DAIKIN

Air Cooled Magnetic Bearing Chiller

ALL INVERTER

HFO-R1234ze

AHRI CERTIFIED®
www.ahridirectory.org
Air-Cooled Chillers
AHRI Standards 550/590 and 551/591

A Century-Old Brand Famed for Cutting-Edge Technologies

DAIKIN, established in 1924, is a multi-national that offers a portfolio of cooling, air conditioning, refrigeration, and air purification solutions with a commitment to advanced technology development so as to provide energy-efficient products for various customers.

DAIKIN started to develop the magnetic bearing technology in 1993 and launched its first magnetic bearing chiller in 2003. Boasting such successful experience for the magnetic bearing technology over the past 20-odd years, DAIKIN has seen wide applications of its magnetic bearing chillers in sophisticated scenarios, such as data centers, comprehensive hospitals, office building complexes, and industrial processes.

In addition, the utilization of the environment-friendly and ultra-low GWP HFO refrigerant, R1234ze, allows DAIKIN's next-gen air cooled magnetic bearing chiller to work in a high efficiency, which benefits the customers in terms of energy saving and zero carbon emission.

Prodcut Advantages

Environmental friendly

R1234ze, as a fourth-generation HFO, has zero ODP and a minimal GWP. Compared with HFC R134a, R1234ze has an extremely low GWP but a similar cooling performance. Thereby, HFO R1234ze can serve as an ideal alternative to HFC refrigerants.

Refrigerant	R1234ze	R134a
Type	HFO	HFC
Ozone Depletion Potential (ODP)	0	0
Global Warming Potential (GWP)	<1	1,300

High efficiency and energy saving

Adopting DAIKIN's leading air conditioning design and optimized control technology, along with high-quality components, the chiller demonstrates superior performance in rigorous tests. Ultimately, it achieves new heights in efficiency and energy savings for air-cooled chillers.

The full models of series obtains the AHRI certification, with maximum 7.5% of COP and 27% of IPLV higher than similar air cooled magnetic bearing chiller with R134a.

Higher Full Load Efficiency (COP)

UXEV R1234ze COP=3.685

UXEV R134a COP=3.425

+7.5%

Higher Integrated Part Load Value (IPLV)

UXEV R1234ze IPLV=7.630

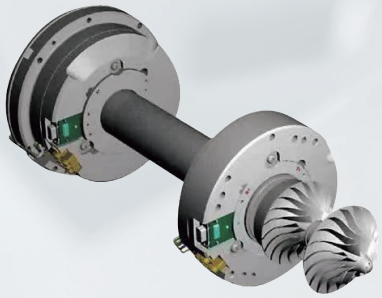
UXEV R134a IPLV=6.021

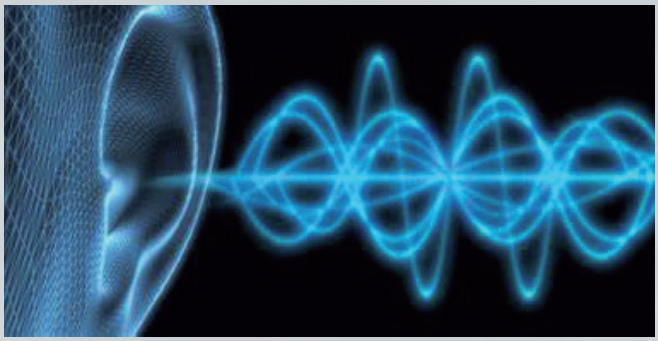
+27%

Note: COP is based on LWT 7C and ambient 35C, IPLV is based on AHRI condition.

Low noise operation

When the compressor is running, the shaft, suspended under magnetic force, does not come into contact with the bearings and therefore has no mechanical friction. In addition to the configuration of the compressor box and low-noise EC condenser fan, the chiller also employs an optimized pipeline design to avoid resonance and noise generation. So the noise of the air cooled magnetic bearing chiller is much lower than that of a common air cooled screw chiller, making it a better choice for noise sensitive customers.





Core Components

▶High-speed magnetic bearing compressor

The Turbocor TGS series magnetic bearing compressor features a green casing, representing the application of environment-friendly low-GWP refrigerant, such as the R1234ze. The use of oil free, magnetic bearing, and inverter designs allows it to operate efficiently with a low noise, while the high-strength aviation aluminum alloy materials ensure its reliability and stability under such high-speed operation.

▶EC fan

The chiller uses direct-driven electronically commutated (EC) axial fans, allowing it to steplessly control the fans based on ambient temperature and working load, substantially improving its working efficiency, especially under partial load conditions. The aerodynamic design optimization otherwise helps reduce the running turbulence and noise.

▶Economizer

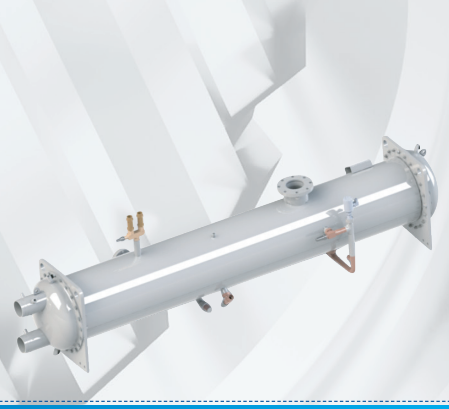
With an optimized design, the air-side heat exchanger performs a primary subcooling and then combines the subcooling circuit of its efficient plate heat exchanger to perform a deep secondary subcooling, aiming to improve the subcooling performance and efficiency.

▶V-shaped copper finned tube condenser

The air-side heat exchanger adopts a V-shaped layout to generate uniform airflow. Arranged in a staggered manner and mechanically expanded, the seamless copper tubes use aluminum louvered condensing fins to achieve higher heat exchange efficiency. Gold fin or coatings with higher corrosion-resistant performance are available as options to cater for applications in various regions.

▶Flooded evaporator

The shell-tube flooded evaporator adopts the most advanced and efficient heat-exchange copper tube bundles. The inner and outer sides of the heat exchange tubes use a special fin design to increase the heat exchange area, and the inner grooved copper tube design improves the turbulent flow of the fluid inside the tube and overall heat exchange efficiency. In addition, the innovative dual safety valve provides a security enhancement for pressure vessels and customers due to such backup design.

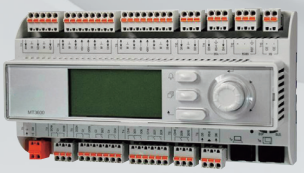


Intelligent Control

Smart controller

A user-friendly intelligent control system dynamically monitors and controls the operation status. Such intelligent controller is easy and convenient to operate. Users only need to set the chilled water temperature. Then, the chiller can automatically work as required without any manual intervention.

Remote controllers are also available with a maximum control distance of up to 700 meters.



Standard

Option

Option

BAS (optional)

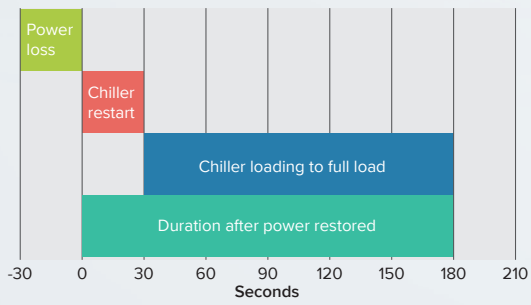
The controller supports BACnet, Modbus, and LonWorks interfaces to connect the unit to the BAS for intelligent management.

Multiple options

To cater for the customer requirements in various scenarios, especially the requirements for a data center, we also provide the following options:

◆ Rapid restart & loading

Chiller can be restarted in 30 seconds and loading to full load in 180 seconds with an UPS for controller.



◆ Built-in pump or hydraulic kit

Built-in pump or external pump kit can simplify installation, and a VFD can be chose for variable primary flow (VPF) control.

◆ Active power filter

Built-in or external APF controls harmonic and achieve THDi ≤ 5%.

◆ Other options

- Dry contact for chiller and compressor running status
- ASME certified evaporator
- High ESP (max 100Pa) EC fan
- Blygold for condenser
- Power meter
- Current limit
- Gold fin

Note: For more options requirement please contact Daikin.

Specifications

UXEV-ST9-FAA		-	130	220	260	310	350	390	440	480
Nominal Cooling Capacity		kW	462.0	774.0	920.0	1091	1236	1382	1548	1694
Total Power Input		kW	134.0	213.2	265.1	296.1	347.3	399.1	426.4	478.3
COP		-	3.448	3.630	3.470	3.685	3.559	3.463	3.630	3.542
IPLV		-	7.094	7.228	7.302	7.502	7.483	7.550	7.630	7.520
Power Supply		-	380, 400V / 3N~/ 50, 60Hz							
Rated Current		A	226	360	448	500	586	674	720	808
Maximum Running Current		A	271	520	541	781	781	812	1041	1062
Refrigerant	Type	-	R1234ze							
	Number of Circuit	-	1			2				
	Flow Control	-	EXV							
Compressor	Type	-	Magnetic Bearing Oil Free							
	Qty.	TG	1	2	2	3	3	3	4	4
	Compressor Power Input	kW	121.2	183.2	239.5	267.3	302.3	360.7	366.4	422.7
Air-side Heat Exchanger	Type	-	Copper Tube Aluminum Fins							
Fan	Type	-	EC							
	Qty.	-	8	12	16	18	18	24	24	28
	Total Air Flow	$x10^4m^3/h$	20.0	33.6	40.0	45.0	50.4	60.0	67.2	73.6
	Total Power	kW	12.8	30.0	25.6	28.8	45.0	38.4	60.0	55.6
Water-side Heat Exchanger	Type	-	High Efficiency Flooded							
	Rated Water Flow	L/s	22.07	36.98	43.96	52.13	59.05	66.03	73.96	80.94
	WPD	kPa	53.0	50.0	50.0	59.0	59.0	58.0	55.0	55.0
	Pipe Connection (Victaulic)	inch	5	6	6	8	8	10	10	10
	Maximum Pressure Bearing	MPa	1.0							
Operating Range	Ambient Temperature	°C	5 ~ 45							
	Leaving Water Temperature	°C	4 ~ 30							
Dimensions	Length	mm	5,050	7,570	10,090	11,350	11,350	15,160	15,160	17,680
	Width	mm	2,260							
	Height	mm	2,530							
Weight	Shipping Weight	kg	3,730	5,730	6,930	8,360	8,750	11,020	11,860	13,060
	Operating Weight	kg	3,880	5,930	7,180	8,660	9,150	12,380	13,540	14,790
Noise		dB(A)	79.0	79.6	80.6	81.2	81.2	81.6	81.6	82.0

Notes:

1. Nominal cooling conditions: LWT 7°C, water flow 0.172 [$m^3/(h•kW)$], ambient temperature 35°C.
2. IPLV is based on conditions of AHRI 550/590.
3. All specifications are subjected to change by the manufacturer without prior notice.

Warning

- Daikin Industries, Ltd.'s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. The units should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the unit close to the sea shore, contact your local distributor.

Dealer

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