

Air Conditioning

Polarix – R290 Air-to-Water Heat Pump

Year-round comfort, naturally eco-friendly



| polarix

 systemair

New!

Polarix

R290 Air-to-Water Heat Pump

Polarix R290 heat pumps offer high efficiency with reduced CO₂ emissions and minimal environmental impact. Using natural refrigerant R290, with GWP 3, makes them a truly sustainable solution


- ✓ Super eco-friendly
- ✓ Very high efficiency
- ✓ Extended operating limits
- ✓ Small footprint
- ✓ Quiet in operation
- ✓ Easy maintenance
- ✓ Remotely controllable with AC CLOUD
- ✓ 100% factory tested



The future is natural

Polarix – a perfect combination of new green technology and Systemair's existing SYSAQUA product range, known for reliability and high performance



 48-74 kW


 49-83 kW

 Plate heat exchanger

 Scroll compressor

SEER
4.4

SCOP
3.9

A⁺⁺

Energy efficiency class (SCOP)

According to Delegated Regulation
No. 813/2013 of the European Commission

Caring about the environment doesn't mean sacrificing performance

On the contrary! Our Polarix Heat Pump operates with natural R290 (propane) refrigerant, offering a green alternative for any project. Using R290 not only increases the efficiency and the performance of the Polarix unit, it limits the impact on the environment thanks to one of the lowest GWP values.

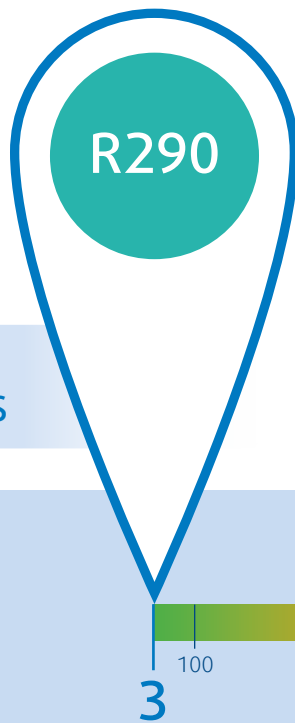
Polarix offers up to 7% higher SCOP (Seasonal Coefficient of Performance) compared to a standard unit using R410A. This means significant energy savings over the years.

Polarix's top-level axial EC fans feature continuous fan regulation to ensure maximum acoustic reduction, improved efficiency, and wider operating limits.

An optional variable-speed pump designed to adjust automatically to demand, ensures optimal performance and further reduces energy consumption.

One of the most eco-friendly REFRIGERANTS

3 Global Warming Potential



Each unit sold with the natural R290 refrigerant instead of R410A saves CO₂ emissions equivalent to the average emissions of a car on a 440,000 km journey; the equivalent of up to eleven trips around the globe.*



*98 g/km, Polarix size 80

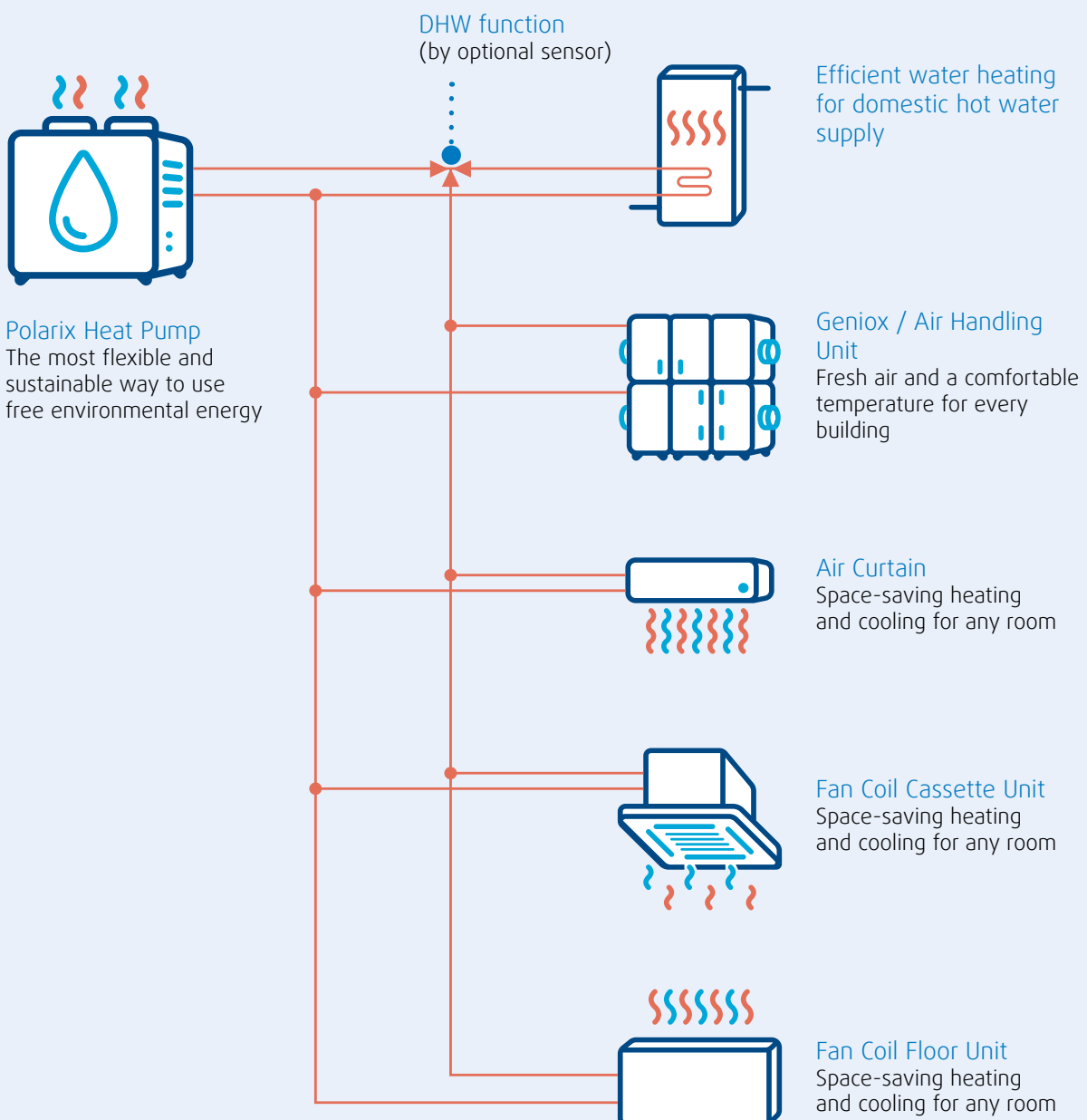
Heating and cooling for every need

Natural refrigerants, endless applications

Flexibility is key

- ✔ Water-based, a familiar concept for years
- ✔ Simple adaptations possible during renovation projects
- ✔ Many Systemair product ranges have a water register and can also be connected, providing comfort exactly where you need it
- ✔ Low refrigerant charge due to small refrigerant circuit
 - Leak checks performed on refrigerant circuit
 - Lower CO₂ quantity enters the market due to small refrigerant circuit
 - More flexibility in pipe layout as no refrigerant/oil return problems can arise

Connectivity Example:



Benefits for everyone

Consultants

Flexibility in system planning, future-proof solution

- The thermodynamic properties of the Polarix R290 enable very wide operating limits and high supply temperatures
- Water-based systems give a high level of installation flexibility
- With the sustainable refrigerant Propane (R290) there are minimal regulatory concerns and long-term operational safety is ensured
- AC SELECT tool makes product selection easy
- Certified technical data on intuitive technical datasheets
- 3D drawings and BIM models available

Installers

Plug-and-play installation saves valuable time

- Delivered fully factory tested and ready to install
- Easy to install and maintain
- Reliable start thanks to the safety-first design
- Outdoor location, thus easy access for installation and maintenance

Building Owners and Managers

Experience year-round comfort

- Wide operating limits ensure comfort all year round
- High energy efficiency
- High supply temperatures, even in harsh winter conditions
- Efficient defrosting with our optional tank ensures consistent comfort for your building; the radiators maintain the same temperature even in defrosting mode
- The sustainable, low-maintenance Propane (R290) heat pump is subject to fewer regulations
- The solution offers the flexibility to redesign the system to meet changed needs





Offices



Hotels



Schools



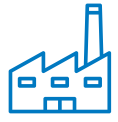
Shops



Hospitals



Shopping centres



Industry



Sustainability in every aspect

The Systemair Polarix R290 Air-to-Water Heat Pump is a premium solution and a green alternative for any project. All components have been developed with safety and sustainability in mind.

Removable panels

Great accessibility to internal components for service operations

Molecular leakage detector

Immunity to poisoning, long service life (+15 years without calibration)

Controller

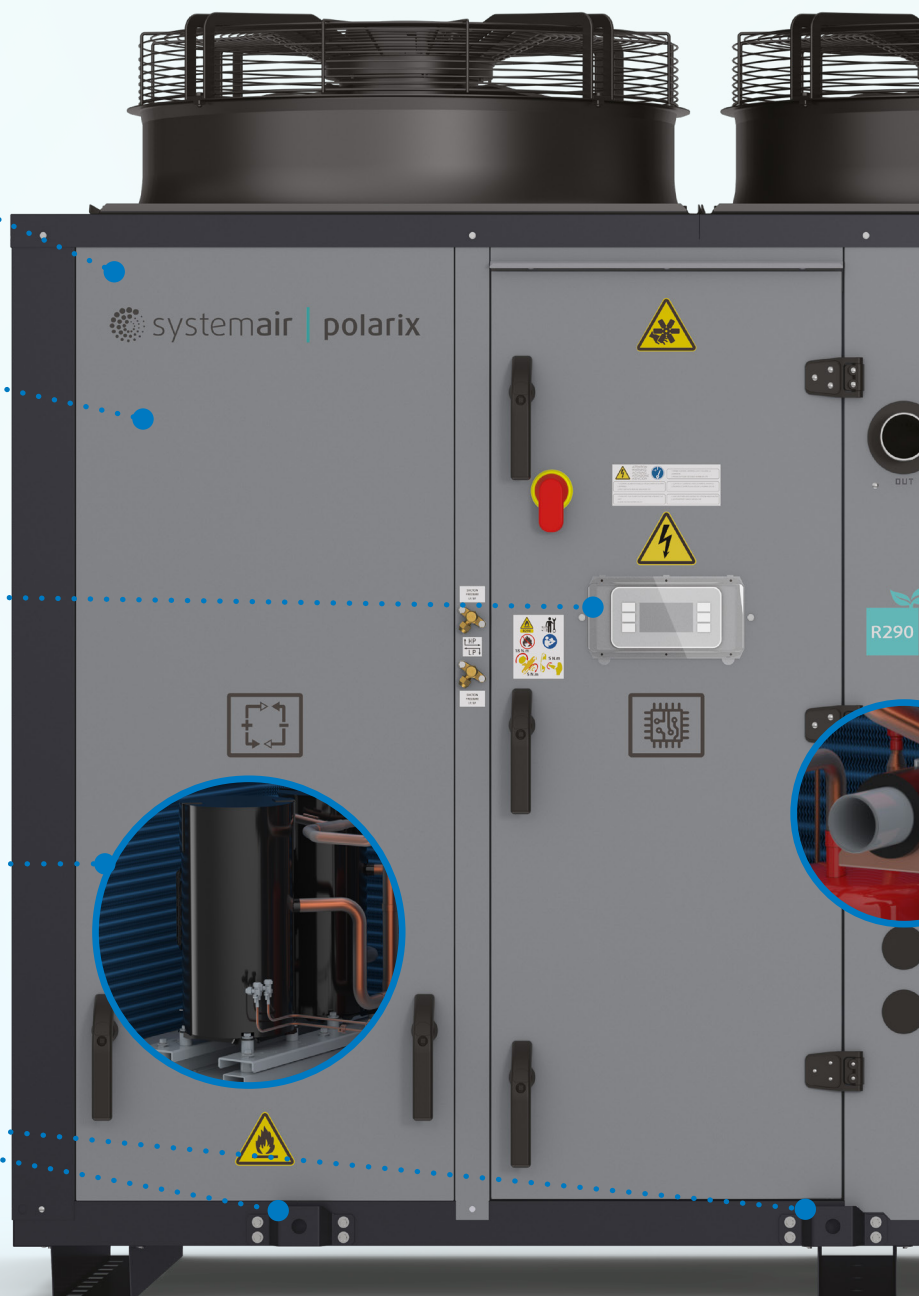
This new high-standard control system provides excellent pressure control, as well as global and optimised unit management

Scroll Compressors

Uses dual scroll compressors, optimised for R290 and rubber mounted for reduced noise and vibration

Lifting lugs

Safe transport to the installation site

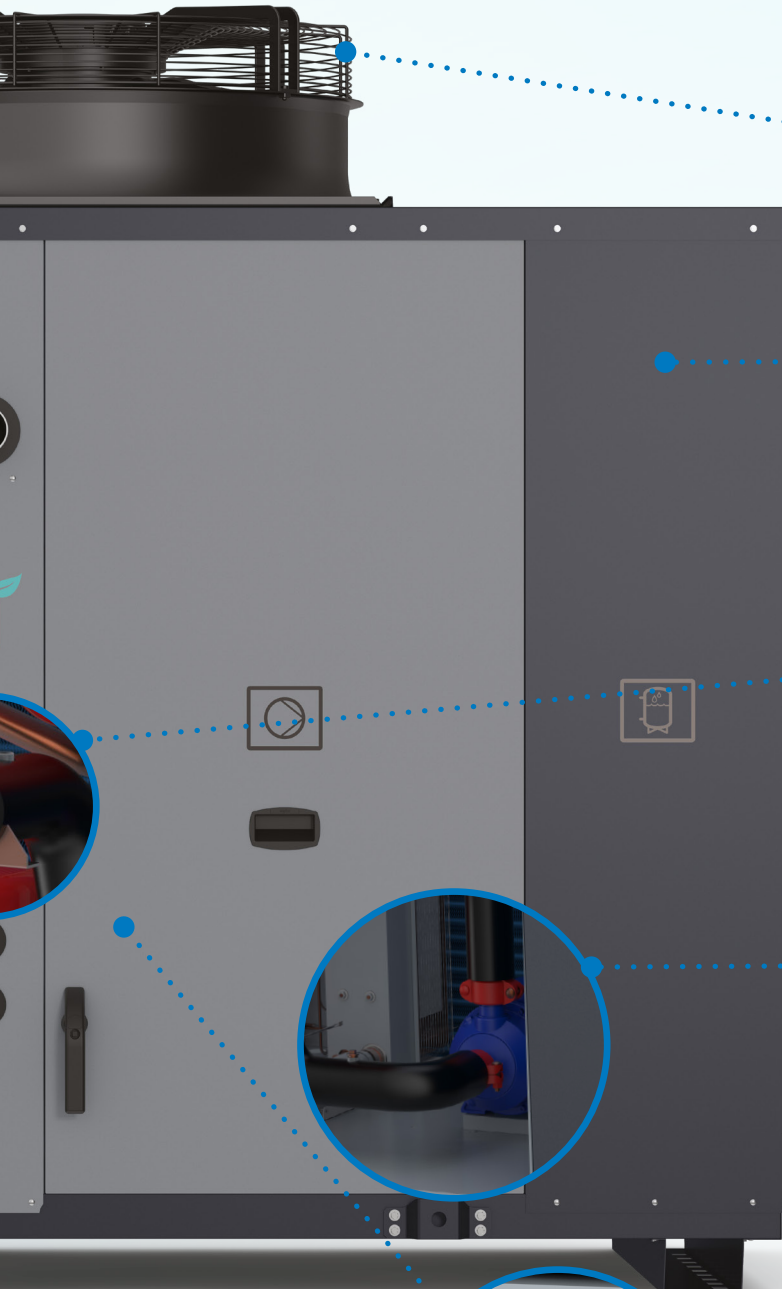


BOOST
your capacity
up to **640 kW**



x8

by combining
up to 6 units
together.



Fan speed control

All units are equipped with EC fan technology

Condenser

Highly optimised heat exchanger design enables a refrigerant charge reduction. **Less than 5.0 kg of R290 for the sizes 50-60**

Electronic expansion valve

This reliable and high-performance valve minimises overheating of the evaporator. It is directly managed by the control system

Variable speed pump (option)

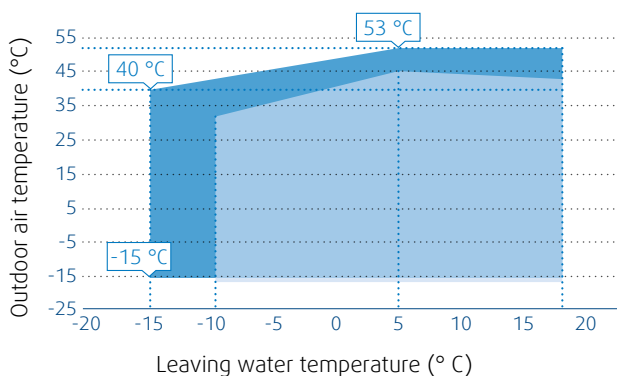
A variable speed pump can be added to the unit for even greater energy savings

Safety ventilation system

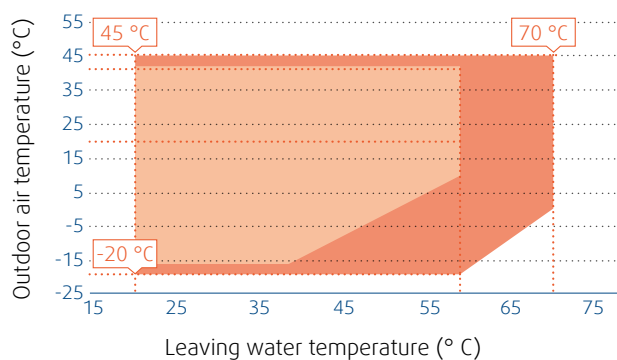
If Propane (R290) is detected by the leak detector the unit stops running immediately. For size 50, a self-contained ventilation system ensures safety, while sizes 60 to 80 use the top-mounted EC fans for safe refrigerant dispersion.

Technical features and operation range

Operating envelope in cooling mode



Operating envelope in heating mode



Polarix

SYSAQUA R32

Polarix

SYSAQUA R32

| Polarix *with EC fan | | | 50 | 60 | 70 | 80 | |
|---|--------------------------------|-------|-----------------|----------------|-----------------|-----------------|------|
| Cooling | Cooling Capacity ¹⁾ | kW | 48.2 | 51.1 | 64.9 | 74.1 | |
| | Power input ¹⁾ | kW | 15.0 | 19.0 | 21.6 | 25.0 | |
| | EER ¹⁾ | | 3.2 | 3.0 | 3.0 | 3.0 | |
| | SEER ²⁾ | | 4.4 | 4.3 | 4.3 | 4.2 | |
| | η_{sc} ²⁾ | % | 179.9 | 168.9 | 169.4 | 165.4 | |
| Heating | Heating Capacity ³⁾ | kW | 49.2 | 61.1 | 73.5 | 83.6 | |
| | Power input ³⁾ | kW | 15.6 | 18.6 | 21.7 | 24.9 | |
| | COP ³⁾ | | 3.2 | 3.3 | 3.4 | 3.4 | |
| | SCOP ⁴⁾ | | 3.7 | 3.7 | 3.9 | 3.8 | |
| | η_{sc} ⁴⁾ | % | 143.7 | 146.8 | 151.8 | 150.5 | |
| Energy efficiency class (SCOP ⁴⁾) | | | A ⁺ | A ⁺ | A ⁺⁺ | A ⁺⁺ | |
| SCOP _{MT} ⁴⁾ | | | 3.1 | 3.1 | 3.3 | 3.2 | |
| η_{shMT} ⁴⁾ | | | 121.4 | 122.7 | 127.3 | 126.0 | |
| Energy efficiency class (SCOP _{MT} ⁴⁾) | | | A ⁺ | A ⁺ | A ⁺⁺ | A ⁺⁺ | |
| Charge R290 | | | kg | 4.50 | 4.80 | 5.30 | 6.80 |
| Compressors | Number / Type | | 2 / Scroll | | | | |
| | Part load steps | % | 50/100 | 40/60/100 | 40/60/100 | 50/100 | |
| Buffer tank (Option) | Volume | L | 200 | 300 | 300 | 300 | |
| Dimensions | H x W x D without tank | mm | 1730x2215x1032 | 2011x2180x1160 | 2030x2180x1160 | 2030x2180x1160 | |
| | H x W x D with tank | mm | 1730x2215*x1032 | 2011x2680x1160 | 2030x2680x1160 | 2030x2680x1160 | |
| Acoustic data | Sound power level (STD) | dB(A) | 82.7 | 84.1 | 85.1 | 85.8 | |
| | Sound power level (S) | dB(A) | 79.9 | 80.5 | 81.5 | 81.9 | |

⁽¹⁾ According EN14511: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.

⁽²⁾ According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.

⁽³⁾ According EN14511: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.

⁽⁴⁾ According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.

* Tank is external to the unit chassis.

Systemair at your fingertips

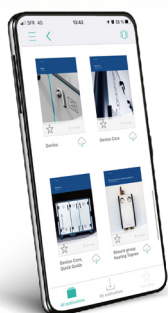


34 000

BIM models available

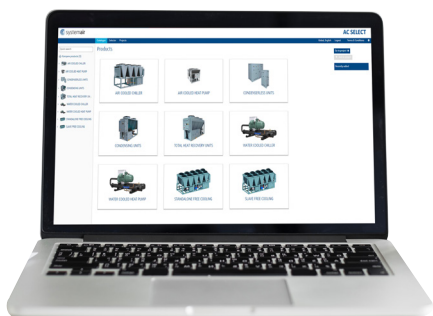
Systemair delivers geometrical and technical data of the products that is usable in CAD projects. Systemair also offers plugins, which provide customers with additional functions for free.

magicad.com



MEDIA CENTER by Systemair

Access all Systemair documents anytime and anywhere on your smartphone, tablet or computer.



AC SELECT

With the new Systemair online selection program, easily and quickly select and customise the air conditioning products that perfectly satisfy your requirements.

<https://acselect.systemair.com>



Enter the era of connected units

Systemair's aim is to offer more than reliable products. From that perspective, we created AC CLOUD. With this new software, you will **take full control of your units from anywhere, at any time.**

To go even further, **AC CLOUD also impacts your energy consumption and maintenance**, allowing you to make significant financial savings: Indeed, over 15 years, 85% of the real cost of a unit is represented by these two components.



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