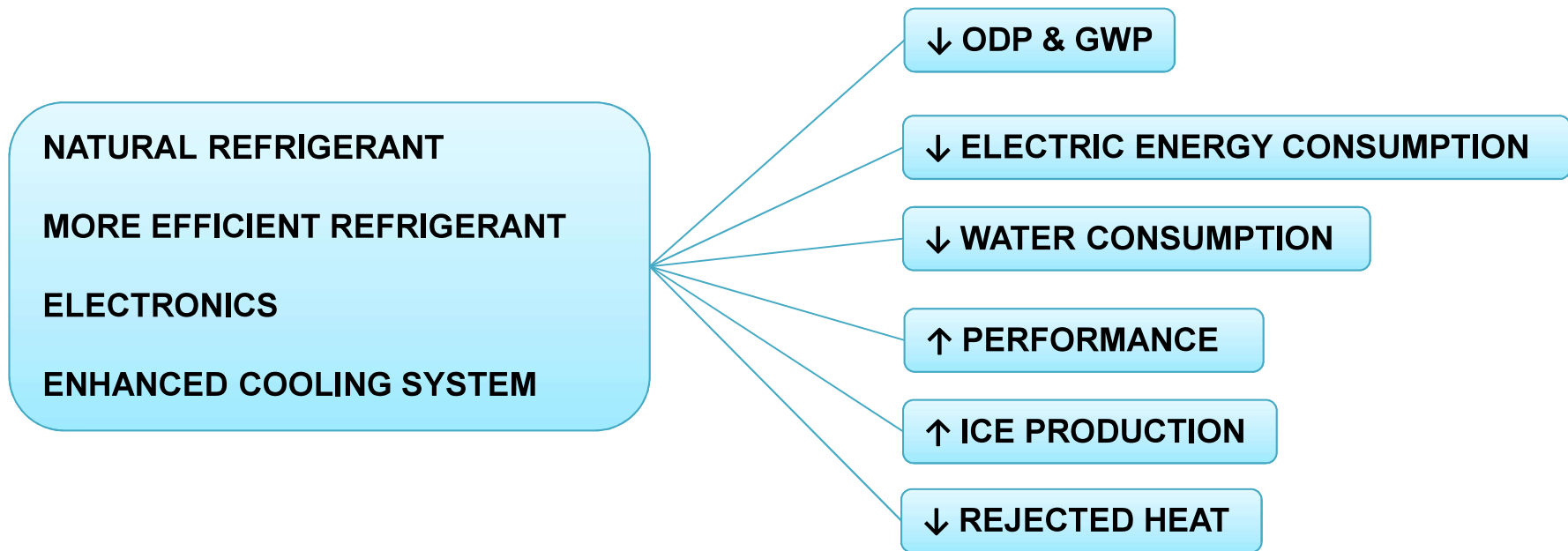


R290 RANGE - BENEFITS

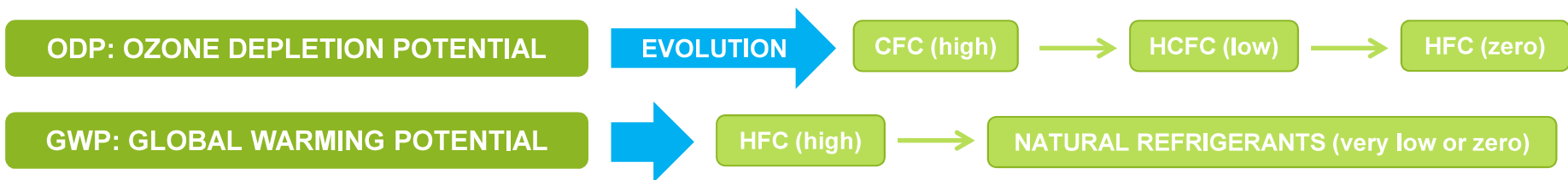


R290 RANGE – REFRIGERANTS (I)

Many countries have already proceeded to prevent or limit the use of synthetic refrigerants such as CFCs and HCFCs (Montreal Protocol, 1992) and are decided to replace HFCs with low (or without) OPD and GWP refrigerants.

Among the latter are some natural fluids such as CO₂, ammonia, propane and other hydrocarbons.

These fluids present GWP and OPD at very low levels and are destined to be the most used in the future.



	GASES	ODP	GWP
HFC GASES USED IN THE LAST YEARS	R134A	0	1300
	R404A	0	3784
	R449A	0	1307
	R452A	0	2067
			TRANSITION GASES

R290 RANGE – REFRIGERANTS (II)

PROPANE (R290)

ODP: 0

GWP: 3

It is a hydrocarbon present as natural gas or as a product of the oil industry.

Due to the high flammability, its use is currently limited to refrigeration units with less than 150 grams but the regulation is about to change and the limitation increased to 500 grams.

AMONIA (R717)

ODP: 0

GWP: 0

It is a natural fluid. It is mainly used in machines and large refrigeration installations.

CO₂ (R744)

ODP: 0

GWP: 1

It is a natural fluid that doesn't have the contraindications of other natural fluids and therefore enjoys favor in countries respectful with the environment.

However, it also has working pressures 10 times higher than other refrigerants and at ambient temperatures above 20-25°C it cannot be condensed.

R290 RANGE – IMPROVEMENTS (I)

MAIN CHANGES

R290

ELECTRONICS

ENHANCED COOLING SYSTEM

Why?

From 2020 the EU F-Gas Regulation bans the placing on the market of the machines with F-gases with GWP over 2500.

It made sense for ITV to take advantage of the range transformation to finally introduce the electronics in most of the machines and also to implement modifications to improve the performance of the machines.

ITV had already been selling successfully the electronic NDP20 for some years now, so the change was not sudden but gradual and well planned.

What changes?

Self-contained Spray System machines (Alfa, Gala, Delta Max up NG80A):

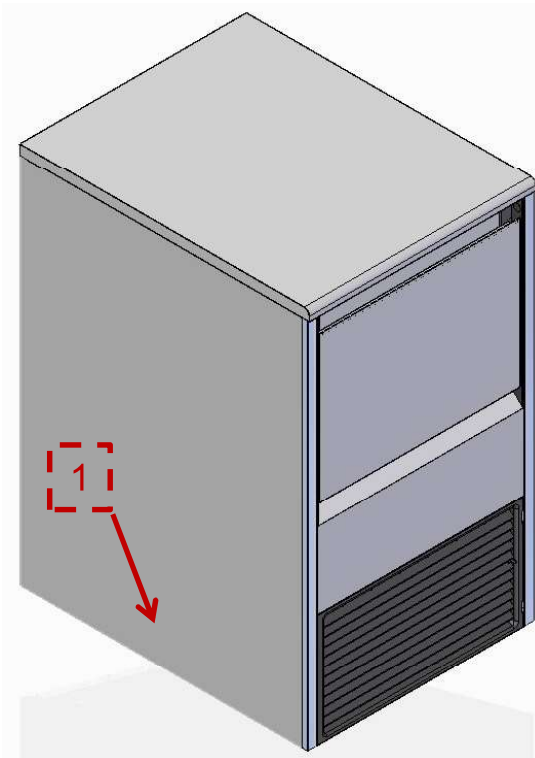
R290 → Refrigeration system (compressor, condenser, piping, pressure switches, etc...).

ELECTRONICS → The timer and the cycle thermostat have been replaced by a PCB and a temperature probe. The performance of the machine improves significantly.

COOLING SYSTEM → New copper and aluminum condenser positioned in oblique position and air deflectors to direct the air towards the evaporator. This change allows the machine to perform better when built-in, actually the ventilation grilles have been removed from the lateral panels. It also improves the accessibility to the main components through the frontal grid. Frontal ventilation enhanced by 34% compared to the one with R404 and R452.

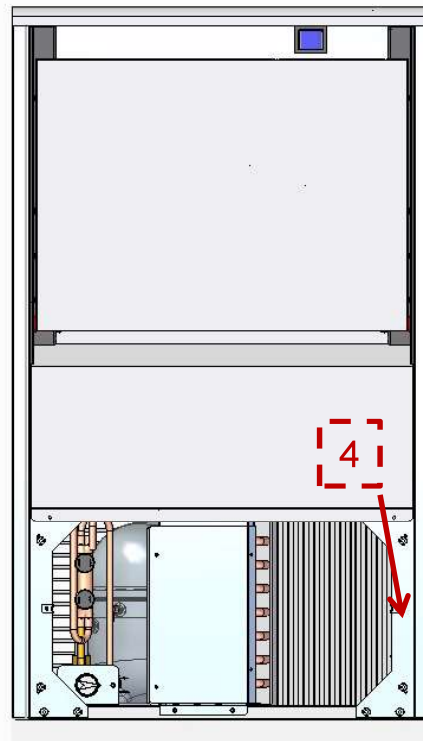
R290 RANGE – IMPROVEMENTS (II)

MAIN CHANGES



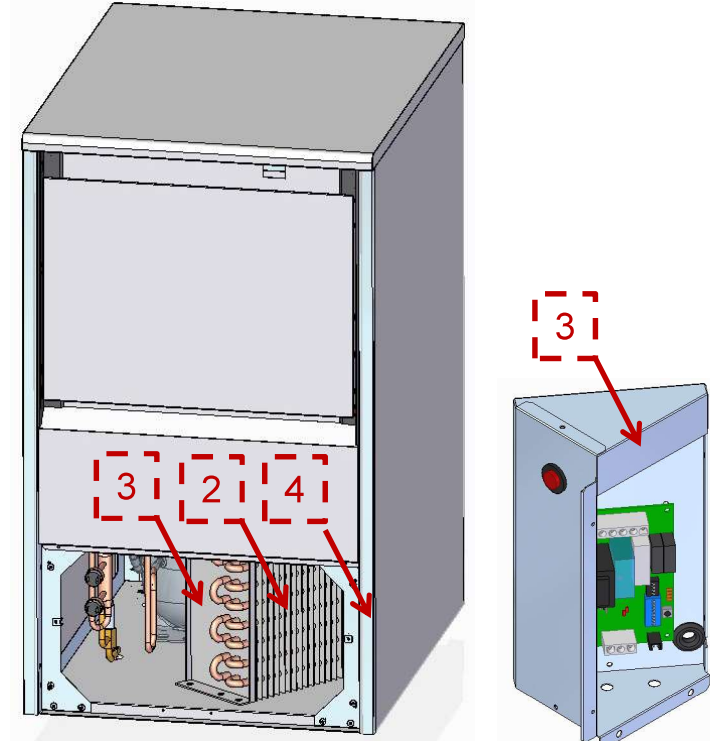
1.- No ventilation grilles in the lateral panels.

R290



ELECTRONICS

ENHANCED COOLING SYSTEM



2.- Cu/Al condenser in oblique position.

3.- Control panel attached to the lateral of the condenser with accessible washing button.

4.- Deflector connected to the lateral panel and the condenser.