

Compressed Air Treatment Products Gas Generators & Purifiers

Global Standard Air & Gas

Operation Manual

Desiccant Air Dryer (PEH series)



WE ARE PROUD OF LEADING THE INDUSTRIAL STANDARD OF COMPRESSED AIR AND GAS SOLUTIONS SINCE 1993 YEAR !

GSA – Global Standard Air/Gas is development and manufacturing organization producing various compressed air/gas dryers, air/gas chiller, gas generators, gas purifiers, air/gas filters, condensate drains etc.

The company was founded in Korea in 1993 and restarted as GSA in 2003. Over these years, the company has earned a reputation that has a unique combination of quality, value, trust and reliability.

GSA is a very innovative, customer oriented and technology driven company. We always strive to provide world top quality products for compressed air treatment and gas generation supporting you and your business with our solutions.

In this catalogue you will find our total techniques and products of energy saving compressed air and gas solutions to help customers focus on their production at ease.

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■ Preliminary

The usability and the life cycle of the desiccant air-dryer as well as the avoidance of premature repairs depends on proper operation, care and competent repair under consideration of these operating instructions.

■ Product Information

Due to our position as suppliers of components we do not always know the final usage and total range of products' applications. We constantly improve our products to the latest state of science and technology and therefore, we assume that our products are free from defects in the sense of product liability. However, it cannot be excluded that during faulty operation in critical areas of application especially at danger to life and limb of persons involved, additionally safety measures may be necessary.

Therefore, we request the user of our components / units, to ensure in his own interest, to inform us about the application of our products in order to initiate additional safety measures, if necessary.

■ General Notes

The Company does not accept responsibility if these safety measures are not met during handling, operation, maintenance and repair, even though this is not strictly stated in these operating instructions.

We recommend receipt and notice of these operating instructions verified by the operating personnel in writing (personnel file).

We request strict observation of these notes as otherwise we do not accept any liability in respect of this machine (plant).



Caution!

The operator has to observe the national working-, operating- and safety regulations. Also existing internal factory regulations must be met.

Maintenance and repair work must only be carried out by specially trained personnel and, if necessary, under supervision of a person qualified for this work.

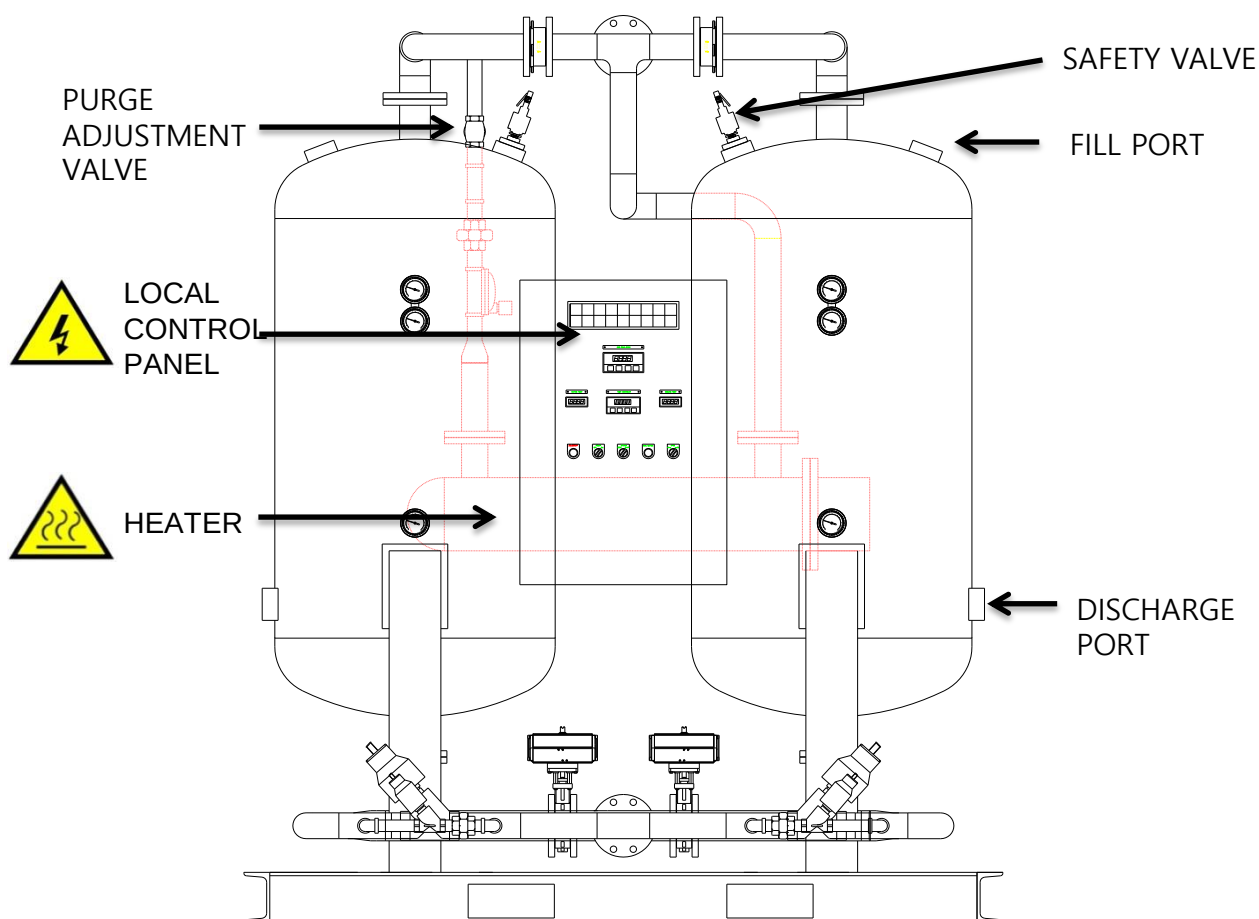
■ Safety Regulations

- Protective or safety devices must not be removed, modified or readjusted.
- During operation of the dryer none of the protective or safety devices must be removed, modified or readjusted temporarily or permanently.
- Use proper tools for maintenance and repair work only.
- Use original spare parts only.
- All maintenance works must be performed at stopped machine, disconnected power supply and pulled mains plug only. Ensure that the dryer cannot be switched on by mistake.
- Prior to dismounting a part under pressure disconnect the dryer from all pressure sources or depressurize the complete system respectively.
- Never weld the pressure vessel or modify it in any way.
- Ensure that no tools, loose parts or similar are left in the system.
- Wear eye protection and protective gloves during the change of desiccant.

■ First aid

- Take victim immediately into the fresh air or into a very well ventilated room.
- If the victim does not breathe, perform a mouth-to-mouth resuscitation or use a respirator until the doctor's arrival.
- Never leave the victim unattended.

■ Safety Mark & Parts Location



If the dryer is not disconnected, the risk of electric shock exists at control box.



Don't touch. Electric heater is so hot.

■ Light

Dryer is not provide with a local lighting since it is designed for indoor use only. The sufficient illumination of the working area must be fulfilled by the factory in accordance with the appropriate code of practice and factory regulations.

■ Sound Pressure Level

If the sound pressure level is larger, proper safety method is needed to the operator such as ear protections and warning signs.

■ Purpose

Compressed air will be dehumidified by the dryer.

■ Composition

1. Control box
2. Electronic timing sequence module.
3. Sequence lights display
 - Drying Time
 - Repressurization Time
4. Tower safety relief valves
5. ASME coded vessels (100 over model : option)
6. Tower pressure gauge
7. Purge pressure gauge
8. Pneumatic valves
9. Tower exhaust mufflers
10. Heater

■ Principle of Operation

The Desiccant air dryer is specifically designed to remove moisture in vapor form. The dryer's Electronic Sequence Module is fully automatic, alternately cycling gas flow through the dryer's twin desiccant towers. Cycling between the two towers accomplishes the adsorption and regeneration processes and provides a continuous flow of air.

The desiccant air dryer is charged activated alumina, composed of desiccant tower, pneumatic valve, check valve, solenoid valve, and control panel.

The compressed air with moisture vapor enters a tower and flows upward through the desiccant bed. The desiccant has great affinity for moisture vapor, therefore it adsorbs or removes moisture from the air process is an exothermic process meaning heat is produced as moisture is adsorbed on the desiccant surface.

At the end of the drying cycle, the desiccant in the tower is regenerated the moisture that the desiccant adsorbed is removed by dry air.

A small portion of the dry gas is expanded to near atmospheric pressure by passing through an orifice specifically designed for the regeneration(Purge) stream to strip the previously adsorbed moisture vapor. The exothermic reaction from the previous drying cycle contributes to the regeneration of the desiccant bed. The heat is picked up by the regeneration stream which in turn increases the moisture adsorption capacity of the regeneration stream.

■ Operation

Assume the dryer has completed re-pressurization and the left tower has begun drying. The inlet compressed air/gas enters the dryer and is diverted to the left tower to begin the five minute drying cycle. Approximately five seconds later the right tower purge (regeneration) exhaust valve will open depressurizing the off-line tower. The purge flow will continue for a period of three minutes and fifty-five seconds. When regeneration of the off-line tower is complete, the purge exhaust valve will close, initiating the sixty second re-pressurization phase. After re-pressurization is complete, the inlet selector valve will switch inlet valves and the inlet air/gas stream will divert from the left tower to the right tower. After five seconds the left tower purge exhaust valve will continuously cycle through the sequence described above until power is removed from the dryer.

The complete standard operating (NEMA) cycle is ten minutes. Under normal conditions and during normal operation, the dryer should provide on outlet pressure dew point (ADP) of -40°C or below.

■ Repressurizing Solenoid Valve

Repressurizing solenoid valve is installed Large capacity model to prevent break of activated alumina gel.

■ Fault Alarm

Pressure switch will transmit a outlet low pressure signal to DCS or local control panel. Then Purge solenoid valve is closed by control unit(in local control panel)

■ Demand Cycle

The demand cycle operational sequence is similar to the standard -40°C ADP sequence, except when in demand cycle mode, dryer sequencing is determined by the dew point analyzer indicates that the on-line tower will remaining adsorptive capacity, tower switch-over is delayed. The drying tower will remain on-line and the off-line tower will remain in a pressurized standby state until the moisture content in the drying tower reaches the analyzer set point (normally factory set at -40°C).

■ Receiving & inspection

Carefully inspect the packaging and dryer for external and internal damage. If you suspect damage has occurred during shipment, notify the transportation agency at once. This is the customer's responsibility.

Check the name plate for correct power supply requirements.

Inspect all piping and tubing. Vibration during shipment may have loosened the connections.

Desiccant air dryers are tested and operated before leaving the factory. They are ready to operate after connecting to proper services.



Caution!

Must install a suitable earth leakage circuit breaker.

■ Location

Locate your Desiccant Air Dryer on a level floor free from vibrations and in clean surroundings. Although the dryer is a free standing package, it may be secured by bolting the dryer base to the floor. Allow approximately three feet on each side of the dryer for ease of connecting and maintaining the dryer.

The ambient temperature in the dryer's location should range from 2°C to 40°C. The dryer will function in warmer ambient, but as a result, the degree of dew point suppression will decrease. Operation of the dryer in ambient approaching freezing could cause freezing of separated liquids in the pre-filter sump or in the dryer itself. For dryer operation at temperatures below freezing, Pioneer recommends heat tracing the pre-filter sump, drain trap and inlet manifold. For more information on heat tracing, contact your distributor or the factory.

Protective barriers are recommended for the prevention of accidental damage that may occur due to vehicular or personnel traffic, particularly for dryers located in open areas.

■ Connecting service

1. Connect inlet piping, including a shut off valve.
2. Connect outlet piping, including a shut off valve.
3. Install pre-filter(s) and after(s) if not factory installed.
4. If desired, install bypass piping using bubble tight valves.
 - Bypass piping is recommended for ease of maintenance, troubleshooting and service.
5. Connect electrical supply to the control box. This should be performed by a qualified electrician according to local and national codes.
6. Install access ports upstream and down-stream of the dryer for dew point and temperature.

■ Filtration

All regenerative desiccant dryers are designed to remove water in the vapor phase. The possibility of liquid carry over to the desiccant dryer must be avoided. A coalescing pre-filter will eliminate the carry over of droplets and aerosol-sized mists of both liquid water and compressor lubricant. The use of a coalescing filter will enhance the dew point depression capability of the dryer. It will also extend the life of the desiccant by preventing compressor lubricant fouling of the desiccant bed.

After filtration is also a very important step. All regenerative desiccant dryers gradually produce hard and abrasive desiccant fines. These contaminants should be removed with a particulate filter. The elimination of desiccant fine carry over will protect your plant air systems and reduce future system malfunctions.

When installing filters, make connections according to the arrow directions marked on the filter head.

■ Back pressure regulator

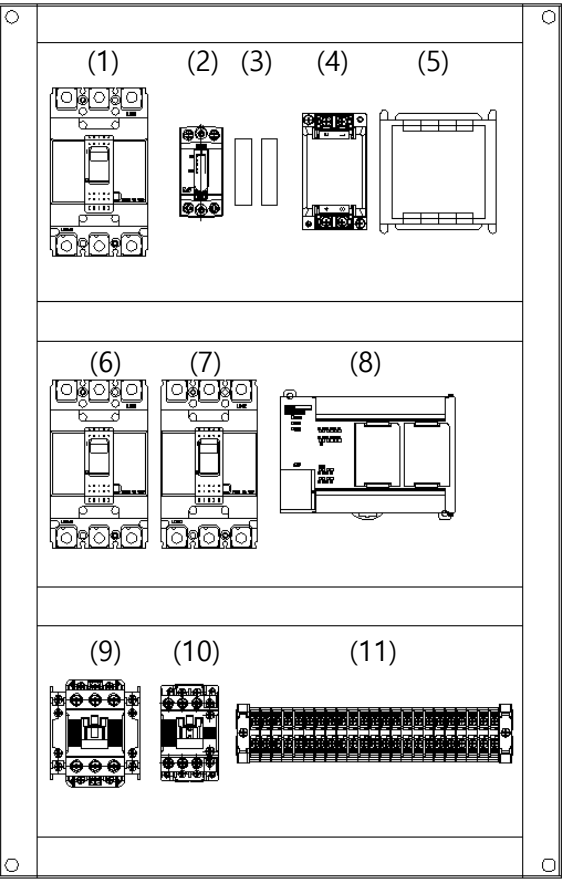
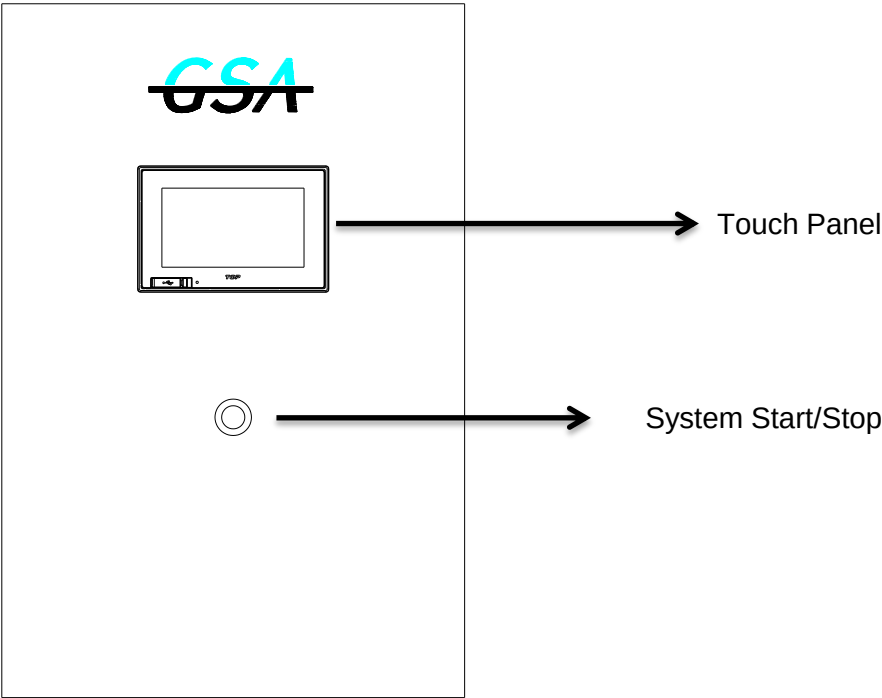
In dryer applications where sudden down-stream demand for dry air frequently occurs, a rapid pressure loss in the compressed air system is possible. To prevent this, it is recommended that a back pressure regulator be installed down-stream from the dryer.

The back pressure regulator will maintain a constant pressure within the dryer. This will eliminate any chance of saturating the desiccant bed by sudden flow surges which accompany rapid pressure loss. By eliminating saturation and desiccant bed “bumping,” the life of the desiccant charge will increase, and the after filter elements will not become prematurely clogged with desiccant fines.

■ Purge exhaust piping

To eliminate noise created by frequent tower release of purge exhaust, the dryer's exhaust may be piped to an outside or more remote location. This will also eliminate any possible problems caused by indoor accumulation of condensed moisture from the purge exhaust. If extending the exhaust pipe, install it horizontal or downward to avoid accumulation of condensate at low points. If the purge exhaust is required to run upward, install a valve at the low point. If extending the exhaust pipe farther than 5 meter, consult the factory for recommendations.

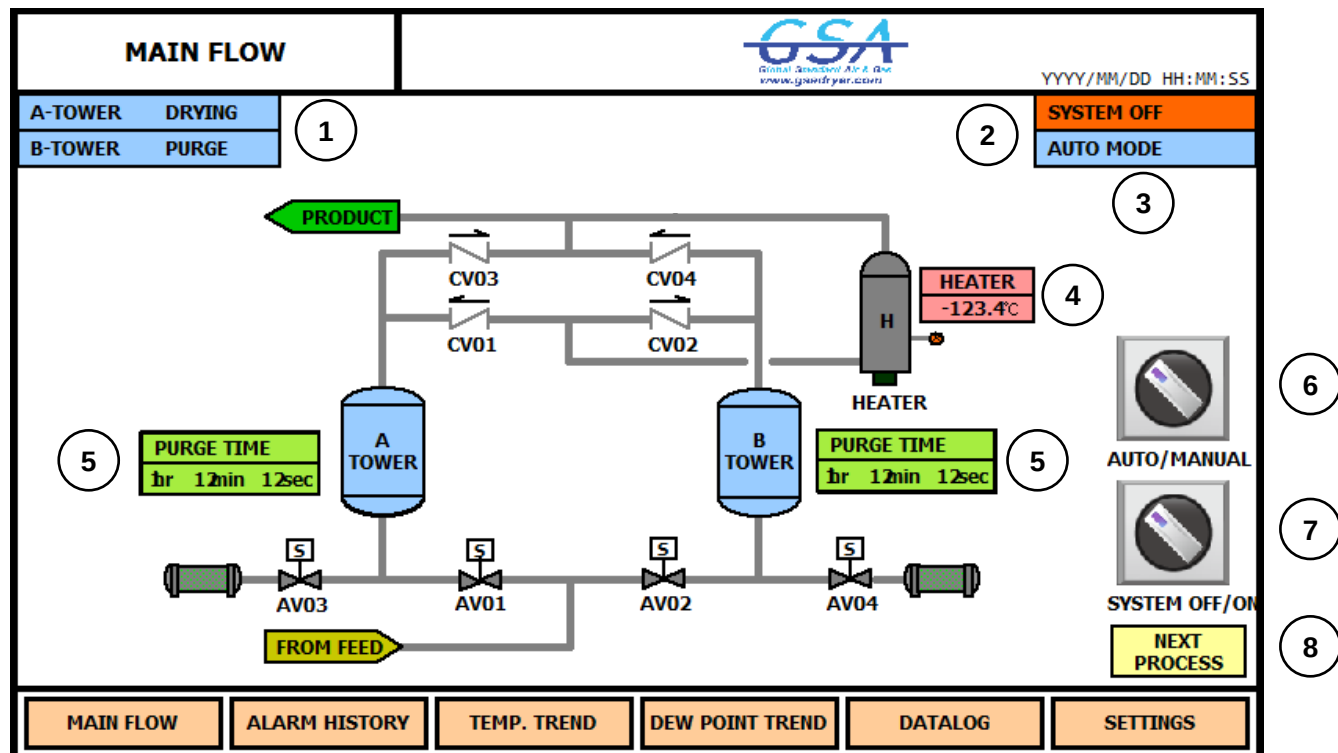
■ Control Panel



NO.	Part name
1	Main Circuit breaker
2	Control circui breaker
3	Fuse
4	Noise filter
5	Transformer
6	Main Heater M/C
7	Aux. Heater M/C
8	PLC
9	Main Heater Magnet
10	Aux. Heater Magnet
11	T/B

* Internal configurations and components may vary depending on the dryer model.

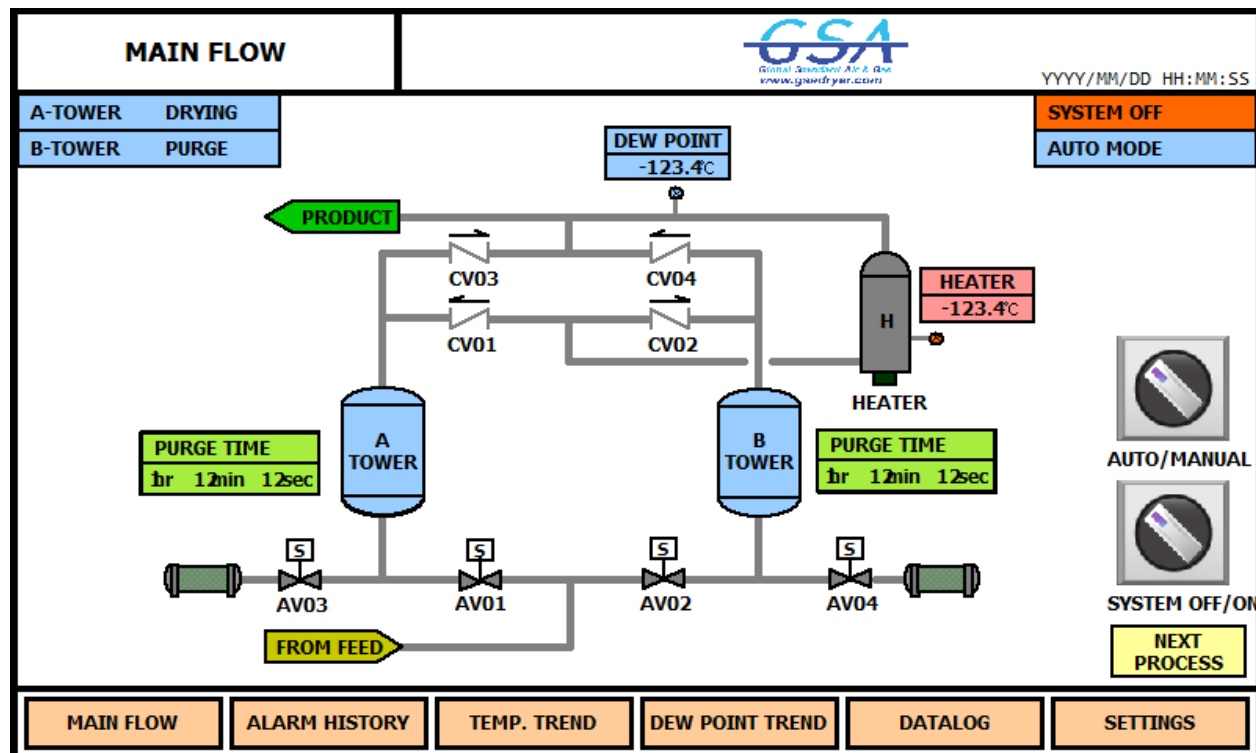
■ Touch Panel



1. Process Status Display: Indicates the current operational phase of the desiccant dryer.
2. System ON/OFF Status: Displays the current operational state (Power On/Off) of the system.
3. Manual & Auto Mode Display: Shows whether the system is currently in Automatic or Manual operation mode.
4. Heater Outlet Temperature: Displays the temperature of the regeneration air being heated by the heater.
5. Process Time Display: Shows the elapsed/remaining process time for Tower A and Tower B.
6. Auto/Manual Selector Switch: Allows the user to toggle between Automatic and Manual operation modes.
7. System ON/OFF Switch: Used to start or stop the operation of the equipment.
8. Manual Process Control Button: When in Manual mode, pressing this button advances the process to the next stage, bypassing the preset timer.
(This button is intended for troubleshooting or commissioning purposes only. Operation by unauthorized personnel is strictly prohibited.)

■ Touch Panel

1) MAIN FLOW



1

2

3

4

5

6

1. MAIN FLOW: Main System Overview

- Provides a comprehensive overview of the system's operation.
- Allows users to monitor and control key data, including process time, operational status, and valve ON/OFF states.

2. ALARM HISTORY: System Alarm Logs

- Records and displays a history of system alarms.
- Users can review the alarm type, occurrence time, and recovery (reset) time.

3. TEMP. TREND: Temperature Analysis

- Displays real-time and historical temperature trends of the regeneration air heated by the heater.

4. DEW POINT TREND: Dew Point Analysis

- Provides a visual representation of dew point temperature trends over time to monitor air quality.

5. DATALOG: Data Records

- Accesses stored records for dew point levels and regeneration gas heating temperatures for performance tracking.

6. SETTINGS: Operational Configuration

- Enables the modification of operational parameters, such as process cycle timing and regeneration air temperature setpoints.

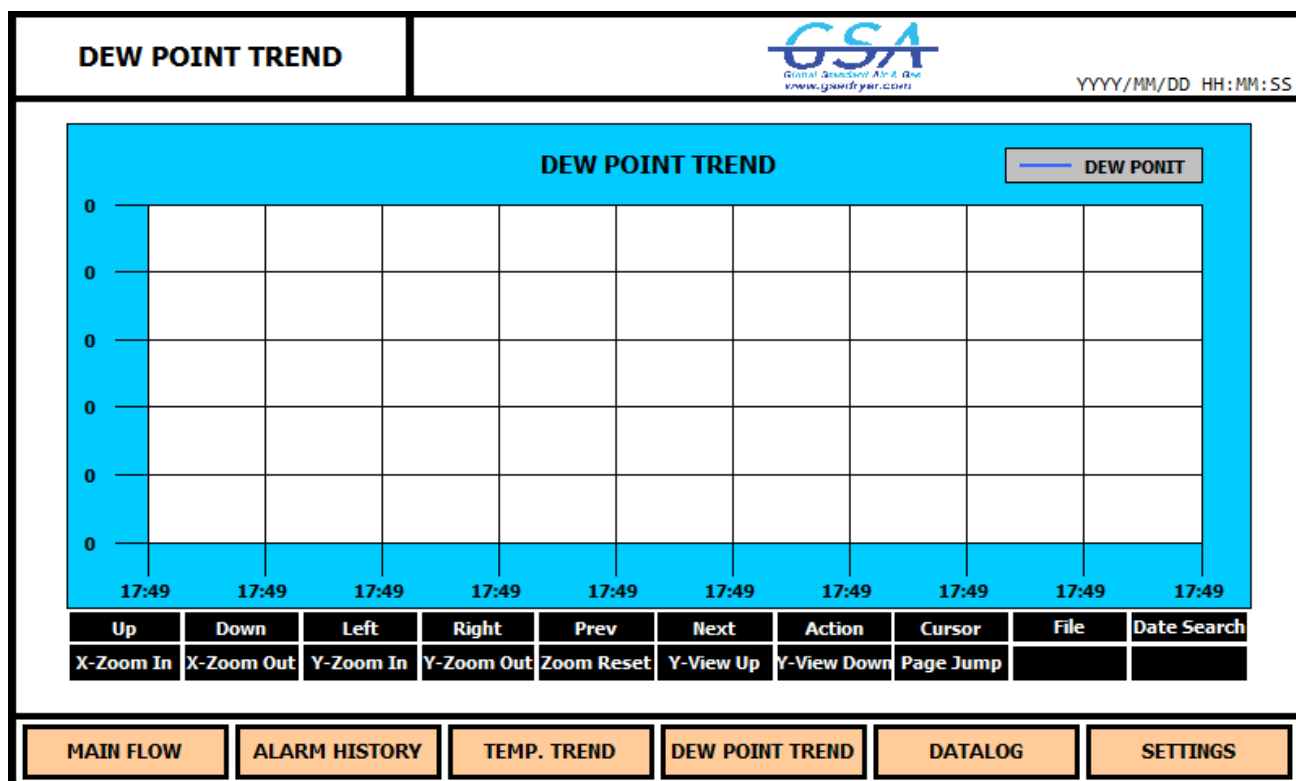
2) ALARM HISTROY

3) TEMPERATURE TREND

14

■ Touch Panel

4) DEW POINT TREND (OPTION)



5) DATALOG

DATALOG		 Global Standard Air & Gas www.gsadyer.com				2018/11/13 16:24:26	
Index	Date	Time	RTD_01	RTD_02	RTD_03		
1	2018-11-13	16:16:15	0	0	0		
Up	Down	Left	Right	Prev	Next	First	Last
Date Search	ViewClear	Today	History	File			

MAIN FLOW

ALARM HISTORY

TEMP. TREND

DEW POINT TREND

DATALOG

SETTINGS

■ Touch Panel

4) SETTINGS

SETTINGS		 Global Standard Air & Gas www.gsafr.com		YYYY/MM/DD HH:MM:SS																															
PROCESS TIME <table border="1"> <tr><td>PURGE</td><td>12345</td><td>sec</td></tr> <tr><td>HEATING</td><td>12345</td><td>sec</td></tr> <tr><td>COOLING</td><td>12345</td><td>sec</td></tr> <tr><td>RE-PRESS</td><td>12345</td><td>sec</td></tr> </table>		PURGE	12345	sec	HEATING	12345	sec	COOLING	12345	sec	RE-PRESS	12345	sec	TEMPERATURE <table border="1"> <tr><th colspan="3">HEATER</th></tr> <tr><td>MAIN HEATER</td><td>123.4</td><td>℃</td></tr> <tr><td>AUX. HEATER</td><td>123.4</td><td>℃</td></tr> <tr><td>HYSTERESIS</td><td>123.4</td><td>℃</td></tr> </table>		HEATER			MAIN HEATER	123.4	℃	AUX. HEATER	123.4	℃	HYSTERESIS	123.4	℃	DEW POINT <table border="1"> <tr><td>HIGH</td><td>-123.4</td><td>℃</td></tr> <tr><td>LOW</td><td>-123.4</td><td>℃</td></tr> </table>		HIGH	-123.4	℃	LOW	-123.4	℃
PURGE	12345	sec																																	
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LOW	-123.4	℃																																	
					PROCESS TIME RESET																														
MAIN FLOW	ALARM HISTORY	TEMP. TREND	DEW POINT TREND	DATALOG	SETTINGS																														

1. Process Time: Cycle Duration Settings Allows for the individual configuration of the duration for each operational phase.

2. Heater: Regeneration Temperature Control Used to set the Heater ON/OFF thresholds based on the monitored temperature of the regeneration air.

* Hysteresis: Defines the temperature differential (deadband) for the Heater ON/OFF switching to prevent frequent cycling and ensure system stability.

3. DEW POINT (OPTIONAL): Sensor Range Configuration Configures the operational range and setpoints for the dew point transmitter (hygrometer).



WARNING!

Do not alter the setpoints.

Unauthorized modification of settings will void the warranty regarding any subsequent mechanical failures or performance degradation. Please consult the manufacturer or the place of purchase for technical assistance.



WARNING!

Never operate the dryer without proper purge air exhaust. Failure to comply may cause system damage, and any related issues will void the warranty.

■ Preparation (Standard Operating Procedures)

Once all preliminary checks are complete, drain any accumulated water from the system before starting the dryer. This prevents saturation of the desiccant at the bottom of the towers and ensures optimal performance.

1. The inlet and outlet valves of the dryer must be closed, and the bypass valve must be opened.
2. Before operating the switch on the control panel, slowly open the inlet valve of the dryer to apply and maintain pressure.
3. When the pressure gauges on both towers indicate line pressure, open the valve on the dryer outlet side and close the bypass valve. The compressed air will now flow through the filter upstream of the dryer to the dryer and the filter downstream.
4. Set the power switch on the control panel to the "ON" position. The dryer circuit will operate after 5 seconds. At this time, pressure is released from one side of the tower to atmospheric pressure, and the regeneration purge air regenerates the adsorbent.
5. Please adjust the purge air control valve to 45 psig (3.1 BarG). The purge pressure can be properly adjusted when the purge discharge valve is open and the regeneration tower is at atmospheric pressure. (Refer to the appendix for purge air pressure calibration graph.)



WARNING!

Avoid sudden valve opening. Rapid introduction of compressed air into the dryer can cause mechanical damage to the desiccant beads. This not only shortens the service life of the valves but also leads to premature replacement of the desiccant and downstream filters.

Purge (Regeneration) pressure must be maintained strictly between 3.0 and 3.5 BarG.

■ STOP

To stop the machine, please turn the SYSTEM ON-OFF switch on the touch panel to the OFF position, preferably during the cooling or equalizing pressure process. The dryer will stop shortly thereafter.

Please disconnect the main power supply to the dryer when stopping the dryer for a long time or when performing maintenance and inspection.

**Caution!**

Before servicing any component, be certain the component is depressurized and valves are closed. Otherwise, equipment damage, severe injury or death could result.

■ Pre-Filter

Under normal operating conditions, the pressure drop across the filter indicates when the element needs changing typically 6 psig or greater. However, inspect the filter element at least every three months for proper seating and condition of the element. If the element has collapsed or can not be properly seated, replace the element.

■ After Filter

Under normal operating conditions, the pressure drop across the filter indicates when the element needs changing typically 6 psig or greater. However, inspect the filter element at least every three months for proper seating and condition of the element. If the element has collapsed or can not be properly seated, replace the element.

Replacement of the element will enhance system operation and prevent inflow of desiccant powder to load side.

**Caution!**

The life cycle of filter element depends of the quality of compressed air. Periodic attention must be paid to proper performance.

■ Control air filter

The control air filter should be inspected periodically and replaced when dirty. Periodic replacement of the element will ensure clean control air for operation of the valves.

■ Purge flow rate adjustment

The purge flow rate should be checked periodically for proper adjustment. The purge pressure for full load operation should be set at 45 psig(3.1barg). The purge calibration graph(Appendix) may be used for purge adjustment when the load is less than capacity.

**Caution!**

Do not operate the dryer with no purge flow. It may damage the dryer and will void the warranty.

■ Solenoid valve

Inspect solenoid valves periodically for proper operation. The inspection should include monitoring the tower pressure gauge on each tower during the cycle. The back pressure on a regenerating tower should not be greater than 5 psig. Higher pressure indicates either a malfunctioning valve or a clogged muffler.

Frequent monitoring of the tower pressure gauges in conjunction with the control will give a good indication of proper operation and can assist with troubleshooting should a problem occur.

Failure of a solenoid valve may result from:

- Faulty control circuit. Check the electrical system to verify that the solenoid coil is receiving electrical input.
- A burned out coil. Replace the coil.
- Clogged solenoid valve. Disassemble and clean.
- Damaged valve seat. Disassemble and clean.

■ Desiccant replacement

Remove contaminated desiccant from each vessel through the desiccant “drain port” located near the bottom of each vessel. Pour new desiccant into the indicated “fill port” located near the top of each vessel. Allow adequate space above the desiccant bed to permit bed motion and expansion during drying. Change the desiccant periodically for optimum dryer performance.

Store any unused desiccant in an airtight container.

**Caution!**

Use only activated alumina in your Desiccant Air Dryer.

■ Maintenance schedule

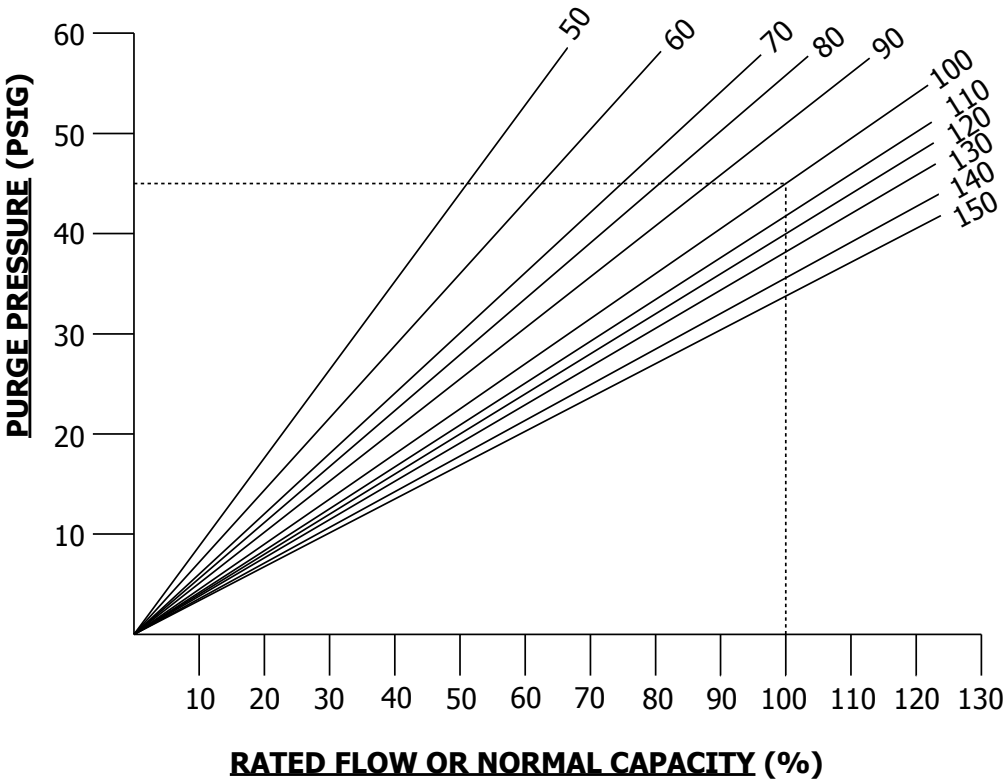
Maintenance intervals highly depend on the mode of operation and the ambient conditions on site, the intervals below air only to be understood as general recommendation.

Period	Check point	Method
Start up	Pressure indication	All pressure gauges - Drying tower pressure : same line pressure - purge pressure : 3.0~3.5 barg - Regeneration tower pressure : below 0.5barg
	Solenoid & pneumatic valve	Operation check
	Back pressure on regeneration tower	Max. 0.5 bar. If needed clean the silencer.
Every 3~4 months	Pre-filters and after-filters	Inspect pre-filter and after filter for dirt, oil and other contaminants. Replace if contaminated.
	Control air filter	Inspect filter element or regulator. if needed clean the filter & regulator.
Every 6 months	Calibrate dew point meter (if installed)	Refer to dew point meter owner's manual.
	Inspect the silencer	Replace exhaust silencer if back pressure on regeneration exceed 0.5 barg.
	Inspect solenoid valves	While dryer is operating, inspect solenoid valves. If leak or malfunction persists, replace valves.
Yearly	Replace filter elements	Replace pre-filters & after-filters.
	Inspect & replace pneumatic valves	Inspect valve seating and valve internals. If needed, clean or replace the valve.
	Inspect pressure & temp. gauge	Replace if readings are incorrect.
Every 2~3 year	Replace desiccant (recommendation)	Replace if contaminated oil moisture and other contaminants inhibit the performance of the desiccant.

■ Troubleshooting

Problem	Probable Cause	Remedy
Excessive backpressure in regeneration tower (above 0.5barg)	Silencer is clogged	Clean or replace silencer.
	Pressure gauge malfunction	Check or replace pressure gauge.
Depressurization fail	De-press. valve & purge valve doesn't open	Check de-press. & purge valve. And check its solenoid valve.
	Silencer is clogged	Clean or replace silencer.
	Low pressure	Check control air pressure(above 5 barg)
Re-press. fail	De-press & purge valve doesn't close	Check de-press. & purge valve. And check its solenoid valve.
Excessive press. drop	Excessive flow rate	Check working pressure.
	Low Inlet pressure	Check line pressure.
Tower change failure	No control air	Check control air line & control filter.
	Low control press.	
	Controller failure	Check the PLC or PCB controller.
Elevated dew point	Insufficient purge air	Check purge pressure.(nor. 30.~3.5 barg)
	Silencer is clogged	Clean or replace silencer.
	Low pressure	Check pressure sauce.
	High inlet temp.	Reduce inlet temp. Check after-cooler or ref. dryer.
	Desiccant contaminated by oil.	Install suitable pre-filter. And replace desiccant.
	Water entering	Check after-cooler or ref. dryer. If necessary replace desiccant.

■ Purge Air Flow Calibration Chart



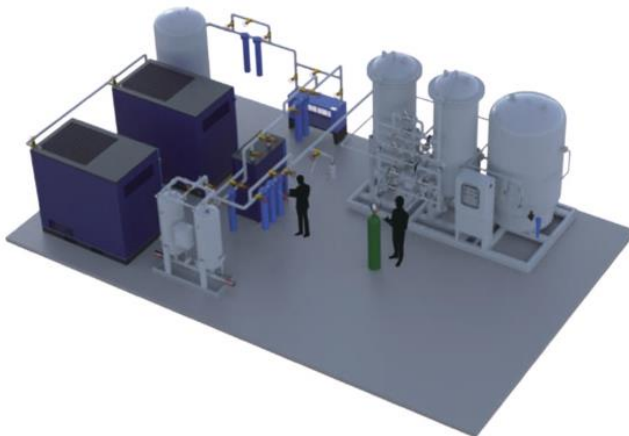
5G. IoT compressed air system



If required, we can also get you monitor remotely your compressed air system centrally via the Internet, 24 hours a day, 365 days a year, allowing you to depend on the productivity and availability of your system at all times.

Optional functions

- Wi-Fi, Bluetooth wireless communication
- Ethernet, RS-485 wire communication
- Monitoring through mobile devices
- User-friendly easy interface
- Easy to check running status through data logging
- Optimal performance with easy and simple setting
- Energy saving with cycling and VSD technique
- Easy maintenance management with testing function
- Intuitive interface



Monitoring unit by mobile phone

Refrigerated Air Dryer



HYD-N3 series

3rd generation cycling type

Flow rate : 0.5~85 Nm³/min

Energy storage heat exchanger

High Purity Alkanes PCM

Max. 90% energy saving

environmentally friendly dryer

Zero air loss magnetic float drain v/v

Wifi/BT Communication

4.3" TFT touch screen / Real Time Monitoring

HYD-20~600N3

(Upon request, customized product)



HYD-N2 series

2nd generation cycling type

Flow rate : 0.5~180 Nm³/min

Energy storage heat exchanger

Energy saving technology

environmentally friendly dryer

ECO mode lamp / Max. 50% energy saving

Zero air loss magnetic float drain v/v

Temp. Controller

HYD-5~1200N2

(Upon request, customized product)



HYD-N series

Non cycling type

Flow rate : 0.5~14.2 Nm³/min

Highly efficient Al. heat exchanger

Dew point indication

Air-cooled type

Zero air loss magnet float drain v/v

High Performance

HYD-5~100N



HYD-N series

Non cycling type

Flow rate : 21~210 Nm³/min

Highly efficient Al. heat exchanger

Dew point indication

Zero air loss level sensor drain v/v

Air-cooled type / 4.3" TFT touch screen

Safety devices / High Performance

HYD-150~1500N

(Upon request, customized product)



HYD-WN series

Non cycling type

Flow rate : 22.5~330 Nm³/min

Highly efficient Al. heat exchanger

Dew point indication

Water-cooled type

Zero air loss level sensor drain v/v

4.3" TFT touch screen

Safety devices / Powerful performance

HYD-150~2500WN



HYD-HTN series

Non cycling type

For High inlet temperature

Flow rate : 0.7~14.2 Nm³/min

Highly efficient Al. heat exchanger

Dew point indication

Zero air loss magnet float drain v/v

Automatic control of after-cooler

Built-in aftercooler & 1~2 air filters

HYD-5~100HTN



HYD-HTNS series

Non cycling type

For High inlet temperature

Flow rate : 0.7~2.7 Nm³/min

Highly efficient Al. heat exchanger

Dew point indication

Zero air loss magnet float drain v/v

Automatic control of after-cooler

Built-in aftercooler & 3 air filters

HYD-5~20HTNS

(Upon request, customized product)



HYD-HT series

Non cycling type

For High inlet temperature

Flow rate : 21~210 Nm³/min

Highly efficient Al. heat exchanger

High Performance

Zero air loss level sensor drain v/v

High inlet & ambient temp.

Large cooling capacity

HYD-5~100HTN

Refrigerated Air Dryer (Customized)



HYD-ID series

Indirect refrigeration system
Cycling type
Flow rate : 21~210 Nm³/min

Highly efficient heat exchanger

Dew point indication
Air/water cooled type
Built-in
Circulation pump & coolant

HYD-150~2500ID



HYD-LP series

Low press. type
Flow rate : 0.5~85Nm³/min

Customized system

Highly efficient heat exchanger
Low differential pressure
Air & gas cooling under 1 barg
Intake air cooling of air comp.

HYD-5~600LP

(Upon request, customized product)



Compressed Air Supply System

All-in-one skid air dryer package
Flow rate : 0.5~85 Nm³/min

Customized system

Basic composition
Ref. air dryer / air filters / bypass piping

Optimized & compact design
Easy installation / Integrated management



Customized Ref. Air Dryer

Outdoor type(IP54)
Stainless steel material type
High pressure type
Marine applications
Special gas type
EPC project

Air & Gas Chiller



HYD-CH Series

1-stage refrigeration system
Above zero point type
Flow rate : 0.5~85 Nm³/min

Outlet temp. control system

Wifi/BT communication
4.3" TFT touch screen
Real time monitoring
Optimized & compact design
Easy installation
(Upon request, customized product)



HYD-CL Series

2-stage refrigeration system
Sub-zero point type

Customized system Max. -70°C outlet temp

RS485 or other communication
TFT touch screen
Real time monitoring
Optimized & compact design

Pre-treatment unit required

After-cooler



HYA Series

Air cooled type
Aluminum fin tube
Flow rate : 1~180 Nm³/min

Eliminating over 80% of the water in compressed air

HYA-20~1200

(Upon request, customized product)



HYA-W Series

Water cooled type
Shell & tube type
Flow rate : 18~180 Nm³/min

Eliminating over 80% of the water in compressed air
Water separator : option.

HYA-100~1200W

(Upon request, customized product)

Desiccant Air Dryer



PHL series

Heatless type
Flow rate : 45~6800 Nm³/hr

Variable cycle control

Solid state controller
Control air filter / Safety valve
Purge pressure indicator
-40°C dew point
Lower dew point : option

PHL-25~4000



POM series

Heatless type with carbon tower
Flow rate : 45~3400 Nm³/hr

Variable cycle control

Solid state controller
Control air filter / Safety valve
Purge pressure indicator
-40°C dew point
Lower dew point : option

POM-25~2000

(Upon request, customized product)



PEH series

Heated purge type
Flow rate : 150~15300 Nm³/hr

Variable cycle control

Solid state controller / PLC
High performance electric heater
Reliable desiccant (AA/MS)
Energy-saving technology
-40°C dew point
(Upon request, customized product)

PEH-100~9000



PEHB series

Heated blower purge type
Flow rate : 255~15300 Nm³/min

Variable cycle control

PLC & touch screen
High performance electric heater
Reliable blower motor / valves
Reliable desiccant (AA/MS)
Energy-saving technology / -40°C dew point
(Lower dew point : option)

PEHB-150~9000



ZEHB/ZEHC series

Zero purge loss type
Ambient air cooling (ZEHB)
Water cooling (ZEHC)
Flow rate : 730~11890 Nm³/hr

PLC & touch screen

High performance electric heater
Reliable blower motor / valves
Reliable desiccant (AA/MS)
Energy-saving technology
(Lower dew point : option)

ZEHB(C)-430~7000



Combination Air Dryer

Desiccant air dryer combined
with a ref. air dryer
Flow rate : 45~3400 Nm³/hr

Extreme performance
Maximum energy efficiency
Low maintenance costs
Optimized & compact design
Easy installation



Compressed Air Supply System

All-in-one skid for air dryer package
Flow rate : 45~3400 Nm³/hr

Customized system

Basic composition
Desiccant air dryer / air filters / bypass piping

Optimized & compact design
Easy installation
Integrated management



Customized Desiccant Air Dryer

Outdoor type (IP54)
Stainless steel material type
High pressure type
Marine applications
Various design code
KS / ASME / DOSH / GOST / JIS

EPC project

Gas Generator / Gas Purifier / Gas Dryer



Nitrogen Generators

PSA type
Low(95%)~high(99.999%) purity
Max. 2000 Nm³/hr

Variable cycle control

Solid state controller / PLC
Reliable valves & CMS
Basic components :
(Nitrogen generators / filters / float flow meter / pressure regulator / receiver tank)



Oxygen Generators

PSA & VSA type
90%~95% purity / Max. 2500 Nm³/hr

Variable cycle control

Solid state controller / PLC
Reliable valves & ZMS
Basic components :
(Oxygen generators / filters / float flow meter / pressure regulator / receiver tank / air blower / vacuum pump)



Gas Purifiers

- H₂ purifier • He purifier
- N₂ purifier • O₂ purifier
- Ar purifier

Impurities gas removal up to
10 ppb from 10 ppm

High reliability and performance
Explosion / weather proof
Various design code
KS / ASME / DOSH / GOST / JIS



Gas Recovery & Purification equipment

- CO recovery & purification
- CO₂ recovery & purification
- CH₄ recovery & purification

environmentally friendly technology

High reliability and performance
Low operating cost
Various design code
KS / ASME / DOSH / GOST / JIS



Gas Dryer

- C₂H₄ gas dryer
- CnH_(2n+2) gas dryer
- CO₂ gas dryer
- Other gas dryer

Customized engineering

High reliability and performance
Low operating cost
Compact & optimized design
Various design code
KS / ASME / DOSH / GOST / JIS



Gas Liquefiers

- CO₂ liquefier
- Other gas liquefiers

Customized system

High reliability and performance
Low operating cost
Optimized design
Various design code
KS / ASME / DOSH / GOST / JIS



Gas Dryer (special)

H₂ deoxidization equipment
Gas dehumidifier

Customized engineering

Explosion / weather proof
High reliability and performance
Low operating cost
Optimized design
Various design code
KS / ASME / DOSH / GOST / JIS



Breathing Air Systems

All-in-one skid package
CO₂ below 1 ppm
CO below 1 ppm

High reliability and performance
Basic components :
(Ref. air dryer / desiccant air dryer / catalyst tower / filters)
Low operating cost
Various design code
KS / ASME / DOSH / GOST / JIS

Membrane Dryer / Other equipment



PMD series

Membrane air dryer
Flow rate : 135~600 LPM

Variable purge volume control environmentally friendly dryer
All Aluminum material
High performance hollow fiber
Easy expansion / Easy maintenance
Long operating life
Small installation space
Easy & short installation time

PMD-135 ~ 600



HYF-AN series

Compressed air filters
Flow rate : 1~14 Nm³/min

Differ. Pressure indicator
All ALDC material
High performance element
Easy maintenance
Long operating life
Compact design / lightweight
Small installation space

HYF-15~50AN



HYF-A series

Compressed air filters
Flow rate : 26~504 Nm³/min

Inlet/outlet Pressure gauge
Stainless or carbon steel
High performance element
Long operating life
Pressure vessel
Various design code
KS / ASME / DOSH / GOST / JIS

HYF-65~300A



HYE-N series

Element cartridge for filter
Particulate / coalescing type

Easy replacement
High quality element
High efficiency multilayers
Long operating life
40/5 μ m particulate element
1/0.0/0.01/0.01F coalescing element

HYE-15~50N



GS series

Air & gas receiver tank
Design pressure : 9.7 barg
Volume : 0.3~20 m³

Pressure gauge
Safety valve
Stainless or carbon steel
Pressure vessel
Various design code
KS / ASME / DOSH / GOST / JIS

GS-003A ~ 20
(Upon request, customized product)



Condensate drain trap

Zero air loss float type
Electronic timer type
Zero air loss level sensor type

- Magnetic float drain
- HAD-10 / 20 auto drain
- HAD-100 power drain
- EDV-15/40T timer drain
- DM series level sensor drain

Easy maintenance
Long operating life
Higher resistance to foreign matter



DPI Series

Differ. pressure indicator
Max. operating press. : 16 barg
Measuring range : 0 ~ 0.9 bar



Differential pressure indicator is designed to indicate pressure drop across the filter element in compressed air system.

HDI 30 / HDI 50



Adsorbent

Activated alumina
Carbon molecular sieve
Zeolite molecular sieve(3A/4A/5A/13X)

Long life
High crush strength
High adsorptive capacity
Low abrasion

Customer Satisfaction

Our Customers are our priority and we provide them with first class products and service in a timely manner and listen to their needs attentively. We achieve our excellence through tireless effort of our staff that we support enthusiastically.

Quality Assurance

GSA provides high-quality products to serve our customers to keep their production optimal at all time and at the lowest operating cost. Standards and policies are used to ensure and maximize the quality of all our products. GSA periodically reviews quality issues and adjusts its programs and processes to ensure continuous quality improvement.

Reliability

Our aim is to achieve ZERO (0) defect for all of our products at all time. Defects are caused because of flaws in the process or work activity. As such, we are doing our best effort to create and design processes to literally eliminate defects. Our Quest for Zero Defects leads reliability for our products from our customers in the market.

Flexibility

We adopt maximum flexibility not only for production but also for design and manufacturing of our products. For example, we are not hesitated to lower the height or width of products to be put into container helping our customers save big charge of transportation or sea freight of the order products.



Timely Delivery

To ensure proper execution of production in the right time and on time delivery/shipment, our production planners distribute line wise production from buyer order list and set production target. At the same time, we exercise the greatest flexibility for meeting urgent special delivery orders.

Reasonable Price

We do all in our power to keep reasonable price of our products by introducing economies in the manufacturing process without lowering standards, and by buying our materials in greater bulk. These economies have enabled us to keep our increase below those of our competitors.



Air/Gas Dryer

GSA leads the compressed air processing equipment industry. The following items are designed and manufactured by us: Refrigerated dryers (cycling, noncycling, high temperature, filter-in), adsorption dryers (non-heating, heating, compression heat, zero purge gas type), membrane dryers, natural gas dryers, and breathing dryers are customized and manufactured according to customers' orders.



Gas Generator/Purifier

GSA leads the gas generators and refineries industry. The following items are designed and manufactured by us: PSA-type nitrogen generators, oxygen generators, hydrogen purifiers, argon/carbon monoxide/carbon/methane recovery purification plants, and other various gas separation and purification plants are custom-made.



Air/Gas chiller

GSA designs and manufactures special purpose air/gas chiller. GSA's air-cooled and water-cooled chiller boasts excellent efficiency and convenient control by employing the latest heat exchanger, solder evaporator, and microchannel type condenser. It's also easy to install, so you can experience significant savings over traditional chiller.

