38	37	38	33	kPa
A7W45	Heating capacity	169	192	214	243	272	310	350	400	kW
	Power input	51,4	58,8	65,6	74,4	83,2	95,0	107	122	kW
	COP	3,29	3,27	3,26	3,27	3,27	3,26	3,27	3,28	-
	Pressure drops	44	45	46	49	45	43	45	38	kPa
IP	eXtra low noise setting up (AX)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7	Cooling capacity	155	176	196	222	247	284	321	366	kW
	Power input	54,6	62,5	69,7	79,3	87,3	101	112	130	kW
	EER	2,84	2,82	2,81	2,80	2,83	2,81	2,87	2,82	-
	ESEER	4,54	4,51	4,50	4,48	4,53	4,50	4,59	4,50	-
	Pressure drops	37	38	39	41	37	36	37	32	kPa
A7W45	Heating capacity	167	190	212	241	269	307	347	396	kW
	Power input	50,2	57,5	64,3	73,0	81,3	93,0	105	120	kW
	COP	3,33	3,30	3,30	3,30	3,31	3,30	3,30	3,30	-
	Pressure drops	43	44	45	48	44	42	44	38	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

TECHNICAL DATA	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4		
Power supply	400 - 3 - 50								V-ph- Hz	
Compressor type	scroll								-	
N° compressors / N° refrigerant circuits	4 / 2								n°	
Plant side heat exchanger type	stainless steel brazed plates								-	
Source side heat exchanger type	finned coil								-	
Fans type	axial								-	
N° fans	4			6			8		n°	
Tank volume	325					710				l
Hydraulic fittings	3" VICTAULIC					4" VICTAULIC				-

NOMINAL performances - Standard plants

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7	Cooling capacity	167	190	212	239	269	307	346	394	kW
	Power input	55,3	62,7	69,6	78,5	88,7	100	111	129	kW
	EER	3,02	3,03	3,05	3,04	3,03	3,07	3,12	3,05	-
	Water flow rate	8,03	9,13	10,22	11,5	12,9	14,8	16,6	18,9	l/s
	Pressure drops	43	44	47	48	45	43	44	38	kPa
IP	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7	Cooling capacity	164	186	208	234	261	300	339	387	kW
	Power input	54,0	61,4	68,1	77,1	86,1	98,3	109	127	kW
	EER	3,04	3,03	3,05	3,04	3,03	3,05	3,11	3,05	-
	Water flow rate	7,88	8,93	9,99	11,3	12,6	14,4	16,3	18,6	l/s
	Pressure drops	42	43	44	46	42	41	42	36	kPa
A7W45	Heating capacity	175	200	223	253	282	322	364	415	kW
	Power input	55,4	63,0	70,1	79,3	89,3	101	114	131	kW
	COP	3,16	3,17	3,18	3,19	3,16	3,19	3,19	3,17	-
	Water flow rate	8,31	9,46	10,6	12,0	13,4	15,3	17,2	19,7	l/s
	Pressure drops	47	48	50	52	48	46	48	41	kPa

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

NOMINAL performances - Radiant plants

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W18	Cooling capacity	215	245	275	309	348	397	447	510	kW
	Power input	60,4	68,5	76,4	86,3	97,1	110	122	141	kW
	EER	3,56	3,58	3,60	3,58	3,58	3,61	3,66	3,62	-
	Water flow rate	10,4	11,8	13,3	15,0	16,8	19,2	21,6	24,6	l/s
	Pressure drops	73	74	79	81	75	72	75	64	kPa
IP	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W18	Cooling capacity	213	240	269	303	338	389	438	501	kW
	Power input	59,1	67,1	74,7	84,7	94,0	107	119	138	kW
	EER	3,60	3,58	3,60	3,58	3,60	3,64	3,68	3,63	-
	Water flow rate	10,3	11,6	13,0	14,7	16,3	18,8	21,2	24,2	l/s
	Pressure drops	71	72	75	78	71	69	72	62	kPa
A7W35	Heating capacity	186	212	236	269	299	342	386	440	kW
	Power input	46,2	52,4	58,3	65,7	74,4	84,3	94,2	108	kW
	COP	4,03	4,05	4,05	4,09	4,02	4,06	4,10	4,07	-
	Water flow rate	8,81	10,00	11,2	12,7	14,2	16,2	18,3	20,9	l/s
	Pressure drops	52	53	56	58	54	51	54	46	kPa

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

Acoustic performances

	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
	Sound power level	91	92	92	92	93	94	94	95	dB(A)
	Sound pressure level at 1 metre	72	73	73	73	74	75	74	75	dB(A)
	Sound pressure level at 5 metres	64	65	65	65	66	67	67	68	dB(A)
	Sound pressure level at 10 metres	59	60	60	60	61	62	62	63	dB(A)
	Low noise setting up (AS)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
	Sound power level	85	86	86	86	87	88	88	89	dB(A)
	Sound pressure level at 1 metre	66	67	67	67	68	69	68	69	dB(A)
	Sound pressure level at 5 metres	58	59	59	59	60	61	61	62	dB(A)
	Sound pressure level at 10 metres	53	54	54	54	55	56	56	57	dB(A)
	eXtra low noise setting up (AX)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
	Sound power level	82	83	83	83	84	85	85	86	dB(A)
	Sound pressure level at 1 metre	63	64	64	64	65	66	65	66	dB(A)
	Sound pressure level at 5 metres	55	56	56	56	57	58	58	59	dB(A)
	Sound pressure level at 10 metres	50	51	51	51	52	53	53	54	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	-10*	55**	-15	40*	(°C)
Water outlet temperature	IR, IP	5	25	30	55	(°C)
Water outlet temperature	BR, BP	-12	25	30	55	(°C)
Water outlet temperature (VD)	IR, BR, IP, BP	30	70	30	70	(°C)
Water outlet temperature (VR)	IR, BR	30	55	-	-	(°C)

* with fans modulating control option (condensation / evaporation control)

** with ATC outdoor high temperature protection function

VD and VR versions

These units allow to recover the heating power, otherwise wasted on air, through an additional heat exchanger.

The **Desuperheater Version (VD)** allow the hot water production at temperatures between 30 and 70°C through the partial heat recovery of the condensation heat.

The **Total Recovery Version (VR)** allows the cold water production and, at the same time, the hot water production at temperatures between 30 and 55°C through the total recovery of the condensation heat.

Desuperheater Version (VD)

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7 - W45	Cooling capacity	174	198	223	251	282	321	362	412	kW
	Total power input	52,7	59,7	66,2	74,6	84,6	95,6	106	123	kW
	EER	3,30	3,32	3,37	3,36	3,33	3,36	3,42	3,35	-
	Water flow rate	8,31	9,46	10,7	12,0	13,5	15,3	17,3	19,7	l/s
	Water pressure drop	47	48	51	52	48	46	48	41	kPa
	Heating recovery capacity	50,5	57,4	64,7	72,8	81,8	93,1	105	119	kW
	Water flow rate recovery	2,41	2,74	3,09	3,48	3,91	4,45	5,02	5,71	l/s
	Water pressure drop recovery	6	8	10	12	15	15	18	23	kPa
IP	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7 - W45	Cooling capacity	172	194	218	245	273	314	354	405	kW
	Total power input	51,5	58,5	64,8	73,4	82,1	93,7	104	121	kW
	EER	3,34	3,32	3,36	3,34	3,33	3,35	3,40	3,35	-
	Water flow rate	8,22	9,27	10,4	11,7	13,0	15,0	16,9	19,4	l/s
	Water pressure drop	46	46	48	50	45	44	46	40	kPa
	Heating recovery capacity	49,9	56,3	63,2	71,1	79,2	91,1	103	117	kW
	Water flow rate recovery	2,38	2,69	3,02	3,39	3,78	4,35	4,90	5,61	l/s
	Water pressure drop recovery	6	8	10	12	14	14	17	23	kPa

Total Recovery Version (VR)

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
A35W7 - W45	Cooling capacity	174	198	223	251	282	321	362	412	kW
	Total power input	45,0	51,9	58,4	66,7	73,0	83,9	94,1	108	kW
	EER	3,87	3,82	3,81	3,76	3,87	3,82	3,85	3,82	-
	EER with recovery	8,69	8,60	8,58	8,47	8,69	8,60	8,66	8,59	-
	Water flow rate	8,33	9,48	10,6	12,0	13,5	15,3	17,3	19,7	l/s
	Water pressure drop	47	48	50	52	48	46	48	41	kPa
	Heating recovery capacity	217	248	278	314	352	401	452	515	kW
	Water flow rate recovery	10,4	11,8	13,3	15,0	16,8	19,2	21,6	24,6	l/s
Water pressure drop recovery	36	38	38	40	40	42	43	45	kPa	

A35W7 - W45 = source : air in 35°C d.b. / plant : water in 12°C out 7°C / Recovery : water in 40°C out 45°C

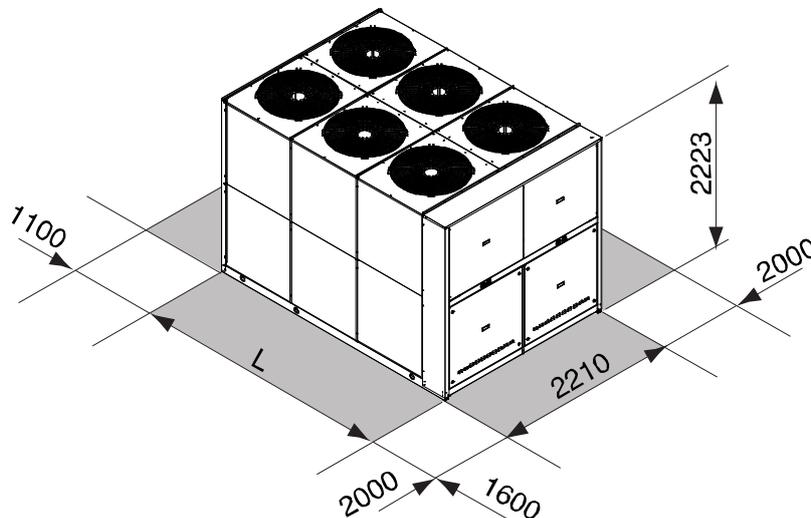
CONTROL SYSTEM

The units are equipped with a controller designed to ensure energy saving and unit efficiency. Available functions :

- ATC outdoor high temperature protection function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Double set point function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating



DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	
L	3164	3164	3164	3164	3164	4097	4097	4097	mm
Operating maximum weight	2441	2633	2829	3005	3069	3690	3790	3907	kg