

# **D53CY1 COMPRESSOR**

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## **TECHNICAL SPECIFICATION**



HUANGSHI DONPER COMPRESSOR CO., LTD.

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## 1. Compressor Type

Compressor model	D53CY1
Rated voltage/frequency	220-240V~50Hz
Refrigerant	R600a
Application	Low back pressure (LBP)
Cooling method	Static
Start torque	Low starting torque (LST)
Control device	Capillary tube
Motor type	RSIR
Running capacitor	/
Starting capacitor	/

## 2. Performance Data

Displacement	Net Wt.	Oil Charge	Cooling Capacity( $\geq 95\%$ )								COP( $\geq 95\%$ )	
			ASHRAE							CECOMAF	ASHRAE	CECOMAF
			-35	-30	-25	-23.3	-20	-15	-10	-25	-23.3	-25
cm <sup>3</sup>	kg	ml	w	w	w	w	w	w	w	w	w/w	w/w
5.3	4.6±0.4	110±10	38	55	67	80	87	100	114	70	1.25	1.07

Note: These datas come from the test with a PTC relay

Testing condition:

Test conditions	LBP	
	ASHRAE	CECOMAF
Evaporating Temp.	-23.3°C	-25°C
Ambient Temp.	+32.2°C	+32°C
Condensing Temp.	+54.4°C	+55°C
Suction Temp.	+32.2°C	+32°C
Subcooling Temp.	+32.2°C	+55°C

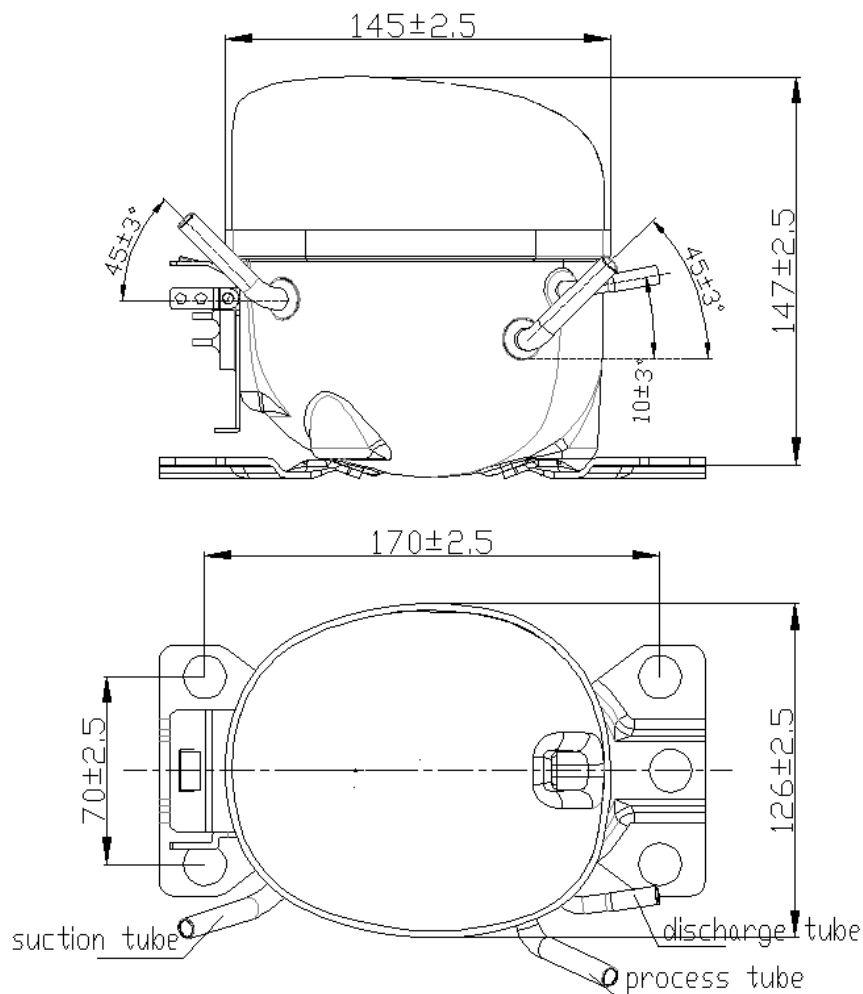
## 3. Running Condition

Ambient temp.	0~43°C
Evaporating temp.	-35~-15°C
Voltage range	187~254V
Max. condensing temp.	65°C
Max. winding temp.	120°C
Max. shell temp.	95°C
Max. discharge temp.	110°C
Start voltage	187V [0.3/0.3MPa(abs)]
Shell min. resistance to pressure	35bar

#### 4. Compressor Mechanical Information

Oil type	POE oil
Viscosity	4.2~6.4mm <sup>2</sup> /s(40°C)
Oil charged	110±10ml
Diameter of suction tube (I.D.)	Φ 6.2±0.1mm
Diameter of discharge tube(I.D.)	Φ 4.95±0.1mm
Diameter of process tube (I.D.)	Φ 6.2±0.1mm
Material of suction tube, process tube and discharge tube	Copper tube
Compressor noise	38dB(A)
Vibration	0.6m/s <sup>2</sup>
Protecting gas	Negative pressure (-0.06~-0.02MPa)

#### 5. Compressor Shape

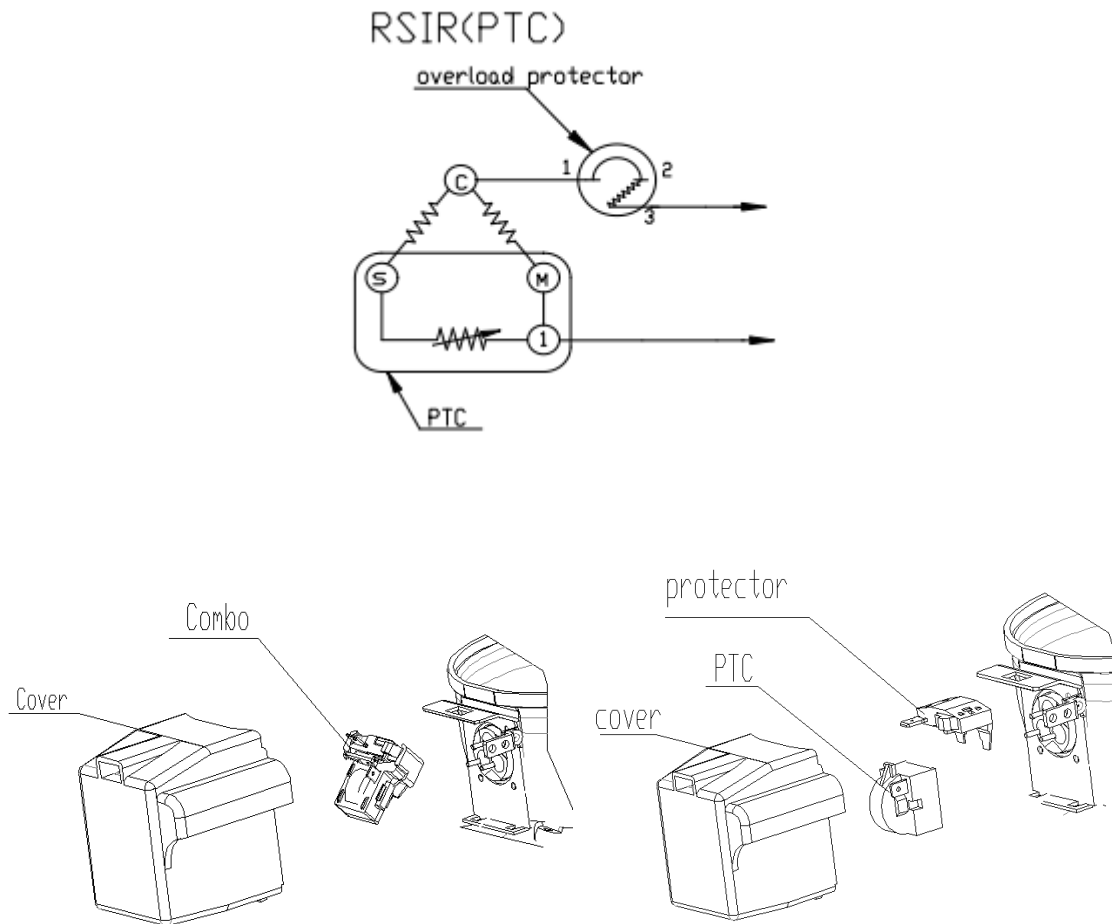


Caution:Suction tube and process tube can be exchanged

Unmarked tolerance: ± 5mm

Unmarked Angle: ± 10°

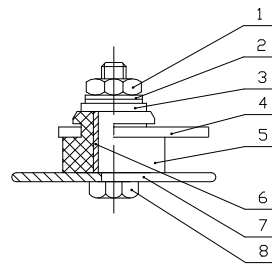
## 6. Wiring Diagram



Note: Each of the starting relay、the overload protector、the cover is separately provided by our company.

## 7. Fixing of mounting bracket and cabinet base

- 1、Hexagon nut
- 2、Spring washer
- 3、Flat washer
- 4、Compressor mounting bracket
- 5、Rubber grommet
- 6、Sleeve
- 7、Cabinet base
- 8、Screw



Note: Equipment assembly is all provided by our company. Above is just for reference, details can refer to delivery state.

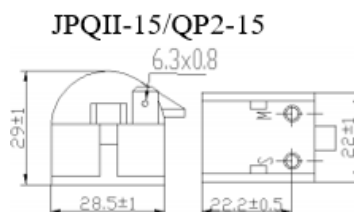
## 8. Starting relay and overload protector

### 8.1 Starting relay

Model	JPQII-15		QP2-15	
Supplier	Lanxi City Yueqiang Electric Co.,Ltd		Hangzhou Star shuaier Electric Appliance Co.,Ltd.	Shunde Ronggui Electronic Circuit Measuring Equipment Co.,Ltd.
Resistance $\Omega$	$15 \pm 20\%$			
Run time S	5~15			
Reset time S	$\leq 100$			
Max working voltage V	350			
Max current A	8			

Assembly force  $\leq 100\text{N}$  Disassembly force  $\geq 25\text{N}$

Flammability: Anti-flammability



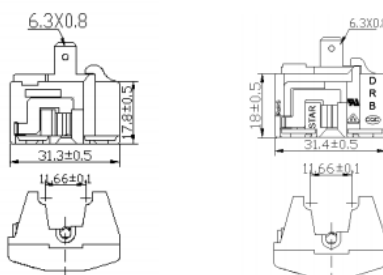
### 8.2 Overload protector

Model	BT35-120	DRB16N61A2	TB35-120
Supplier	Lanxi City Yueqiang Electric Co.,Ltd	Hangzhou Star shuaier Electric Appliance Co.,Ltd.	Shunde Ronggui Electronic Circuit Measuring Equipment Co.,Ltd.
Max.T.C Amp.(25°C) A	3.5		
Trip time S	5~15		
Reset time S	30~150		
Open temp. $\pm 5^\circ\text{C}$	120		
Close temp. $\pm 9^\circ\text{C}$	61		

Assembly force  $\leq 80\text{N}$  Disassembly force  $\geq 12.5\text{N}$

Flammability: Anti-flammability

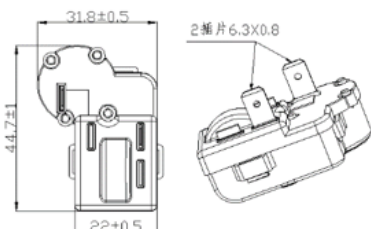
BT35-120/TB35-120      DRB16N61A2



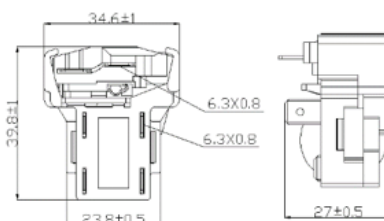
### 8.3 Combo starting relay and overload protector

Model		ZHB35-120P 15	QPS2-B15 MG1+DRB 16N61A2	QP2-15 ZH+TB35-120	8EA19C1-02 +3TM129NF 1
Supplier		Changshu Tianyin Electromechanical Co.,Ltd.	Hangzhou Star shuaier Electric Appliance Co.,Ltd.	Shunde Ronggui Electronic Circuit Measuring Equipment Co.,Ltd.	Sensata Technologies (Baoying) Co.,Ltd.
Starting relay	Resistance $\Omega$	15 $\pm$ 20%			
	Run time S	0.2~1.5			
	Reset time S	$\leq$ 100			
	Max working voltage V	350			
	Max current A	8			
Protector	Max.T.C Amp.(25°C) A	3.5			
	Trip time S	5~15			
	Reset time S	30~180			
	Open temp. $\pm$ 5°C	120			
	Close temp. $\pm$ 9°C	57	61		

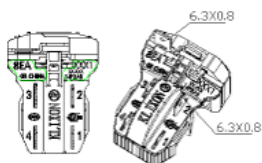
ZHB35-120P15



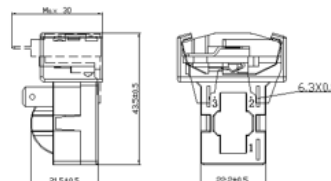
QPS2-B15MG1+DRB16N61A2



8EA19C1-02+3TM129NF1



QP2-15 ZH+TB35-120



## 9. Delivery State

No.	Name	Model	Quantity	CODE
1	Compressor	D53CY1	1pcs	
2	Rubber plug	Φ6.4	1pcs	
3		Φ8.2	2pcs	
4	Rubber grommet	M model	4pcs	
5	Starting relay	JPQII-15	1pcs	Lanxi City Yueqiang Electric Co.,Ltd

		QP2-15		Hangzhou Star shuaier Electric Appliance Co.,Ltd.
				Shunde Ronggui Electronic Circuit Measuring Equipment Co.,Ltd.
6	Overload protector	BT35-120	1pcs	Lanxi City Yueqiang Electric Co.,Ltd
		DRB16N61A2		Hangzhou Star shuaier Electric Appliance Co.,Ltd.
		TB35-120		Shunde Ronggui Electronic Circuit Measuring Equipment Co.,Ltd.
7	Combo starting relay and overload protector	ZHB35-120P1 5		Changshu Tianyin Electromechanical Co.,Ltd.
		QPS2-B15MG 1+DRB16N61 A2		Hangzhou Star shuaier Electric Appliance Co.,Ltd.
		QP2-15 ZH +TB35-120		Shunde Ronggui Electronic Circuit Measuring Equipment Co.,Ltd.
		8EA19C1-02+ 3TM129NF1		Sensata Technologies(Baoying) Co.,Ltd.
8	Relaying cover	A1	1pcs	
9	Sleeve	QET-04	4pcs	
10	Nut	QET-27	4pcs	
11	Anchor bolt assembly	M6×30	4pcs	
12	Grounding screw	QET.1-24C	1pcs	

Notes:1.Except Rubber plug, all electrical parts and equipment assembly are supplied separately, not installed on the compressor.

2.All electrical parts and equipment assembly according to “Delivery state”are all provided by our company.

## 10. Package、Storage and Transportation

Package type	unrecyclable
Quantity	100pcs/box
Transportation	By sea
Storage	Max. 2 layers
Cross Weight Kg	510±40
Net Weight Kg	460±40
Volume m <sup>3</sup>	1.03
Dimension: length×width×height cm	114×89×103
Main components	Wooden supporter、upper wooden cover、foam divider、plastic sheet、cardboard cover、rain-proof cover、wrapping
Movement	Keep the compressor in normal or vertical



	position
Trans. test requirement	No allowable compressor's damage and performance loss.

## 11. Technical Items

- (1)、Don't take off the rubber plugs before using and installing compressor to prevent dust and moisture.
- (2)、Don't turn down or incline the compressor during storage, transportation or installation and avoid vibration and shock.
- (3)、The compressor must be kept horizontally during running, the inclination angle must be less than 5°.
- (4)、A special polyester oil is charged in the R600a compressor and the charging volume has been optimized by DONPER. Don't pour out or add any refrigerant oil.
- (5)、The interval of compressor operation must be more than 4 minutes in order to obtain a pressure balance in the systems.
- (6)、Don't start or run in the case of vacuum or charge high voltage in the compressor. The compressor cannot be used to vacuumize the refrigeration system.
- (7)、The design of refrigeration system must be suitable to insure the oil could flow back to compressor.
- (8)、The maximum ambient temperature of the compressor operation is 43°C. When continuously operating under the maximum ambient temperature 43°C, the condensing pressure and the peak pressure should not exceed as showing in the following table.

Refrigerant	R600a
Max. condensing pressure	0.87MPa
Peak	0.98MPa

- (9)、Widen the evaporating Temp. range of the compressor should be approved by DONPER.
- (10)、Compressor should be stored in a dry place.
- (11)、Compressor accessories (eg: starting relay, overload protector etc.) are put in the accessories box instead of fixing on the compressor.
- (12) The inventory period of the compressor after leaving the factory should not exceed 6 months. If it exceeds 6 months, please check if the protective gas inside the compressor is under negative pressure.
- (13)、It's necessary to keep the compressor without rubber plug as short time as possible (max time 10 min).
- (14)、R600a systems require a filter with drying agent which suitable for R600a refrigerant
- (15)、The vacuum pump and the charging system must only be dedicated to R600a.
- (16)、The refrigeration system should minimize the content of chlorine and moisture, and must be free of paraffin and silicon oil.
- (17)、The organic substance non-compatible with R600a cannot be used in the refrigeration system.