



MUVD



**WATER COOLED
SINGLE SCREW
CHILLER**



**ASHRAE
90.1
COMPLIANT**

DAIKIN REFRIGERATION MALAYSIA SDN. BHD.

Reliable Operation, Unmatched Stability

Welcome to the future of chiller technology with Daikin's latest innovation – the MUWD Water Cooled Single Screw Compressor Chiller. Designed and manufactured in Malaysia, the MUWD sets a new standard in efficiency, reliability, and ease of integration. In this catalog, we'll explore the key features that make MUWD the ideal choice for your cooling needs.

Engineered with precision and backed by Daikin's commitment to excellence, the MUWD ensures uninterrupted performance in every cooling cycle. From its robust compressor design to the seamless integration of advanced technologies like Microtech, the MUWD stands as a beacon of dependable operation. Trust in a chiller that not only meets but exceeds expectations – where stability and reliability are not just features but a guarantee. Introducing the MUWD Water Cooled Single Screw Compressor Chiller, where stability and reliability converge to redefine industry standards.

COP up to

5.0
kW/kW



IPLV up to

5.8 kW/kW

Nomenclature

MUWD120CSY1Z

MUWD

R134a Chiller Model
Water Cooled Screw
DX Chiller Series

120

Nominal
Tonnage (TR)

C

Generation

S

S: Single Compressor

Y1

Y1: 3 Phase, 3 Wire,
380V- 415V 50Hz

Z

None: Standard Model
Z: Brine Model (Low Temp)



1918

3521

803

Smaller Footprint

The MUWD Water Cooled Single Screw Chiller sets a new standard for efficiency without compromise, boasting a small footprint that maximizes space utilization. Engineered with precision, MUWD's compact design allows for seamless integration into diverse environments where space is at a premium. From tight mechanical rooms to urban installations, MUWD's small footprint delivers powerful cooling performance without sacrificing efficiency or convenience. Embrace a chiller that proves big on efficiency while being small on space – introducing MUWD, where compact meets capability.

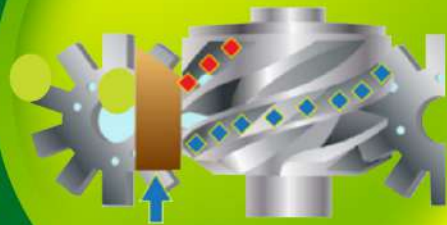
Pioneering Engineering

I. COMPRESSOR TECHNOLOGY

The MUWD chiller features the Daikin single screw compressor, a positive displacement compressor renowned for its minimal moving parts and mechanical balance. The primary rotor, powered by the motor, seamlessly engages with two counter-rotating star rotors, forming a chamber that compresses the refrigerant, initiating a compression cycle. The free rotation of the star rotors, solely propelled by the main rotor, ensures equilibrium in both radial and axial directions. This equilibrium significantly enhances compressor reliability, extending its operational life. Furthermore, it substantially diminishes vibration and noise levels, contributing to a quieter and smoother operation.



SLIDE VALVE (100% OF LOAD)



SLIDE VALVE (PART LOAD)



2. STEPLESS CAPACITY CONTROL

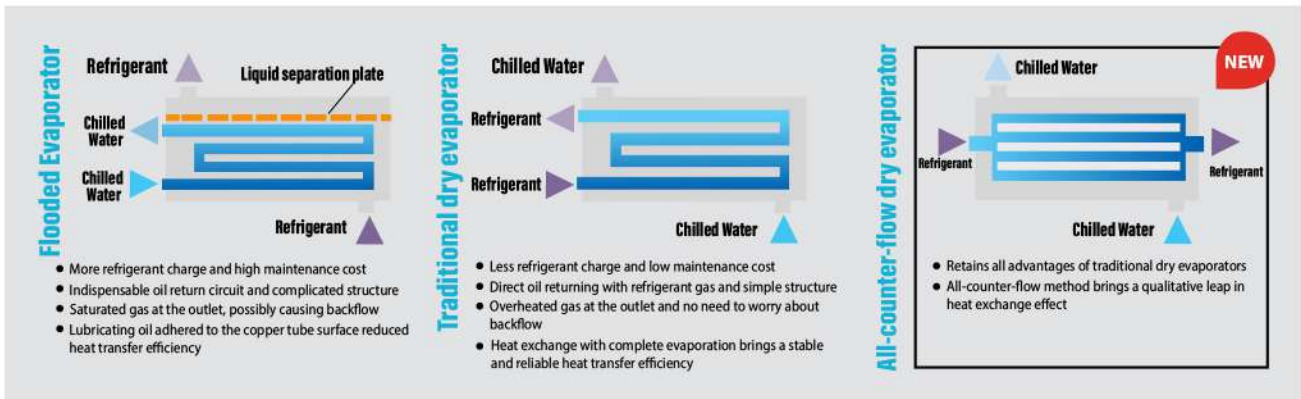
The MUWD chiller incorporates slide valve technology for capacity control. A microprocessor regulates the position of the slide valve, adjusting its capacity to closely align with the building's load requirements. This precise modulation ensures the chiller operates at optimal efficiency consistently, maximizing energy savings in the overall chiller plant operation. The stepless capacity control allows the modulation of the slide valve's capacity from 100% to 25% for each compressor.

Close meshing between main rotor & star rotor eliminates leakage between the high and low pressure sides during compression.



3. HEAT EXCHANGER

- The combination of a horizontal tubecase and a dry shell-tube evaporator features a concise structure and enables stable heat exchange, durable efficiency and easy maintenance.
- The condenser features a high efficiency heat exchange tube with stable performance, further enhancing the heat exchange performance of heat exchanger and improving the chiller's COP.
- The all-counter-flow dry evaporator boasting the latest European environmental concept, while retaining the advantages of traditional dry evaporators, makes a qualitative leap in the heat exchange effect.



4. ELECTRONIC EXPANSION VALVE

- The electronic expansion valve adjust delicately according to changing of compressor load, thus achieving high-efficiency operation status.
- With refrigerant controlled by the electronic expansion valve, the chiller runs more smoothly and stably.
- Controlled by the electronic expansion valve, the dry evaporator makes oil returning more stably, thus ensuring the more reliable operation of chillers.

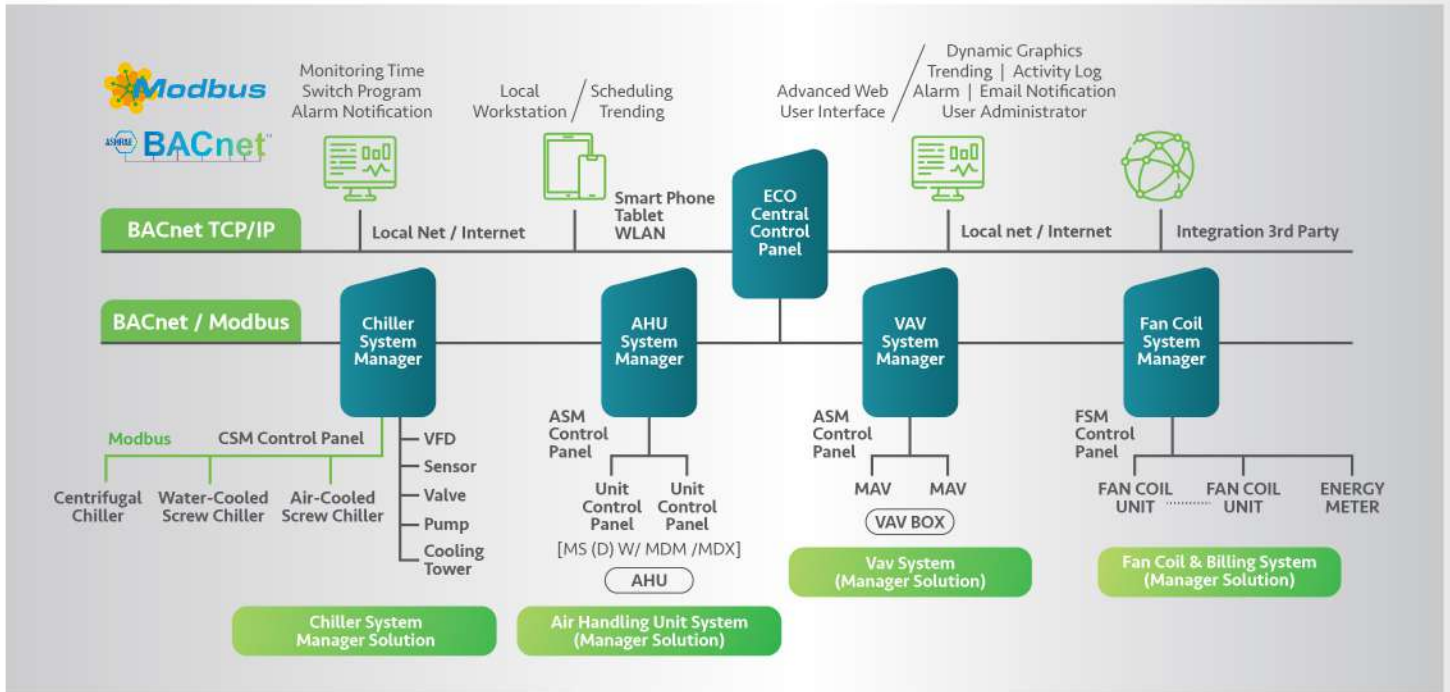


5. SMART CONTROL

MUWD employs MicroTech as its preferred programmable logic controls microprocessor. Operating as the chiller's central "brain," MicroTech continuously monitors, controls, and safeguards the chiller. To minimize energy consumption across the entire operational spectrum, the compressor operates at the minimum speed, ensuring cooling capacity and lift are maintained. This necessitates the microprocessor's ongoing monitoring of the chiller's status and various parameters. The controller takes proactive measures to mitigate or prevent abnormal conditions, and it can shut down the chiller in response to triggered alarms. Additionally, the MicroTech controller acts as the communication hub for the chiller, facilitating interactions between internal and external devices like water pumps, cooling towers, and valves. Furthermore, it incorporates intelligent control features such as chilled water temperature reset and demand limit, optimizing chiller efficiency under real-world conditions.

6. EASY INTEGRATION INTO BAS SYSTEM

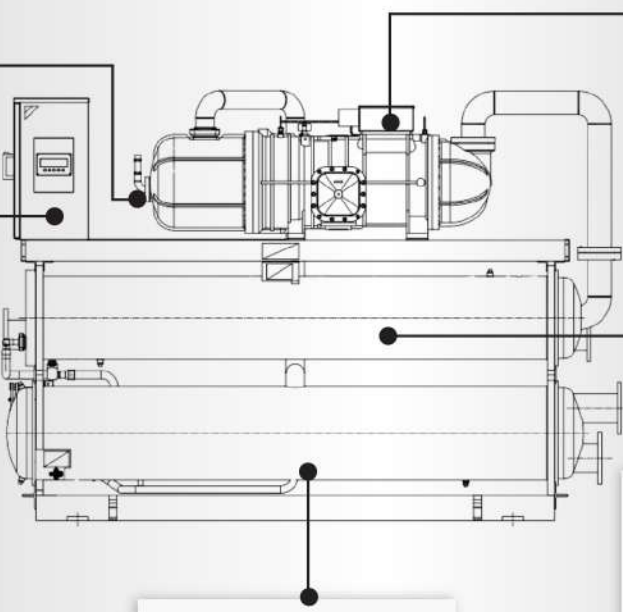
MUWD is capable of providing seamless data communication using common industrial protocols, such as Modbus and BACnet. This flexibility gives the customer effortless integration into BAS systems, allowing for user-friendly monitoring and controlling of chiller.



MUWD Key Feature Summary

Electronic Expansion Valve
Making sure chiller runs smoothly controlling the refrigerant thus high efficiency operation status

Controller
Using state of the art Microtech controller as the chiller's brain and are able to integrate with BAS system smoothly



Compressor
Using a well-balanced single screw compressor with slide valve technology to ensure chiller operates at an optimum efficiency

Condenser
A high efficiency heat exchanger with stable performance to enhance the overall heat transfer and the chiller's COP

Evaporator
All-counter-flow dry evaporator Stable heat exchange, concise structure, durable efficiency and easy maintenance

Technical Data

1. Standard Model

MODEL		MUWD40CSY1	MUWD50CSY1	MUWD60CSY1	MUWD80CSY1	MUWD100CSY1	MUWD120CSY1	
Cooling Capacity	USRT	38.40	46.90	58.20	76.70	93.70	116.40	
	kW	134.90	164.80	204.80	269.70	329.60	409.50	
Power Input	kW	26.65	32.67	40.28	53.20	64.83	80.56	
COP	kW/kW	5.06	5.04	5.08	5.07	5.08	5.08	
Compressor	Type	Semi-Hermetic Single Screw Compressor						
	Starter	Star-Delta						
	Capacity Control	25-100% Continuous Capacity Control						
Evaporator	Flow Rate	m ³ /h	23.17	28.30	35.18	46.33	56.59	70.34
		l/s	6.44	7.86	9.77	12.87	15.72	19.54
	Pressure Drop	kPa	61.70	62.60	64.60	74.60	75.70	77.90
Condenser	Flow Rate	m ³ /h	28.31	34.62	42.98	56.63	69.16	85.93
		l/s	7.86	9.62	11.94	15.73	19.21	23.87
	Pressure Drop	kPa	39.20	38.30	39.70	60.60	54.70	52.30
Dimension (LxWxH)	mm	2989 x 783 x 1685			3521 x 803 x 1918			
Machine Weight	kg	1275	1320	1450	2145	2350	2455	
Operation Weight	kg	1355	1450	1570	2275	2480	2645	

Notes:

- Above cooling capacity is based on the following condition: ELWT: 7°C, EEWT: 12°C | CEWT: 30°C, CLWT: 35°C
- Power supply: 380V/50Hz/3 phase

2. Brine Model

MODEL		MUWD40CSY1Z	MUWD50CSY1Z	MUWD60CSY1Z	MUWD80CSY1Z	MUWD100CSY1Z	MUWD120CSY1Z	
Cooling Capacity	USRT	22.10	26.86	33.46	44.38	55.44	68.21	
	kW	77.72	94.47	117.70	156.10	195.00	239.90	
Power Input	kW	24.92	30.08	36.79	48.33	61.01	73.98	
COP	kW/kW	3.11	3.14	3.20	3.23	3.20	3.24	
Compressor	Type	Semi-Hermetic Single Screw Compressor						
	Starter	Star-Delta						
	Capacity Control	25-100% Continuous Capacity Control						
Evaporator	Flow Rate	m ³ /h	13.65	16.59	20.66	27.42	34.24	42.12
		l/s	3.79	4.61	5.74	7.62	9.51	11.70
	Pressure Drop	kPa	34.80	36.40	40.10	36.60	42.60	40.40
Condenser	Flow Rate	m ³ /h	17.65	21.42	26.56	35.17	44.03	53.96
		l/s	4.90	5.95	7.38	9.77	12.23	14.99
	Pressure Drop	kPa	17.90	18.70	20.90	25.30	25.90	26.70
Dimension (LxWxH)	mm	2989 x 783 x 1685			3521 x 803 x 1918			
Machine Weight	kg	1275	1320	1450	2145	2350	2455	
Operation Weight	kg	1355	1450	1570	2275	2480	2645	

Notes:

- Above cooling capacity is based on the following condition: ELWT: -5°C, EEWT: 0°C | CEWT: 30°C, CLWT: 35°C
- Ethylene Glycol 30% by Volume
- Power supply: 380V/50Hz/3 phase

Scope of Supply

ITEMS	STANDARD	OPTIONS
Vessel Code	None	ASME, JKKP (DOSH Malaysia)
Water Connection	Victaulic Groove	DN Flange
Water Box	Compact Water Cover (1.0Mpa)	Marine Water Box
Insulation	20mm Insulation on Evaporator	40mm Insulation on Evaporator
Flow Switch	None	Paddle Type
Anti-vibration	Rubber Isolation Pad	Spring Isolator
Test	Functional Test	Witness Functional Test
Communication	None	Modbus, Bacnet

Notes:

1. Insulation:

a. Ambient temperature lower than 30°C:

Humidity lower than 70%, use single layer insulation (20mm); humidity higher than 70% (included), use double layer insulation (40mm).

b. Ambient temperature higher than 30°C:

Humidity lower than 65%, use single layer insulation (20mm); humidity higher than 65% (included), use double layer insulation (40mm).

2. Factory Testing:

To ensure provide safe and reliable products to customers, all Daikin applied chillers are factory tested before shipment. Operating and safety controls are checked for correct settings and operation. This testing helps reduce start-up issues and maintain critical construction schedules



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