

> RGA

AIR-WATER CHILLERS AND HEAT PUMPS
FOR OUTDOOR INSTALLATION



ADAPTIVE
FUNCTION



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 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, 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 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
- 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](#)

[Tank antifreeze electrical heater](#)

[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](#)

[Water flow switch](#)

[Vicatonic hydraulic fittings](#)

NET NOMINAL performances - Standard plants - EUROVENT certified data

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	45,0	53,0	58,1	68,2	78,1	90,3	101	111	125	142	157	179	198	kW	
	Power input	15,7	18,8	20,8	24,1	28,0	32,5	35,9	39,9	45,1	51,5	57,1	64,6	71,6	kW	
	EER	2,87	2,82	2,79	2,83	2,79	2,78	2,81	2,78	2,77	2,76	2,75	2,77	2,77	W/W	
	ESEER	3,88	3,85	3,80	3,86	3,79	3,88	3,81	3,88	3,77	3,84	3,72	3,75	3,77	W/W	
	Water flow rate	2,16	2,56	2,80	3,29	3,76	4,35	4,87	5,35	6,02	6,83	7,55	8,60	9,56	l/s	
A35W7	Pressure drops	40	56	55	51	50	48	46	44	48	47	48	48	50	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	
	Cooling capacity	43,6	51,5	56,3	66,2	75,7	87,6	97,8	108	121	138	152	174	193	kW	
	Power input	16,3	19,4	21,6	24,9	29,2	33,7	37,3	41,4	46,8	53,4	59,2	67,0	74,3	kW	
	EER	2,67	2,65	2,61	2,66	2,59	2,60	2,62	2,61	2,59	2,58	2,57	2,60	2,60	W/W	
A35W7	ESEER	3,76	3,74	3,70	3,75	3,66	3,76	3,69	3,78	3,65	3,74	3,62	3,65	3,66	W/W	
	Water flow rate	2,10	2,48	2,71	3,19	3,65	4,21	4,71	5,21	5,83	6,64	7,31	8,36	9,27	l/s	
	Pressure drops	38	53	52	48	47	45	43	42	45	44	45	45	47	kPa	
A35W7	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	
	Cooling capacity	42,7	50,3	55,1	64,7	74,0	85,6	95,6	105	118	134	149	169	188	kW	
	Power input	16,3	19,8	22,1	25,4	29,9	32,8	38,3	42,6	48,1	54,3	60,3	68,8	76,2	kW	
	EER	2,62	2,54	2,49	2,55	2,47	2,61	2,50	2,46	2,45	2,47	2,47	2,46	2,47	W/W	
	ESEER	3,91	3,83	3,75	3,84	3,71	4,04	3,74	3,81	3,70	3,81	3,71	3,69	3,71	W/W	
A35W7	Water flow rate	2,05	2,42	2,65	3,12	3,56	4,12	4,60	5,06	5,69	6,45	7,17	8,12	9,03	l/s	
	Pressure drops	36	50	49	46	45	43	41	39	43	42	43	43	45	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	Cooling capacity	43,5	52,4	57,0	66,7	73,6	88,5	98	109	121	137	153	177	196	kW	
	Power input	15,5	19,0	20,7	24,1	27,0	32,3	35,7	39,8	44,5	50,3	56,3	63,5	71,2	kW	
	EER	2,81	2,76	2,75	2,77	2,73	2,74	2,75	2,74	2,72	2,72	2,72	2,79	2,75	W/W	
	ESEER	3,79	3,77	3,75	3,75	3,69	3,82	3,73	3,82	3,69	3,79	3,68	3,77	3,74	W/W	
	Water flow rate	2,09	2,53	2,75	3,21	3,54	4,26	4,73	5,26	5,83	6,59	7,36	8,50	9,46	l/s	
A7W45	Pressure drops	37	55	53	49	44	46	43	43	45	44	46	47	49	kPa	
A7W45	Heating capacity	48,1	58,1	63,2	74,5	83,0	99,6	110	125	136	154	173	197	216	kW	
	Power input	15,6	19,1	20,9	24,4	27,6	33,5	35,9	41,1	44,9	51,8	56,9	65,1	71,7	kW	
	COP	3,08	3,04	3,02	3,05	3,01	2,97	3,06	3,04	3,03	2,97	3,04	3,03	3,01	W/W	
	Water flow rate	2,28	2,75	2,99	3,53	3,93	4,72	5,21	5,92	6,45	7,31	8,17	9,32	10,2	l/s	
A35W7	Pressure drops	45	65	63	59	55	57	53	54	55	54	56	56	57	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		
Cooling capacity	41,8	50,4	54,8	64,0	70,6	85,0	94,4	105	116	131	147	170	189	kW		
Power input	16,0	20,0	21,8	25,5	28,6	34,1	37,7	42,0	47,0	53,1	59,5	67,1	75,3	kW		
EER	2,61	2,52	2,51	2,51	2,47	2,49	2,50	2,50	2,47	2,47	2,47	2,53	2,51	W/W		
A35W7	ESEER	3,65	3,56	3,54	3,54	3,48	3,61	3,51	3,63	3,48	3,56	3,48	3,56	3,53	W/W	
	Water flow rate	2,01	2,43	2,64	3,08	3,40	4,09	4,54	5,06	5,59	6,31	7,07	8,17	9,08	l/s	
	Pressure drops	35	50	49	45	41	42	40	39	41	40	42	43	45	kPa	
A7W45	Heating capacity	46,9	56,5	61,7	72,5	80,9	97,0	107	122	133	150	168	192	211	kW	
	Power input	14,9	18,2	20,0	23,2	26,4	31,9	34,2	39,2	42,8	49,4	54,3	62,1	68,5	kW	
	COP	3,15	3,10	3,09	3,13	3,06	3,04	3,13	3,11	3,11	3,04	3,09	3,09	3,08	W/W	
	Water flow rate	2,23	2,68	2,92	3,44	3,83	4,60	5,06	5,78	6,31	7,12	7,98	9,08	9,99	l/s	
	Pressure drops	43	61	60	56	52	54	50	51	53	51	54	54	55	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	41,0	49,3	53,7	62,8	69,3	83,3	92,5	102	114	129	144	166	185	kW	
	Power input	17,1	21,1	23,0	26,8	30,1	35,9	39,8	44,3	49,5	56,0	62,7	70,8	79,4	kW	
	EER	2,40	2,34	2,33	2,34	2,30	2,32	2,32	2,30	2,30	2,30	2,30	2,34	2,33	W/W	
	ESEER	3,58	3,52	3,51	3,51	3,45	3,58	3,49	3,56	3,46	3,56	3,45	3,52	3,49	W/W	
	Water flow rate	1,97	2,37	2,58	3,02	3,33	4,00	4,45	4,92	5,49	6,21	6,93	7,98	8,89	l/s	
A7W45	Pressure drops	33	48	47	43	39	41	38	37	40	39	40	41	43	kPa	
A7W45	Heating capacity	45,2	54,5	59,4	70,0	78,0	93,5	104	118	128	145	162	184	203	kW	
	Power input	14,2	17,3	19,0	22,2	25,1	30,4	32,7	37,3	40,8	47,1	51,7	59,1	65,1	kW	
	COP	3,18	3,15	3,13	3,15	3,11	3,08	3,18	3,16	3,14	3,08	3,13	3,11	3,12	W/W	
	Water flow rate	2,15	2,58	2,81	3,32	3,70	4,43	4,92	5,59	6,07	6,88	7,69	8,74	9,60	l/s	
	Pressure drops	40	57	55	52	48	50	47	48	49	48	50	50	50	kPa	

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

EER (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

COP (Coefficient Of Performance) = ratio of the total heating capacity to the effective power input of the unit

ESEER (European Seasonal Energy Efficiency Ratio)

= Unit in **A CLASS**.

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

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 (E)	82	82	83	84	84	85	85	85	86	87	87	88	88	dB(A)
Sound pressure level at 1 meter	64	64	65	66	66	67	67	67	68	69	69	69	69	dB(A)
Sound pressure level at 5 meters	55	55	56	57	57	58	58	58	59	60	60	61	61	dB(A)
Sound pressure level at 10 meters	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 (E)	79	79	80	81	81	82	82	82	83	84	84	85	85	dB(A)
Sound pressure level at 1 meter	61	61	62	63	63	64	64	64	65	66	66	66	66	dB(A)
Sound pressure level at 5 meters	52	52	53	54	54	55	55	55	56	57	57	58	58	dB(A)
Sound pressure level at 10 meters	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 (E)	77	77	78	79	79	80	80	80	81	82	82	83	83	dB(A)
Sound pressure level at 1 meter	59	59	60	61	61	62	62	62	63	64	64	64	64	dB(A)
Sound pressure level at 5 meters	50	50	51	52	52	53	53	53	54	55	55	56	56	dB(A)
Sound pressure level at 10 meters	45	45	46	47	47	48	48	48	49	50	50	51	51	dB(A)

(E): EUROVENT certified data

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 9614 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.

Technical data

Unit	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									stainless steel brazed plates					-
Source side heat exchanger type										finned coil				-
Fans type										axial				-
N° fans	2				3			2			3		4	n°
Tank volume			200						400			460		l
Hydraulic fittings				2"	VICTAULIC					2"	1/2	VICTAULIC		-

Electrical data

Standard unit	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	
FLA - Full load current at maximum tolerated conditions	40,2	45,7	53,3	58,7	69,6	75,5	90,0	97,9	106	123	136	159	170	A
FLI - Full load power input at maximum tolerated conditions	21,6	24,4	28,4	31,0	36,2	44,0	55,0	60,5	66,0	75,7	83,3	95,4	103	kW
MIC - Maximum instantaneous current of the unit	134	143	149	173	213	264	259	267	267	348	361	355	391	A
MIC SS - Maximum instantaneous current of the unit with soft starter options	89,3	96,3	101	117	143	174	175	183	183	200	246	248	272	A
Unit with high head modulating pump	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	
FLA - Full load current at maximum tolerated conditions	46,3	51,8	59,4	64,8	76,0	81,6	96,1	107	115	132	147	169	180	A
FLI - Full load power input at maximum tolerated conditions	25,1	27,9	31,9	34,5	42,1	47,5	58,5	65,1	70,6	80,3	89,6	102	109	kW
MIC - Maximum instantaneous current of the unit	140	150	155	179	219	270	265	276	276	357	372	365	402	A
MIC SS - Maximum instantaneous current of the unit with soft starter options	95,4	102	107	123	150	180	181	192	192	209	257	258	282	A

Operative range

Temperature	Unit type	Cooling		Heating		
		min	max	min	max	
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	52**	-10	40*	(°C)
Water outlet temperature	IR, IP	5	25	30	55	(°C)
Water outlet temperature	BR, BP	-12	5	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) - NET NOMINAL 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	
A35W7 - W45	Cooling capacity	46,8	55,1	60,3	71	81,1	93,8	105	115	130	148	163	185	206
	Total power input	15,3	18,3	20,3	23,4	27,3	31,8	35,1	38,9	44	50,3	55,8	63	69,9
	EER	3,05	3	2,98	3,03	2,97	2,95	2,99	2,96	2,95	2,94	2,92	2,94	2,95
	HRE	3,93	3,86	3,84	3,88	3,83	3,8	3,86	3,85	3,83	3,81	3,8	3,82	3,83
	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
	Water pressure drop	43	60	59	55	54	52	50	47	52	51	52	52	54
A35W7 - W45	Heating recovery capacity	13,5	15,7	17,6	20	23,6	27,1	30,4	34,4	38,4	44	49,3	55,4	61,3
	Water flow rate recovery	0,65	0,75	0,84	0,96	1,13	1,29	1,45	1,64	1,83	2,1	2,36	2,65	2,93
	Water pressure drop recovery	6	9	11	14	19	15	18	11	14	18	22	18	21
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	45,3	54,5	59,3	69,3	76,5	92,1	102	113	126	143	159	183	204
	Total power input	15,1	18,5	20,1	23,5	26,4	31,5	34,9	38,7	43,4	49,1	54,9	62,1	69,5
	EER	3	2,94	2,94	2,95	2,9	2,92	2,93	2,92	2,9	2,91	2,89	2,95	2,94
	HRE	3,86	3,76	3,79	3,78	3,77	3,75	3,77	3,78	3,76	3,77	3,75	3,8	3,77
	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
	Water pressure drop	41	59	57	53	48	50	47	46	49	48	49	51	53
A35W7 - W45	Heating recovery capacity	13	15,2	17	19,4	22,9	26,2	29,2	33,2	37,1	42,4	47,5	52,4	58,1
	Water flow rate recovery	0,62	0,73	0,81	0,93	1,09	1,25	1,4	1,59	1,77	2,03	2,27	2,5	2,78
	Water pressure drop recovery	6	8	10	13	18	14	17	10	13	17	21	16	19

Total Recovery Version (VR) - NET NOMINAL 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	
A35W7 - W45	Cooling capacity	46,8	55,1	60,3	71	81,1	93,8	105	115	130	148	163	185	206
	Total power input	13,9	16,9	18,4	21,4	25,3	27,9	31,1	35	40	44,4	49,9	55,3	62,1
	EER	3,36	3,25	3,28	3,31	3,2	3,36	3,38	3,29	3,25	3,33	3,26	3,35	3,32
	HRE	7,67	7,46	7,52	7,58	7,35	7,67	7,71	7,52	7,45	7,61	7,47	7,65	7,59
	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
	Water pressure drop	43	60	59	55	54	52	50	47	52	51	52	52	54
A35W7 - W45	Heating recovery capacity	60	71,2	77,8	91,4	105	120	135	148	168	190	210	238	265
	Water flow rate recovery	2,87	3,4	3,72	4,37	5,02	5,73	6,45	7,07	8,03	9,08	10	11,4	12,7
	Water pressure drop recovery	35	49	41	45	50	48	52	47	52	51	52	55	55

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

EER (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

HRE (Heat Recovery Efficiency) = ratio of the total capacity of the system (heating plus cooling capacity) to the effective power input

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

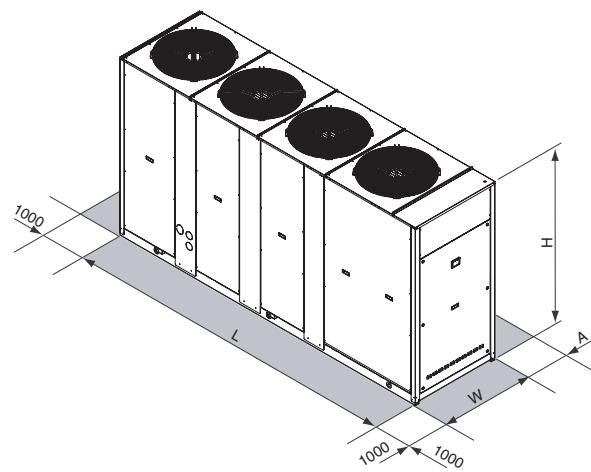
CONTROL SYSTEM

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

- 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



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														
W														
H														
A														
Operating maximum weight*	1027	1031	1053	1088	1107	1587	1668	1749	1833	1891	1935	2260	2296	kg

* Weight refers to the unit IP with tank and pumping module 2 pumps.

> RGA 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 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, 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 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
- 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

Tank antifreeze electrical heater

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

Water flow switch

Victaulic hydraulic fittings

NET NOMINAL performances - Standard plants - EUROVENT certified data

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	
A35W7	Cooling capacity	47,2	55,9	63,1	70,5	83,4	94,9	106	120	133	153	173	197	kW
	Power input	14,9	17,2	19,8	22,1	27,2	31,2	34,6	38,6	42,7	50,0	55,5	64,6	kW
	EER	3,17	3,25	3,19	3,19	3,07	3,04	3,06	3,11	3,11	3,06	3,12	3,05	W/W
	ESEER	4,26	4,26	4,29	4,34	4,12	4,22	4,15	4,32	4,21	4,26	4,22	4,11	W/W
	Water flow rate	2,26	2,69	3,03	3,39	4,00	4,56	5,11	5,78	6,40	7,36	8,31	9,46	l/s
	Pressure drops	24	34	33	41	31	32	34	33	35	35	38	39	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	
A35W7	Cooling capacity	45,0	53,3	60,1	67,3	79,5	90,5	101	114	127	146	165	188	kW
	Power input	15,5	17,9	20,6	22,9	27,7	31,9	35,6	39,8	44,3	51,3	57,2	66,3	kW
	EER	2,90	2,98	2,92	2,94	2,87	2,84	2,84	2,86	2,87	2,85	2,88	2,84	W/W
	ESEER	4,05	4,18	4,08	4,12	4,01	4,07	3,98	4,12	4,03	4,10	4,04	3,97	W/W
	Water flow rate	2,16	2,56	2,89	3,23	3,82	4,34	4,87	5,49	6,12	7,02	7,93	9,03	l/s
	Pressure drops	22	31	30	37	28	29	31	30	32	32	35	36	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	
A35W7	Cooling capacity	44,3	52,4	59,1	66,1	78,2	89,0	100	112	125	143	162	184	kW
	Power input	15,6	18,1	20,8	23,2	27,9	32,3	36,0	40,4	44,9	51,8	57,8	66,9	kW
	EER	2,84	2,90	2,84	2,85	2,80	2,76	2,76	2,77	2,78	2,76	2,80	2,75	W/W
	ESEER	4,21	4,31	4,26	4,28	4,17	4,23	4,13	4,27	4,17	4,26	4,21	4,12	W/W
	Water flow rate	2,12	2,51	2,84	3,18	3,75	4,27	4,78	5,40	6,02	6,88	7,79	8,84	l/s
	Pressure drops	21	30	29	36	27	28	30	29	31	31	33	34	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	
A35W7	Cooling capacity	45,3	53,6	60,7	67,8	81,3	92,4	103	115	128	147	166	191	kW
	Power input	14,6	17,1	19,4	21,7	26,7	30,2	33,8	37,8	41,8	48,5	54,3	62,8	kW
	EER	3,10	3,13	3,13	3,12	3,04	3,06	3,05	3,04	3,06	3,03	3,06	3,04	W/W
	ESEER	4,17	4,24	4,22	4,23	4,10	4,23	4,11	4,23	4,14	4,21	4,12	4,10	W/W
	Water flow rate	2,17	2,58	2,91	3,26	3,90	4,43	4,97	5,54	6,16	7,07	7,98	9,17	l/s
	Pressure drops	22	31	30	38	29	30	32	30	32	32	35	37	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	
A7W45	Heating capacity	49,4	58,3	66,0	74,1	88,4	100	113	126	141	161	181	207	kW
	Power input	15,5	18,1	20,8	23,4	27,9	31,6	35,5	39,7	44,3	51,0	57,1	65,6	kW
	COP	3,19	3,22	3,17	3,17	3,17	3,16	3,18	3,17	3,18	3,16	3,17	3,16	W/W
	Water flow rate	2,35	2,77	3,13	3,52	4,20	4,77	5,35	5,97	6,69	7,64	8,60	9,84	l/s
	Pressure drops	26	36	35	44	34	35	37	35	38	38	41	42	kPa
	Cooling capacity	43,2	51,1	57,8	64,6	77,5	88,0	98,6	110	122	140	158	182	kW
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	
A7W45	Power input	15,1	17,7	20,1	22,6	27,1	31,0	34,8	39,0	43,3	49,8	56,1	64,4	kW
	EER	2,86	2,89	2,88	2,86	2,86	2,84	2,83	2,82	2,82	2,81	2,82	2,83	W/W
	ESEER	3,95	4,02	4,02	4,01	3,98	4,08	3,96	4,03	3,95	4,05	3,95	3,95	W/W
	Water flow rate	2,07	2,45	2,78	3,11	3,72	4,22	4,73	5,26	5,88	6,74	7,60	8,74	l/s
	Pressure drops	20	28	28	35	27	27	29	27	30	29	32	33	kPa
	Heating capacity	48,1	56,8	64,2	72,2	86,0	97,7	110	123	137	157	176	202	kW
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	
A35W7	Power input	14,9	17,5	20,0	22,7	26,4	30,1	34,0	38,2	42,8	48,8	54,8	62,7	kW
	COP	3,23	3,25	3,21	3,18	3,26	3,25	3,24	3,22	3,20	3,22	3,21	3,22	W/W
	Water flow rate	2,29	2,70	3,05	3,43	4,09	4,64	5,21	5,83	6,50	7,45	8,36	9,60	l/s
	Pressure drops	25	34	33	42	32	33	35	34	36	38	40	40	kPa
	Cooling capacity	42,5	50,3	56,9	63,6	76,2	86,5	97,0	109	120	138	155	179	kW
	Power input	15,3	18,0	20,3	22,8	27,4	31,4	35,2	39,6	44,0	50,2	56,7	65,0	kW
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	
A7W45	EER	2,78	2,79	2,80	2,79	2,78	2,75	2,76	2,75	2,73	2,75	2,73	2,75	W/W
	ESEER	4,11	4,16	4,17	4,17	4,14	4,23	4,10	4,21	4,10	4,23	4,10	4,12	W/W
	Water flow rate	2,04	2,41	2,73	3,05	3,66	4,15	4,65	5,21	5,78	6,64	7,45	8,60	l/s
	Pressure drops	20	27	27	33	26	27	28	27	29	28	31	32	kPa
	Heating capacity	47,6	56,1	63,4	71,3	85,0	96,5	109	121	136	155	174	199	kW
	Power input	14,7	17,2	19,6	22,2	25,9	29,5	33,3	37,4	42,0	47,7	53,6	61,3	kW
IP	COP	3,24	3,26	3,23	3,21	3,28	3,27	3,27	3,24	3,24	3,25	3,25	3,25	W/W
A7W45	Water flow rate	2,26	2,67	3,01	3,38	4,04	4,59	5,16	5,73	6,45	7,36	8,27	9,46	l/s
	Pressure drops	24	33	33	41	32	32	35	32	36	35	38	39	kPa

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

EER (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

COP (Coefficient Of Performance) = ratio of the total heating capacity to the effective power input of the unit

ESEER (European Seasonal Energy Efficiency Ratio)

= Unit in A CLASS.

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

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	
Sound power level (E)	82	82	83	84	85	85	85	85	86	87	87	88	dB(A)
Sound pressure level at 1 meter	64	64	65	66	67	67	67	67	68	69	69	69	dB(A)
Sound pressure level at 5 meters	55	55	56	57	58	58	58	58	59	60	60	61	dB(A)
Sound pressure level at 10 meters	50	50	51	52	53	53	53	53	54	55	55	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	
Sound power level (E)	79	79	80	81	82	82	82	82	83	84	84	85	dB(A)
Sound pressure level at 1 meter	61	61	62	63	64	64	64	64	65	66	66	66	dB(A)
Sound pressure level at 5 meters	52	52	53	54	55	55	55	55	56	57	57	58	dB(A)
Sound pressure level at 10 meters	47	47	48	49	50	50	50	50	51	52	52	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	
Sound power level (E)	77	77	78	79	80	80	80	80	81	82	82	83	dB(A)
Sound pressure level at 1 meter	59	59	60	61	62	62	62	62	63	64	64	64	dB(A)
Sound pressure level at 5 meters	50	50	51	52	53	53	53	53	54	55	55	56	dB(A)
Sound pressure level at 10 meters	45	45	46	47	48	48	48	48	49	50	50	51	dB(A)

(E): EUROVENT certified data

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 9614 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.

Technical data

Unit	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
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							stainless steel brazed plates						-
Source side heat exchanger type							finned coil						-
Fans type							axial						-
N° fans	2		3				2			3		4	n°
Tank volume	200						400			460			l
Hydraulic fittings	2" VICTAULIC						2" 1/2 VICTAULIC						-

Electrical data

Standard unit	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
FLA - Full load current at maximum tolerated conditions	40,2	45,7	53,3	58,7	69,6	75,5	90,0	97,9	106	123	136	159	A
FLI - Full load power input at maximum tolerated conditions	21,6	24,4	28,4	31,0	36,2	44,0	55,0	60,5	66,0	75,7	83,3	95,4	kW
MIC - Maximum instantaneous current of the unit	134	143	149	173	213	264	259	267	267	348	361	355	A
MIC SS - Maximum instantaneous current of the unit with soft starter options	89,3	96,3	101	117	143	174	175	183	183	200	246	248	A
Unit with high head modulating pump	40.2	50.2	60.2	70.2	80.2	90.2	100.2	115.2	130.2	145.2	160.2	180.2	
FLA - Full load current at maximum tolerated conditions	46,3	51,8	59,4	64,8	76,0	81,6	96,1	107	115	132	147	169	A
FLI - Full load power input at maximum tolerated conditions	25,1	27,9	31,9	34,5	42,1	47,5	58,5	65,1	70,6	80,3	89,6	102	kW
MIC - Maximum instantaneous current of the unit	140	150	155	179	219	270	265	276	276	357	372	365	A
MIC SS - Maximum instantaneous current of the unit with soft starter options	95,4	102	107	123	150	180	181	192	192	209	257	258	A

Operative range

Temperature	Unit type	Cooling				Heating			
		min	max	min	max				
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	52**	-15	40*				(°C)
Water outlet temperature	IR, IP	5	25	30	55				(°C)
Water outlet temperature	BR, BP	-12	5	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) - NET NOMINAL performances

	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	
A35W7 - W45	Cooling capacity	49,1	58,1	65,5	73,3	86,7	98,6	110	125	138	159	180	205	kW
	Total power input	14,5	16,7	19,4	21,5	26,6	30,5	33,8	37,7	41,6	48,8	54,1	63,1	kW
	EER	3,38	3,47	3,38	3,41	3,26	3,24	3,27	3,32	3,32	3,26	3,32	3,24	W/W
	HRE	4,36	4,48	4,36	4,4	4,21	4,18	4,22	4,28	4,29	4,21	4,29	4,19	W/W
	Water flow rate	2,36	2,79	3,15	3,53	4,17	4,74	5,3	6,02	6,64	7,64	8,65	9,84	l/s
	Water pressure drop	26	37	36	44	34	35	37	36	38	38	41	42	kPa
A35W7 - W45	Heating recovery capacity	14,2	16,9	19	21,3	25,1	28,6	32,1	36,2	40,3	46,3	52,3	59,4	kW
	Water flow rate recovery	0,68	0,81	0,91	1,02	1,2	1,37	1,53	1,73	1,93	2,21	2,5	2,84	l/s
	Water pressure drop recovery	7	10	13	16	21	20	12	15	20	25	25	20	kPa
	IP	Base setting up (AB)												
	Cooling capacity	47,1	55,8	63,1	70,4	84,6	96	107	120	133	153	173	199	kW
	Total power input	14,2	16,6	18,9	21,2	26	29,5	33	36,8	40,7	47,3	53,1	61,4	kW
A35W7 - W45	EER	3,32	3,36	3,33	3,33	3,25	3,25	3,25	3,27	3,27	3,24	3,26	3,24	W/W
	HRE	4,28	4,34	4,3	4,3	4,19	4,2	4,2	4,21	4,22	4,18	4,2	4,17	W/W
	Water flow rate	2,26	2,68	3,03	3,39	4,06	4,61	5,16	5,78	6,4	7,36	8,31	9,56	l/s
	Water pressure drop	24	34	33	41	32	33	35	33	35	35	38	40	kPa
	Heating recovery capacity	13,6	16,2	18,3	20,5	24,5	27,9	31,1	34,7	38,6	44,4	50,1	57,5	kW
	Water flow rate recovery	0,65	0,77	0,87	0,98	1,17	1,33	1,49	1,66	1,84	2,12	2,39	2,75	l/s
	Water pressure drop recovery	7	9	12	14	20	16	19	11	14	18	23	19	kPa

Total Recovery Version (VR) - NET NOMINAL performances

	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	
A35W7 - W45	Cooling capacity	49,1	58,1	65,5	73,3	86,7	98,6	110	125	138	159	180	205	kW
	Total power input	13,2	15,4	17,4	19,5	22,8	26,6	29,9	33,7	37,7	43	48,2	55,4	kW
	EER	3,72	3,76	3,77	3,75	3,81	3,72	3,7	3,71	3,66	3,7	3,73	3,7	W/W
	HRE	8,39	8,47	8,49	8,46	8,55	8,39	8,35	8,37	8,27	8,36	8,42	8,34	W/W
	Water flow rate	2,36	2,79	3,15	3,53	4,17	4,74	5,3	6,02	6,64	7,64	8,65	9,84	l/s
	Water pressure drop	26	37	36	44	34	35	37	36	38	38	41	42	kPa
A35W7 - W45	Heating recovery capacity	61,7	72,7	82,1	91,9	108	124	139	157	174	200	226	257	kW
	Water flow rate recovery	2,95	3,47	3,92	4,39	5,16	5,92	6,64	7,5	8,31	9,56	10,8	12,3	l/s
	Water pressure drop recovery	34	47	42	41	48	47	52	49	51	50	54	53	kPa

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

EER (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

HRE (Heat Recovery Efficiency) = ratio of the total capacity of the system (heating plus cooling capacity) to the effective power input

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

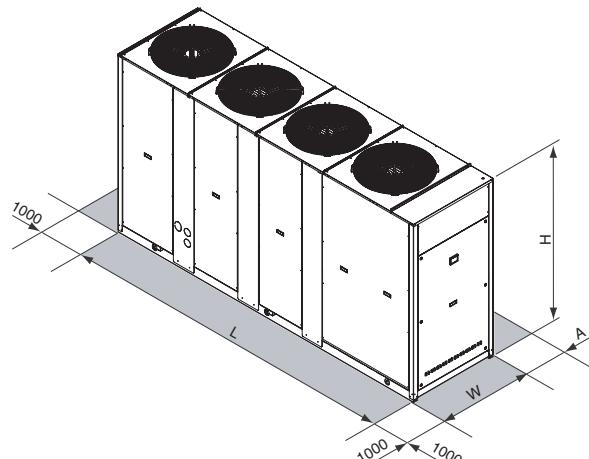
CONTROL SYSTEM

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

- 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



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	
L		2501				3343					4097		mm
W		954				1104					1104		mm
H		1930				1793					2193		mm
A		1600								2000			mm
Operating maximum weight*	1068	1072	1095	1132	1569	1650	1735	1877	1906	1967	2292	2350	kg

* Weight refers to the unit IP with tank and pumping module 2 pumps.

> RGA ST

AIR-WATER CHILLERS AND HEAT PUMPS
FOR OUTDOOR INSTALLATION



ADAPTIVE
FUNCTION



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 (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 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, 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 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 module available in the configurations :

- 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

Water flow switch

Victaulic hydraulic fittings

NET NOMINAL performances - Standard plants - EUROVENT certified data

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	45,0	53,0	58,1	68,2	78,1	90,3	101	111	125	142	157	179	198
	Power input	15,7	18,8	20,8	24,1	28,0	32,5	35,9	39,9	45,1	51,5	57,1	64,6	71,6
	EER	2,87	2,82	2,79	2,83	2,79	2,78	2,81	2,78	2,77	2,76	2,75	2,77	2,77
	ESEER	3,93	3,90	3,85	3,91	3,84	3,93	3,86	3,93	3,82	3,89	3,77	3,80	3,82
	Water flow rate	2,16	2,56	2,80	3,29	3,76	4,35	4,87	5,35	6,02	6,83	7,55	8,60	9,56
	Pressure drops	23	33	28	38	49	43	54	65	45	57	69	48	59
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	43,6	51,5	56,3	66,2	75,7	87,6	97,8	108	121	138	152	174	193
	Power input	16,3	19,4	21,6	24,9	29,2	33,7	37,3	41,4	46,8	53,4	59,2	67,0	74,3
	EER	2,67	2,65	2,61	2,66	2,59	2,60	2,62	2,61	2,59	2,58	2,57	2,60	2,60
	ESEER	3,81	3,79	3,74	3,80	3,70	3,81	3,73	3,83	3,69	3,79	3,66	3,69	3,70
	Water flow rate	2,10	2,48	2,71	3,19	3,65	4,21	4,71	5,21	5,83	6,64	7,31	8,36	9,27
	Pressure drops	22	31	26	36	44	41	50	60	42	54	65	45	55
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	42,7	50,3	55,1	64,7	74,0	85,6	95,6	105	118	134	149	169	188
	Power input	16,3	19,8	22,1	25,4	29,9	32,8	38,3	42,6	48,1	54,3	60,3	68,8	76,2
	EER	2,62	2,54	2,49	2,55	2,47	2,61	2,50	2,46	2,45	2,47	2,47	2,46	2,47
	ESEER	3,96	3,88	3,80	3,89	3,76	4,09	3,79	3,86	3,74	3,86	3,76	3,73	3,75
	Water flow rate	2,05	2,42	2,65	3,12	3,56	4,12	4,60	5,06	5,69	6,45	7,17	8,12	9,03
	Pressure drops	21	30	25	34	44	39	48	58	41	52	63	42	52
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	Cooling capacity	43,5	52,4	57,0	66,7	73,6	88,5	98	109	121	137	153	177	196
	Power input	15,5	19,0	20,7	24,1	27,0	32,3	35,7	39,8	44,5	50,3	56,3	63,5	71,2
	EER	2,81	2,76	2,75	2,77	2,73	2,74	2,75	2,74	2,72	2,72	2,72	2,79	2,75
	ESEER	3,84	3,82	3,80	3,80	3,73	3,87	3,78	3,87	3,73	3,84	3,72	3,82	3,79
	Water flow rate	2,09	2,53	2,75	3,21	3,54	4,26	4,73	5,26	5,83	6,59	7,36	8,50	9,46
	Pressure drops	21	32	27	36	42	43	50	62	42	54	67	46	57
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	41,8	50,4	54,8	64,0	70,6	85,0	94,4	105	116	131	147	170	189
	Power input	16,0	20,0	21,8	25,5	28,6	34,1	37,7	42,0	47,0	53,1	59,5	67,1	75,3
	EER	2,61	2,52	2,51	2,51	2,47	2,49	2,50	2,50	2,47	2,47	2,47	2,53	2,51
	ESEER	3,69	3,60	3,58	3,58	3,52	3,65	3,55	3,67	3,52	3,60	3,52	3,60	3,57
	Water flow rate	2,01	2,43	2,64	3,08	3,40	4,09	4,54	5,06	5,59	6,31	7,07	8,17	9,08
	Pressure drops	20	30	25	33	39	39	46	58	39	49	62	43	53
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
A7W45	Heating capacity	48,1	58,1	63,2	74,5	83,0	99,6	110	125	136	154	173	197	216
	Power input	15,6	19,1	20,9	24,4	27,6	33,5	35,9	41,1	44,9	51,8	56,9	65,1	71,7
	COP	3,08	3,04	3,02	3,05	3,01	2,97	3,06	3,04	3,03	2,97	3,04	3,03	3,01
	Water flow rate	2,28	2,75	2,99	3,53	3,93	4,72	5,21	5,92	6,45	7,31	8,17	9,32	10,2
	Pressure drops	26	38	32	43	52	52	61	77	53	66	82	56	66
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	41,8	50,4	54,8	64,0	70,6	85,0	94,4	105	116	131	147	170	189
	Power input	16,0	20,0	21,8	25,5	28,6	34,1	37,7	42,0	47,0	53,1	59,5	67,1	75,3
	EER	2,61	2,52	2,51	2,51	2,47	2,49	2,50	2,50	2,47	2,47	2,47	2,53	2,51
	ESEER	3,69	3,60	3,58	3,58	3,52	3,65	3,55	3,67	3,52	3,60	3,52	3,60	3,57
	Water flow rate	2,01	2,43	2,64	3,08	3,40	4,09	4,54	5,06	5,59	6,31	7,07	8,17	9,08
	Pressure drops	20	30	25	33	39	39	46	58	39	49	62	43	53
IP	Heating capacity	46,9	56,5	61,7	72,5	80,9	97,0	107	122	133	150	168	192	211
A7W45	Power input	14,9	18,2	20,0	23,2	26,4	31,9	34,2	39,2	42,8	49,4	54,3	62,1	68,5
	COP	3,15	3,10	3,09	3,13	3,06	3,04	3,13	3,11	3,11	3,04	3,09	3,09	3,08
	Water flow rate	2,23	2,68	2,92	3,44	3,83	4,60	5,06	5,78	6,31	7,12	7,98	9,08	9,99
	Pressure drops	24	36	31	41	49	50	59	75	50	62	78	53	64
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	41,0	49,3	53,7	62,8	69,3	83,3	92,5	102	114	129	144	166	185
	Power input	17,1	21,1	23,0	26,8	30,1	35,9	39,8	44,3	49,5	56,0	62,7	70,8	79,4
	EER	2,40	2,34	2,33	2,34	2,30	2,32	2,32	2,30	2,30	2,30	2,30	2,34	2,33
	ESEER	3,62	3,56	3,55	3,55	3,49	3,62	3,53	3,60	3,50	3,60	3,49	3,56	3,53
	Water flow rate	1,97	2,37	2,58	3,02	3,33	4,00	4,45	4,92	5,49	6,21	6,93	7,98	8,89
	Pressure drops	19	28	24	32	37	38	44	53	38	47	58	41	50
IP	Heating capacity	45,2	54,5	59,4	70,0	78,0	93,5	104	118	128	145	162	184	203
A7W45	Power input	14,2	17,3	19,0	22,2	25,1	30,4	32,7	37,3	40,8	47,1	51,7	59,1	65,1
	COP	3,18	3,15	3,13	3,15	3,11	3,08	3,18	3,16	3,14	3,08	3,13	3,11	3,12
	Water flow rate	2,15	2,58	2,81	3,32	3,70	4,43	4,92	5,59	6,07	6,88	7,69	8,74	9,60
	Pressure drops	23	34	28	38	47	45	54	69	47	59	73	49	59

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

EER (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

COP (Coefficient Of Performance) = ratio of the total heating capacity to the effective power input of the unit

ESEER (European Seasonal Energy Efficiency Ratio)

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

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
Sound pressure level at 1 meter	64	64	65	66	66	67	67	67	68	69	69	69	69
Sound pressure level at 5 meters	55	55	56	57	57	58	58	58	59	60	60	61	61
Sound pressure level at 10 meters	50	50	51	52	52	53	53	53	54	55	55	56	56
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
Sound pressure level at 1 meter	61	61	62	63	63	64	64	64	65	66	66	66	66
Sound pressure level at 5 meters	52	52	53	54	54	55	55	55	56	57	57	58	58
Sound pressure level at 10 meters	47	47	48	49	49	50	50	50	51	52	52	53	53
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
Sound pressure level at 1 meter	59	59	60	61	61	62	62	62	63	64	64	64	64
Sound pressure level at 5 meters	50	50	51	52	52	53	53	53	54	55	55	56	56
Sound pressure level at 10 meters	45	45	46	47	47	48	48	48	49	50	50	51	51

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 9614 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.

Technical data

Unit	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												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°
Water volume plant side heat exchanger	9,5		15,3				21,7			29,2		37,8	I
Hydraulic fittings plant side heat exchanger	2" GAS M		2" 1/2 GAS M							3" GAS M			-

Electrical data

Standard unit	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
FLA - Full load current at maximum tolerated conditions	40,2	45,7	53,3	58,7	69,6	75,5	90,0	97,9	106	123	136	159	170
FLI - Full load power input at maximum tolerated conditions	21,6	24,4	28,4	31,0	36,2	44,0	55,0	60,5	66,0	75,7	83,3	95,4	103
MIC - Maximum instantaneous current of the unit	134	143	149	173	213	264	259	267	267	348	361	355	391
MIC SS - Maximum instantaneous current of the unit with soft starter options	89,3	96,3	101	117	143	174	175	183	183	200	246	248	272
Unit with high head modulating pump	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
FLA - Full load current at maximum tolerated conditions	46,3	51,8	59,4	64,8	76,0	81,6	96,1	107	115	132	147	169	180
FLI - Full load power input at maximum tolerated conditions	25,1	27,9	31,9	34,5	42,1	47,5	58,5	65,1	70,6	80,3	89,6	102	109
MIC - Maximum instantaneous current of the unit	140	150	155	179	219	270	265	276	276	357	372	365	402
MIC SS - Maximum instantaneous current of the unit with soft starter options	95,4	102	107	123	150	180	181	192	192	209	257	258	282

Operative range

Temperature	Cooling				Heating			
	Unit type	min	max	min	max			
Outdoor air inlet temperature	IR, BR, IP, BP	-10*	52**	-10	40*	(°C)		
Water outlet temperature	IR, IP	5	15	30	55	(°C)		
Water outlet temperature	BR, BP	-12	5	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 plate 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) - NET NOMINAL performances

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	46,8	55,1	60,3	71	81,1	93,8	105	115	130	148	163	185	206
	Total power input	15,3	18,3	20,3	23,4	27,3	31,8	35,1	38,9	44	50,3	55,8	63	69,9
	EER	3,05	3	2,98	3,03	2,97	2,95	2,99	2,96	2,95	2,94	2,92	2,94	2,95
	HRE	3,93	3,86	3,84	3,88	3,83	3,8	3,86	3,85	3,83	3,81	3,8	3,82	3,83
	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
	Water pressure drop	25	36	30	41	52	47	59	69	50	62	76	51	62
	Heating recovery capacity	13,5	15,7	17,6	20	23,6	27,1	30,4	34,4	38,4	44	49,3	55,4	61,3
	Water flow rate recovery	0,65	0,75	0,84	0,96	1,13	1,29	1,45	1,64	1,83	2,1	2,36	2,65	2,93
	Water pressure drop recovery	6	9	11	14	19	15	18	11	14	18	22	18	21
		kW	kW	kW	kW	kPa	kPa	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	45,3	54,5	59,3	69,3	76,5	92,1	102	113	126	143	159	183	204
	Total power input	15,1	18,5	20,1	23,5	26,4	31,5	34,9	38,7	43,4	49,1	54,9	62,1	69,5
	EER	3	2,94	2,94	2,95	2,9	2,92	2,93	2,92	2,9	2,91	2,89	2,95	2,94
	HRE	3,86	3,76	3,79	3,78	3,77	3,75	3,77	3,78	3,76	3,77	3,75	3,8	3,77
	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
	Water pressure drop	23	35	29	38	47	45	54	67	47	59	73	50	61
	Heating recovery capacity	13	15,2	17	19,4	22,9	26,2	29,2	33,2	37,1	42,4	47,5	52,4	58,1
	Water flow rate recovery	0,62	0,73	0,81	0,93	1,09	1,25	1,4	1,59	1,77	2,03	2,27	2,5	2,78
	Water pressure drop recovery	6	8	10	13	18	14	17	10	13	17	21	16	19
		kW	kW	kW	kW	kPa	kPa	kPa						

Total Recovery Version (VR) - NET NOMINAL performances

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	46,8	55,1	60,3	71	81,1	93,8	105	115	130	148	163	185	206
	Total power input	13,9	16,9	18,4	21,4	25,3	27,9	31,1	35	40	44,4	49,9	55,3	62,1
	EER	3,36	3,25	3,28	3,31	3,2	3,36	3,38	3,29	3,25	3,33	3,26	3,35	3,32
	HRE	7,67	7,46	7,52	7,58	7,35	7,67	7,71	7,52	7,45	7,61	7,47	7,65	7,59
	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
	Water pressure drop	25	36	30	43	52	50	59	69	50	64	76	52	64
	Heating recovery capacity	60	71,2	77,8	91,4	105	120	135	148	168	190	210	238	265
A35W7 - W45	Water flow rate recovery	2,87	3,4	3,72	4,37	5,02	5,73	6,45	7,07	8,03	9,08	10	11,4	12,7
	Water pressure drop recovery	35	49	41	45	50	48	52	47	52	51	52	55	55

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

EER (Energy Efficiency Ratio) = ratio of the total cooling capacity to the effective power input of the unit

HRE (Heat Recovery Efficiency) = ratio of the total capacity of the system (heating plus cooling capacity) to the effective power input

AHE (Heat Recovery Efficiency) = ratio of the total capacity of the system (heating plus cooling capacity) to 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

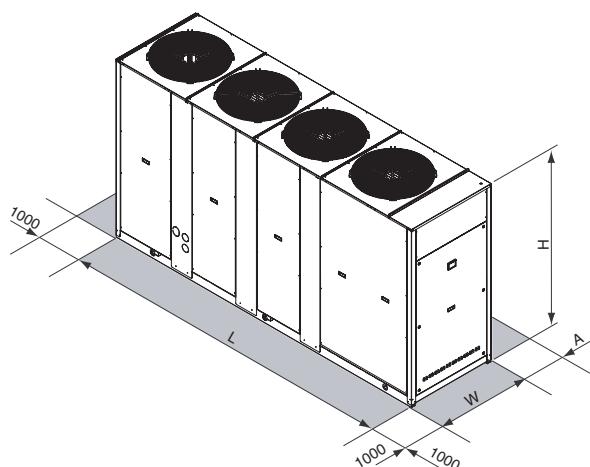
CONTROL SYSTEM

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

- 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



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*	791	793	844	876	893	1197	1278	1414	1465	1522	1561	1784	1812	kg

* Weight refers to the unit IP complete with 2 pumps module without tank