

HERMETIC BRUSHLESS DC MOTOR-COMPRESSOR  
(DC12/24V)

QDZH25G QDZH30G QDZH35G

Specification

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## 1、 COMPRESSOR STYLE

MODEL	QDZH25G /QDZH30G/ QDZH35G
Power supply	12 /24V---DC
REFRIGERANT	R134a
APPLY	(L.B.P)
Cooling	<b>S/F</b>
Throttle set	Capillary
Motor type	DC Brushless

## 2、 RUNNING CONDITION

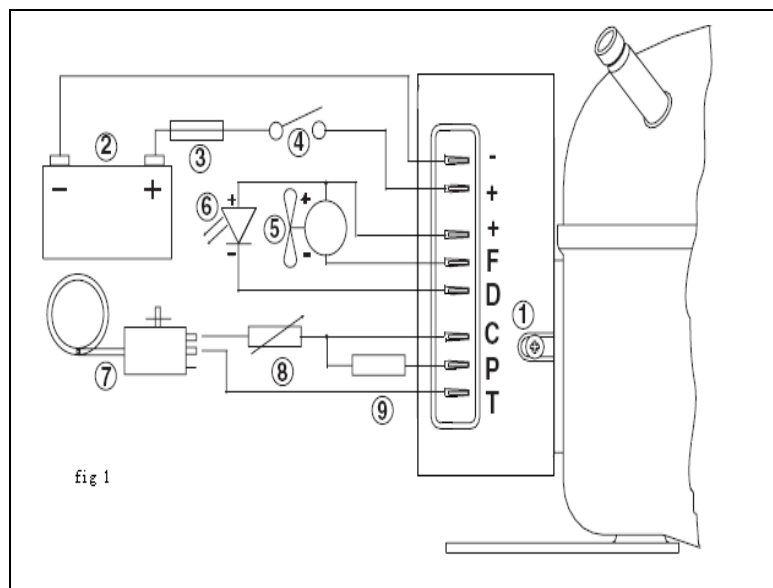
Ambient temperature	0~43℃
Evaporation temperature	-35~-10℃
Voltage range	No.6 of 《INSTRUCTION OF DC CONTROLLER》
Max discharge pressure	3.24Mpa(abs)
Max condensing temperature	65℃
Max winding temperature	130℃
Max shell temperature	95℃
Max discharge temperature	110℃
Controller ambient temperature	60℃
Min shell withstand voltage	35bar

## 3. COMPRESSOR MACHANICAL GUIDE

Oil style	Ester oil
Viscosity	20~22mm <sup>2</sup> /S(40℃)
Oil density	0.951g/ml(15℃)
Trademaker	SL-22S
Oil volume	160±10ml
Weight (with oil)	4.6kg
Diameter of suction tube (inner diameter)	Φ 6.2 <sup>+0.10</sup> <sub>-0.05</sub> mm
Diameter of discharge tube (inner diameter)	Φ 5.1 <sup>+0.1</sup> <sub>0</sub> mm
Diameter of access tube (inner diameter)	Φ 6.2 <sup>+0.10</sup> <sub>-0.05</sub> mm
Material of suction、 access、 discharge tubes	Copper
Shielding gas	Dry air 1.3~1.7bar(dew point: -60℃))

## 3、 PERFORMANCE DATA OF DC COMPRESSORS (FOR CAR, SHIP





Wire dimensions (table2)

AWG Gauge	Cross section(mm2)	Max length* 12V DC		Max length* 24V DC	
		ft.	m	ft.	m
13	2.5	8	2.5	16	5
12	4	13	4	26	8
10	6	20	6	39	12
8	10	33	10	66	20

\*length between battery and electronic unit

Standard battery protection settings (table3)

12Vcut-out V	12V cut-in V	24Vcut-out V	24V cut-in V
10.4	11.7	22.8	24.2

Compressor speed settings (table4)

Motor speed (RPM)	Resistor (8) Ω	C/T voltage V
2000	0	0.87~1.02
2100	51	1.02~1.17
2200	100	1.17~1.32
2300	150	1.32~1.48
2400	200	1.48~1.63
2500	277	1.63~1.78
2600	330	1.78~1.93
2700	400	1.93~2.08
2800	490	2.08~2.24
2900	586	2.24~2.39
3000	692	2.39~2.54
3100	816	2.54~2.69
3200	963	2.69~2.84
3300	1137	2.84~3.0
3400	1331	3.0~3.15
3500	1523	3.15~3.61
stop	>3000	3.61~5

Optional battery protection settings (table1)

Resistor (9) K Ω	12Vcut-out V	12Vcut-in V	12Vmax Voltage	24Vcut-out V	24Vcut-in V	24Vmax Voltage
0	9.6	10.9	17.0	21.3	22.7	31.5
1.6	9.7	11.0	17.0	21.5	22.9	31.5
2.4	9.9	11.1	17.0	21.8	23.2	31.5
3.6	10.0	11.3	17.0	22.0	23.4	31.5
4.7	10.1	11.4	17.0	22.3	23.7	31.5
6.2	10.2	11.5	17.0	22.5	23.9	31.5
8.2	10.4	11.7	17.0	22.8	24.2	31.5
11	10.5	11.8	17.0	23.0	24.5	31.5
14	10.6	11.9	17.0	23.3	24.7	31.5
18	10.8	12.0	17.0	23.6	25.0	31.5
24	10.9	12.2	17.0	23.8	25.2	31.5
33	11.0	12.3	17.0	24.1	25.5	31.5
47	11.1	12.4	17.0	24.3	25.7	31.5
82	11.3	12.5	17.0	24.6	26.0	31.5
220	9.6	10.9	17.0	21.3	22.7	31.5

### Controller specification

The electronic unit is a dual voltage device. This means that the same unit can be used in both 12V and 24V power supply systems. Maximum voltage is 17V for a 12V system and 31.5V for a 24V power supply system. Max. ambient temperature is 55°C. The electronic unit has a built-in thermal protection which is actuated and stops compressor operation if the electronic unit temperature gets too high.

### Installation(Fig.1)

Connect the terminal plug from the electronic unit to the compressor terminal. Mount the electronic unit on the compressor by snapping the cover over the screw head(1).

**Power supply(Fig.1)**

The electronic unit must always be connected directly to the battery poles (2). Connect the plus to + and the minus to -, otherwise the electronic unit will not work. The electronic unit is protected against reverse battery connection. For protection of the installation, a fuse (3) must be mounted in the + cable as close to the battery as possible. 15A fuse for 12V and 7.5A fuse for 24V circuits are recommended. If a main switch (4) is used, it should be rated to a current of min. 20A. The wire dimensions in **Table. 2** must be observed. Avoid extra junctions in the power supply system to prevent voltage drop from affecting the battery protection setting.

**Battery protection(Fig.1)**

The compressor is stopped and re-started again according to the decided voltage limits measured on the + and - terminals of the electronic unit. The standard settings for 12V and 24V power supply systems appear from **Table. 3**. Other settings (**Table. 1**) are optional if a connection which includes a resistor (9) is established between terminals **C** and **P**.

**Thermostat(Fig.1)**

The thermostat (7) is connected between the terminals **C** and **T**. Without any resistor in the control circuit, the compressor with electronic unit will run with a fixed speed of **2,000rpm** when the thermostat is switched on. Other fixed compressor speeds in the range between 2,000 and 3,500 rpm can be obtained when a resistor (8) is installed to adjust the voltage (v) of the control circuit. Resistor values for various motor speeds appear from **Table. 4**.

**Fan(optional,Fig.1)**

A fan (5) can be connected between the terminals + and **F**. Connect the plus to + and the minus to **F**. Since the output voltage between the terminals + and **F** is always regulated to 12V, **a 12V fan must be used for both 12V and 24V power supply systems**. The fan output can supply a continuous current of **0.5A<sub>avg.</sub>**. A higher current draw is allowed for 2 seconds during start.

**LED(optional,Fig.1)**

A 10mA light emitting diode(LED)(6) can be connected between the terminals + and **D**. In case the electronic unit records an operational error, the diode will flash a number of times. The number of flashes depends on what kind of operational error was recorded. Each flash will last 1/5 second. After the actual number of flashes there will be a delay with no flashes, so that the sequence for each error recording is repeated every 3 minutes.

Table 5

Number of flash	Error type
1	<b>Battery protection cut-out</b> (The voltage is outside the cut-out)
2	<b>Fan over-current cut-out</b> (The fan loads the electronic unit with 1A <sub>peak</sub> ).
3	<b>Motor start error</b> (The rotor is blocked or the differential pressure of the refrigeration system is too high (>6bar))
4	<b>Minimum motor speed error</b> (If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed 1850 rpm or controller cannot find position).
5	<b>Thermal cut-out of electronic unit</b> (If the refrigeration system is heavily loaded, or if the ambient temperature is high, the electronic unit will run too hot (>75° C)).
6	<b>Controller hardware failure</b> (Controller detects abnormal parameters)

**Technical superiority:**

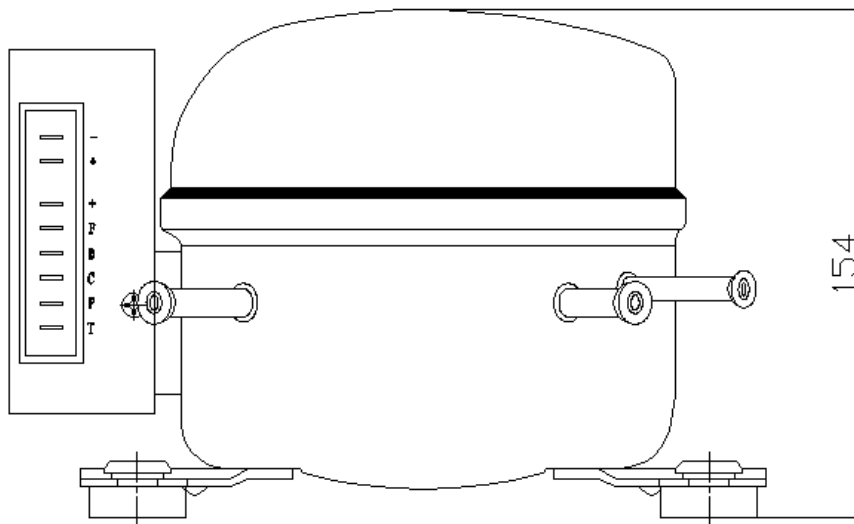
- 1、 Step-up regulator controller using speed compressor, electric compressor to reduce the loss of copper; inverter level will not be adopted after the chopper way to reduce the wear and tear of the controller, at the same time improve the efficiency of the DC motor; use of low-power controller Energy-saving devices and soft-start technology, so that the controller of the static power consumption <3mA ~ 5mA (DC12V ~ DC30V input)。
- 2、 Current controller with multi-level control functions, the largest output of 150W, according to the change of load.

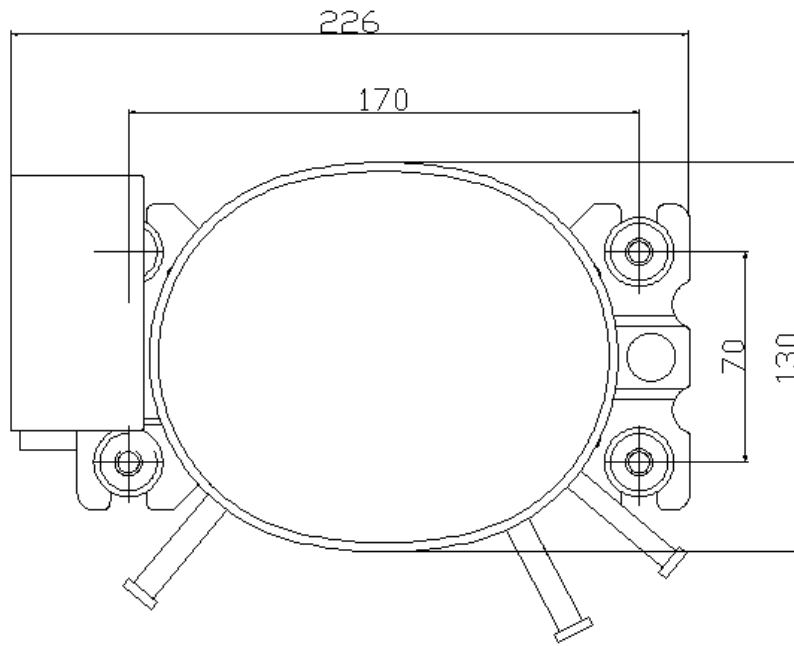
in the load-conditioning compressor to achieve the speed limit power output.

**NOTES:**

- 1)、Power controller, please read the manual; and check the connection is correct, incorrect connection may damage controller;
- 2)、Controller can not be greater than the value of the input voltage DC 35V.

**6、 COMPRESSOR OUTSIDE DREWING**





**7、 PACKING LIST**

N/M	Name	Specs	Quantity	Remark
1	Compressor	QDZH25G(QDZH30G/ QDZH35G)	1UNIT	
2	Rubber stopper	Φ 6.9	1PC	
		Φ 7.8	2PC	
3	Rubber grommet		4PC	
4	DC controller		1PC	Depend on compressor
5	Controller fix-bolt		1PC	
6	Sleeve		4PC	
7				
8				
9				



**8、 PACKAGE、 STORAGE、 TRANSPORT:**

Package type	One-off
Quantity	One unit
Transportation	Train 、 car、 shipping
Level number of pile	Less than 2 level
G.W. Kg	5.0
N.W. Kg	4.6
Volume cm <sup>3</sup>	11200
Packing dimension L×W×H (mm)	1010×1010×H(<1200)
Mainly packing subassembly	Wooden base、 cover plate、 foam clapboard、 plastic dissepiment、 strap
Carry	Compressor keeping vertically
Simulate shipping requirement	Prohibit breaking the capability of compressor

**9、 INSTALL NOTICE**

Vacuum degree of the system: 0.5mbr

Uncondensing gas no more than: 1.0%

Mustn't keep opening the linker more than: 10mins

Compressor can not been started or running under high pressure or vacuum surroundings,

Compressor system vacuumize is not allow !

Lean degree shouldn't over 15° when the compressor is running

Unappointed refrigerant: Forbidden!

Compressor rework solution: Forbidden!

Stock period should not over 6 month after leave the factory, if over 6month, please make sure wether enough of dry air inside the compressor, makeup when necessary !

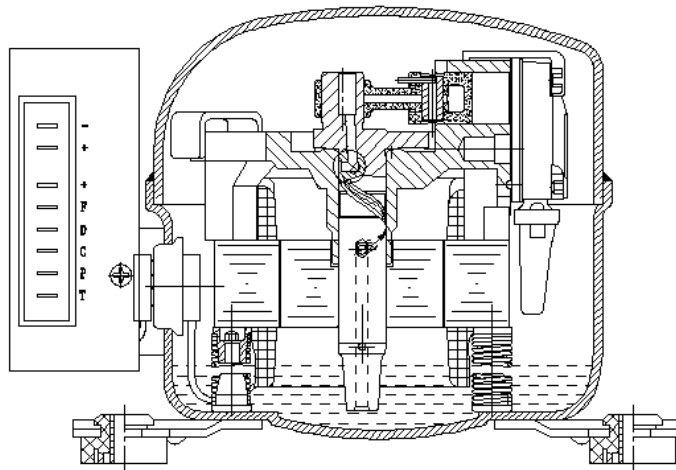
Other requirement:

- ◇Carefully thinking over the “oil return” when designing the cooling system
- ◇Not allow using broken compressor。

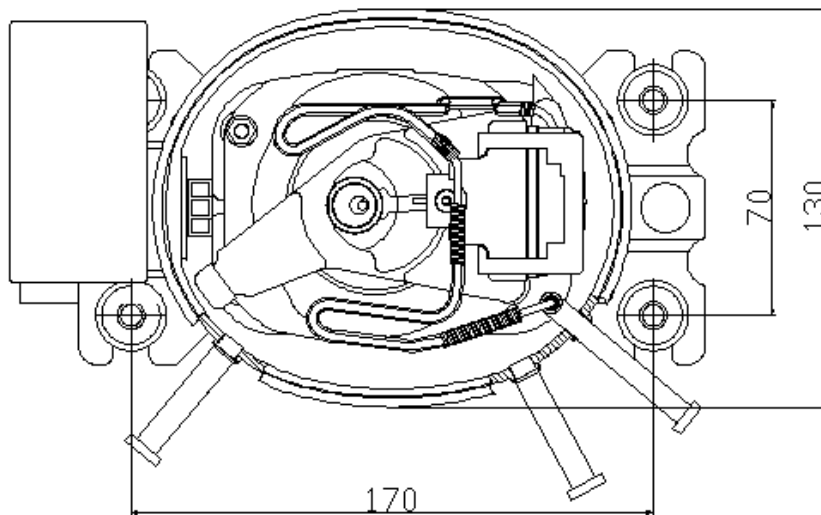
**10、 INSTALLATION DIAGRAM****1)、 Compressor front view**

- 2)、Compressor Planform
- 3)、Undercarriage rubber ring

1) Compressor front view



2.Compressor Planform

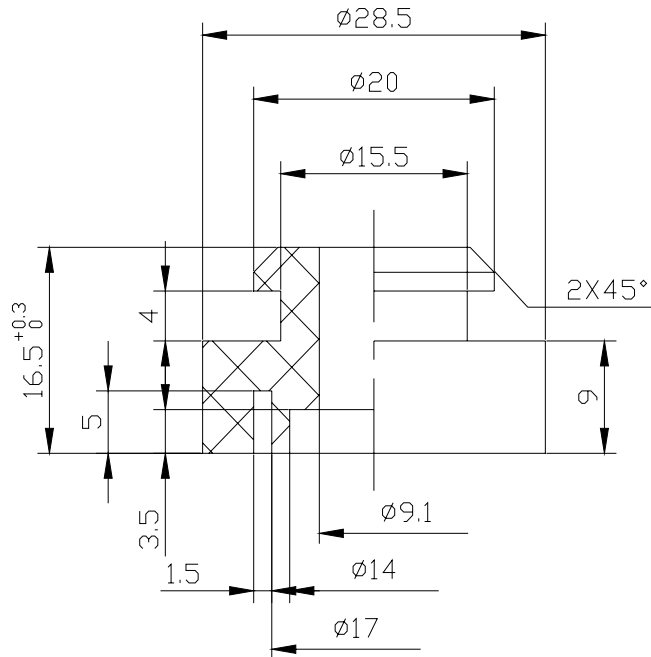


**1、 Undercarriage rubber ring**

**Material: Savageness rubber**

**Rigidity: 30-40AHS**

**Color: black**



**Undercarriage installation sketch map:**

