

Advēco

LUBAN

High-Efficiency Central Chiller Plant
Management System

Empowering Smart Space for
Energy Efficiency Optimization



Implementing Low-Carbon Sustainable
Development

Advēco

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www.adveco.cn

Smart Space Solution Provider

The logo for Advéco features the word "Advéco" in a bold, blue, sans-serif font. A small green leaf-like shape is positioned above the letter 'e'. The text is set against a background of a light blue halftone dot pattern that fades out to the right.

Advéco

Implementing low-carbon sustainable development

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**Smart Space
Solution Provider**


COMPANY PROFILE

About Advenco

Smart Space Solution Provider


Advenco is located in the Wuxi High-tech Development Zone. With intelligent building products as its core, its business covers comprehensive solutions for smart spaces including smart buildings, smart energy, and AIoT. Since its establishment, the company has been committed to becoming a new-generation provider of comprehensive solutions for low-carbon smart building spaces in China. The company has a strong and professional team of experts, R&D personnel, and sales staff. Technologically, Advenco adopts cutting-edge IoT innovation technologies to create a brand-new flat system architecture, making data transmission more real-time and efficient. At the same time, it uses domestic chips and domestic operating systems, and strictly designs products in accordance with international and national standards in the building automation control industry, truly achieving domestic controllability while meeting the technical requirements of overseas markets. Data-wise, Advenco uses machine learning, data analysis, and artificial intelligence algorithms to enable buildings to better understand and meet user needs, creating more efficient, green, environmentally friendly, and low-carbon building spaces. Currently, Advenco is leveraging China as an innovation hub to deepen its presence in the domestic market while accelerating its global expansion. In Southeast Asia, projects have already been successfully implemented in countries such as Thailand and Vietnam. Business operations in the Middle East, Europe, Africa, and other regions are steadily taking shape. In the North American market, strategic groundwork has been laid, and the company is preparing to enter the United States and Canada, progressively building and enhancing a global technology cooperation network.






Innovative Technology

Distributed IoT edge-core framework enabling real-time data processing with deterministic latency, achieving dynamic resource allocation for flexible system scaling.



Domestic Architecture Platform

Adopting China-developed chips and operating systems, our building automation control products strictly comply with international and national standards, ensuring genuine industrial sovereignty and controllability.



User-oriented

Leveraging machine learning, data analytics and AI algorithms, our systems understand and anticipate user needs to create high-efficiency, low-carbon building spaces that advance sustainability.

Sovereign Craftsmanship Independent Leadership

Through proprietary R&D, we break core technological barriers to deliver full-stack domestic solutions, achieving strategic autonomy in critical sectors. With industrial craftsmanship, we ensure product reliability and quality—liberating clients from technical dependencies and pioneering industry self-sufficiency.

Innovation-Propelled Intelligence for Future Leadership

Leveraging cutting-edge technologies, we continuously overcome industry bottlenecks to provide precision-engineered solutions. Powered by AI and coloT, we drive intelligent business transformation for clients, capture emerging market opportunities, and -create next-generation smart ecosystems.

Energy Leapfrogging, Green Pioneering

Innovation-driven high-efficiency products accelerate clients' green transition. Featuring intelligent optimization and energy-conserving design, our solutions reduce energy consumption by 20-30%, align with "Dual Carbon" goals, empower sustainable operations, and spearhead industry-wide eco-development.

People-Oriented And Environmental Coexistence

We design user-focused services around real customer needs. From initial concepts to real-world applications, our solutions deliver both comfort and environmental care. By integrating smart green technologies and proven energy-saving methods, we enable harmony between user needs and environment- turning sustainability commitments into measurable results.



Product Portfolio



Honors And Accreditations



Patent Certificate for Invention

Design Patent Certification

CNAS Testing Certification

Kirin Software Compatibility Certification



Jinrui Science and Technology Award



OHOS Compatibility Certification



Information Security Certification



BTL Certification

Corporate Positioning

Market Positioning

Smart space solution provider

Centered on intelligent building products, our business scope covers comprehensive solutions for smart spaces including building automation, energy and carbon management, and integrated building control and management.

- Real-time visualization of architectural space data
- Intelligent management of comfortable building spaces
- Low-carbon and sustainable development
- Full lifecycle equipment management

Product Focus

Focus on the intelligence of architectural space and create a brand-new series of domestically produced products.

Adopting cutting-edge Internet of Things (IoT) innovation technologies, we create a brand-new flat system architecture. Adopting domestic chips, operating systems and databases, and strictly following national standards for product design, it truly achieves independent control.

- Edge Controller
- All-in-one machine
- Intelligent building management platform
- Architectural space solutions

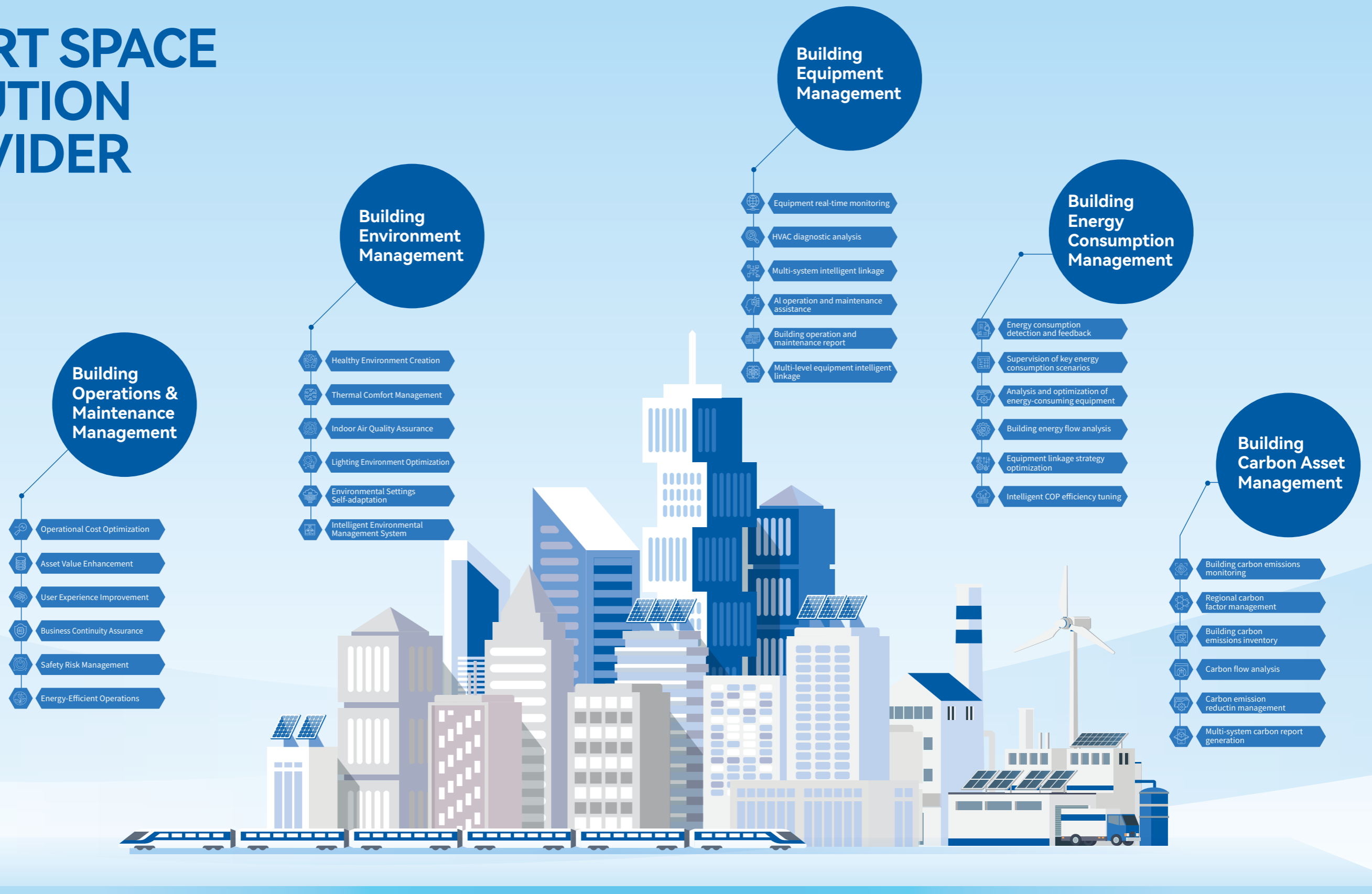
Field Applications

Focus on multiple application fields and help customers reduce costs and increase efficiency.

The application is widely covered in vertical markets such as industrial and office parks, hospitals, hotels, biomedicine, laboratories, and energy stations, helping customers achieve cost reduction and efficiency improvement.

- High efficiency and low carbon, precise energy savings
- Real-time monitoring, green operation
- Predictive simulation, one-click deployment of AI strategies
- Combination of local control and cloud management

SMART SPACE SOLUTION PROVIDER



Smart Space Solution Provider

- ✓ Integration platform: AI empowerment/flexibility and convenience/cost reduction and efficiency improvement
- ✓ User: New user experience/efficient operation and maintenance
- ✓ Owner: Real time collection of energy carbon information/information security



XPlatform



XDisplay On Site Touch Screen



Industrial Switch



XServer Application Server



Disk Array



XNC Std



XNC Pro



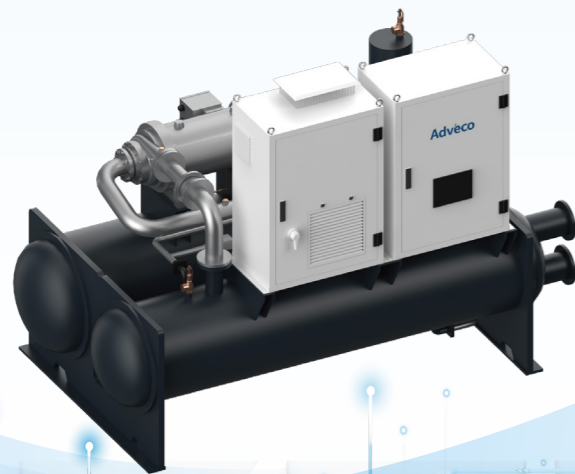
XNC Lite



Xfield Device High-Precision Sensor



Xfield Device High Stability Valves And Actuators



The Magnetically Levitated Variable-Frequency Centrifugal Chiller

- Energy saving of over 30%
- High energy efficiency ratio
- No mechanical maintenance required
- Long term operation without attenuation

Intelligent Building Management Platform XPlatform

The system is pre-installed in the AI intelligent edge server, offering two options: industrial computers or servers, to meet the demands of different scenarios.

Advantages & Highlights

- AI Large Model Knowledge Engine
- Automatic point binding function
- Open north-south data access and flexible third-party access.
- Over 30,000-point access capability and over 2 years of data storage.
- Domestically developed system & database, full-stack self-developed, comprehensive security assurance.

Basic Functions

- Multi-system integration
- Support system-level programming
- Support graphical configuration
- lightweight energy and carbon management
- Support system-level supervision
- Alarms, trends, schedules
- Supports sub-metering



Smart Space Software Studio

Visual Configuration Platform XView

- Provide a rich and professional image library.
- Provide multi-level physical model visualization.
- Provide highly available configuration templates.
- Tagging system, enabling rapid configuration of points.

No-code Programming Builder XControl

- Built-in professional program libraries for various industries.
- Support online and offline simulation.
- Support programming for third-party device integration.
- Support for the extension and secondary development of custom modules.
- Support multi-platform deployment such as XNC, PC, and cloud.

PRODUCT PORTFOLIO

The Magnetically Levitated Variable-Frequency Centrifugal Chiller

Product Portfolio

The magnetically levitated variable-frequency centrifugal chiller is independently R&D by our company with completely independent intellectual property rights and core technologies. It is innovatively built based on self-developed core technologies including 5-degree-of-freedom fully active magnetic levitation bearings, high-speed permanent magnet synchronous motors and new heat exchanger technologies. Compared with traditional models, the unit features superior energy efficiency, saving an average of 30% electricity and operating with noise as low as 75 decibels. It achieves 100% oil-free operation and boasts multiple advantages such as compact size, light weight, stability, reliability, low noise and environmental friendliness. Widely applicable to air conditioning and refrigeration of large-scale buildings like airports and rail transit facilities, as well as industrial refrigeration fields including chemical engineering, food and pharmaceutical industries, it is suitable for new construction and energy-saving renovation projects, providing customers with a highly efficient and energy-saving overall solution for green building and industrial refrigeration.



Energy-Efficient



Intelligent Control



Safe And Reliable



Low Noise Environmental Protection



Maintenance-Free



Easy to install

Features

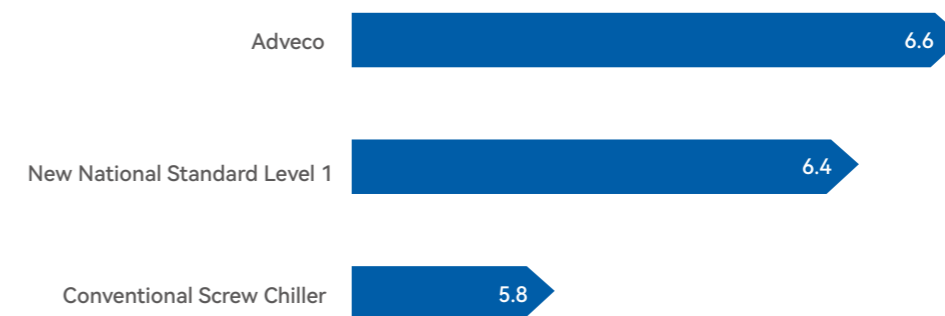
(1) Ultimate Energy Efficiency: Synergistic Energy Reduction with Multiple Technologies

- High-efficiency heat exchange technology: Advanced electronic control technology is adopted to achieve over 30% energy savings;
- Compressor and circulation system optimization: Three core technologies including high-speed oil-free magnetic levitation bearings, DC frequency conversion and two-stage compression are applied to ensure the high-efficiency operation of the unit. The full product range meets the first-level energy efficiency standard of the latest national regulation; the maximum full-load COPc can reach 6.6*, and the IPLV under AHRI operating conditions can reach up to 9.41*; it saves more than 50% electricity compared with ordinary screw or centrifugal chillers (IPLV=5.5-7.5);
- Combined with two-stage compression economizer cycle and flooded (falling film optional) evaporator, and matched with high-efficiency heat exchange tubes, the unit achieves oil-free circulation for the entire system, greatly improving the heat transfer efficiency.

	Screw Compressor	Traditional Centrifugal	Magnetic Levitation Centrifugal
Compressor Isentropic Efficiency	0.72	0.82	0.86
Mechanical Transmission Efficiency	1	0.92	1
Motor Efficiency	0.93	0.93	0.98
Frequency Converter Efficiency	1	1	0.98
Heat Exchanger Efficiency	0.97	1	1
Other Factor Efficiency	1	1	1
Coefficient of Refrigeration	5.2	5.627	6.62
Thermodynamic Perfection	42.3%	45.79%	53.8%

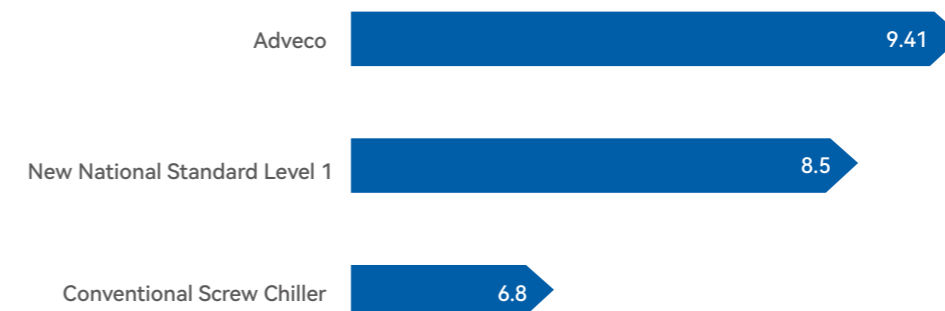
• The magnetic levitation chiller saves more than 20% electricity than the traditional centrifugal chiller, and 30~40% electricity than the screw chiller.

COPc at Full Load



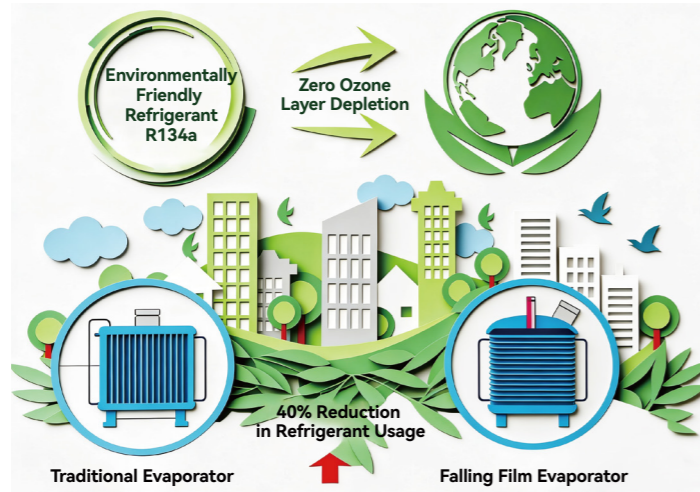
*Taking 1000RT as an example

Comprehensive energy efficiency ratio IPLV



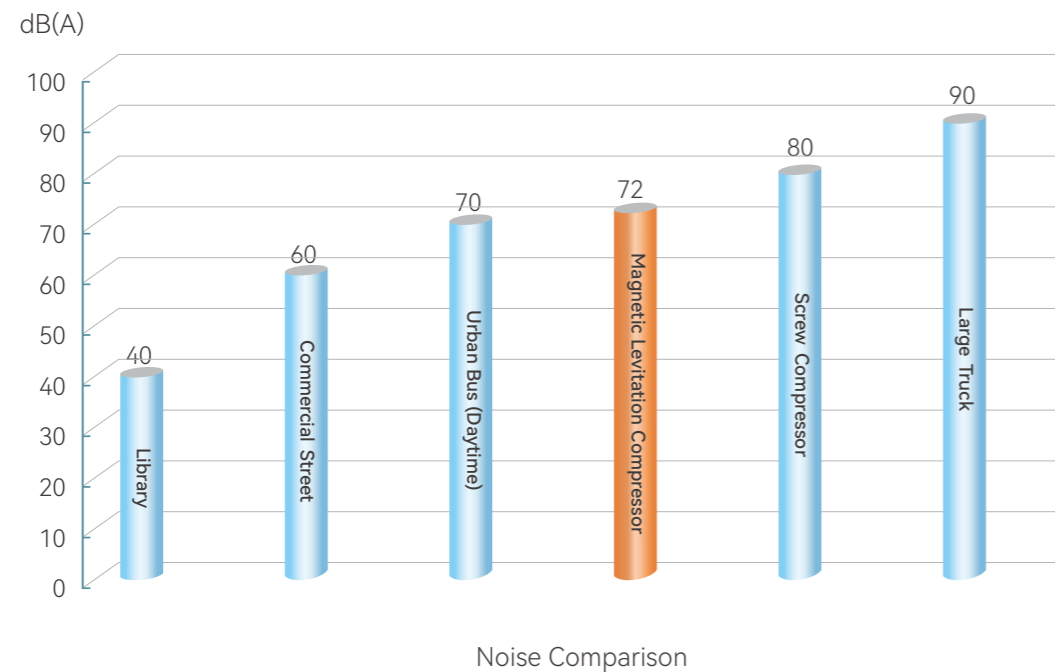
(2) Green and Environmental Protection: Low Emission + Zero Ozone Depletion

- Selecting R134a environment-friendly refrigerant with high-efficiency refrigeration, zero ozone depletion and long-term safety;
- Equipped with falling film evaporator, the heat exchange efficiency is greatly improved, and the refrigerant consumption is reduced by 40% directly, making environmental protection and high efficiency go hand in hand.



(3) Low Noise, Easy Installation and Low Maintenance Cost

- Low noise: The noise is lower than 75dB, meeting the needs of noise-sensitive scenarios;
- Modularization and convenient installation: Adopting the integrated design of electrical and main engine, users do not need to set up additional electric control cabinets, which significantly shortens the on-site installation time.
- Oil-free: No oil circuit system and no lubricating oil consumption.
- Unattended operation: Health monitoring and self-diagnosis technology build the full-system condition monitoring and fault early warning functions.



Maintenance Cost Comparison Table

Maintenance Type	Conventional Centrifugal Compressor (R123)	Conventional Centrifugal Compressor (R134a)	Maglev Centrifugal Compressor
Oil Quality Test (Color, Impurities)	Once a Week	Once a Week	Not Required
Refrigerant Cleanliness Check	Once a Week	Not Required	Not Required
Oil Filter Pressure Drop Test	Once a Month	Once a Month	Not Required
Oil Pump Pressure Test	Once a Quarter	Once a Quarter	Not Required
Refrigerant Filter Replacement	Once a Quarter	Not Required	Not Required
Compressor Vibration Test	Once a Year	Once a Year	Not Required
Lubricating Oil Replacement	Once a Year	Once every 3 Years	Not Required
Oil Filter Element Replacement	Once a Year	Once a Year	Not Required
Oil Pump Insulation Test	Once every 3 Years	Once a Year	Not Required
Oil Heater Inspection	Once every 3 Years	Once every 3 Years	Not Required

(4) Precise Intelligent Control

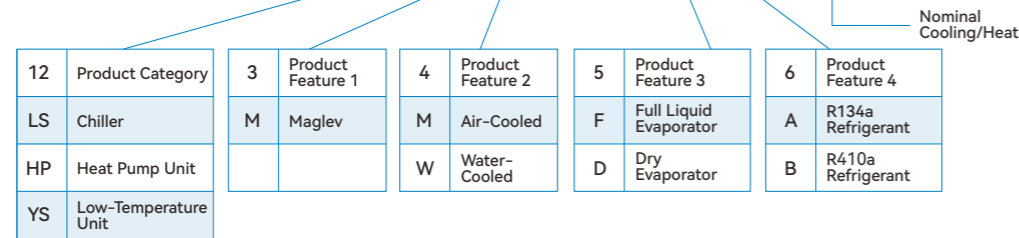
- High-precision and high-speed displacement detection system with nanometer-level rotor displacement detection accuracy; real-time monitoring of displacement, current, voltage and temperature, intelligent millisecond-level linkage to automatically and efficiently reach the target temperature, pressure and flow;
- High-performance all-digital intelligent hardware platform providing CAN, RS485 and Ethernet interfaces for convenient data transmission and remote maintenance. Dual-end intelligent management: Combining with the Internet of Things technology, relying on the "XPlatform Building Space Intelligent Management Platform" to realize all-weather intelligent monitoring and energy-saving management.

Core Technology

- Magnetic Levitation Bearing Design & Manufacturing Technology
- High-Precision Displacement Sensor Technology
- Three-Dimensional Flow Impeller
- Magnetic Bearing Control Technology
- High-Efficiency Permanent Magnet Synchronous Motor(PMSM) Technology

Product Model Nomenclature

BCH - 1234 - 567



Order Model

Model Advenco		BCH-LS MW-FA 150	BCH-LS MW-FA 200	BCH-LS MW-FA 300	BCH-LS MW-FA 350	BCH-LS MW-FA 400	BCH-LS MW-FA 500	BCH-LS MW-FA 800	BCH-LS MW-FA 1000	BCH-LS MW-FA 1200	BCH-LS MW-FA 1600	BCH-LS MW-FA 2000
Cooling Capacity	kW	528	703	1055	1231	1407	1759	2814	3517	4220	5627	7034
	RT	150	200	300	350	400	500	800	1000	1200	1600	2000
Outlet Water Temperature	°C	5~20	5~20	5~20	5~20	5~20	5~20	5~20	5~20	5~20	5~20	5~20
Input Power	kW	89	108	161	187	213	264	411	531	642	834	1064
COP	\	5.91	6.51	6.56	6.58	6.61	6.65	6.85	6.62	6.57	6.75	6.61
IPLV	kw/kw	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
Number of System Loops	\	1	1	1	1	1	1	1	2	3	2	4

Power Supply	\	380V-3P-50Hz											
Refrigerant	\	R134a											
Compressor	Type	\	Variable Frequency Magnetic Suspension Centrifugal										
	Quantity	\	Two-stage 2-4 Compressors										
	Starting Current	A	2A										
Evaporator	Flow Rate	m³/h	91	121	181	212	241	302	481	602	721	963	1202
	Pressure Drop	kpa	55	57	52	50	65	49	50	60	68	68	72
Condenser	Flow Rate	m³/h	106	140	210	242	280	346	551	691	830	1103	1382
	Pressure Drop	kpa	43	49	43	70	77	57	57	65	73	75	70
Refrigerant Charge Amount	kg	200	200	350	370	400	540	900	1100	1400	2000	2300	
Noise	dB	68	68	68	68	68	68	70	70	70	70	70	
Unit Weight	kg	2460	2650	3510	3600	3740	5240	10300	12800	15700	19000	23500	
Operating Weight	kg	2810	3000	4100	4170	4340	6190	13800	16300	19850	23400	28500	
Remark													
1	The parameters of the normal temperature unit in the table are given in accordance with the national standard GB/T18430.1-2007, and the operating conditions are as follows: chilled water outlet temperature 7°C; cooling water inlet temperature 30°C.												
2	The energy efficiency grade of the normal temperature unit is in accordance with the standard: GB19577-2015 "Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Water Chillers".												
3	The operating conditions of the low-temperature unit are as follows: the secondary refrigerant is an ethylene glycol solution with a volume concentration of 30%, the chilled water outlet temperature is 0°C or -5°C; the cooling water inlet temperature is 30°C.												
4	For the improvement and optimization of the company's product models, please consult the technical personnel for details if you have any other requirements.												