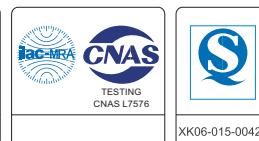
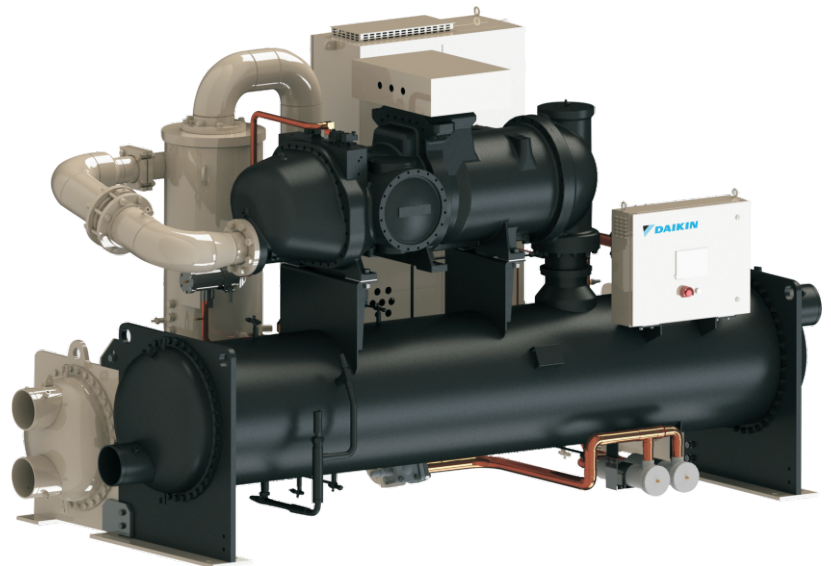


ZUWV WATER COOLED VARIABLE FREQUENCY DRIVE SINGLE SCREW CHILLER

Cooling Capacity: 193~400RT





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TECHNOLOGY FEATURES

Single screw Compressor

- ZUWV adopt single screw compressor unique design, which has one main rotor meshing with twin star rotors to produce volumetric Compression cycle. Due to the main rotor is well balanced in both radial and axial direction, the compressor bearing has extremely high reliability and its design lifespan can be as long as 100,000 hours and resulting in sound pressure level lower than twin screw compressor.
- The single compressor design can disperse and minimize discharge pulse, while make discharge more balance and steady. The vibration peak is lower to 0.07 in/s, which is much lower than 0.14 in/s AHRI requirements and save the vibration-absorption device investment
- Motor directly drive the rotor and no gear drive. Less drive parts reduce the fault risk
- The internal oil supply channel could reserve some oil and supply to the bearing ensures the compressor stable running.



Unit mounted Variable Frequency Drive Starter

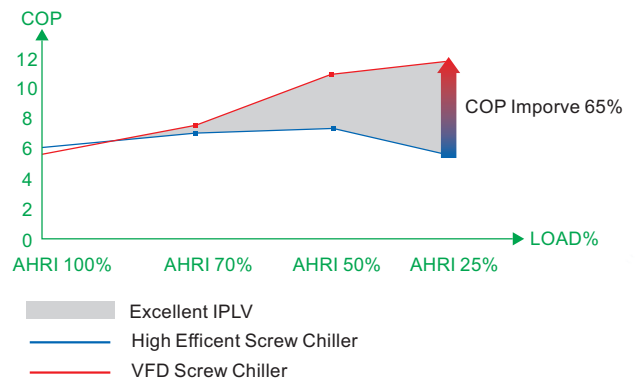
- Air cooled VFD without complex piping connection, low maintenance charge and more reliable.
- Total standard harmonic distortion is 35%.
- Auto repair displacement power factor in performance process can reach to 0.98

Precise configuration

- ZUWV chiller utilizes Micro Tech III control platform and use high precision electronic expansion valve to control chilled water leaving temperature within $\pm 0.2^{\circ}\text{C}$. Also utilizes 7inch touch screen as main interface for easy setting and downloading.

Precise configuration

- High power factor and integrated part load value. IPLV is up to 10.
- Lower starting current, no impact to power grid of user side.
- 25%-100% stepless regulation control to meet the different seasons cooling load requirements.
- The unit configured non-return valve to prevent the discharge refrigerant returns back to compressor and avoid the compressor reversal running.
- Unique designed twin safety valve as stand by. No need to stop the unit when annual maintenance and ensures the vessel safety.
- The unit configures the breaker, disconnect or, stop switch to ensure the safety of unit and operator
- The controller could monitor the running parameter and displayed the running data through touch screen in order to ensure the high efficient operation



Suitable for application and Certification

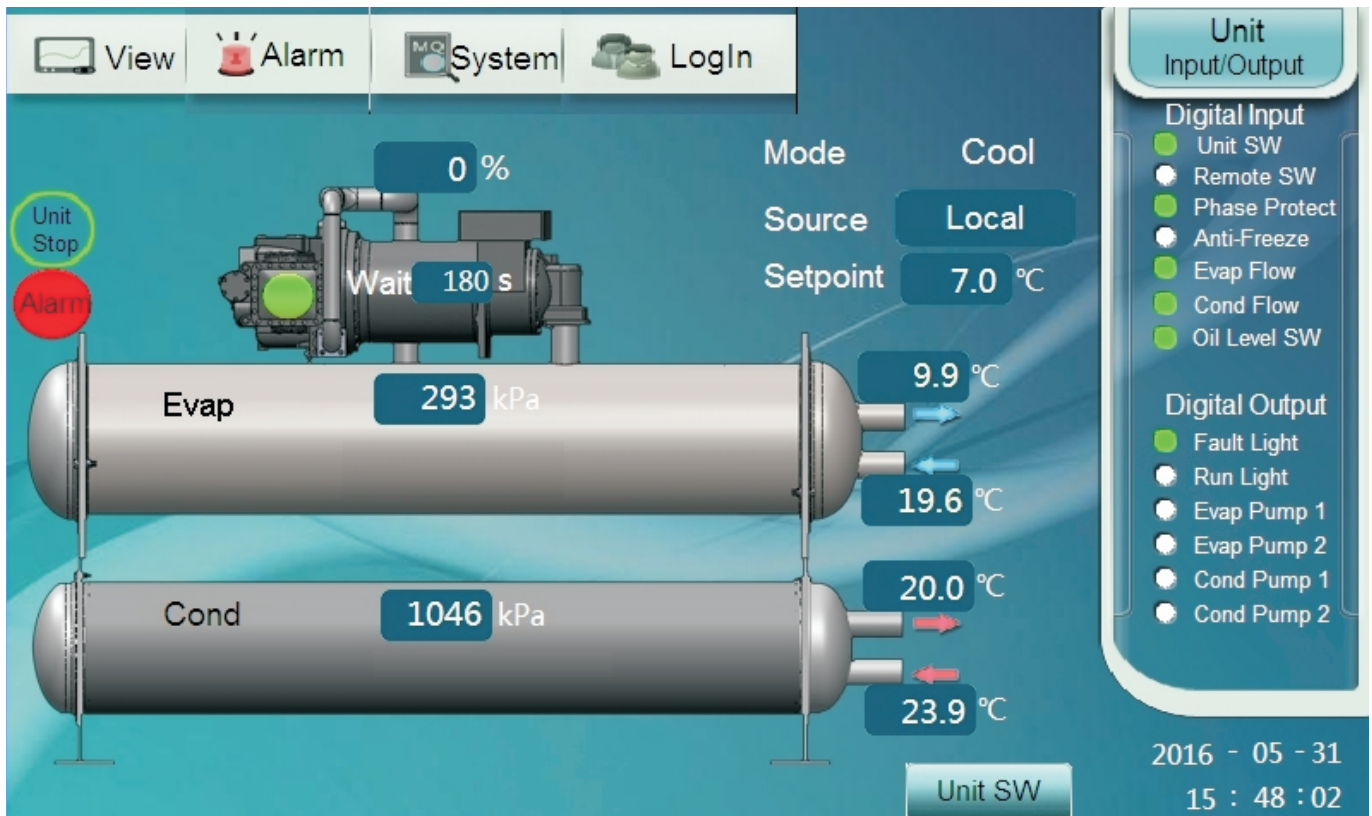
- ZUWV chiller is applicable to the cooling and load fluctuation place, such as hotel, hospital, school, theater, museum, office building etc.

Outstanding performance brings more benefit to owners and meets more standard eg. LEED, MEPS

CONTROL FEATURES

Controller and touch screen

We are dedicated to provide functional and easy operating control system. MicroTech applied the latest Micro Process tech and configured large color touch screen. MicroTech controller includes microprocessor which provides all monitor and control function for the efficient and safety operation.



Control display, alarm and protection function

Display

- Leaving chilled water set point;
- Entering /leaving chilled/condensing water temp;
- Compressor suction/discharge pressure;
- Compressor total operating time and load%
- Alarm information
- Compressor discharge temp/superheat
- Compressor oil supply pressure
- Condensing/Evaporating temp;

Alarm protection function

- Refrigerant high/low pressure protection'
- Phase monitor: phase unbalance/failure/fault;
- Chilled water freezing protection
- Motor overheat protection'
- Compressor abnormal frequently start protection
- Oil level, oil different pressure protection;
- Low/high voltage protection.

TECHNICAL DATA

Model	Cooling capacity		Power Consumption	COP	IPLV	Evap.Flow Rate	Evap.Pressure Drop	Cond.Flow Rate	Con.Pressure Drop	Refrigerant Charge	Evap. Pipe DN	Cond. Pipe DN	Chiller weight	Operation Weight	Rated Load Amps	L*W*H
	U.S.RT	kW	kW			l/s	kPa	l/s	kPa		kg	mm				
ZUWV 4H2DF FEE3 FBL2 SC	193.9	681.8	118.9	5.734	9.763	29.35	48.5	37.07	32.8	210	φ219	φ219	4340	4763	193.2	3534*1657*2116
ZUWV 4I2JF FFE3 FCL2 SC	207.3	728.8	126.0	5.784	10.04	31.38	42.6	39.58	33.5	240	φ219	φ219	4658	5081	205.8	3534*1731*2366
ZUWV 4J2JF FFE3 FFL2 SC	236.1	830.0	146.1	5.681	9.520	35.73	53.5	45.19	30.1	240	φ219	φ219	4733	5156	237.6	3534*1731*2366
ZUWV 5K8JF KEE3 KAL2 SB	301.5	1060	184.6	5.742	10.41	45.65	50.2	57.6	42.0	325	φ219	φ219	6270	6800	298.4	3862*1795*2446
ZUWV 5M8LF KEE3 KCL2 SC	321.7	1131	187.7	6.026	10.64	48.68	56.2	61.03	31.7	325	φ219	φ219	6376	6906	306.1	3862*1795*2446
ZUWV 6N8MF LGE3 LCL2 SB	422.9	1487	257.3	5.779	10.73	64.02	71.2	80.75	59.2	430	φ219	φ219	7915	8579	415.8	4448*1795*2446

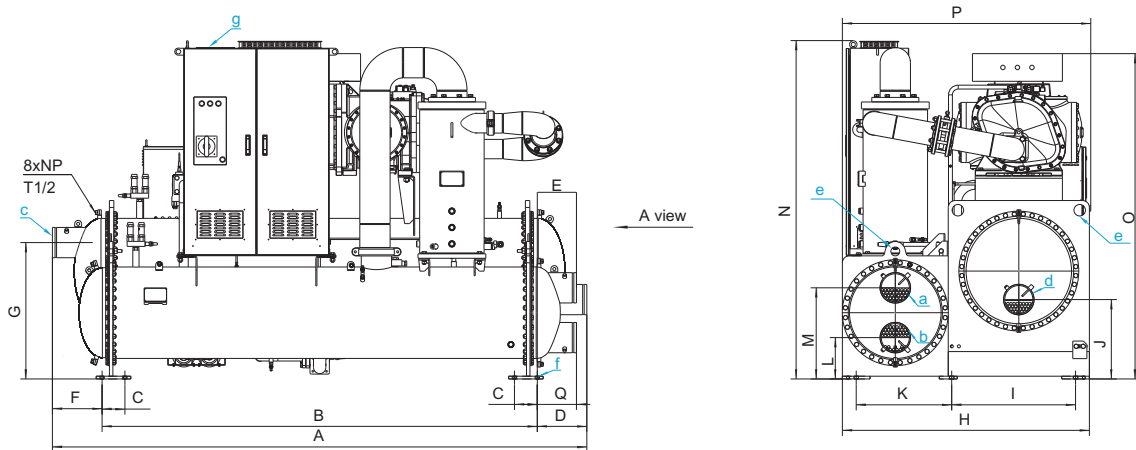
Notes:

- Above chiller cooling capacity is based on AHRI condition:
 Chilled water outlet temperature 6.7°C, Chilled water inlet temperature 12.2°C;
 Cooling water inlet temperature 29.4°C. Cooling water outlet temperature 34.6°C;
 Evaporator-side water fouling factor: 0.018 m² °C/kW, condenser-side water fouling factor: 0.044 °C/kW
- Power supply: 380V/50Hz/3
- Parameters of special units, please contact the Local sales organization.
- The starting current is smaller than full load current; the power distribution should according to the full load current

Options

Items	Standard	Options
Vessel Code	GB Standard	ASME
Water connection	Victaulic groove ready	Flange
Marine water box	None	option
Insulation	20 mm insulation on evaporator and cold surface	40 mm insulation on evaporator
Flow switch	Flow switch	NA
Shock absorption Device	Rubber Pad vibration absorber	Spring isolator
Extended warranty	NA	1-4 Year
Factory Test	100% factory performance test report not include	1 to 4 point witness test

DIMENSIONS



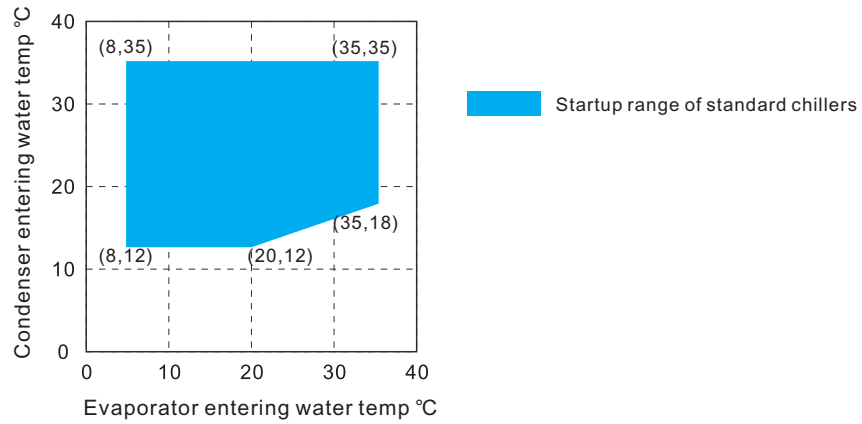
Model	Compressor Code	Evaporator Code	Condenser Code	Dimension(mm)							Evaporator water pipe location dimension (mm)				Condenser water pipe location dimension (mm)					
				A	P	N	B	H	O	C	F	G	I	J	D	E	K	L	M	Q
ZUWV	4H	F	F	3534	1657	2116	2878	1505	2084	165	266	889	702	529	390	246	723	305	595	390
	4I			3534	1731	2366	2878	1505	2085	165	266	889	702	529	390	246	723	305	595	390
	4J			3862	1795	2446	3145	1785	2352	165	359	986	895	574	358	283	690	299	659	659
	5K	K	K	4448	1795	2446	3764	1785	2420	165	342	911	920	499	342	266	665	299	659	659
	5M			4448	1795	2446	3764	1785	2420	165	342	911	920	499	342	266	665	299	659	659
	6N	L	L	4448	1795	2446	3764	1785	2420	165	342	911	920	499	342	266	665	299	659	659

Notes:

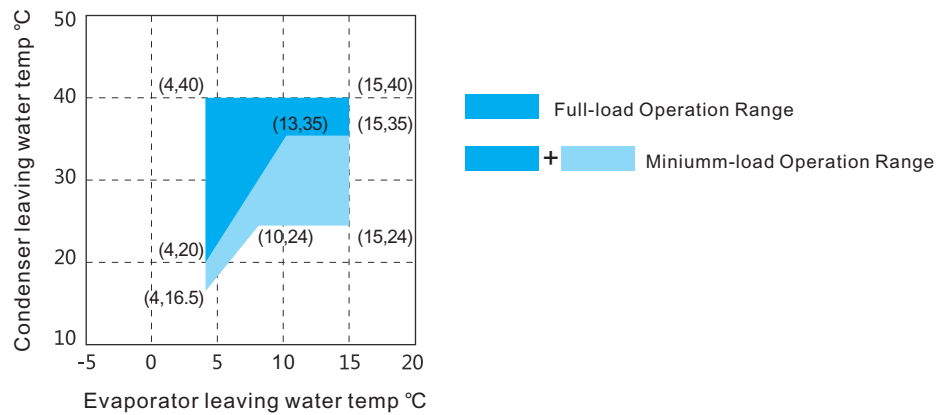
a. Condenser water outlet; b. Condenser water inlet; c. Evaporator water inlet d. Evaporator water outlet; e. lifting lug; f. Mounting hole; g. Starter power cable slot



STARTING RANGE



OPERATING RANGE



Notes:

Operating conditions description:

A)The operating range in the chart is determined according to the following conditions:

Evaporator water $\Delta t \leq 5^\circ\text{C}$ (according to customer condition), evaporator fouling factor of $0.018 \text{ m}^2 \cdot ^\circ\text{C} / \text{kW}$;

Condenser water $\Delta t \leq 5^\circ\text{C}$ (according to customer condition), condenser fouling factor of $0.044 \text{ m}^2 \cdot ^\circ\text{C} / \text{kW}$.

B)Evaporator water Δt is above 5°C , or fouling factor is greater than the value, the evaporator leaving water temperature lower limit will be increased;

Condenser water Δt is above 5°C , or fouling factor is greater than the value, the condenser leaving water temperature upper limit will be reduced.

C)When the job condition is different, operating range may differ from the chart description.

When the evaporator leaving water temperature is lower than 3°C , it is required to add antifreeze.

D)During starting, make sure that evaporator and condenser water leaving and entering direction is correct. If the condenser entering water temperature is too low, Please install three-way temperature control valve or condenser water bypass valve to adjust entering water temperature. In order to ensure chiller stable working, adjust Evap/Cond water ΔT to 3°C above in 1 minute after startup. Methods: 1) Reduce Evap/Cond water flow rate when starting. When ΔT is maintained, gently adjust the flow rate to setting valve 2) when the ambient temperature is higher than the condenser entering water temperature, pre-start cooling water pump and increase the cooling water temperature before starting the chiller; 3) Add auxiliary heating equipment in the cooling water system.

E) If the condenser leaving water temperature cannot reach 16.5°C during 10mins after starting the unit, please install two-way motorized valve.

APPLICATION STANDARD

The standard running condition:

Supply Voltage	±10%
Phase Unbalance Rate	±2%
Frequency	Rated frequency ±2%
Operating Temperature	3~40°C
Relative Humidity	≤90%
Explosion-proof grade	None
Atmospheric Corrosive Gas Contents	Sulfur dioxide ≤ 10 mg/m ³
	Hydrogen fluoride ≤ 5 mg/m ³
	Hydrogen sulfide ≤ 5 mg/m ³
	Nitrogen oxide ≤ 5 mg/m ³
	Nitrogen ≤ 1 mg/m ³
	Hydrogen chloride ≤ 1 mg/m ³
Installation	Indoor installation, no rain or direct sunlight(for installations of the outdoor, seaside, chemical plant, or place of high concentration of corrosive gas, please contact the local Daikin branch office and dealers)
Altitude	< 1000 (when star delta starter device adopted, the altitude height allowed is 2000m, ultrahigh altitude will influence the electrical insulation and electric conductivity and measures shall be taken to protect the chiller)

WATER QUALITY MANAGEMENT

During the unit running, the water quality of the cooling and chilled water will directly affect the machine's performance and lifetime, so it is necessary to survey the water quality beforehand, and conduct water quality control as the unit runs.

The following table contains some parameters of the water quality of open system:

Item	Unit	Reference Value	Item		
			Corrosion	Scaling	
Base Items	PH (25°C)	-	<6.5~8.0	O	O
	Electrical conductivity (25°C)	µs/cm	<800	O	O
	Chloridion CL ⁻	Mg(CL ⁻)/L	<200	O	
	Sulfateion SO ₄ ²⁻	mgSO ₄ ²⁻ /L	<200	O	
	Acid Consumption (PH=4.8)	mg(CaCO ₃)/L	<100		O
	Full Hardness	mg(CaCO ₃)/L	<200		O
Reference Items	Iron Fe	mg(Fe)/L	<1.0	O	O
	Sulphion S ²⁻	mg(S ²⁻)/L	Not Detected	O	
	Ammoniumion NH ⁺	mg(NH ⁺)/L	<1.0	O	
	Silicon Oxide SiO ₂	mg(SiO ₂)/L	<50		O

Notes:

1. The "O" in the table indicates the relevant factors with corrosion or scaling.
2. We recommend you add water process device and contact Daikin professional servicer to deal with it.

Performance data shown in this manual is for reference purpose only and is correct at the time of print. Refer to the latest version of chiller selection software for performance data at the time of manufacturing.



Cautions on product corrosion

- 1.The units should not be installed in areas where corrosive gases,such as acid gas or alkaline gad,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 distnbbutor.

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