

> RLA

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 - EUROVENT certified data

IR	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	162	179	201	230	257	292	326	371	413	kW
	Power input	54,9	61,2	69,1	78,3	88,2	100	112	127	142	kW
	EER	2,95	2,92	2,91	2,94	2,91	2,92	2,91	2,92	2,91	-
	ESEER	4,13	4,09	4,07	4,11	4,08	4,09	4,08	4,09	4,07	-
	Pressure drops	55	54	62	65	67	71	59	61	62	kPa
IR	Low noise setting up (AS)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	156	172	193	221	247	280	313	356	396	kW
	Power input	58,7	65,5	74,1	84,0	94,4	108	120	135	152	kW
	EER	2,66	2,63	2,60	2,63	2,62	2,59	2,61	2,64	2,61	-
	ESEER	4,09	4,04	4,01	4,05	4,03	3,99	4,02	4,06	4,01	-
	Pressure drops	51	50	57	60	62	65	55	57	57	kPa
IR	eXtra low noise setting up (AX)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	152	168	189	216	242	274	306	349	388	kW
	Power input	60,1	67,1	75,9	86,1	96,7	110	123	138	156	kW
	EER	2,53	2,50	2,49	2,51	2,50	2,49	2,49	2,53	2,49	-
	ESEER	4,10	4,06	4,03	4,06	4,05	4,04	4,03	4,10	4,03	-
	Pressure drops	48	47	55	57	60	62	52	55	55	kPa
IP	Base acoustic setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	155	172	194	217	246	278	312	360	401	kW
	Power input	54,2	60,5	67,9	76,7	87,7	99,2	111	126	140	kW
	EER	2,86	2,84	2,86	2,83	2,81	2,80	2,81	2,86	2,86	-
	ESEER	4,00	3,98	4,00	3,96	3,93	3,92	3,94	4,00	4,01	-
	Pressure drops	50	50	58	58	62	64	54	58	59	kPa
A7W45	Heating capacity	168	189	213	238	270	305	342	391	435	kW
	Power input	55,3	62,3	70,1	78,9	89,8	101	113	128	143	kW
	COP	3,04	3,03	3,04	3,02	3,01	3,02	3,03	3,05	3,04	-
	Pressure drops	59	60	70	69	74	77	65	68	69	kPa
IP	Low noise setting up (AS)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	149	165	186	208	236	267	300	346	385	kW
	Power input	58,0	64,8	72,8	82,3	93,9	106	119	134	149	kW
	EER	2,57	2,55	2,55	2,53	2,51	2,52	2,52	2,58	2,58	-
	ESEER	3,96	3,92	3,93	3,89	3,87	3,88	3,88	3,98	3,98	-
	Pressure drops	46	46	53	53	57	59	50	53	54	kPa
A7W45	Heating capacity	161	181	204	228	259	293	328	375	418	kW
	Power input	52,9	59,5	67,0	75,3	85,9	96,7	108	122	137	kW
	COP	3,04	3,04	3,04	3,03	3,02	3,03	3,04	3,07	3,05	-
	Pressure drops	54	55	64	63	69	71	60	63	64	kPa
IP	eXtra low noise setting up (AX)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	146	162	182	204	231	261	293	338	377	kW
	Power input	59,4	66,4	74,6	84,3	96,2	109	122	137	153	kW
	EER	2,46	2,44	2,44	2,42	2,40	2,39	2,40	2,47	2,46	-
	ESEER	3,98	3,95	3,95	3,92	3,89	3,88	3,89	4,00	3,99	-
	Pressure drops	44	44	51	51	54	57	48	51	52	kPa
A7W45	Heating capacity	160	180	202	226	257	290	325	371	413	kW
	Power input	51,9	58,4	65,7	73,9	84,3	94,9	106	120	134	kW
	COP	3,08	3,08	3,07	3,06	3,05	3,06	3,07	3,09	3,08	-
	Pressure drops	53	54	63	62	67	70	59	61	62	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	420.4	
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	420.4	
A35W7	Cooling capacity	161	177	199	228	254	289	323	367	409	kW
	Power input	56,3	62,7	71,1	80,7	91,0	103	115	131	146	kW
	EER	2,86	2,82	2,80	2,83	2,79	2,81	2,81	2,80	2,80	-
	Water flow rate	7,74	8,55	9,60	11,0	12,3	14,0	15,6	17,7	19,7	l/s
	Pressure drops	55	54	62	65	67	71	59	61	62	kPa
IP	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7	Cooling capacity	154	171	192	215	244	275	309	357	397	kW
	Power input	55,4	61,9	69,7	78,7	90,1	102	114	129	144	kW
	EER	2,78	2,76	2,75	2,73	2,71	2,70	2,71	2,77	2,76	-
	Water flow rate	7,41	8,22	9,27	10,4	11,8	13,3	14,9	17,2	19,2	l/s
	Pressure drops	50	50	58	58	62	64	54	58	59	kPa
A7W45	Heating capacity	170	191	215	241	273	309	346	395	440	kW
	Power input	56,9	64,1	72,5	81,5	93,0	105	117	132	148	kW
	COP	2,99	2,98	2,97	2,96	2,94	2,94	2,96	2,99	2,97	-
	Water flow rate	8,03	9,03	10,2	11,4	12,9	14,6	16,3	18,7	20,8	l/s
	Pressure drops	59	60	70	69	74	77	65	68	69	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	420.4	
A35W18	Cooling capacity	204	226	253	289	323	367	411	467	520	kW
	Power input	60,7	67,6	77,0	87,6	98,6	113	124	141	159	kW
	EER	3,36	3,34	3,29	3,30	3,28	3,25	3,31	3,31	3,27	-
	Water flow rate	9,91	10,9	12,3	14,1	15,7	17,9	19,9	22,7	25,3	l/s
	Pressure drops	90	87	102	106	110	116	97	101	102	kPa
IP	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W18	Cooling capacity	196	217	245	274	310	350	394	454	505	kW
	Power input	59,6	66,5	75,3	85,1	97,3	110	122	139	155	kW
	EER	3,29	3,26	3,25	3,22	3,19	3,18	3,23	3,27	3,26	-
	Water flow rate	9,48	10,5	11,9	13,3	15,0	17,0	19,1	22,0	24,5	l/s
	Pressure drops	82	81	95	95	100	105	89	95	96	kPa
A7W35	Heating capacity	180	202	229	255	290	328	367	420	467	kW
	Power input	50,0	56,2	63,5	71,3	81,8	92,0	102	116	130	kW
	COP	3,60	3,59	3,61	3,58	3,55	3,57	3,60	3,62	3,59	-
	Water flow rate	8,51	9,57	10,8	12,1	13,7	15,4	17,3	19,8	22,0	l/s
	Pressure drops	66	67	79	78	84	86	73	77	77	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	420.4	
	Sound power level	91	92	92	92	93	94	94	95	95	dB(A)
	Sound pressure level at 1 metre	72	73	73	73	74	75	74	75	75	dB(A)
	Sound pressure level at 5 metres	64	65	65	65	66	67	67	68	68	dB(A)
	Sound pressure level at 10 metres	59	60	60	60	61	62	62	63	63	dB(A)
	Low noise setting up (AS)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
	Sound power level	85	86	86	86	87	88	88	89	89	dB(A)
	Sound pressure level at 1 metre	66	67	67	67	68	69	68	69	69	dB(A)
	Sound pressure level at 5 metres	58	59	59	59	60	61	61	62	62	dB(A)
	Sound pressure level at 10 metres	53	54	54	54	55	56	56	57	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	420.4	
	Sound power level	82	83	83	83	84	85	85	86	86	dB(A)
	Sound pressure level at 1 metre	63	64	64	64	65	66	65	66	66	dB(A)
	Sound pressure level at 5 metres	55	56	56	56	57	58	58	59	59	dB(A)
	Sound pressure level at 10 metres	50	51	51	51	52	53	53	54	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**	-10	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	420.4	
A35W7 - W45	Cooling capacity	169	186	209	239	267	304	339	385	430	kW
	Total power input	53,5	59,6	67,2	76,2	85,8	97,8	109	124	138	kW
	EER	3,16	3,12	3,11	3,14	3,11	3,11	3,11	3,10	3,12	-
	Water flow rate	8,06	8,89	10,0	11,4	12,8	14,5	16,2	18,4	20,5	l/s
	Water pressure drop	59	58	67	69	73	76	64	66	67	kPa
	Heating recovery capacity	47,2	52,2	59,1	65,7	74,3	84,2	97,8	111	125	kW
	Water flow rate recovery	2,26	2,49	2,82	3,14	3,55	4,02	4,67	5,30	5,97	l/s
	Water pressure drop recovery	5	7	8	10	13	16	16	21	25	kPa
IP	Base setting up (AB)	160.4	180.4	200.4	230.4	260.4	290.4	330.4	375.4	420.4	
A35W7 - W45	Cooling capacity	161	179	202	226	256	289	324	374	417	kW
	Total power input	52,8	58,9	66,1	74,6	85,4	96,5	108	122	136	kW
	EER	3,05	3,04	3,06	3,03	3,00	2,99	3,00	3,07	3,07	-
	Water flow rate	7,70	8,55	9,64	10,8	12,2	13,8	15,5	17,9	19,9	l/s
	Water pressure drop	54	54	63	62	66	69	59	63	63	kPa
	Heating recovery capacity	44,8	51,6	58,1	65,6	73,3	84,0	94,7	108	121	kW
	Water flow rate recovery	2,14	2,47	2,78	3,13	3,50	4,01	4,52	5,16	5,78	l/s
	Water pressure drop recovery	5	6	8	10	13	16	15	19	24	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	420.4	
A35W7 - W45	Cooling capacity	169	186	209	239	267	304	339	385	430	kW
	Total power input	45,8	51,8	59,4	68,3	74,3	86,1	97,4	108	122	kW
	EER	3,69	3,59	3,52	3,50	3,59	3,53	3,48	3,56	3,52	-
	EER with recovery	8,31	8,12	8,00	7,95	8,15	8,00	7,92	8,09	7,96	-
	Water flow rate	8,06	8,89	10,0	11,4	12,8	14,5	16,2	18,4	20,5	l/s
	Water pressure drop	59	58	67	69	73	76	64	66	67	kPa
	Heating recovery capacity	212	235	266	304	338	385	432	488	546	kW
	Water flow rate recovery	10,1	11,2	12,7	14,5	16,1	18,4	20,6	23,3	26,1	l/s
Water pressure drop recovery	44	42	44	45	46	49	48	50	51	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

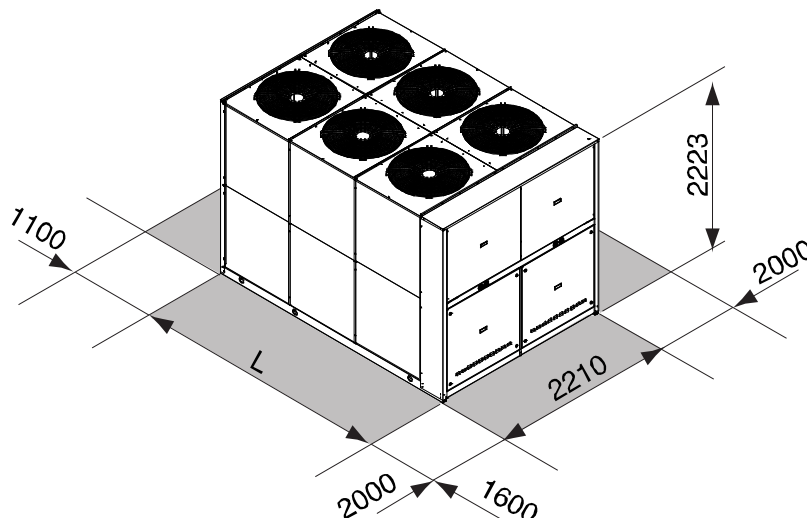
CONTROL SYSTEM

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	420.4	
L	3164	3164	3164	3164	3164	3164	4097	4097	4097	mm
Operating maximum weight	2441	2633	2829	3005	3069	3096	3790	3907	3980	kg