Haier
HVAC Solutions

PEARL R290

The greener alternative for
comfort cooling & heating

ECO FRIENDLY
R290
Natural Refrigerant

Haierhvac.eu

PEARL R290

Residential Mono-Split Inverter

Haier

Time to act on R290!

Legislative drive

The refrigeration industry is shifting towards low GWP refrigerants in accordance with the broader growing demand for environmental sustainability. Increasing attentiveness to climate change and subsequent regulatory pressures are driving this transition, prompting manufacturers and industry experts to explore alternative refrigerant options that are safer and more efficient.

Not only in Europe but also across the world, we face more and more legislations forcing the pace of change. Further F-Gas stepdowns will be upon the industry sooner than we realise as we try to build a more sustainable future.

In January 2025, a ban on refrigerants with a GWP of over 750 in new split systems with a charge of below 3Kg will come into force. Following this there is now increased pressure to ramp this up further with some environmental parties calling for a ban on refrigerants with a GWP above 150 by Jan 2029.

R290, a strong alternative & high performer

R290 is emerging as a **serious alternative to high GWP gases** in the air conditioning and heat pump market, offering promising natural and non-toxic properties with reduced greenhouse gas emissions.

In terms of performance, R290 is every way as good as R32. The most important part of R290 is the significant environmental advantages through good energy performance and its GWP close to zero. Not only is R290 a suitable replacement for high GWP gases in air to air heat pumps but it has potential usage for air to water heat pumps too.

In addition to its low environmental impact, R290 is highly energy efficient and can lead to reduced energy costs for businesses. Its excellent heat transfer properties, non-toxic properties, and compatibility with many existing refrigeration systems make it an attractive solution.

Working close to our partners

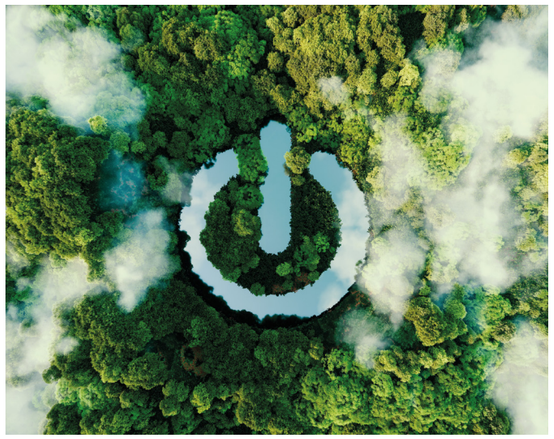
Split ACs using propane as a low GWP alternative to R410A and R32 are already available in the Chinese and Indian markets but in other parts of the world – including Europe – their use and acceptance is restricted because of concerns about flammability.

Evidence elsewhere also suggests that R290 could become a serious contender in future. In Thailand rigorous tests have taken place to show it is safe to use and the European Commission has also given its backing to the use of R290 in small AC systems.

At Haier, we are aware that the decision to develop products that use R290 will lead to a greater requirement in training for installers to understand its full potential. Hence why we are all ready working on an extensive programme in which installers can experiance at Haier's new Barcelona HVAC training Hub.

Sustainability is the biggest challenge facing the industry as we explore better ways to protect the planet and make greater use of what we have already.

Adopting the use of low global warming refrigerants is important but an increasing focus on sustainability together with greater environmental, social, and governance responsibility will really make the difference. Regulation will have an influence but at the end of the day the customer will drive the direction of travel in the industry.



PERFORMANCE

R290 offers a wide range of applications and is therefore ideal for commercial and industrial equipment and systems.

The new refrigerant offers the same energy performance as the R32 but it is a more suitable replacement for high GWP gases in air-to-air heat pumps.

R290 also has potential usage for air to water heat pumps, further widening its performance spectrum.

GREEN ALTERNATIVE

R290 is seen as a long-term environmentally friendly option. It reduces the fluid load by 60%, which further reduces its carbon footprint. While R32 is a widely utilised refrigerant R290 is a more sustainable solution.

ECONOMIC

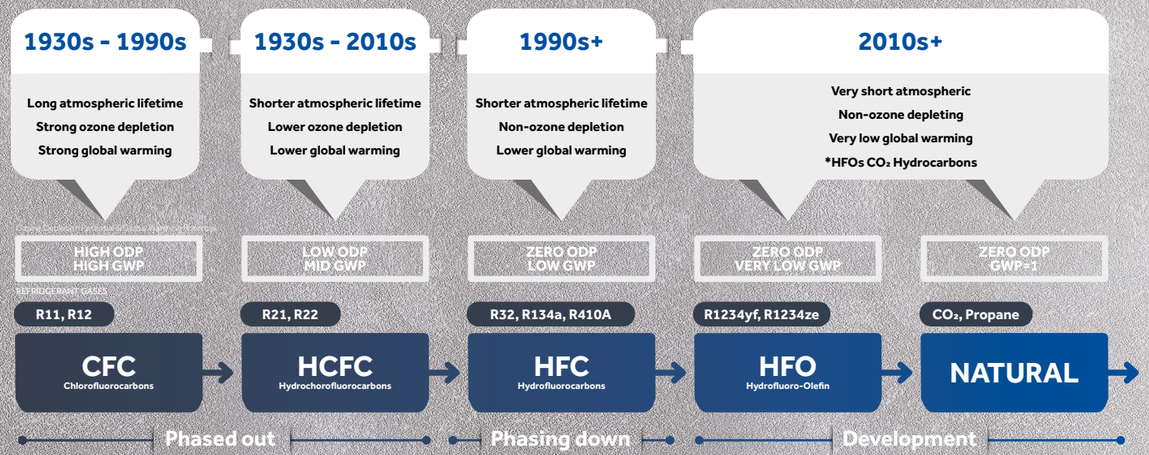
The use of R290 will lead to high energy savings whilst contributing to a more sustainable and greener planet.

Due to the thermodynamic properties and its high performance, electricity consumption will be lower and we will see a direct reduction of electricity costs for our end-users.

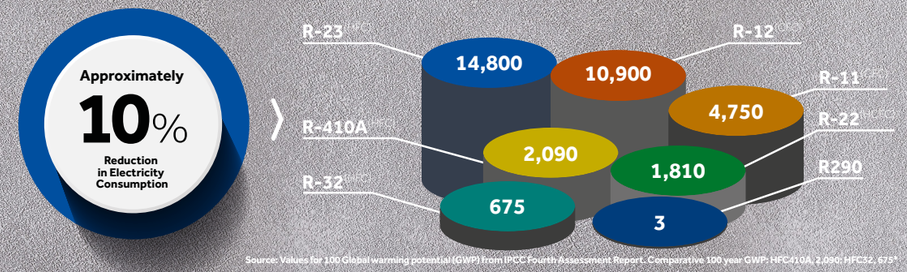
PEARL R290

Residential Mono-Split Inverter

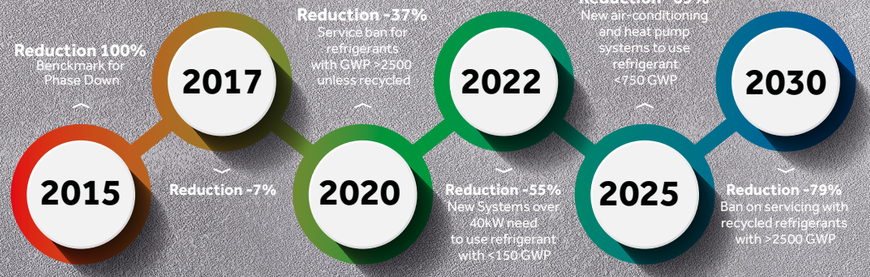
R290 Transition Towards Lower GWP Refrigerants

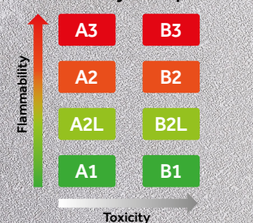


100 Year Global Warming Potential of Different Refrigerants*



Source: Values for 100 Global warming potential (GWP) from IPCC Fourth Assessment Report. Comparative 100 year GWP: HFC410A, 2,090; HFC32, 675*





The letter indicates toxicity level:
A = Low toxicity level
B = High toxicity level

The number indicates flammability level:
1 = Non flammable
2L = Slightly flammable
2 = Flammable
3 = Highly flammable

R290	R744 (CO2)	R717 (Ammonia)	R32	R410A
Refrigerant type: Natural	Refrigerant type: Natural	Refrigerant type: Natural	Refrigerant type: HFC	Refrigerant type: HFC
GWP: 3	GWP: 1	GWP: 0	GWP: 675	GWP: 2090
Safety Group: A3	Safety Group: A1	Safety Group: B2L	Safety Group: A2L	Safety Group: A1

Deliver Ultimate Airflow

Elegant matte white finish with R290 natrual refrigerant. This natural alternative refrigerant comes with low-condesing temperature and thermodynamic properties that maximises energy efficiency and saves money.

Low Impact on Environment

R290 is a natural refrigerant that does not affect the ozone layer. R290 is a natural, safe, and non-toxic alternative is not only friendly to our environment but also cost-effective.

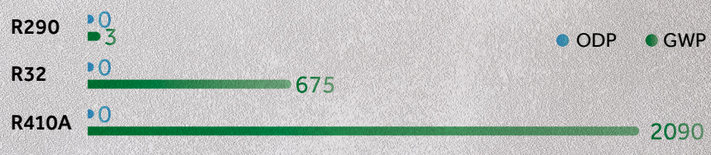
Safe Operation

The indoor and outdoor PCB boxes are sealed which isolates the electrical components from the refrigerant and therefore improves the safety of the whole machine. Furthermore, flame repellent materials are used for the indoor and outdoor PCB box.

TECHNOLOGY

Eco Refrigerant

R290 (propane) is a natural refrigerant with ODP=0, GWP=3. Furthermore, it has excellent heat transmission efficiency.



Sealed box design

Design of explosion-proof components

Cabinet fire protection design

For more details, please refer to Haier 2024 Catalogue

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PEARL R290

Residential Mono-Split Inverter

2,5 kW

3,5 kW

Haier

The **Pearl R290,** your greener solution to comfort Cooling & Heating. This natural refrigerant offers a GWP of less then 3, with low-condesing temperature and thermodynamic properties that maximises energy efficiency and saves money. R290 is a natural, safe, and non-toxic alternative refrigerant which is friendlier to the environment and still maintains a high energy efficiency of A++.

Features

Coanda Plus

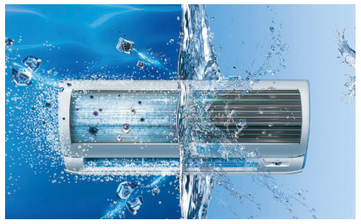
Self-Clean

Wi-Fi control integrated

Easy Installation

Contact On/Off

Silence



Self Clean

The Self Clean technology is the first of its kind to integrate the self-cleaning function of both the evaporator and the condenser without stopping the compressor.

It has mainly 2 advantages : this innovative technology allows you to kill bacteria and keep the evaporator clean but it also helps your air conditioner always works at maximum cooling capacity with very high energy efficiency.

hOn Wi-Fi Control

Haier's new "hOn" Wi-Fi app allows you to control all the Haier Group appliances in your connected (smart) home from a single app on your smartphone or tablet.

The hOn app allows you to manage all basic functions and more. The app can also respond to voice commands as it is compatible with Google Assistant and Alexa.

Coanda Plus Air Flow

The special aerodynamic design of the air vents lets the airflow go farther and more powerfully, while keeping noise and power consumption low with the smoother airflow.

The Coanda Plus airflow, consisting of 3 micro-perspective subparts, delivers the air more intuitively, and forms the circulation throughout the space.

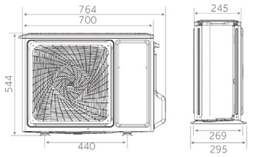
Technical Illustrations

AS25 - AS35

Outdoor Unit

2,5 kW 3,5 kW

Outdoor Dimensions



1U25 - 1U35

Controller

Standard YR-HE

INDOOR UNIT	Model		AS25PBBHRA	AS35PBBHRA
OUTDOOR UNIT	Model		1U25YEBGRA	1U35YEBGRA
Performance data				
Output power - COOLING	nom (min-max)	kW	2,60 (0,80-2,90)	3,50 (0,80-4,00)
Output power - HEATING	nom (min-max)	kW	2,80 (0,80-2,90)	3,50 (0,80-4,10)
Absorbed power – COOLING	nom (min-max)	kW	0,804 (0,30-1,50)	1,291 (0,30-1,50)
Absorbed power – HEATING	nom (min-max)	kW	0,754 (0,30-1,50)	0,969 (0,80-4,10)
Energy class	EER	W/W	3.23	2.71
	COP	W/W	3.71	3.61
COOLING Pdesign	C° 35	kW	2.60	3.50
HEATING Pdesign	(C° -10)	kW	2.10	2.50
Energy class	SEER		6.8 (A++)	6.2 (A++)
	SCOP		4.6 (A++)	4.6 (A++)
Annual Energy Consumption - COOLING		kWh/a	134	198
Annual Energy Consumption - HEATING		kWh/a	639	761
Indoor Unit				
Power supply		Ph/V/Hz	1/220-240/50	1/220-240/50
Treated air volume		m3/h	580	650
Dehumidification		L/h	1,2	1.4
High sound power - COOLING		dB	56	57
High sound power - HEATING		dB	56	57
Sound pressure - COOLING		dB(A)	37/32/28/18	37/33/29/19
Sound pressure -HEATING		dB(A)	37/32/28/18	37/33/29/19
Net dimensions	WxDxH	mm	805x200x292	805x200x292
Packaging dimensions	WxDxH	mm	876x272x365	876x272x365
Net/gross weight		kg	8,3/ 10,6	8,3/ 10,6
Outdoor Unit				
Power supply		Ph/V/Hz	1/220-240/50	1/220-240/50
Power cable		N x mm2	3x 1,0	3x 1,5
Interconnection cable		N x mm2	4x 1,0	4x 1,0
Sound power		dB	62	63
Sound pressure		dB(A)	48	49
Running current cooling/heating	Max	A	6,4/ 6,4	7,0/ 7,0
Starting current cooling/heating	Max	A	1,5/ 1,5	1,5/ 1,5
Net dimensions	WxDxH	mm	700x245x544	700x245x544
Packaging dimensions	WxDxH	mm	819x320x592	819x320x592
Net/gross weight		kg	24.5/27	24.5/27
Compressor type			Rotary Inverter	Rotary Inverter
Installation data				
Refrigerant			R290	R290
Liquid pipe	Ø	mm(inch)	6,35 (1/4)	6,35 (1/4)
Gas pipe	Ø	mm(inch)	9,52 (3/8)	9,52 (3/8)
Standard pipe length without refrigerant charge		m	10	10
Maximum pipe length		m	10	10
Maximum IU - OU elevation		m	10	10
Refrigerant charge in the factory		kg	310	310
Refrigerant charge in the factory		TCO2eq	~0	~0
Additional ref. charge over std length		g/m	no additional charge allowed	
Operating limits - COOLING (in/out)	min-max	C°	21~35°C/-10~43°C	
Operating limits - HEATING (in/out)	min-max	C°	10~27°C/-15~24°C	

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