KTAM series screw air compressors

Product instruction manual

SHANGHAI KTAM ENERGY EQUIPMENT ENGINEERING


永磁变频
KTAM T-30
克特姆能源

Dear KTAM customers

Sincere congratulations on your purchase of KTAM series screw air compressor, you have now become a technologically advanced economical and energy-saving air compressor user, if you can insist on proper maintenance and maintenance, it will create higher value for you.

We wish you a pleasant use!

The instruction manual is typesetting in accordance with the latest version of the series, but minor deviations due to design redevelopment cannot be completely excluded.

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Dear KTAM customers

Instructions

1. Unless otherwise specified, the pressure referred to in this manual is table pressure;

2. When the user contacts the company about the maintenance, after-sales service and other problems related to the screw air compressor, please specify the model, which is identified on the nameplate of the machine and the warranty card.

Before safely operating the air compressor, please be sure to read carefully:

Safety precautions

1. When installing piping welding, remove the surrounding flammable items, and pay attention to prevent welding sparks from falling into the air compressor to avoid burning out some parts of the air compressor

2. The charger lead introduced to the air compressor must match its power and install safety devices such as air switch and fuse wire. In order to ensure the reliability and safety of electrical equipment, grounding must be provided

Device, when necessary, install lightning protection device

3. The debugging of the new machine must be carried out by the debugging personnel designated or approved by the company

4. Before starting up, make sure that there is no one in the unit, check whether there are left items and tools, and close the unit door. When starting up, the staff around the crew should be informed to pay attention to safety first

5. When starting up for the first time or the power cord changes, it is necessary to pay attention to whether the steering of the unit runs in the direction indicated by the arrow

6. The air compressor cannot work under the exhaust pressure higher than the nameplate, otherwise the motor will be overloaded and burnt out

7· When the air compressor fails or there are unsafe factors, do not force the power on. At this time, the power should be cut off and marked;

8. Compressed air and electrical appliances are dangerous, repair or maintenance should confirm that the power has been cut off and hang "repair" or prohibit closing "warning signs at the power supply, to prevent others from closing power supply caused injury;

9, stop maintenance must wait for the entire air compressor cooling and system compressed air safety release, and maintenance personnel as far as possible to avoid any air compressor system in the exhaust port, close the corresponding isolation valve;

10. When cleaning machine parts, non-corrosive safe solvent should be used, and flammable and explosive cleaning agent and highly volatile cleaning agent are strictly prohibited

11. After the air compressor runs for a period of time, the safety valve and other protection systems must be checked regularly to ensure its sensitivity and reliability, which is generally checked once a year

12, the spare parts of the air compressor must be provided by the factory, and the lubricating oil must be the special lubricating oil for the screw air compressor designated by the company, and the mixing of two different brands of lubricating oil is strictly prohibited, otherwise it will cause the system coking resulting in major accidents;

13. The air compressor unit shall be operated by fixed personnel. The operators shall read and understand the contents of this manual, and follow the working procedures, safety precautions and maintenance specifications in the manual

14. Warning stickers should be regularly checked whether they fall off, and the font and pattern should be clear and visible.

Warnings

Any violation of safety precautions, can have serious consequences.

KTAM Screw Air Compressor Technical specifications

Power
Frequency

Parameter \ Model		T10	T15	T20	T30	T50	T60	T75	T100	T120	T150	T175
Rated exhaust volume m3/min		0.96	1.78	2.3	3.43	6.5	7.1	9.3	12	15	18.9	21.7
Cooling mode		Air cooling										
Maximum ambient temperature		46°C										
Compression series		Single stage										
Exhaust oil content		⩽3ppm										
Transmission mode		Direct connection										
Random initial lubricating oil brand		46#										
Operating noise d B(A)± 2		⩽61			⩽63	⩽64	⩽66	⩽69	⩽71		⩽72	
Lubricant capacity		4L	8L	8L	12L	18L	20L	30L	54L	80L		
Main motor	Rated Power KW/HP	7.5/10	11/15	15/20	22/30	37/50	45/60	55/75	75/100	90/120	110/150	132/175
	Start-up mode	Y-△										
	Voltage V/frequency HZ	380/50										
	Insulation grade	Class F										
	Protection level	IP54	IP54	IP54	IP23	IP23	IP23	IP23	IP23	IP23	IP23	IP23
	Speed rpm	2900	2930		2940	2950	2970				2980	2980
	Efficiency%	88.1	89.4	90.3	91.3	92.5	92.9	93.2	93.8	94.1	94.3	94.6
	Service current A	15.2	21.8	29.4	42.2	69.8	84	103	139	166	203	242
	Outlet pipe diameter	G1/2	G3/4		G1	G1 1/2		G2			G2 1/2	
Dimension/weight	Long Lmm	880	1070		1200	1400		1800			2300	
	Width W mm	600	730		850	950		1250			1470	
	High Hmm	840	965		1150	1245		1670		1680	1840	
	Unit weight kg	163	250	284	395	580	620	1160	1200	1280	2000	2100

KTAM Screw Air Compressor Technical specifications

Permanent magnet

Parameter \ Model		TP10	TP15	TP20	TP30	TP50	TP60	TP75	TP100	TP120	TP150	TP175
Rated exhaust volume m3/min		0.96	1.78	2.3	3.43	6.5	7.1	9.3	12	15	18.9	21.7
Cooling mode		Air cooling										
Maximum ambient temperature		46℃										
Compression series		Single stage										
Exhaust oil content		≤3ppm										
Transmission mode		Direct connection										
Random initial lubricating oil brand		46#										
Operating noise d B(A)± 2		≤61			≤63	≤64	≤66	≤69	≤71		≤72	
Lubricant capacity		4L	8L	8L	12L	18L	20L	30L	54L	80L		
Main motor	Rated Power KW/HP	7.5/10	11/15	15/20	22/30	37/50	45/60	55/75	75/100	90/120	110/150	132/175
	Start-up mode	Frequency conversion start										
	Voltage V/frequency HZ	380/50										
	Insulation grade	Class F										
	Protection level	IP23	IP23	IP23	IP23	IP23	IP23	IP54	IP54	IP54	IP54	IP54
	Speed rpm	3600	3000									
	Efficiency%	94.8	95.4	95.4	95.9	96.3	96	96.5	96.6	96.7	97.2	97.3
	Service current A	12.88	19.2	26.1	37.5	65.6	79.7	95.1	129.6	154.1	184.9	223.4
	Outlet pipe diameter	G1/2	G3/4	G3/4	G1	G1 1/2	G1 1/2	G2			G2 1/2	
Dimension/weight	Long Lmm	880	1070		1200	1500		1800			2300	
	Wide Wmm	600	730		850	1000		1250			1470	
	High Hmm	850	965		1150	1260		1670			1840	
	Unit weight kg	116	207	209	285	455	580	1150	1200	1360	2100	

Introduction of micro-oil screw air compressor

Micro-oil screw air compressor has the characteristics of reliable operation performance, less wearing parts, small vibration, low voice and high efficiency. The principle is to use the pressure formed inside the system after its own operation, during the compression process, constantly inject lubricating oil into the compression chamber and bearing, this design has the following characteristics:

1. The injected lubricating oil can form a liquid film between the rotors, and the auxiliary rotor can be directly driven by the main rotor, without the need for high-precision synchronous gear, so in terms of manufacturing cost, the micro-oil type is more economical than the oil-free type.

2. The lubricating oil injected can increase the effect of airtightness.

3. Lubricating oil can reduce the noise caused by high frequency compression.

4, the lubricating oil can absorb a lot of compression heat, so the single-stage compression ratio even as high as 16 can make the exhaust temperature is not too high, the rotor and the housing will not produce friction due to the different coefficient of thermal expansion.

Second, the body structure of micro-oil screw air compressor

Basic structure

The micro-oil screw air compressor produced by our company is a two-axis positive displacement rotary compressor. The air inlet is opened at the upper end of the housing, the exhaust port is opened at the lower end, a pair of high-precision main (positive) and secondary (negative) rotors are installed horizontally and parallel in the housing, the main (positive) rotor has five shaped teeth, and the secondary (negative) rotor has six shaped teeth. The diameter of the main rotor is large, and the diameter of the secondary rotor is small. The teeth form a spiral shape, around the outer edge of the rotor, and the two tooth shapes mesh with each other. The two ends of the main and secondary rotors are respectively supported by bearings, and the intake end is provided with a roller bearing, and the exhaust end is provided with an axial thrust bearing and a roller bearing. Roller bearings bear the radial force, and axial thrust bearings bear the axial thrust. The body is an elastic coupling. The elastic coupling combines the motor force source with the main body.

Meshing

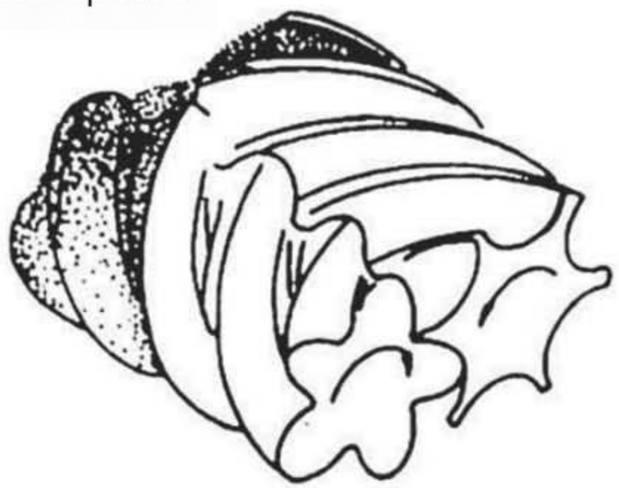
The motor drives the main rotor by the coupling, because the two rotors mesh with each other, the main rotor directly drives the auxiliary rotor to rotate together. The lubricating oil is directly injected into the meshing part between the rotors by the nozzle from the lower part of the compressor housing, and mixed with the air to take away the heat generated by compression to achieve the cooling effect. At the same time, a liquid film is formed to prevent direct contact between metal and metal between the rotor and close the gap between the rotor and the casing. The lubricating oil injected can also reduce the noise caused by high-speed compression. Due to the difference in exhaust pressure, the weight of the spray liquid is about 5-10 times the weight of the air.

Three, screw compressor compression principle

1. Suction process

Screw intake side suction port, must be designed so that the compression chamber can be fully aspirated, and screw compressor has no intake and exhaust valve group, intake only by a regulating valve open, close adjustment, when the rotor rotation, the main and secondary rotor tooth groove space in the air inlet end wall opening, its space is the largest, at this time the rotor tooth groove space and the air inlet free air communication, Because the air between the tooth groove in the exhaust is completely discharged, when the exhaust is finished, the tooth groove is still in a vacuum state, when the air is turned to the intake port, the air is inhaled at the boundary, and flows axially into the tooth groove of the main and secondary rotors. When the air is filled with the whole tooth groove, the air inlet side end of the rotor is turned away from the air inlet of the housing, and the air between the tooth groove is closed, and the above is (intake process).

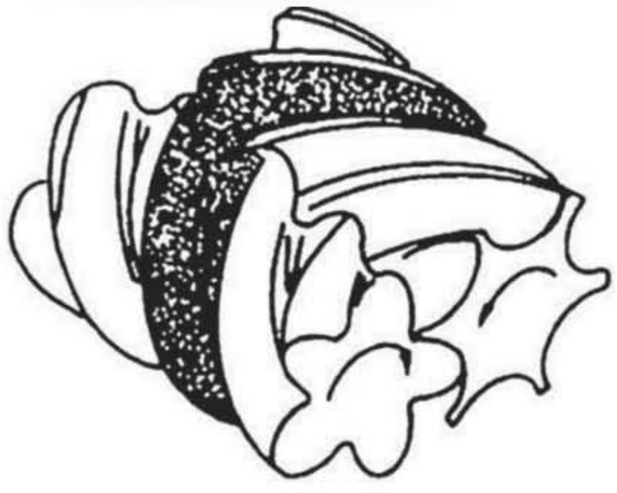
1. Suction process



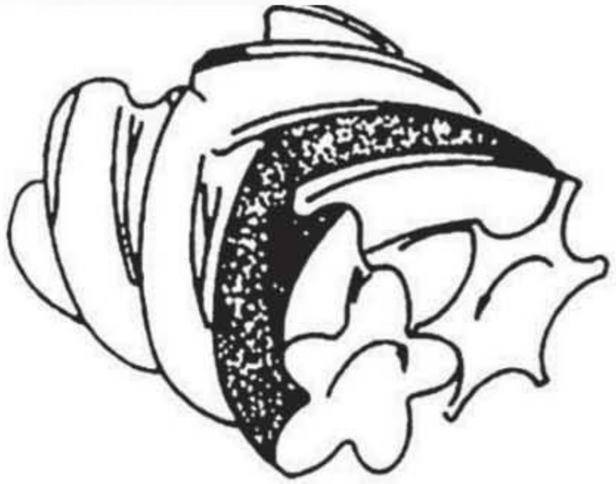
2. Sealing and transportation process

When the main and secondary rotors are aspirated at the end, the main and secondary rotor teeth are closed and sealed with the casing. At this time, the air is closed in the tooth groove and no longer flows out, that is, (sealing process). The two rotors continue to rotate, and the tooth peak and tooth groove anastomosis at the inspiratory end, and the anastomotic surface gradually moves to the exhaust end, which is (conveying process).

2. Seal and transport stroke



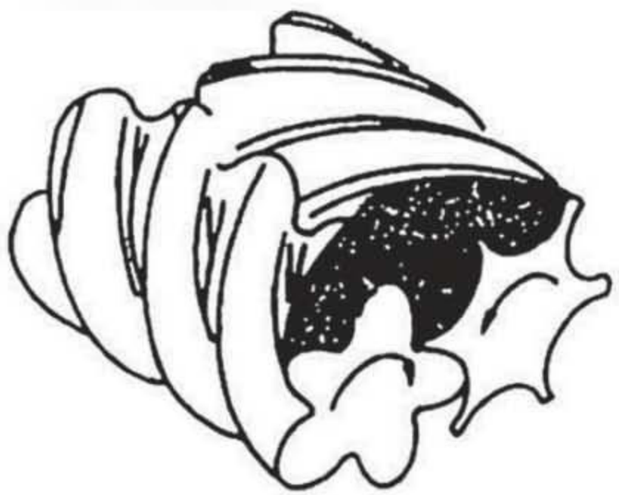
3. Compression and spray stroke



3. Compression and oil injection process

In the conveying process, the meshing surface gradually moves to the exhaust end, that is, the tooth groove space between the meshing surface and the exhaust port gradually decreases, the gas in the tooth groove is gradually compressed, and the pressure is increased, which is (compression process). At the same time, the lubricating oil is also injected into the compression chamber and mixed with the air due to the effect of pressure difference.

4. Exhaust process



4. Exhaust process

When the end of the meshing surface of the rotor is turned to communicate with the shell exhaust port. (at this time the pressure of the compressed gas is the highest) the compressed gas begins to discharge, until the tooth peak and tooth groove meshing surface moved to the exhaust end face, at this time the tooth groove space of the two rotors and the shell exhaust port is zero, that is, the exhaust process is completed (exhaust process) at the same time the tooth groove length between the rotor meshing surface and the shell air intake port is the longest, and the suction process is in progress.

Air compressor installation rules

First, installation

The selection of installation site is the most neglectful of the staff. Often after the purchase of air compressor to find a location, immediately after the use of piping, there is no prior planning. As everyone knows, such a hasty result has formed the cause of difficult maintenance of air compressors and poor compressed air quality in the future. Therefore, choosing a good installation site is a prerequisite for the correct use of the air compressor system.

1. Must be a wide place with good lighting to facilitate operation and maintenance.

2. The relative humidity of the air should be low, less dust, clean air and good ventilation.

3. The ambient temperature must be lower than 46 ° C, because the higher the ambient temperature, the less the output air of the air compressor.

4. If the factory environment is poor and there is much dust, it is necessary to install pre-filter equipment.

5. Reserve access and install crane (high-power air compressor is especially needed) to facilitate maintenance.

6. Reserve maintenance space, the distance between the air compressor and the wall must be at least 70 cm.

7. The distance between the air compressor and the top space is more than one meter.

Second, pipe distribution, foundation and cooling system precautions

1. Air pipeline distribution precautions

(1) When the main pipeline is distributed, the pipeline must have a tilt of 1-20 degrees to facilitate the condensate discharge in the pipeline.

(2) The pressure drop of the pipeline shall not exceed 5% of the set pressure of the air compressor, so it is best to choose a larger pipe diameter when distributing pipes.

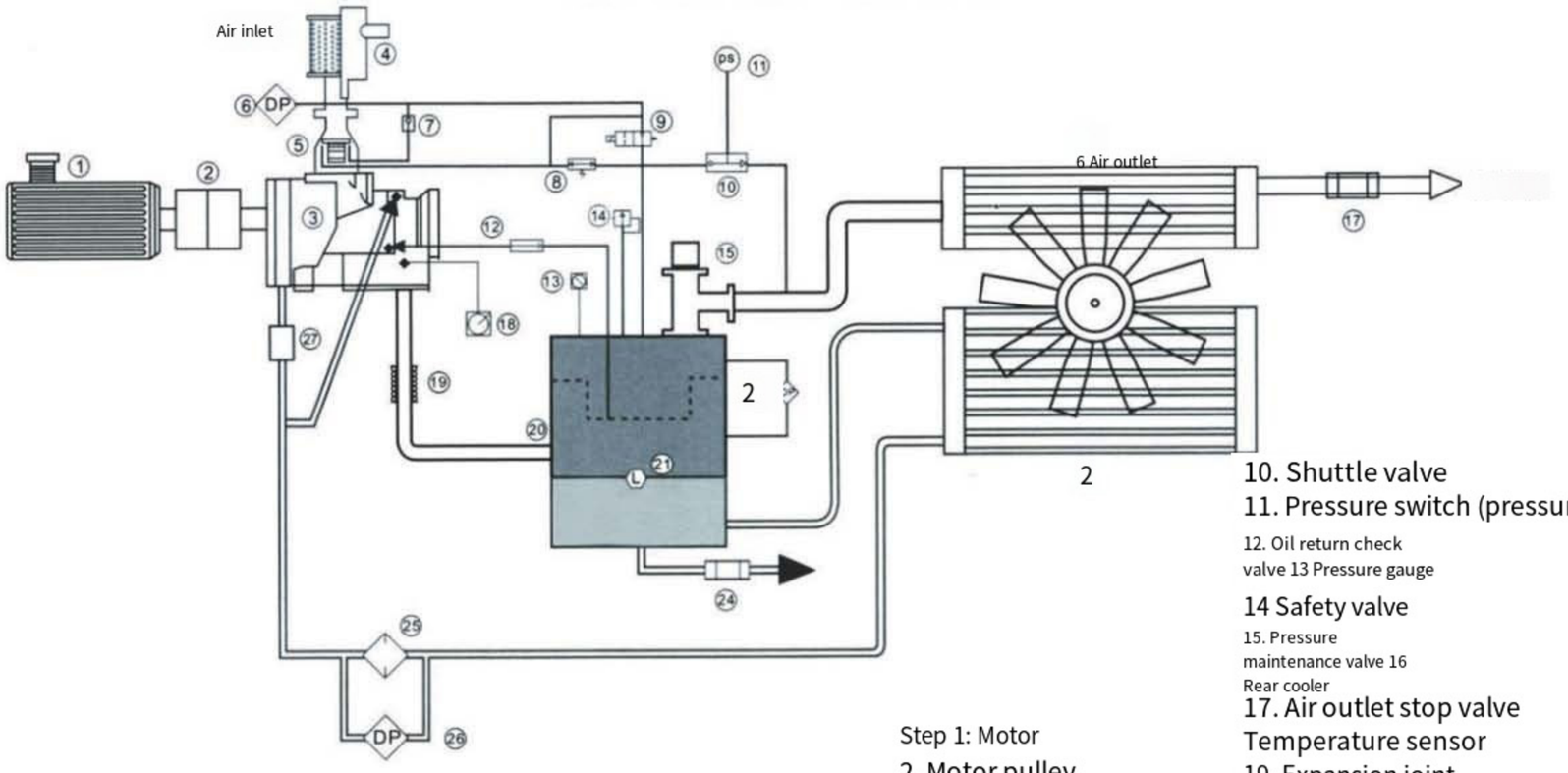
(3) The branch pipe must be connected from the top of the main road, to avoid the condensate in the pipeline to the working machine or back to the air compressor, the air compressor air outlet pipe should have a check valve.

(4) The tool to be lubricated must be equipped with a triple combination (air water filter, regulator, oil feeder) to maintain the service life of the tool.

(5) The main road should not be arbitrarily reduced, if it is necessary to reduce or enlarge the pipeline, the gradual pipe must be used, otherwise there will be mixed flow at the junction, leading to a large pressure loss, and the life of the pipeline is greatly affected.

(6) If there are purification buffer facilities such as gas storage tanks and dryers after the air compressor, the ideal pipe distribution should be air compressor ten gas storage tanks + dryers. Such a gas storage tank can filter out part of the condensate, and the gas storage tank also has the function of reducing the gas exhaust temperature. The air with lower temperature and less water content enters the dryer again, which can reduce the load of the dryer.

System flow chart



Step 1: Motor
2. Motor pulley
3. Compressor host
4 Air filter
5 Air intake valve
6. Air filter differential pressure switch
7. Check valve
8. Volume control valve
9. Bleed solenoid valve
10. Shuttle valve
11. Pressure switch (pressure sensor)
12. Oil return check valve 13 Pressure gauge
14 Safety valve
15. Pressure maintenance valve 16 Rear cooler
17. Air outlet stop valve
Temperature sensor
19. Expansion joint
20. Oil and gas drum
21. Oil viewing glass
22, oil separator differential pressure switch
23. Oil cooler
24 drain valve
25. Oil filter
26 oil filter differential pressure switch
27. Oil flow regulator

1. Air flow (refer to the system flow chart of each model)

1. Air flow description

The air is filtered by the air filter after the dust, through the intake valve, into the main compression chamber compression; And mixed with lubricating oil, compressed air mixed with oil into the oil and gas barrel, and then through the oil and gas separator, pressure maintenance valve, rear cooler, into the use of the system.

2. Function description of each component in the main air source path

A Air filter

The air filter is a dry paper filter, usually every 500 hours should be removed to remove the surface of the dust, the method of removal is to use low pressure air from the inside out to blow away.

B Intake valve

(a Air load control)

The intake valve system adopts piston control, which uses the up and down action of the piston to control the empty heavy load. When starting, stopping or responding to the car, the action of the discharge solenoid valve is used to control the intake valve piston to close the valve upward, and the pressure maintenance valve is also used to maintain the minimum pressure required by the system circulation. When the motor is running with full load, the discharge solenoid valve is energized, that is, the discharge is stopped. At this time, the intake valve piston is sucked down and becomes the intake state due to the difference in intake pressure. If the pressure reaches the upper limit set by the pressure switch, the pressure switch acts, the discharge solenoid valve begins to discharge, and the intake valve piston is pushed upward to close the valve, and the empty load state is formed.

b Volume control

When the system pressure gradually rises (not up to the set value of the pressure switch), first to set the pressure in the capacitance valve, there will be a little air through, the intake valve piston will be pushed upward, and the intake volume will gradually reduce, at this time the system has begun capacitance. If the pressure continues to rise, the intake piston is also closed upward, and on the contrary, if the system pressure is reduced, the intake piston is opened and the intake volume is larger. Until it is lower than the set value of the volume control valve, the volume adjustment stops. The function of the capacitance regulating valve is to control the intake volume of the intake valve and maintain the pressure stability of the system.

C Oil and gas drum

The oil level of the static lubricating oil should be between the high oil level line and the low oil level line of the oil viewing mirror. The oil drum is equipped with an oil drain valve. The oil drain valve should be slightly opened before starting each time to remove the precipitating condensate in the oil and gas drum. There is a "1" refueling port on the barrel, which can be used for refueling. Due to the wide cross-sectional area of the oil barrel, the compressed air can reduce the flow rate of the screw lubricating oil and separate the oil droplets, which is the first section of oil removal.

D oil fine separator

See the instructions in the following section for details.

E Safety Valve

When the pressure switch is improperly adjusted or malfunctioning so that the pressure in the oil and gas barrel is more than 0.1MPa higher than the set exhaust pressure, the safety valve will automatically open, so that the pressure is reduced to the set exhaust pressure below. The safety valve has been adjusted before leaving the factory. Please do not adjust it at will.

F Drain valve

The discharge valve is two normally open solenoid valves. When the machine is stopped or empty, the valve is opened to discharge the pressure in the barrel and close the intake valve to ensure that the compressor can start without load or run with no load when it runs again.

G Pressure maintenance valve

The opening pressure at the outlet of the oil separator above the oil and gas barrel is set at about 0.45MPa. The functions of the pressure maintenance valve are as follows:

a When starting, priority is given to establishing the circulating pressure required for lubricating oil to ensure the lubrication of the body

b After the pressure exceeds 0.45MPa, it can reduce the air flow rate through the oil separator, in addition to ensuring the oil separation effect and protect the oil separator from damage due to too large pressure difference.

H Rear cooler

Air-cooled coolers use cooling fans to pump air through the cooler to cool compressed air. The cooling effect of air-cooled air compressor is closely related to the ambient temperature conditions. Pay attention to the ventilation conditions of the environment when choosing a place to place.

1 Water separator

The water separator of the cyclone type can remove the water condensed out after the air cooling, and the compressed air such as droplets and impurities can be directly sent to the user departments after the water separator. When the compressor is running, the regulating valve under the water separator should be slightly opened to just make the condensate flow out without causing a large amount of air leakage or install an automatic water drainer.

J Automatic water drainer

It can automatically discharge the condensing water system gathered in the water separator as required by the customer. Generally, as long as the regulating valve is opened in accordance with the above method, there is no need to install an automatic drainage device.

2. Lubricating oil process (refer to the system flow chart of each model)

1. Description of oil injection process

Due to the pressure in the oil and gas barrel, the lubricating oil is pressed into the cooler, after cooling the lubricating oil in the cooler, the impurity particles are removed through the filter, and then divided into two ways, one is sprayed into the compression chamber at the lower end of the body, cooling the compressed air, and the other is passed to the two ends of the body, used to lubricate the bearing group, and then (the lubricating oil of each part) is gathered at the bottom of the dry compression chamber, with the compressed air Exit. The compressed air mixed with lubricating oil enters the oil and gas barrel, separates most of the lubricating oil, and the rest of the oil mist air passes through the oil and gas separator, filters out the remaining lubricating oil, enters the rear cooler through the pressure maintenance valve for cooling, and can be sent to the use system.

2. Function description of each component on the oil circuit

A, cooler

Cooler and air rear cooling method is the same if the environmental condition is not good, the fins of the air-cooled cooler are susceptible to dust cover and affect the cooling effect of the exhaust temperature will be too high and jump. Therefore, the dust on the surface of the fin should be blown off regularly with low pressure compressed air. If it cannot be blown clean, it must be cleaned with solvent to keep the cooling surface of the cooler clean.

B. Filter

Filter is a kind of paper filter whose function is to remove impurities in the lubricating oil such as metal particles of lubricating oil deterioration, such as filtration accuracy below 10u, the bearing and rotor has a perfect protective effect, whether the oil filter should be replaced by its differential pressure indicator light to judge, if the differential pressure indicator light, it means that the filter is blocked, must be replaced. The new machine needs to replace the lubricating oil and filter after 500 hours of operation for the first time, and then replace according to the pressure difference indicator light. If the oil filter pressure difference is large and not replaced, it may lead to insufficient lubricating oil, and the exhaust high temperature jump, while the lack of lubricating oil will affect the life of the bearing.

C Oil and Gas separator

The filter element of the oil and gas separator is made of multiple layers of fine glass fiber, and the atomized oil and gas contained in the compressed air can be almost completely filtered out after the oil and gas separator, less than 3ppm. Under normal operation, the quality of lubricating oil and the pollution degree of the surrounding environment have a great impact on its life, if the environmental pollution is very serious, you can consider adding the air filter: as for the choice of lubricating oil, we must use the company's designated special brand. The outlet of the oil and gas separator is equipped with a safety valve and a pressure maintenance valve, from which the compressed air is drawn to the rear cooler. The lubricating oil filtered by the oil and gas separator is concentrated in the central small circular groove, and then returned to the bearing end of the body by the primary oil pipe, which can avoid the special lubricating oil of the screw air compressor that has been filtered and then discharged with the air. In general, whether the oil and gas separator is damaged can be judged by the following methods:

a The amount of lubricating oil contained in the air pipeline increases.

b There is a differential pressure switch of the oil and gas separator between the oil and gas barrel and the oil and gas separator, which sets the differential pressure value of 0.5MPa. When the differential pressure before and after the oil and gas separator exceeds the set value, the differential pressure indicator is on, indicating that the oil and gas separator is blocked, and it should be replaced immediately.

c If the hydraulic pressure is > the air pressure, it means that the oil fine gas separator is blocked seriously, and even there will be overload protection.

d Check whether the hydraulic pressure is too high.

e Check whether the current is increased.

D Heat control valve

The front end of the cooler has a heat control valve, its function is to maintain the exhaust temperature above the pressure dew point temperature. Just started, screw air compressor special lubricating oil temperature is low, at this time the heat control valve will automatically open the return loop, the lubricating oil is not through the cooler and into the body. If the temperature of the lubricating oil rises to more than 70 ° C, the valve slowly opens, and the force is fully opened to 72° C. At this time, the lubricating oil will all be cooled by the cooler and then enter the body.

Three, air cooling cooling system

The cold air is pumped in by a circulating fan, blown through the cooling fin of the cooler, and the compressed air and lubricating oil do heat exchange to achieve the cooling effect. The maximum allowable ambient temperature of the cooling system is 46°C. If the ambient temperature exceeds 46°C, the system has the possibility of high temperature jump, for example, the place is placed near the boiler at high temperature.

Safety protection system and warning device

1, motor overload protection

There are two main motors in the air compressor system, one is the air compressor to drive the main motor, and the other is the cooling fan motor. Under normal conditions, when the motor running current exceeds the limit set by the current protection device, the overcurrent protection device will automatically cut off the strong current control. When the air compressor stops, the air compressor can not start unless it is reset. The way of resetting is to press down the setting switch by hand. The current protection device has been set before the factory, it is especially important to protect the normal use of the motor, do not modify the setting at will.

(1) Human operation error: such as increasing the exhaust pressure, improper system adjustment, etc.

(2) Mechanical failure:

Such as the internal loss of the motor, the motor underphase operation, the safety valve does not operate, the system setting fails, the oil and gas separator is blocked and the intake valve is not completely closed

Load starting, etc.

If the motor is found to be overloaded during operation, it should immediately contact the manufacturer and send personnel to check and find out the cause, otherwise the motor will be burned.

2, exhaust temperature too high protection

The maximum exhaust temperature set by the system is 95℃. If it exceeds 95℃, the display panel begins to blink and alarm. If it exceeds 100℃, the system will cut off the power supply by itself. The general exhaust temperature is too high for many reasons, but the most common reason is the failure of the oil cooler. If the cooling fin of the air-cooled oil cooler is blocked by dust, the cold air can not freely pass through the cooler, the lubricating oil temperature will gradually rise and lead to high temperature shutdown. Therefore, every once in a while, it is necessary to use low-pressure air to remove the dust on the cooling fin. If the blockage on the fin can not be blown clean, it is best to clean with cleaning liquid or solvent.

The maximum ambient temperature of the air compressor design is 46℃, so it is necessary to choose a place with low ambient temperature and good ventilation to place the air compressor. When the exhaust temperature is too high to protect the machine after jumping, the system starting loop is cut off, at this time can not start the system again, press the reset button to reset before restarting.

3, alarm device

There is an alarm device in the system, in which the air filter is blocked, the oil filter is blocked, the oil fine separator is blocked and its indicator light is displayed on the instrument panel. When the indicator light is on, it means that a filter has been blocked, the user must replace the spare parts in the shortest time, otherwise it will affect the performance and safe operation of the air compressor.

1. Control system

(1) Motor start (step-down or Y start)

During this period, the intake valve is fully closed and the discharge valve is fully open. At this time, the intake side becomes a high vacuum. The lubricating oil required by the compression chamber and the bearing is ensured by the difference between the vacuum of the compression chamber and the atmospheric pressure in the oil drum.

(2) Motor full pressure operation (full pressure or △ operation)

Control cut into the full pressure operation, the release valve is fully closed, at this time the pressure in the air barrel gradually increases, the intake valve gradually opens, so the pressure in the oil barrel rapidly increases, so that the intake valve is fully open, the compressor begins to run at full load, when the pressure is 0.45MPa, the pressure maintenance valve is fully open, the air output.

(3) Heavy load/no load operation At this time the compressor is running under no load state.

When the exhaust pressure reaches the limit above the control system, the control system cuts off the power supply of the drain valve, the drain valve is opened, the intake valve is also closed, and the air in the oil and gas drum is discharged to the atmosphere.

(4) Stop the machine

After pressing the OFF button, the drain valve opens, the air in the oil drum is discharged to the atmosphere, and the intake valve is closed. When the pressure in the oil drum drops to a certain value, the motor stops.

(5) Emergency shutdown

When the exhaust temperature exceeds 100°C or the motor overcurrent protection device due to overload action, the overcurrent protection device will automatically cut off the strong current control, the control board will show the overload alarm, the motor will stop immediately while the drain valve is opened, the intake valve is closed, to prevent the lubricating oil from continuing to spray out of the compressor. Only when the unit in the operation of the abnormal emergency situation, allow to press the emergency stop button, otherwise it may cause system failure and from the air inlet spray liquid.

(6) No load for too long automatic shutdown system

If the amount of air used by the system is reduced, the compressor keeps running under no-load conditions, if the no-load running time exceeds the set time, the air compressor will automatically stop, the motor will stop running, when the amount of air used by the system increases, the system pressure will be reduced, the customer can set according to needs, the air compressor will automatically start to supplement the amount of air. No load running for a long time stop time set limits to the motor per hour start times do not exceed two times for the principle, because the automatic start without any prompts, in the selection of this function please pay attention to safety, so as not to cause personal injury accidents. Do not make the motor start frequently call the motor burn.

2, electrical line

The electrical control of the air compressor can be divided into two systems, one is the internal control system: the other is the starting plate part. The starting disk is the Y-starting control commonly used in general machinery. And the control part is the micro controller control. Micro-controller control due to the internal circuit and control is more complex, in this chapter will not be introduced in depth, if there is damage or failure, please contact the service unit directly, directly replace the circuit board.

First, test, start and stop

1. Connect the power cord and ground wire to test whether the power supply voltage is correct and whether the three-phase power supply is correct.

2. Check whether the oil level in the oil drum is between the upper oil level line H and the lower oil level L.

3, if the delivery is a long time before the test, should add about 0.5 liters of lubricating oil in the intake valve, and rotate the air compressor several times by hand to prevent the loss of lubricating oil in the compressor when starting, please pay special attention to not let foreign matter fall into the compressor body, so as not to damage the compressor body.

4. Check the cooling system.

5, press "ON" within a few seconds after starting, immediately press the "emergency stop" button, check whether the steering is correct (such as arrow direction) if the steering is not correct, please replace any two of the three wires.

6, then press the "ON "button and the air compressor starts to operate.

7, Observe whether the instrument and indicator light have abnormal indications.

8, press the "OFF" button after 10-15 seconds, the controller control, the motor stops, this is to avoid the air compressor in the heavy load situation directly shut down and produce spray phenomenon.

9. When the "OFF "button is pressed, the drain valve will automatically drain the compressed air inside the system.

2. Check before starting up

Check before starting is to avoid major failures of the compressor, improve the efficiency of use, must do the work.

1. Open the manual drain valve of the water separator to remove the condensate during shutdown. If this work is ignored, the service life of the lubricating oil will be shortened and the bearing will be easily burned.

2, check whether the oil level is between HL, lubricating oil can not be too much, also can not be too little, insufficient should be added. It is forbidden to use non-screw special lubricating oil. When adding lubricating oil, it should be determined that there is no pressure in the system before opening the fuel filler cap.

3, the oil level should be observed after ten minutes after the shutdown, and the oil level in operation may be slightly lower than the oil level when the shutdown.

Third, precautions during operation

1. When there is abnormal sound and abnormal vibration in operation, it should be stopped immediately.

2. There is pressure in the pipeline and container during operation. Do not loosen the bolt plug of the pipeline or open unnecessary valves.

3. In the long-term operation, if the lubricating oil on the oil level meter is not found, and the oil temperature gradually rises, it should be stopped immediately, observe the oil level after stopping for 10 minutes, if not enough, wait for the system when there is no pressure to replenish the lubricating oil.

4, there will be condensate in the rear cooler and cyclone separator, should pay attention to frequent discharge or install an automatic water drainer, otherwise the water will be brought to the system.

5, every 2 hours in operation check the instrument record voltage, current, air pressure, exhaust temperature, oil level, etc., for future maintenance reference.

6, rotating machinery will cause personal injury, so please do not open the door when the machine is running.

Fourth, the treatment of long-term downtime

Long-term shutdown, should be carefully handled in accordance with the following methods, especially in the high humidity season or area.

1. Stop for more than 3 weeks

(1) Motor control panel and other electrical equipment, with plastic paper or oil paper wrapped to prevent moisture intrusion.

(2) If there is any fault, it should be eliminated first to facilitate future use.

(3) A few days later, the condensate of the oil drum and aftercooler will be discharged.

2. Shut down for more than 2 months

In addition to the above procedures, the following processing needs to be done:

(1) Close all openings to prevent moisture and dust from entering.

(2) Wrap the safety valve, control plate, etc., with oiled paper or similar paper to prevent embroidering.

(3) Replace the lubricating oil before decommissioning, and run for 30 minutes, two or three days later to remove the condensate of the oil drum and cooler.

(4) Move the machine to a dry place with less dust as far as possible.

3. Restart the program

(1) Remove plastic paper or oil paper from the machine.

(2) Measure the insulation of the motor, which should be above 1Mn.

(3) Other procedures as described in the test steps.

Specification and maintenance of special lubricating oil for screw air compressor

1. Lubricating oil has a decisive impact on the performance of micro-oil screw air compressor. If used improperly or incorrectly, it will lead to serious damage to the compressor body and may even cause fire, so special lubricating oil for screw air compressor must be used.

2, affect the lubricating oil change time factors:

(1) poor ventilation and high ambient temperature.

(2) High humidity environment or rainy season.

(3) Dusty environment.

3, change the lubricating oil steps

(1) Run the air compressor so that the liquid temperature rises to facilitate discharge. Then press the "OFF" button to stop the operation.

(2) Open the oil drain valve when there is pressure, the drain speed is very fast, but it is easy to spray, it should be slowly opened to avoid the oil splashing.

(3) After the lubricating oil is released, close the oil drain valve and open the refueling cover to inject new lubricating oil. Note that all the lubricating oil in the system must be radiant, such as pipelines, coolers, oil drums, etc. If the oil is changed when the oil temperature in the body is high, please pay attention to avoid being burned.

(4) Add new lubricating oil.

4, precautions

(1) If the micro-oil screw air compressor is used for the first time, the first oil change time will be replaced after 500 hours of oil use. After the normal circumstances, every 2000 hours Change it around. However, when the operating environment of the machine is poor, such as high temperature and more dust, attention should be paid to appropriately shorten the cycle of lubricating oil change.

(2) Do not let the lubricating oil exceed the service life of the oil, the lubricating oil should be replaced on time, otherwise the quality of the oil is reduced, the lubrication is poor, it is easy to cause the phenomenon of high temperature trip and carbon accumulation, and because the burning point of the oil is decreased, it is also easy to form the spontaneous combustion of the oil and the burning of the air compressor.

(3) Air compressor in the use of two years, it is best to use a special cleaning agent to do a "system cleaning" work, its approach is when the replacement of new screw air compressor special lubricating oil, let the air compressor run 6-8 hours, immediately replace the lubricating oil, so that the original system of the remaining organic components can be cleaned, and the replacement of lubricating oil can have a better service life.

Daily maintenance

1, daily or before each operation: such as check before starting. (Please refer to the previous section)

2, every 100 hours of operation should remove the air filter element for cleaning, with 0.2MPa(G) below the low pressure compressed air from the inside out to blow clean.

3. 500 hours of operation:

(1) The new machine uses the first oil change filter.

(2) Change the oil.

(3) Check the action and active parts of the intake valve, and add grease.

(4) Check the fastening bolts of the pipe joints and the fastening screws of the wire terminals.

(5) Clean the air filter.

4. Run 2000 hours or 6 months:

(1) Check each part of the pipeline.

(2) Replace the air filter element and oil filter.

5, operation 3000 hours or 1 year:

(1) Clean the intake valve, replace the type 0 ring, and fill the lubricating grease.

(2) Check the solenoid valve.

(3) Check the drain valve.

(4) Replace the oil and gas separator.

(5) Check the pressure maintenance valve.

(6) Clean the cooler and replace the 0 ring.

(7) Replace the air filter and oil filter.

(8) Fill the motor with lubricating grease.

(9) Check the starter.

(10) Check whether each protection differential pressure switch works normally.

6, every 6,000 hours

(1) Replace the oil filter.

(2) Replace the oil and gas separator.

(3) Replace the lubricating oil.

7, every 20,000 hours or 4 years:

(1) Replace the body bearing, each oil seal, adjust the clearance.

(2) Measure motor insulation.

Do not change the data parameters in the equipment, if modified, please contact the relevant after-sales personnel, otherwise the problem caused by modifying the parameters of the machine is not within the scope of the manufacturer's warranty.

Thank you for choosing KTAM screw air compressor!

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