

# 涡旋压缩机技术规格书

Specification for Scroll Compressor

Model: 603DH-90C2-X10

|                       |  |     |  |
|-----------------------|--|-----|--|
| 广 州 日 立 压 缩 机 有 限 公 司 |  |     |  |
| 编 制                   |  | 审 核 |  |

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|---------|--|
|         |  |
| 客 户 确 认 |  |



Hitachi Compressor Products (Guangzhou) Co., Ltd.

## 广州日立压缩机有限公司

### 1. 规格 Specification

#### 1.1 压缩机 Compressor

|                                 |                                     |
|---------------------------------|-------------------------------------|
| 压缩机型号 Compressor Model          | 603DH-90C2                          |
| 压缩机型式 Compressor Type           | 全封闭型电动压缩机 Hermetic Motor Compressor |
| 压缩机方式 Compression Type          | 涡旋式 Scroll Type                     |
| 使用冷媒 Refrigerant                | R22                                 |
| 排气容积 Displacement               | 90cm <sup>3</sup> /rev              |
| 润滑油 / 油量 Oil / Oil Charge       | SUNISO 4GSD / 1400ml                |
| 涂装 Painting                     | 黑色 Black Color Paint                |
| 总质量(含油) Net Mass(Including Oil) | 37kg                                |
| 吸气管接口内径 Suction Accept I.D      | Φ 22.2mm                            |
| 排气管接口内径 Discharge Accept I.D    | Φ 12.9mm                            |
| CCC 认证号 CCC Certification No.   | 2003010704098882                    |

#### 1.2 电机 Motor

|                                      |                                                       |
|--------------------------------------|-------------------------------------------------------|
| 电动机型式 / 起动方式 Motor Type / Start Mode | 三相感应电机 / 直接<br>3 Phase Induction Motor / Direct Start |
| 极数 Pole                              | 2 极 2 Pole                                            |
| 额定电压 / 频率 Rated Voltage / Frequency  | 3Ph - 346~380V-50Hz / 3Ph - 380~400V-60Hz             |
| 额定转数 Rated Revolution                | 2,920 [50Hz] / 3,470 [60Hz]                           |
| 绝缘等级 Insulation Class                | F 级 F Class                                           |
| 绕组阻抗 Winding Resistance (at 20℃)     | 2.21 ± 7% Ω                                           |

#### 1.3 性能 Performance

|                          |                                             |
|--------------------------|---------------------------------------------|
| 制冷能力 Capacity            | 16,800W [380V, 50Hz] / 20,200W [400V, 60Hz] |
| 输入功率 Motor Input         | 5,000W [380V, 50Hz] / 6,000W [400V, 60Hz]   |
| 能效比 EER                  | 3.40W/W                                     |
| 运行电流 Running Current     | 9.5A [380V, 50Hz] / 10.0A [400V, 60Hz]      |
| 堵转电流 Locked Rotor Ampere | 70A [380V, 50Hz] / 64A [400V, 60Hz]         |
| 噪音 Sound Level           | 60dB (A) Max.                               |

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|              |                         |
|--------------|-------------------------|
| 振动 Vibration | 15m/s <sup>2</sup> Max. |
|--------------|-------------------------|

※ 制冷能力测试条件 Test condition of cooling capacity:

冷凝温度 Condensing temp.: 54.4 °C

蒸发温度 Evaporating temp.: 7.2 °C

回气温度 Return gas temp.: 18.3 °C

周围温度 Ambient temp.: 35.0 °C

膨胀阀前液体温度 Liquid temp.: 46.1°C

#### 1.4 一般特性 Characteristics

|                                      |                                                 |
|--------------------------------------|-------------------------------------------------|
| 气密试验压力 Leak Tight Pressure           | 3.0MPa[高压侧 H. P. Side] / 1.5MPa[低压侧 L. P. Side] |
| 耐压试验压力 Hydrostatic Strength Pressure | 4.5MPa[高压侧 H. P. Side] / 2.3MPa[低压侧 L. P. Side] |
| 绝缘阻抗 Insulation Resistance           | 10MΩ Min.                                       |
| 绝缘耐压 Withstand Voltage               | 1,800V-1min.                                    |
| 残余水分量 Residual Moisture              | 350mg Max.                                      |
| 含尘量 Residual Impurities              | 100mg Max.                                      |

#### 1.5 电气部品规格 Electrical Component

| 品名 Parts Name                                 |                     | 规格 Specification    |
|-----------------------------------------------|---------------------|---------------------|
| 过载保护器(内置)<br>Overload Protector<br>(Internal) | 型号 Model            | UP28UC161-460       |
|                                               | Run                 | 断开温度 Open Temp.     |
|                                               |                     | 170±5°C             |
|                                               | U/T                 | 闭合温度 Close Temp.    |
|                                               |                     | 80±10°C             |
|                                               | 动作电流特性 Amps To Trip | 120°C 14.8~19.6A    |
|                                               |                     | 动作时间特性 Time To Trip |
|                                               |                     | 53A 3~10s           |

## 2. 压缩机配件 Accessories Of Compressor

| NO. | 名称 Parts Name              | 数量 Qty | 代号 Drawing NO. | 备注 Remarks             |
|-----|----------------------------|--------|----------------|------------------------|
| 1   | 防振胶垫 Rubber Grommet B      | 4      | TP1-102        | 标准部件<br>Standard Parts |
| 2   | 防振胶座 Rubber Grommet A      | 4      | TP1-103        |                        |
| 3   | 支撑螺柱 Bolt                  | 4      | TP1-101        |                        |
| 4   | 垫圈 Washer                  | 4      | TP1-104        |                        |
| 5   | M6 螺母 M6 Screw Nut         | 4      | GB41-86-M6     |                        |
| 6   | M8 螺母 M8 Screw Nut         | 4      | GB41-86-M8     |                        |
| 7   | 弹性垫圈 Spring Washer         | 4      | GB93-87-6      |                        |
| 8   | 温控器挡板 Thermostat Holder    | 1      | TP1-105        | 选择部件<br>Option Parts   |
| 9   | 排气温控器 Discharge Thermostat | 1      | TP1-106        |                        |
| 10  | 热油器 Crankcase Heater       | 1      | TP1-110        |                        |

## 3. 使用条件范围 Operating Conditions

|                        |                                                            |
|------------------------|------------------------------------------------------------|
| 蒸发温度 Evaporating Temp. | -15~15°C                                                   |
| 排气温度 Discharge Temp.   | (冷凝温度+15°C)~120°C以下<br>(Condensing Temp. +15°C)~120°C Max. |
| 绕组温度 Winding Temp.     | 120°C以下 Max.                                               |
| 压缩机外壳温度 Shell Temp.    | 115°C以下 Max.                                               |
| 运转电压 Running Voltage   | 额定电压±10% Rated Voltage ±10%                                |

|                                            |                                                                                           |
|--------------------------------------------|-------------------------------------------------------------------------------------------|
| 起动电压 Start Up Voltage                      | 额定电压的 85% 以上（压缩机端子间电压） Minimum 85% of the rated voltage measured at compressor terminals. |
| 频率范围 Frequency Range                       | 额定频率 $\pm 2\%$ Rated Frequency $\pm 2\%$                                                  |
| 吸气压力 Suction Pressure                      | 0.1~0.7MPa（起动、除霜等短时间运转除外；Except the short period such as start, defrost）                  |
| 排气压力 Discharge Pressure                    | 1.1~2.8MPa                                                                                |
| 压力比 Pressure Ratio                         | 2~7.5（起动、除霜等短时间运转除外；Except the short period such as start, defrost）                       |
| 起动时的压力差<br>Pressure Difference At Starting | 排气压力-吸气压力 $\leq 0.30\text{MPa}$<br>D.P. -S.P. less than 0.30MPa                           |
| 启停周期 On/Off Period                         | 周期为 10 分钟以上，停止时间必须 3 分钟以上<br>10 minutes min/cycle, OFF should be over 3 minutes           |
| 最低油量 Minimum Oil Charge                    | 400ml Min.                                                                                |
| 异常升压/降压<br>Abnormal Press. Rise/Drop       | 上升:3.0MPa 以下 Rise:3.0MPa Max.<br>下降:0.2MPa 以上 Drop:0.2MPa Min.                            |
| 配管（铜管）应力<br>Copper Piping Stress           | 启动时:50MPa 以下 Start:50MPa Max.<br>运转时:10MPa 以下 Run:10MPa Max.                              |
| 冷媒水分含量<br>Refrigerant Moisture Level       | 60ppm 以下 Max.                                                                             |
| 系统固体杂质含量<br>Solid Impurities Level         | 100mg 以下 Max.                                                                             |
| 运转倾斜角度 Tilt In Operation                   | 压缩机倾斜最大 $5^\circ$ 以内 5 deg. Max.                                                          |

※ 其他注意事项 Remarks:

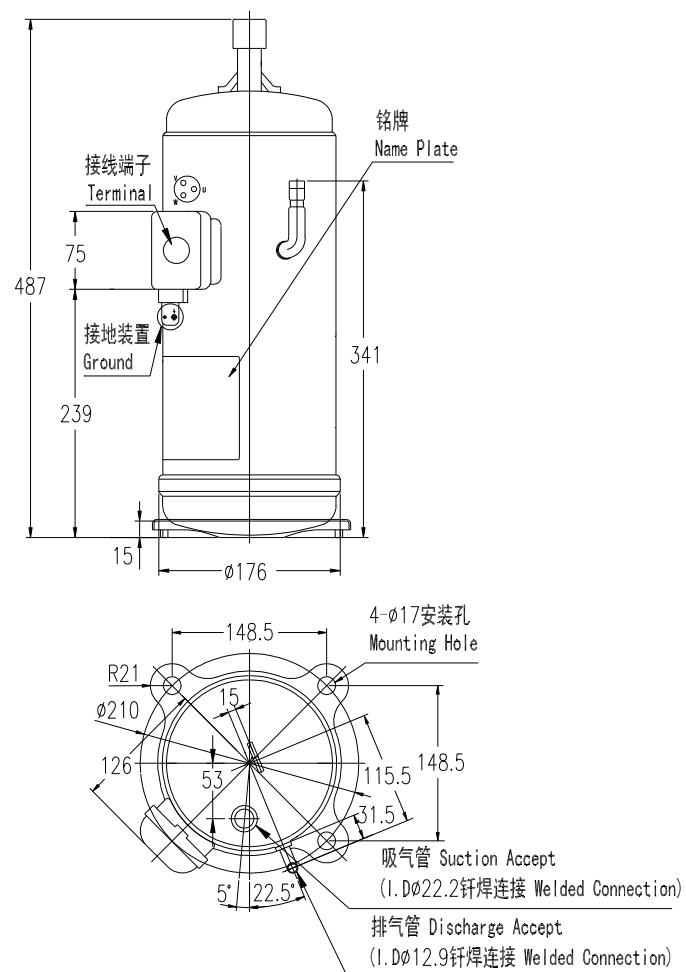
1. 压缩机在去除吸、排气接头盖后，请勿放置 10 分钟以上；  
Installation shall be completed within 10 minutes after removing the caps of suction and discharge tube.
2. 请勿压缩空气；  
Do not compress air.
3. 在真空状态下请勿通电；  
Do not energize under vacuumed condition.
4. 热泵系统必须在压缩机底部安装油加热器（40~80W, 220V）；  
Crankcase heater is require if the refrigeration system is heat pump.
5. 请勿反向旋转；  
Do not reverse rotate.
6. 运转时，各相间的电压偏差应在额定电压的 3% 以内；  
Voltage (run): Voltage deviation each phase shall be within 3% of the rated voltage.
7. 成箱压缩机包装件的叠放堆码极限为 2 箱，装卸过程中严禁翻滚；  
Pile limits 2 pallet. Tumbling is forbidden during handling.
8. 向压缩机充油或冷媒时，必须从排气侧进行；  
Charge oil or refrigerant from the discharge pipe.
9. 压缩机的接地装置应永久与制冷器具的接地装置连接；  
The compressor's ground should be connected with that of refrigeration system permanently and firmly.
10. 高压压力开关参考设定值为  $2.8 \pm 0.1\text{MPa}$ ，低压压力开关参考设定值为  $0.2 \pm 0.02\text{MPa}$ ；

When using pressure switch, we advise setting pressure as follow: High pressure  $2.8 \pm 0.1 \text{MPa}$ ,  
Low pressure  $0.2 \pm 0.02 \text{MPa}$ .

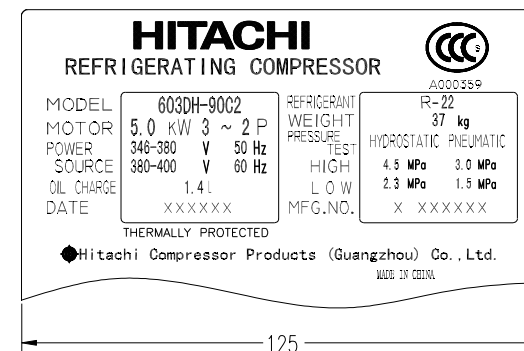
#### 4. 附图 Attachment

- A-1      压缩机外形图    Dimension of Compressor
- A-2      压缩机性能曲线    Compressor Performance Curve
- A-3      防振胶座装配图    Mounting Assembly
- A-4      基本电气原理图（三相压缩机）    Basic Circuit Diagram (Three Phase Compressor)

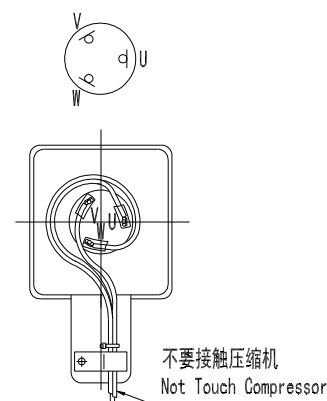
A-1 压缩机外形图 Dimension of Compressor (603DH-90C2)



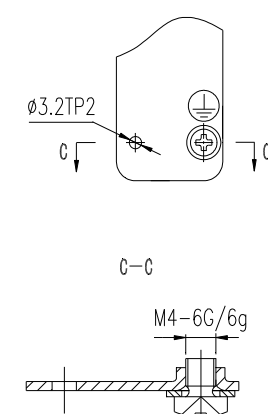
铭牌 Name Plate



接线端子 Terminal

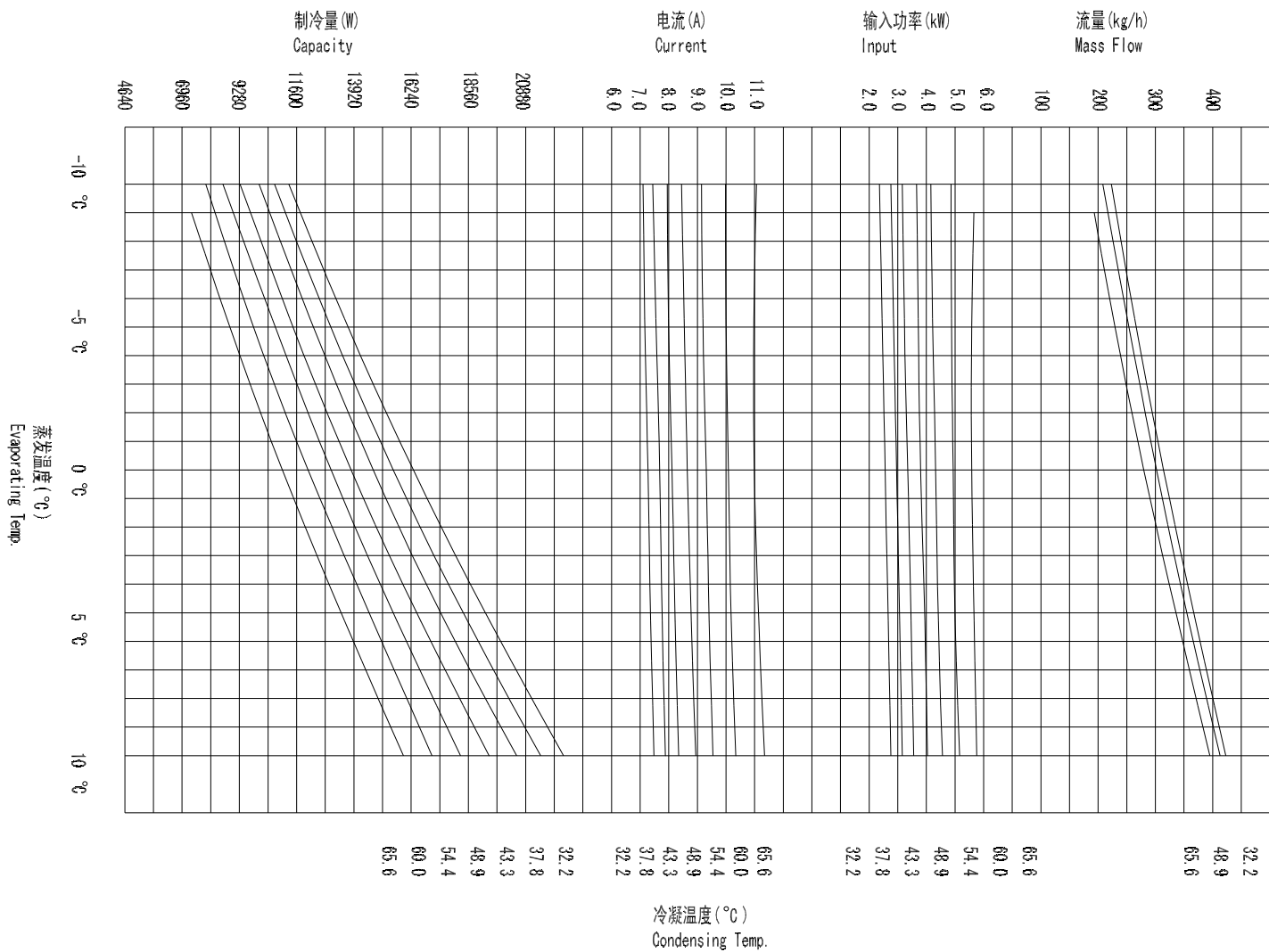


接地装置 Ground



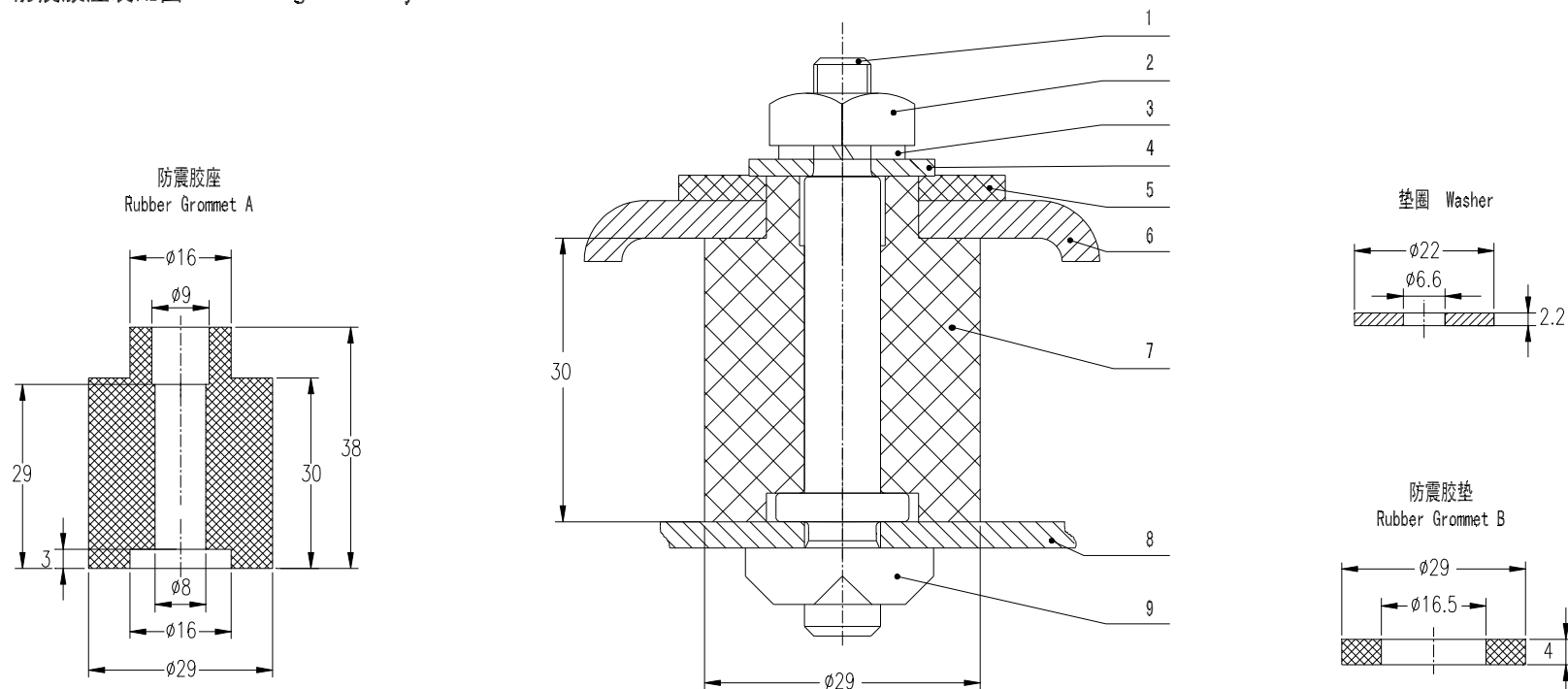
A-2 压缩机性能曲线 Compressor Performance Curve (603DH-90C2)

|                            |               |
|----------------------------|---------------|
| 电源<br>Power Source         | 3Ph-380V-50Hz |
| 制冷剂<br>Refrigerant         | R22           |
| 吸气过热度<br>Suction Superheat | 11.1 °C       |
| 过冷度<br>Subcooling          | 8.3 °C        |

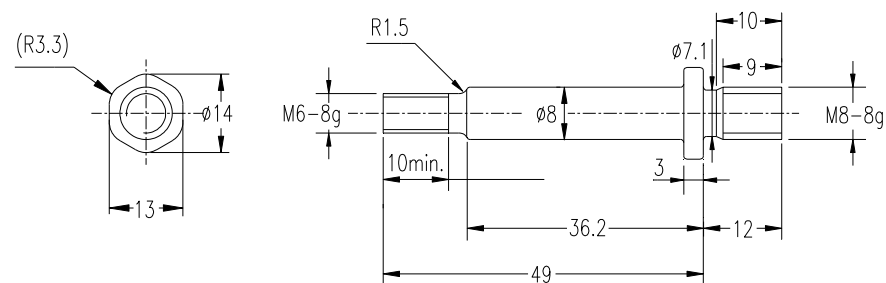




A-3 防震胶座装配图 Mounting Assembly

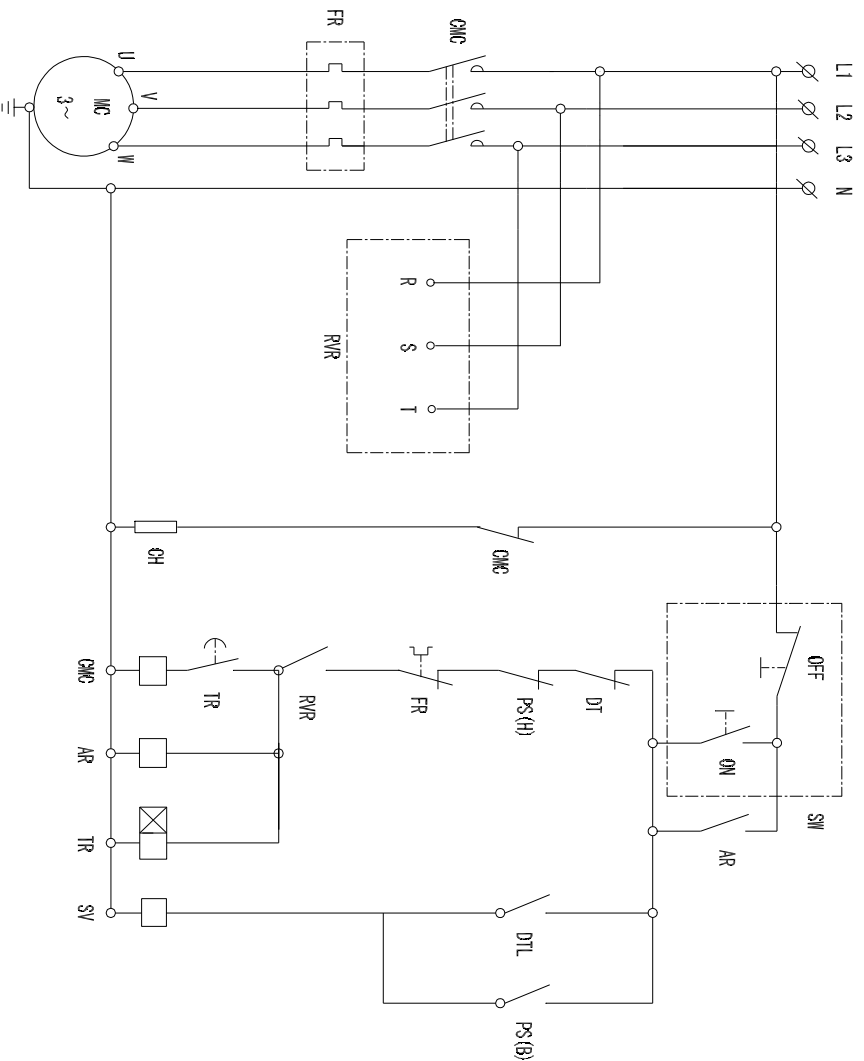


支撑螺栓 Bolt



|   |                       |
|---|-----------------------|
| 1 | 支撑螺栓 Bolt             |
| 2 | M6螺母 M6 Screw Nut     |
| 3 | 弹簧垫圈 Spring Washer    |
| 4 | 垫圈 Washer             |
| 5 | 防震胶垫 Rubber Grommet B |
| 6 | 压缩机底座 Compressor Foot |
| 7 | 防震胶座 Rubber Grommet A |
| 8 | 空调器底座 Unit Base       |
| 9 | M8螺母 M8 Screw Nut     |

A-4 基本电气原理图 (三相压缩机) Basic Circuit Diagram (Three Phase Compressor)



| 代号<br>Code | 名称<br>Parts Name            | 备注<br>Remarks | 代号<br>Code | 名称<br>Parts Name                               | 备注<br>Remarks                                |
|------------|-----------------------------|---------------|------------|------------------------------------------------|----------------------------------------------|
| MC         | 压缩机 Compressor              |               | *DT        | 排气温控器<br>Discharge Gas Thermostat              | Close: 160℃±15℃<br>Open: 130℃±6℃             |
| *CMC       | 交流接触器 Magnetic Contactor    |               | *PS (H)    | 高压断路装置<br>High Pressure Switch                 | 设定压力: 2.5MPa<br>Set Pressure: 2.5MPa         |
| *FR        | 过热电继电器 Overcurrent Relay    |               | *PS (B)    | 液旁通压力断开装置<br>Pressure Switch For Liquid Bypass | Close: 2.5MPa±0.1MPa<br>Open: 2.1MPa±0.15MPa |
| *R/R       | 逆相继电器 Reversing Valve Relay |               | *SV        | 电磁阀 Solenoid Valve                             | 液旁通冷却关闭<br>For Cooling Of Liquid Bypass      |
| *SW        | 开关 Switch                   |               | *DTL       | 液旁通温控器<br>Gas Thermostat For Liquid Bypass     | Close: 110℃±5℃<br>Open: 70℃±7.5℃             |
| *AR        | 中间继电器 Auxiliary Relay       |               | *TR        | 时间继电器 Timer                                    | 设定时间: 3分钟<br>Set Time: 3 minutes             |
| *OH        | 加热器 Oil Heater              |               |            |                                                |                                              |

注: 带“\*”的零部件由用户自备;  
Note: All the parts marks “\*” should prepared by customer .