SMARDT

INNOVATION ENGINEERED,
ENERGY OPTIMISED

AeroPure™ TA Series

Redefining Heat Pumps with Oil-Free Magnetic Power.



Capacity
75–400 RT

Cooling and Heating Capacity
260–1,440 kW

Refrigerants
R134a | R513A
R1234ze | R515B

About Smardt

Global innovation in oil-free technology, products built for high-performance environments.



Smardt is a global leader in oil-free centrifugal chillers, delivering energy-efficient solutions with ultra-low lifecycle costs. With over 12,000 units installed worldwide, we support some of the most demanding environments from hospitals and commercial buildings to manufacturing and mission-critical facilities.

Our chillers are powered by magnetic bearing technology and a Global Controls Platform, offering reliability, low maintenance, and future-ready performance.

As buildings evolve, we continue to reduce energy usage, support global compliance requirements, and help customers move towards more sustainable operations.



Breakthrough Oil-Free Heat Pump Technology

A new platform for all-electric heating and cooling

As energy demands evolve and buildings transition toward electrification, heat pumps must deliver reliable performance across a wide range of operating conditions.

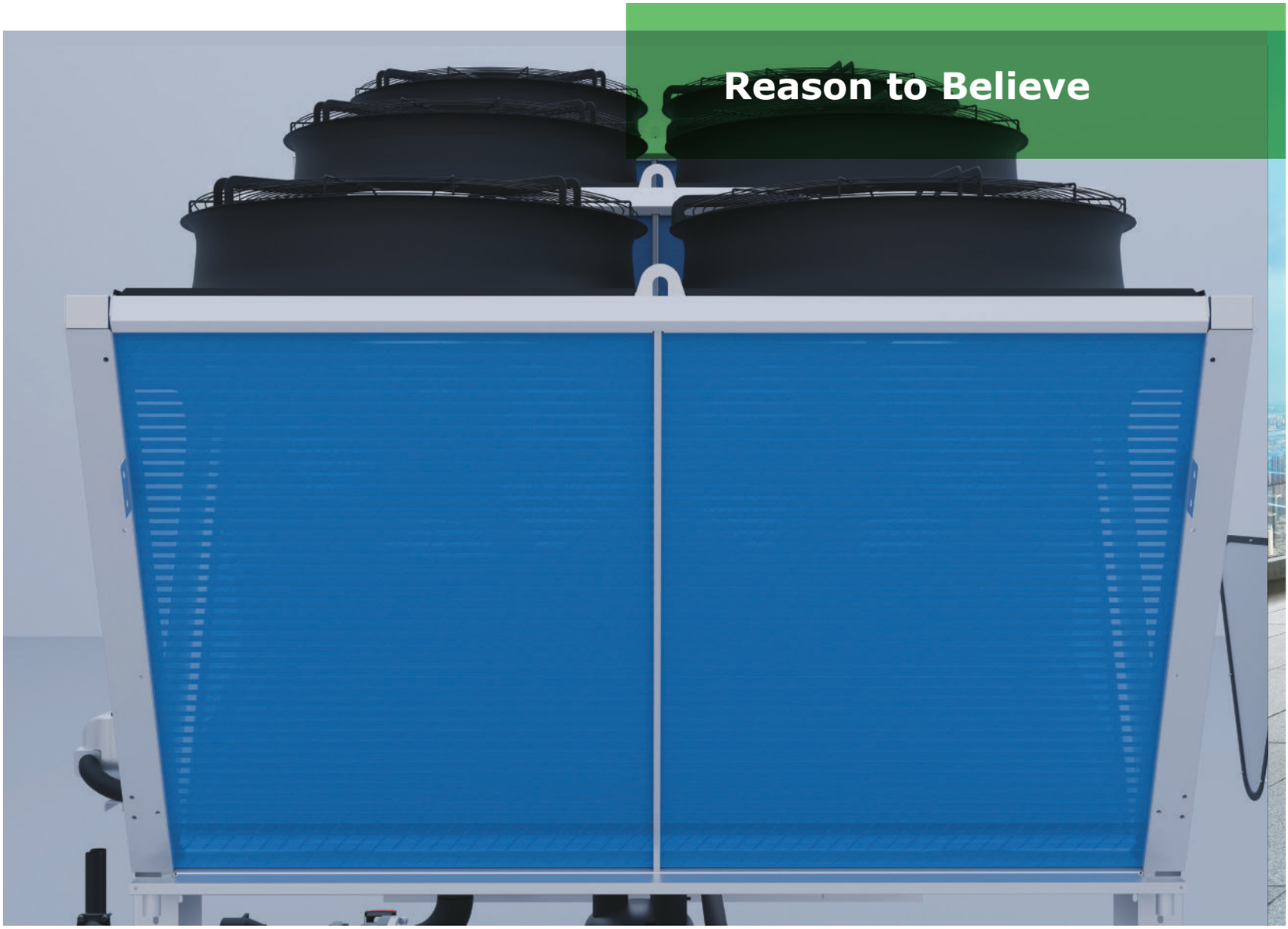
- Oil-free air-source heat pump platform
- Powered by magnetic bearing compressor technology
- Designed for heating and cooling applications
- Built to support stable operation across varying climates

Oil-Free Magnetic Technology

Efficiency driven by reduced friction

At the core of the AeroPure™ TA Series is oil-free magnetic bearing technology, designed to reduce mechanical losses and support efficient operation.

- Oil-free magnetic bearing compressor eliminates oil-related losses
- Quiet operation enabled by minimal mechanical contact
- Demonstrated efficiency advantage versus conventional screw compressors
- Reduced friction during operation supports higher efficiency



Applications & Installation Flexibility

Designed to fit a wide range of building needs

The AeroPure™ TA Series is suitable for new construction and retrofit applications and designed to integrate easily into commercial and light industrial projects requiring reliable heating and cooling.

- Commercial buildings
- Light industrial facilities
- Projects requiring both heating and cooling capability
- Rooftop or ground-level installation options

Applications & Where It Fits





Why AeroPure™ TA Series

Purpose-Built for Reliable Heating

Oil-free technology applied to a new heat pump platform

The AeroPure™ TA Series was developed to bring oil-free magnetic bearing technology into the heat pump category. Building on Smardt's proven oil-free expertise, TA applies this technology at the system level to support stable heating performance, quiet operation, and long-term reliability in real-world conditions.

Key Differentiators:

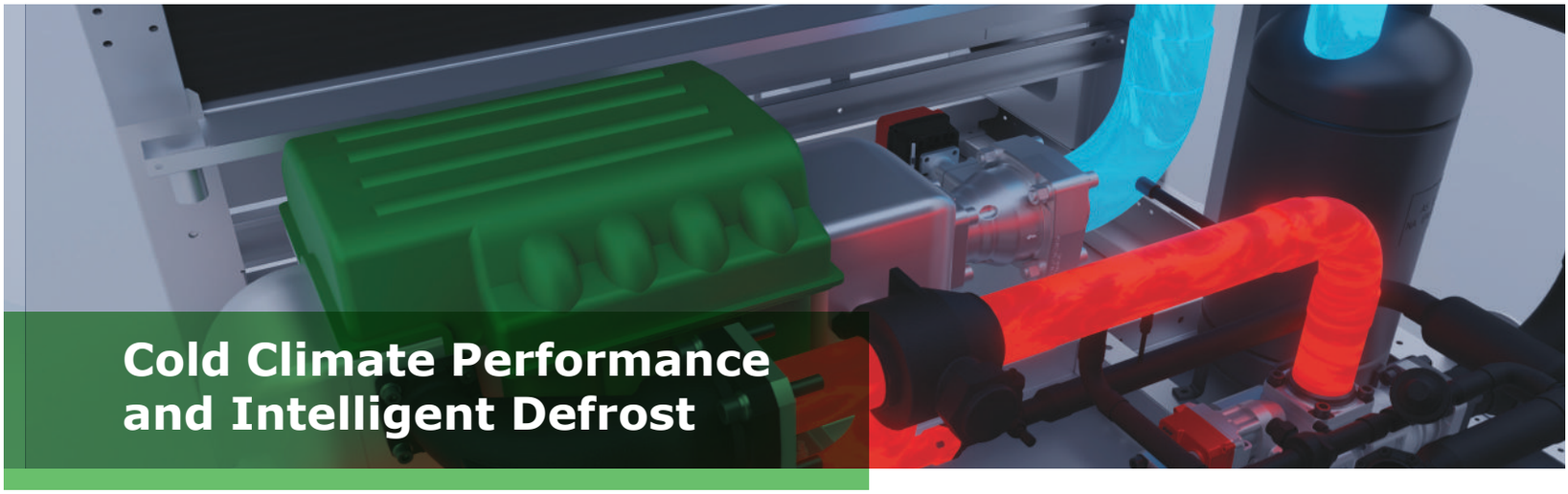
Oil-Free Magnetic Bearing Technology
Eliminates oil, reduces friction, and removes common wear points associated with traditional compressor systems.

System-Level Heating Design
Controls, airflow, coils, and compressor logic are coordinated to support consistent heating operation across varying outdoor conditions.

Stable Performance Where It Matters
Designed to maintain reliable output at both full and part load, prioritizing operational stability over short-term peak metrics.

Quiet, Smooth Operation
Non-contact compressor operation and optimized system design contribute to low vibration and reduced sound levels.

Built for Electrification
All-electric operation supports the shift away from fossil-fuel heating systems while reducing operational complexity.



Cold Climate Performance and Intelligent Defrost

Reliable Heating in Real Winter Conditions

Designed to maintain stable heating performance when it matters most

AeroPure™ TA Series is engineered for cold climate operation, delivering stable heating output while managing frost conditions efficiently. Intelligent control logic ensures reliable operation across changing winter conditions without unnecessary interruptions.

- **Stable heating performance down to 23°F (–5°C)**
  Maintains consistent output in cold outdoor conditions, supporting reliable heating operation when ambient temperatures drop.
- **Intelligent defrost control**
  Defrost cycles are initiated based on system operating conditions, helping maintain heating stability without excessive cycling.
- **Defrost initiation under 30 seconds**
  Optimized reversing valve design enables fast transition into defrost mode, supporting quick recovery in frost conditions.
- **Designed for part-load winter operation**
  System performance remains stable across full and part-load operation, reflecting real building demand during winter months.

Defrost Initiation

>30 seconds

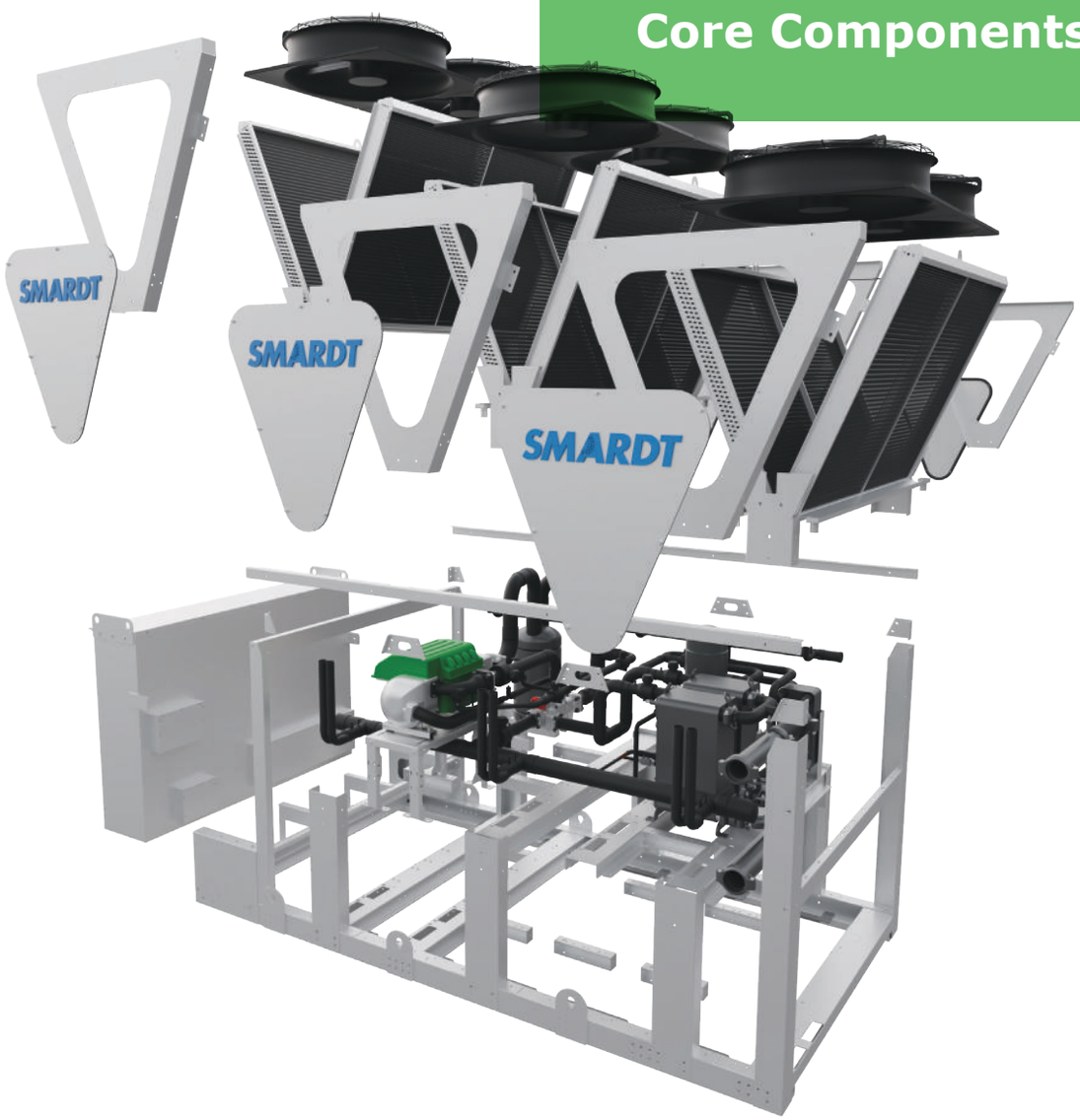
Inside the System

Key components working together

The AeroPure™ TA Series combines carefully selected components into an integrated system designed for reliable operation.

1. Optimized heat exchanger design
2. EC fan technology supporting stable airflow
3. Unified controller panel managing system operation
4. Intelligent defrost control integrated into system logic
5. Supports multiple low-GWP refrigerant options

Core Components



Integration That Matters

Designed for seamless building system connection

Building integration is a key consideration for modern HVAC systems. The AeroPure™ TA Series is designed for straightforward system connectivity.

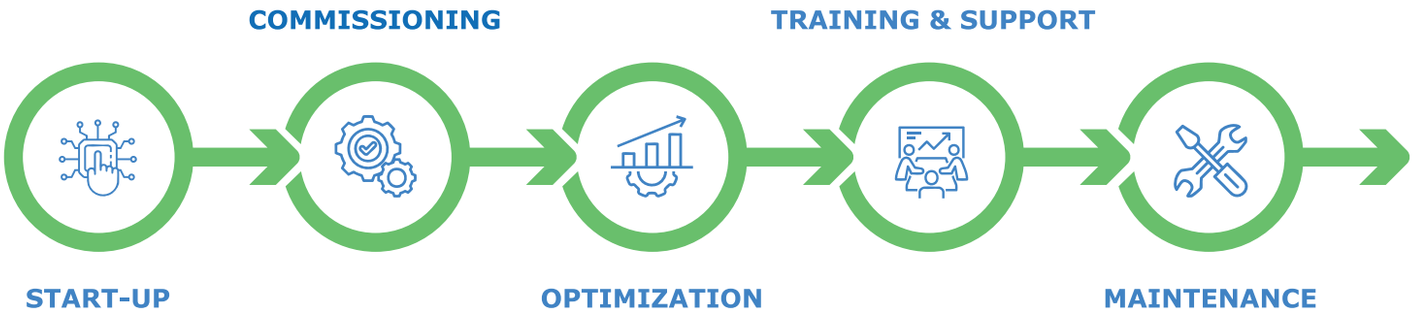
- BAS-ready for building automation integration
- Supports Modbus and BACnet communication protocols
- Single integration point simplifies system connection
- Designed to coordinate with broader building systems

Controls & Connectivity



Driving lifecycle performance

Smardt delivers a comprehensive suite of services designed to maximize the performance, reliability, and longevity of your HVAC systems. With global experience across more than 12,000 chiller installations, we support customers throughout the entire equipment lifecycle from start-up to optimization and beyond.





Core Benefits

- Improved system reliability
- Reduced operational risks & costs
- Regulatory & sustainability compliance
- Enhanced energy efficiency

Process-driven optimization

We help you get the most from your central plant systems with a data-driven approach that cuts energy use, lowers costs, and boosts performance.

It starts with an energy audit to pinpoint inefficiencies, followed by tailored solutions built around your plant's needs. Often this includes our **Central Plant Energy Conservation System** (CPECS) a smart platform that dynamically manages equipment for maximum efficiency.

From assessment to full integration, we deliver seamless projects backed by proven results in commercial, institutional, and mission-critical facilities. The outcome: measurable savings, stronger reliability, and greater visibility supporting your efficiency and sustainability goals.



System Capabilities

- Optimized energy performance
- Enhanced system control & transparency
- Compact Design
- Improved reliability with seamless execution