

# > RGC

## AIR-WATER CHILLERS AND HEAT PUMPS FOR INDOOR 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

#### 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 indoor 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, double inlet centrifugal fans with forward curved blades, 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), mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

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

(standard for IP)

### 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	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
	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	
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
	Pressure drops	40	56	55	51	50	48	46	44	48	47	48	48	50	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
	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
	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	
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
	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
	Pressure drops	45	65	63	59	55	57	53	54	55	54	56	56	57	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 <sup>(E)</sup>	88	88	89	89	89	91	91	91	96	97	97	98	98	dB(A)
Sound pressure level at 1 meter	70	70	71	71	71	73	73	73	78	79	79	80	80	dB(A)
Sound pressure level at 5 meters	61	61	62	62	62	65	65	65	69	70	70	71	71	dB(A)
Sound pressure level at 10 meters	56	56	57	57	57	59	59	59	64	65	65	66	66	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 <sup>(E)</sup>	85	85	86	86	86	88	88	88	93	94	94	95	95	dB(A)
Sound pressure level at 1 meter	67	67	68	68	68	70	70	70	75	76	76	77	77	dB(A)
Sound pressure level at 5 meters	58	58	59	59	59	62	62	62	66	67	67	68	68	dB(A)
Sound pressure level at 10 meters	53	53	54	54	54	56	56	56	61	62	62	63	63	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 - 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	centrifugal													-
N° fans	1			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	
<b>FLA</b> - Full load current at maximum tolerated conditions	43,2	48,8	56,7	62,1	73,0	80,5	95,0	103	117	145	158	188	199	A
<b>FLI</b> - Full load power input at maximum tolerated conditions	25,2	28,0	33,0	35,6	40,8	47,3	58,3	63,8	72,8	88,7	96,3	113	120	kW
<b>MIC</b> - Maximum instantaneous current of the unit	137	147	152	177	216	269	264	272	278	370	383	384	420	A
<b>MIC SS</b> - Maximum instantaneous current of the unit with soft starter options	92,4	99,4	105	121	147	179	180	188	194	222	268	277	301	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	
<b>FLA</b> - Full load current at maximum tolerated conditions	49,3	54,9	62,8	68,2	79,1	86,6	101	112	126	153	166	198	209	A
<b>FLI</b> - Full load power input at maximum tolerated conditions	28,7	31,5	36,5	39,1	44,3	50,8	61,8	68,4	77,3	93,2	101	119	126	kW
<b>MIC</b> - Maximum instantaneous current of the unit	143	153	158	183	222	275	270	281	287	378	392	394	430	A
<b>MIC SS</b> - Maximum instantaneous current of the unit with soft starter options	98,5	105	111	127	153	185	186	197	203	231	277	287	311	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 fuccion

**Aeraulic performance**

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	
Available static head	150	150	150	150	150	150	150	150	150	150	150	150	150	Pa

## 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.

### Desupeheater 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	kW
	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	kW
	EER	<b>3,05</b>	<b>3</b>	<b>2,98</b>	<b>3,03</b>	<b>2,97</b>	<b>2,95</b>	<b>2,99</b>	<b>2,96</b>	<b>2,95</b>	<b>2,94</b>	<b>2,92</b>	<b>2,94</b>	<b>2,95</b>	W/W
	HRE	<b>3,93</b>	<b>3,86</b>	<b>3,84</b>	<b>3,88</b>	<b>3,83</b>	<b>3,8</b>	<b>3,86</b>	<b>3,85</b>	<b>3,83</b>	<b>3,81</b>	<b>3,8</b>	<b>3,82</b>	<b>3,83</b>	W/W
	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	43	60	59	55	54	52	50	47	52	51	52	52	54	kPa
	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	kW
	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	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	45,3	54,5	59,3	69,3	76,5	92,1	102	113	126	143	159	183	204	kW
	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	kW
	EER	<b>3</b>	<b>2,94</b>	<b>2,94</b>	<b>2,95</b>	<b>2,9</b>	<b>2,92</b>	<b>2,93</b>	<b>2,92</b>	<b>2,9</b>	<b>2,91</b>	<b>2,89</b>	<b>2,95</b>	<b>2,94</b>	W/W
	HRE	<b>3,86</b>	<b>3,76</b>	<b>3,79</b>	<b>3,78</b>	<b>3,77</b>	<b>3,75</b>	<b>3,77</b>	<b>3,78</b>	<b>3,76</b>	<b>3,77</b>	<b>3,75</b>	<b>3,8</b>	<b>3,77</b>	W/W
	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	41	59	57	53	48	50	47	46	49	48	49	51	53	kPa
	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	kW
	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	l/s
	Water pressure drop recovery	6	8	10	13	18	14	17	10	13	17	21	16	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	200.2	
A35W7 - W45	Cooling capacity	46,8	55,1	60,3	71	81,1	93,8	105	115	130	148	163	185	206	kW
	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	kW
	EER	<b>3,36</b>	<b>3,25</b>	<b>3,28</b>	<b>3,31</b>	<b>3,2</b>	<b>3,36</b>	<b>3,38</b>	<b>3,29</b>	<b>3,25</b>	<b>3,33</b>	<b>3,26</b>	<b>3,35</b>	<b>3,32</b>	W/W
	HRE	<b>7,67</b>	<b>7,46</b>	<b>7,52</b>	<b>7,58</b>	<b>7,35</b>	<b>7,67</b>	<b>7,71</b>	<b>7,52</b>	<b>7,45</b>	<b>7,61</b>	<b>7,47</b>	<b>7,65</b>	<b>7,59</b>	W/W
	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	43	60	59	55	54	52	50	47	52	51	52	52	54	kPa
	Heating recovery capacity	60	71,2	77,8	91,4	105	120	135	148	168	190	210	238	265	kW
	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	l/s
	Water pressure drop recovery	35	49	41	45	50	48	52	47	52	51	52	55	55	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

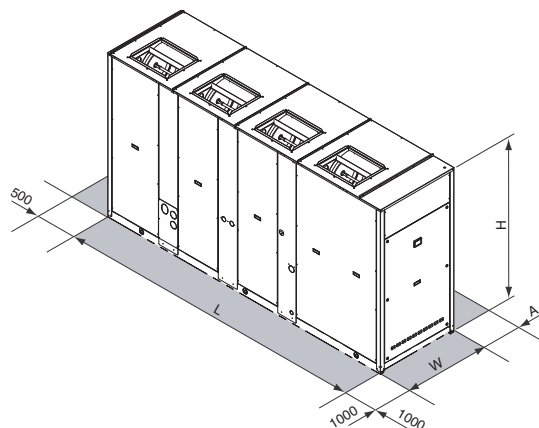
## CONTROL SYSTEM

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-heatingg



## 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			1760				1760			2160		2160		mm
A				1600						2000				mm
Operating maximum weight*	1078	1082	1102	1143	1168	1684	1765	1825	2000	2042	2094	2423	2467	kg

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

# > RGC HE

## AIR-WATER CHILLERS AND HEAT PUMPS FOR INDOOR INSTALLATION



### Available range

#### Unit type

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

#### Version

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VR	Total recovery version

#### Acoustic setting up

AB	Base setting up
AS	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.

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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, double inlet centrifugal fans with forward curved blades, 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.

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### 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

(standard for IP)

### 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	<b>3,17</b>	<b>3,25</b>	<b>3,19</b>	<b>3,19</b>	<b>3,07</b>	<b>3,04</b>	<b>3,06</b>	<b>3,11</b>	<b>3,11</b>	<b>3,06</b>	<b>3,12</b>	<b>3,05</b>	W/W
	ESEER	<b>4,26</b>	<b>4,39</b>	<b>4,29</b>	<b>4,34</b>	<b>4,12</b>	<b>4,22</b>	<b>4,15</b>	<b>4,32</b>	<b>4,21</b>	<b>4,26</b>	<b>4,22</b>	<b>4,11</b>	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	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	<b>3,17</b>	<b>3,25</b>	<b>3,19</b>	<b>3,19</b>	<b>3,07</b>	<b>3,04</b>	<b>3,06</b>	<b>3,11</b>	<b>3,11</b>	<b>3,06</b>	<b>3,12</b>	<b>3,05</b>	W/W
	ESEER	<b>4,26</b>	<b>4,39</b>	<b>4,29</b>	<b>4,34</b>	<b>4,12</b>	<b>4,22</b>	<b>4,15</b>	<b>4,32</b>	<b>4,21</b>	<b>4,26</b>	<b>4,22</b>	<b>4,11</b>	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
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	<b>3,10</b>	<b>3,13</b>	<b>3,13</b>	<b>3,12</b>	<b>3,04</b>	<b>3,06</b>	<b>3,05</b>	<b>3,04</b>	<b>3,06</b>	<b>3,03</b>	<b>3,06</b>	<b>3,04</b>	W/W
	ESEER	<b>4,17</b>	<b>4,24</b>	<b>4,22</b>	<b>4,23</b>	<b>4,10</b>	<b>4,23</b>	<b>4,11</b>	<b>4,23</b>	<b>4,14</b>	<b>4,21</b>	<b>4,12</b>	<b>4,10</b>	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
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	<b>3,19</b>	<b>3,22</b>	<b>3,17</b>	<b>3,17</b>	<b>3,17</b>	<b>3,16</b>	<b>3,18</b>	<b>3,17</b>	<b>3,18</b>	<b>3,16</b>	<b>3,17</b>	<b>3,16</b>	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
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	
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	<b>3,10</b>	<b>3,13</b>	<b>3,13</b>	<b>3,12</b>	<b>3,04</b>	<b>3,06</b>	<b>3,05</b>	<b>3,04</b>	<b>3,06</b>	<b>3,03</b>	<b>3,06</b>	<b>3,04</b>	W/W
	ESEER	<b>4,17</b>	<b>4,24</b>	<b>4,22</b>	<b>4,23</b>	<b>4,10</b>	<b>4,23</b>	<b>4,11</b>	<b>4,23</b>	<b>4,14</b>	<b>4,21</b>	<b>4,12</b>	<b>4,10</b>	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
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	<b>3,19</b>	<b>3,22</b>	<b>3,17</b>	<b>3,17</b>	<b>3,17</b>	<b>3,16</b>	<b>3,18</b>	<b>3,17</b>	<b>3,18</b>	<b>3,16</b>	<b>3,17</b>	<b>3,16</b>	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

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 <sup>(E)</sup>	88	88	89	89	91	91	91	96	96	97	97	98	dB(A)
Sound pressure level at 1 meter	70	70	71	71	73	73	73	78	78	79	79	80	dB(A)
Sound pressure level at 5 meters	61	61	62	62	65	65	65	69	69	70	70	71	dB(A)
Sound pressure level at 10 meters	56	56	57	57	59	59	59	64	64	65	65	66	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 <sup>(E)</sup>	85	85	86	86	88	88	88	93	93	94	94	95	dB(A)
Sound pressure level at 1 meter	67	67	68	68	70	70	70	75	75	76	76	77	dB(A)
Sound pressure level at 5 meters	58	58	59	59	62	62	62	66	66	67	67	68	dB(A)
Sound pressure level at 10 meters	53	53	54	54	56	56	56	61	61	62	62	63	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 - 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	centrifugal												-
N° fans	1			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	
<b>FLA</b> - Full load current at maximum tolerated conditions	43,2	48,8	56,7	62,1	74,9	80,5	95,0	109	117	145	169	188	A
<b>FLI</b> - Full load power input at maximum tolerated conditions	25,2	28,0	33,0	35,6	41,9	47,3	58,3	67,3	72,8	88,7	103	113	kW
<b>MIC</b> - Maximum instantaneous current of the unit	137	147	152	177	218	269	264	278	278	370	394	384	A
<b>MIC SS</b> - Maximum instantaneous current of the unit with soft starter options	92,4	99,4	105	121	148	179	180	194	194	222	279	277	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	
<b>FLA</b> - Full load current at maximum tolerated conditions	49,3	54,9	62,8	68,2	81,0	86,6	101	118	126	153	179	198	A
<b>FLI</b> - Full load power input at maximum tolerated conditions	28,7	31,5	36,5	39,1	45,4	50,8	61,8	71,8	77,3	93,2	109	119	kW
<b>MIC</b> - Maximum instantaneous current of the unit	143	153	158	183	224	275	270	287	287	378	405	394	A
<b>MIC SS</b> - Maximum instantaneous current of the unit with soft starter options	98,5	105	111	127	155	185	186	203	203	231	290	287	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

**Aeraulic performance**

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	
Available static head	150	150	150	150	150	150	150	150	150	150	150	150	150	Pa

## 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.

### Desupeheater 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
	<b>EER</b>	<b>3,38</b>	<b>3,47</b>	<b>3,38</b>	<b>3,41</b>	<b>3,26</b>	<b>3,24</b>	<b>3,27</b>	<b>3,32</b>	<b>3,32</b>	<b>3,26</b>	<b>3,32</b>	<b>3,24</b>	W/W
	<b>HRE</b>	<b>4,36</b>	<b>4,48</b>	<b>4,36</b>	<b>4,4</b>	<b>4,21</b>	<b>4,18</b>	<b>4,22</b>	<b>4,28</b>	<b>4,29</b>	<b>4,21</b>	<b>4,29</b>	<b>4,19</b>	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
	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	16	20	12	15	20	25	20	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 - W45	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
	<b>EER</b>	<b>3,32</b>	<b>3,36</b>	<b>3,33</b>	<b>3,33</b>	<b>3,25</b>	<b>3,25</b>	<b>3,25</b>	<b>3,27</b>	<b>3,27</b>	<b>3,24</b>	<b>3,26</b>	<b>3,24</b>	W/W
	<b>HRE</b>	<b>4,28</b>	<b>4,34</b>	<b>4,3</b>	<b>4,3</b>	<b>4,19</b>	<b>4,2</b>	<b>4,2</b>	<b>4,21</b>	<b>4,22</b>	<b>4,18</b>	<b>4,2</b>	<b>4,17</b>	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
	<b>EER</b>	<b>3,72</b>	<b>3,76</b>	<b>3,77</b>	<b>3,75</b>	<b>3,81</b>	<b>3,72</b>	<b>3,7</b>	<b>3,71</b>	<b>3,66</b>	<b>3,7</b>	<b>3,73</b>	<b>3,7</b>	W/W
	<b>HRE</b>	<b>8,39</b>	<b>8,47</b>	<b>8,49</b>	<b>8,46</b>	<b>8,55</b>	<b>8,39</b>	<b>8,35</b>	<b>8,37</b>	<b>8,27</b>	<b>8,36</b>	<b>8,42</b>	<b>8,34</b>	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
	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

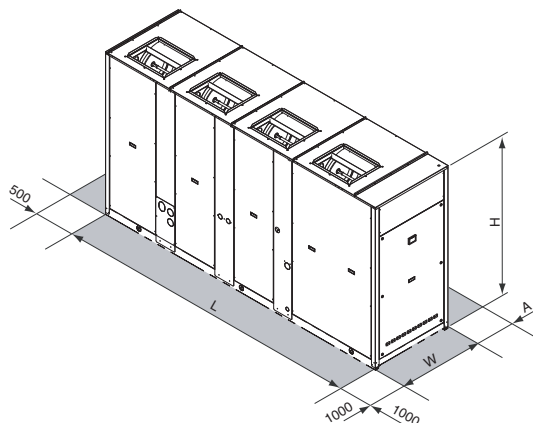
## CONTROL SYSTEM

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-heatingg



## 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			3343		4097			mm
W		954				1104			1104		1104			mm
H		1760				1760			2160		2160			mm
A		1600							2000					mm
Operating maximum weight*	1121	1125	1146	1189	1670	1751	1836	2051	2080	2124	2478	2520	kg	

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