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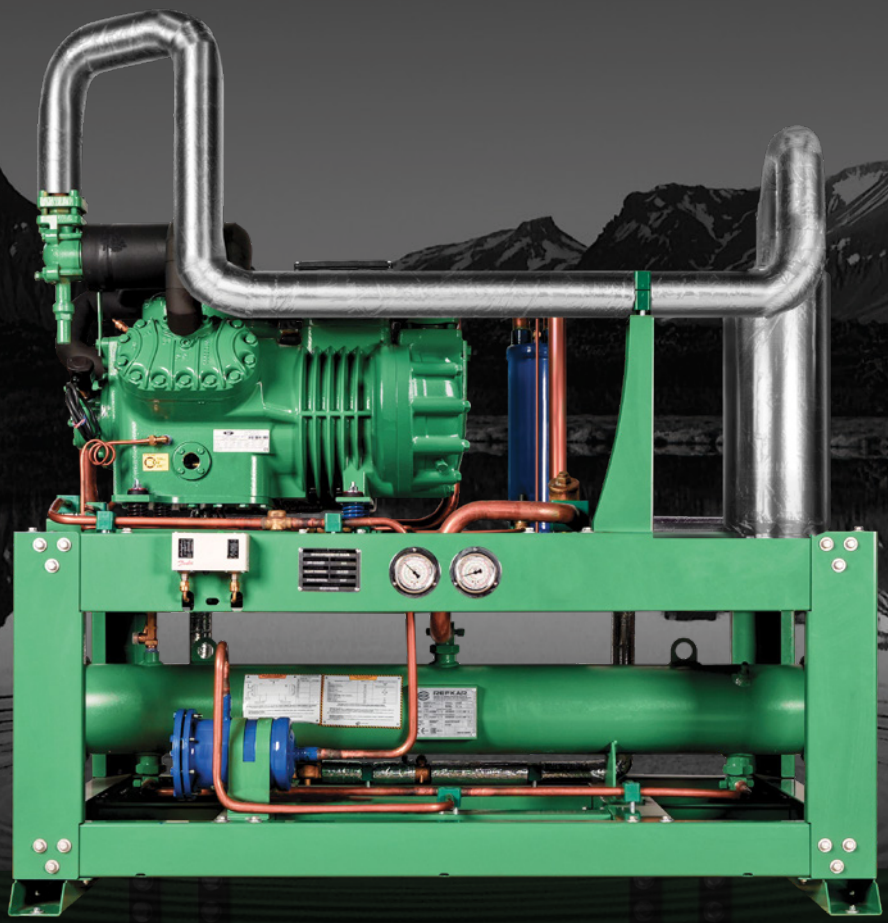
WATER COOLED
CONDENSING UNIT
with BITZER compressor
S Series 50 Hz



ENGINEERED & MANUFACTURED BY RIME

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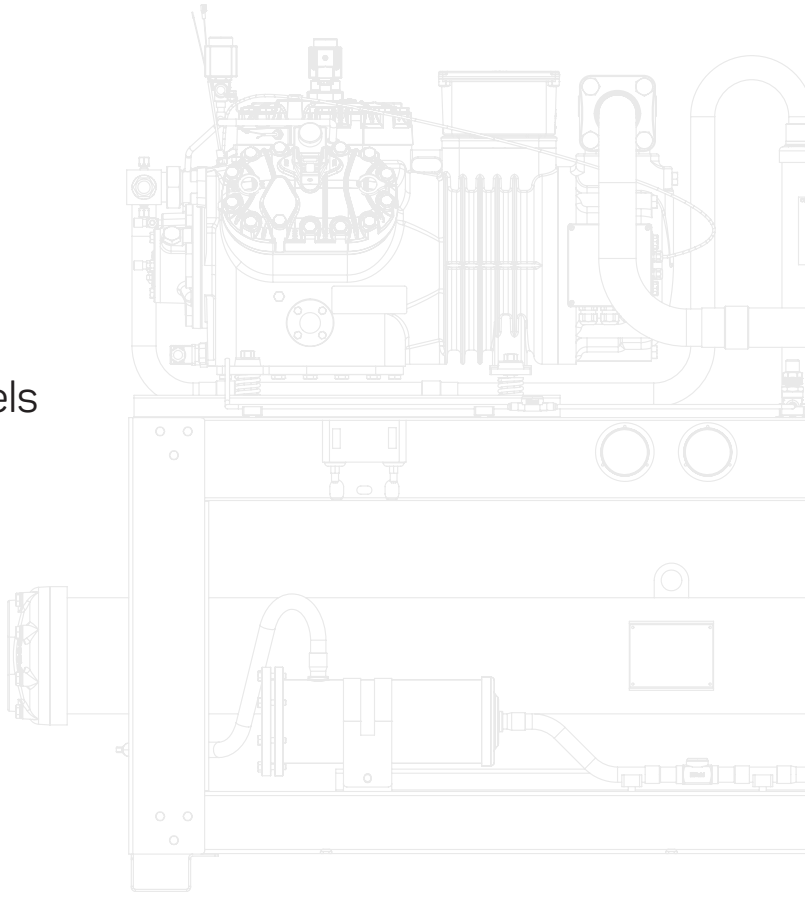

Contact

For inquiries, consultations, or to learn more about our innovative refrigeration solutions, please get in touch with us:
sales@rimegroup.com

For customer support email us:
support@rimegroup.com




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Company Overview

Rime is a global manufacturer of refrigeration products for the commercial and industrial sectors, offering an extensive range that includes heat exchangers, condensing units, refrigeration racks, and HVAC copper products. Strategically headquartered in the Jebel Ali Free Zone, Dubai, the company leverages its UAE location to ensure efficient distribution, timely deliveries, and industry excellence.

Our Mission

We strive to deliver high-quality, cost-effective refrigeration solutions focusing on advanced manufacturing and assembly. We aim to provide superior products and exceptional service, ensuring a seamless customer experience and ongoing support.

Our Vision

To lead the HVAC and Refrigeration industry from the GCC to the global stage, setting the benchmark for cost-effective and innovative solutions. Through advanced manufacturing and assembly practices, we strive to pioneer cutting-edge technologies that optimize energy efficiency, minimize environmental impact, and make a significant, positive difference worldwide.

Core Values

Responsiveness: We value responsiveness in our interactions with clients, partners, and team members. We prioritize open communication and timely actions to address their needs efficiently.

Integrity: It is at the core of our business. We uphold ethical practices, transparency, and honesty in all our endeavors, building trust and long-lasting relationships with our stakeholders.

Mindfulness: Extends to our workplace culture. We are committed to fostering a supportive and inclusive environment where employees' well-being and personal growth are prioritized, ensuring a positive and collaborative work atmosphere.

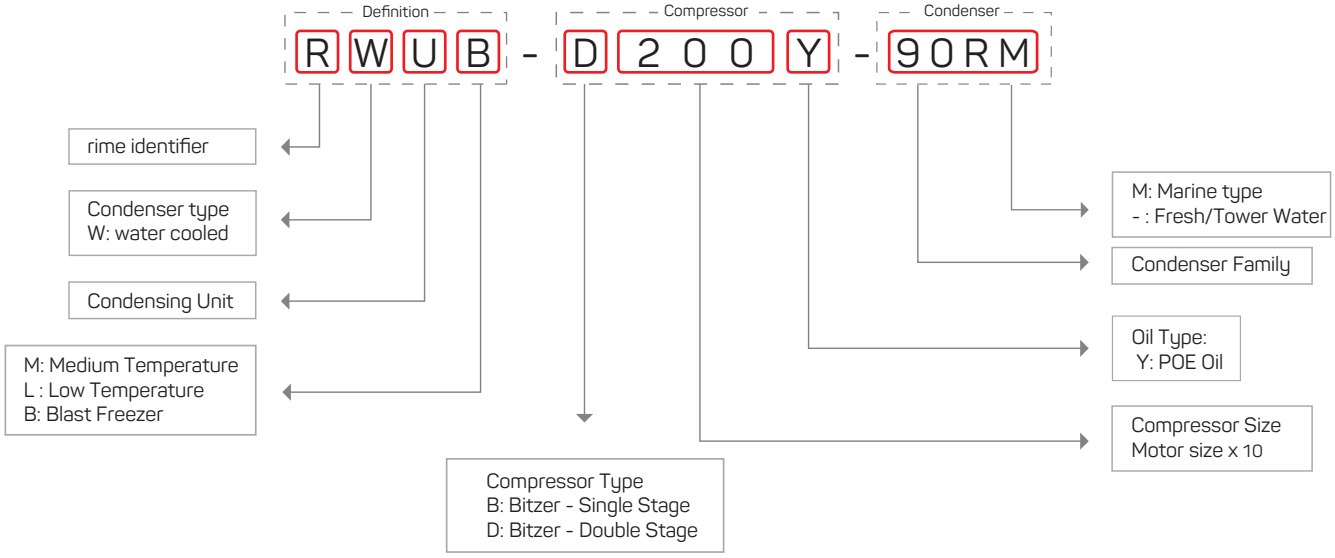
Empowerment: We believe in empowering our team members to foster creativity, growth, and professional development. We encourage collaboration and foster an environment where everyone's ideas and contributions are valued.

Water Cooled Condensing Unit Overview

RIME Water-Cooled Condensing Units are engineered to deliver stable and efficient refrigeration performance in applications where ambient conditions, noise constraints, or space limitations make air-cooled systems less suitable. Built around Bitzer semi-hermetic reciprocating compressors and integrated shell-and-tube condensers, these units ensure consistent condensing through reliable water-side heat rejection. They are suitable for low- and medium-temperature commercial refrigeration applications.

With optimized refrigerant flow, a service-friendly layout, and factory-tested performance, the units provide reliable operation, consistent capacity, and easy integration into plant rooms and packaged systems.

WATER COOLED CONDENSING UNIT NOMENCLATURE



APPLICATION BY **TEMPERATURE**

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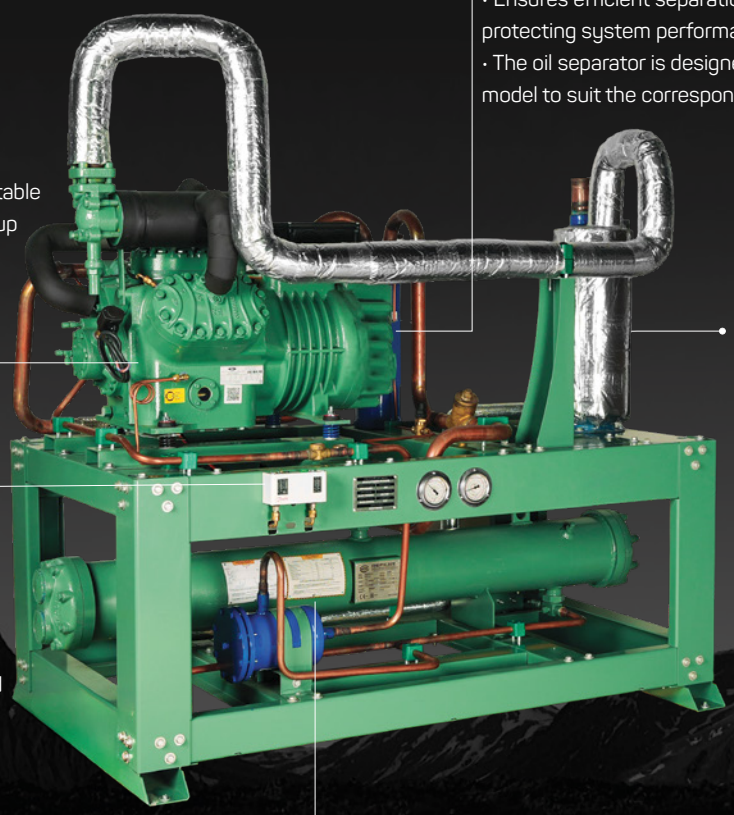
Water Cooled Condensing Unit

Standard Components

BITZER ECOLINE COMPRESSOR
· Bitzer Ecoline semi-hermetic reciprocating compressor
· Integrated crankcase heater for stable oil temperature and reliable start-up

OIL SEPARATOR
· Ensures efficient separation of oil from the refrigerant, thereby protecting system performance and reliability
· The oil separator is designed and optimized for each compressor model to suit the corresponding refrigerant flow characteristics.



SUCTION ACCUMULATOR
· Prevents liquid refrigerant carryover into the
· Promotes refrigerant superheating before enterina the compressor
· Protects the compressor from liquid slugging and damage

HP/LP SWITCH (ADJUSTABLE)
· Adjustable high/low pressure safety switch, supplied pre-installed on the condensing unit

SHELL & TUBE CONDENSER
· Cast-iron end covers for high mechanical strength and long-term stability
· High-grade alloy steel fasteners for secure assembly and pressure resistance
· Asbestos-free sealing gaskets, fully compatible with HCFC and HFC refrigerants

COMPACT
Compact space requirements enable easy and flexible placement of the unit.

ROBUST
Extensive experience in compressor and condenser technology

COMPATIBLE
Condensers can be ordered that are compatible with seawater.

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Water Cooled Condensing Unit Models

S-series (50 Hz)

Medium Temperature Application-R404A

Water Cooled Condensing Unit Model	Compressor Model	Condenser Model	Cooling capacity (kW)	Compressor Power Input (kW)
RWUM-B070Y-35R	4DES-7Y-40S	135R	14.5	6.0
RWUM-B090Y-45R	4CES-9Y-40S	45R	18.0	7.6
RWUM-B100Y-45R	4VE-10Y-40P	45R	18.7	7.5
RWUM-B120Y-60R	4TE-12Y-40P	60R	26.0	9.2
RWUM-B150Y-90R	4PE-15Y-40P	90R	25.8	10.4
RWUM-B200Y-90R	4NE-20Y-40P	90R	31.0	12.4
RWUM-B220Y-100R	4JE-22Y-40P	100R	34.8	13.9
RWUM-B250Y-120R	4HE-25Y-40P	120R	41.1	16.5
RWUM-B300Y-145R	4GE-30Y-40P	145R	47.2	19.0
RWUM-B350Y-145R	4FE-35Y-40P	145R	56.6	23.7
RWUM-B330Y-145R	6JE-33Y-40P	145R	51.6	20.4
RWUM-B350Y-180R	6HE-35Y-40P	180R	60.3	24.5
RWUM-B400Y-180R	6GE-40Y-40P	180R	68.7	28.4
RWUM-B500Y-180R	6FE-50Y-40P	180R	83.8	35.2

Q_c: Cooling Capacity in T_e= -8 °C and T_c=+43 °C
P_i: Compressor Power Input at T_e= -8 °C and T_c=+43 °C

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Water Cooled Condensing Unit Models

S-series (50 Hz)

Low Temperature Application-R404A

Water Cooled Condensing Unit Model	Compressor Model	Condenser Model	Cooling capacity (kW)	Compressor Power Input (kW)
RWUL-B050Y-35R	4DES-5Y-40S	135R	6.3	4.4
RWUL-B061Y-35R	4CES-6Y-40S	35R	7.7	5.3
RWUL-B070Y-35R	4VE-7Y-40P	35R	7.6	5.0
RWUL-B090Y-45R	4TE-9Y-40P	45R	9.5	6.3
RWUL-B120Y-60R	4PE-12Y-40P	60R	10.5	6.9
RWUL-B140Y-60R	4NE-14Y-40P	60R	12.9	8.5
RWUL-B150Y-90R	4JE-15Y-40P	90R	15.4	10.0
RWUL-B180Y-100R	4HE-18Y-40P	100R	18.3	11.9
RWUL-B230Y-120R	4GE-23Y-40P	120R	21.5	14.1
RWUL-B280Y-120R	4FE-28Y-40P	120R	25.7	17.0
RWUL-B250Y-120R	6JE-25Y-40P	120R	22.9	14.7
RWUL-B280Y-145R	6HE-28Y-40P	145R	26.9	17.5
RWUL-B340Y-145R	6GE-34Y-40P	145R	32.4	21.5
RWUL-B440Y-180R	6FE-44Y-40P	180R	38.5	25.9

Q_c: Cooling Capacity in T_e= -25 °C and T_c=+43 °C
P_i: Compressor Power Input at T_e= -25 °C and T_c=+43 °C

Blast Freezer Application-R404A

Water Cooled Condensing Unit Model	Compressor Model	Condenser Model	Cooling capacity (kW)	Compressor Power Input (kW)
RWUB-D200Y-90R	S6H-20.2Y-40P	90R	20.4	15.8
RWUB-D250Y-100R	S6G-25.2Y-40P	100R	23.3	18.2
RWUB-D300Y-120R	S6F-30.2Y-40P	120R	27.5	21.7
RWUB-D200Y-90RM	S6H-20.2Y-40P	90RM	20.4	15.8
RWUB-D250Y-100RM	S6G-25.2Y-40P	100RM	23.3	18.2
RWUB-D300Y-100RM	S6F-30.2Y-40P	100RM	27.5	21.7

Q_c: Cooling Capacity in T_e= -35 °C and T_c=+43 °C
P_i: Compressor Power Input at T_e= -35 °C and T_c=+43 °C

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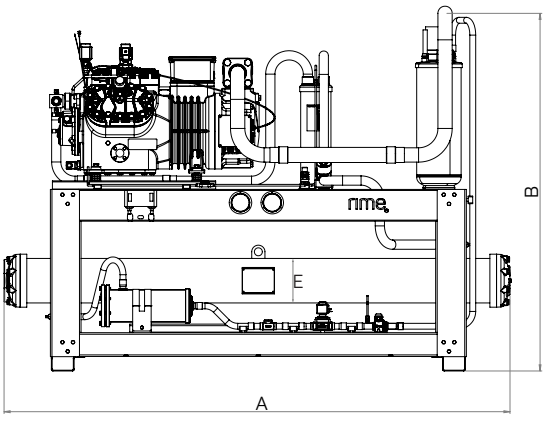
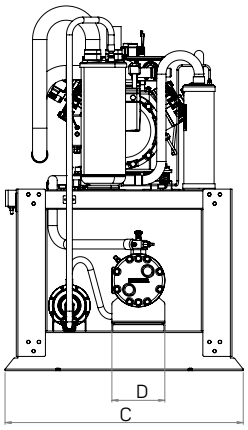
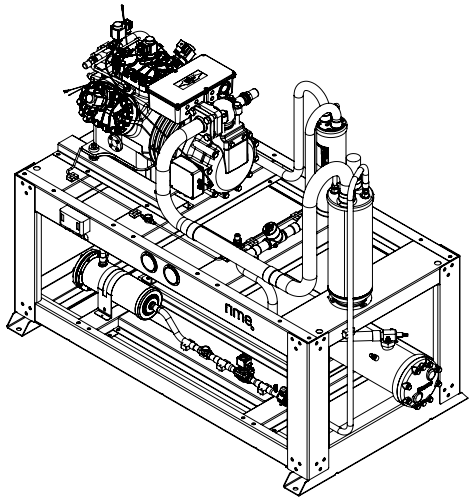
Water Cooled Condensing Unit

Dimensions







Water Cooled Condensing Unit Model	Dimensions in mm					Water Inlet	Water Outlet	Rotalock Outlet	Weight (kg)
	A	B	C	D	E				
RWUM-B070Y-35R	1360	1200	860	170	140	G 1"	G 1"	1 × 1/2	197
RWUM-B090Y-45R	1330	1260	860	200	168	G 1"	G 1"	1 x 5/8	197
RWUM-B100Y-45R	1330	1260	860	200	168	G 1"	G 1"	1 x 5/8	247
RWUM-B120Y-60R	1515	1250	900	200	168	G 2"	G 2"	1 3/4 × 7/8	263
RWUM-B150Y-90R	1515	1260	900	200	168	G 2"	G 2"	1 3/4 × 7/8	273
RWUM-B200Y-90R	1515	1250	900	200	168	G 2"	G 2"	1 3/4 × 7/8	276
RWUM-B220Y-100R	1515	1260	900	200	168	G 2"	G 2"	1 3/4 × 7/8	312
RWUM-B250Y-120R	1515	1260	900	200	168	G 2"	G 2"	1 3/4 × 7/8	330
RWUM-B300Y-145R	1915	1330	900	200	168	G 2"	G 2"	1 3/4 × 7/8	342
RWUM-B350Y-145R	1915	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	340
RWUM-B330Y-145R	1915	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	377
RWUM-B350Y-180R	1915	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	380
RWUM-B400Y-180R	1915	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	379
RWUM-B500Y-180R	1915	1400	900	200	168	G 2"	G 2"	1 3/4 × 1 1/8	385
RWUL-B050Y-35R	1360	1200	860	170	140	G 1"	G 1"	1 x 1/2	182
RWUL-B061Y-35R	1360	1200	860	170	140	G 1"	G 1"	1 × 1/2	187
RWUL-B070Y-35R	1360	1200	860	170	140	G 1"	G 1"	1 × 1/2	230
RWUL-B090Y-45R	1330	1260	860	200	168	G 1"	G 1"	1 x 1/2	248

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Water Cooled Condensing Unit

Dimensions

Water Cooled Condensing Unit Model	Dimensions in mm					Water Inlet	Water Outlet	Rotalock Outlet	Weight (kg)
	A	B	C	D	E				
RWUL-B120Y-60R	1515	1220	900	200	168	G 2"	G 2"	1 3/4 × 7/8	262
RWUL-B140Y-60R	1515	1250	900	200	168	G 2"	G 2"	1 3/4 × 7/8	270
RWUL-B150Y-90R	1515	1260	900	200	168	G 2"	G 2"	1 3/4 × 7/8	309
RWUL-B180Y-100R	1515	1260	900	200	168	G 2"	G 2"	1 3/4 × 7/8	311
RWUL-B230Y-120R	1515	1330	900	200	168	G 2"	G 2"	1 3/4 × 7/8	319
RWUL-B280Y-120R	1515	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	330
RWUL-B250Y-120R	1515	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	357
RWUL-B280Y-145R	1915	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	366
RWUL-B340Y-145R	1915	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	363
RWUL-B440Y-180R	1915	1400	900	200	168	G 2"	G 2"	1 3/4 × 7/8	383
RWUB-D200Y-90R	1515	1490	900	200	168	G 2"	G 2"	1 3/4 × 7/8	337
RWUB-D250Y-100R	1515	1490	900	200	168	G 2"	G 2"	1 3/4 × 7/8	353
RWUB-D300Y-120R	1515	1490	900	200	168	G 2"	G 2"	1 3/4 × 7/8	357
RWUB-D200Y-90RM	1515	1490	900	200	168	G 2"	G 2"	1 3/4 × 7/8	338
RWUB-D250Y-100RM	1515	1490	900	200	168	G 2"	G 2"	1 3/4 × 7/8	354
RWUB-D300Y-100RM	1515	1490	900	200	168	G 2"	G 2"	1 3/4 × 7/8	355

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Water Cooled Condensing Unit

RIME Water Cooling — Engineered for Precision

Developed for commercial refrigeration applications ranging from 6 kW to 85 kW, RIME water-cooled systems are engineered to deliver high energy efficiency, reliable operation, and consistent performance across blast Freezer, low, and medium-temperature applications.

Compressor

Units are equipped with Bitzer semi-hermetic reciprocating compressors, selected for their proven reliability and efficiency. These compressors deliver the required refrigeration capacity with optimized energy input and feature reduced pulsation through an improved cylinder head design, high-efficiency motor configuration, and optimized gas flow with minimal pressure drop.

Key Features

Quiet and Stable Operation

Compressors are mounted on anti-vibration supports, and all rotating components are dynamically balanced to minimize vibration and noise during operation.

Optimized Refrigerant Flow Design

The piping layout and component arrangement are engineered to reduce pressure losses and ensure stable refrigerant circulation, resulting in improved system efficiency.

Ease of Installation and Maintenance

Service connections are designed for easy accessibility, enabling quick installation and simplified maintenance. The compact unit design allows flexible integration into various system configurations.

High-Quality Welding and Pipework

Copper piping is brazed using silver alloy to ensure high mechanical strength and leak-free operation. All pipe bending and assembly processes are CNC-controlled for precision and consistency.

Factory Tested for Performance and Safety

Each unit undergoes rigorous pressure and performance testing to ensure safe, reliable operation under specified working conditions.

Integrated Water-Cooled Condenser Design

The units incorporate high-efficiency water-cooled condensers, offering excellent heat transfer performance with low pressure drop. Suitable for applications using city water or marine water, the condensers feature copper tubes with enhanced inner and outer grooved geometry to maximize thermal efficiency.

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Water Cooled Condensing Unit Models

CONDENSER SPECIFICATION

Sell & Tube Condenser Model	Nominal Heat Rejection Capacity (kW) *	Exchanging Surface (m^2)	Shell Side		Tube Side					
			Volume (L)	Max Allowable Pressure (bar)	Volume (L)	Max Allowable Pressure (bar)	Flow Rate (m^3/h)	Pressure Drop (KPa)	Water Inlet	Water Outlet
35R	14.79	2.33	6.6	30	3.3	10	9.91	3.4	G1"	G1"
45R	27.14	3.89	9.1	30	4.7	10	16.9	4.65	G1"	G 1"
60R	30.49	4.77	21	30	6.3	10	9.6	7.4	G 2"	G2"
90R	38.26	5.98	19.3	30	7.6	10	8.1	9.3	G 2"	G 2"
100R	46.04	7.2	17.7	30	8.8	10	9.1	11.2	G 2"	G 2"
120R	53.81	8.42	16.1	30	10	10	10.2	13.1	G2"	G2"
145R	59.82	9.29	23	30	10.8	10	10.1	11.4	G 2"	G2"
180R	74.23	11.63	20	30	13.1	10	7.7	14	G 2"	G 2"
90RM	34.88	5.98	19.3	30	7.6	10	8.3	9.3	G 2"	G 2"
100RM	41.96	7.2	17.7	30	8.8	10	9.3	11.2	G 2"	G2"

* Nominal Heat Rejection Capacity values are based on R404A at T_c = 43°C, with T_w,in = 33°C and T_w,out = 38°C."

Important Information

Only qualified personnel are permitted to install and repair compressors. All electrical connections of the compressor and its accessories must be carried out by authorized personnel only.

CRANKCASE (OIL HEATER)

The oil heater operates inversely to the compressor:

- Compressor OFF → Oil heater ON (maintains oil temperature approx. 15–20 K above ambient)
- Compressor ON → Oil heater OFF

SWITCHING FREQUENCY

The compressor should not be started more than 8 times per hour. Thereby a minimum running time should be guaranteed.

Unit Model	Min. Running Time
to 7.5 HP	2 min
7.5 to 20 HP	3 min
above 20 HP	5 min

REFRIGERATION OILS FOR BITZER COMPRESSORS

The following refrigeration oils are approved for Bitzer compressor

Refrigerant	Oil Charge
HFC R134a & R404A	Tc < 55 °C Bitzer BSE 32 (POE)
	R134a / T_c > 55 °C Bitzer BSE 55 (POE

RIME Units are designed to operate with Bitzer BSE32 (POE) oil.

LUBRICATION / OIL CHECK

Check compressor lubrication by ensuring the oil level is between 1/4 and 3/4 of the sight glass.

- For compressors with an oil pump, monitoring can be provided by a differential oil pressure switch (MP54/ MP55) or Delta PII.
- OLC-K1 is used for compressors with centrifugal lubrication. It monitors oil supply using an optoelectronic infrared sensor and shuts down the compressor if oil shortage persists beyond the delay time.
- Delta PII oil pressure control is applied across all RIME units featuring an oil pump.

OIL CHANGING

Oil changing is generally not required for factory-assembled units.

- Check oil quality every 3 years or after 10,000–12,000 operating hours.
- Oil filter cleaning must be carried out during oil changes.

APPLICATION LIMIT

- Low-temperature units are intended for storage of frozen products only. Products must be pre-frozen before storage.
- Maintain high evaporation temperatures within the compressor envelope; these units are suitable for storage applications such as warehouses and greenhouses.
- If there is a risk of the evaporation temperature rising beyond the operating envelope, use a CPRV (KVL), an MOP expansion valve, or an electronic expansion valve with MOP protection.

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