Content

General Safety rules

1. Heater regenerative desiccant air dryer is the equipment with pressure vessel, so the working pressure must not exceed the maximum working pressure on rating label.

2. Heater regenerative desiccant air dryer is driven by the power. Please install it according to national electrical standards.

3. Before any electrical repairing work, be sure to cut off the power.

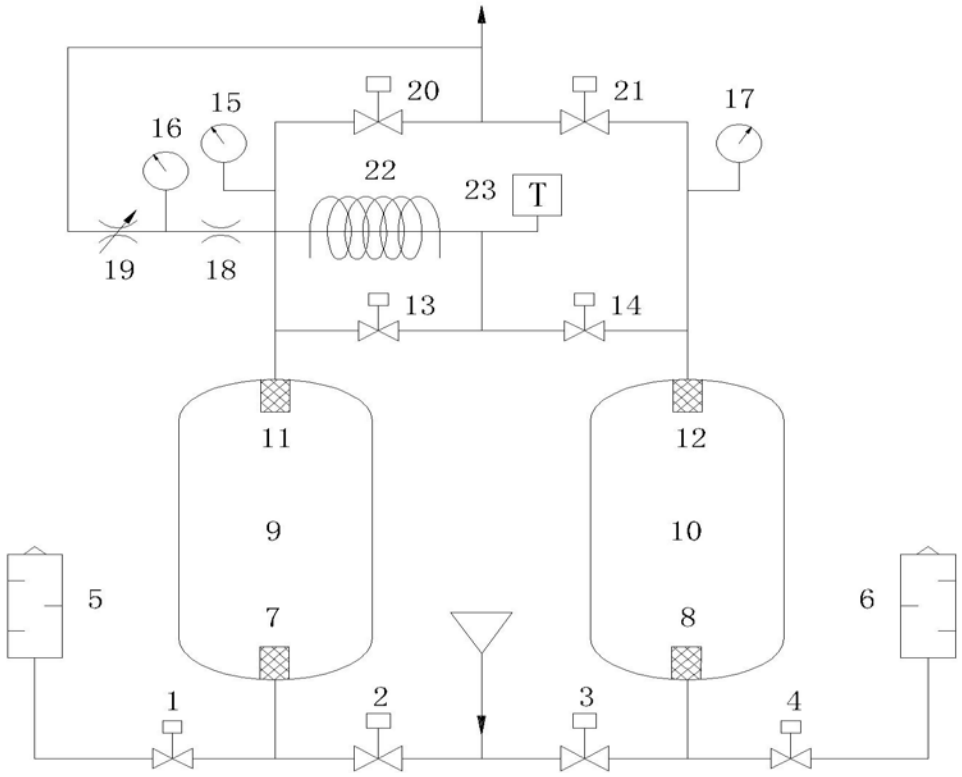
4. Before any valve repairing work, be sure to close the inlet /outlet valves of the equipment to release the compressed air pressure

1.0 Summarization

1.1 Principle

Heater regenerative desiccant air dryer is made of two absorption tanks which are full of desiccant. The desiccant absorbs water on its surface. Twin tanks adjust switches through airflow alternately drying and regenerating so that the desiccant can be recycled. Applying the principle of Pressure Swing Adsorption (PSA), part of the dried air, i.e. cleaning air recurs to the regulating valve to modulate the air pressure close to atmospheric pressure, hence access to another tower to make the desiccant in it regenerate. The changes of pressure temperature make the low-pressure air around the expansion valve very dry. The purified dry air enhances the saturated desiccant to dehydrate and regenerate and at the same time get rid of absorbed waters from the dryer.

1.2 Working Flow



Heater regenerative desiccant air dryer working flow

1.4 Blow-off Valve	2.3 Inlet Valve
5.6 Muffler	7.8 Inlet Distributor
9.10 Adsorption Tank	11.12 Outlet Distributor
13.14 Regeneration Valve	15.17 Pressure Gauge (Tanks)
16 Pressure Gauge (Regeneration)	18 Reducing Orifice
19 Regulating Valve (Regeneration)	20.21 Outlet Valve
22 Heater	23 Temperature Probe

2.0 Installation

2.1 Location

2.1.1 Heater regenerative desiccant air dryer should be installed around a well-ventilated place with clean air in buildings. If the ventilation in the engine room is not good, the exhausted fan is needed to install.

2.1.2 Heater regenerative desiccant air dryer should have some place with the air compressor to prevent the vibration of Air compressor to impact the normal operation of dryers.

2.1.3 Desiccant air dryer should be installed in the plane of the cement surface.

2.2 Pipe connection

2.2.1 The air dryer should be connected in series with the air system. It is recommended to connect the air inlet and outlet with parallel connection and install the shut-off valve in the middle of the connection to maintain if necessary.

2.2.2 Any oil may damage the desiccant air dryer. Hence the oil removal filter is needed to install in the front of desiccant air dryer.

2.2.3 The desiccant will change to powder after using some time. If the compressed air can not include any dust. The removal dusty filter is needed to install in the back of the desiccant air dryer.

2.2.4 In the regenerative and equal pressure stage for the desiccant air dryer may have 10-20% air change. It will impact the air pressure. If you need stable air, the air tank is needed to install in the back of the air dryer.

2.3. Power supply and wiring

2.3.1 Please configure the power supply according to the rated voltage, phase of the rating label.

2.3.2 Voltage tolerance should be within 10% of the rated voltage.

2.3.3 The cover of the air dryer should connect the ground correctly.

3.0 Operation

3.1 Adjust the generative air valve

3.1.1 First confirm the max pressure, actual air inlet pressure. Then confirm the recycling time and regenerative air pressure (see list 1).

Regenerative air table (list 1)

Inlet pressure（bar）		4.2～7.0	7.0～7.7	7.7～8.6	8.6～9.1	9.1 ～10
Regenerative air pressure （bar）	10～15 minutes	3.2	3.0	2.87	2.7	2.6
	4 minutes	4.9	4.6	4.4	4.2	4.1

3.2 Confirm the recycling period

3.2.1 Dew point -60ºC，working recycling period is 4 minutes.

3.2.2 Dew point -40ºC,working recycling 10～15 minutes.

3.2.3 Details, check list 2

Working recycling period table（list 2）

Level	Desc.	Cycle	Regeneration Time	Heat Time	Cooling Time	Pressure Equalizing Time
1	Testing	4 min	66 sec	34 sec	32 sec	54 sec
2	Heater Error	10 min	4 min	Heater Stop Working	Heater Stop Working	1 min
3	Bad Work Condition	30 min	13 min 56 sec	12 min	1 min 56 sec	1 min 04 sec
4	Normal	45 min	21 min 10 sec	18 min	3 min 10 sec	1 min 20 sec
5	Power Saving	60 min	23 min 10 sec	20 min	3 min 10 sec	6 min 50 sec
6	Power Saving	60 min	23 min 10 sec	20 min	3 min 10 sec	6 min 50 sec

3.3 Start and shut-off

3.3.1 Start: the compressed air access the tank A and B of the air dryer. You can not press start button until the pressure is equal and stable of the tank A and B.

The air dryer will work automatically.

3.3.2 Shut-off: please first shut off the inlet valve of the air dryer before press STOP BUTTON. When the two tanks are same pressure, it will stop to work. Normally, please do not shut off the power supply of the air dryer because the control panel has the function of memory for the working conditions.

4.0 Heater Regeneration Desiccant Dryer (PLC) Electric Control

Power switch. Do not turn off power when working. Heating is automated.

5.0 Maintenance

5.1 Desiccant replacement

Note: Uses the correct desiccant for air dryer is necessary, can not use commonly used in the deliquescence salty absorbent.

5.1.1 Desiccant replacement Period

The air dryer should be operated strictly according to this manual instruction. The desiccant should be replaced when the dew point can not meet the standard without any failure of this machine.

Note: The desiccant life is decided by the air inlet quality. It can expand the desiccant service life to make filtration for the inlet air. The normal service life is 3-5 years.

5.1.2 How to replace the desiccant

5.1.2.1 First decrease the pressure, then shut off the power supply.

5.1.2.2 Please take off the screw or flange of loading port and unloading port from the dryer tank. Vent the useless desiccant. Then put a container under it to load the desiccant.

5.1.2.3 Put on the screw or flange of loading port.

5.1.2.4 Load the dry desiccant fully as possible as you can. But do not press it

tightly.

5.1.2.5 Mount the screw or flange of loading port.

5.1.2.6 Please repeat this process in another tank to finish the replacement.

5.2 Ensure the drying of the adsorbent

5.2.1 Adsorbent is delivered in the sealed tan. please don't open the cover before using to avoid adsorbent exposing to moisture. If adsorbent expose in the air, please heat it four hours in stove under 204 ℃ before using.

5.2.2 If the dryer is not filling by the dry absorbent, to drying the adsorbent, user must reduce the actual inlet flow less than 50% of Max inlet flow.

5.3 Controlling air filters — Filter replacement

5.3.1 The filter element of controlling air filter must be replaced every year, if the differential pressure impact the action of valve, the filter element must be replaced, the pressure of controlling air should not less than 0.41MPa

5.3.2 Replacement of process for filter element

Warning: Filter is the device with internal pressure, user must cut off power supply before repair, then close the shutoff valve which locate before filter inlet, so relief the pressure in filter

5.3.2.1 Screw the ring which fix the filter head and shell, then take the ring out.

5.3.2.2 Cleaning the filter shell

5.3.2.3 Screwing the used filter element, "O" seal ring in junction should not be used again.

5.3.2.4 Replacing new "O" seal ring on the top of new filter element, then screw the filter element in the head of filter. You can seal the filter element by hand, no need to use spanner.

5.3.2.5 After confirming the big O-ring on the filter is in the right location, install the filter shell on the filter head.

6.0 Troubleshooting

Phenomenon	Reason	Solutions

Power light is not bright	1.No power supply 2.ON/OFF switch does not be turned on 3.Switch failure 4.Light failure	1.Checking voltage 2.Turning on the switch Replacing switch 3.Replace the light
Dew point deviation	1.More than the rated flow 2.Inlet air pressure low, temperature high 3. Adsorbent failure 4.Service life finished 5.Adsorbent contaminated 6.Adsorbent saturated	1.Controlling flow 2.Adjusting pressure and temperature 3.Replace adsorbent 4.Configuring suitable former filter and replace adsorbent 5.Activation adsorbent
Adsorbent failure in service life	1.Quantity of regenerative gas shortage 2. Tank pressure over 0.02MPa at regenerating. a. Muffler plug b. Vent valve is not open 3、Regenerating time shortage a、Wrong calibration b、PLC failure	1、Increasing regenerative gas 2、Replacing muffler a. Checking valve, controlling system 3： a、Set correct cycle time and regenerating time b、Replace PLC
Tap pressure can not match with pipeline pressure	Vent valve is not close when equal pressure. Continued air consumption too large	a、Check if there is any jam in controlling system and repair. b、Check vent valve failure and repair a. Check if control line system loose and repair
Regenerative pressure over 0.02MPa	1.Regenerative flow adjusting valve open too much 2.Muffler jam 3.Vent valve is not open	1.Set regenerative flow correctly 2.Replace muffler 3：a、Check if there is any jam in controlling system and repair. b、Check vent valve failure and repair a. Check if control line system loose and repair
Regenerative gas excessive	1.Regenerative flow adjusting valve open too much 2.Corresponding valve does	1.Close down valve 2：a、Check if there is any jam in controlling system and repair.

	not close or stuck	b、Check vent valve failure and repair a. Check if control line system loose and repair
Pipeline adsorbent get too much dust	1.Regenerative flow adjusting valve shut off 2.Adsorbent aging or bad quality	1.Switch on regenerative flow adjusting valve 2.Replace adsorbent

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