ZINGFA

# Zhejiang Ankang Refrigeration Equipment Co.,Lid.

## Piston Compressor

## QR3-145

## Product Specification

| Revision Record | | | |
|---|---|---|---|
| **Revision** | **Reviser** | **Description** | **Date** |
| **A** | | | **25/8/1** |
| | | | |

**Checked By** **Date**

**Approved By** **Date**

**1 Specification**

1.1 Basic Specifications

| | |
|---|---|
| Compressor Model | QR3-145 |
| Compressor Type | Piston Compressor |
| Application | Medium/high back pressure |
| Refrigerant | R404A |
| Displacement(cc/Rev) | 145 |
| Oil Type | POE |
| Viscosity (sCt,40℃) | 32 |
| Oil Charge (mL) | 2000 |
| Rated Speed (r/min) | 2900 |
| IP Class | IP21 |
| Compressor Colour | Blaclk |
| (ID OF SUCTION TUBE) | 1 3/4''-12 UNF |
| (ID OF DISCHARGE TUBE) | 1 1/4''-12 UNF |
| (ID OF PROCESS TUBE) | Ø 7 ±0.2 |

**1.2 Performance Specifications**

| | |
|---|---|
| Cooling Capacity (W) | 20220 |
| Cooling Capacity (BTU) | 68900 |
| input Power (W) | 7940 |
| COP (W/W) | 2.6 |
| EER (BTU/WH) | 8.8 |
| Rated run Current (A) | 12.9 |
| Sound Power (dBA) | ≤ 65 |
| | |

**Test Condition**

| | Evaporating Temp. ℃ | Condensing Temp. ℃ | Suction Temp. ℃ | Liquid Subcooling K | Ambient Temp. ℃ |
|---|---|---|---|---|---|
| M/HPB-AC | +7.2 | +54.5 | +35 | 8.3 | +35 |
| LBP | -23.3 | +54.5 | +32 | 22.2 | +32 |

**1.3 Electrical Characteristics**

| | |
|---|---|
| Motor type | 3PH |
| Motor Poles | 2 |

| | |
|---|---|
| Power Supply | 380--400V 3~ 50Hz 460v 3~ 60Hz |
| Starting capacitor (μF/V) | / |
| Running capacitor (μF/V) | / |
| Potential Relay | / |
| Winding Resistance (Ω 25℃) | 2.0 |
| Locked Rotor Current (A) | 70 |
| Insulation Class | F |
| Dielectric Strength | 2000VAC/1S/5mA |

**1.4 Safety Running Limitation**

| | |
|---|---|
| Tightness Test Pressure (Mpa) | 2.2 |
| High Side Max Running pressure (Mpa) | 3.2 |
| Low side Max Running Pressure (Mpa) | 2.0 |
| Discharge Temp.Limit (℃) | ≤125 |

**2 Compressor Protection**

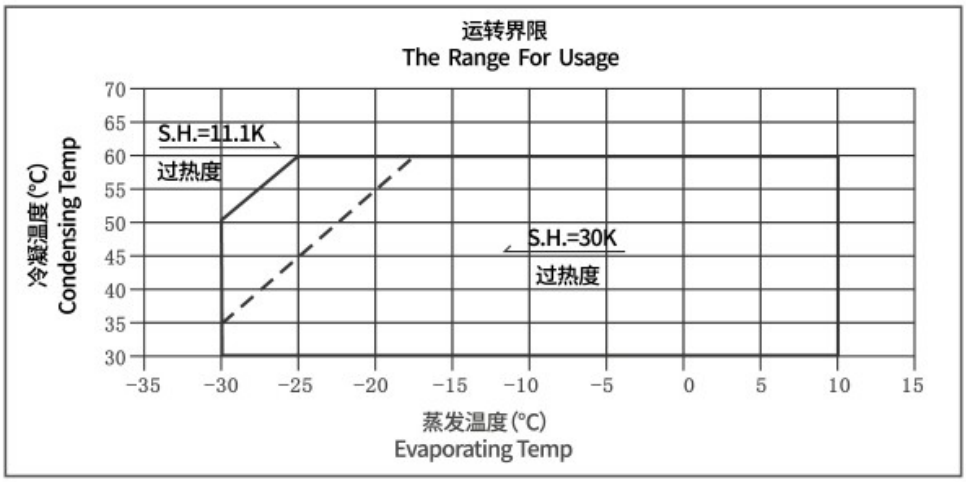
2.1 motor protector

Internal Protector For Motor Protection

2.2 High Pressure Relieve

Internal Pressure Protection

**3 Running Envelope**




## 4 Performance date type QR3-145

## Performance date at 50Hz

## Refrigerating capacity (watts)

| evaporating temperature ℃ | Condensing temperature ℃ | | | | | | |
|---|---|---|---|---|---|---|---|
| | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| -20 | 8866 | 8397 | | | | | |
| -15 | 11750 | 11204 | 10067 | 8882 | | | |
| -10 | 15208 | 14558 | 13198 | 11779 | 11051 | 9579 | |
| -5 | 19328 | 18543 | 16905 | 15192 | 14312 | 12526 | 10731 |
| 0 | 24196 | 23251 | 21279 | 19217 | 18158 | 16006 | 13838 |
| 5 | 29905 | 28772 | 26415 | 23954 | 22692 | 20128 | 17546 |
| 10 | 36549 | 35206 | 32418 | 29516 | 28031 | 25015 | 21990 |

## Motor input (watts)

| evaporating temperature ℃ | Condensing temperature ℃ | | | | | | |
|---|---|---|---|---|---|---|---|
| | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| -20 | 3715 | 3744 | | | | | |
| -15 | 4285 | 4341 | 4421 | 4453 | | | |
| -10 | 4857 | 4942 | 5079 | 5170 | 5195 | 5209 | |
| -5 | 5428 | 5544 | 5743 | 5894 | 5951 | 6024 | 6042 |
| 0 | 5998 | 6146 | 6410 | 6625 | 6713 | 6849 | 6929 |
| 5 | 6565 | 6748 | 7080 | 7362 | 7482 | 7685 | 7831 |
| 10 | 7127 | 7347 | 7749 | 8102 | 8258 | 8530 | 8744 |

**Return gas** **35 ℃**
**Subcooling** **8.3** K

**5 Accessories**

| Serial number | Name | Quantity | Notes |
|---|---|---|---|
| 1 | Compressor | 1 | |
| 2 | Grommet | 4 | |
| 3 | Sleeve | 4 | |
| 4 | VALVE | 2 | Needed |

## 6. PACKING,TRANSPORTATION AND STORAGE

6.1 The packing should be moisture-resistant, and prevent the compressor in it being damaged. The letters and marks on the package should be clearly painted.
6.2 Don’t incline the compressor more than 45°.

6.3 The compressor should be kept in the place with normal room temperature, and should be kept out of corrosive atmosphere.

**7 Attention**

7.1 It is not allowed to perform vacuum in the system by using the refrigeration compressor. The compressor can start only after the refrigerant is charged;

7.2 It is not allowed to charge the refrigerant from the suction or discharge line closes to the compressor. The charge port should be arranged on the connection pipe of suction line accumulator or receiver, which is far away from the compressor, to avoid the liquid refrigerant flooding back;

7.3 The refrigerant charge amount complies with local regulations;

7.4 It is not allowed to run compressor in vacuum, not allowed to run compressor without refrigerant, and not allowed to run compressor in the reversed direction for long duration;

7.5 The compressor can only work with approved refrigerants;

7.6 The compressor is not allowed to work outside its envelope. System design should guarantee the suction line superheat and avoid the liquid refrigerant flooding back;

7.7 When the suction and discharge plugs are removed, the assembly and brazing should be done in 15 minutes;

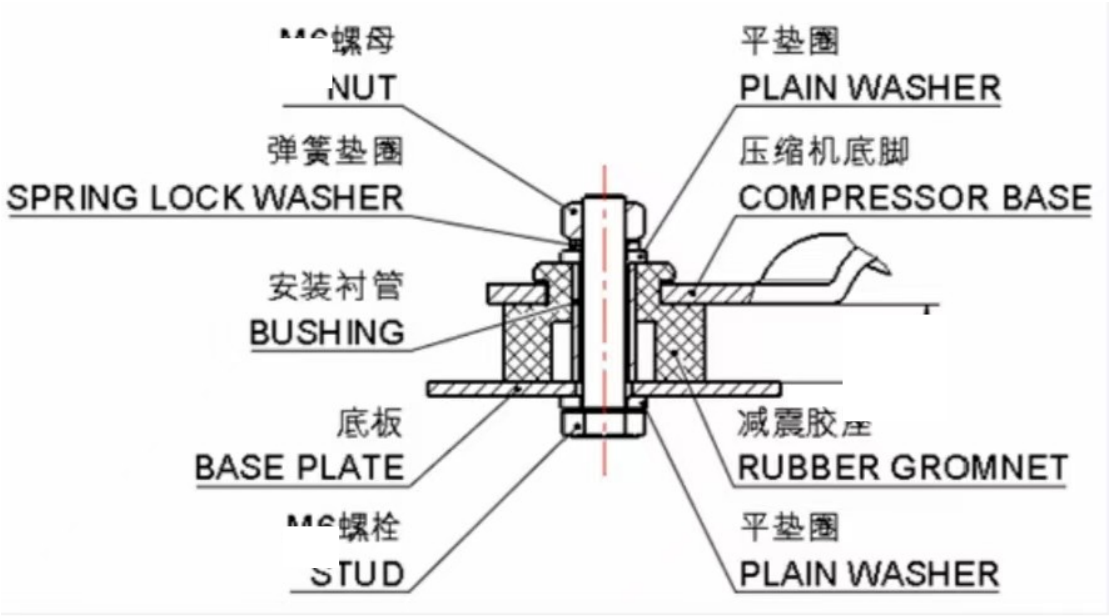
7.8 The frequently start/stop compressor should be avoided. The suggested minimum continuous running time is 10 minutes to guarantee the safe oil level (>=50% initial charge volume), the suggested minimum interval between start and stop is 3 minutes.

7.9 A 45W crankcase heater is recommended to avoid the refrigerant migration during the off circle and flooded start. The crankcase heater should be powered on 12 hours earlier before the first start or restart after long duration off;

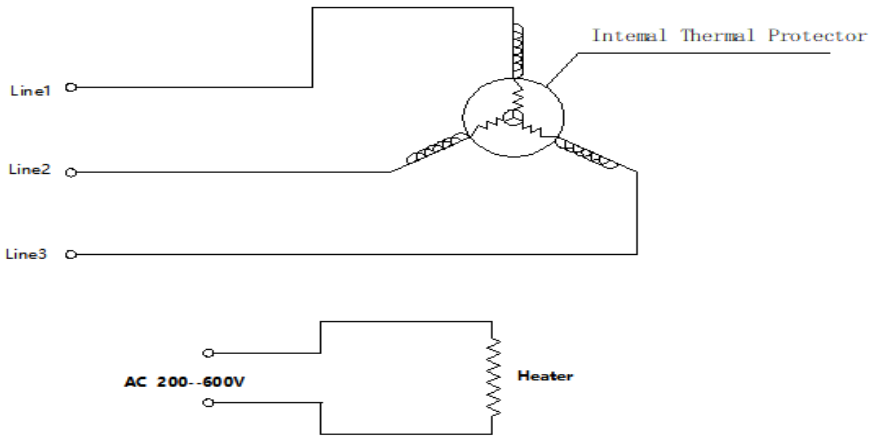
7.10 The system should be equipped with necessary protection devices for pressure, temperature, oil return, overcurrent and phase fault, etc.

7.11 The compressor is not allowed to lay down or place upside down
during transportation, stock and installation. The maximum inclination is 15° when the compressor is running.

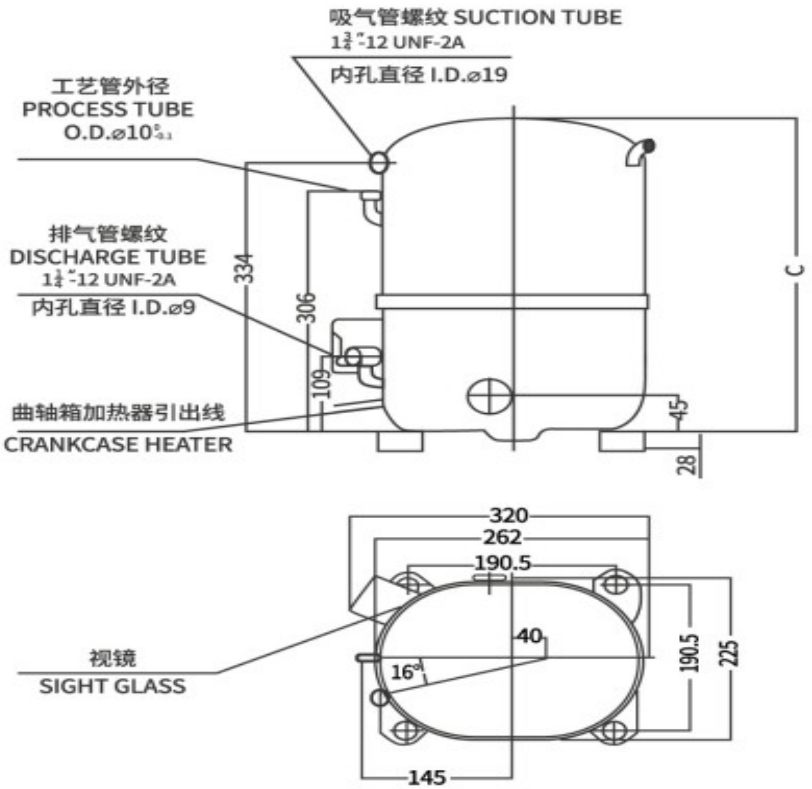
**8 Mount Diagram**




**9 Wiring Diagram**




10 PISTON COMPRESSOR Dimensional Drawing




| MODEL | C (IN/mm) |
|---|---|
| QR3-90 | 15.7/398 |
| QR3-100 | |
| QR3-112 | 15.7/398 |
| QL3-112 | |
| QR3-124 | 15.7/398 |
| QL3-124 | |
| QR3-134 | 15.7/398 |
| QL3-134 | |
| QR3-145 | 15.7/398 |
| QL3-145 | |