

DAIKIN

WATC
ABOVE & BEYOND

HFO-R1233zd(E)

MAGNETIC
BEARING
TWO-STAGE
CENTRIFUGAL
CHILLER

STAGE

POWERED BY
QUADROLOGY

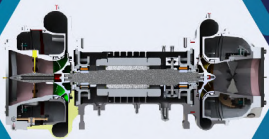
Next-Generation Refrigerant : HFO-R1233zd(E)

Cooling Capacity : 300 ~ 900 RT

POWERED BY QUADROLOGY WITH HFO-R1233zd(E)



WMTC harnesses the power of Quadrology (an unprecedented combination of 4 superior technologies), ushering in the dawn of a new era of next-generation chillers.

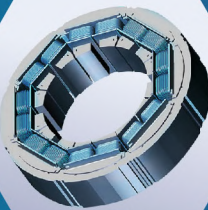


W

**WINNING
PERFORMANCE**

2-STAGE IMPELLER

Kinetically balanced back-to-back impellers running on HFO-R1233zd(E) Refrigerant that provide the best efficiency, while reducing thrust and load of the bearing, thus extending its lifespan.



M

**MAGNIFICENT
LEVITATION**

MAGNETIC BEARING

Not only oil-free but truly LUBRICATION-FREE, unlike other chillers that merely eliminate the oil but still need other forms of lubrication.

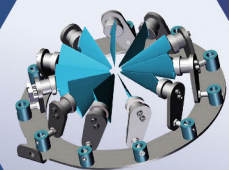


T

TRIED-AND-TRUE

PERMANENT MAGNET MOTOR

Eliminates rotor excitation loss to deliver superior motor efficiency under high-speed operation.



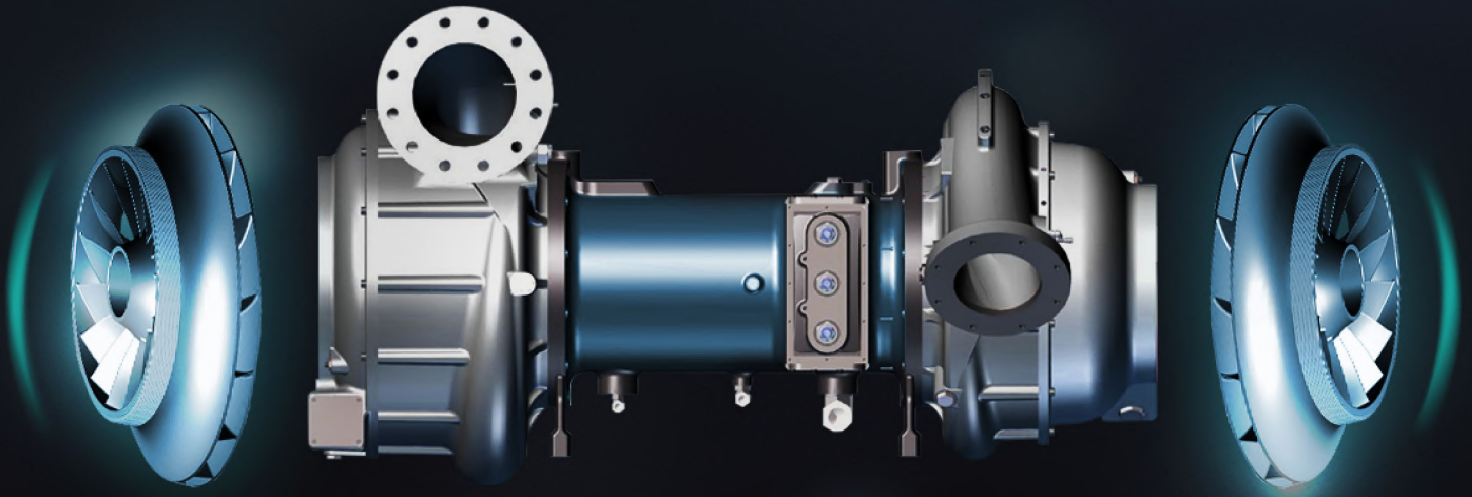
C

CLEVER

DYNAMIC IGV + DYNAMIC SPEED DRIVE

Adaptable to various operating conditions that keeps the compressor running smoothly to optimize energy usage.

DYNAMIC & RELIABLE



1ST STAGE
IMPELLER

TWO-STAGE IMPELLERS
WITH **HFO**-R1233zd(E)

2ND STAGE
IMPELLER

✦ WMTC uses kinetically balanced **two-stage impellers with unique back-to-back arrangements**. This technology helps compressor to operate smoothly at lower noise level by balancing the axial force caused by the operation of impellers.



WITH THE LATEST CFD ANALYSIS,
THE NEW 3D IMPELLER IS
PROJECTED TO ACHIEVE BETTER
EFFICIENCY OVER OTHER HFO
CHILLERS' PEAK EFFICIENCY.



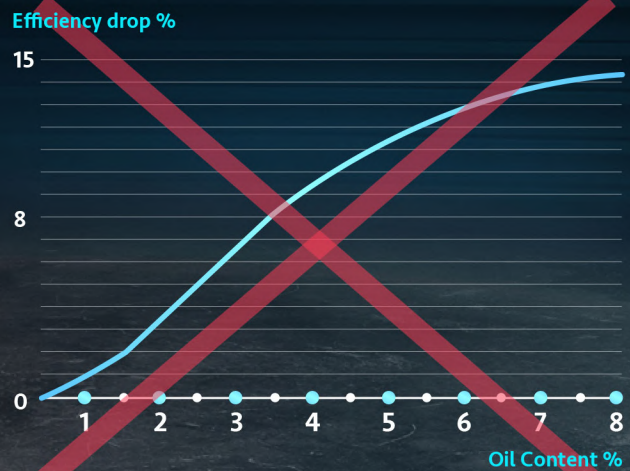
SUSTAINABLE & LUBRICATION-FREE

MAGNETIC BEARING

WMTC integrates **oil & lubrication-free, magnetic bearing drive system technology** that:

- ◆ Eliminates complex oil, refrigerant lubrication and mechanical friction
- ◆ Enhances chiller efficiency, increases sustainability performance and reduces maintenance
- ◆ Minimizes heat transfer loss, gap loss and friction loss
- ◆ Produces lowest sound and vibration level
- ◆ Eliminates efficiency loss from oil contamination

Lubrication-free chiller eliminates potential efficiency drop due to oil contamination



Typical oil-lubricated bearing centrifugal chiller efficiency drops due to oil contamination

Oil in heat exchanger

Efficiency reduction

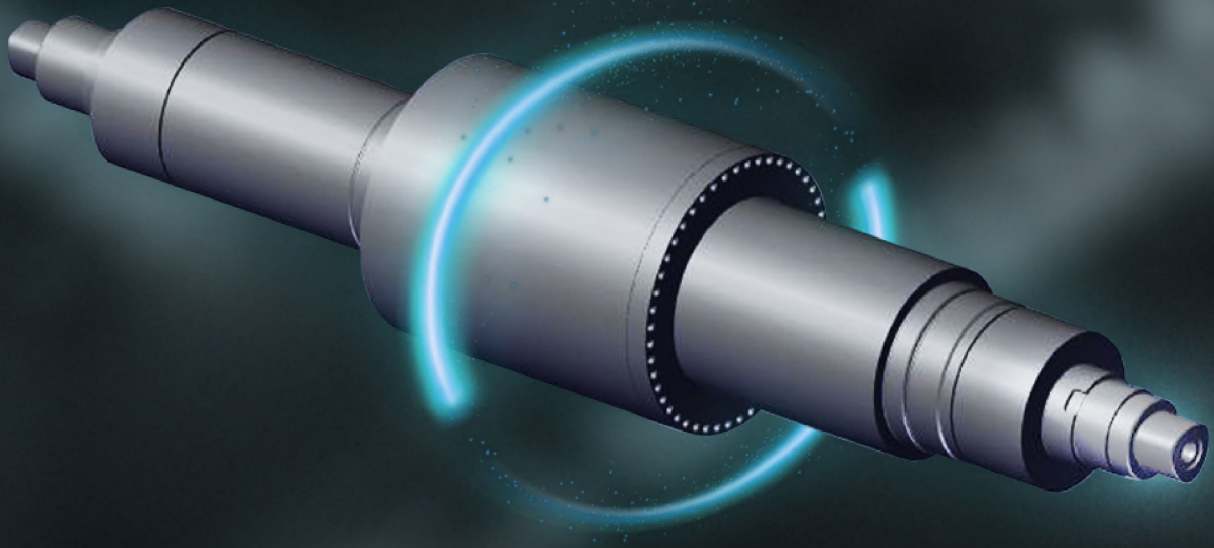


ZERO PERFORMANCE DEGRADATION

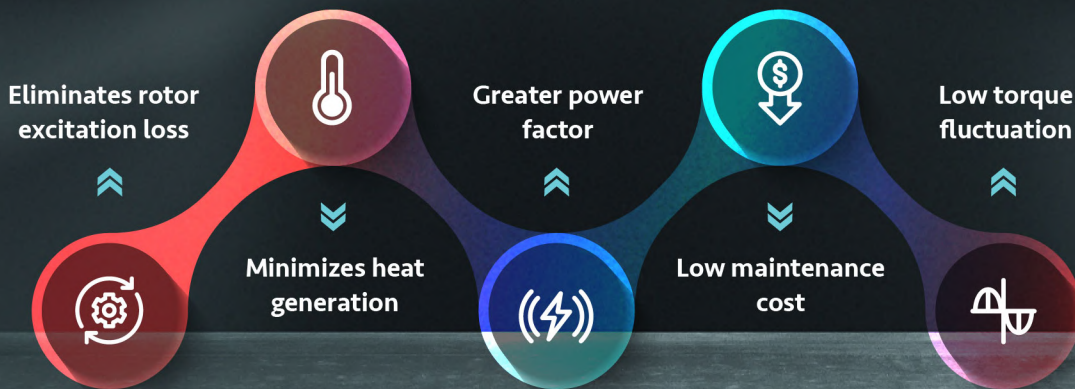
OIL LUBRICATION SYSTEM CAN CAUSE OIL CONTAMINATION IN HEAT EXCHANGER. THE MORE OIL IN HEAT EXCHANGER, THE HIGHER THE PERFORMANCE LOSS!

DRIVING PERFORMANCE

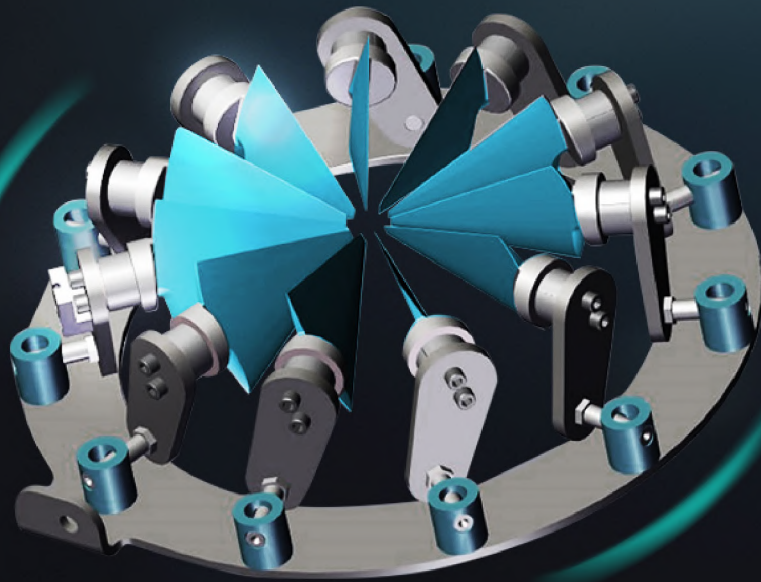
PERMANENT MAGNET MOTOR



WMTC's compressor motor utilizes **permanent magnets embedded in the rotor** to create a constant magnetic field.

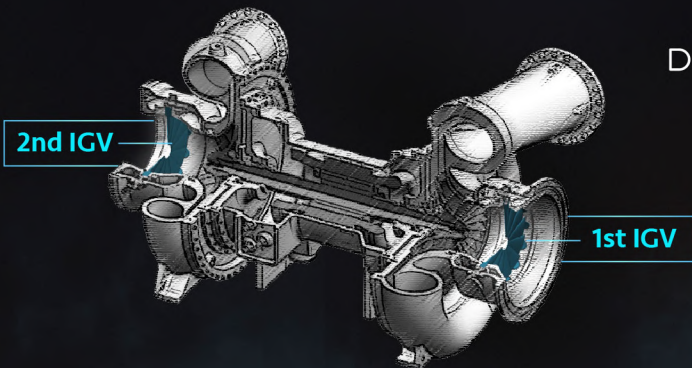


HIGH EFFICIENCY
WITH
COMPACT DESIGN



DYNAMICALLY CONTROLLED & OPERATED

DUAL IGV + VARIABLE SPEED DRIVE



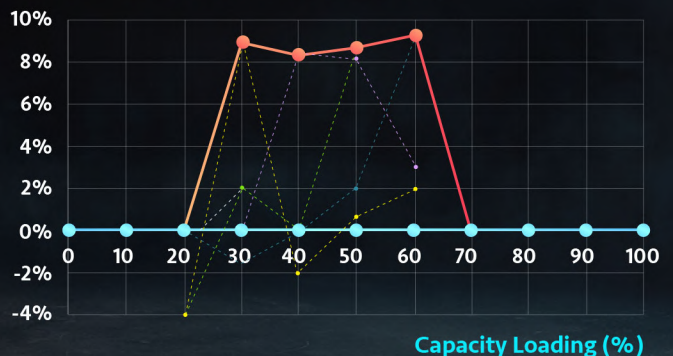
Dynamic Dual IGV

Each impeller is equipped with an Inlet Guide Vane (IGV) and optimally controlled to give the most accurate cooling and optimized part load efficiency.

Dynamic Variable Speed Drive

Designed to regulate the compressor motor speed by efficiently matching the building's cooling needs.

Performance Improvement Form Baseline



- Improved - IGV (varying position) Optimized
- IG V A° Position
- IG V B° Position
- IG V C° Position
- IG V D° Position
- IG V E° Position
- Baseline - IGV (fixed position) Non-optimized

Controlled RPM and Optimized IGV positions reduces surging and improves part-load efficiency close to 10% compared to the baseline of fix position IGV. Optimization of IGV position obtained from Daikin's extensive in-house testing.



DYNAMICALLY CONTROLLED LOADING

COMBINING PROVEN VFD TECHNOLOGY USED IN DAIKIN'S CHILLERS WITH DUAL-IGV CONTROL

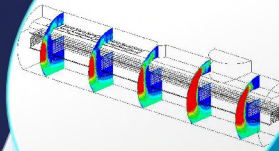
HEAT EXCHANGE TECHNOLOGIES

ENHANCED HEAT EXCHANGE & BETTER REFRIGERANT MANAGEMENT

LIQUID DISTRIBUTION

EVENLY REFRIGERANT DISTRIBUTION

Specifically design 2-stage distributor that reduce the refrigerant flowrate while evenly distributing the refrigerant which improves the heat exchanges efficiency.



ENHANCED HEAT EXCHANGE

GREATER APPROACH
Reduces the cooler approach, hence improving the chiller efficiency.

SAVES REFRIGERANT COST

Falling film design reduces up to 40% refrigerant charge and gives better efficiency compared to flooded design.

HFO-
R1233zd(E)

NEXT GENERATION HFO REFRIGERANT

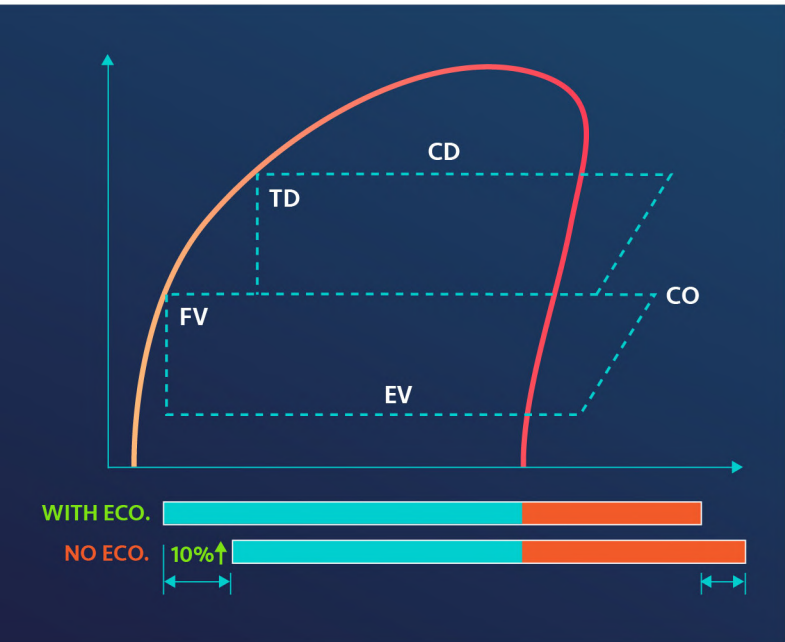
PREMIUM REFRIGERANT EFFICIENCY

WMTC chiller is specifically designed to unlock the full potential of the HFO-R1233zd(E) Refrigerant.

EFFECTIVE + EFFICIENT GAS AND LIQUID SEPARATION

PATENTED FLASH TANK ECONOMIZER

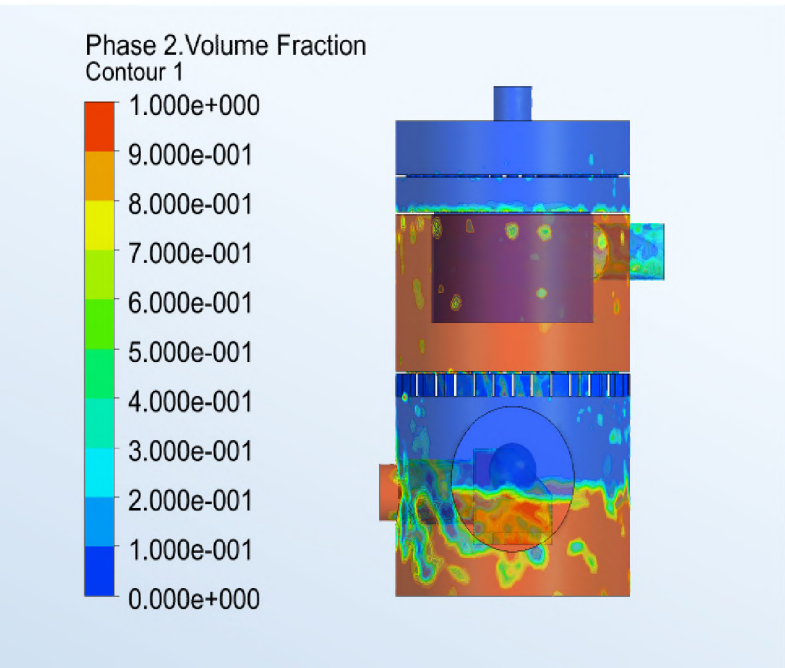
The Daikin patented flash tank economizer is specially designed for the two-stage compressor to improve efficiency. The refrigerant from the condenser flows to two different paths: the flash gas flows into the second-stage compressor to be re-compressed, while the liquid flows through the float valve to further reduce its temperature and then into the evaporator to cool the chilled water.



INCREASES RELIABILITY & EFFICIENCY

BETTER FLASH GAS SEPARATION

Proven patented technology used in Daikin's magnetic bearing chiller provides better liquid and gas extraction which enhance reliability and efficiency.



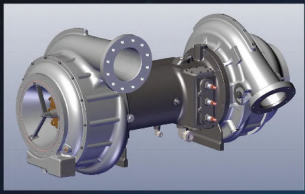
REDUCES COST & FOOTPRINT

PREVENTS LIQUID CARRY-OVER

Less refrigerant charge compared to conventional economizer. Enables reduction in overall footprint.

ABOVE & BEYOND

WMTC is the coalescence of the state of the art technologies. Armed with the latest technology and coupled with an unwavering commitment, WMTC delivers **performance above and beyond our customers' expectations.**



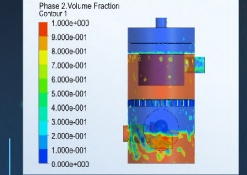
- ◆ Kinetically balanced two-stage impeller design
- ◆ Truly lubrication free magnetic bearing
- ◆ Double independent IGV



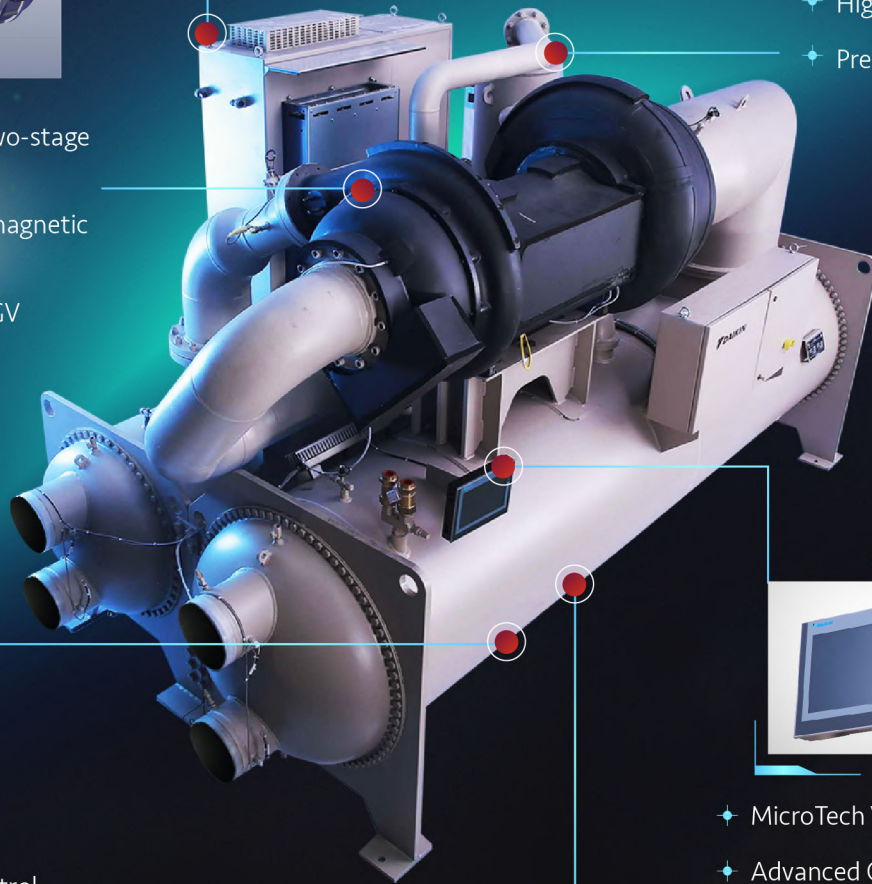
- ◆ Updated liquid level control
- ◆ More reliable butterfly valve driven by actuator



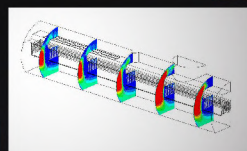
- ◆ Air cooled type VFD
- ◆ Better reliability at low lift condition



- ◆ Enhanced patented cyclone economizer
- ◆ Fewer refrigerant charge
- ◆ High separation efficiency
- ◆ Prevent liquid carry over



- ◆ MicroTech V control system
- ◆ Advanced OITS



- ◆ Patented falling film evaporator
- ◆ Lower pressure drop design
- ◆ New sub cooler for condenser

TECHNICAL DATA

Model	Cooling Capacity		Power Consumption	Efficiency		Evap		Cond		Rated Load Amps	Chiller Weight	Operation Weight
	Ton	kW	kW	kW/Ton	COP	Flow Rate	Pressure Drop	Flow Rate	Pressure Drop			
WMTCV50BSSB3F/ F4214-DU-2/C3314-BP-2	500	1759	243.9	0.488	7.210	1196	19.2	1481	10.8	398	12683	14230
WMTCV80BSSC5F/ F4814-BU-2/C3614-BP-2	800	2814	395.6	0.495	7.112	1914	28.5	2374	13.5	639	16790	18356

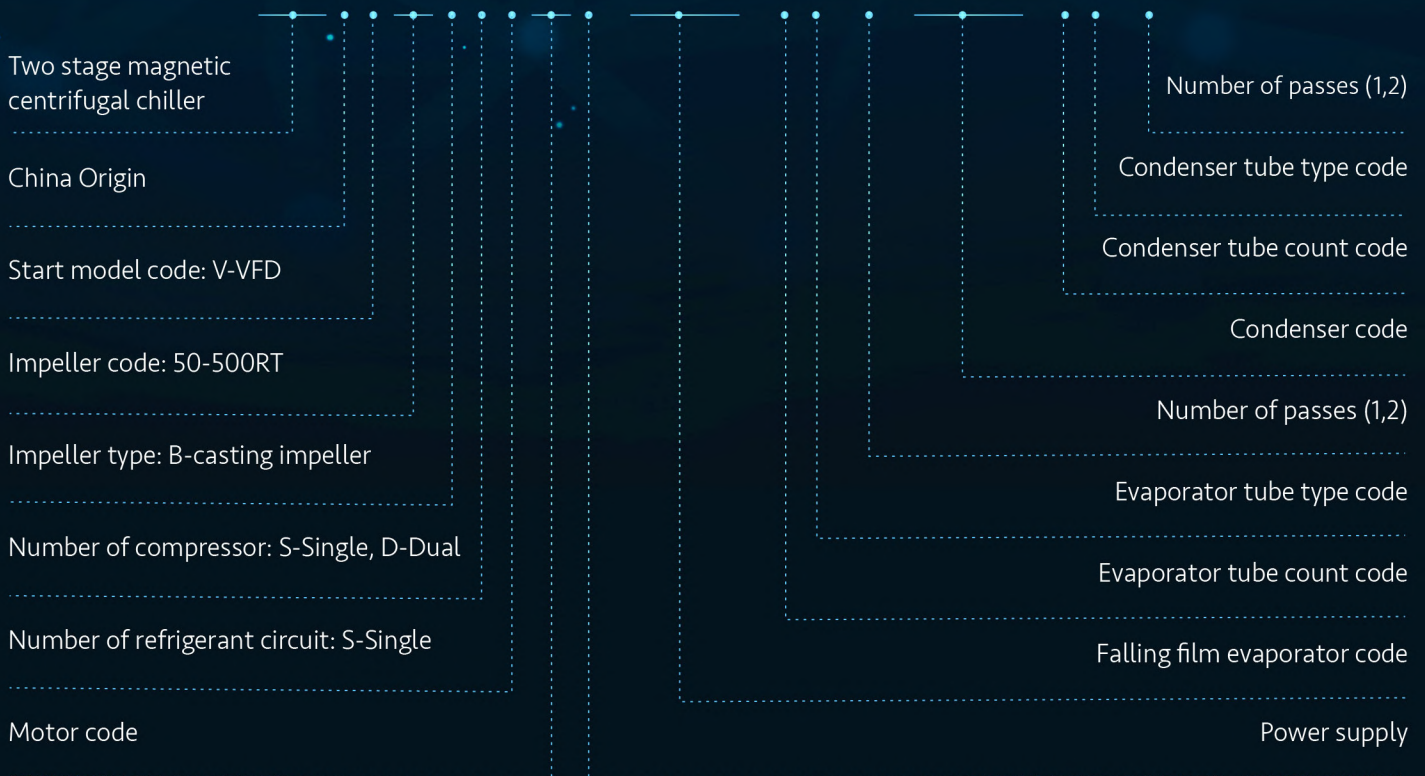
Note:

- The above chiller cooling capacity is rated based on **AHRI standard condition**:
 - Evap: EEWT 12.22°C, ELWT 6.67°C; Fouling factor 0.0176°C.m²/ kW
 - Cond: EEWT 29.44°C, ELWT 34.61°C; Fouling factor 0.0440°C.m²/ kW
- The above chiller is recommended. Please contact local sales for other specific models.
- Standard 2 pass evaporator and condenser water connector.
- Above data are based on selection software program WMT 1.0.7.



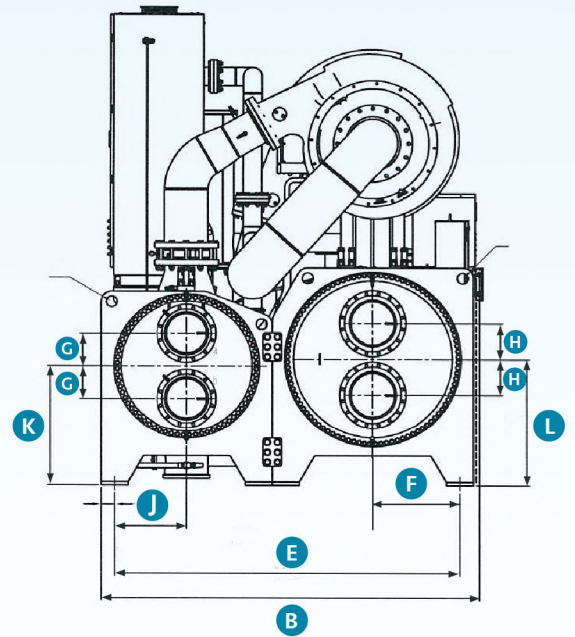
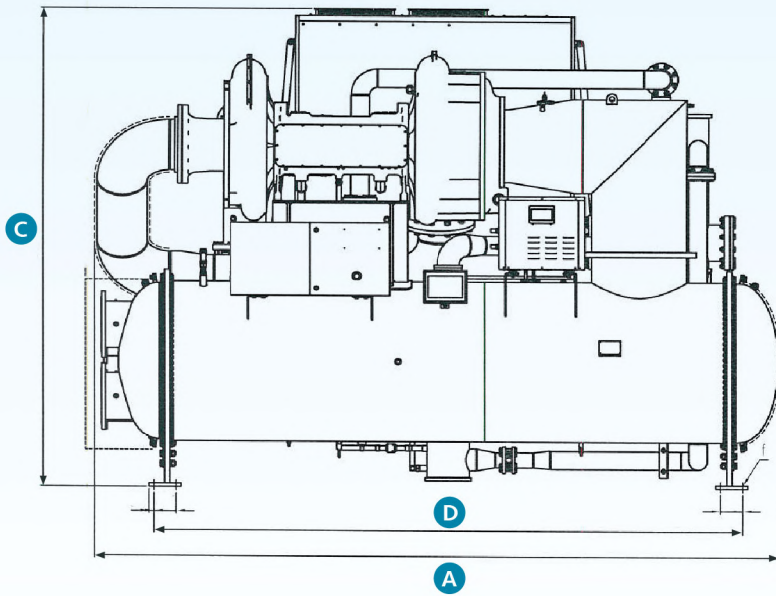
NOMENCLATURE

WMT C V 50 B S S B3 F / F 39 14 - B U - 2 / C 33 14 - B P - 2



Note: Power supply: F: 380V/50Hz/3ph, U: 380V/60Hz/3ph, G: 400V/50Hz/3ph, R: 460V/50Hz/3ph.

DIMENSIONS



Model	Dimensions, connection and foundation drawing sizes												
	Dimensions (mm)					Locating size of evaporator connection (mm)				Locating size of condenser connection (mm)			
	A	B	C	D	E	F	L	H	OD	J	K	G	OD
WMTC*/F4214/C3314	5055	2533	2884	4432	2337	558	810	295	273	458	788	215	273
WMTC*/F4814/C3614	5164	2907	3646	4432	2597	654	958	273	356	543	905	248	325

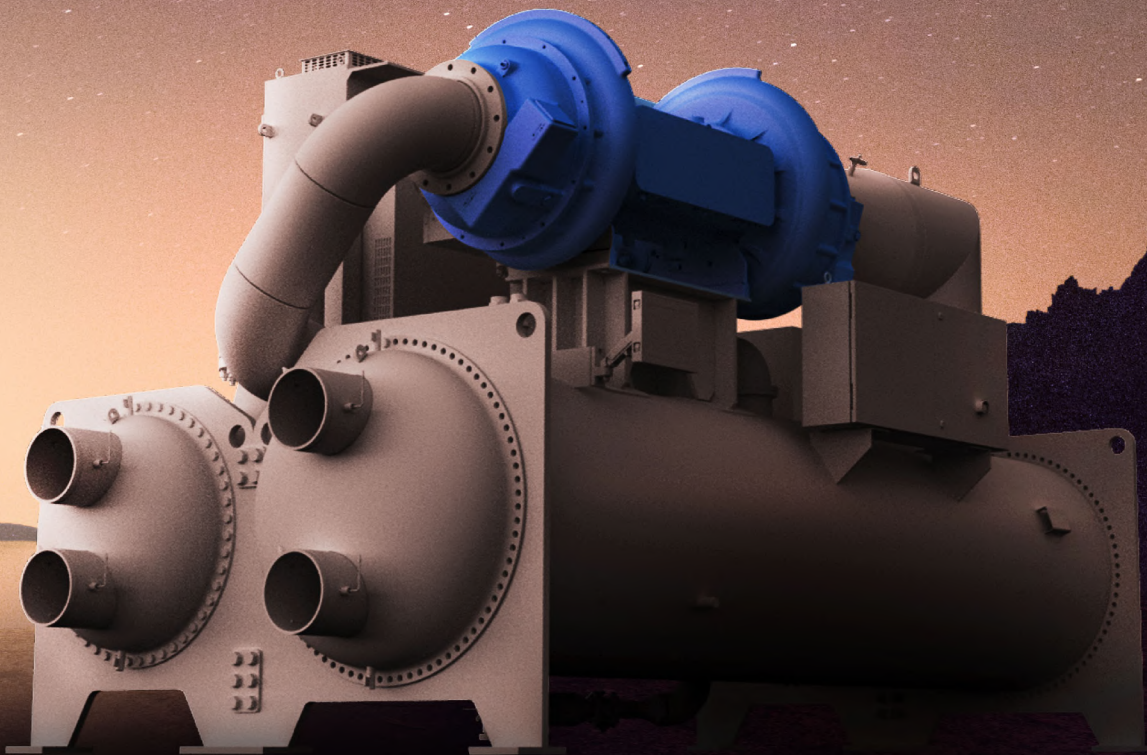
Note:

1. a: Condenser outlet; b: Condenser inlet; c: Evaporator inlet; d: Evaporator outlet; e: Relief valve NPT1;
2. A, B, C dimension deviation of $\pm 13\text{mm}$;
3. Above dimensions based on 2 pass water flow. Please contact your Daikin representative for other passes.
4. The dimension include 20mm insulation for the evaporator.
5. OD means the outer diameter of water connection pipe.

ABOUT DAIKIN

As one of the largest air condition companies in the world, Daikin has earned a worldwide reputation for providing high quality products and expertise to meet various requirements from different customers. Our customers benefit from maximum energy savings, lower installation and operation costs, quiet operations and superior indoor air quality.

The WMTC chiller utilizes cutting-edge technology to give a new definition to magnetic chillers. Daikin continues to be committed in excellent product development and technology innovation.



DAIKIN

AHRI CERTIFIED[®]
www.ahridirectory.org

Water-Cooled Water-Chilling and
Heat Pump Water-Heating Packages
AHRI Standards 550/590 and 551/591

** The compressor colour is for illustrative purposes only
and is not a representation of the actual product.*