

Aurax Mini Ni

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R290

High efficiency and ecological inverter
reversible air-water heat pump

10 · 15 · 20 · 25 · 30 · 35 · 40



AIC presents Aurax Mini Ni, the new reversible high efficiency air-water heat pump with inverter technology. The ultimate sustainable choice for residential and light commercial applications.

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High efficiency and ecological inverter
reversible air-water heat pump

10 · 15 · 20 · 25 · 30 · 35 · 40

R290

Refrigerant gas
Extra low GWP 3

Using natural refrigerant gas R290, which has a global warming potential (GWP) value of only 3, this heat pump is far more ecologically sound and has a much lower environmental impact than appliances that use other refrigerant gases.

The Aurax Mini Ni is the ultimate solution for heating, cooling and the production of domestic hot water. Optimised for maximum efficiency in heating mode, it can operate at external temperatures down to -15 °C and produce hot water up to a temperature of 70 °C. In cooling mode it can reach a water outlet temperature of 5 °C, with external temperatures up to 50 °C.

The new Aurax Mini Ni range covers 4 options of 2 and 4 pipe models with a heating power range from 9,7 to 38,9 kW and a cooling power from 8,1 to 30,1 kW. Aurax Mini Ni 15 can also be supplied in a three-phase version (optional). For higher output requirements Aurax Mini Ni can be installed in cascade of up to 6 units.

70 °C

Output up to

2|4

2 Pipe and 4 Pipe

A+++

Energy class

Key features and benefits

Optimised design with R290 natural gas (GWP of 3)

Inverter technology that ensures greater efficiency

Lower energy consumption and reliable comfort

AIC product made in Europe

A year round solution heating and cooling with DHW production

Versatility and quiet operation

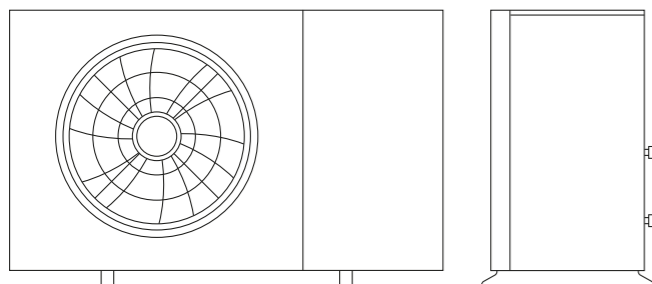
Meets tax deduction requirements for energy re-qualification expenses



Design

Aurax Mini Ni is capable of producing hot water up to 70 °C even with low external temperatures (-10 °C), making it the best solution when introducing renewable technology to existing systems which were originally created with a high temperature heating circuit.

Due to the high DHW output temperature, the Aurax Mini Ni can deliver safe domestic hot water production without the requirement of a supplementary electrical boost, which is required by other heat pumps to safeguard the system against legionella.



Characteristics

- Interesting extra low GWP
- Environmentally friendly
- Adaptable to various applications
- Sleek design
- Allows the production of High Temperatures

Versatility

DHW priority programming

Aurax Mini Ni, in addition to operating in total DHW priority depending on demand, allows a maximum domestic hot water production phase to be set, after which the unit will return to producing hot water for the heating system to avoid an excessive drop in the temperature of the heated rooms and maintain building comfort.

If the DHW set point was not reached in the initial phase because it was blocked by the DHW priority programming, the heat pump will return to producing DHW after a set time. It is important to avoid excessive prolonged operation in DHW mode as this will cool the water in the heating circuit.

Aurax Mini Ni 2T Operating logic in DHW production

The 2 Pipe model starts in heating mode to maintain the temperature of a DHW tank at the established set point value.

A temperature sensor (supplied with the unit) is inserted into the DHW tank to regulate the production of hot water. This operation requires the installation of a 3-way valve (supplied as an option).

Aurax Mini Ni 4T Operating logic

The 4 Pipe unit allows you to separate the Heating/Cooling from the DHW circuit and has 3 operating modes:

Summer mode: Cooling + DHW

Upon simultaneous request for cooling and DHW, the pumps are activated, the fan is turned off and the unit simultaneously produces chilled water and DHW, with total heat recovery.

Winter mode: Heating + DHW

When the unit is in heating mode and DHW is requested, the DHW priority is activated, and the heat generated is used to produce domestic hot water. Once the set point has been reached, the unit returns to producing hot water for the heating circuit.

Single cycle mode

The unit only performs one single function: Cooling, Heating, or Domestic Hot Water.

Aurax Mini Ni 4T

A 4 Pipe R290 reversible air-water heat pump with inverter technology which has a dedicated hydraulic circuit, so can produce domestic hot water as a priority all year round, and also hot water for winter heating and chilled water for summer cooling.

In summer it can simultaneously produce chilled water and domestic hot water with total recovery, significantly reducing energy costs by harnessing the heat generated from the cooling process to produce DHW.

Furthermore, it can also produce only domestic hot water through a simple external ON-OFF command, even if air conditioning is not required.



Construction features

Compressor

Designed for R290 refrigerant gas

A highly efficient BLDC rotary blade compressor with a wide range of operation. Controlled by external inverter equipped with integrated anti-disturbance filter and reactor.

Battery

With hydrophilic treatment

Finned battery with copper tubes and aluminium fins with hydrophilic treatment to remove the natural oxidation of aluminium and accelerate defrosting, making only the melting of the first thin layer of ice on the fins sufficient for cleaning.

Heating/cooling circuit exchanger

Brazed plate AISI 316

Designed for modern refrigerants to ensure the best operation in both heating and cooling. Complete with thermal insulation to reduce heat loss and prevent the formation of condensation. Equipped with a water outlet temperature probe for the antifreeze function and a differential pressure switch to avoid operation in the absence of water circulation.

Domestic hot water circuit exchanger

Aurax Mini Ni 4T models only

Ensures total recovery of condensation heat in cooling and heating of the DHW circuit. With total heat recovery for the production of domestic hot water in cooling mode, the time required to bring the domestic water to the set temperature is reduced, allowing cold and hot water to be produced simultaneously while keeping the circuits separate (Heating/Cooling and DHW). During the cooling mode, summer season, the production of domestic water is generated by recovering the heat produced by the cooling function.

Electronic expansion valve

Standard

Promoting the lamination of the condensed refrigerant so as to obtain rapid response times to load variations, improving performance in transient conditions between steps. It ensures rapid adjustment of the refrigerant flow rate and prevents overheating, optimising the working conditions of the system.

Accessories and Options

Internal configurations

The internal arrangement of the components allows you to benefit from easier access for maintenance and to have space for the addition of accessories and hydraulic options.

EC Fans

Brushless motors and permanent magnets

Our fans are equipped with a 6-pole Brushless motor, direct current and permanent magnets, and an inverter to increase efficiency and reduce the sound level, maximising the performance of the unit. Internal electrical protection and integrated speed regulation, with IP 54 protection rating. Protection grills fitted as standard.

Electrical cabinet

Separate from the compressor compartment

Complies with the European reference standards CEI EN 61439-1:2010-01, CEI EN IEC 61439-2. Fitted with general disconnecter with door lock. Equipped with a microprocessor with large display and RS485 interface, communication device with Modbus RTU protocol for connection to a remote supervision and control system.

3-way water valve for DHW production circuit

Optional only for Aurax Mini Ni 2T

Assembled and tested in production. To be requested when ordering.

Hydronic Kit

Optional

Installed inside the unit it includes: 12 litre storage tank, air vent valve, drain tap, safety valve, expansion tank.



Main Options

(factory installed from client order)

DHW 3 ways valve
Anticorrosive treatment
2T and 4T option
3Ph option (15)

Accessories

Remote Display
Webserver
Cascade controller
Anti vibrators
Mesh Filter
Flow Switch

Natural refrigerant R290

R290, also known as propane, is a natural refrigerant used in various cooling and air conditioning applications. It is highly efficient and has excellent thermodynamic properties, making it an eco-friendly alternative to synthetic refrigerants. One of its key advantages is its very low Global Warming Potential (GWP) of just 3, meaning it has a minimal impact on climate change compared to traditional refrigerants like R134a or R410a, which have significantly higher GWP values.





Applications

The thermodynamic characteristics of R290 as a refrigerant allows the production of High Temperatures of hot water for residential applications. This capacity, with his interesting extra low GWP turns it into a really good option to decarbonize by hybridizing current installations.

It is also interesting for gyms, hotels, nursing homes and any other collective installations. R290 Heat Pumps: High Temperature water for:

10–40 kW

Bed & Breakfast, Agritourism

Shops and commercial premises

Family homes

Residential care homes

Beauty Centres and Salons

Offices

Gyms

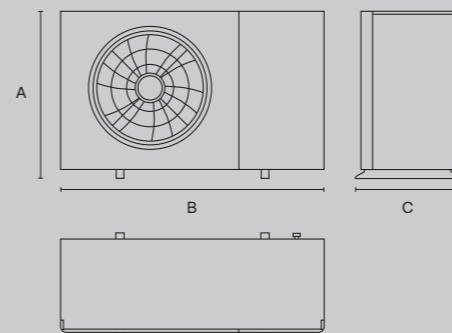
Technical specifications

Technical data		AM 10 Ni 2T	AM 10 Ni 4T	AM 15 Ni 2T	AM 15 Ni 4T	AM 15 Ni 2T	AM 15 Ni 4T
		Single phase option			Three phase option		
Thermal power (A7W35)	kW	4,22–9,69	4,22–9,69	4,91–14,31	4,91–14,31	4,91–14,31	4,91–14,31
Nominal absorbed power (A7W35)	kW	1,44	1,44	2,49	2,49	2,49	2,49
COP (A7W35)	W/W	5,08	5,08	4,48	4,48	4,48	4,48
Seasonal energy efficiency class (W35, EN16147)		A+++	A+++	A+++	A+++	A+++	A+++
Thermal power (A7W55)	kW	3,84–9,1	3,84–9,1	4,47–13,52	4,47–13,52	4,47–13,52	4,47–13,52
Nominal absorbed power (A7W55)	kW	1,93	1,93	3,32	3,32	3,32	3,32
COP (A7W55)	W/W	3,54	3,54	3,17	3,17	3,17	3,17
Seasonal energy efficiency class (W55, EN16147)		A+++	A+++	A++	A++	A++	A++
Cooling power (A35W18)	kW	4,75–10,74	4,75–10,74	5,53–15,12	5,53–15,12	5,53–15,12	5,53–15,12
Nominal absorbed power (A35W18)	kW	1,97	1,97	3,5	3,5	3,5	3,5
EER (A35W18)	W/W	4,26	4,26	3,52	3,52	3,52	3,52
Sound power level (EN3744)	dB (A)	70	70	69	69	69	69
Sound pressure level (En12102@10m)	dB (A)	42	42	41	41	41	41
Power supply	Ph/V/Hz	1Ph/230V/50Hz+PE			3Ph/400V/50Hz+PE		
Nominal absorbed current	A	6,96	6,96	12,03	12,03	4,89	4,89
Nominal absorbed power	kW	1,44	1,44	2,49	2,49	2,49	2,49
Max. current absorbed at startup	A	27,24	27,24	27,21	27,21	16,53	16,53
Maximum power absorbed	kW	5,86	5,86	5,85	5,85	7,85	7,85
Refrigerant gas charge	kg	2,5	2,5	3,2	3,2	3,2	3,2
Global warming potential		3	3	3	3	3	3
Equivalent CO ₂ charge	t	0,0075	0,0075	0,0096	0,0096	0,0096	0,0096
Minimum water tank volume for DHW	l	133	133	205	205	205	205
Minimum water tank volume for heating/cooling	l	140	140	218	218	218	218

Combined cycle data				
Combined cycle hot water capacity (W7/W55)	kW		10,29	15,93
Combined cooling capacity (W7/W55)	kW		7,52	10,9
TER (W7/W55)	W/W		6,44	5,34
Single cycle domestic hot water capacity summer (A35W55)	kW		14,93	22,39
COP single cycle summer (A35W55)	W/W		4,69	3,81

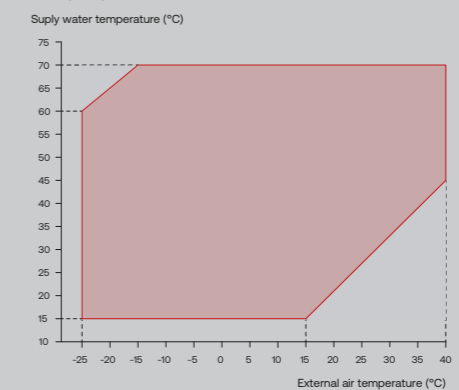
Technical data		AM 10 Ni 2T	AM 10 Ni 4T	AM 15 Ni 2T	AM 15 Ni 4T	AM 15 Ni 2T	AM 15 Ni 4T
		Single phase option			Three phase option		
Refrigeration circuit / compressor data							
Number of refrigeration circuits		1	1	1	1	1	1
Numer of compressors		1	1	1	1	1	1
Compressor type		BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary
Refrigerant gas type		R290	R290	R290	R290	R290	R290
Heating/cooling water circuit							
Nominal water flow rate @dT=5K	m ³ /h	1,68	1,68	2,61	2,61	2,61	2,61
Water pressure drop @dT=5K	kPa	11,09	11,09	24,65	24,65	24,65	24,65
Maximum operating pressure	bar	10	10	10	10	10	10
Flow / return connections (F threaded)		G 1"	G 1"	G 1"	G 1"	G 1"	G 1"
Exchanger for DHW circuit production							
DHW circuit water flow	m ³ /h		1,59		2,46		2,46
DHW circuit pressure loss	kPa		9,34		20,73		20,73
Maximum operating pressure	bar		10		10		10
Flow / return connections (F threaded)			G 1"		G 1"		G 1"
Dimensions							
Height (A)	mm	940	940	940	940	940	940
Width (B)	mm	1260	1260	1560	1560	1560	1560
Depth (C)	mm	570	570	570	570	570	570
Weight	kg	161	173	178	190	181	190

Aurax Mini Ni 10–15

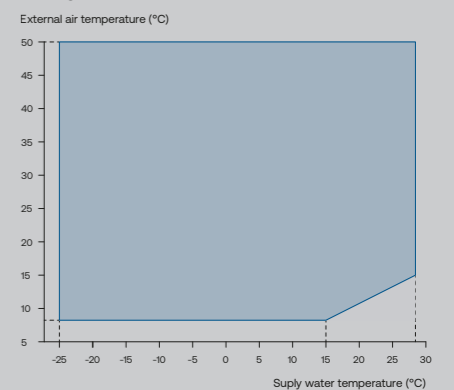


Range of operation

Heat pump mode



Cooling mode



Note: Operation conditions according to EN14511

R290 is not only a sustainable refrigerant, it is a high performance one working under any weather condition.

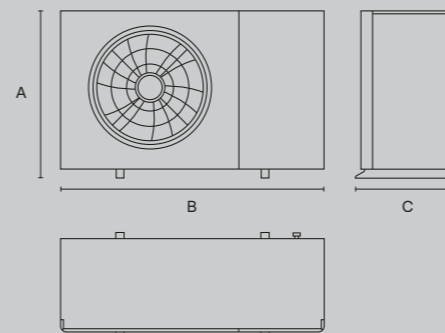
Technical specifications

Technical data		AM 20	AM 20	AM 25	AM 25	AM 30	AM 30	AM 35	AM 35	AM 40	AM 40
		Ni 2T	Ni 4T	Ni 2T	Ni 4T	Ni 2T	Ni 4T	Ni 2T	Ni 4T	Ni 2T	Ni 4T
Three phase option											
Thermal power (A7W35)	kW	9,00–20,36		8,95–24,4		10,42–29,34		10,39–34,04		10,36–38,85	
Nominal absorbed power (A7W35)	kW	2,96	2,96	3,62	3,62	4,85	4,85	5,08	5,08	5,98	5,98
COP (A7W35)	W/W	5,18	5,18	5,11	5,11	4,87	4,87	4,81	4,81	4,65	4,65
Seasonal energy efficiency class (W35, EN16147)		A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++	A++	A++
Thermal power (A7W55)	kW	7,78–18,58		7,73–22,23		9,2–27,94		9,18–32,49		9,15–37,12	
Nominal absorbed power (A7W55)	kW	3,98	3,98	4,92	4,92	6,9	6,9	7,2	7,2	8,5	8,5
COP (A7W55)	W/W	3,49	3,49	3,42	3,42	3,25	3,25	3,22	3,22	3,11	3,11
Seasonal energy efficiency class (W55, EN16147)		A+++	A+++	A++	A++	A++	A++	A++	A++	A++	A++
Cooling power (A35W18)	kW	10,34–22,95		10,28–27,12		12,09–31,95		12,06–36,37		12,02–40,25	
Nominal absorbed power (A35W18)	kW	3,47	3,47	4,5	4,5	6,52	6,52	6,82	6,82	8,15	8,15
EER (A35W18)	W/W	4,98	4,98	4,66	4,66	4,09	4,09	3,94	3,94	3,69	3,69
Sound power level (EN3744)	dB (A)	74	74	74	74	74	74	75	75	75	75
Sound pressure level (En12102@10m)	dB (A)	46	46	46	46	46	46	47	47	47	47
Power supply	Ph/V/Hz	3Ph/400V/50Hz+PE									
Nominal absorbed current	A	5,81	5,81	7,11	7,11	9,53	9,53	9,98	9,98	11,75	11,75
Nominal absorbed power	kW	2,96	2,96	3,62	3,62	4,85	4,85	5,08	5,08	5,98	5,98
Maximum current absorbed at startup	A	18,88	18,88	18,88	18,88	24,98	24,98	24,98	24,98	24,98	24,98
Maximum power absorbed	kW	9,35	9,35	9,35	9,35	12,9	12,9	12,9	12,9	12,9	12,9
Refrigerant gas charge	kg	4	4	4	4	5,5	5,5	5,5	5,5	5,5	5,5
Global warming potential		3	3	3	3	3	3	3	3	3	3
Equivalent CO ₂ charge	t	0,012	0,012	0,012	0,012	0,0165	0,0165	0,0165	0,0165	0,0165	0,0165
Minimum water tank volume for DHW	l	269	269	323	323	426	426	473	473	540	540
Minimum water tank volume for heating/cooling	l	294	294	355	355	444	444	492	492	561	561
Combined cycle data											
Combined cycle hot water capacity (W7/W55)	kW	19,83		24,03		30,4		35,42		40,65	
Combined cooling capacity (W7/W55)	kW	14,6		17,24		21,41		24,41		27,35	
TER (W7/W55)	W/W	6,58		6,08		5,76		5,44		5,12	
Single cycle domestic hot water capacity summer (A35W55)	kW	33,07		37,91		48,85		53,01		57,17	
COP single cycle summer (A35W55)	W/W	5,32		4,49		4,87		4,37		3,87	

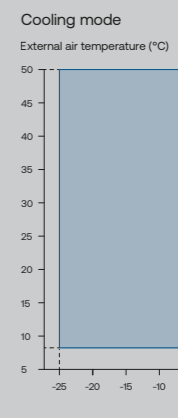
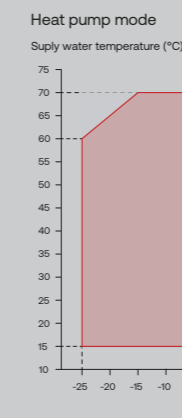
Note: Operation conditions according to EN14511

Technical data		AM 20	AM 20	AM 25	AM 25	AM 30	AM 30	AM 35	AM 35	AM 40	AM 40
		Ni 2T	Ni 4T	Ni 2T	Ni 4T	Ni 2T	Ni 4T	Ni 2T	Ni 4T	Ni 2T	Ni 4T
Three phase option											
Refrigeration circuit / compressor data											
Number of refrigeration circuits		1	1	1	1	1	1	1	1	1	1
Numer of compressors		1	1	1	1	1	1	1	1	1	1
Compressor type		BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary	BLDC Rotary
Refrigerant gas type		R290	R290	R290	R290	R290	R290	R290	R290	R290	R290
Heating/cooling water circuit											
Nominal water flow rate @dT=5K	m ³ /h	3,52	3,52	4,25	4,25	5,32	5,32	5,9	5,9	6,73	6,73
Water pressure drop @dT=5K	kPa	25,29	25,29	35,62	35,62	23,37	23,37	28,19	28,19	35,83	35,83
Max. operating pressure	bar	10	10	10	10	10	10	10	10	10	10
Flow / return connections (F threaded)		G 1 1/4"	G 1 1/4"	G 1 1/4"	G 1 1/4"	G 1 1/2"	G 1 1/2"	G 1 1/2"	G 1 1/2"	G 1 1/2"	G 1 1/2"
Exchanger for DHW circuit production											
DHW circuit water flow	m ³ /h	3,23		3,88		5,11		5,67		6,48	
DHW circuit pressure loss	kPa	20,2		28,18		20,25		24,47		31,17	
Max. operating pressure	bar	10		10		10		10		10	
Flow / return connections (F threaded)		G 1 1/4"		G 1 1/4"		G 1 1/2"		G 1 1/2"		G 1 1/2"	
Dimensions											
Height (A)	mm	1290	1290	1290	1290	1350	1350	1350	1350	1350	1350
Width (B)	mm	1820	1820	1820	1820	2070	2070	2070	2070	2070	2070
Depth (C)	mm	590	590	590	590	660	660	660	660	660	660
Weight	kg	303	317	303	317	370	387	370	387	370	387

Aurax Mini Ni 20–40



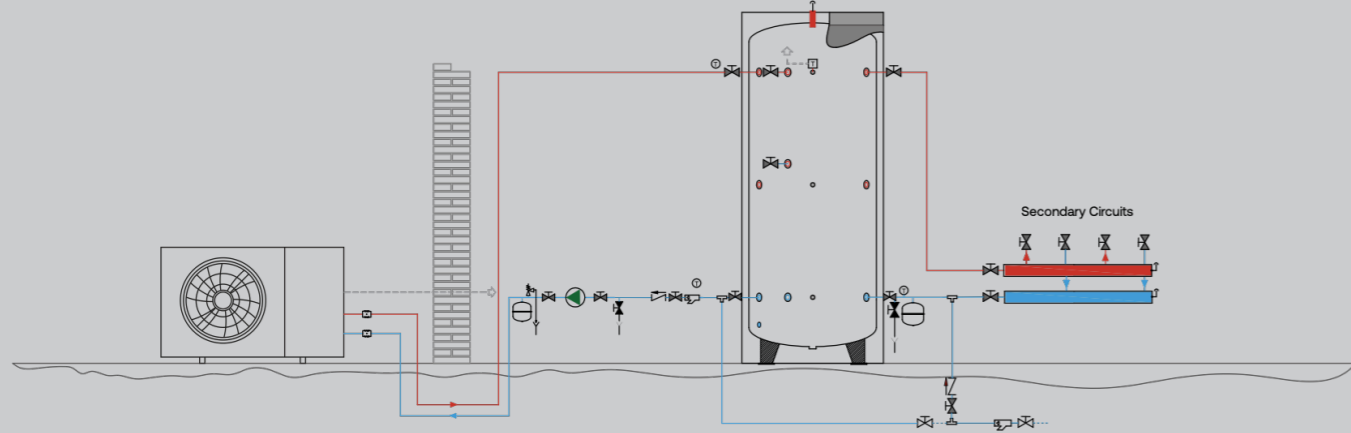
Range of operation



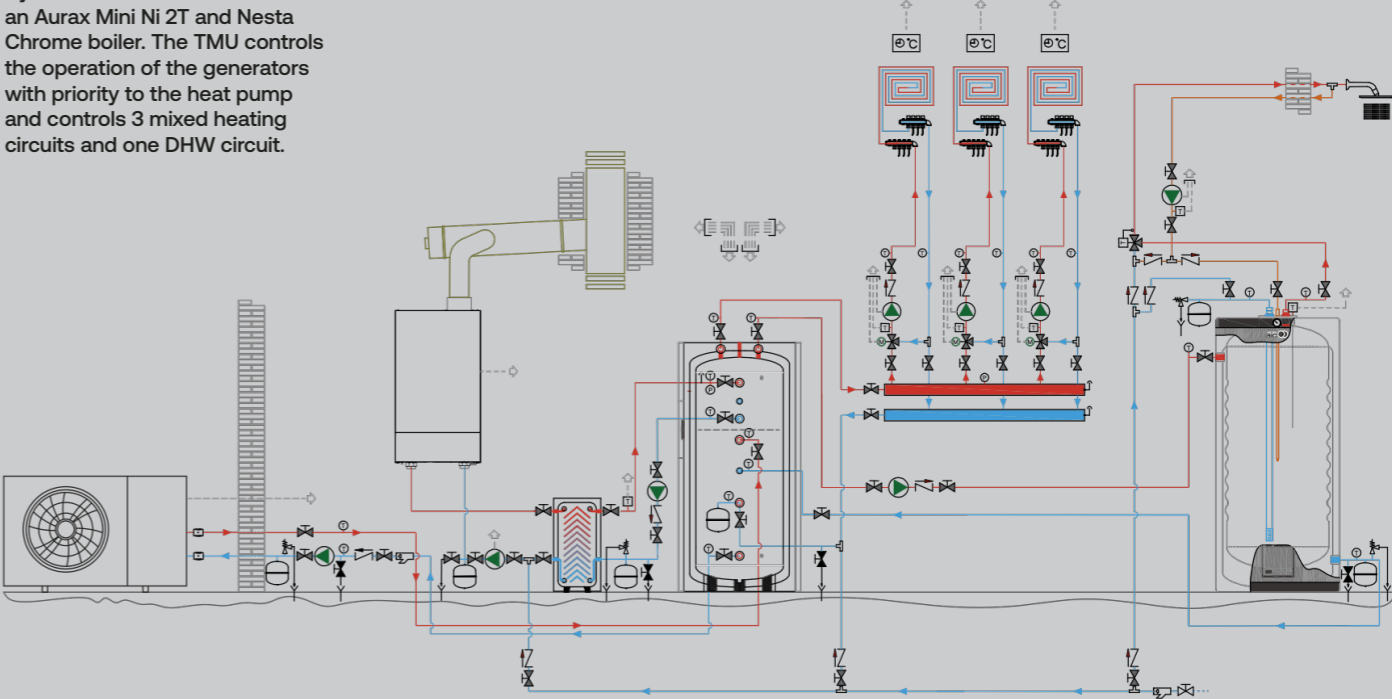
R290 is not only a sustainable refrigerant, it is a high performance one working under any weather condition.

Examples of configuration as only system of production

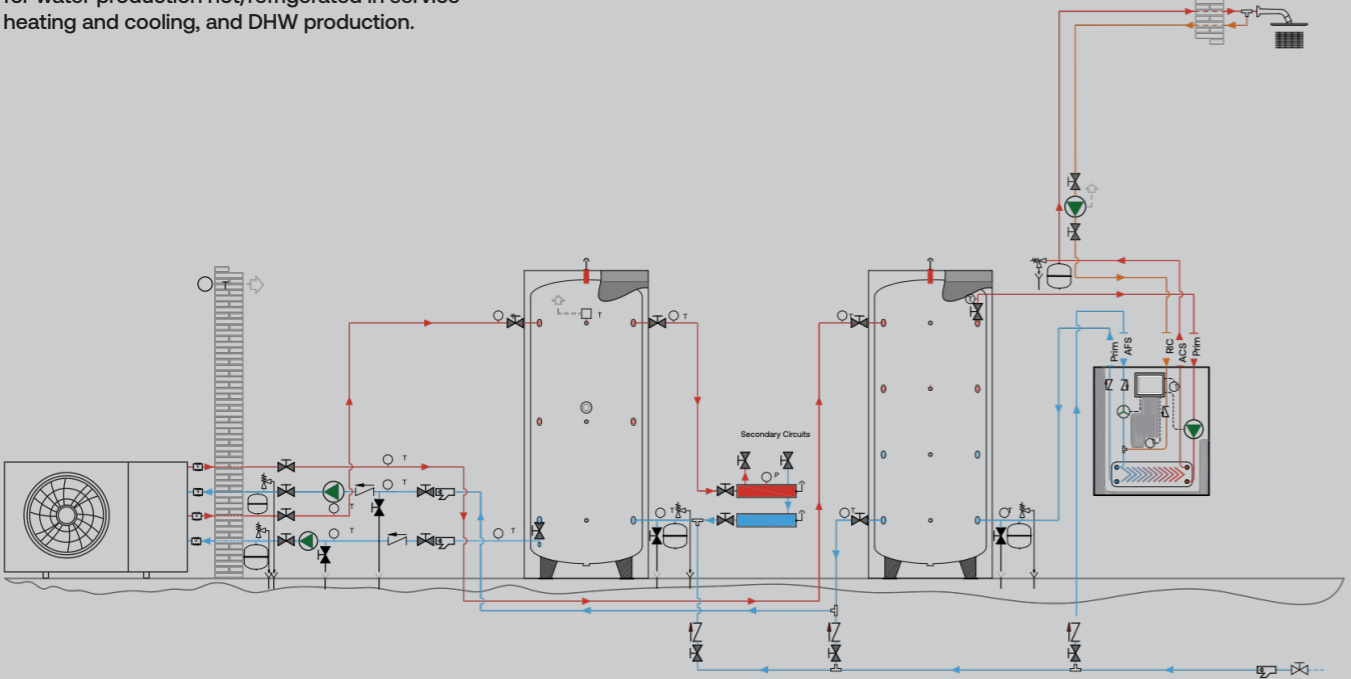
2T system with Aurax Mini Ni dedicated to the production of hot/chilled water for heating and cooling service respectively.



Hybridization of a TMU with an Aurax Mini Ni 2T and Nesta Chrome boiler. The TMU controls the operation of the generators with priority to the heat pump and controls 3 mixed heating circuits and one DHW circuit.



4T air conditioning system with Aurax Mini Ni for water production hot/refrigerated in service heating and cooling, and DHW production.



*The circulating pump is integrated only in versions: AM 10 Ni 2T & AM 15 Ni 2T

Advanced Industrial Components

AIC, founded in 2001, is a renowned specialist in designing and manufacturing stainless steel and titanium heat exchangers. With top-quality products and advanced production processes, we excel in complex heat transfer projects. AIC Europe, established in 2018, delivers innovative heating solutions and exceptional service through its subsidiaries across Europe. Our continuous investment and research focus on reducing emissions, maximizing energy savings, and providing high eco-comfort performance in heating and hot water.

1000 Employees

35% Planning and Management
65% Production and Logistics

33.900 m²

Production facilities
in Poland

14

Commercial branches in Europe,
North America and Asia

