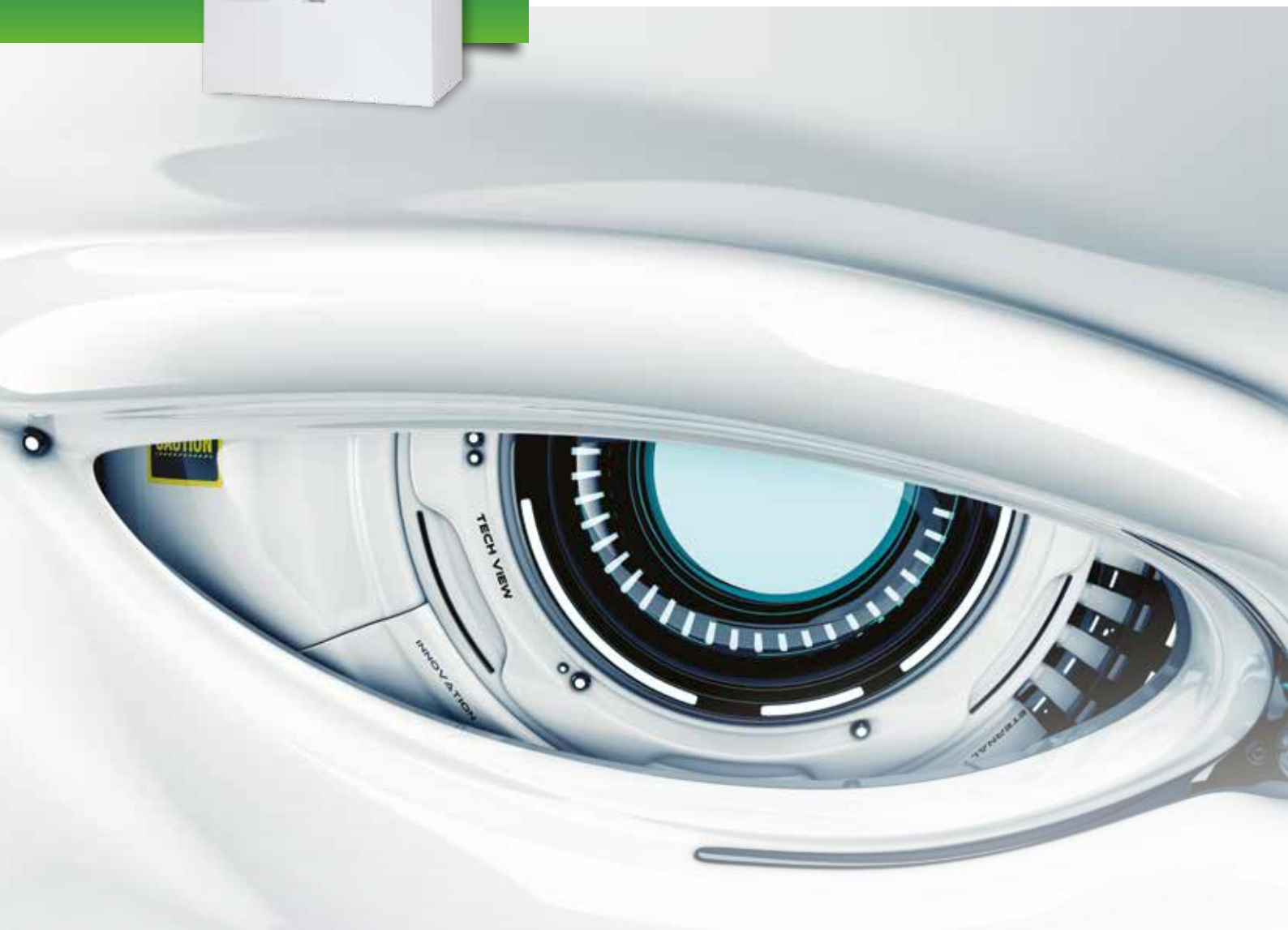




MURELLE REVOLUTION 30

CLASS A++ BOILER



MURELLE
R E V O L U T I O N

A GLIMPSE OF THE FUTURE

Boilers and reverse cycle air conditioning are now increasingly installed as part of environmental comfort systems.

Heat pump technology permits continuous supply for heating requirements, but performance is highly variable, depending on operating conditions.

In fact, with a drop in the outside temperature and as the temperature increases towards the user, the efficiency and power of an air heat pump decreases.

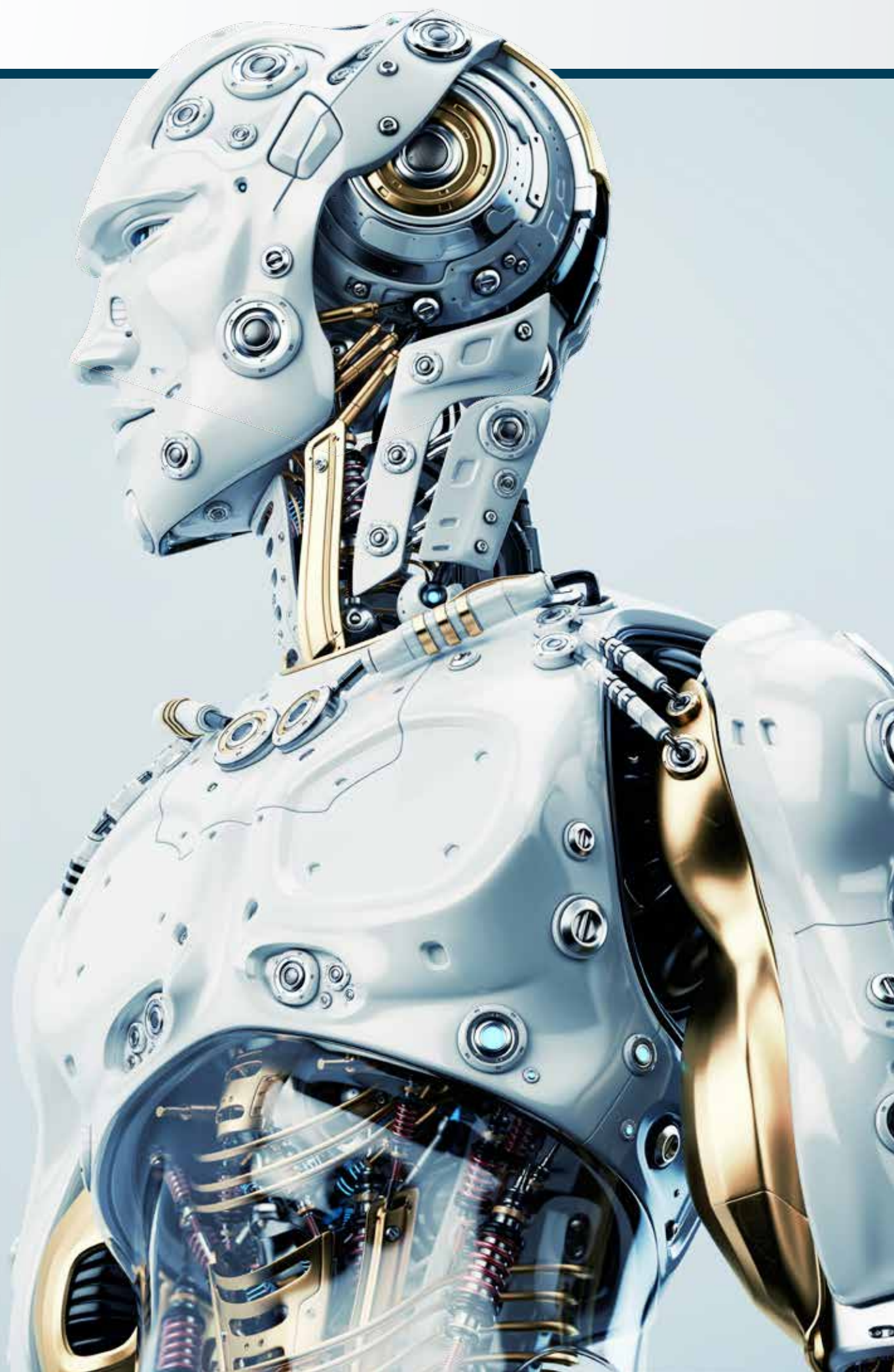
In addition, the heat pump usually requires the installation of an external unit that complicates upgrading.

2

IN A SINGLE UNIT SIME HAS INTEGRATED GAS COMBUSTION AND HEAT PUMP TECHNOLOGIES, OPTIMIZING EFFICIENCY AND GUARANTEEING COMFORT

TECHNOLOGICAL BENEFITS

- A++ heating efficiency class
- Maximum compactness and no external unit
- Constant COP of heat pump
- Series operation of two generators
- Installation the same as that for a gas boiler



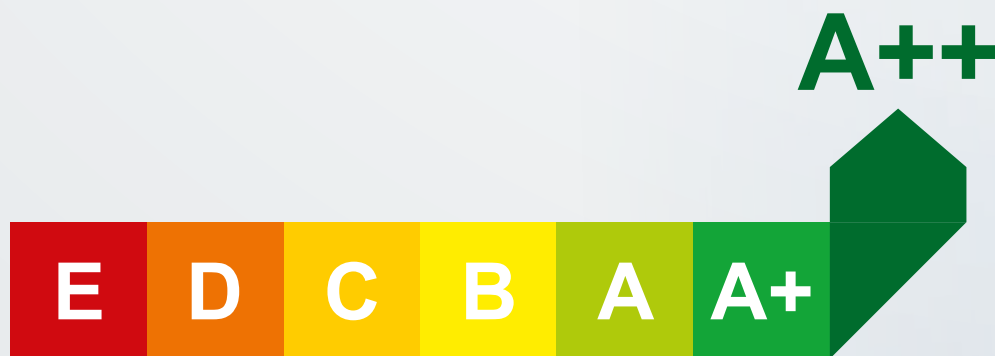
CLASS A++ BOILER

Murelle Revolution 30 combines a 24 kW gas condensing boiler and a 4 kW thermal air/water heat pump in a single product. The heat pump services the heating function, it is installed on the return system and works in series with the boiler to improve the overall efficiency of the system. Water heating is serviced by the condensation boiler.

Murelle Revolution 30 achieves average seasonal heating performance of 134%, granting A++ energy efficiency according to the ELD Directive.

An energy class that makes the product perfect as a replacement model, increasing the energy and economic value of the property in which it is installed.

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THE HIGH ENERGY EFFICIENCY CLASS AND THE FACT THAT INSTALLATION IS NON-INVASIVE MAKES MURELLE REVOLUTION THE IDEAL SOLUTION FOR ENERGY UPGRADES IN EXISTING STRUCTURES

PROGRAMMED FOR ENERGY IMPROVEMENT

Murelle Revolution 30 is the same size as boiler with D.H.W. tank and the heat pump does not require an external unit: both the generators are housed inside the casing. The cooling circuit is factory sealed and no work on this is required during installation.

In addition, the electrical power consumed by the heating pump is less than 1 kW.

The product requires standard water and gas connections and,

in the case of internal installation, two holes sized 160 mm in diameter in the perimeter wall to absorb the heat of the external air. Alternatively, Murelle Revolution 30 is perfect for external installation in partially protected areas. The high energy class combined with the fact that no invasive installation is required makes Murelle Revolution 30 an ideal solution for energy upgrades in existing structures.

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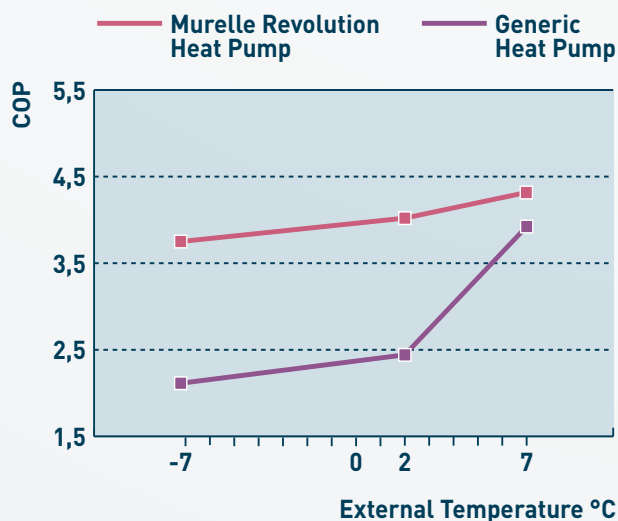
THE SECRET OF MURELLE REVOLUTION

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The Murelle Revolution 30 innovation lies in the heat pump circuit that integrates two evaporators: one exchanges with the outside air via the conductors in the upper part of the device and the other is a completely new and patented gas/fluid heat exchanger that permits the recovery of the residual heat of the combustion products. The gases in a condensing boiler have a relatively high temperature to permit the evaporation of gas in the compressor circuit. In this way the COP of the heat pump remains relatively constant

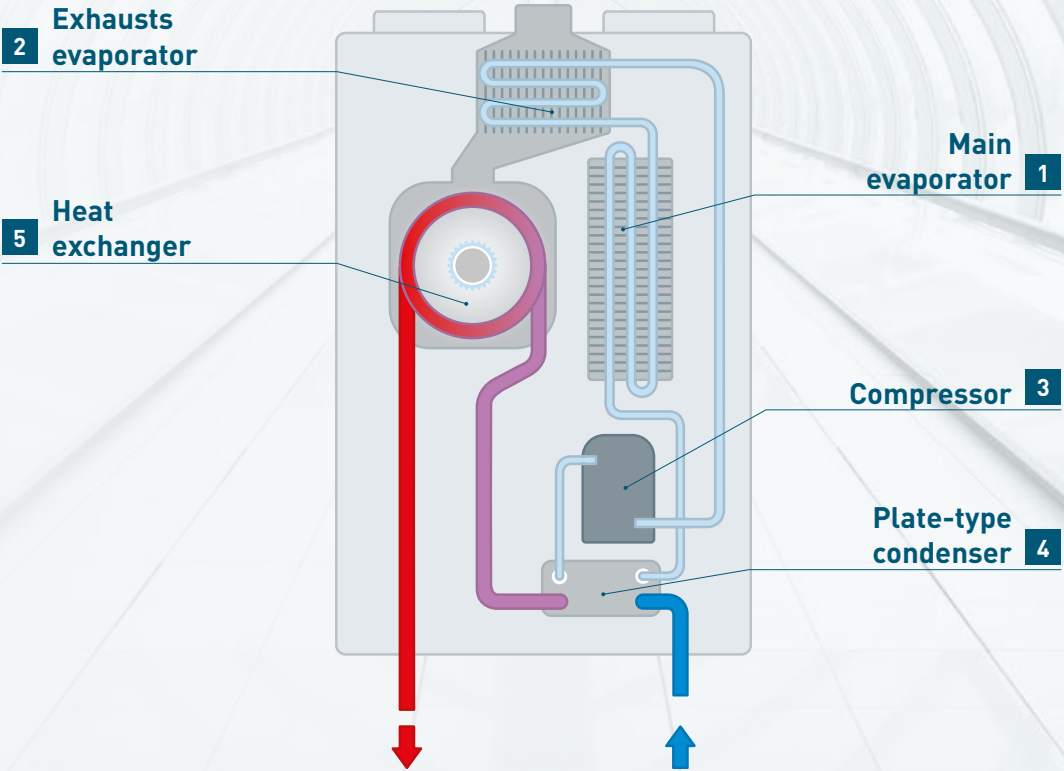
regardless of the temperature of the outside air. The efficiency of the heat pump/boiler is shown by the fact that the combustion gases exit the device after exchange at around 10°C. For water heating, the heat pump condenser is connected in series to the heat exchanger of the boiler and pre-heats the return water permitting the boiler to work with a lower temperature difference between delivery and return and modulate the supplied power; in this way gas consumption is reduced as are CO₂ emissions into the atmosphere.

COP: Murelle Revolution 30 heat pump vs generic heat pump



HOW IT WORKS

The heat carrier fluid receives heat from the air taken from outside into the main evaporator **1** and then in the evaporator in contact with the exhaust gas of the boiler **2**. The compressor **3** compresses the fluid and the heat is transferred in the plate-type condenser/exchanger **4** to the water returning from the heating system. The boiler's heat exchanger **5** integrates the residual heating requirements.



EFFICIENCY IS SO HIGH THAT
COMBUSTION EXHAUSTS EXIT AT AROUND 10°C

LOGIC THAT LEADS TO THE FUTURE

The operation of the two generators is commanded by a proprietary logic developed by Sime, integrated in the remote control that dialogues with the boiler and heat pump via ModBus protocol.

If the external temperature is higher than a certain set value (default -7°C) the heat pump and the boiler will be activated in quick succession. When the set point is reached the boiler will

start to adjust power until the heat requirement is attained and then both of the generators will be extinguished.

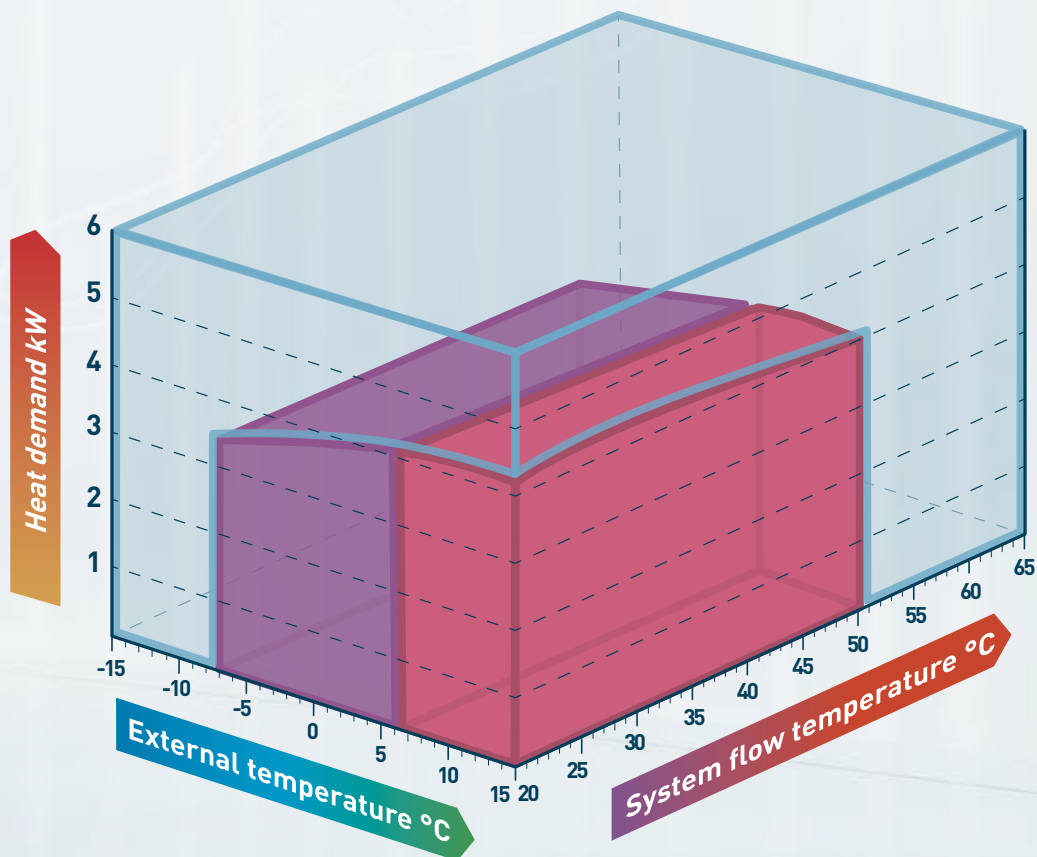
If the external temperature is higher than 7°C (value can be re-set), only the heat pump will be activated.

The boiler will be activated only when the desired temperature is not achieved by the heat pump on its own.



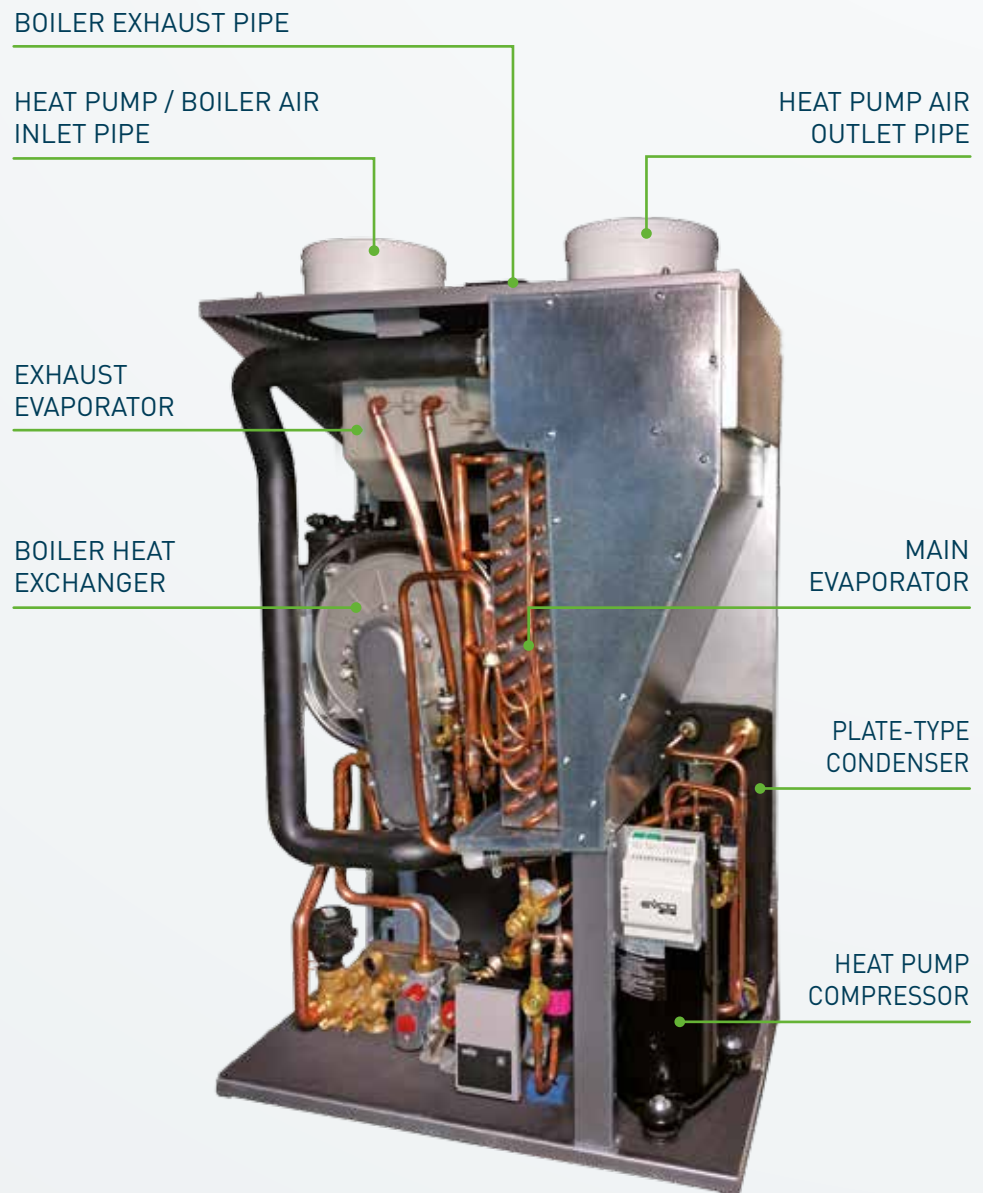
CENTRAL HEATING OPERATION OF MURELLE REVOLUTION 30

- BOILER ONLY OPERATION
- BOILER AND HEAT PUMP OPERATION
- HEAT PUMP ONLY OPERATION



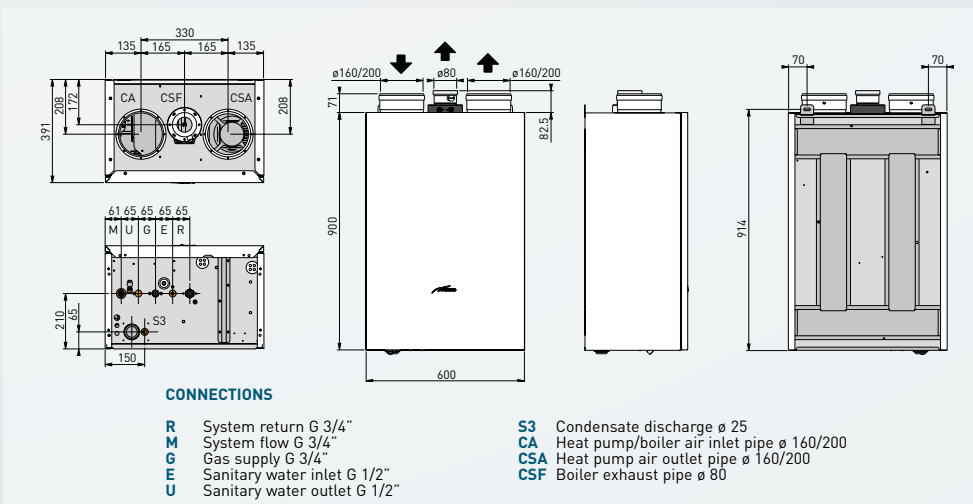
MURELLE REVOLUTION IN DETAIL

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TECHNICAL DATA AND DIMENSIONS

			MURELLE REVOLUTION 30
Nominal thermal power (80-60°C)	kW		19,7
Nominal thermal power (50-30°C)	kW		21,4 (boiler) + 4 (HP) = 25,4
Reduced thermal power	kW		3,9
Seasonal space heating energy efficiency for boiler (EN15502)	%		93
Seasonal space heating energy efficiency for heat pump (EN14825)	%		155
COP (7°C outside air - 35°C delivery)			4,45
Contribute of temperature control device	%		4,0
Seasonal space heating energy efficiency	%		134,0
Seasonal space heating energy efficiency class			A++
Water heating load profile			XL
Water heating energy efficiency class			A
Sound power level during heating	dB(A)		54
Electric power consumption (Qn max)	W		70 (boiler) + 1334 (HP) = 1404
Electric power consumption (Qn min)	W		70 (boiler) + 1650 (HP) = 1720
Electric protection degree	IP		X5D
Heating operating field	°C		20-75
Water contents	l		4,65
Maximum operating pressure	bar		3
Heating expansion vessel capacity	l		9
Heating expansion vessel pressure	bar		1
Sanitary operating field	°C		10-60
Sanitary nominal heat flow	kW		28
Specific sanitary flow rate Δt 30 (EN 13203)	l/min		12,9
Continuous sanitary flow rate Δt 25/35	l/min		16,1/11,5
Sanitary minimum flow rate	l/min		2
Min/max sanitary pressure	bar		7,0/0,5
Max horizontal length of ø 80 exhaust pipe	m		25
Max horizontal length of ø 160 inlet/outlet air pipes	m		3+3
NOx class			6
Heat pump			air-water low temperature
Compressor			Rotary ON-OFF
Refrigerant gas			R410A
Refrigerant quantity	kg		1,15
Heat pump minimum operating temperature	°C		-7,0°
Weight	kg		103





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