

Semi-hermetic Reciprocating Compressor
USER MANUAL

The strength of the compressor has been tested with the Chinese national standard of GB/T10079-2001, JB/T5446-1999. A leak test is necessary before using.

The leak test instruction:

1. Do not use gas that is inflammable and explosive.
2. Do not check the leakage with high pressure above 1.63MPa. Industrial N2 is suggested.
3. Do not use the compressor to de-pressurize and start the compressor when it is under vacuum.

WARNING

1. The compressor and condensing unit have two types of motor, the high LRA motor, the mid and low LRA motor. The mid LRA compressor can't be used while the evaporating temperature is above -5°C. The high LRA condensing unit is suggested if the temperature is above 0°C.
2. Detect the overload prevention system before starting. The reason of overload must be found out if the system works. Forced start is not permitted.
3. The refrigeration system must keep clean. The oil level and color should be checked regularly. Oil should be recharged and the oil circulation system should be checked if the oil level is below the 1/4 of the sight glass. If the oil gets dirty and the color changed, the oil should be replaced. A relay should be equipped and detected to ensure it works if the compressor is equipped with oil pump. The installation of the relay can refer to the manual.
4. Only professional refrigeration mechanics are permitted to operate the compressor and unit. Related national safety standard should be aware.
5. High on/off cycling rate will affect the service life of the machine. A 3 minutes' interval is suggested before restart.
6. The crankcase heater must be installed according to the instruction to prevent the liquid slugging that leads to the broken of the valve plate and the bearing seizure, and ensure the crankcase heater works normally while the machine is power off. The crankcase must be heated for 4 to 12 hours before restarting after been shut off for longer than 12 hours. The exact time is decided by the temperature of the oil.
7. The accumulator must be installed to the suction valve to prevent the liquid slugging. The suction valve and liquid valve should be closed if the compressor is to be power-off for longer than 12 hours.
8. A suction filter is necessary to ensure the service life of the machine and prevent the dirt from getting into the compressor. After the installation and test, the suction filter should be cleaned and replaced.
9. When the evaporating temperature is under -15°C, the refrigeration oil with low pour point and fine mobility and wax-free must be adopted to ensure the circulation.
10. To ensure the oil circulation of the system, the upside pipe of the evaporator should be suction pipe, and the downside pipe should be discharge pipe. The return pipe should avoid ascending angle. The level pipe should be connected to the compressor with a downward slope.
11. Operate the compressor beyond its approved application range will shorten its service life, therefore the suction temperature must be adjusted and additional cooling system is suggested. Air-cooled condensing unit must uses the fan to cool the compressor.
12. The instruction should be well kept while using the machine.
13. The manufactor will not discharge the responsibility for three guarantee if these above rules are not obeyed. Contact us when you meet any problem.
14. The manufactor reserves the final right of interpretation.

1. Model Nomenclature

2YD-2.2	2	Y	D	2	.2
	Number of cylinder	Model	D for Low Temp.; G for High Temp.	HP	Serial NO.
BFS31	BF	S	3	1	
	Semi-Hermetic	Model	HP	Serial NO.	
4S151D	4	S	15	1	D
	Number of cylinder	Model	HP	Serial NO.	D for Low Temp.; G for High Temp.

2. Characteristics

- Relatively small and light
- Wide range of application

The machine uses R22 as refrigerant. R134a, R404a, R407b and R407c are also approved. R12 and R502 are not suggested due to the international environment protection requirement. The machine can be used at a low or high condensing temperature.

- General spare parts

The spare parts like valve plate, the piston and connecting rod are generally used and it's convenient for maintenance.

- Low noise

Due to the scientific design and high precision, the machine owns a fine dynamic balance and works smoothly with a low noise.

- Excellent performance

The compressor has a scientific structure design, strictly chosen material and precise procession and it is strictly inspected. The factory has obtained the National Compulsory Products CCC Certification, the National Industrial Products Manufacture License, and the ISO9001:2008 International Quality Supervision System Certification. Thus the machine has an excellent performance.

- No leakage

The compressor could operate without the leak of refrigerant and oil since the motor is built-in without shaft seal device. The machine contains a oil separation device, so the oil won't spoil over. The compressor could work stably at a low temperature environment.

- Reliable safety device

The compressor is equipped with motor protector and discharge temperature monitor to prevent the overheat of the motor and the compressor and the operation beyond approved application pressure.

Item	Ref.	R22	R134a	R404a	R407a	R407b	R407c
Evaporating Temperature		-40~12.5°C	-20~12.5°C	-40~10°C	-40~10°C	-30~10°C	
Condensing Temperature				30~45°C (Water Cooled); 30~55°C (Air Cooled)			
Max Pressure Difference				1.83Mpa			
Max Compression Ratio				18			
Max Discharge Temperature				135°C (Measured on the discharge line)			
Suction Overheated Temperature		Lowest:10°C	Highest:Lower than the Max discharge temperature at 135°C				
Highest Oil Temperature				80°C			
Power				3ph 380/440v 50/60Hz			
Motor Temperature				Under 105°C			
Refrigeration Oil		SUNISO 3GS		SUNISO SL32S			
Highest Environment Temperature				43°C			
Refrigerating Capacity				Refer to Diagram 1			

Model	Nominal Power HP/kW	Displacement (50Hz)m ³ /h	Cylinder×Diameter × Stroke (mm)	Oil (L)	Power (V/Φ/Hz)	MRA (A)	LRA (A)	Dimension L×W×H (mm)	Install B×A (mm)	Heater (220V)W	Lubrication	Weight kg
BFS31	3/2.2	12.2	2×Φ47.6×39.2	1.25		5.2	24/26	518×261×305	310×200	60		62
BFS41	4/3.0	14.7	2×Φ54×46	1.85		7.6	38/44	585×282×363	355×230	60		85
BFS51	5/3.7	18.4	2×Φ54×46	1.85		7.6	38/44	585×282×363	355×230	60	飞溅润滑	87
BFS81	8/5.5	26.6	2×Φ64×48	3.5		15	74/81	624×320×449	380×280	120		133
BFS101	10/7.5	36	2×Φ64×64	3.5		15.6	93/103	624×320×449	380×280	120		137
BFS151	15/10.5	54	3×Φ64×64	4.8	380-420	22.3	133/150	748×356×431	480×315	180		172
4S15ID	15/10.5	73.7	4×Φ70×55	4	/3/50	31	81/132	693×417×453	381×305	180		183
4S25IG	25/18.5	73.7	4×Φ70×55	4.5	440-480	45	116/193	741×417×453	381×305	140		203
4S20ID	20/15	84.6	4×Φ75×55	4.5	/3/60	37	97/158	711×417×453	381×305	140		192
4S30IG	30/22	84.6	4×Φ75×55	4.5		53	135/220	741×417×453	381×305	140		206
6S25ID	25/18.5	110.5	6×Φ70×55	4.75		45	116/193	765×452×445	381×305	140	油泵润滑	224
6S35IG	35/25.5	110.5	6×Φ70×55	4.75		61	147/262	795×452×445	381×305	140		235
6S32ID	30/22	126.8	6×Φ75×55	4.75		53	135/220	765×452×445	381×305	140		228
6S40IG	40/30	126.8	6×Φ75×55	4.75		78	180/323	795×452×445	381×305	140		238
6S40ID	40/30	151.6	6×Φ82×55	4.75		78	180/323	795×452×445	381×305	140		239
6S50IG	50/37	151.6	6×Φ82×55	4.75		92	226/404	795×452×445	381×305	140		241

Model	Nominal Power HP/kW	Displacement (50Hz)m ³ /h	Cylinder×Diameter × Stroke (mm)	Oil (L)	Power (V/Φ/Hz)	MRA (A)	LRA (A)	Dimension L×W×H (mm)	Install B×A (mm)	Heater (220V)W	Lubrication	Weight kg
2YD-2.2	2/1.5	13.4	2×Φ50×39.3	1.5		11.9/6.9	53.7/30.7	398×267×300	223×198	120		67.5
2YG-3.2	3/2.2	13.4	2×Φ50×39.3	1.5		13.5/7.8	64/37	398×267×300	223×198	120		70.5
2YD-3.2	3/2.2	16.2	2×Φ55×39.3	1.5		14.8/8.5	64/37	398×267×300	223×198	120		70
2YG-4.2	4/3	16.2	2×Φ55×39.3	1.5	220-240△ /380-420Y	16.4/9.4	76.6/44.2	398×267×300	223×198	120		70
4YD-3.2	3/2.2	18.1	4×Φ41×39.3	2		15.9/9.2	76.6/44.2	432×304×350	293×198	120		82
4YG-5.2	5/3.7	18.1	4×Φ41×39.3	2	18.7/10.8	107.7/62.2	432×304×350	293×198	120		86	
4YD-4.2	4/3.0	22.7	4×Φ46×39.3	2	/3/50	18.5/10.7	92.7/53.2	432×304×350	293×198	120		84
4YG-6.2	6/4.4	22.7	4×Φ46×39.3	2	265-290△ /440-480Y	22.9/13.2	107.7/62.2	432×304×353	293×198	120		86
4YD-5.2	5/3.7	26.8	4×Φ50×39.3	2	13.4/13.5	107.7/62.2	432×304×353	293×198	120		85.5	
4YG-7.2	7/5.1	26.8	4×Φ50×39.3	2	/3/60	27.5/15.9	142.8/82.4	458×304×353	293×198	120		88.5
4YD-6.2	6/4.4	32.5	4×Φ55×39.3	2		27.5/15.9	142.8/82.4	458×304×353	293×198	120		90.5
4YG-9.2	9/6.6	32.5	4×Φ55×39.3	2		34.5/20	142.8/82.4	458×304×353	293×198	120		90.5
4YD-10.2	10/7.5	34.7	4×Φ55×42	2.6		21	59/99	634×306×385	367×256	140	Centrifugal	134
4YG-8.2	8/5.5	41.3	4×Φ60×42	2.6		17	49/81	634×306×385	367×256	140		134
4YG-12.2	12/8.8	41.3	4×Φ60×42	2.6		24	69/113	634×306×385	367×256	140		141
4YD-10.2	10/7.5	48.5	4×Φ65×42	2.6		21	59/99	634×306×385	367×256	140		139
4YG-15.2	15/10.5	48.5	4×Φ65×42	2.6		31	81/132	657/306×385	367×256	140		147
4YD-12.2	12/8.8	56.2	4×Φ70×42	2.6		24	69/113	634×306×385	367×256	140		141
4YG-20.2	20/15	56.2	4×Φ70×42	2.6	380-420YY /3/60	37	59/99	657/306×385	367×256	140		150
4YD-15.2	15/10.5	73.7	4×Φ70×55	4	440-480YY	31	81/132	693×417×453	381×305	140		183
4VG-25.2	25/18.5	73.7	4×Φ70×55	4.5		45	116/193	741×417×453	381×305	140		203
4VD-20.2	20/15	84.6	4×Φ75×55	4.5		37	97/158	711×417×453	381×305	140		192
4VG-30.2	30/22	84.6	4×Φ75×55	4.5		53	135/220	741×417×453	381×305	140		206
6WD-25.5	25/18.5	110.5	6×Φ70×55	4.75		45	116/193	765×452×445	381×305	140		224
6WG-35.2	35/25.5	110.5	6×Φ70×55	4.75		61	147/262	795×452×445	381×305	140	Forced	235
6WD-30.2	30/22	126.8	6×Φ75×55	4.75		53	135/220	765×452×445	381×305	140		228
6WG-40.2	40/30	126.8	6×Φ75×55	4.75		78	180/323	795×452×445	381×305	140		238
6WD-40.2	40/30	151.6	6×Φ82×55	4.75		78	180/323	795×452×445	381×305	140		239
6WG-50.2	50/37	151.6	6×Φ82×55	4.75		92	226/404	795×452×445	381×305	140		241
6WD-20.2	20/15	110.5	6×Φ70×55	4.75		37	97/158	741×417×453	381×305	140		220
6WD-25.2	25/18.5	126.8	6×Φ75/75×55	4.75		45	116/193	741×417×453	381×305	140		233
6WDS-30.2	30/22	151.6	6×Φ82/82×55	4.75		53	135/220	741×417×453	381×305	140		234

5. Installation

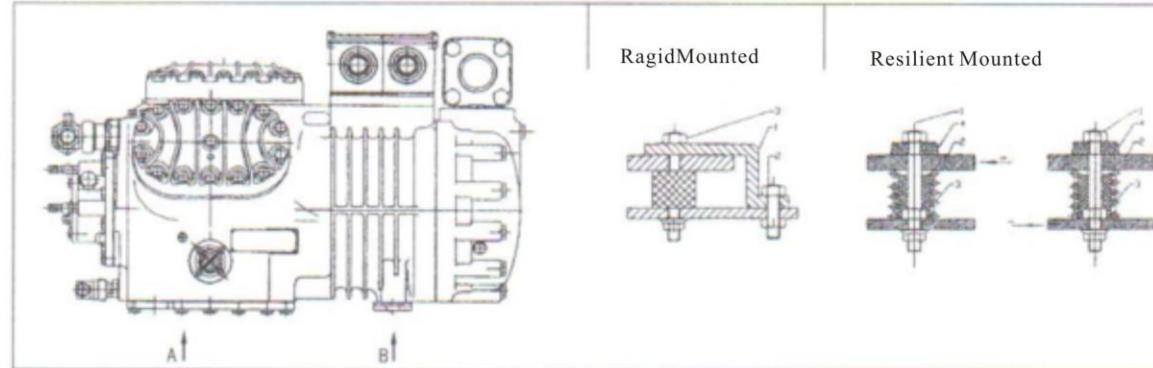
5.1 General Principles

- The compressor must be installed levelly with proper protecting method under harsh environment(Corrosive gas or low temperature) and away from the rain.
- The compressor could be rigidly mounted if the connecting pipe won't be broken caused by vibration.Otherwise the shock absorber must be installed especially in the water-cooled unit.

While installing the rigidly mounted unit, remove the fixed block (1) and bolt (2) and tighten the fixed bolt and nut (3).

While transporting the shock absorber equipped refrigeration unit,nut (1) must be tightened until pedal (2) pressed on the sleeve (3).

The shock absorber must be locked while transporting the whole unit to prevent damage to the machine.These locking device must be released or removed before operating the machine.

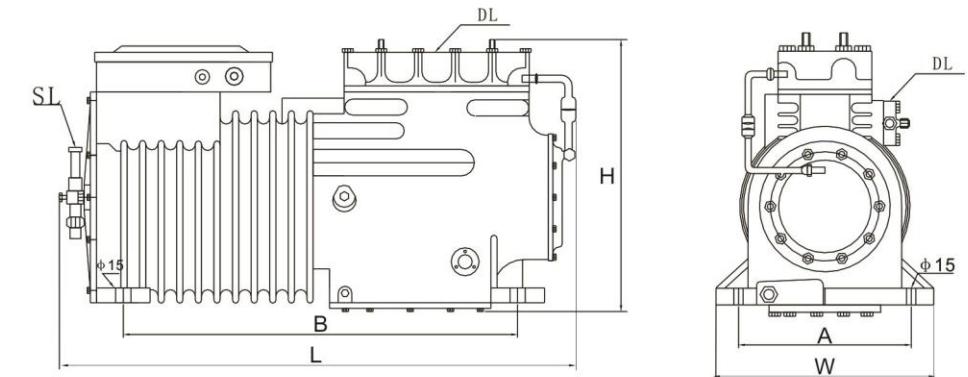


5.2 Pipe Installation

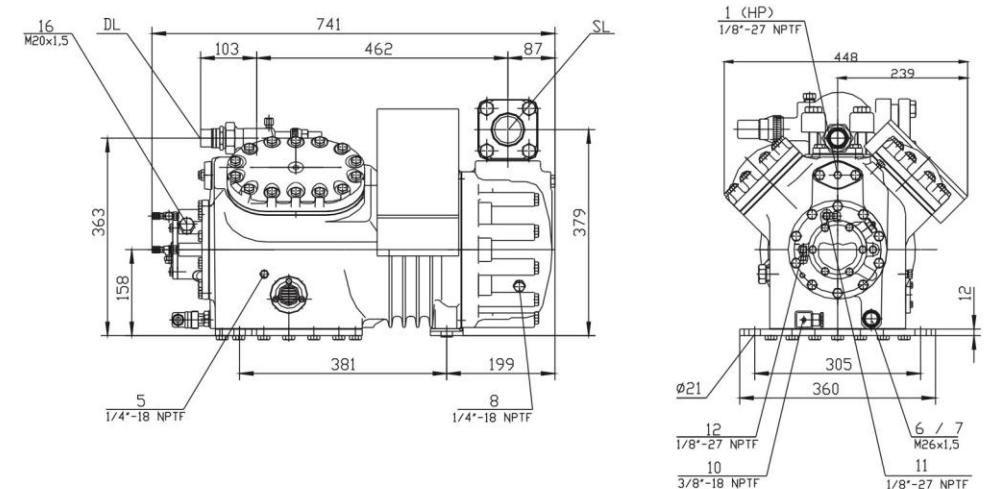
- The compressor is charged with N2.Do not disassemble the joint before releasing the gas.
- The joint is designed with step due to the consideration that the pipe may be metric or inch.The pipe can be connected to different position that fits its size.The unnecessary larger end can be cut off.
- The pipe and spare parts must be clean and dry without dirt,welding slag,oxide,etc.
- Use the suction filter if the pipe is multi branches and made of steel or welded without gas shield.
- Refer to Picture 2 for the position and size of each interface.

The position and size of each interface

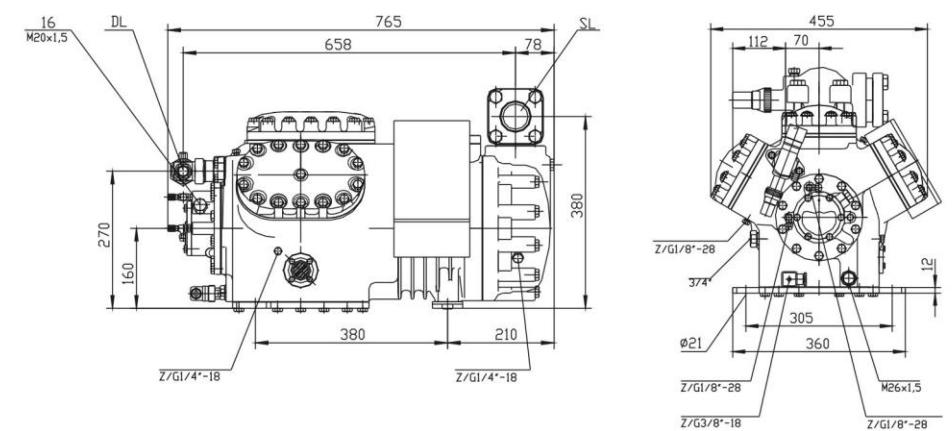
BFS31---BFS151



4S151D---4S301G

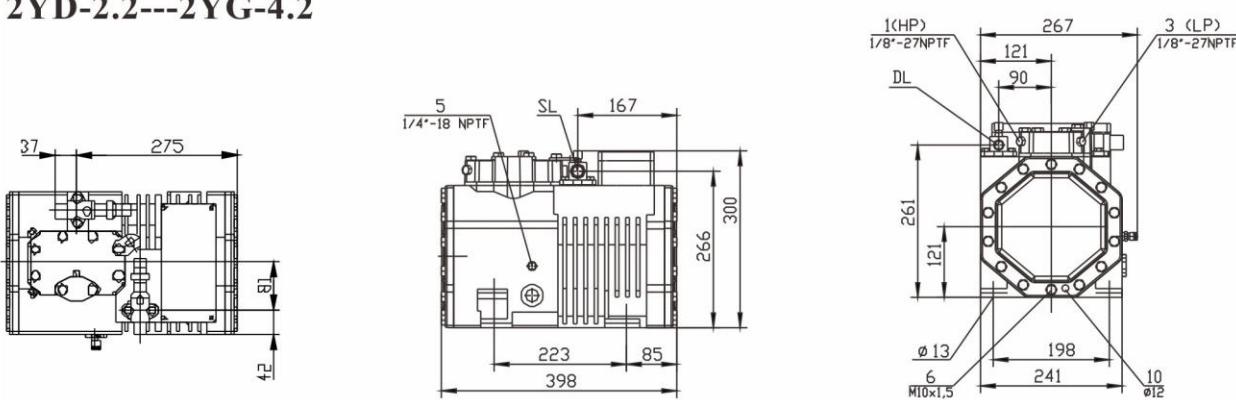


6S251D---6S501G

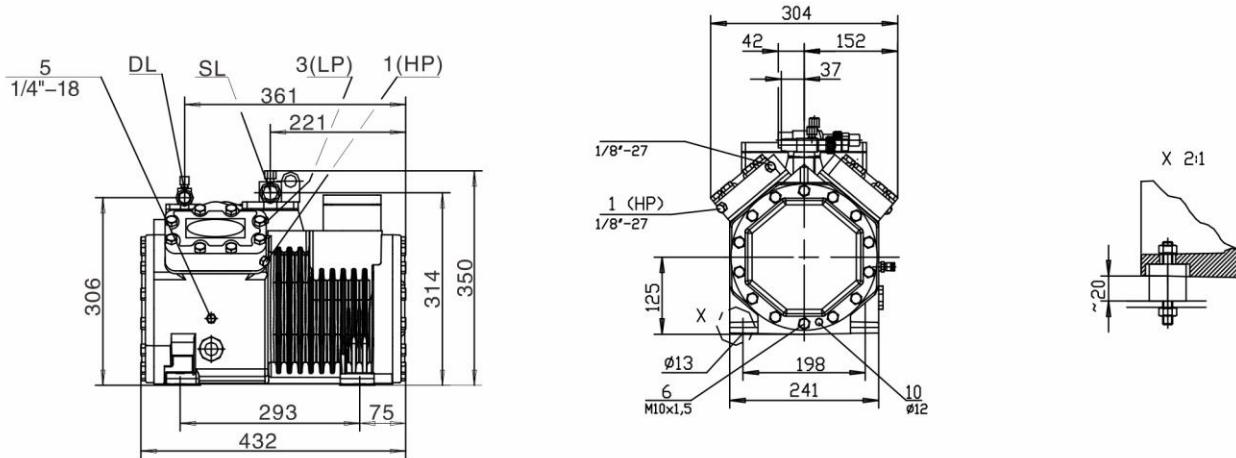


4VD-15.2---4VG-35.2

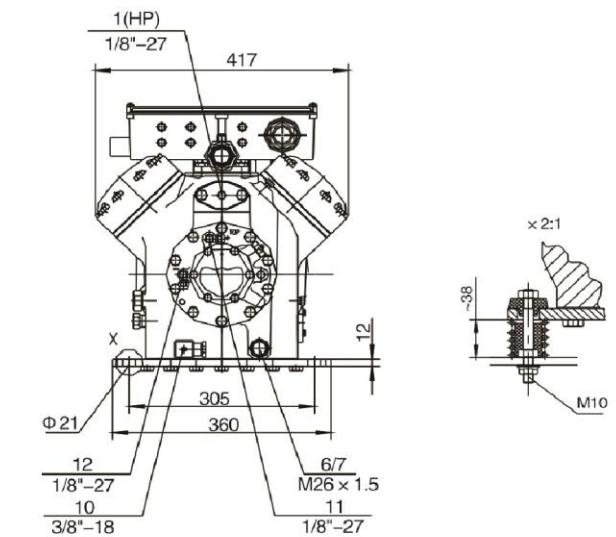
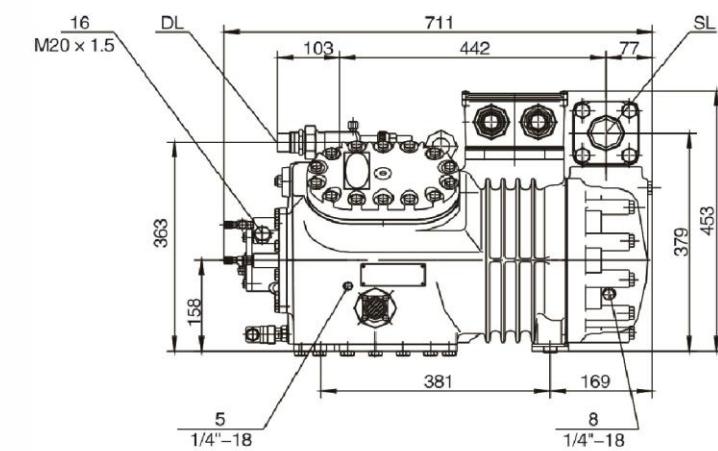
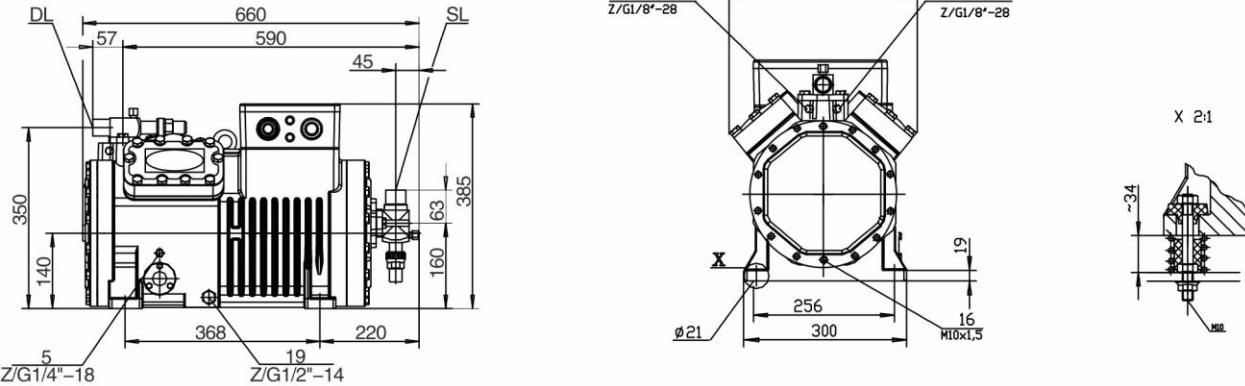
2YD-2.2---2YG-4.2



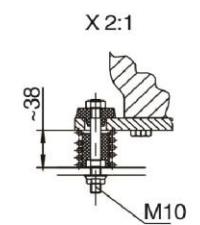
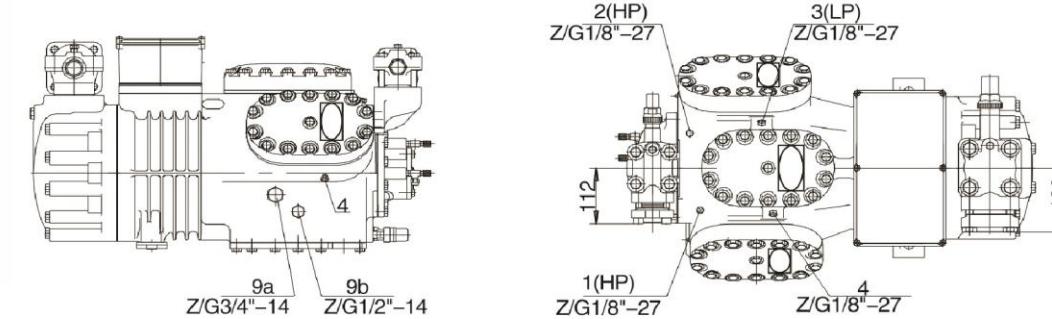
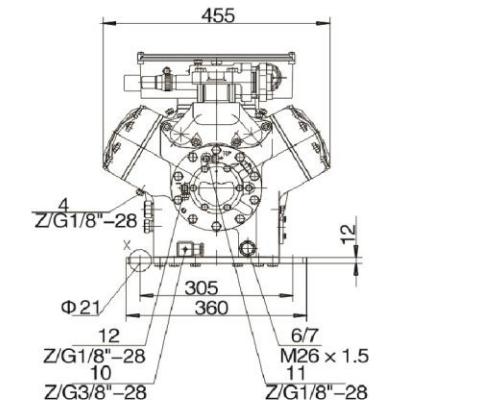
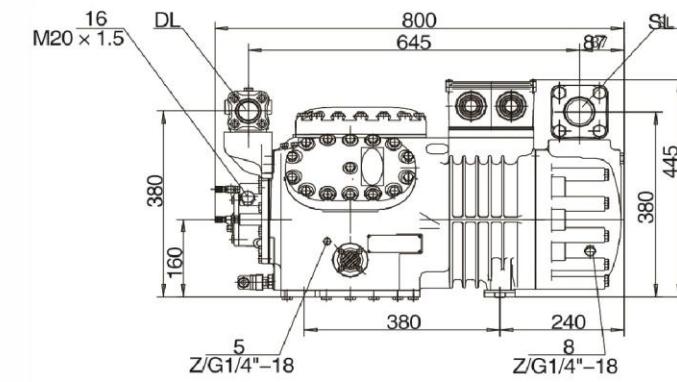
4YD-3.2---4YG-9.2



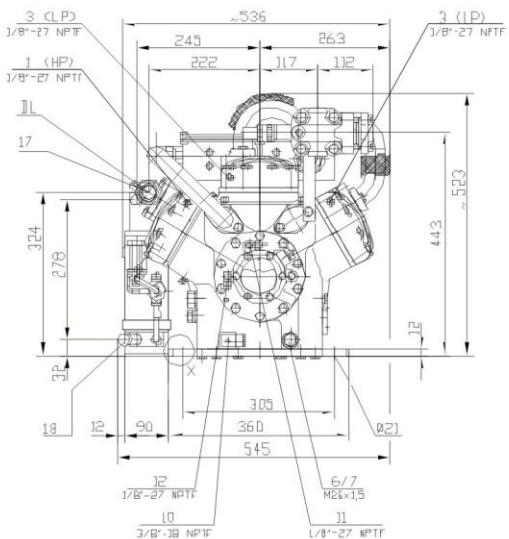
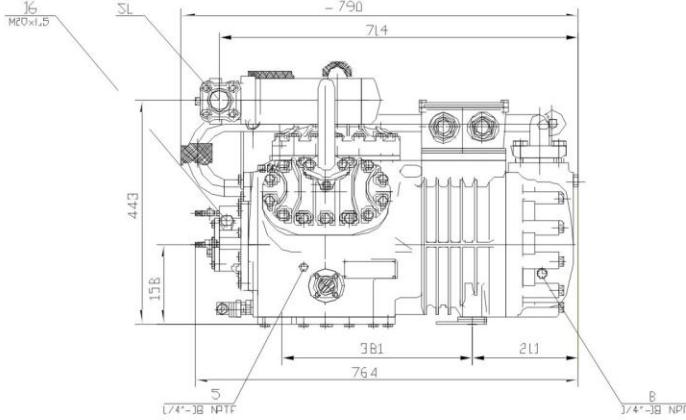
4YD-8.2---4YG-20.2



6WD-30.2---6WG-50.2



6WDS-20.2---6WDS-30.2



Remarks:

- 1.High-Pressure Connection(HP)
- 2.Discharge-Temperature Sensor Connection(HP)
- 3.Low-Pressure Connection(LP)
- 4.CIC-System Connection
- 5.Oil Charge Plug
- 6.Oil Drain Plug
- 7.Oil Filter(With Magnetic Bolt)
- 8.Oil Return Plug
- 9a.Gas Balance Connection
- 9b.Oil Balance Connection
- 10.Crankcase Heater
- 11.High Oil Pressure Connection
- 12.Low Oil Pressure Connection
- 16.Oil Pressure Difference Switch "Delta-p" Connection
- DL.Discharge Valve
- SL.Suction Valve

5.3 Electrical Wiring Diagrams

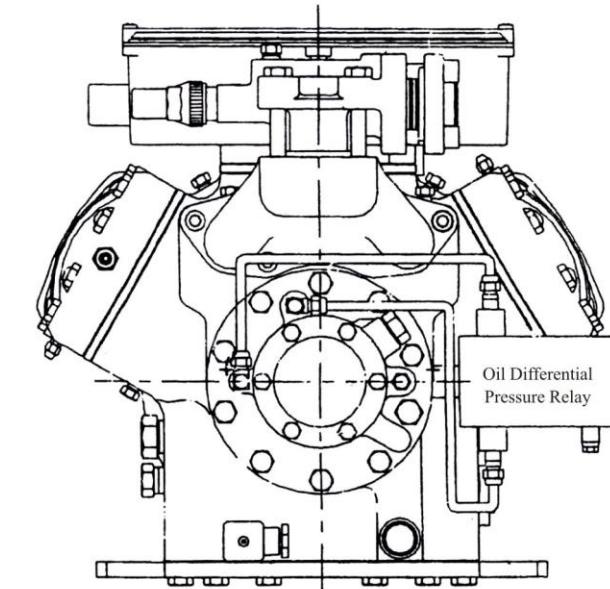
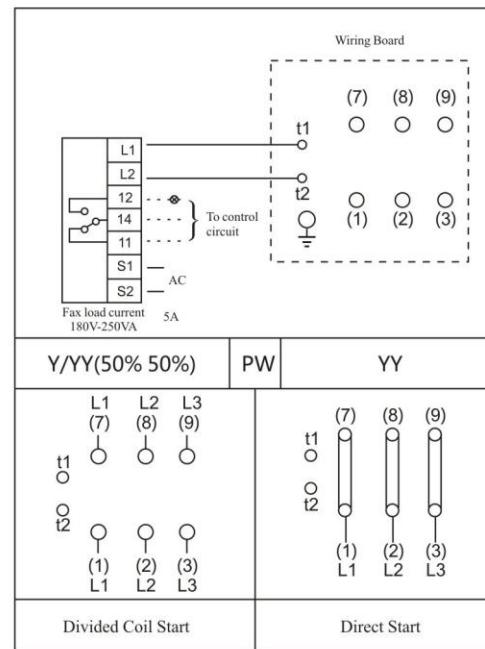
- Electrical wiring must in accordance with the diagram and in line with relative laws.
- The capacity of connector,wiring and fuse must take the max operating current and max power consumption of the compressor as reference.The power parameter must match with the voltage and frequency on the nameplate before connected to the motor.

The connect of the wiring terminal must refer to the diagram on the junction box.The motor of compressor with 2-3 cylinders is different with the one with 4-6 cylinders,thus it's necessary to check the motor.If the wiring is connected wrong,it would lead to an opposite or wrong phase and the motor would get locked with the danger of burnout.

- The motor protecting device has been installed in the junction box and connected with the PTC sensor(Picture 5).The wiring of the device must be connected right,or the manufactor will not discharge the responsibility for three guarantee.
- The crankcase heater is to prevent the refrigerant from mixing with the oil which will dilute the oil and lead to the damage to the moving parts.It must be connected with the normally closed contact of the AC contactor and 220V power to ensure the heater could still work while the compressor is power-off. The crankcase must be heated for 4 to 12 hours before starting after been shut-off for longer than 12 hours.The exact time is decided by the temperature of the oil.

• Electrical wiring of oil pressure relay can refer to picture below.

- For the consideration of safety, a relay should be equipped and detected to ensure it works if the compressor is equipped with an oil pump.



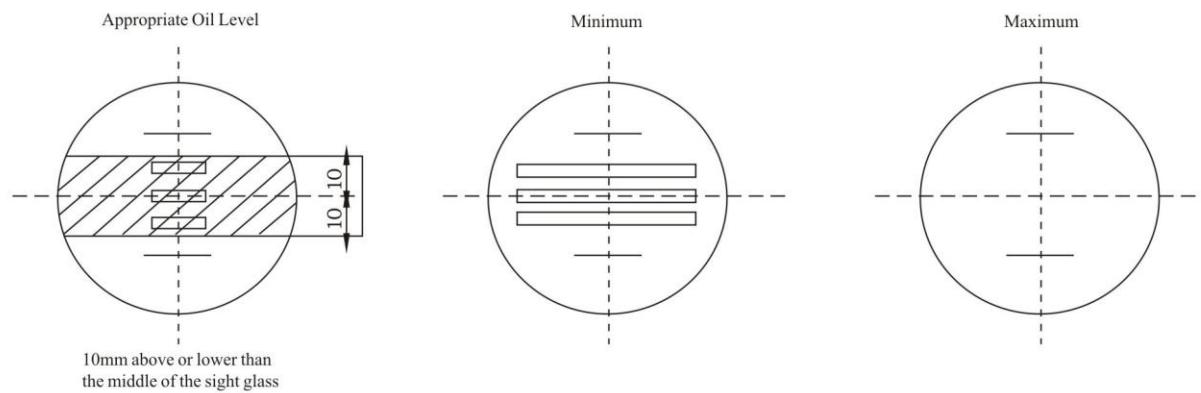
5.4 Trial Running

- The compressor has been dried and checked the leak and charged with nitrogen. Industrial nitrogen is suggested to check the leak. While using dry air to check the leak, the suction and discharge valve should be closed and separated from the system to avoid affecting the stability of the oil.
- The system including the compressor should use the vacuum pump to de-pressurize. It's not allowed to use the compressor to de-pressurize the system. The vacuum pump must be connected to the high-and low-pressure sides at the same time. The pressure should not change in 30 minutes when the absolute pressure is less than 150 Pa.
- Don't start the compressor when it is under vacuum and don't connect it with any power supplier.**
- Check the oil level and heat the crankcase before the compressor is charged with refrigerant or power-on.
- The refrigerant should be liquid and charged into the condenser or storage device when the compressor is power-off. After start-up, refrigerant vapor can be charged through the suction side.

While charging the liquid refrigerant through the suction side, following tips must be aware: running with liquid slugging is dangerous; oil temperature should be 15-20°C higher than outside, it's better above 40°C; check the safety protecting system; check the set of time relay; check the delay of oil pressure difference relay and the pressure that shut-off the high and low pressure controllers.

- Check the oil level before start-up (The oil level should be in the range of the sight glass as the following picture shows). If the compressor of the unit is to be changed, the oil of the new compressor needs to be pour-out for there have already been much oil in the system. There may be the danger of oil slugging if there are too much oil in the system.

Picture 8



Check the lubrication at the moment of starting. The oil level should be at the 1/4 to 3/4 parts of the sight glass (Picture 8). A oil pressure gauge can be installed to the oil pump to check the pressure. The monitor of the oil pressure relay works automatically. The system must be diagnosed if the switch is not connected. If the system is to be charged of much oil, the oil circulation must be checked since there would be the danger of oil slugging.

Referring to the manual for the evaporating and condensing temperature, the suction and discharge temperature, the suction and discharge pressure, and the oil temperature. If abnormal vibration exists, method must be taken to solve it.

After the system has run for a period of time, it's up to whether the system is clean to decide if it's necessary to replace the oil or not. As to the on-site installed device and the unit operating under limited situation, it's necessary to replace the oil after running for 100 hours. The oil should be replaced every year.

The level of the oil must be regularly checked. If it's lower than the normal position, the compressor needs to recharge oil and check if the oil circulation design, the water content, the volume of refrigerant, the expansion valve and the quality of the oil meet the requirement. These are the factors that would affect the oil circulation.

While dismantling the compressor, the crankcase heater must keep working to prevent the refrigerant from mixing with the oil. The suction valve must be shut-off to pump the refrigerant out before dismantling the compressor. The refrigerant must be properly deal with.

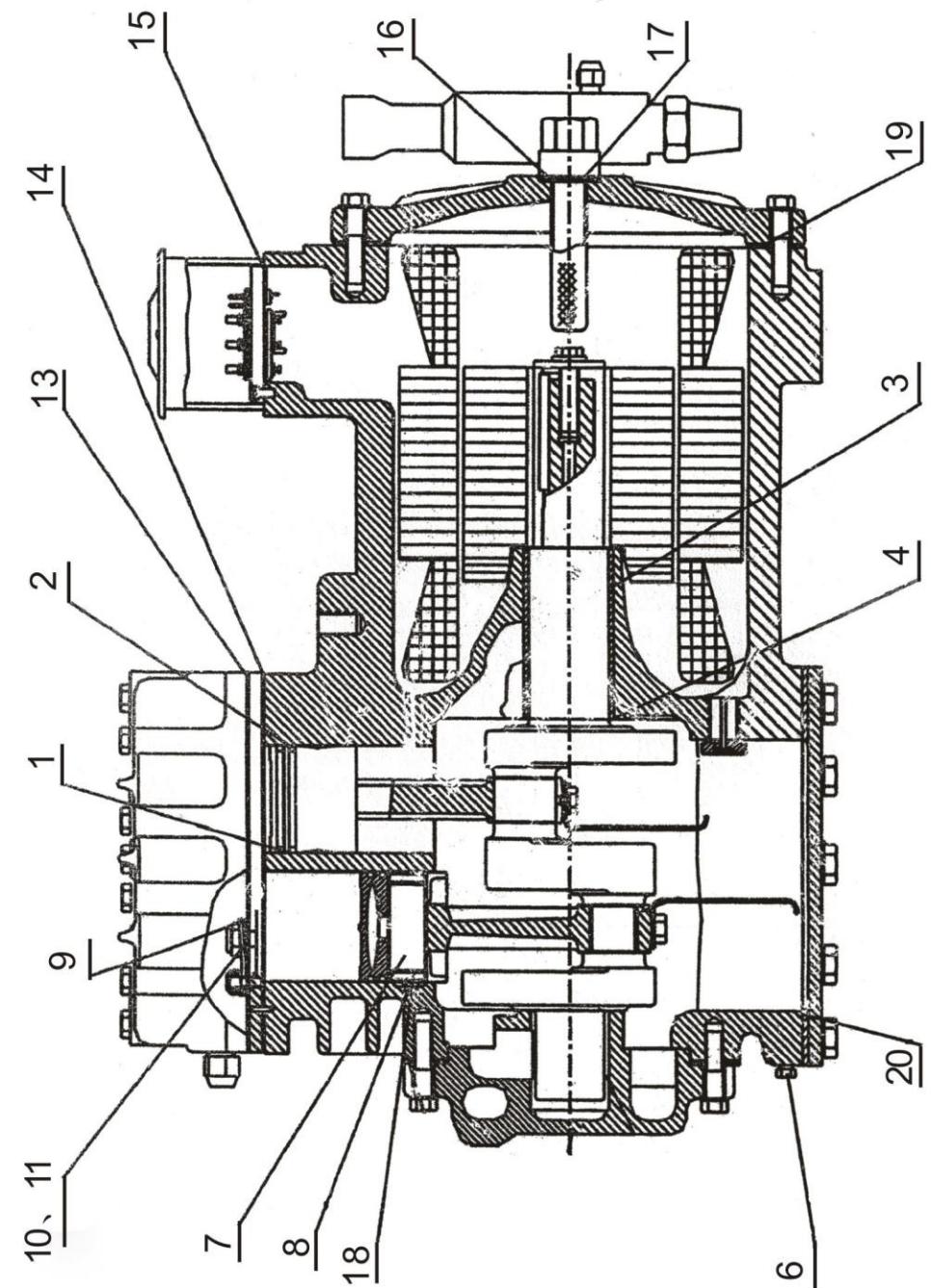
Dismantling the compressor without releasing the pressure could cause serious injury, thus protective glasses are necessary. Loosen the connector or flange to release the refrigerant before dismantling the compressor. much oil in the system. There may be the danger of oil slugging if there are too much oil in the system.

6. Wearing Parts Diagram

No.	Name	Model				Picture 1		Picture 4	
		BFS31	BFS41 BFS51	BFS81 BFS101	BFS151	4S151D 4S301G	6S251D 6S501G		
1	Compression Ring	2	2	2	3	4	6		
2	Oil Scraper Ring	2	2	2	3	4	6		
3	Bearing Set	3	3	3	3	3	3		
4	Thrust Washer	2	2	2	2	2	2		
5	Plastic Thrust Washer	/	/	/	/	/	/		
6	Crankcase Heater	1	1	1	1	1	1		
7	Piston Pin	2	2	2	3	4	6		
8	Circlip	4	4	4	6	8	12		
9	Suction Valve Reed	2	2	4	6	8	12		
10	Discharge Valve Reed	4	4	8	12	16	24		
11	Discharge Spring	2	2	4	6	16	24		
12	Oil Pump Set	/	/	/	/	1	1		
13	Gasket For Cylinder	1	1	1	1	2	3		
14	Gasket For Valve Plate	1	1	1	1	2	3		
15	Gasket For Terminal Board	1	1	1	1	1	1		
16	Gasket For Filter	1	1	1	1	1	1		
17	Gasket For Suction Valve	1	1	1	1	1	1		
18	Gasket For Discharge Valve	1	1	1	1	1	1		
19	Gasket For Motor Cover	1	1	1	1	1	1		
20	Gasket For Bottom Cover	1	1	1	1	1	1		

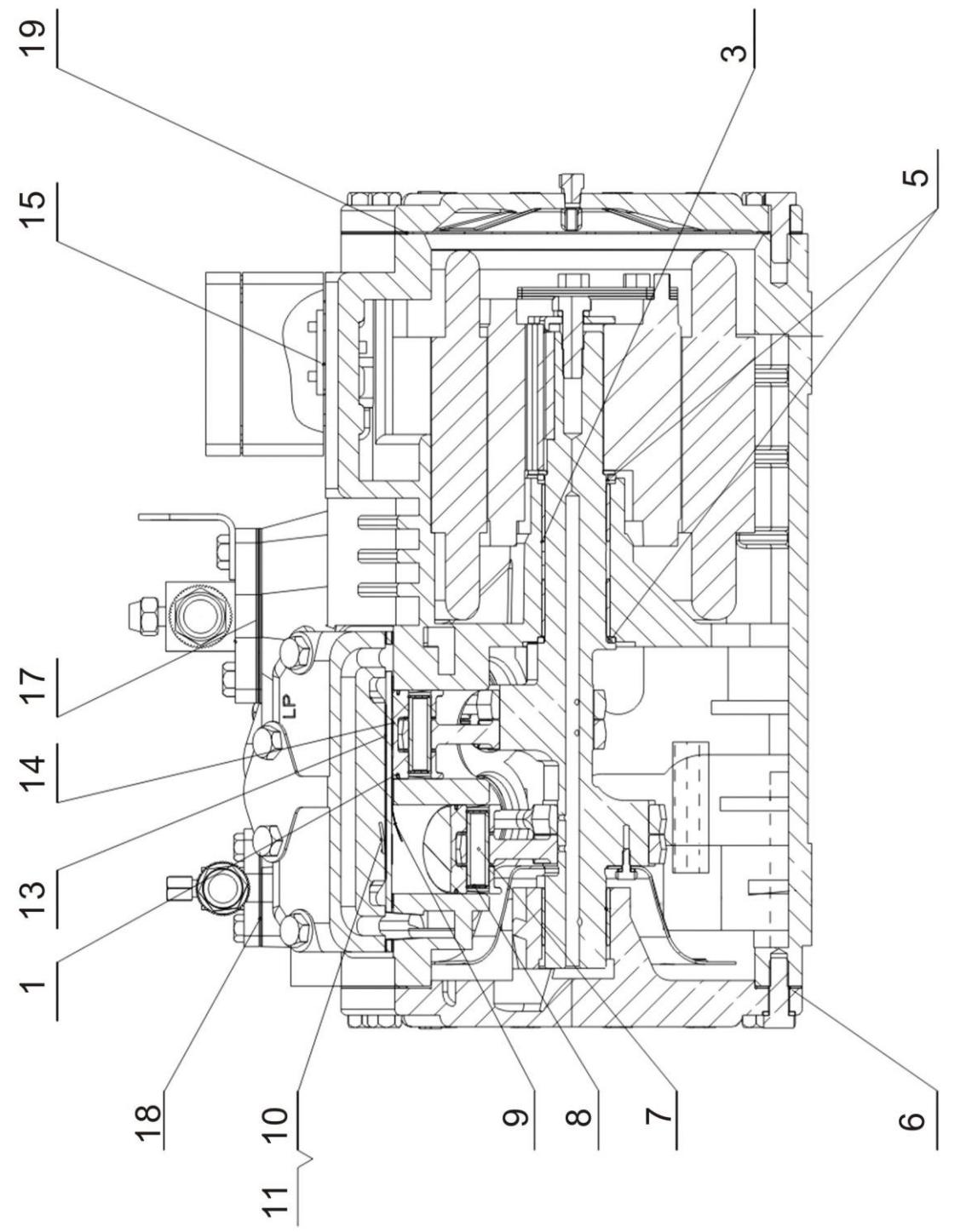
7. Profile of Wearing Parts

Picture 1

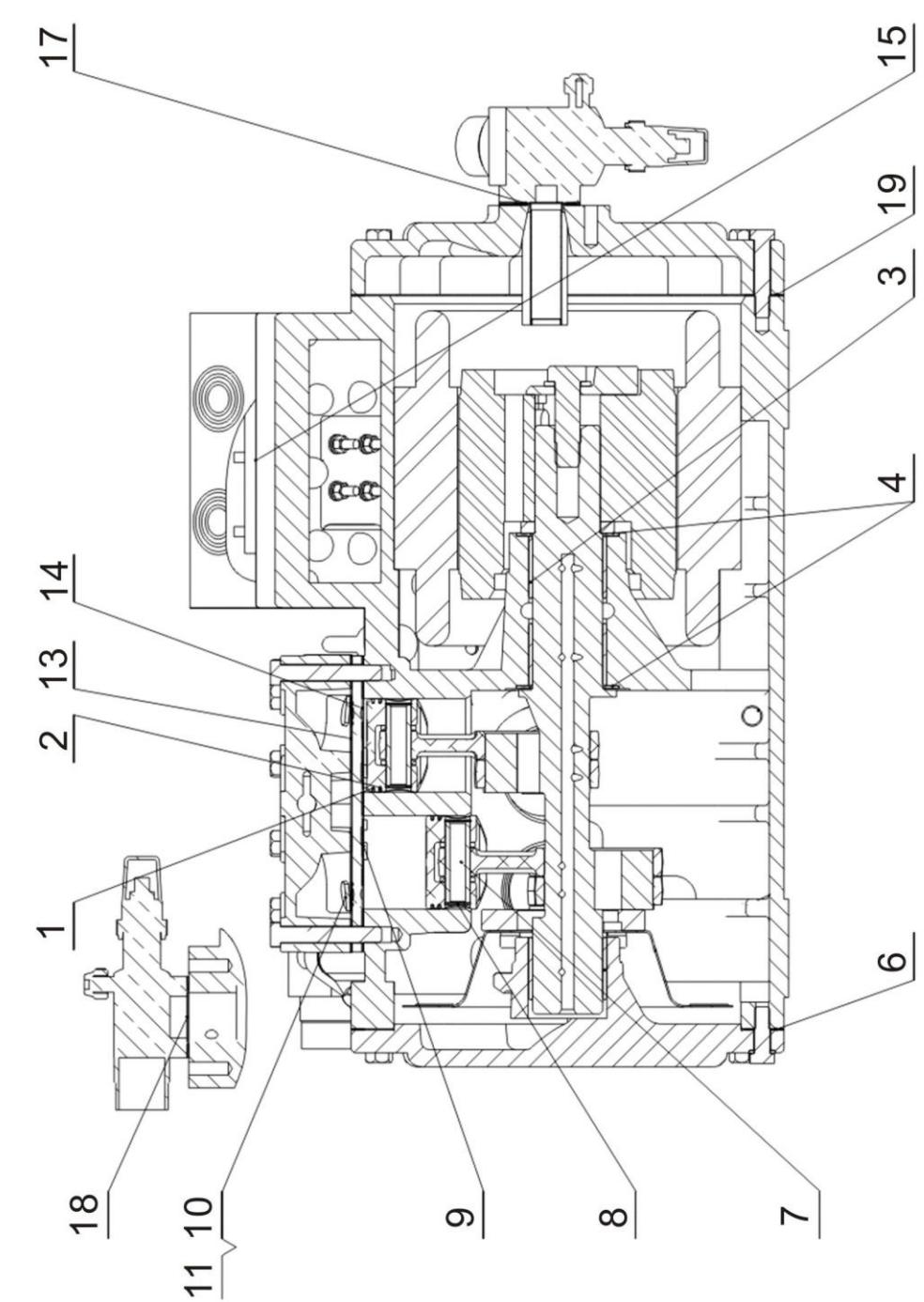


No.	Name	Model		Picture 2		Picture 3		Picture 4	
		4YD-3.2 4YG-6.2	4YD-5.2 4YG-9.2	4YD-8.2 4YG-12.2	4YD-10.2 4YG-20.2	4VD-15.2 4VG-30.2	6WD-25.2 6WDS-30.2		
1	Compression Ring	4	4	4	4	4	4	6	
2	Oil Scraper Ring	/	/	4	4	4	4	6	
3	Bearing Set	3	3	3	3	3	3	3	
4	Thrust Washer	/	/	2	2	2	2	2	
5	Plastic Thrust Washer	2	2	/	/	/	/	/	
6	Crankcase Heater	1	1	1	1	1	1	1	
7	Piston Pin	4	4	4	4	4	4	6	
8	Circlip	8	8	8	8	8	8	12	
9	Suction Valve Reed	4	4	4	4	8	8	12	
10	Discharge Valve Reed	4	8	8	12	16	16	24	
11	Discharge Spring	4	8	8	12	16	16	24	
12	Oil Pump Set	/	/	/	/	1	1	1	
13	Gasket For Cylinder	2	2	2	2	2	2	3	
14	Gasket For Valve Plate	2	2	2	2	2	2	3	
15	Gasket For Terminal Board	1	1	1	1	1	1	1	
16	Gasket For Filter	/	/	/	/	1	1	1	
17	Gasket For Suction Valve	1	1	1	1	1	1	1	
18	Gasket For Discharge Valve	1	1	1	1	1	1	1	
19	Gasket For Motor Cover	1	1	1	1	1	1	1	
20	Gasket For Bottom Cover	/	/	/	/	1	1	1	

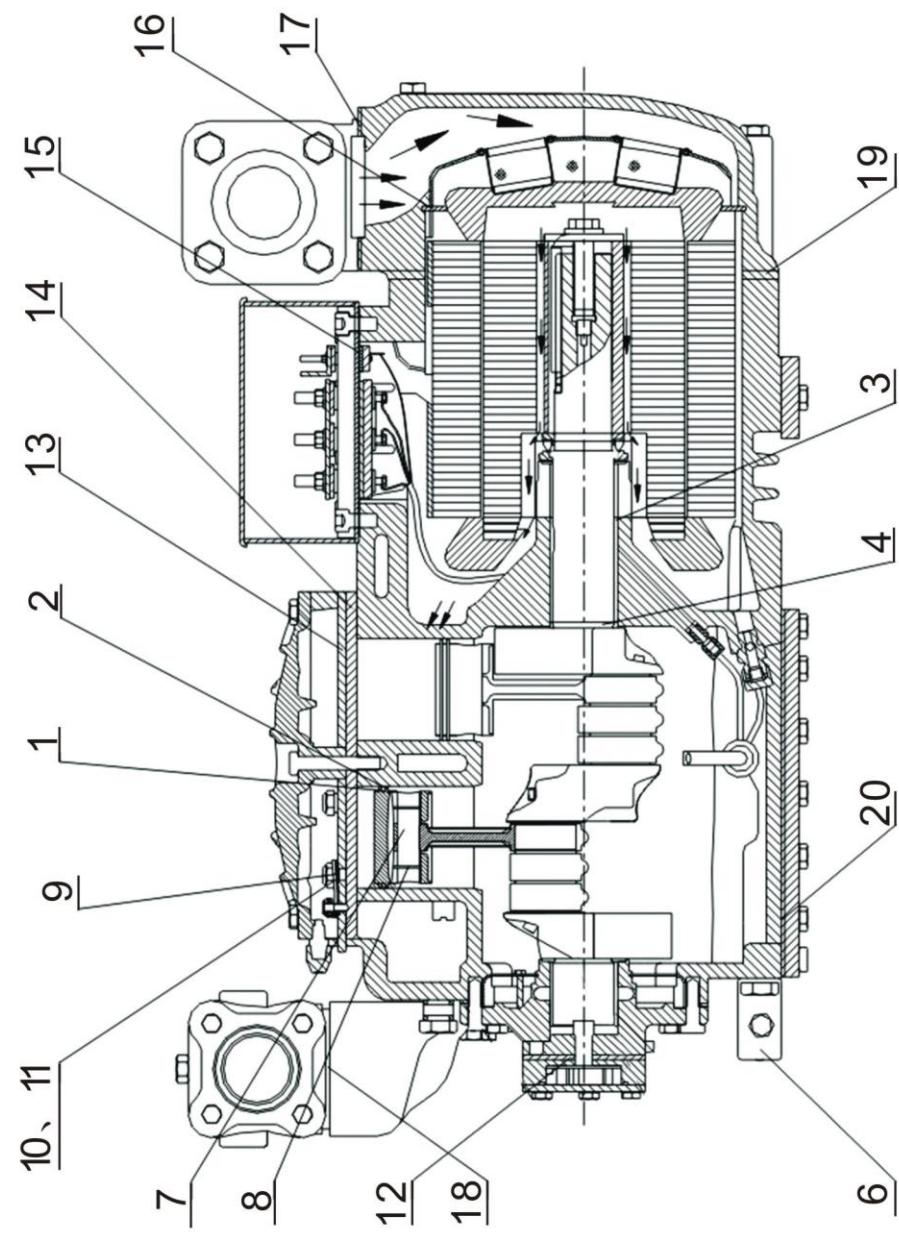
Picture 2



Picture 3



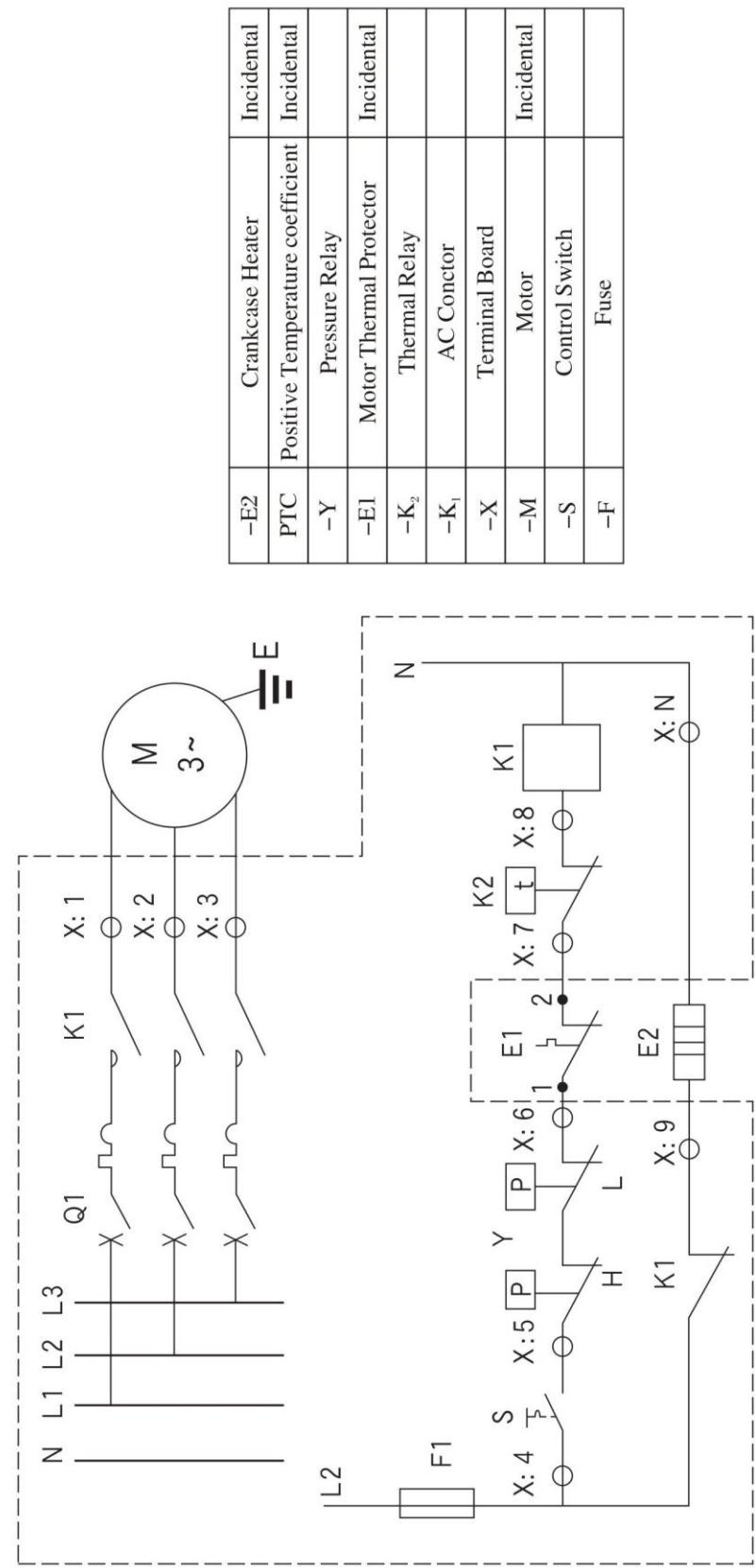
Picture 4



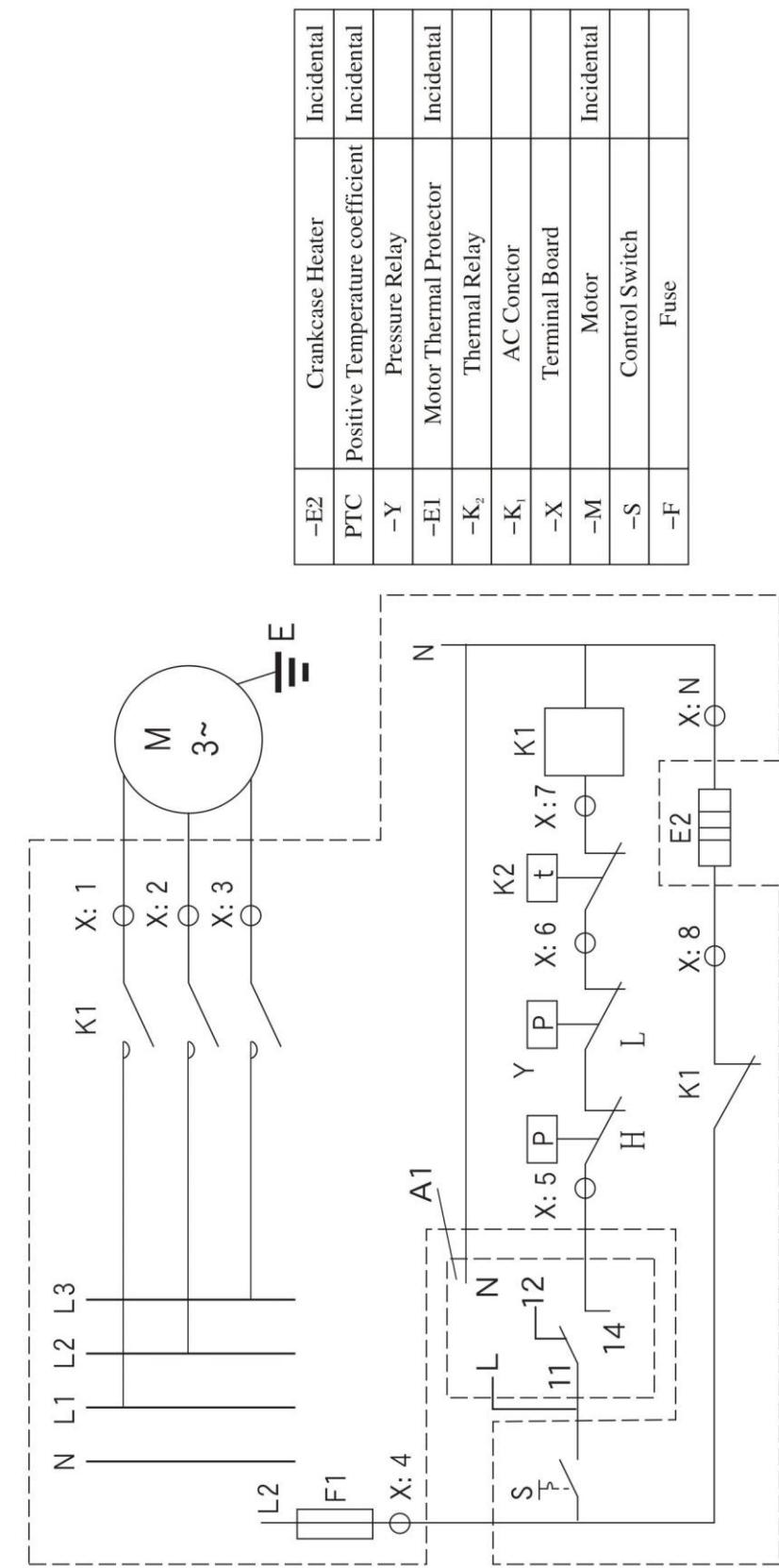
The wiring diagram

Model	The wiring diagram
BFS31	Picture 5
BFS41	Picture 5
BFS51	Picture 5
BFS81	Picture 5
BFS101	Picture 5
BFS151	Picture 6
4YD-3.2	Picture 7
4YG-5.2	Picture 7
4YD-4.2	Picture 7
4YG-6.2	Picture 7
4YD-5.2	Picture 7
4YG-7.2	Picture 7
4YD-6.2	Picture 7
4YG-9.2	Picture 7
4YG-10.2	Picture 8-1
4YD-8.2	Picture 8-1
4YG-12.2	Picture 8-1
4YD-10.2	Picture 8-1
4YG-15.2	Picture 8-1
4YD-12.2	Picture 8-1
4YG-20.2	Picture 8-1
4S151D/4VD-15.2	Picture 8-2
4S251G/4VG-25.2	Picture 8-2
4S201D/4VD-20.2	Picture 8-2
4S301G/4VG-30.2	Picture 8-2
6S251D/6WD-25.2	Picture 8-2
6S351G/6WG-35.2	Picture 8-2
6S321D/6WD-30.2	Picture 8-2
6S401G/6WG-40.2	Picture 8-2
6S401D/6WD-40.2	Picture 8-2
6S501G/6WG-50.2	Picture 8-2
6WDS-20.2	Picture 9
6WDS-25.2	Picture 9
6WDS-30.2	Picture 9

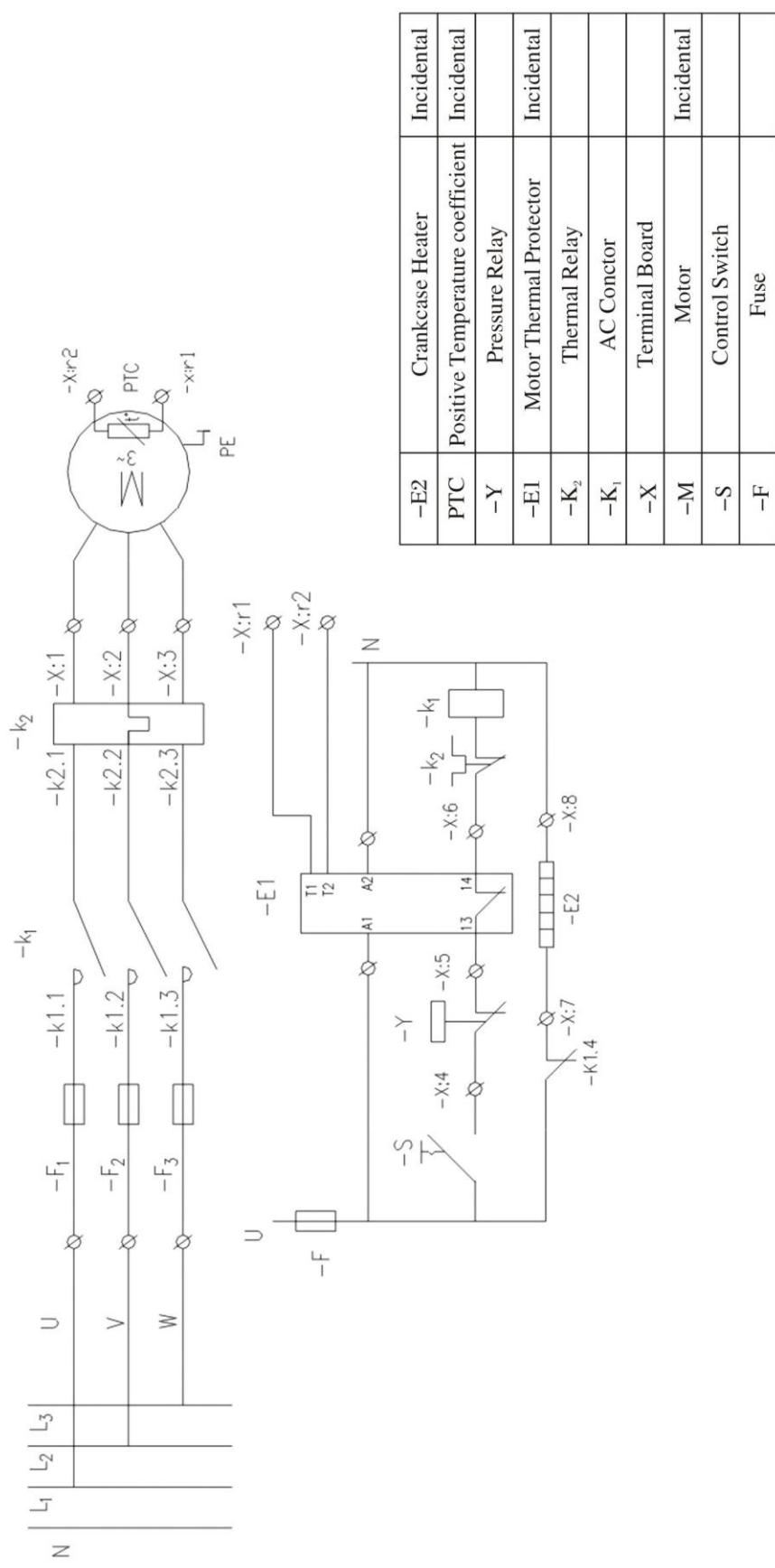
Picture 5



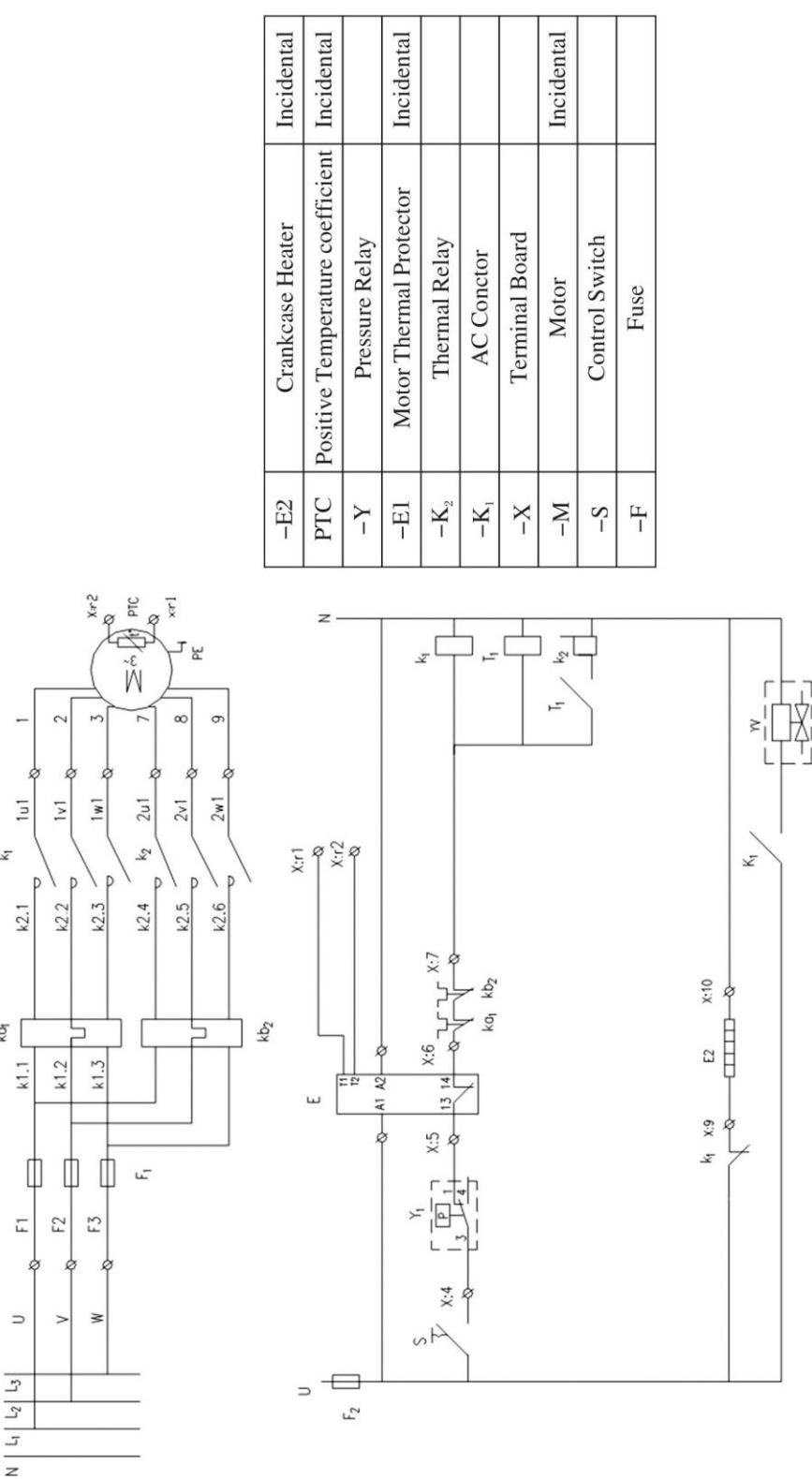
Picture 6



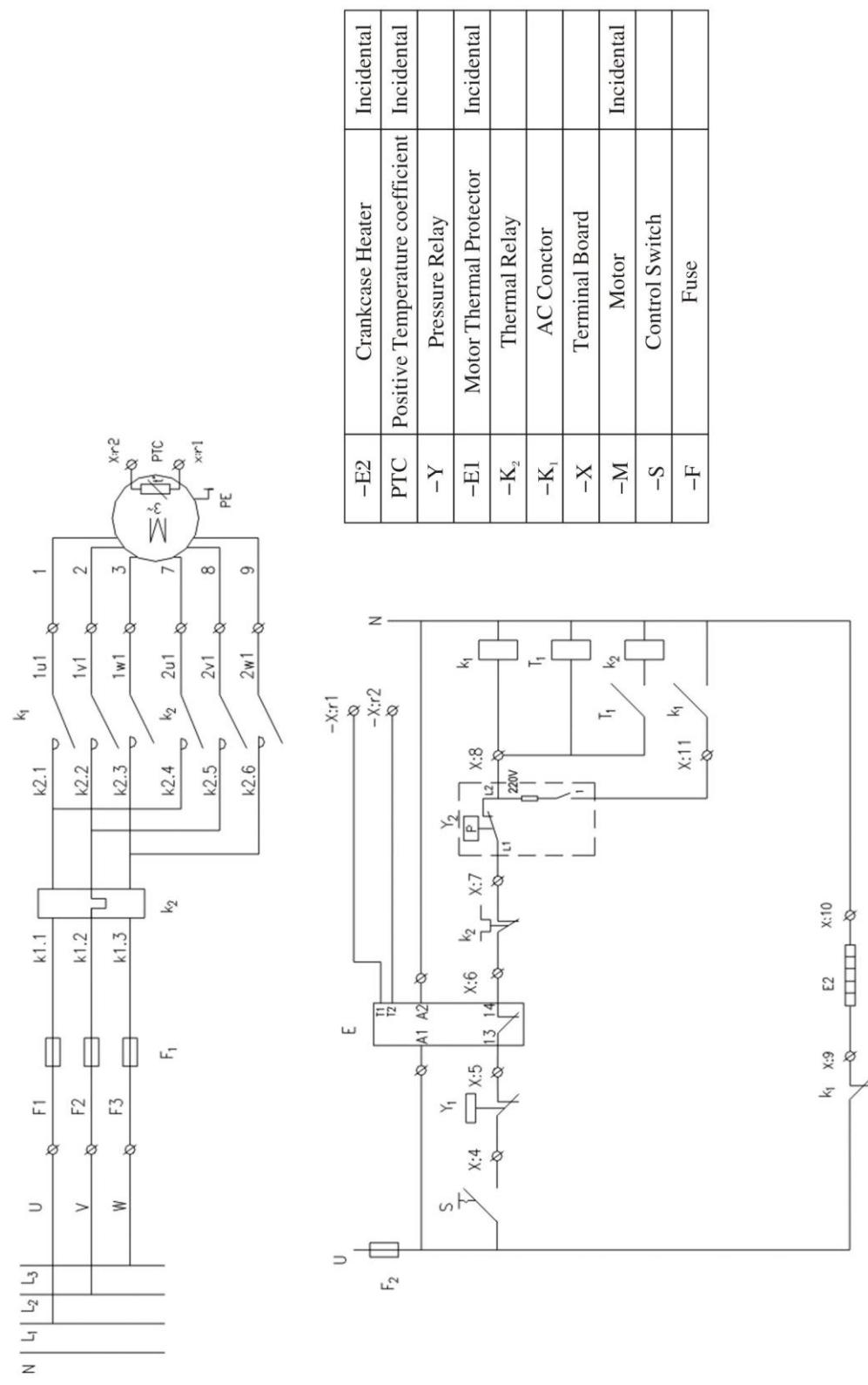
Picture 7



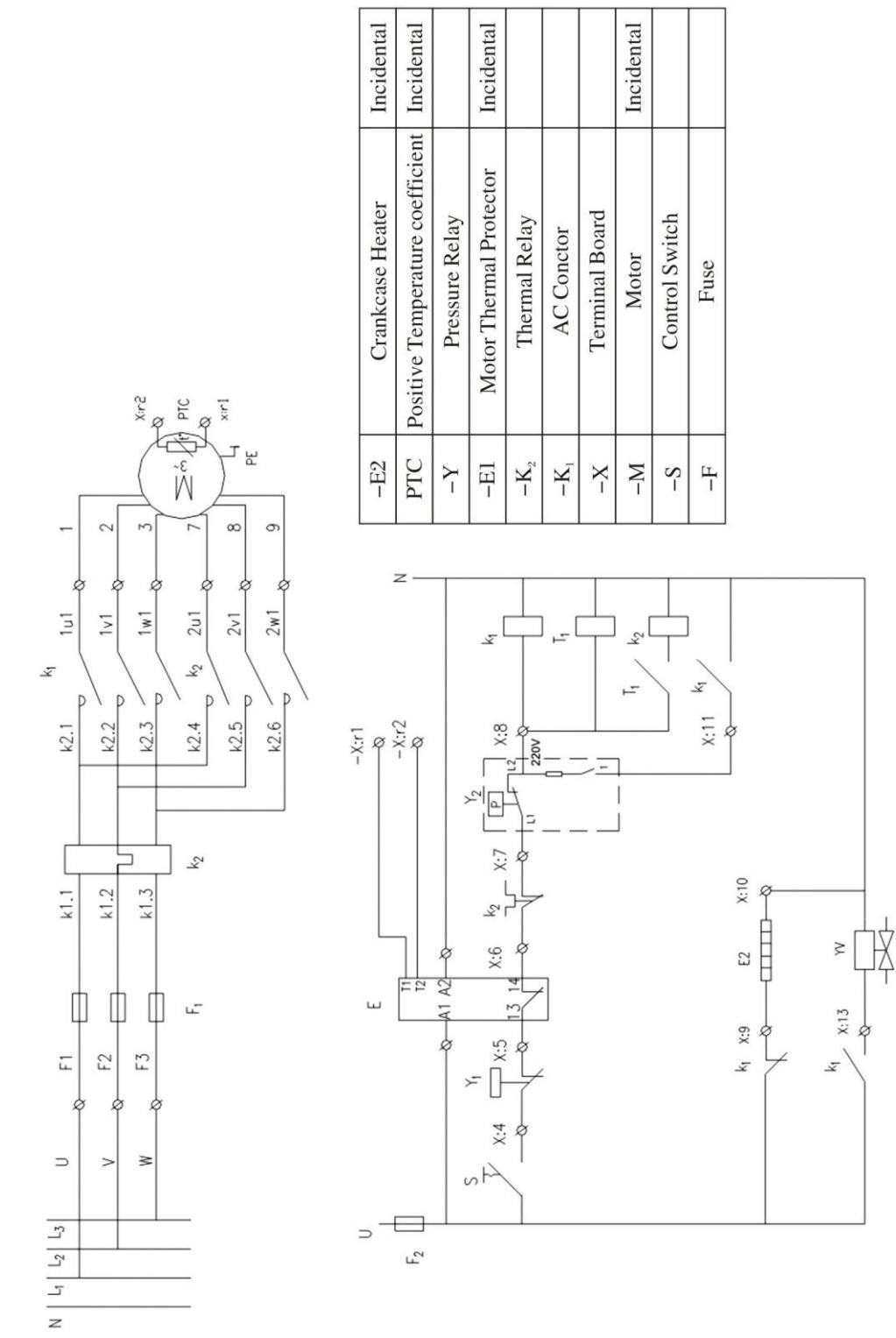
Picture 8-1



Picture 8-2



Picture 9



Refrigeration Capacity(R22)

Model	Condensing temp. °C	Refrigerating Capacity(W)														
		Evaporating Temperature(°C)														
BFS31	30					8430	6800	5350	4070	2730	1860					
	40					7380	5820	4530	3370							
	50					6300	4940	3840	2560							
BFS41	30					14350	12330	10590	8430	6750	5180	3840	2500			
	40					13250	10820	9200	7270	5700	4250					
	50					11570	9780	7910	6160	4760	3430					
BFS51	30					13140	10760	8720	6860	5300	3840					
	40					11750	9600	7620	6050							
	50					10380	8370	6570	5030							
BFS81	30					28140	22790	19930	15580	12320	9650	7270	5350			
	40					25580	20930	16970	13480	10500	8250					
	50					23260	19180	14650	11740	9070	6740					
BFS101	30					26510	21620	17450	13720	10700	8140					
	40					23730	19420	15350	12100							
	50					21040	17090	13490	10580							
BFS151	30					38960	31750	25350	20170	15700	11980					
	40					34890	28260	22560	17800							
	50					30700	24880	19650	15580							
4S151D	30					52300	42700	34450	27350	21300	16400	12000	8310			
	40					46850	38100	30500	24050	18500	13840	9800	6440			
	50					41700	33700	26800	20900	15800	11500	7920	4970			
4S251G	30	99300	91200	83600	76500	63700	52600	42950	34650	27500	21400	16260				
	40	89700	82300	75400	68900	57300	47150	38350	30800	24250	18670	13940				
	50	80500	73800	67600	61700	51100	41950	33950	27050	21100	16030					
4S201D	30					6000	48950	39500	31400	24500	18940	13920	9670			
	40					53700	43700	35100	27750	21500	16080	11430	7530			
	50					47800	38750	30950	24200	18350	13390	9230	5790			
4S301G	30	114200	104800	96000	87800	73100	60400	49300	39800	31650	24700	18840				
	40	103000	94500	86500	79100	65700	54000	44000	35350	27950	21650	16330				
	50	92300	84600	77400	70700	58600	48100	39000	31200	24500	18810					
6S251D	30					78500	64100	51700	41050	31950	24600	18010	12460			
	40					70300	57200	45850	36100	27750	20750	14710	9660			
	50					62600	50600	40250	31350	23700	17240	11870	7440			
6S351G	30	149100	136900	125500	114800	95600	79000	64500	52000	41300	32200	24400				
	40	134600	123500	113200	103500	86000	70800	57600	46200	36400	28050	20900				
	50	120900	110800	101400	92700	76800	63000	51000	40600	31700	24050					
6S321D	30					90000	73500	59300	47100	36750	28400	20850	14480			
	40					80600	65600	52700	41600	32200	24100	17130	11280			
	50					71700	58200	46500	36300	27500	20050	13840	8670			
6S401G	30	171300	157200	144100	131800	109700	90600	74000	59700	47500	37100	28300				
	40	154600	141800	129800	118600	98500	81100	66000	53000	41900	32450	24500				
	50	138500	127000	116200	106100	88000	72200	58500	46800	36750	28200					
6S401D	30					106100	86800	70100	55900	43800	34000	25100	17600			
	40					95300	77000	62600	49650	38700	29150	20900	13960			
	50					85100	69200	56600	43600	33250	24450	17060	10890			
6S501G	30	201400	184800	169400	155000	129100	106700	87300	70600	56300	44150	33900				
	40	181700	166700	152800	139800	116300	95900	63100	50100	39050	29700					
	50	163200	149700	137100	125300	104100	85700	69700	56000	42450	34250					
2YD-2.2	30					9110	7430	5980	5150	4030	3100	2330	1700			
	40					7970	6430	5110	4370	3370	2580	1870	1330			
	50					6790	5400	4200	3520	2660	1960	1390				
2YG-3.2	30	17280	15860	14530	13290	11060	9120	7440	5990	4740	3670	2770				
	40	15400	14110	12910	11780	9750	7980	6450	5120	3970	3000	2160				
	50	13490	12320	11230	10220	8380	6780	5390	4190	3160	2270					

Refrigeration Capacity(R404、R507)

Model	Condensing temp. °C	Refrigerating Capacity(W)																	
		Evaporating Temperature(°C)																	
		7.5	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70	
BFS51	30	24000	22200	18600	15400	15400	10200	8500	6700	5300	4000	3000							
	40	20400	18900	15800	13100	13100	8700	7200	5700	4500	3400	2600							
BFS81	30	31400	28700	24000	20000	20000	13400	10700	8500	6500	4900	3700							
	40	26400	24100	20200	16800	16800	11300	9000	7100	5500	4200	3100							
BFS101	30	44800	44200	35100	29000	29000	19400	15600	12300	9500	7200	5300							
	40	38100	35600	29800	24600	24600	16500	13200	10500	8100	6100	4500							
BFS151	30	69000	64500	54300	45200	45200	30500	25600	19600	15300	11700	8900							
	40	58700	54800	46200	38400	38400	25900	21800	16700	13000	9900	7500							
4S151D	30			58500	48400	39700	32200	25750	20250	15560	11630	8350							
	40			49850	41150	33600	27100	21500	16730	12660	9240	6380							
	50				33950	27600	22050	17330	13270	9820	6920								
4S251G	30	90700	83200	69700	57900	47750	38950	31350	24800	19210	14460	10460							
	40	77400	71000	59500	49400	40650	33000	26450	20800	15930	11800	8320							
	50	64500	59100	49500	41000	33600	27200	21600	16830	12740	9260	6340							
4S201D	30			67100	55500	45400	36750	29350	23000	17600	13060	9260							
	40				57200	47300	38700	31200	24800	19250	14540	10540	7160						
	50					38750	31650	25450	20100	15480	11510	8120							
4S301G	30	103800	95300	79900	66500	54900	44900	36250	28800	22450	17040	12480							
	40	89100	81800	68600	57000	47000	38250	30700	24200	18610	13860	9850							
	50	74300	68200	57100	47400	38900	31500	25100	19580	14840	10810	7410							
6S251D	30				87900	72500	59300	47800	38000	29700	22650	16740	11850						
	40					74700	61600	50200	40400	31900	24700	18590	13440	9130					
	50						50500	41150	33000	25950	19920	14760	10390						
6S351G	30	136000	124800	104500	86900	71600	58400	47000	37200	28800	21700	15720							
	40	116300	106600	89300	74100	60900	49450	39600	31100	23800	17670	12480							
	50	96600	88600	74100	61400	50400	40700	32400	25250	19160	14000	9670							
6S321D	30				98300	81200	66400	53600	42700	33350	25400	18760	13210						
	40					84000	69300	56600	45550	36050	27900	21000	15130	10210					
	50						57600	46900	37600	29550	22600	16720	11710						
6S401G	30	156100	143200	120000	99900	82500	67400	54300	43150	33600	25550	18730							
	40	133400	122400	102700	85400	70300	57300	46000	36300	28000	20900	14940							
	50	110800	101800	85400	70900	58300	47350	37800	29550	22500	16450	11330							
6S401D	30					118800	98100	80100	64700	51400	40100	30500	22400	15600					
	40						100900	83100	67600	54300	42800	32950	24600	17570	11680				
	50							68300	55300	44050	34300	26050	18990	13060					
6S501G	30	184400	169300	142200	118600	98100	80400	65200	52100	40900	31400	23450							
	40	157900	145000	121700	101300	83600	68300	55000	43600	33850	25600	18620							
	50	131000	120200	100800	83800	68900	56000	44800	35150	26950	19960	14090							
2YD-2.2	30					10110	8340	6810	5490	4360	3390	2570	1880	1300					
	40						8490	6980	5670	4530	3560	2720	2020	1420	920				
	50							6900	5640	4550	3600	2780	2080	1490	990				
2YG-3.2	30	15940	14630	12260	10200	8420	6870	5540	4400	3420	2590	1890							
	40	13510	12390	10380	8610	7080	5750	4600	3610	3760	2040	1430							
	50	11110	10180	8500	7030	5740	4630	3660	2820	2110	1510	1000							
2YD-3.2	30						12470	10290	8400	6780	5380	4190	3180	2330	1630				
	40							10510	8650	7040	5640	444							

8.Regulations to free and paid repair

8.1 The compressor is manufactured and tested according to GB/T10079-2001,the standard for single-stage reciprocating refrigerant compressor.

Only the mechanic with certificate of professional refrigeration technical training could handle the installation,maintenance and repairment of the device.Before the installation,the manual must be well read and understood,all the technical requirement must be reached.If the user obeys the related maintaining and operating code,the manufacturer would take the responsibility for the damage caused by the quality of the compressor(exclude the wearing parts),and replace or repair it for free in 12 months since the machine is sold,but we won't bear other lost except the machine.

If the customer itself installs,tests and dismantle the machine,the manufacturer would not discharge the responsibility for free repairing and replacing.

8.2 Situation of paid repair

- The machine vibrates so fiercely that the wear of the bush is serious due to the installation which is not conformed with the requirement.
- The motor burns out due to the voltage instability(the fluctuation of the voltage at the wiring board is 10% more or less than rated).
- The motor burns out caused by starting or running while lacking of phase due to the malocclusion of the AC contactor.
- The motor burns out since it's not connected with the protector.
- The motor burns out due to a high off/on cycling rate(more than 6 time per hour),or restart the machine in less than 3 minutes after it's shut-off.
- The motor burns out and other malfunction caused by the water in the system.
- The failure of main moving parts caused by a dirty circulation system or too much impurity.
- The compressor runs without enough lubrication because the inefficient oil circulation system due to an incorrect pipe design and installation.
- The compressor runs without enough lubrication because the multi-compressor condensing system doesn't have the oil and pressure coordinating device.
- Using the compressor to de-pressurize the refrigerant system,which leads to the wear of the moving parts and the burn-out of the motor.
- Operating the compressor beyond its approved application range,which will cause damage to the compressor.
- Liquid slugging caused by following reason: inappropriate way of charging refrigerant or charged too much;solenoid valve failure;improper operation.
- The motor burns out because the wiring terminal is not sealed with glue after the wiring work finished.
- The crankcase doesn't get preheated or heated for enough time,thus the compressor doesn't get enough lubrication and the moving parts wear seriously.ve already been much oil in the system.There may be the danger of oil slugging if there are too much oil in the system.
- The failure of oil pressure protector since the oil pressure relay is not installed or incorrect wiring for the oil pump equipped compressor.
- Lost caused by disaster.

9.Quality Guarantee

The single-stage reciprocating refrigerant compressor has been tested to be in line with national quality standard.The fault that caused by the quality of the compressor during the warranty period could be repaired with this certificate.

Inspector:

Inspector Chief:

Date:

Purchase Order:

Purchase Date:

Shipping Clerk: