

Core Parts

1 Inverter single-screw compressor

- ◆ The design of VVR variable slide valve pressure ratio is adopted to prevent over-compression or under-compression, which enables efficient operation at partial load.
- ◆ With wider stepless inverter regulation range, it can realize a maximum continuous output of 28%~100%, providing higher regulation precision and comfort, and more reliable and smooth regulation performance.
- ◆ The structure design is more reasonable. The suction and discharge outlets are axially designed to reduce the pressure loss.

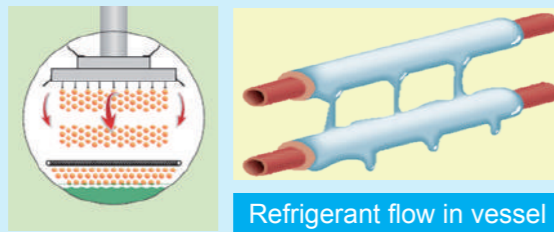


Daikin's unique single screw design for perfectly balanced loads combined with inverter technology

2 Falling film evaporator

Adopted patented falling film evaporator, heat exchange efficiency is significantly improved and greatly reduces refrigerant charge.

Groove tooth is adopted for evaporation tube surface, chilled water flows inside the tube, and liquid refrigerant flows outside, heat exchanging is concentrated outside of evaporation tube. Groove tooth easily forms the gas condensing core, thus enabling liquid refrigerant to evaporate and change into a gaseous state.



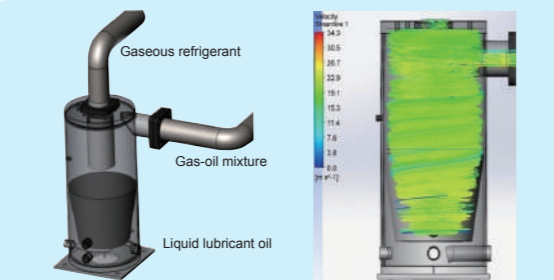
Refrigerant flow in vessel

Note: UAA145-315MV3 evaporator is DX shell-and-tube type.

3 Efficient vertical cyclone oil separator

The unit adopts the self-developed efficient vertical cyclone oil separator and the unique internal structure design to effectively resolve the problem of low oil separation efficiency at a low flow rate. The oil separation efficiency is greater than 99.6% under all the operating loads in all working conditions, making the unit operate more efficiently.

Note: UAA145-275MV3 adopt compressor built-in oil separator.



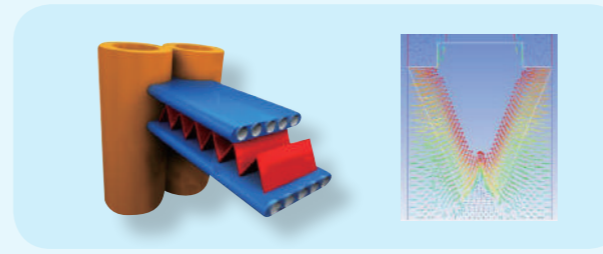
4 Electronic expansion valve

Equipped with the advanced 3810-step electronic expansion valve which can accurately control the refrigerant flow entering the evaporator and enable the unit to adapt to multiple operating conditions, implement a lot of control functions and ensure unit performance.

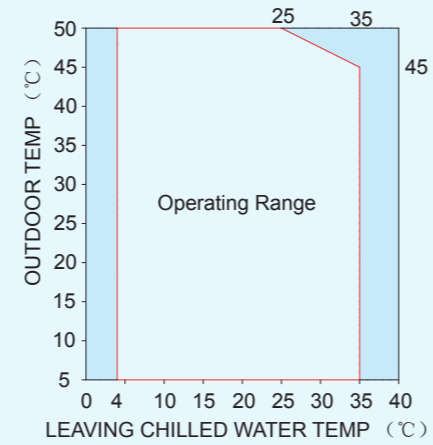


5 Microchannel condenser

Adopted microchannel heat exchanger, V-shape arrangement, more even air flow distribution to realize a better heat exchanging. Compact design and light weight, low refrigerant charge. Standard with TCP anti-corrosion coating, we can also offer E-coating for option.



Operating Range



Notes:

1. Added ethylene glycol, minimum chilled water temperature can reach -8°C ;
2. For request of Ambient temperature between -18°C to 5°C , please contact factory.

Specifications

UAA-MV3-FAAE		145	185	215	240	275	315	335	365	395	
Cooling Capacity	kW	360.0	467.0	538.0	599.0	684.0	790.0	834.0	908.0	984.0	
	USRT	102	133	153	170	194	225	237	258	280	
Total Power Input	kW	119.4	155.9	186.1	208.1	235.1	256.1	280.8	312.8	332.7	
Power Supply	-	380V/3N~/ 50Hz									
Capacity Steps	-	25%~100%									
Refrigerant	Type	R134a									
	Throttle Device	EXV									
Compressor Power Input	kW	108.6	141.5	171.7	190.1	213.5	234.5	259.2	287.6	303.9	
Condenser Type	-	Microchannel									
Fan	Type	High Efficiency Spiral Axial									
	Motor No.	n	6	8	8	10	12	12	12	14	16
	Power	kW	10.80	14.40	14.40	18.00	21.60	21.60	21.60	25.20	28.80
Evaporator	Water Flow	-	High Efficiency DX Shell and Tube			High Efficiency Falling Film					
		m ³ /h	62.00	80.00	93.00	103.0	118.0	136.0	143.0	156.0	169.0
	L/s	17.00	22.00	26.00	29.00	33.00	38.00	40.00	43.00	47.00	
	WPD	kPa	62.0	58.0	59.0	46.0	61.0	64.0	48.0	57.0	62.0
Inlet/Outlet Diameter	inch	4			5			6			
Dimensions	Length	mm	4430	4985	4985	5535	6640	7745	7745	8850	9955
	Width	mm	2260								
	Height	mm	2530								
Weight	Shipping	kg	4045	4485	4740	5030	5580	6245	6985	7335	7685
	Running	kg	4170	4690	4935	5225	5870	6565	7185	7535	7885

Notes:

- Nominal cooling conditions: EWT/LWT 12/7°C; ambient DB temperature is 35°C;

DAIKIN Inverter Air-cooled Screw Chiller

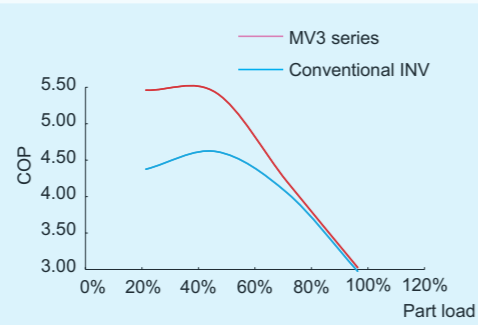


Air cooled inverter screw chiller is high-end product developed by DAIKIN with many years design experience and comprehensive advanced technology. It offers ultra-high energy efficiency, wide operating range and high reliability, silence operation, and other advantages that conventional air-cooled screw chiller can not match. It adopts self-design advanced inverter single screw compressor and patented falling film evaporator, AHRI certified IPLV upto 5.10.

Features

1 High efficiency & energy saving

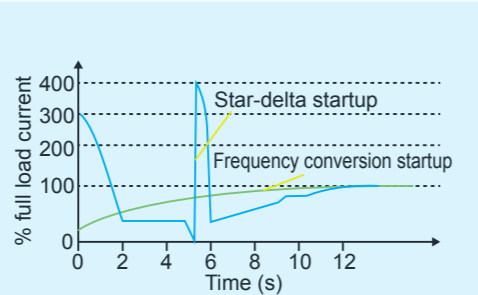
The unit adopts the advanced inverter technology. With the variable volume ratio (VVR) inverter single-screw compressor, new falling film heat exchanger and efficient cyclone oil separator, it can achieve optimal energy efficiency ratio at partial load. The IPLV is as high as 5.10, contributing to better energy saving performance.



2 Reliable operation

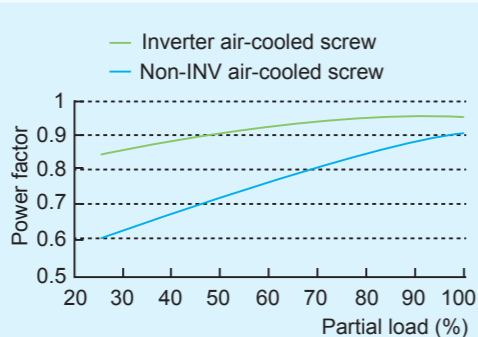
◆ Ultralow inrush current

The advanced startup mode via inverter features ultralow inrush current that is stable and has no impact on the power grid, ensuring safety and reliability of the power grid. Since the unit inrush current will never exceed its maximum operating current, the investment in the user's supporting power and the cost of the emergency power supply are thereby reduced.



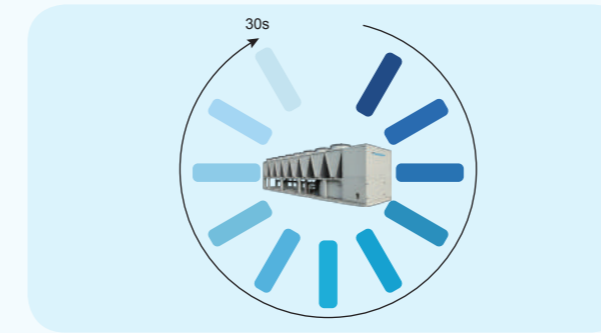
◆ High power factor

For conventional air-cooled screw units, the power factor decreases significantly as load reduces. While for inverter air-cooled screw chillers, the power factor is maintained as a high level of up to 0.95. High power factor can reduce the unnecessary power loss during transmission and increase the utilization of electric energy.



◆ Quick restart upon power failure

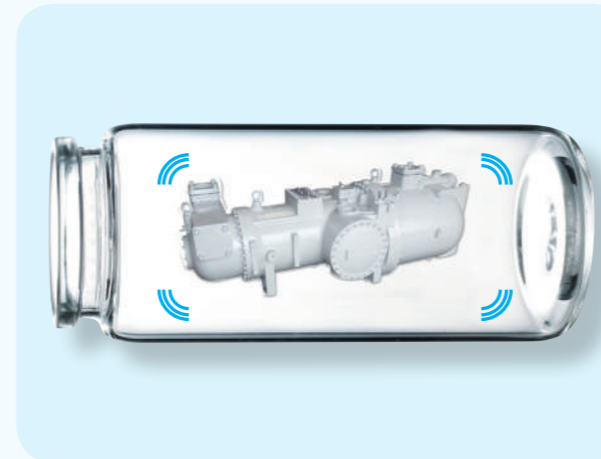
The unit can restart the compressor within 30 seconds after power recovery and restore the running status before power failure within shortest time, further guaranteeing continuous cooling supply.



3 Environment-friendly and low noise

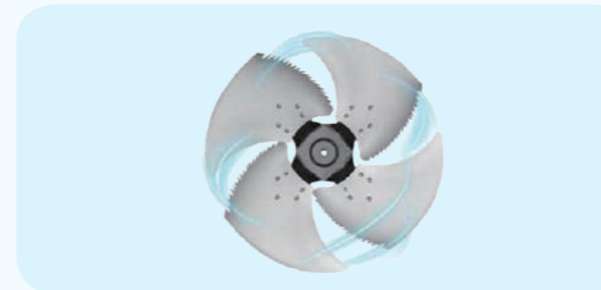
◆ Compressor sound proof box

The dedicated design low-noise inverter single-screw compressor is adopted. During compression, the metal and non-metal parts engage with each other to eliminate high-frequency noise. The standard configuration of the compressor includes the sound insulation box and sound absorbing materials to further reduce operating noises of the unit.



◆ Aerodynamic fan

The air side heat exchanger adopts brand new aerodynamic spiral fan. Direct drive, eliminate transmission losses, reduce vibration, and noise level is lower than conventional spiral fan by 3 dB(A).



◆ Environment-friendly refrigerant

The unit adopts the environment-friendly R134a refrigerant without chlorine atoms, which does not cause any ozone depletion. Meanwhile, the falling film evaporator greatly reduces refrigerant charge and indirectly reduces the CO2 emission.



4 Intelligent control

◆ Intelligent controller

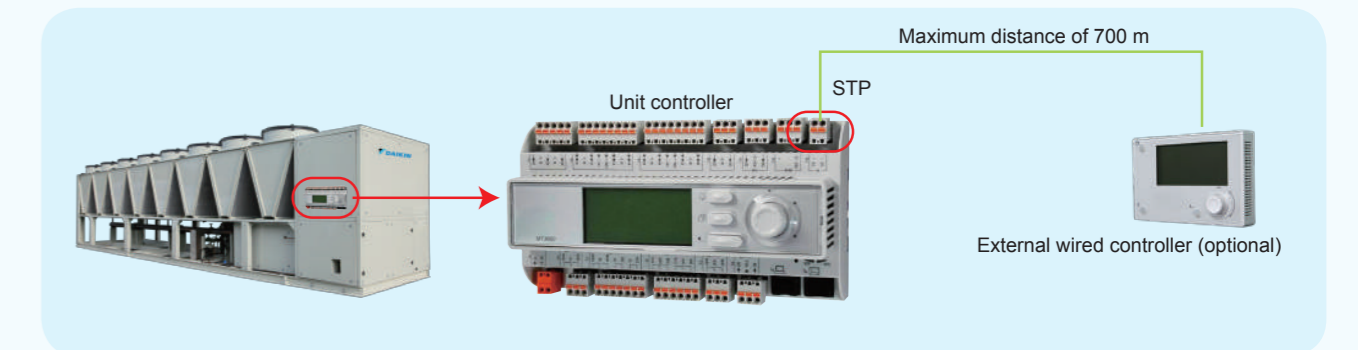
The unit adopts Micro Tech III new generation intelligent controller. The LCD display and operation interface of built-in wired controller is used to monitor the unit operating status in an all-round way. It provides multiple protection functions and automatically diagnoses faults and displays alarms.



- Controller type: PLC
- Operating language: Chinese/English
- The controller supports three-level password protection, parameter settings, parameter display, and schedule management.

◆ External wired controller (optional)

The main controller can be connected to lead the external wired controller to the control room. An external wired controller can control and monitor the unit from a distance of 700 m and can set parameters and save historical fault alarms.



◆ Network control (optional)

The controller can be configured with the optional communication protocol interfaces such as Modbus, LonWorks and BACnet to easily connect the unit to the centralized control or building automation system (BAS) for control, which can easily realize intelligent management, avoid unnecessary energy waste and save the operation cost of air conditioning.

