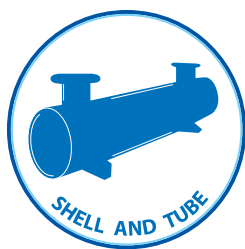


> RGA ST

AIR-WATER CHILLERS AND HEAT PUMPS
FOR OUTDOOR INSTALLATION



Available range

Unit type

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

Version

VB	Base version
VD	Desuperheater version (with plate heat exchanger)
VR	Total recovery version (with plate heat exchanger)

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 size.

All the units are suitable for outdoor installation and can be applied both for comfort applications and for industrial applications.

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 shell and tube heat exchanger with threaded or victaulic fittings (according to the model), thermostatic expansion valve (standard for IR) or electronic expansion

valve (standard for IP / option for IR), reverse cycle valve, dehydrator filter, axial fans with safety protection grilles, finned coil made of copper pipes and aluminium louvered fins with subcooling 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 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
- modulating pump

Expansion valve

- thermostatic
- electronic (standard for IP)

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

Remote control

Modbus serial interface on RS485

Programmer clock

Phase sequence and voltage controller

Low temperature kit (standard for IP)

High and low pressure gauges

High temperature thermostat

Coil shut off valves

Outdoor air sensor

Victaulic hydraulic fittings

Water flow switch

Separated storing module

Separated storing and pumping module

NOMINAL performances - Standard plants

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7	Cooling capacity	45,3	53,5	58,6	68,8	78,7	91,0	102	112	126	143	158	180	200	kW
	Power input	15,4	18,3	20,3	23,5	27,4	31,8	35,2	39,1	44,1	50,4	55,9	63,2	70,0	kW
	EER	2,94	2,92	2,89	2,93	2,87	2,86	2,90	2,86	2,86	2,84	2,83	2,85	2,86	-
	ESEER	4,18	4,15	4,10	4,16	4,08	4,18	4,11	4,18	4,06	4,14	4,01	4,04	4,06	-
	Pressure drops	17	25	30	38	51	43	26	31	45	57	70	48	60	kPa
IR	Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7	Cooling capacity	43,9	51,9	56,8	66,7	76,3	88,2	98,5	109	122	139	153	175	194	kW
	Power input	16,0	19,0	21,1	24,4	28,6	33,1	36,6	40,7	45,9	52,4	58,1	65,7	72,8	kW
	EER	2,74	2,73	2,69	2,73	2,67	2,66	2,69	2,68	2,66	2,65	2,63	2,66	2,66	-
	ESEER	4,05	4,03	3,98	4,04	3,94	4,05	3,97	4,07	3,93	4,03	3,89	3,93	3,94	-
	Pressure drops	16	23	28	36	48	40	24	29	42	54	66	45	56	kPa
IR	eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7	Cooling capacity	42,9	50,7	55,5	65,2	74,5	86,2	96,2	106	119	135	150	170	189	kW
	Power input	16,1	19,4	21,7	24,9	29,4	32,2	37,7	41,9	47,3	53,4	59,3	67,6	74,9	kW
	EER	2,66	2,61	2,56	2,62	2,53	2,68	2,55	2,53	2,52	2,53	2,53	2,51	2,52	-
	ESEER	4,21	4,13	4,04	4,14	4,00	4,35	4,03	4,11	3,98	4,11	4,00	3,97	3,99	-
	Pressure drops	15	22	27	34	46	39	23	28	40	51	63	43	54	kPa
IP	Base acoustic setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7	Cooling capacity	43,8	52,9	57,5	67,2	74,1	89,2	99,0	110	122	138	154	178	198	kW
	Power input	15,2	18,5	20,2	23,6	26,5	31,6	35,0	39,0	43,6	49,3	55,2	62,2	69,7	kW
	EER	2,88	2,86	2,85	2,85	2,80	2,82	2,83	2,82	2,80	2,80	2,79	2,86	2,84	-
	ESEER	4,09	4,06	4,04	4,04	3,97	4,12	4,02	4,12	3,97	4,09	3,96	4,06	4,03	-
	Pressure drops	16	24	29	36	45	41	25	30	42	53	67	47	59	kPa
A7W45	Heating capacity	47,8	57,5	62,6	73,8	82,3	98,7	109	124	135	153	171	195	214	kW
	Power input	15,3	18,5	20,3	23,7	26,9	32,6	35,0	40,0	43,7	50,5	55,4	63,4	69,8	kW
	COP	3,12	3,11	3,08	3,11	3,06	3,03	3,11	3,10	3,09	3,03	3,09	3,08	3,07	-
	Pressure drops	19	29	34	44	56	51	30	38	52	65	82	56	68	kPa
	IP	Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2
A35W7	Cooling capacity	42,0	50,8	55,2	64,5	71,1	85,6	95,0	106	117	132	148	171	190	kW
	Power input	15,8	19,6	21,4	25,0	28,1	33,5	37,1	41,3	46,2	52,3	58,5	65,9	73,9	kW
	EER	2,66	2,59	2,58	2,58	2,53	2,56	2,56	2,57	2,53	2,52	2,53	2,59	2,57	-
	ESEER	3,93	3,83	3,81	3,81	3,74	3,88	3,78	3,90	3,74	3,83	3,74	3,83	3,80	-
	Pressure drops	15	23	27	33	42	38	23	28	39	49	61	43	54	kPa
A7W45	Heating capacity	46,6	56,0	61,1	71,9	80,2	96,2	106	121	132	149	167	190	209	kW
	Power input	14,6	17,7	19,4	22,6	25,7	31,1	33,4	38,2	41,7	48,2	52,9	60,5	66,7	kW
	COP	3,19	3,16	3,15	3,18	3,12	3,09	3,17	3,17	3,17	3,09	3,16	3,14	3,13	-
	Pressure drops	18	27	33	42	53	48	28	36	49	62	78	54	66	kPa
	IP	eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2
A35W7	Cooling capacity	41,2	49,7	54,1	63,2	69,7	83,8	93,1	103	115	130	145	167	186	kW
	Power input	16,9	20,7	22,6	26,4	29,7	35,4	39,2	43,7	48,8	55,2	61,8	69,7	78,1	kW
	EER	2,44	2,40	2,39	2,39	2,35	2,37	2,38	2,36	2,36	2,36	2,35	2,40	2,38	-
	ESEER	3,85	3,79	3,78	3,78	3,71	3,85	3,75	3,83	3,72	3,83	3,71	3,79	3,76	-
	Pressure drops	14	21	25	32	40	36	22	26	37	47	59	41	52	kPa
A7W45	Heating capacity	44,9	54,0	58,9	69,4	77,4	92,8	103	117	127	144	161	183	201	kW
	Power input	13,9	16,8	18,5	21,6	24,5	29,7	31,9	36,4	39,8	46,0	50,4	57,7	63,5	kW
	COP	3,23	3,21	3,18	3,21	3,16	3,12	3,23	3,21	3,19	3,13	3,19	3,17	3,17	-
	Pressure drops	17	25	30	39	49	45	27	34	46	58	73	50	61	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	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2		
Power supply	400 - 3+N - 50						400 - 3 - 50						V-ph-Hz		
Compressor type	scroll													-	
N° compressors / N° refrigerant circuits	2 / 1													n°	
Plant side heat exchanger type	shell and tube													-	
Source side heat exchanger type	finned coil													-	
Fans type	axial													-	
N° fans	2	3				2				3	4				n°
Hydraulic fittings	2" 1/2 M									3" VICTAULIC				-	

Acoustic performances

Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Sound power level	82	82	83	84	84	85	85	85	86	87	87	88	88	dB(A)
Sound pressure level at 1 metre	64	64	65	66	66	67	67	67	68	69	69	69	69	dB(A)
Sound pressure level at 5 metres	55	55	56	57	57	58	58	58	59	60	60	61	61	dB(A)
Sound pressure level at 10 metres	50	50	51	52	52	53	53	53	54	55	55	56	56	dB(A)
Low noise setting up (AS)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Sound power level	79	79	80	81	81	82	82	82	83	84	84	85	85	dB(A)
Sound pressure level at 1 metre	61	61	62	63	63	64	64	64	65	66	66	66	66	dB(A)
Sound pressure level at 5 metres	52	52	53	54	54	55	55	55	56	57	57	58	58	dB(A)
Sound pressure level at 10 metres	47	47	48	49	49	50	50	50	51	52	52	53	53	dB(A)
eXtra low noise setting up (AX)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
Sound power level	77	77	78	79	79	80	80	80	81	82	82	83	83	dB(A)
Sound pressure level at 1 metre	59	59	60	61	61	62	62	62	63	64	64	64	64	dB(A)
Sound pressure level at 5 metres	50	50	51	52	52	53	53	53	54	55	55	56	56	dB(A)
Sound pressure level at 10 metres	45	45	46	47	47	48	48	48	49	50	50	51	51	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, IP	-10*	50	-10	40*	(°C)
Water outlet temperature	IR, IP	5	15	30	52	(°C)
Water outlet temperature (VD)	IR, IP	30	70	30	70	(°C)
Water outlet temperature (VR)	IR	30	55	-	-	(°C)

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

CONTROL SYSTEM

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

Available functions :

- Adaptive function
- Dynamic defrost
- Sound management
- Climatic control in heating and in cooling mode
- Economy function
- Demand limit
- Integrative heating
- Remote stand by
- Remote cooling-heating



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)

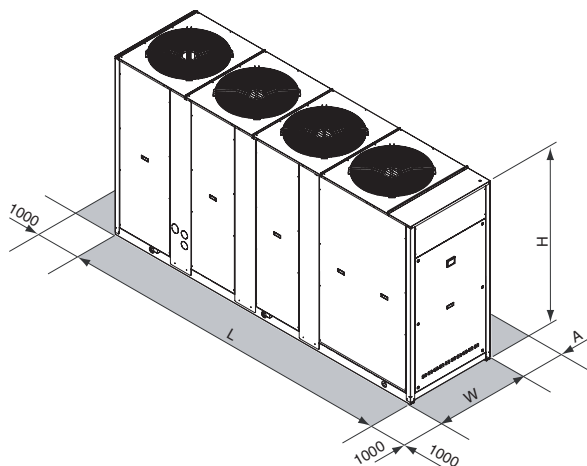
IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7 - W45	Cooling capacity	47,1	55,6	60,9	71,6	81,8	94,6	106	116	131	149	164	187	208	kW
	Total power input	15,0	17,8	19,7	22,8	26,6	31,0	34,3	38,0	42,9	49,1	54,4	61,5	68,1	kW
	EER	3,14	3,12	3,09	3,14	3,08	3,05	3,09	3,05	3,05	3,03	3,01	3,04	3,05	-
	Water flow rate	2,25	2,66	2,91	3,42	3,91	4,52	5,06	5,54	6,26	7,12	7,84	8,93	9,94	l/s
	Water pressure drop	18	27	32	41	55	46	28	33	49	62	75	52	65	kPa
	Heating recovery capacity	13,5	15,7	17,6	20,0	23,6	27,1	30,4	34,4	38,4	44,0	49,3	55,4	61,3	kW
	Water flow rate recovery	0,65	0,75	0,84	0,96	1,13	1,29	1,45	1,64	1,83	2,10	2,36	2,65	2,93	l/s
	Water pressure drop recovery	6	9	11	14	19	15	18	11	14	18	22	18	21	kPa
IP	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7 - W45	Cooling capacity	45,6	55,0	59,8	69,9	77,1	92,8	103	114	127	144	160	185	206	kW
	Total power input	14,8	18,0	19,6	22,9	25,8	30,8	34,1	37,9	42,4	48,0	53,7	60,6	67,8	kW
	EER	3,08	3,06	3,05	3,05	2,99	3,01	3,02	3,01	3,00	3,00	2,98	3,05	3,04	-
	Water flow rate	2,18	2,63	2,86	3,34	3,68	4,43	4,92	5,45	6,07	6,88	7,64	8,84	9,84	l/s
	Water pressure drop	17	26	31	39	49	45	27	32	46	58	72	51	64	kPa
	Heating recovery capacity	13,0	15,2	17,0	19,4	22,9	26,2	29,2	33,2	37,1	42,4	47,5	52,4	58,1	kW
	Water flow rate recovery	0,62	0,73	0,81	0,93	1,09	1,25	1,40	1,59	1,77	2,03	2,27	2,50	2,78	l/s
	Water pressure drop recovery	6	8	10	13	18	14	17	10	13	17	21	16	19	kPa

Total Recovery Version (VR)

IR	Base setting up (AB)	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
A35W7 - W45	Cooling capacity	47,1	55,6	60,9	71,6	81,8	94,6	106	116	131	149	164	187	208	kW
	Total power input	13,6	16,4	17,8	20,8	24,6	27,1	30,3	34,1	38,9	43,2	48,5	53,8	60,3	kW
	EER	3,46	3,39	3,42	3,44	3,33	3,49	3,50	3,40	3,37	3,45	3,38	3,48	3,45	-
	EER with recovery	7,88	7,73	7,79	7,84	7,59	7,92	7,95	7,74	7,69	7,85	7,71	7,90	7,84	-
	Water flow rate	2,25	2,66	2,91	3,42	3,91	4,52	5,06	5,54	6,26	7,12	7,84	8,93	9,94	l/s
	Water pressure drop	18	27	32	41	55	46	28	33	49	62	75	52	65	kPa
	Heating recovery capacity	60,0	71,2	77,8	91,4	105	120	135	148	168	190	210	238	265	kW
	Water flow rate recovery	2,87	3,40	3,72	4,37	5,02	5,73	6,45	7,07	8,03	9,08	10,0	11,4	12,7	l/s
Water pressure drop recovery	35	49	41	45	50	48	52	47	52	51	52	55	55	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

DIMENSIONS - MINIMUM OPERATING AREA - WEIGHT



	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	200.2	
L			2501				3343			3343		4097		mm
W			954				1104			1104		1104		mm
H			1930				1793			2193		2193		mm
A			1600							2000				mm
Operating maximum weight	743	749	750	783	801	1087	1167	1301	1328	1385	1419	1629	1658	kg