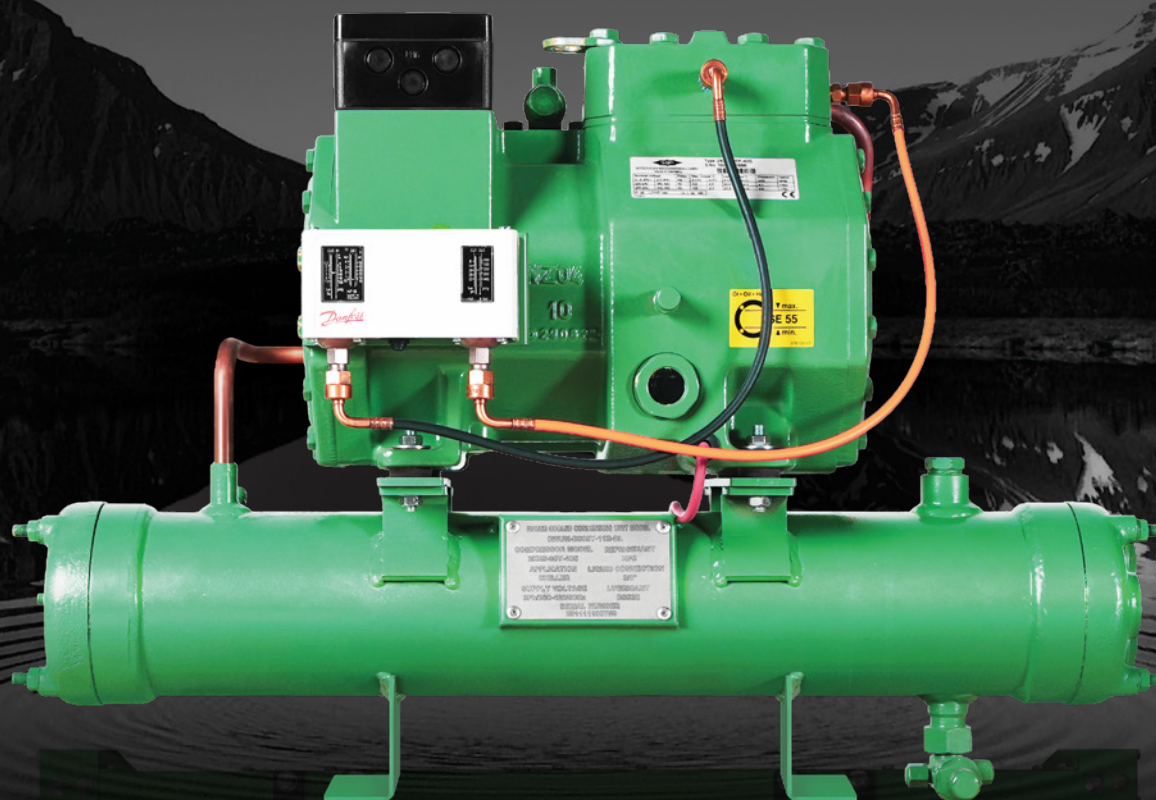


# rime

WATER COOLED  
**CONDENSING UNIT**  
with BITZER compressor  
E Series - 50 Hz



ENGINEERED & MANUFACTURED BY RIME

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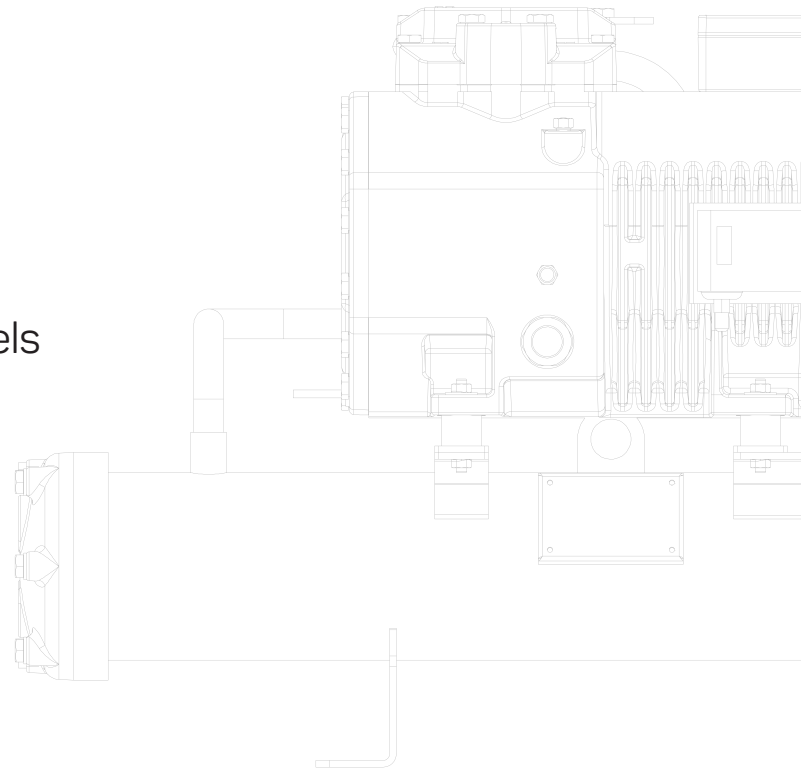
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## Contact

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

[sales@rimegroup.com](mailto:sales@rimegroup.com)

For customer support email us:

[support@rimegroup.com](mailto:support@rimegroup.com)





## 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.

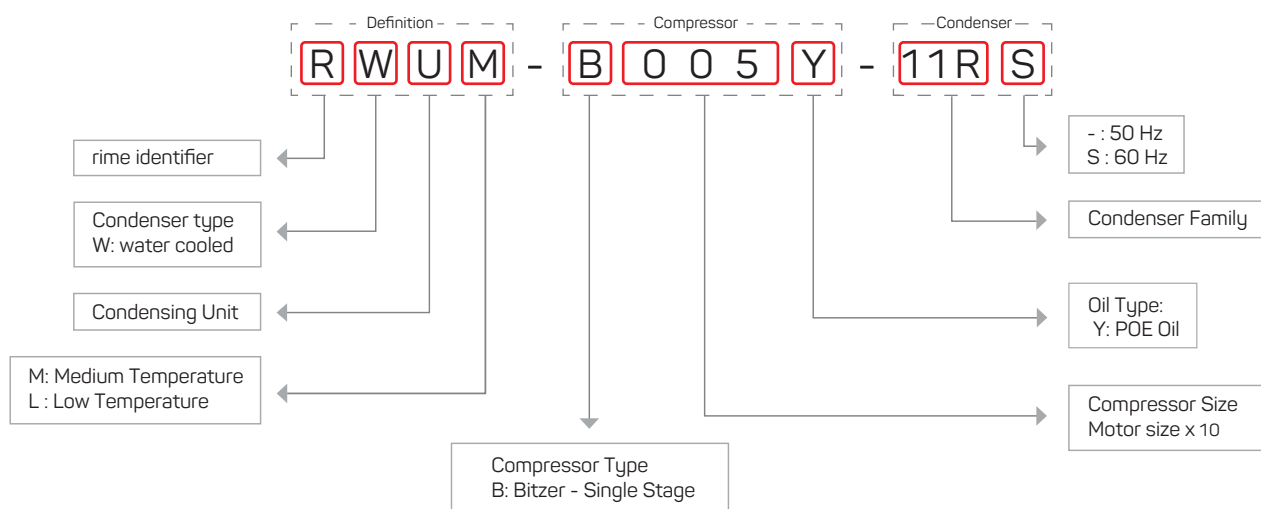
## Water Cooled Condensing Unit Overview

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.

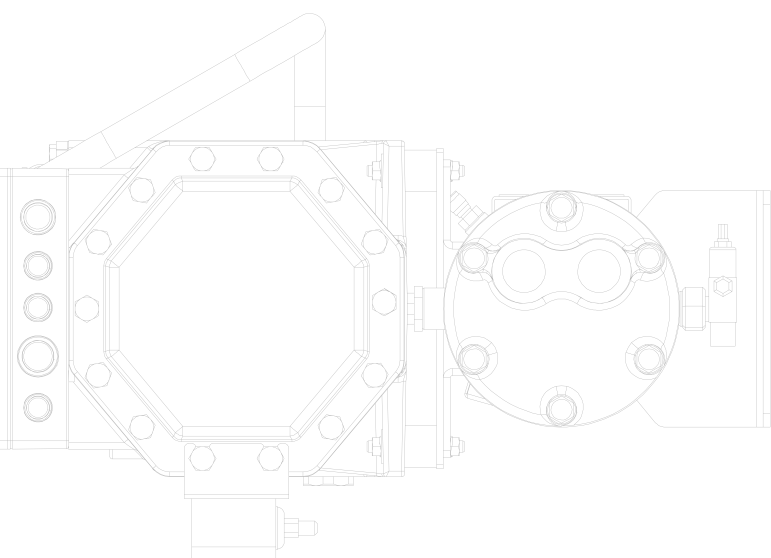
With optimized refrigerant flow, a service-friendly layout, and factory-tested performance, the units provide reliable operation, consistent capacity, and easy integration into plant rooms and packaged systems.



# WATER COOLED CONDENSING UNIT NOMENCLATURE



## APPLICATION BY TEMPERATURE



HIGH  
TEMPERATURE



MEDIUM  
TEMPERATURE



LOW  
TEMPERATURE



BLAST  
FREEZER





## Water Cooled Condensing Unit

### Standard Components

#### • 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

#### • BITZER ECOLINE COMPRESSOR

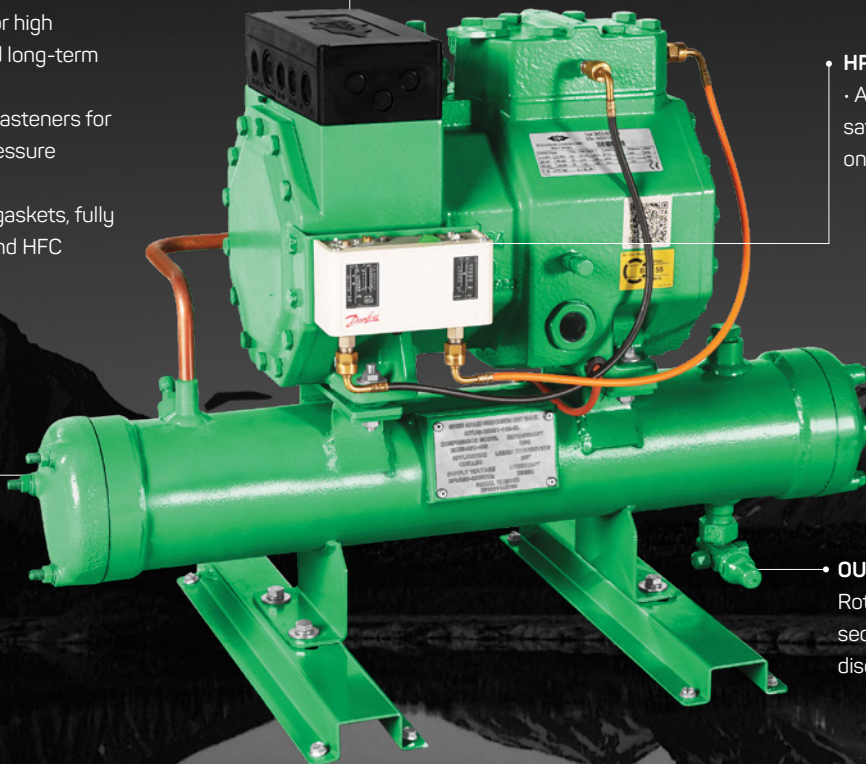
- Bitzer Ecoline semi-hermetic reciprocating compressor
- Integrated crankcase heater for stable oil temperature and reliable start-up

#### • HP/LP SWITCH (ADJUSTABLE)

- Adjustable high/low pressure safety switch, supplied pre-installed on the condensing unit

#### • OUTLET ROTALOCK

- Rotalock outlet connection for secure sealing and service-friendly disconnection during maintenance



### 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.

## Water Cooled Condensing Unit Models

### E-series (50 Hz)

#### Medium Temperature Application-R404A

| No. | Water Cooled<br>Condensing Unit Model | Compressor<br>Model | Condenser<br>Model | Cooling<br>capacity (kW) | Compressor<br>Power Input (kW) |
|-----|---------------------------------------|---------------------|--------------------|--------------------------|--------------------------------|
| 1   | RWUM-B005Y-11R                        | 2KES-05Y-40S        | 11R                | 1.9                      | 0.9                            |
| 2   | RWUM-B007Y-11R                        | 2JES-07Y-40S        | 11R                | 2.5                      | 1.2                            |
| 3   | RWUM-B020Y-11R                        | 2HES-2Y-40S         | 11R                | 3.3                      | 1.6                            |
| 4   | RWUM-B020Y-13R                        | 2GES-2Y-40S         | 13R                | 3.8                      | 1.8                            |
| 5   | RWUM-B030Y-13R                        | 2FES-3Y-40S         | 13R                | 4.6                      | 2.2                            |
| 6   | RWUM-B030Y-20R                        | 2EES-3Y-40S         | 20R                | 6.0                      | 2.6                            |
| 7   | RWUM-B031Y-20R                        | 2DES-3Y-40S         | 20R                | 7.0                      | 3.0                            |
| 8   | RWUM-B040Y-35R                        | 2CES-4Y-40S         | 35R                | 8.9                      | 3.8                            |
| 9   | RWUM-B050Y-35R                        | 4FES-5Y-40S         | 35R                | 9.6                      | 4.1                            |
| 10  | RWUM-B060Y-35R                        | 4EES-6Y-40S         | 35R                | 12.1                     | 5.2                            |

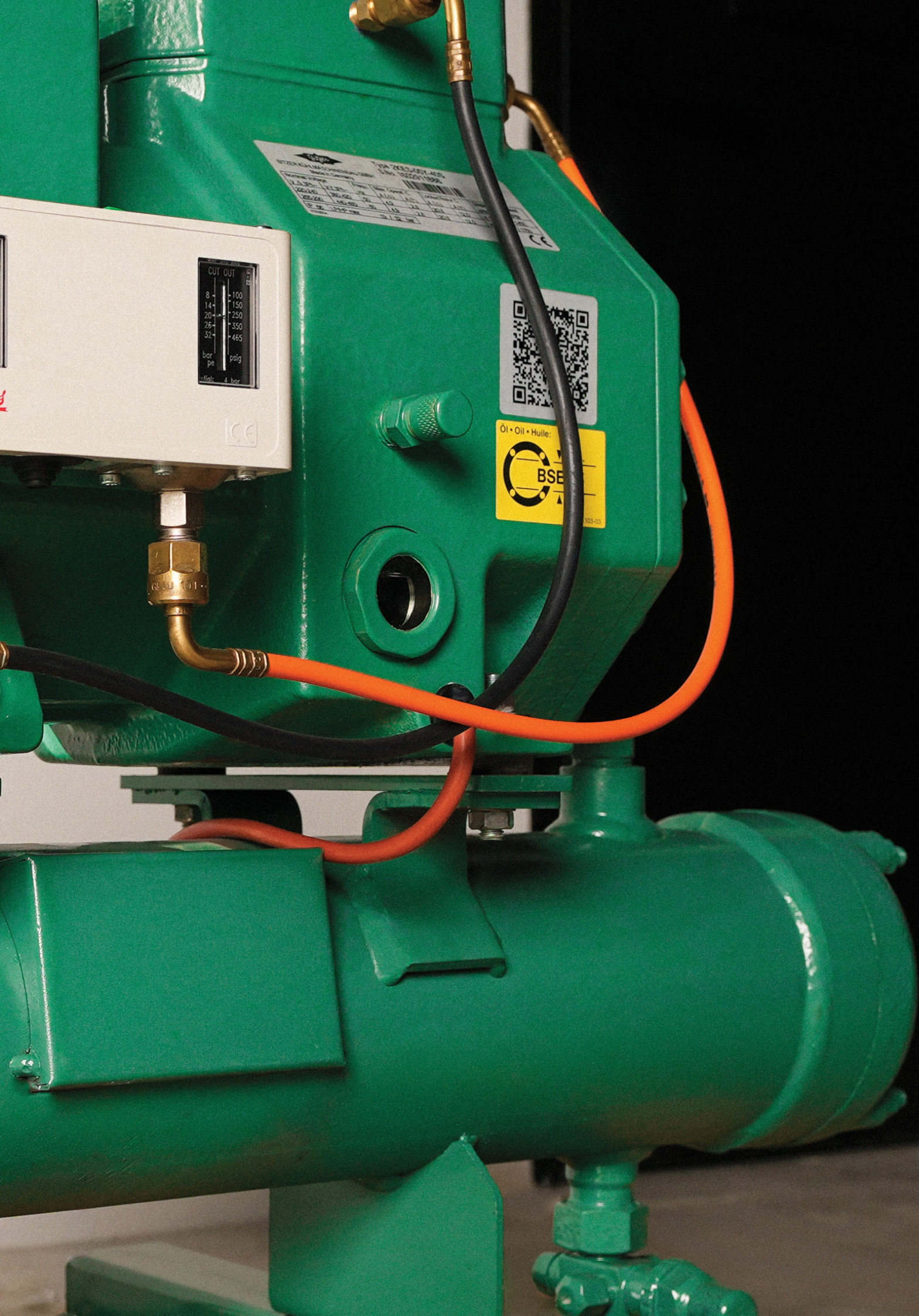
$Q_c$  (Cooling Capacity) and  $P_i$  (Power Input) are based on  
 $T_e = -8^\circ\text{C}$  and  $T_c = +43^\circ\text{C}$ , with SH = 5 K and SC = 2 K.

#### Low Temperature Application-R404A

| No. | Water Cooled<br>Condensing Unit Model | Compressor<br>Model | Condenser<br>Model | Cooling<br>capacity (kW) | Compressor<br>Power Input (kW) |
|-----|---------------------------------------|---------------------|--------------------|--------------------------|--------------------------------|
| 1   | RWUL-B010Y-11R                        | 2HES-1Y-40S         | 11R                | 1.3                      | 1.1                            |
| 2   | RWUL-B020Y-11R                        | 2FES-2Y-40S         | 11R                | 2.0                      | 1.6                            |
| 3   | RWUL-B020Y-13R                        | 2EES-2Y-40S         | 13R                | 2.5                      | 1.8                            |
| 4   | RWUL-B021Y-13R                        | 2DES-2Y-40S         | 13R                | 3.0                      | 2.1                            |
| 5   | RWUL-B030Y-13R                        | 2CES-3Y-40S         | 13R                | 3.9                      | 2.7                            |
| 6   | RWUL-B030Y-20R                        | 4FES-3Y-40S         | 20R                | 4.2                      | 3.0                            |
| 7   | RWUL-B040Y-20R                        | 4EES-4Y-40S         | 20R                | 5.3                      | 3.8                            |
| 8   | RWUL-B050Y-20R                        | 4DES-5Y-40S         | 20R                | 6.1                      | 4.4                            |
| 9   | RWUL-B060Y-35R                        | 4CES-6Y-40S         | 35R                | 7.5                      | 5.3                            |

$Q_c$  (Cooling Capacity) and  $P_i$  (Power Input) are based on  
 $T_e = -25^\circ\text{C}$  and  $T_c = +43^\circ\text{C}$ , with SH = 5 K and SC = 2 K.

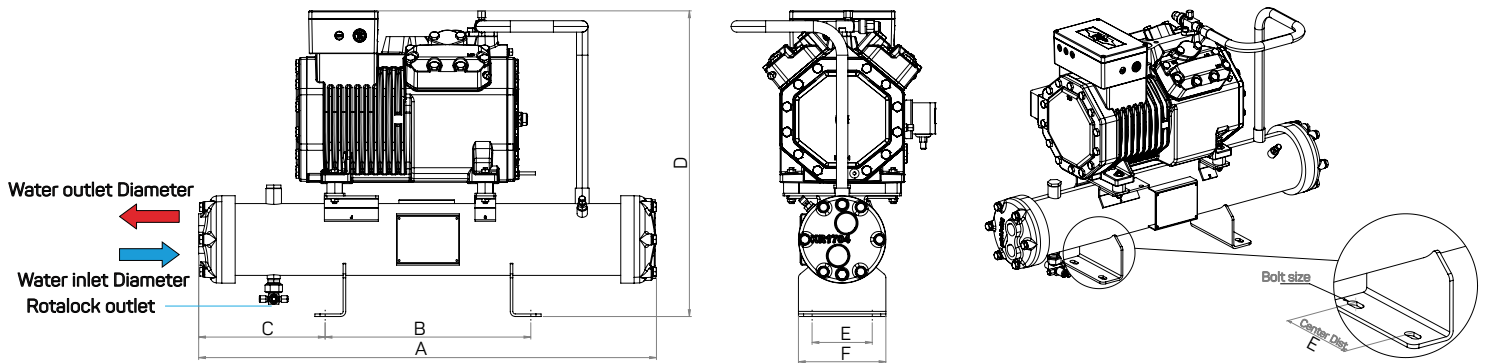






## Water Cooled Condensing Unit

### Dimensions



| No. | Water Cooled Condensing Unit Model | Dimensions in mm |     |     |     |     |     | Bolt Size | Water Inlet | Water Outlet | Rotalock Outlet | Weight (kg) |
|-----|------------------------------------|------------------|-----|-----|-----|-----|-----|-----------|-------------|--------------|-----------------|-------------|
|     |                                    | A                | B   | C   | D   | E   | F   |           |             |              |                 |             |
| 1   | RWUM-B005Y-11R                     | 675              | 300 | 194 | 484 | 79  | 333 | M10       | G 1"        | G 1"         | 1 x 3/8         | 68          |
| 2   | RWUM-B007Y-11R                     | 675              | 300 | 194 | 484 | 79  | 333 | M10       | G 1"        | G 1"         | 1 x 3/8         | 69          |
| 3   | RWUL-B010Y-11R                     | 675              | 300 | 194 | 484 | 79  | 333 | M10       | G 1"        | G 1"         | 1 x 3/8         | 71          |
| 4   | RWUM-B020Y-11R                     | 675              | 300 | 194 | 484 | 79  | 333 | M10       | G 1"        | G 1"         | 1 x 3/8         | 71          |
| 5   | RWUM-B020Y-13R                     | 867              | 400 | 244 | 518 | 79  | 408 | M10       | G 1"        | G 1"         | 1 x 1/2         | 73          |
| 6   | RWUL-B020Y-11R                     | 675              | 300 | 194 | 484 | 79  | 333 | M10       | G 1"        | G 1"         | 1 x 1/2         | 71          |
| 7   | RWUM-B030Y-13R                     | 867              | 400 | 244 | 518 | 79  | 408 | M10       | G 1"        | G 1"         | 1 x 1/2         | 74          |
| 8   | RWUL-B020Y-13R                     | 867              | 400 | 244 | 518 | 79  | 408 | M10       | G 1"        | G 1"         | 1 x 1/2         | 97          |
| 9   | RWUM-B030Y-20R                     | 890              | 400 | 244 | 622 | 117 | 410 | M12       | G 1"        | G 1"         | 1 x 1/2         | 116         |
| 10  | RWUL-B021Y-13R                     | 867              | 400 | 244 | 518 | 79  | 408 | M10       | G 1"        | G 1"         | 1 x 1/2         | 98          |
| 11  | RWUM-B031Y-20R                     | 890              | 400 | 244 | 622 | 117 | 410 | M12       | G 1"        | G 1"         | 1 x 1/2         | 116         |
| 12  | RWUL-B030Y-13R                     | 867              | 400 | 244 | 518 | 79  | 408 | M10       | G 1"        | G 1"         | 1 x 1/2         | 100         |
| 13  | RWUM-B040Y-35R                     | 888              | 400 | 244 | 622 | 117 | 370 | M12       | G 1"        | G 1"         | 1 x 5/8         | 115         |
| 14  | RWUL-B030Y-20R                     | 890              | 400 | 244 | 622 | 117 | 410 | M12       | G 1"        | G 1"         | 1 x 5/8         | 130         |
| 15  | RWUM-B050Y-35R                     | 888              | 400 | 244 | 622 | 117 | 370 | M12       | G 1"        | G 1"         | 1 x 5/8         | 134         |
| 16  | RWUL-B040Y-20R                     | 890              | 400 | 244 | 622 | 117 | 410 | M12       | G 1"        | G 1"         | 1 x 5/8         | 132         |
| 17  | RWUM-B060Y-35R                     | 888              | 400 | 244 | 622 | 117 | 370 | M12       | G 1"        | G 1"         | 1 x 5/8         | 134         |
| 18  | RWUL-B050Y-20R                     | 890              | 400 | 244 | 622 | 117 | 420 | M12       | G 1"        | G 1"         | 1 x 5/8         | 131         |
| 19  | RWUL-B060Y-35R                     | 888              | 400 | 244 | 622 | 117 | 370 | M12       | G 1"        | G 1"         | 1 x 5/8         | 138         |



## Water Cooled Condensing Unit Models

### RIME Water Cooling – Engineered for Precision

Developed for commercial refrigeration applications ranging from 1 kW to 15 kW, RIME water-cooled systems are designed to deliver high energy efficiency, operational reliability, and stable performance under both low- and medium-temperature conditions.

#### 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

The compressor is mounted on anti-vibration supports, and all rotating components are dynamically balanced to minimize vibration and operational noise, ensuring stable performance under continuous duty.

#### Optimized Refrigerant Flow Design

The piping layout and component arrangement are engineered to reduce pressure losses and maintain consistent refrigerant circulation, enhancing overall system efficiency and operational stability.

#### Ease of Installation and Maintenance

Service connections are strategically positioned for easy access, enabling faster installation and simplified maintenance. The compact unit design supports flexible integration into a wide range of refrigeration system configurations.

#### High-Integrity Pipework and Brazing

Copper piping is silver-brazed to ensure high mechanical strength and leak-tight performance. Pipe bending and assembly are carried out with CNC precision to maintain consistent quality and repeatability.

#### Tested for Performance and Safety

Each unit undergoes comprehensive pressure and performance testing at the factory to verify safe operation and reliable performance under rated working conditions.

#### Integrated Water-Cooled Condenser Design

The unit incorporates a high-efficiency water-cooled condenser designed for optimal flexibility, combining effective heat transfer with low pressure drop. It delivers reliable heat rejection under standard operating conditions and is suitable for city-water applications. The condenser utilizes copper heat-exchange tubes with enhanced internal and external grooved geometry to maximize thermal transfer and ensure stable condensing performance.

### CONDENSER SPECIFICATION

| Sell & Tube<br>Condenser<br>Model | Nominal<br>Heat Rejection<br>Capacity<br>(kW) * | Exchanging<br>Surface<br>(m <sup>2</sup> ) | Shell Side |                                 | Tube Side  |                                 |                                  |                        |                |                 |
|-----------------------------------|-------------------------------------------------|--------------------------------------------|------------|---------------------------------|------------|---------------------------------|----------------------------------|------------------------|----------------|-----------------|
|                                   |                                                 |                                            | Volume (L) | Max Allowable<br>Pressure (bar) | Volume (L) | Max Allowable<br>Pressure (bar) | Flow Rate<br>(m <sup>3</sup> /h) | Pressure Drop<br>(KPa) | Water<br>Inlet | Water<br>Outlet |
| 11R                               | 5.1                                             | 5.1                                        | 4.0        | 30                              | 1.2        | 16                              | 0.9                              | 2.4                    | G 1"           | G 1"            |
| 13R                               | 8.3                                             | 8.3                                        | 5.4        | 30                              | 1.5        | 16                              | 1.4                              | 6.8                    | G 1"           | G 1"            |
| 20R                               | 12.6                                            | 12.6                                       | 7.5        | 30                              | 2.8        | 16                              | 2.2                              | 7.9                    | G 1"           | G 1"            |
| 35R                               | 16.8                                            | 16.8                                       | 6.6        | 30                              | 3.5        | 16                              | 2.9                              | 9.2                    | G 1"           | G 1"            |

\* Nominal Heat Rejection Capacity values are based on R404A at T<sub>c</sub> = 43°C, with T<sub>w,in</sub> = 33°C and T<sub>w,out</sub> = 38°C."



## Water Cooled Condensing Unit

### 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             |

#### REFRIGERATION OILS FOR BITZER COMPRESSORS

The following refrigeration oils are approved for Bitzer compressor

| Refrigerant                | Oil Charge                                                                                             |
|----------------------------|--------------------------------------------------------------------------------------------------------|
| HFC<br>R134a<br>&<br>R404A | T <sub>c</sub> < 55 °C<br>Bitzer BSE 32 (POE)<br>R134a / T <sub>c</sub> > 55 °C<br>Bitzer BSE 55 (POE) |

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

#### OIL CHANGING

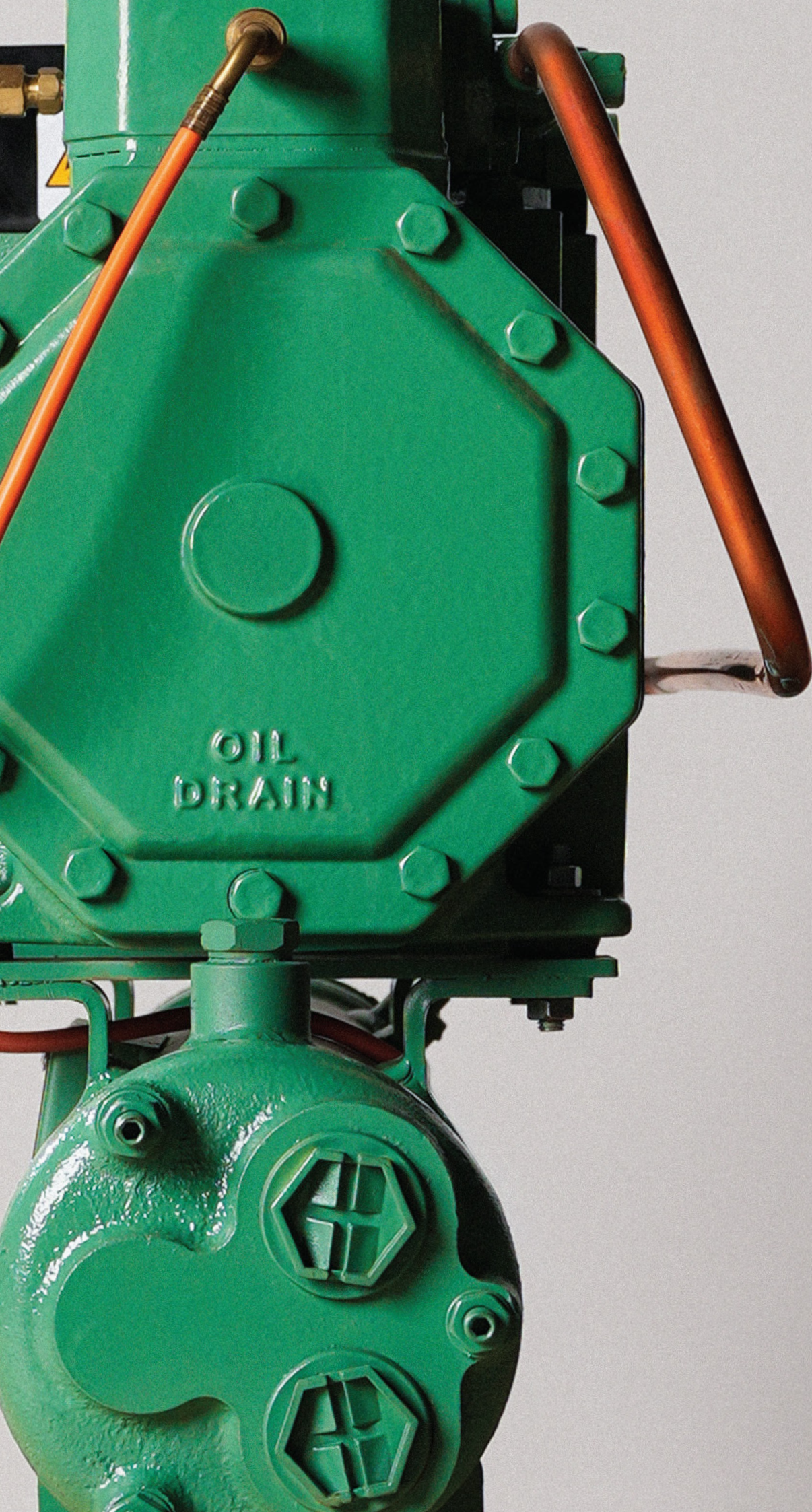
Oil changing is generally not required for factory-assembled units.

- 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.

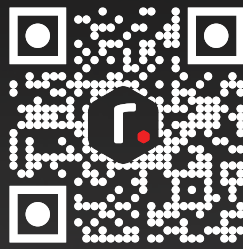








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