

DISCOVER  
easyCOMFORT

Midea Group  
Midea Building Technologies Division

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[mbt.midea.com/global](http://mbt.midea.com/global) [www.midea-group.com](http://www.midea-group.com) [ics.midea.com](http://ics.midea.com)

Midea reserves the right to change the specifications of the product, and to withdraw or replace products without prior notification or public announcement. Midea is constantly developing and improving its products.



# HIGH EFFICIENCY PRODUCT SOLUTION FOR DATA CENTER

## INVERTER AIR-COOLED SCREW CHILLER

SCAH SERIES,R1234ze(E)/R513A

# MBT

Midea Building Technologies (MBT) is a key division of the Midea Group, a leading provider of comprehensive, intelligent-building solutions including energy sources, elevators, control systems and heating, ventilation and air conditioning.

Built on a foundation of innovation, Midea has emerged as a global leader in the HVAC and building management industry. Our unwavering dedication to research and development coupled with an extensive network of global partners has given birth to cutting-edge technologies that provide innovative solutions to our customers around the world.

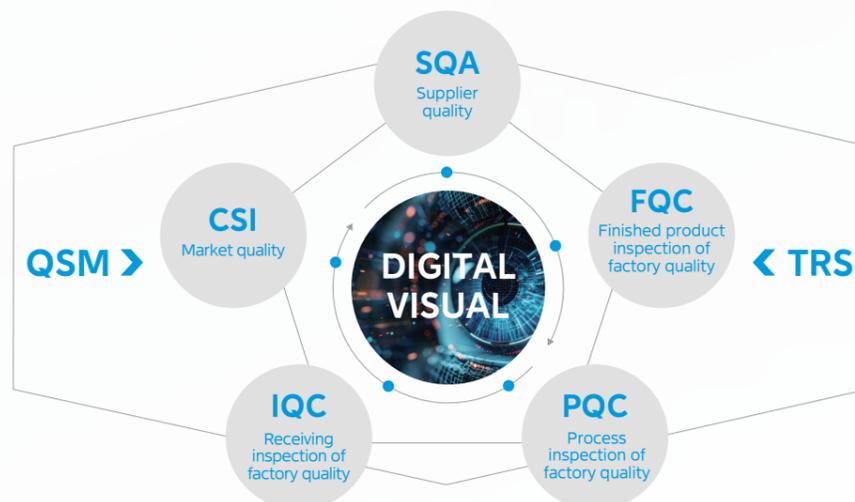
Committed to providing users with intelligent, digital, low carbon overall building solution



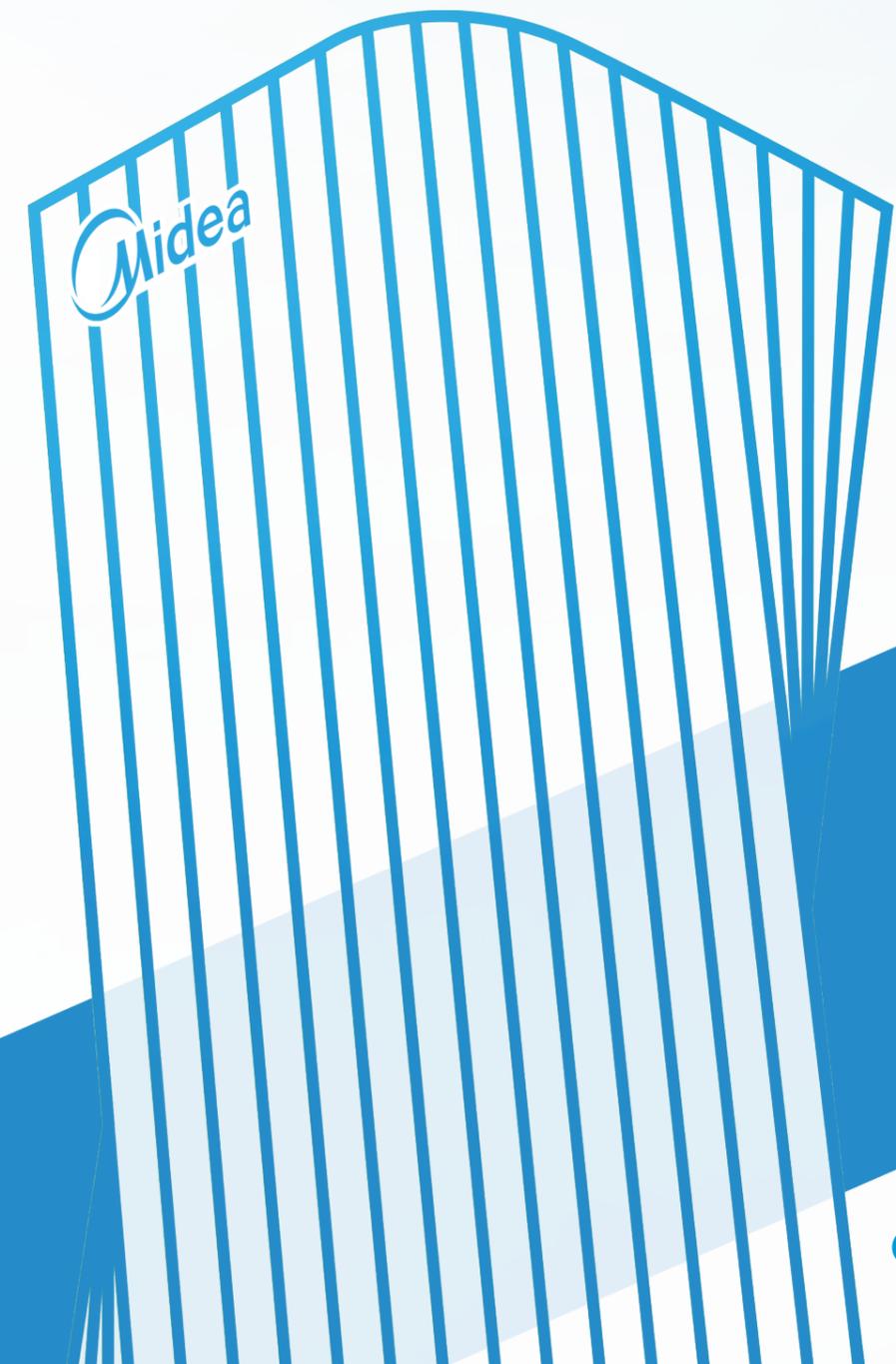
Over 100 testing labs cover a wide range of real application scenarios.



All products can be visualized and digitalized throughout entire process.



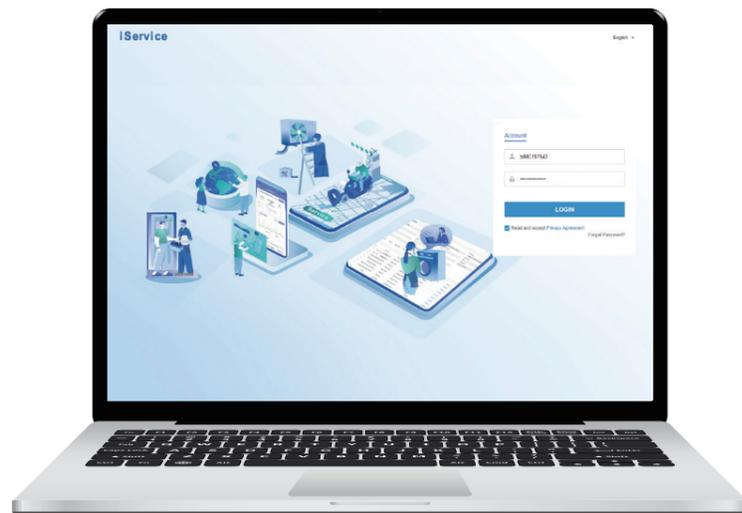
4 global manufacturing locations assure timely delivery with less sensitivity to supply chain interruption.



# INTERNATIONAL SERVICE MANAGEMENT

Our International Service Management (ICS) system provides customers with professional technical support. Through ICS, you can download product information/documentation, get help with technical questions and troubleshooting, submit complaints and order parts using our self-service interface.

🔍 > <https://ics.midea.com>



## My order

Inquire about spare parts from an exploded view and place orders for spare parts directly in ICS.

## Document inquiry and download

View or download product technical documentation online, such as catalogs, images, training PPTs and other assets.

## Technical inquiry & FAQ

Ask technical questions online and receive a prompt response from our technicians or browse the FAQ for answers to commonly asked questions.

## Troubleshooting

Query the error code and solution by SN, model name, error code or product type.

## Complain

Submit product quality complaints online, and our after-sales engineers will respond promptly.

# MOBILE INTELLIGENCE SERVICE APP

The Mobile Intelligence Service App (MISA) is the mobile version of ICS and features the same functionality. MISA often makes getting technical support timelier and more convenient.

🔍 > <https://link.midea.com>



Download



Scan to download the mobile app

Feedback



Thank you for your attention and feedback

# GLOBAL BULK WAREHOUSE LAYOUT OVERVIEW

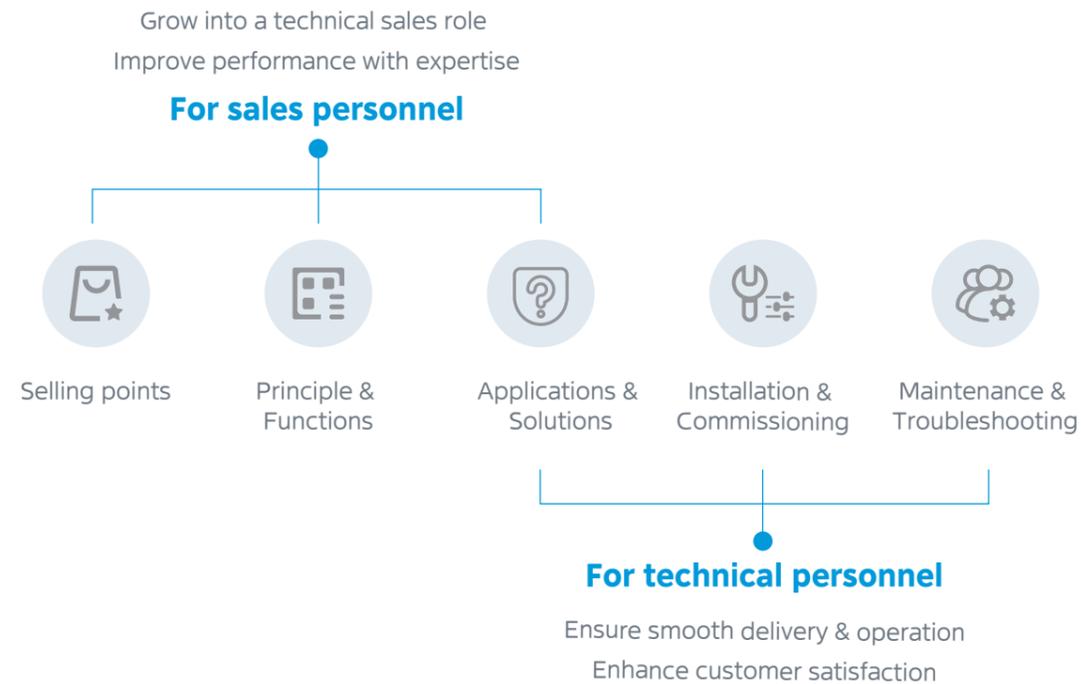


# MBT ACADEMY

MBT Academy is a platform of expertise empowering global sales and technology elites. It offers professional training courses and activities in order to help you deepen your understanding of MBT products.

## Design Specific Training for Different Groups

The training covers a full range of products including VRF, chillers, heat pumps, unitary products and so on



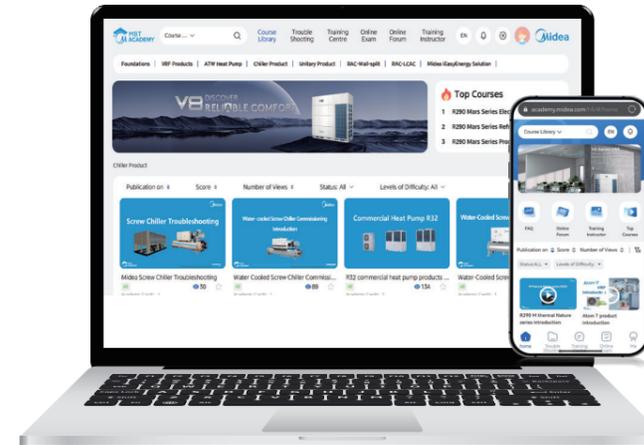
## Global Training Center

MBT Academy regularly organizes on-site training at Midea's headquarters and in certain countries, providing you with opportunities for hands-on practice and face-to-face discussions with experts.



## Online Learning Platform

The MBT Academy training website offers a more efficient and convenient learning pathway, allowing access to a vast array of resources anytime and anywhere.



### Course Library

Including **8** Categories, **350+** Videos  
Master core product knowledge

### Trouble Shooting

Including **260+** Error Codes, **150+** Guides  
Quickly locate and resolve equipment failures

## Content Continuously Updating ...

### Let's Start Learning:

#### PC

<https://academy.midea.com>

#### Phone

Scan QR code



LetsLink MBT Academy



\* 3 methods to log in: MIP account / TSP account / Email

# Features of Data Center

## High Sensible Heat and Low Latent Heat

The high-density cabinets are arranged in a concentrated area. Due to the separation of humans activities space and the good enclosure structure, the latent heat load is small.

## Year-Round Cooling Operation

Data center requires the air conditioning system to operate year-round without stopping for cooling, with high reliability and stability.

## High Temperature and Humidity Requirements

If the temperature is too high, too low, or changes too rapidly, it can damage data processing and shut down the system.

If the humidity is too high, it can cause physical deformation of magnetic tapes, breakdown of MOS circuits, etc. If the humidity is too low, it can generate static electricity, data errors, and other faults, ensuring the safe operation of electronic equipment and preventing condensation.

## High Harmonic Distortion Rate

The parts with VFD like chillers, UPS, water pumps, and lamps can generate harmonics.

A large amount of harmonic current can cause serious harmonic pollution to the data center's power distribution system and electronic equipment.

## Emergency Cooling Source

IT equipment generates significant heat, and if the air conditioning system suddenly stops, it will cause downtime.

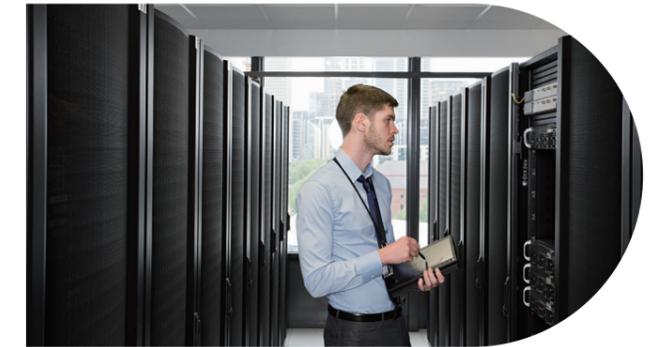
## Intelligent Control

The air conditioning systems in data centers are complex, the efficient equipment and systems require the implementation of more intelligent control systems.

# Demand of Data Center

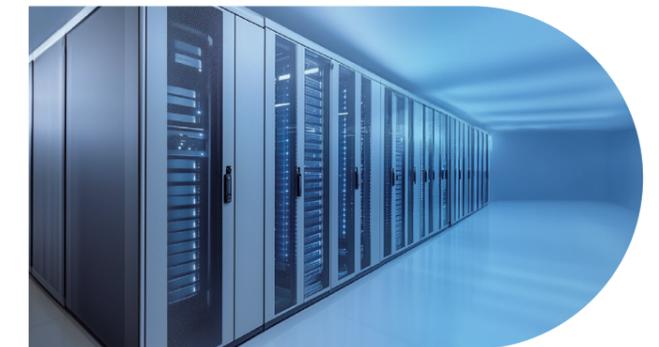
## Reliability

- Uninterruptible running of equipment without failure
- Rapid restart after power supply is available
- Standby equipment and emergency cold source are considered for the system



## Cost Saving

- Adopt the unit with high water outlet temperature
- Rational use of natural cold source and peak-valley price
- Achieve energy saving and fast operation and maintenance through intelligence



## Prefabrication

Modularization design, rapid deployment, flexible construction, and phased module delivery

## Airflow Organization

CFD simulation to prevent too cold/hot locally



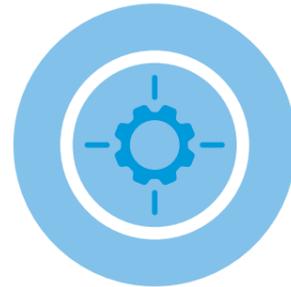
## Core Advantages



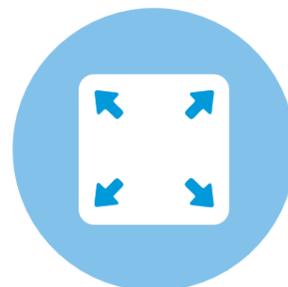
Cost Saving



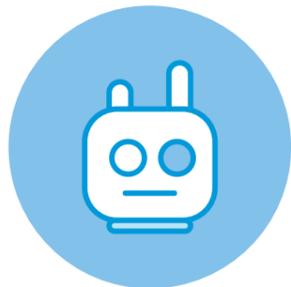
Stable and Reliable



Precise Control



Wide Operation Range

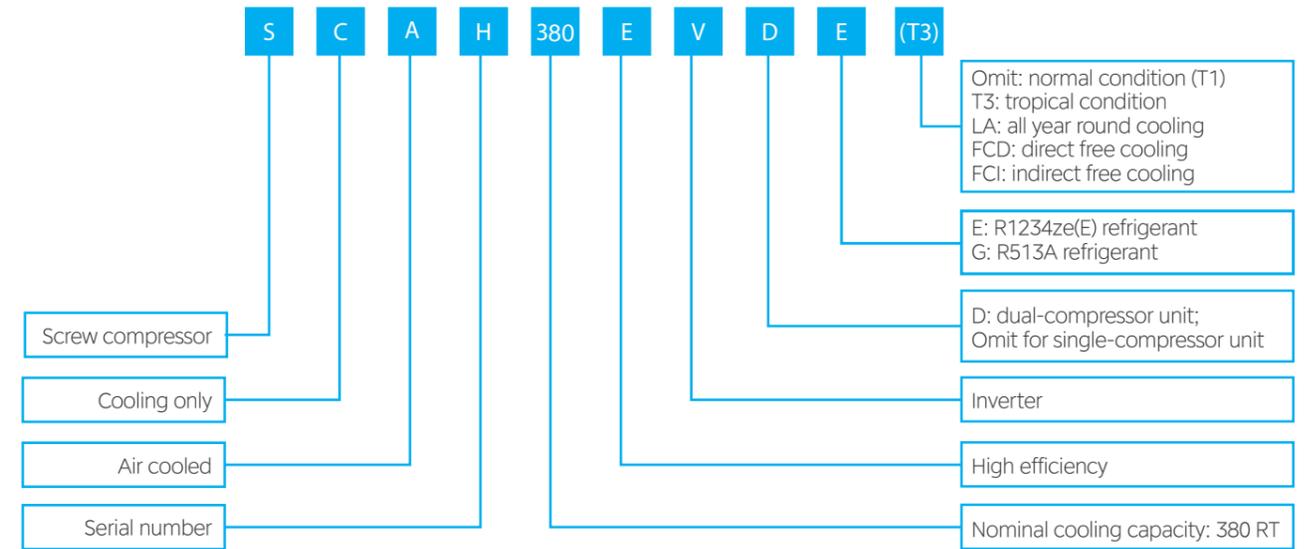


Intelligent Control

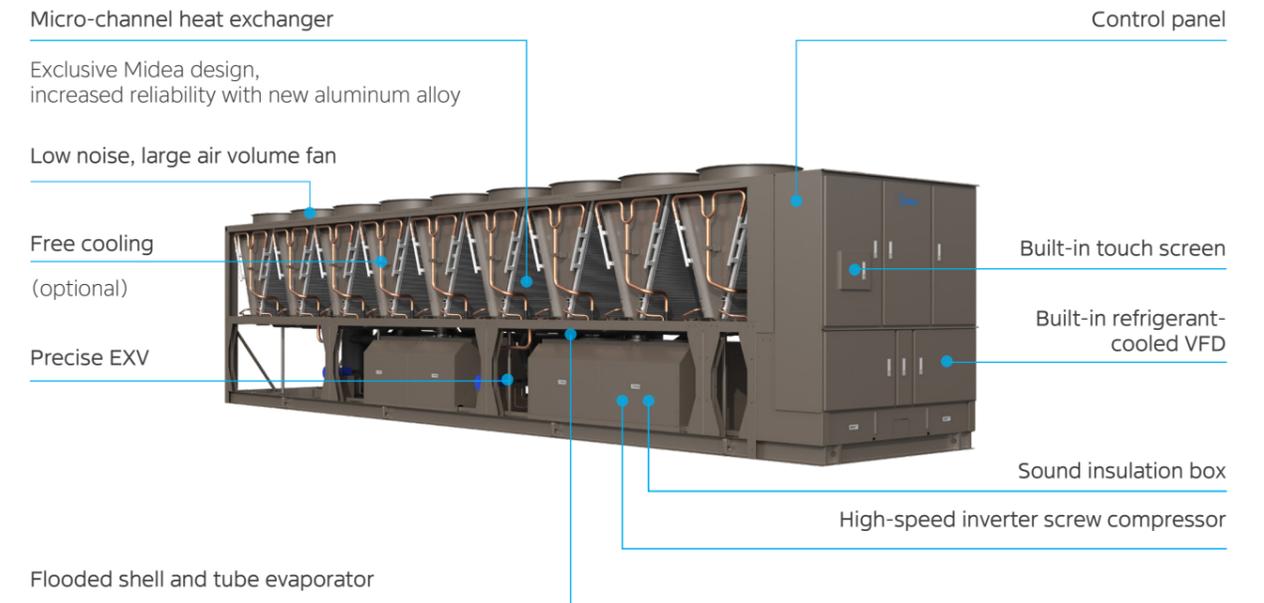


Environmental-Friendly

## Nomenclature



## Key Components



# Specifications

## R1234ze(E) refrigerant, Single compressor

Model <sup>1</sup>		SCAH115EVE	SCAH145EVE	SCAH175EVE	SCAH210EVE	SCAH240EVE	
Nominal parameters	Cooling capacity	kW	398	506	620	735	848
	Power input	kW	115.4	147.1	179.7	213.7	245.1
	Coefficients of performance <sup>2</sup>	COP	3.45	3.44	3.45	3.44	3.46
Refrigerant	Type	/					R1234ze(E)
	Charge amount	kg	120	145	260	192	215
Power supply	/		380V 3~50Hz				
Compressor	Type	/					Semi-hermetic twin-rotor screw compressor,inverter
	Quantity	/	1	1	1	1	1
Fan	Type	/					EC
	Quantity	/	6	8	10	12	14
Evaporator parameters <sup>3</sup>	Type	/					Flood shell-and-tube evaporator
	Chilled water flow	m <sup>3</sup> /h	68.3	86.8	106.3	126.1	145.3
Capacity regulation range	/		15%~100%	15%~100%	15%~100%	15%~100%	15%~100%
Dimensions	Length	mm	4540	5540	6345	7355	8355
	Width	mm	2300	2300	2300	2300	2300
	Height	mm	2710	2710	2710	2710	2710

### Notes:

1. Midea Nomenclature follows industry standards by defining model designations based on nominal capacity, which is multiples of 5RT.For detailed naming conventions, please refer to the Nomenclature in this datasheet.
2. Performance and efficiency are based on AHRI 551/591. Cooling: chilled water inlet/outlet=12 °C/7 °C; fouling factor=0.018 m<sup>2</sup>·°C/kW, outdoor ambient temperature 35°C DB.
3. The water-side heat exchanger features a water-side pressure of 1.0 MPa.
4. As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate and in-kind.

## R513A refrigerant, Single compressor

Model <sup>1</sup>		SCAH115EVG	SCAH145EVG	SCAH175EVG	SCAH210EVG	SCAH240EVG	
Nominal parameters	Cooling capacity	kW	397	505	618	738	845
	Power input	kW	116.8	148.0	181.2	217.2	247.1
	Coefficients of performance <sup>2</sup>	COP	3.40	3.41	3.41	3.40	3.42
Refrigerant	Type	/					R513A
	Charge amount	kg	126	152	168	198	225
Power supply	/		380V 3~50Hz				
Compressor	Type	/					Semi-hermetic twin-rotor screw compressor,inverter
	Quantity	/	2	2	2	2	2
Fan	Type	/					EC
	Quantity	/	6	8	10	12	14
Evaporator parameters <sup>3</sup>	Type	/					Flood shell-and-tube evaporator
	Chilled water flow	m <sup>3</sup> /h	68.3	86.9	106.3	126.9	145.3
Capacity regulation range	/		15%~100%	15%~100%	15%~100%	15%~100%	15%~100%
Dimensions	Length	mm	4440	5440	6245	7255	8255
	Width	mm	2300	2300	2300	2300	2300
	Height	mm	2710	2710	2710	2710	2710

### Notes:

1. Midea Nomenclature follows industry standards by defining model designations based on nominal capacity, which is multiples of 5RT.For detailed naming conventions, please refer to the Nomenclature in this datasheet.
2. Performance and efficiency are based on AHRI 551/591. Cooling: chilled water inlet/outlet=12 °C/7 °C; fouling factor=0.018 m<sup>2</sup>·°C/kW, outdoor ambient temperature 35°C DB.
3. The water-side heat exchanger features a water-side pressure of 1.0 MPa.
4. As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate and in-kind.

# Specifications

## R1234ze(E) refrigerant, Dual compressors

Model <sup>1</sup>			SCAH330EVDE	SCAH350EVDE	SCAH365EVE	SCAH380EVDE	SCAH395EVDE
Nominal parameters	Cooling capacity	kW	1165	1235	1292	1340	1402
	Power input	kW	335.3	358.0	375.6	386.2	404.0
	Coefficients of performance <sup>2</sup>	COP	3.47	3.45	3.44	3.47	3.47
Refrigerant	Type	/	R1234ze(E)				
	Charge amount	kg	2*155	2*155	2*155	2*198	2*198
Power supply		/	380V 3~50Hz				
Compressor	Type	/	Semi-hermetic twin-rotor screw compressor,inverter				
	Quantity	/	2	2	2	2	2
Fan	Type	/	EC				
	Quantity	/	18	18	18	20	20
Evaporator parameters <sup>3</sup>	Type	/	Flood shell-and-tube evaporator				
	Chilled water flow	m <sup>3</sup> /h	199.8	212.2	222.0	230.2	240.9
Capacity regulation range		/	8%~100%	8%~100%	8%~100%	8%~100%	8%~100%
Dimensions	Length	mm	10465	10465	10465	11470	11470
	Width	mm	2300	2300	2300	2300	2300
	Height	mm	2710	2710	2710	2710	2710

### Notes:

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2. Performance and efficiency are based on AHRI 551/591. Cooling: chilled water inlet/outlet=12 °C/7 °C; fouling factor=0.018 m<sup>2</sup>·°C/kW, outdoor ambient temperature 35°C DB.
3. The water-side heat exchanger features a water-side pressure of 1.0 MPa.
4. As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate and in-kind.

## R513A refrigerant, Dual compressors

Model <sup>1</sup>			SCAH330EVDG	SCAH350EVDG	SCAH365EVDG	SCAH380EVDG	SCAH395EVDG
Nominal parameters	Cooling capacity	kW	1162	1230	1288	1335	1410
	Power input	kW	340.3	361.5	377.7	391.7	413.7
	Coefficients of performance <sup>2</sup>	COP	3.41	3.40	3.41	3.41	3.41
Refrigerant	Type	/	R513A				
	Charge amount	kg	2*160	2*160	2*160	2*200	2*200
Power supply		/	380V 3~50Hz				
Compressor	Type	/	Semi-hermetic twin-rotor screw compressor,inverter				
	Quantity	/	2	2	2	2	2
Fan	Type	/	EC				
	Quantity	/	18	18	18	20	20
Evaporator parameters <sup>3</sup>	Type	/	Flood shell-and-tube evaporator				
	Chilled water flow	m <sup>3</sup> /h	199.6	211.2	221.2	229.3	242.2
Capacity regulation range		/	8%~100%	8%~100%	8%~100%	8%~100%	8%~100%
Dimensions	Length	mm	10265	10265	10265	11270	11270
	Width	mm	2300	2300	2300	2300	2300
	Height	mm	2710	2710	2710	2710	2710

### Notes:

1. Midea Nomenclature follows industry standards by defining model designations based on nominal capacity, which is multiples of 5RT.For detailed naming conventions, please refer to the Nomenclature in this datasheet.
2. Performance and efficiency are based on AHRI 551/591. Cooling: chilled water inlet/outlet=12 °C/7 °C; fouling factor=0.018 m<sup>2</sup>·°C/kW, outdoor ambient temperature 35°C DB.
3. The water-side heat exchanger features a water-side pressure of 1.0 MPa.
4. As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate and in-kind.

# Specifications

## R1234ze(E) refrigerant, Dual compressors

Model <sup>1</sup>			SCAH410EVDE	SCAH425EVDE	SCAH440EVE	SCAH455VDE	SCAH470EVDE
Nominal parameters	Cooling capacity	kW	1450	1498	1560	1601	1656
	Power input	kW	418.0	439.3	457.5	472.3	489.9
	Coefficients of performance <sup>2</sup>	COP	3.47	3.41	3.41	3.39	3.38
Refrigerant	Type	/	R1234ze(E)				
	Charge amount	kg	2*198	2*205	2*215	2*215	2*215
Power supply		/	380V 3~50Hz				
Compressor	Type	/	Semi-hermetic twin-rotor screw compressor, inverter				
	Quantity	/	2	2	2	2	2
Fan	Type	/	EC				
	Quantity	/	20	22	24	24	24
Evaporator parameters <sup>3</sup>	Type	/	Flood shell-and-tube evaporator				
	Chilled water flow	m <sup>3</sup> /h	249.1	257.3	268.0	275.0	284.5
Capacity regulation range		/	8%~100%	8%~100%	8%~100%	8%~100%	8%~100%
Dimensions	Length	mm	11470	12490	13510	13510	13510
	Width	mm	2300	2300	2300	2300	2300
	Height	mm	2710	2710	2710	2710	2710

### Notes:

1. Midea Nomenclature follows industry standards by defining model designations based on nominal capacity, which is multiples of 5RT. For detailed naming conventions, please refer to the Nomenclature in this datasheet.
2. Performance and efficiency are based on AHRI 551/591. Cooling: chilled water inlet/outlet=12 °C/7 °C; fouling factor=0.018 m<sup>2</sup>·°C/kW, outdoor ambient temperature 35°C DB.
3. The water-side heat exchanger features a water-side pressure of 1.0 MPa.
4. As a result of the continuous improvement of the product, the above parameters may be changed, please refer to the product nameplate and in-kind.

## R513A refrigerant, Dual compressors

Model <sup>1</sup>			SCAH410EVDG	SCAH425EVDG	SCAH440EVDG	SCAH455EVDG	SCAH470EVDG
Nominal parameters	Cooling capacity	kW	1448	1495	1560	1596	1652
	Power input	kW	425.0	442.3	462.9	473.6	490.2
	Coefficients of performance <sup>2</sup>	COP	3.41	3.38	3.37	3.37	3.37
Refrigerant	Type	/	R513A				
	Charge amount	kg	2*200	2*210	2*220	2*220	2*220
Power supply		/	380V 3~50Hz				
Compressor	Type	/	Semi-hermetic twin-rotor screw compressor, inverter				
	Quantity	/	2	2	2	2	2
Fan	Type	/	EC				
	Quantity	/	20	22	24	24	24
Evaporator parameters <sup>3</sup>	Type	/	Flood shell-and-tube evaporator				
	Chilled water flow	m <sup>3</sup> /h	248.8	256.8	267.9	274.1	283.8
Capacity regulation range		/	8%~100%	8%~100%	8%~100%	8%~100%	8%~100%
Dimensions	Length	mm	11270	12290	13310	13310	13310
	Width	mm	2300	2300	2300	2300	2300
	Height	mm	2710	2710	2710	2710	2710

### Notes:

1. Midea Nomenclature follows industry standards by defining model designations based on nominal capacity, which is multiples of 5RT. For detailed naming conventions, please refer to the Nomenclature in this datasheet.
2. Performance and efficiency are based on AHRI 551/591. Cooling: chilled water inlet/outlet=12 °C/7 °C; fouling factor=0.018 m<sup>2</sup>·°C/kW, outdoor ambient temperature 35°C DB.
3. The water-side heat exchanger features a water-side pressure of 1.0 MPa.
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# COST SAVING

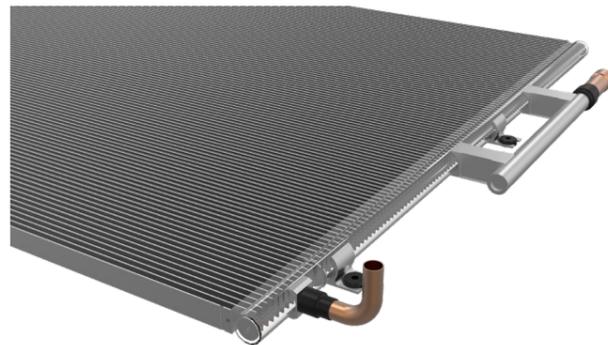
## High-Speed Inverter Screw Compressor

Incorporates variable volume ratio technology and a permanent magnet synchronous motor, delivering enhanced IPLV performance and improved energy efficiency.



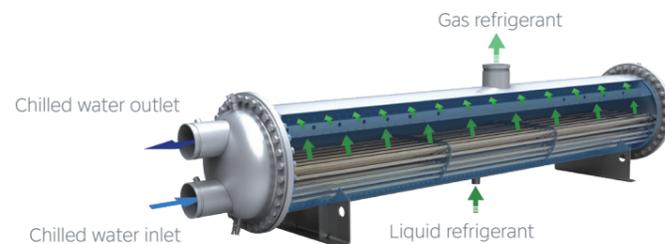
## Micro-Channel Heat Exchangers

Exclusive Midea design, increased reliability with new aluminum alloy. Compact size, high efficiency and less refrigerant charge.



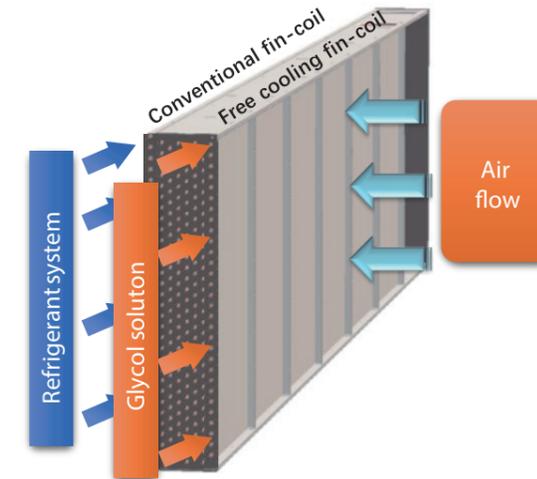
## High Efficiency Flooded Evaporator

A specialized refrigerant distributor ensures even distribution, optimizing the temperature field and raising the evaporation temperature, thereby increasing overall operating efficiency. Specially-designed baffle plate prevents liquid from being sucked inside the compressor, protecting it from potential damage while improving reliability. Water boxes at both ends can be disassembled for easy maintenance.



## Free Cooling

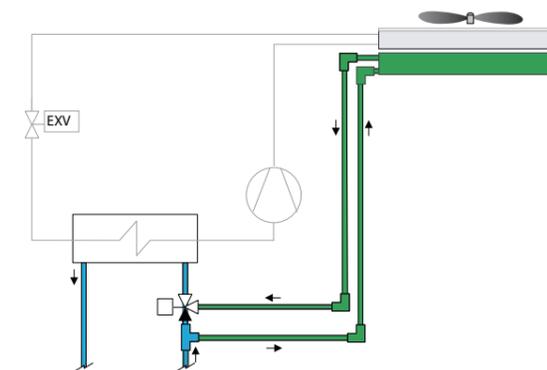
- When the outdoor temperature is lower than the system's return water temperature, the free cooling system harnesses cold air from the environment, reducing or even stopping compressor operation.
- Midea's solution features a built-in free cooling heat exchanger, saving space, with free cooling and compressor refrigeration sharing a single set of fans for improved energy efficiency and easier maintenance.



## Two Configurations

### Direct free cooling

- Circulating water in the project system is with glycol. Free cooling fin + electric three-way valve, achieve free cooling at low ambient temperature.
- Direct heat exchange, high heat exchange efficiency. Overall project circulating water is anti-freeze liquid, strong anti-freezing ability.
- Client requires consideration of glycol system design.

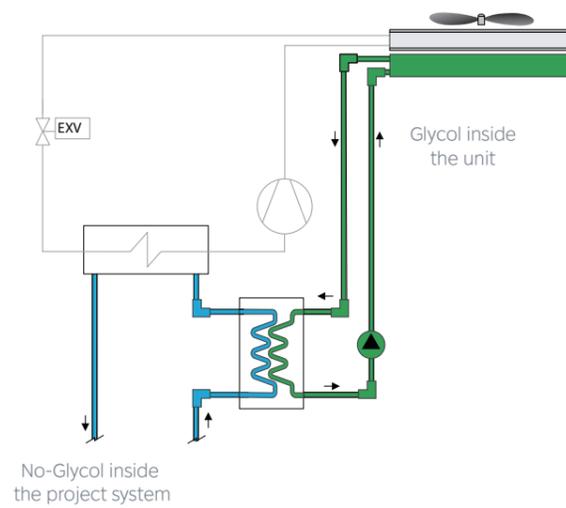


# STABLE AND RELIABLE

## Two Configurations

### Indirect free cooling

- Circulating water in the system is conventional water. Free cooling fin, plate heat exchanger and glycol circulating pump forms a closed system.
- Equipped with plate heat exchanger, transfer the whole project is supplied with free cooling energy.
- The terminal system and the water pump is not affected by performance attenuation or water resistance increase caused by antifreeze liquid.
- Two-stage heat exchange can reduce heat exchange requirements of the compressor. No need for special water-system design.



## Water/Ice Storage

Reducing operating cost between 3°C and -7°C.

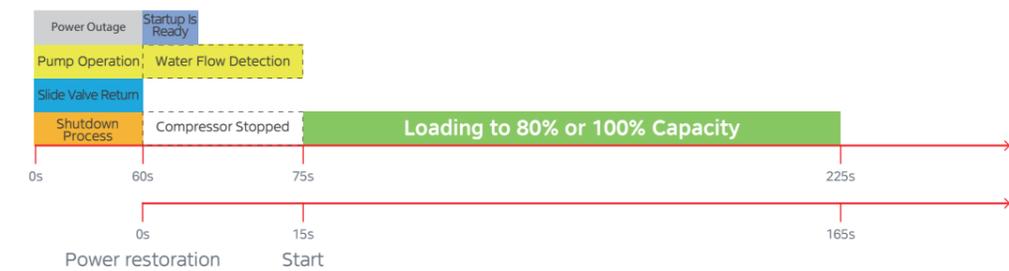
## Automatic Transfer Switch

Ensures a continuous power supply to a connected load circuit by automatically switching between two available power sources.



## Quick Start

When the chiller control panel & water pump are powered by the UPS, the chiller will quickly resumes operation after 15s and reaches full load within 165s.



Note: Quick start rapidly restores the load after a power interruption.

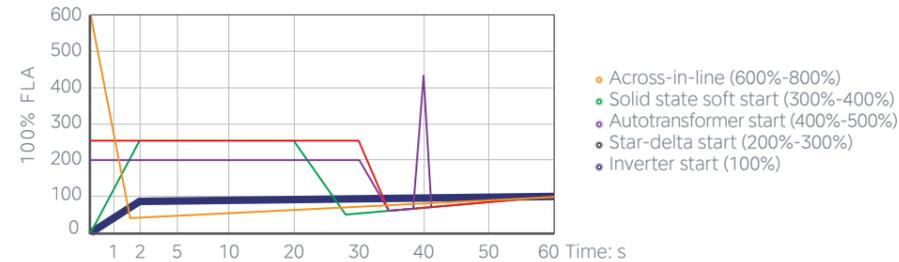
## Active Power Filter

Offer a unique solution for active harmonic filtration. Low total harmonic current distortion rate (THDI), THDI<5% can be customized.



## Zero-Inrush Current

An inverter start mode produces zero in-rush current during start up, ensuring the safety and reliability of the power grid.



## Modular Design

- All units employ a modular design, allowing flexible configuration and easy expansion. Up to 8 units can be combined with centralized control to precisely match capacity to load. This results in accurate output on demand, meeting a wide variety of space requirements.
- Each unit utilizes 1 or 2 compressors that are equipped with independent refrigeration circuits. In a 2-circuit unit, the compressors can serve as backups for each other. The run time of each compressor in a 2-circuit unit, as well as each unit in the entire system, can be balanced to ensure equal service life for all.

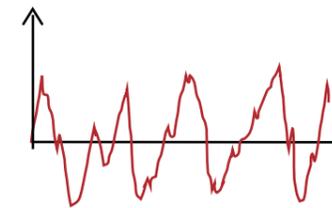
## Anti-Corrosion Treatment

- TCP coating is suitable for mildly corrosive environments, with a saltwater acetic acid test (SWAAT) performance exceeding 1500 hours in accordance with ASTM G85 Annex 3.
- E-coating is recommended for highly corrosive environments, such as industrial or marine applications, demonstrating SWAAT resistance greater than 3000 hours under the same standard.

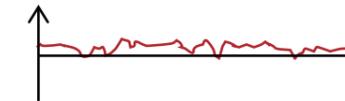


## 0.1Hz Inverter Technology

State-of-the-art inverter regulation technology can fine-tune the motor's operating frequency to 0.1Hz, ensuring high-precision water temperature control. Advanced algorithms predict temperature trends and perform self-diagnosis to prevent issues before they arise, minimizing temperature fluctuations and avoiding unnecessary shutdowns.



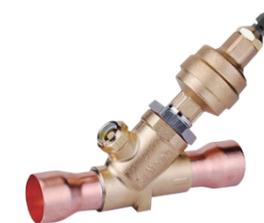
Temperature change under conventional control



Temperature change under prospective control

## High Precision EXV

Sourced from internationally renowned brands, stable and reliable quality. Responsive with no hysteresis for improved unit energy efficiency. PID high-precision adjustment ensures stability and efficiency under all operating conditions.



High precision EXV



Traditional thermal expansion valve

## Intelligent Control

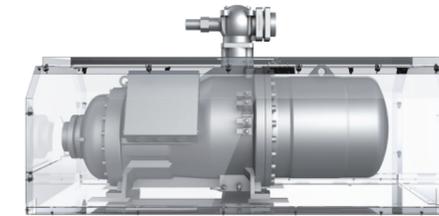
An advanced microcomputer-based control system automatically manages a range of functions, including fault diagnosis and anti-freeze monitoring, ensuring efficient and reliable operation. The built-in RS485 communication interface enables centralized multi-unit control, allowing overall performance to be optimized based on load demand and operating time.

- Control mode: MIC
- Interface display: 7-inch color touch screen
- Communication interface: RS485
- Communication protocol: Modbus-RTU
- Real-time operating parameters (temperature, pressure etc.) display
- Three-level password setting to prevent misoperation
- Detailed fault information record
- Power-off memory function
- Timed ON/OFF
- Master & Slave, Back-up, Duty cycling
- Compatible with QuickView, M-Cloud, Midea Chiller Plant Control and BMS



## Low-Noise Operation

The unit comes standard with a sound insulation box and a low-noise fan. An optimized system design effectively eliminates flow-induced noise.



The inner wall of the box includes highly effective silencing materials



Low-noise fan

## Eco-friendly Refrigerant

R1234ze(E) and R513A refrigerants provide a sustainable cooling solution with zero ozone-depletion potential and ultra-low global warming potentials (GWP < 1 for R1234ze(E) and GWP =631 for R513A), effectively reducing carbon emissions.



## Options

- 380-480V, 50/60Hz
- ATS (Automatic transfer switch)
- Quick start
- APF (Active power filter)
- FC (Free cooling)
- Heavy anti-corrosion treatment
- Water/ice storage
- Hydraulic module (fixed-frequency pump or inverter pump)
- 20-25 °C high water outlet temperature
- Large temperature difference and small flow rate, with a maximum temperature difference of 10 °C

Note: For other options, please consult the factory according to the order requirements.