

# Compressed Air Treatment Products Gas Generators & Purifiers

Product Catalog

*Global Standard Air & Gas*



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

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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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# HYD-N

Refrigerated air dryer(Non-cycling)

## OPTION



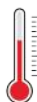
### DESIGN DATA

Fluid : Compressed Air

Dew Point : 2~10°C @ PDP



Inlet Pressure 7barg  
Design Pressure 14barg

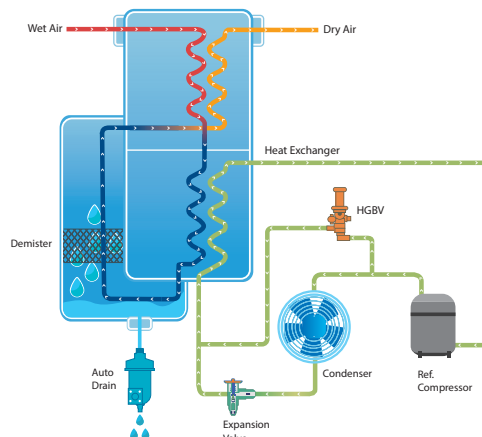


Inlet Temperature 38°C  
Ambient Temperature 32°C

### PRODUCT IMAGE



### FLOW DIAGRAM



## Technical Specification

Model	Connection	Air compressor	Flow rate	Power consumption	Power supply	Dimension (mm)			Weight
	A	HP	Nm <sup>3</sup> /min	kW	V / Ph / Hz	A	B	C	kg
5N	PT 15A	5	0.5	0.3	220 / 1 / 60	247	557	723	36
7N	PT 15A	7	0.8	0.31		247	557	723	36
10N	PT 20A	10	1	0.32		247	557	723	36
15N	PT 25A	15	1.5	0.48		427	507	709	45
20N	PT 25A	20	2.6	0.56		427	507	709	45
30N	PT 25A	30	3.9	0.9		358	658	864	66
50N	PT 40A	50	6.7	1.4	380 / 3 / 60 440 / 3 / 60	408	708	952	89
75N	PT 50A	75	10.5	2.1		458	798	1045	120
100N	PT 50A	100	14.2	2.3		458	858	1145	126
150(W)N	PT 65A	150	21(22.5)	2.9(2.5)		565	1005	1330	172(170)
200(W)N	FLG. 80A	200	30(32.1)	4.18(3.78)		550	1200	1447	240(230)
250(W)N	FLG. 100A	250	39(41.7)	4.4(4)		700	1200	1580	260(250)
300(W)N	FLG. 100A	300	47(50.3)	4.6(4.2)		700	1200	1580	270(26W0)
400(W)N	FLG. 100A	400	56(59)	9.7(8.9)		800	1591	1915	600(500)
500(W)N	FLG. 150A	500	66(70.6)	11.7(10.9)		1200	1800	1830	940(780)
600(W)N	FLG. 150A	600	85(91)	12.7(11.9)		1200	1800	1830	1100(780)
800(W)N	FLG. 200A	800	120	20(18.5)		1500	1900	2150	1200(950)
900(W)N	FLG. 200A	900	140	25.45(23.2)		1500	1900	2000	1250(1,010)
1200(W)N	FLG. 200A	1200	180	30.15(27.9)		2000	1900	2150	1400(1,300)

## References

- The numbers in parentheses ( ) are specifications for water-cooled products.
- Air-cooled products over 800 N are basically external condenser type.
- R-134a, R-22 refrigerants are used as a standard. R-407c and others are optional.
- The flow rate is based on 60 Hz and can be custom-made if the electrical specifications are different.
- Custom-made over 15barg.
- Models larger than this table are also available and the specification can be changed without notice to improve quality.

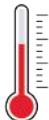
### FACTOR

Inlet Pressure



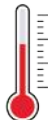
Press	Factor
4	0.84
5	0.9
6	0.95
7	1
8	1.03
9	1.06
10	1.09

Inlet Temperature



Temp	Factor
28	1.46
33	1.20
38	1.00
43	0.85
48	0.73
53	0.63
58	0.55
63	0.48
68	0.42
70	0.40

Ambient Temperature



Temp	Factor
27	1.05
32	1.00
37	0.92
40	0.82
45	0.76
50	0.69

### CHARACTERISTICS

- High Efficiency Aluminum Heat Exchanger
- Simple and smart controller
- Efficient separation technology of condensate
- Reliable drain trap with no compressed air loss
- Low differential pressure minimizing compressed air loss
- Maximize efficiency by using high-efficiency condenser

### DIMENSION





# HYD-N2

Eco-pro refrigerated air dryer(Cycling)

## DESIGN DATA

Fluid : Compressed Air  
Dew Point : 2~10°C @ PDP

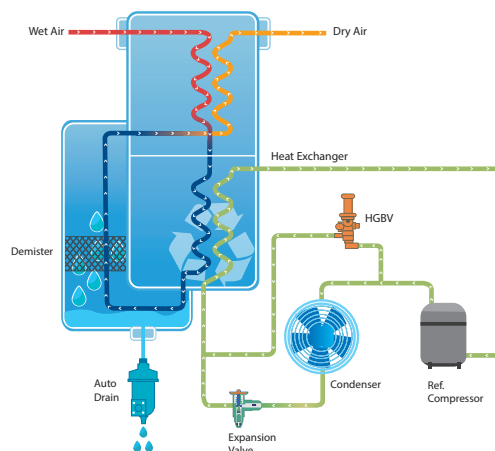
Inlet Pressure: 7barg  
Design Pressure: 14barg

Inlet Temperature: 38°C  
Ambient Temperature: 32°C  
Design Temperature: 70°C

## PRODUCT IMAGE



## FLOW DIAGRAM



## OPTION



## Technical Specification

Model	Capacity	Air compressor	Flow rate	Min. power consumption	Power supply	Dimension (mm)			Weight
	A	HP	Nm <sup>3</sup> /min	kW	V / Ph / Hz	A	B	C	kg
5N2	PT 15A	5	0.5	0.15	220 / 1 / 60	247	557	723	30
7N2	PT 15A	7	0.8	0.15		247	557	723	30
10N2	PT 20A	10	1	0.16		247	557	723	31
15N2	PT 25A	15	1.5	0.24		427	507	709	45
20N2	PT 25A	20	2.6	0.28		427	507	709	45
30N2	PT 25A	30	3.9	0.45		358	658	864	66
50N2	PT 40A	50	6.7	0.7	380 / 3 / 60 440 / 3 / 60	408	708	952	89
75N2	PT 50A	75	10.5	1.05		458	798	1045	120
100N2	PT 50A	100	14.2	1.15		458	858	1145	126
150N2	PT 65A	150	21	1.45		565	1005	1330	172
200N2	FLG. 80A	200	30	2.09		550	1200	1447	240
250N2	FLG. 100A	250	39	2.2		700	1200	1580	260
300N2	FLG. 100A	300	47	2.3		700	1200	1580	270
400N2	FLG. 100A	400	56	4.85		900	1591	1915	600

## References

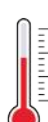
- R-134a, R-22 refrigerants are used as a standard. R-407c and others are optional.
- The flow rate is the capacity at 60 Hz.
- If the electrical specifications are different, it can be custom-made.
- Custom-made over 15barg.
- Water-cooled products and larger models beyond the specifications can also be custom-made.
- Specifications are subject to change without notice to improve quality.

## FACTOR

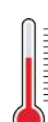
Inlet Pressure Inlet Temperature Ambient Temperature



Press	Factor
4	0.84
5	0.9
6	0.95
7	1
8	1.03
9	1.06
10	1.09
11	1.11
12	1.13



Temp	Factor
28	1.46
33	1.2
38	1
43	0.85
48	0.73
53	0.63
58	0.55
63	0.48
68	0.42



Temp	Factor
27	1.05
32	1
37	0.92
40	0.82
45	0.76
50	0.69

## CHARACTERISTICS

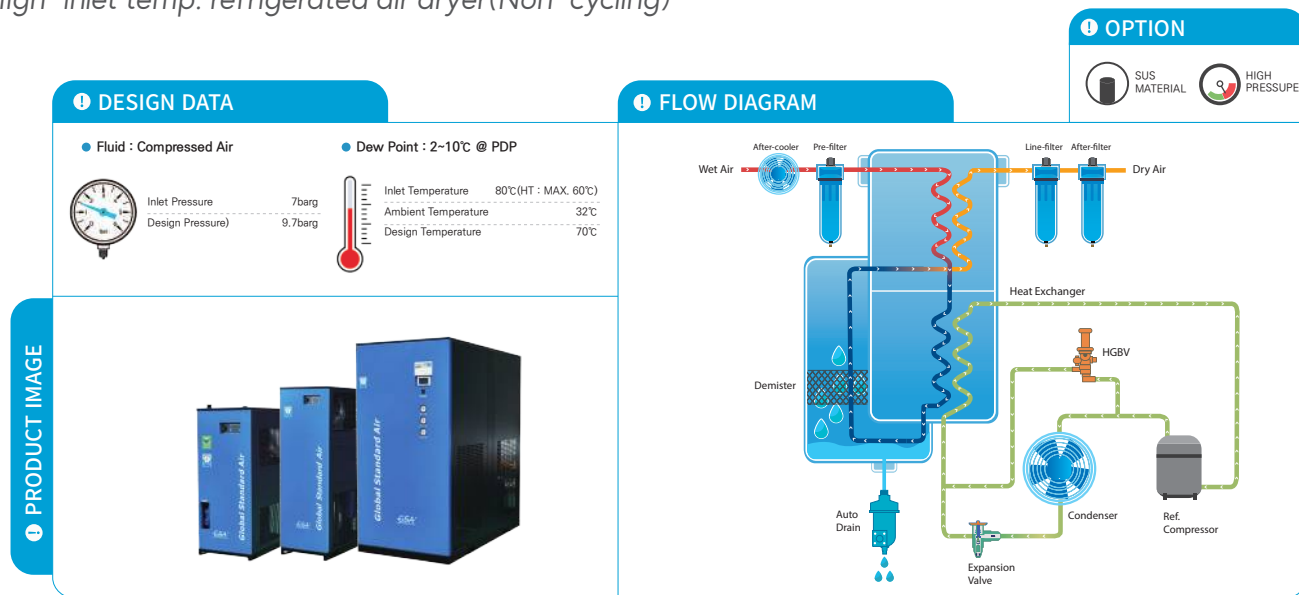
- High Efficiency Aluminum Heat Exchanger
- Simple and smart controller
- Efficient separation technology of condensate
- Reliable drain trap with no compressed air loss
- Low differential pressure minimizing compressed air loss
- Maximize efficiency by using high-efficiency condenser
- Energy saving through dew-point control

## DIMENSION



# HYD-HTN

High-inlet temp. refrigerated air dryer(Non-cycling)

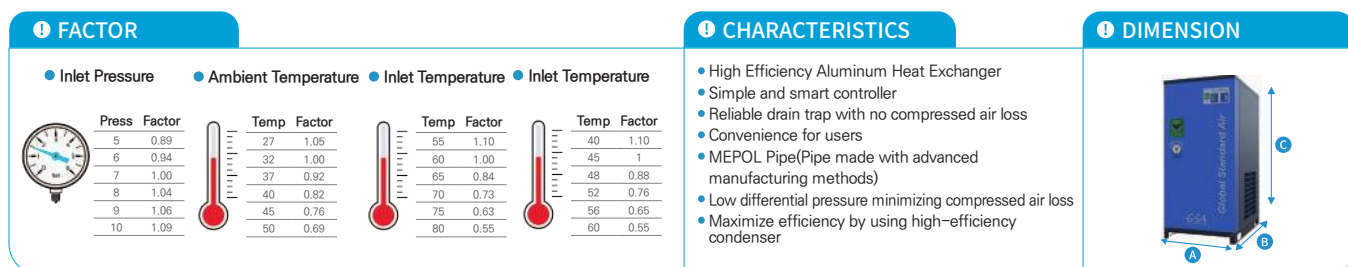


## Technical Specification

Model	Capacity	Flow rate	Built-in filter		Power Consumption	Power supply	Dimension (mm)			Weight
	A	Nm³/min	μm/μm/ppm	Size	kW	V / Ph / Hz	A	B	C	kg
5HTNS	PT 15A	0.7	40/5/1	15A	0.32	220 / 1 / 50, 60	427	644	810	61
7HTNS	PT 15A	1	40/5/1	15A	0.33		427	644	810	61
10HTNS	PT 20A	1.4	40/5/1	20A	0.34		427	644	810	63
15HTNS	PT 25A	1.9	40/5/1	25A	0.5		453	703	1138	79
20HTNS	PT 25A	2.7	40/5/1	25A	0.53		453	703	1138	79
30HTNS	PT 25A	3.9	5/1	25A	0.9		455	875	1262	85
50HTNS	PT 40A	6.7	5/1	40A	1.41		502	1002	1577	167
75HTNS	PT 50A	10.5	5/1	40A	2.07	380 / 3 / 50, 60 440 / 3 / 50, 60	503	1148	1652	232
100HTNS	PT 50A	14.2	5/1	50A	2.41		559	1289	1737	260
150HT(W)	PT 65A	21	N/A	N/A	4.18(3.78)		550	1200	1447	220
200HT(W)	FLG. 80A	30			4.6(4.2)		700	1200	1580	260
250HT(W)	FLG. 100A	39			5.5(5.1)		800	1500	1580	340
300HT(W)	FLG. 100A	47			5.9(5.5)		800	1500	1580	360
400HT(W)	FLG. 100A	56			9.7(8.9)		900	1800	1915	680
500HT(W)	FLG. 150A	66			12.7(11.9)		1200	1800	1825	980
600HT(W)	FLG. 150A	85			14.2(13.4)		1200	2100	1825	1200
800HT(W)	FLG. 200A	120			25.45(23.2)		1500	1900	2150	1250
900HT(W)	FLG. 200A	140			30.15(27.9)		1500	1900	2150	1320
1200HT(W)	FLG. 200A	180			40(37)		2000	1900	2150	1450

## References

- Products over 150HT(W) do not include filters and aftercoolers.
- For 800HT and above, the condenser is external type and the dimensions and weight of the condenser are not included in the data.
- R-134a, R-22 refrigerants are used as a standard. R-407c and others are optional.
- The flow rate is based on 60 Hz and can be custom-made if the electrical specifications are different.
- Products with a design pressure greater than 9.7 barg are custom made.
- Models larger without this table are also available and the specification can be changed without notice to improve quality.



# HYD-CH

Air & Gas chiller

## OPTION



### DESIGN DATA

- Fluid : Compressed Air & Gas



Inlet Pressure 7barg  
Design Pressure 14barg

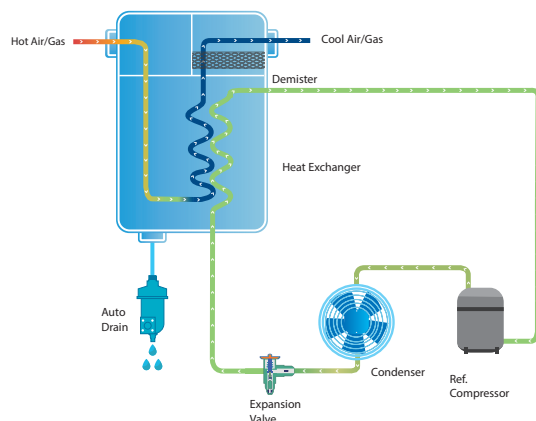


Inlet Temperature 32°C  
Design Temperature 70°C

### PRODUCT IMAGE



### FLOW DIAGRAM



## Technical Specification

Model	Used Fluid	Connection	Flow rate	Power consumption	Power supply	Dimension (mm)			Weight
		A	Nm <sup>3</sup> /min	kW	V / Ph / Hz	A	B	C	kg
HYD	Pressed Air / Nitrogen / Other Gases	PT 15A	0.5	0.32	220 / 1 / 60	245	555	755	32
		PT 15A	0.8	0.33		245	555	755	32
		PT 15A	1	0.34		245	555	755	32
		PT 25A	1.5	0.5		425	505	710	41
		PT 25A	2.6	0.58		425	505	710	41
		PT 25A	3.9	0.91		355	655	865	62
		PT 40A	6.7	1.39	380 / 3 / 60 440 / 3 / 60	405	705	955	83
		PT 50A	10.5	2.05		455	795	1045	115
		PT 50A	14.2	2.34		455	855	1145	120
		PT 65A	21.0	2.89		565	1005	1330	165
		FLG. 80A	30.0	4.18		550	1200	1450	225
		FLG. 100A	39.0	4.4		700	1200	1580	240
		FLG. 100A	47.0	4.6		700	1200	1580	245
		FLG. 100A	56.0	9.7		900	1590	1915	560

## References

- R-134a, R-22 refrigerants are used as a standard. R-407c and others are optional.
- Alternative refrigerant specifications can be made.
- The flow rate is the capacity at 60 Hz.
- If the electrical specifications are different, it can be custom-made.
- It can be custom-made with a pressure of more than 15 barg.
- Custom-made over 15barg.
- Specifications are subject to change without notice to improve quality.

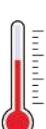
### FACTOR

- Inlet Pressure



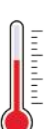
Press	Factor	12	1.13
4	0.84		
5	0.9	13	1.15
6	0.95	14	1.17
7	1	15	1.18
8	1.03		
9	1.06		
10	1.09		
11	1.11		

- Inlet Temperature



Temp	Factor	25	1.2
29	1.1		
32	1		
35	0.87		
38	0.78		
40	0.73		
45	0.63		
50	0.55		
55	0.5		
60	0.45		

- Ambient Temperature



Temp	Factor	27	1.05
32	1		
37	0.92		
40	0.82		
45	0.76		
50	0.69		

### CHARACTERISTICS

- High Efficiency Aluminum Heat Exchanger
- A smart controller incorporating a variety of the latest technologies
- Reliable drain trap with no compressed air loss
- Outlet temperature control function (Option)
- Low differential pressure minimizing compressed air loss
- Maximize efficiency by using high-efficiency condenser

### DIMENSION



### DESIGN DATA

- Fluid : Compressed Air
- Dew Point : 2~10°C @ PDP

Inlet Pressure: 7 barg  
Design Pressure: 9.7 barg

Inlet Temp: 40°C (Max. 60°C)  
Ambient Temperature: 32°C  
Design Temperature: 60°C

### FLOW DIAGRAM

### OPTION

SUS MATERIAL

HIGH PRESSURE

### PRODUCT IMAGE

## Technical Specification

Model	Connection	Flow rate	Built-in filter		Minimum Power	Power supply	Dimension (mm)			Weight
	A	Nm <sup>3</sup> /min	μm/ppm/ppm	Size	kW	V / Ph / Hz	A	B	C	kg
5EP <sup>+</sup>	PT 15A	0.5	5/1/0.1	15A	0.15	220 / 1 / 60	415	603	938	41
7EP <sup>+</sup>	PT 15A	0.8	5/1/0.1	15A	0.15		415	603	938	41
10EP <sup>+</sup>	PT 20A	1	5/1/0.1	20A	0.16		415	603	938	41
15EP <sup>+</sup>	PT 25A	1.5	5/1/0.1	25A	0.24		427	830	992	50
20EP <sup>+</sup>	PT 25A	2.6	5/1/0.1	25A	0.28		427	830	992	50
30EP <sup>+</sup>	PT 25A	3.9	5/1	25A	0.45		455	875	1038	76
50EP <sup>+</sup>	PT 40A	6.7	5/1	40A	0.70		532	1029	1144	99
75EP <sup>+</sup>	PT 50A	10.5	5/1	40A	1.05	380 / 3 / 60	532	1200	1247	135
100EP <sup>+</sup>	PT 50A	14.2	5/1	50A	1.15		580	1300	1393	141

## References

- R-134a, R-22 refrigerants are used as a standard. R-407c and others are optional.
- Alternative refrigerant specifications can be made.
- The flow rate is the capacity at 60 Hz.
- If the electrical specifications are different, it can be custom-made.
- Products with a pressure of 9.8 barg or higher can be custommade.
- Larger models beyond the specifications are also available.
- Specifications may be changed without notice to improve quality

### FACTOR

Inlet Pressure

Press	Factor
5	0.89
6	0.94
7	1.00
8	1.04
9	1.06
10	1.09

Inlet Temperature

Temp	Factor
38	1.10
40	1.00
43	0.88
48	0.76
52	0.65
56	0.57
60	0.51

Ambient Temperature

Temp	Factor
27	1.05
32	1.00
37	0.92
40	0.82
45	0.76
50	0.69

### CHARACTERISTICS


- High Efficiency Aluminum Heat Exchanger
- A simple and smart controller
- Reliable drain trap with no compressed air loss
- Convenience for users
- MEPOL Pipe(Pipe made with advanced manufacturing methods)
- Low differential pressure minimizing compressed air loss
- Maximize efficiency by using high-efficiency condenser

### DIMENSION




### DESIGN DATA

- Fluid : Compressed Air
- Dew Point : -40°C @ ATM

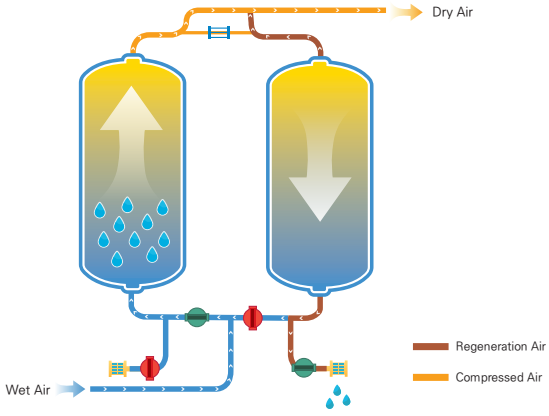


Inlet Pressure: 7barg  
Design Pressure: 9.7barg  
Differential Pressure: 0.2bar



Inlet Temperature: 38°C  
Ambient Temperature: 32°C



### FLOW DIAGRAM





Wet Air → Dry Air


Regeneration Air (Brown line)  
Compressed Air (Orange line)

### OPTION

 DEW POINT METER  
 SUS MATERIAL

 OVER SIZE  
 HIGH PRESSURE

### PRODUCT IMAGE



## Technical Specification


Model		Connection	Flow rate	Power consumption	Power supply	Dimension (mm)			Amount of adsorbent	Weight
		A	Nm³/h	W	V / Ph / Hz	A	B	C	Kg/2Tower	kg
S H L	5	15A	10	50	220 / 1 / 60	500	225	745	3	23
	10	15A	20			500	225	745	4	27
	15	15A	25			500	225	745	7	36
	20	15A	35			500	225	745	10	46
P H L	25	20A	45			840	305	1010	15	102
	35	20A	60			840	305	1240	20	123
	50	20A	85			840	305	1535	25	136
	75	20A	130			1150	435	1665	40	160
	100	25A	170			1150	435	1760	50	250
	125	25A	215			1150	435	1760	60	260
	150	25A	255			1150	435	1760	65	272
	175	40A	300			1150	485	1760	75	284
	200	40A	340			1150	485	1865	90	306
	250	40A	425			1270	550	1865	125	405
	350	40A	595			1270	585	1820	175	473
	500	50A	870			1400	670	2090	250	650
	650	50A	1110			1400	745	2220	325	720
	800	65A	1360			1500	1100	2600	400	900
	1000	80A	1700			1500	1100	2610	500	1125
	1200	80A	2040			2095	940	2390	595	1305
	1400	80A	2380			2095	940	2610	700	1575
	1600	100A	2720			2590	1000	2730	800	1755
	1800	100A	3060			2590	1000	2730	860	2205
	2000	100A	3400			2590	1110	2810	1000	2340

## References

- Even under -40°C dew point units can be custom-made.
- ASME or standards other than KS can be custom-made.
- Products with a design pressure of 9.8 barg or higher are custom-made.
- Customized-engineering products without this table are also available.
- Specifications are subject to change without notice to improve product performance and quality.


### FACTOR

● Inlet Pressure



Press	Factor
5	0.80
6	0.90
7	1.00
8	1.10
9	1.27
10	1.32

● Inlet Temperature

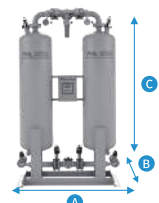


Temp	Factor
27	1.14
32	1.12
38	1.00
43	0.75
49	0.65

### CHARACTERISTICS


- Controllers capable of controlling process time
- Easy maintenance through manual operation of controller that can control process time
- Use high-quality adsorbent with the proven performance of air filter/safety valve for control
- Use high-quality automatic valves with proven performance
- Minimize noise with high-quality silencers
- Up to -100°C low dew point available(optional)

### DIMENSION




### DESIGN DATA

- Fluid : Compressed Air
- Dew Point : -40 °C @ ATM

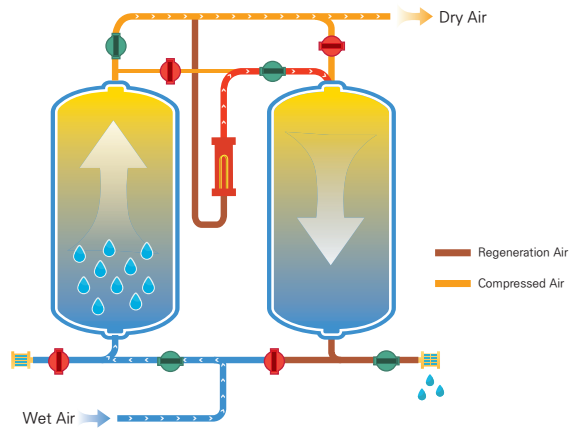


Inlet Pressure 7 barg  
Design Pressure 9.7 barg  
Differential Pressure 0.2 bar



Inlet Temperature 38°C  
Design Temperature 250°C

### FLOW DIAGRAM



Wet Air → Dry Air


Regeneration Air

Compressed Air

### OPTION

- DEW POINT METER
- OVER SIZE
- SUS MATERIAL
- HIGH PRESSURE

### PRODUCT IMAGE



## Technical Specification


Model	Connection	Flow rate	Heater	Power supply	Dimension (mm)			Amount of adsorbent	Weight
	A	Nm³/hr	kW	V / Ph / Hz	A	B	C	kg/2Tower	kg
100	FLG. 25A	150	2.1	380 / 3 / 60	870	870	1930	90	300
150	FLG. 40A	250	2.4		970	970	1870	110	350
200	FLG. 40A	370	4		970	900	1970	170	700
285	FLG. 40A	495	4.5		1150	1050	2220	210	750
350	FLG. 50A	660	6		1150	1050	2520	280	900
430	FLG. 50A	87	8.4		1150	1000	2550	390	1000
560	FLG. 65A	1050	9		1450	1200	2600	460	1300
720	FLG. 65A	1380	10.8		1450	1200	2705	520	1500
900	FLG. 80A	1680	13.5		1450	1200	2710	700	1800
1100	FLG. 80A	1950	15		1600	1400	2750	860	2200
1350	FLG. 80A	2280	18		1700	1400	2730	1000	2600
1550	FLG. 100A	2950	28.8		1900	1400	2805	1050	3000
2100	FLG. 100A	3700	33		2500	1400	2910	1560	4200
3000	FLG. 150A	5400	44		2500	2000	3110	2100	5200
4100	FLG. 150A	6600	56		3000	2000	3150	2900	6000
4500	FLG. 150A	7500	62		3000	2000	3150	3200	6300
5400	FLG. 150A	8500	70		3200	2000	3150	3780	6800
6000	FLG. 200A	10500	85		4600	2130	3150	4200	7500
7000	FLG. 200A	12000	100		4600	2130	3150	4900	9000
9000	FLG. 250A	15000	110		5000	2500	3150	6400	10000

## References


- Even under - 40°C dew point units can be custom-made.
- ASME or standards other than KS can be custom-made.
- Products with a design pressure of 9.8 barg or higher are custom-made.
- Customized-engineering products without this table are also available.
- Specifications are subject to change without notice to improve product performance and quality.

### FACTOR

- Inlet Pressure
- Inlet Temperature



Press	Factor
4	0.60
5	0.75
6	0.87
7	1.00
8	1.16
9	1.24

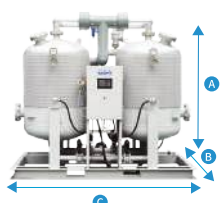


Temp	Factor
27	1.14
32	1.12
38	1.00
43	0.75
49	0.65

### CHARACTERISTICS


- Using the pan/dual check Valve
- Control air filter
- Minimize purge air loss
- Safety valve
- High-quality pressure gauges are applied
- PLC and touch panel
- Use of high-quality adsorbent
- Parker pneumatic solenoid valve
- High-quality silencer attachment
- Reliable automatic valve
- An electric heater
- Efficient compressed air distribution system

### DIMENSION




### DESIGN DATA

- Fluid : Compressed Air
- Dew Point : -40 °C @ ATM

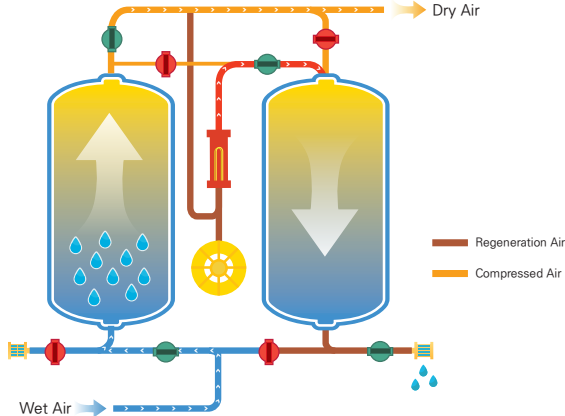


Inlet Pressure 7 barg  
Design Pressure 9.7 barg  
Differential Pressure 0.2 bar



Inlet Temperature 38 °C  
Design Temperature 250 °C

### FLOW DIAGRAM



Wet Air → Dry Air


Regeneration Air

Compressed Air

### OPTION

- DEW POINT METER
- OVER SIZE
- SUS. MATERIAL
- HIGH PRESSURE

### PRODUCT IMAGE



## Technical Specification


Model	Connection	Flow rate	Heater	Blower	Power supply	Dimension (mm)			Amount of absorbent	Weight
	A	Nm <sup>3</sup> /hr	kW	kW	V / Ph / Hz	A	B	C	kg/2Tower	kg
150	FLG. 40A	255	2.4	1.5	380 / 3 / 60	1070	900	2400	110	500
200	FLG. 40A	370	3.6	1.9		1150	900	2400	170	650
285	FLG. 40A	485	4	2.2		1150	1000	2450	210	900
350	FLG. 50A	595	6	2.2		1260	1000	2460	280	1000
430	FLG. 50A	735	7.5	2.5		1350	1100	2460	390	1200
560	FLG. 65A	952	9	3		1450	1400	2430	460	1500
720	FLG. 65A	1225	11	3.5		2000	1600	2450	520	1800
900	FLG. 80A	1530	13	4.6		2200	1700	2550	700	2000
1100	FLG. 80A	1870	15	5.5		2400	1800	2550	860	2400
1350	FLG. 80A	2295	18	6		2400	190	2550	1000	2900
1550	FLG. 100A	2635	30	7.5		2450	1900	3000	1050	3400
2100	FLG. 100A	3570	33	9		2800	2200	3000	1560	4000
3000	FLG. 150A	5100	46	13		3100	2200	3000	2100	4800
4100	FLG. 150A	6965	56	15		3200	2300	3000	2900	6000
4500	FLG. 150A	7645	62	15		3200	2400	3000	3200	6500
5400	FLG. 150A	9175	70	20		3200	2500	3000	3780	7300
6000	FLG. 200A	10195	85	22		3400	2500	3000	4200	8100
7000	FLG. 200A	11895	100	27		3600	2500	3000	4900	10300
9000	FLG. 250A	15290	110	30		4000	3000	3000	6400	12300

## References


- Even under - 40°C dew point units can be custom-made.
- ASME or standards other than KS can be custom-made.
- Products with a design pressure of 9.8 barg or higher are custom-made.
- Customized-engineering products without this table are also available.
- Specifications are subject to change without notice to improve product performance and quality.

### FACTOR

- Inlet Pressure
- Inlet Temperature



Press	Factor
4	0.6
5	0.75
6	0.87
7	1.00
8	1.16
9	1.24




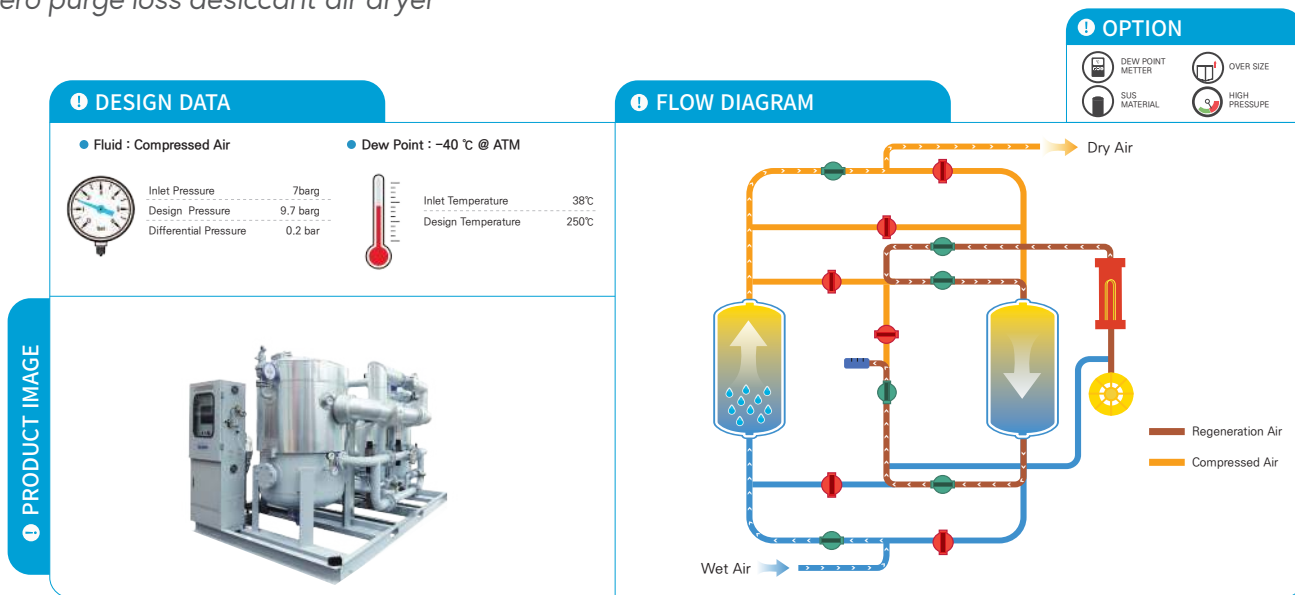
Temp	Factor
27	1.14
32	1.12
38	1.00
43	0.75
49	0.65

### CHARACTERISTICS

- Using the pan/dual check valve
- Control air filter
- Minimize purge air loss
- Safety valve
- Use of high-quality adsorbent
- Using a high-quality pressure/temperature gauge
- PLC and touch panel
- Electric heater
- High-quality ring blower
- High-quality silencer attachment
- Reliable automatic valve
- Efficient compressed air distribution system
- Parker pneumatic solenoid valve

### DIMENSION





PRODUCT IMAGE

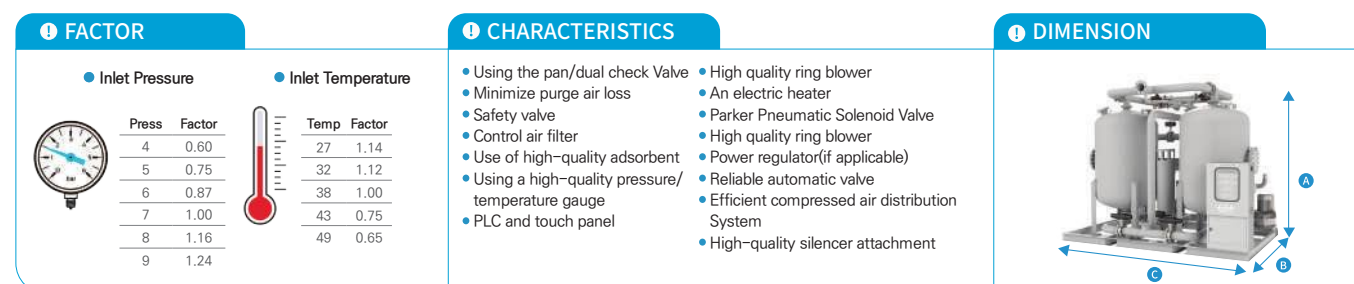


## Technical Specification

Model		Conneciton	Flow rate	Air compressor	Heater	Blower	Power supply	Dimension (mm)			Amount of absorbent	Weight
		A	Nm³/hr	HP	kW	kW	V / Ph / Hz	A	B	C	kg/2Tower	kg
Z E H B	430	FLG. 40A	680	75	8.5	1.5	220V/380V 440V  1Ph  50/60Hz	1900	900	2030	324	1440
	560	FLG. 50A	890	100	11.0	1.75		2100	1000	2230	406	1700
	720	FLG. 50A	1140	130	14.0	2.55		2100	1000	2230	474	2060
	900	FLG. 65A	1430	150	17.5	2.55		2600	1250	2400	592	2200
	1100	FLG. 65A	1740	175	21.5	4.5		2600	1250	2400	755	2470
	1350	FLG. 80A	2140	200	26.5	4.5		2600	1670	2330	943	2690
	1550	FLG. 80A	2450	250	30.0	4.5		2600	1710	2330	1,022	3100
	2100	FLG. 100A	3320	300	41.0	8.6		3100	1650	2445	1,384	4090
	2600	FLG. 100A	4120	400	50.5	8.6		3400	1970	2290	1,848	4700
	3000	FLG. 125A	4750	500	58.5	12.6		3550	1970	2290	1,980	5860
	3400	FLG. 125A	5380	600	66.0	12.6		3650	2140	2530	2,272	7400
	4100	FLG. 125A	6490	700	80.0	15.3		3650	2180	2530	2,707	8200
	4500	FLG. 150A	7120	800	87.5	22.7		5700	2100	2960	3,055	9600
	5400	FLG. 150A	8550	900	105.0	22.7		5700	2100	2960	3,566	11400
	6000	FLG. 150A	9500	1000	117.0	22.7		6000	2150	3000	4,052	12300
	7000	FLG. 200A	11080	1200	136.0	25.2		7000	2200	3500	4,621	13500
	8000	FLG. 200A	12660	1300	155.5	30.6		7000	2500	3700	5,279	14700
	9000	FLG. 200A	14520	1600	1750.0	37.0		7000	2500	3700	5,942	15600

## References

- Even under  $-40^{\circ}\text{C}$  dew point units can be custom-made.
- ASME or standards other than KS can be custom-made.
- Products with a design pressure of 9.8 barg or higher are custom-made.
- Customized-engineering products without this table are also available.
- Specifications are subject to change without notice to improve product performance and quality.



### OPTION



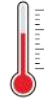
### DESIGN DATA

Fluid : Compressed Air

Dew Point : -20°C @ ATM



Inlet Pressure 7barg  
Design Pressure 9.7barg  
Differential Pressure 0.2bar

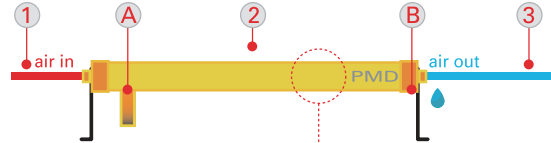


Inlet Temperature 25°C ~ 30°C  
Max. Inlet Temperature 60°C  
Purge Flow Rate 10% ~ 20%

### PRODUCT IMAGE



### FLOW DIAGRAM



Moist compressed air passes through the hollow fiber module, allowing fast diffusion and rapid passage of moisture to escape from the hollow fiber, removing moisture from the compressed air and discharging it through the silencer with purge air

Moisture - Hydrogen - Helium - Carbon dioxide - Oxygen - Argon - Carbon  
Fast passing speed ← → Slow passing speed

#### Hollow fiber

Made of Polysulfone, a highly functional engineering plastic, with a hollow tube-shaped thin fiber made from polymers.

- ① Wet compressed air is introduced through the inlet cap.
- ② Dry moist compressed air as it passes through the hollow fiber module installed in the housing.
- ③ Drain the dried air through the outlet cap.
- A Part of the dried compressed air (approximately 20%) flows along the hole machined in the outlet cap through the exterior of the hollow installed in the housing and is discharged through the silencer along with the moisture penetrated into the surface of the hollow.
- B You can adjust the purge air volume with the needle valve installed in the outlet cap.

Model	Connection	Air compressor	Flow rate	Dimension (mm)		Weight
	mm			A	B	
PMD-135	15A	1	135	220	75	1.0
PMD-240	15A	2	240	360	75	1.3
PMD-370	15A	3	370	470	75	1.6
PMD-600	15A	5	600	590	75	2.0

1. All specification can be changed to improve the quality without notice.
2. Exceptional models of this brochure are optional.(Package)

### How to control the amount of PDM purge

Refer to the adjustment figure and adjust the six corners of the adjustment valve by rotating them 60 degrees relative to the outlet cap bolt. Refer to the table below for purge flow rates per 60-degree rotation.

Revolution: 0, 1/6, 2/6, 3/6, 4/6, 5/6, 1

Angle of rotation(°): 0, 60, 120, 180, 240, 300, 360

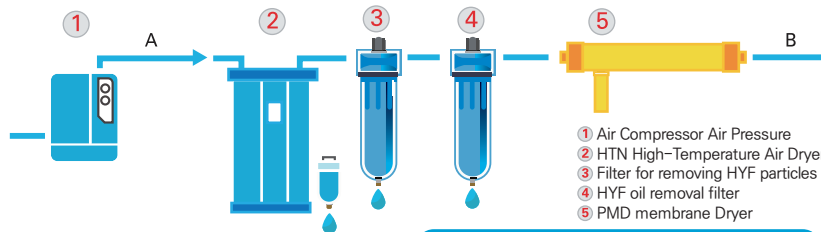
Purge flow rate(LPM): 22, 24, 26, 28, 30, 32, 34

Example) Valve adjustment by the model (20% purge standard)

MODEL	Purge flow rate(LPM)	Angle of rotation(°)
PMD-135	27	180
PMD-240	48	500
PMD-370	74	600
PMD-600	120	840

### PMD Recommendation System

- A Wet compressed air without removing moisture and foreign substances.  
B Clean compressed air with moisture and foreign substances removed.



If the conditions of use are different, the change in the treatment flow rate according to the condition can be multiplied by the number below.

#### Inlet Pressure

Press.	Factor
4.0	0.55
5.5	0.75
7.0	1.00
8.5	1.20
9.5	1.35

\*If the PMD135 model is used, the treatment flow rate is 135l/min when the inlet pressure is 7barg, and if the inlet pressure is 8.5barg, multiply by the calibration factor of 1.2 to calculate the treatment.

### FACTOR

### PMD Recommendations Where to USE

- It operates immediately, making it easy to use
- High-clean dry air can be produced continuously
- It's environmentally friendly
- Installation location restrictions are small
- Energy consumption is low due to low electricity usage
- There is no additional maintenance other than replacing the shear filter
- The highest quality Hosing case was used
- Low stall instrument air
- Pneumatic equipment
- Clean air for lab
- Ultra-precise measurement and analysis equipment
- Medical(Dental use)
- Prevention of Freezing
- Drying of powder
- CDA(Clean Dried Air)

### PMD Features

### DIMENSION





### DESIGN DATA

Fluid : Compressed Air

Inlet Pressure 7 barg

Design Pressure 9.7 barg

Inlet Temperature 60 °C (Max. 80 °C)

Ambient Temperature 2~40 °C

Cooling Water Temperature 32°C

### FLOW DIAGRAM

Aftercooler

Air Compressor

### OPTION

PRODUCT IMAGE

## Technical Specification(Air-cooled)

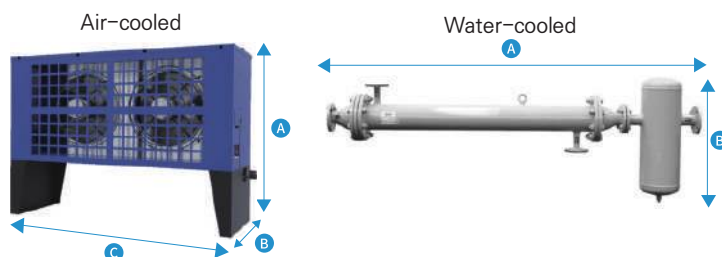
	Model	Connection	Flow rate	Fan Size	Power Consumption	Power supply	Dimension (mm)			Weight
		A	Nm <sup>3</sup> /min	mm	kW	V / Ph / Hz	A	B	C	kg
HYA	20AN	PT 25A	1.0	230 X 1	0.03	220 / 1 / 50, 60	500	230	590	15
	25AN	PT 25A	3.2	230 X 1	0.03		500	230	590	16
	40AN	PT 25A	5.1	300 X 1	0.07		600	300	700	23
	50AN	PT 40A	7.8	250 X 2	0.15		900	370	710	40
	80AN	PT 50A	12.7	300 X 2	0.14		1,030	370	760	46
	100AN	PT 50A	17.5	350 X 2	0.2		1,160	400	810	55
	150A	PT 80A	28.0	450 X 2	0.4	380 / 3 / 50, 60 440 / 3 / 50, 60	1,690	460	1,095	180
	200A	FLG. 100A	41.0	500 X 2	0.4		1,780	425	1,245	210
	300A	FLG. 100A	52.0	550 X 2	0.8		1,880	480	1,360	230
	400A	FLG. 125A	65.0	450 X 4	0.8		1,830	470	1,615	300
	500A	FLG. 150A	75.0	500 X 4	0.8		1,975	475	1,685	350
	600A	FLG. 150A	95.0	550 X 4	1.6		2,075	530	1,840	370

## Technical Specification(Water-cooled)

	Model	Connection	Flow rate	Cooling water connection	Cooling water Flow rate	Dimension (mm)		Weight
		A	Nm <sup>3</sup> /min	A	ℓ /min	A	B	kg
HYA	100W	FLG. 50A	18	FLG. 25A	55	1990	620	142
	200W	FLG. 80A	30	FLG. 32A	105	2220	750	154
	300W	FLG. 100A	36	FLG. 40A	155	2580	750	196
	400W	FLG. 100A	42	FLG. 50A	210	2720	750	266
	500W	FLG. 150A	60	FLG. 65A	270	3060	1000	303
	600W	FLG. 150A	90	FLG. 80A	320	3220	1000	460

## References

- Models bigger than the units in the above table can be custom-made.
- The specifications are subject to changes without notice for product improvement.
- High-pressure or special-purpose models not mentioned in the above table can be custom-made.
- Models other than the units in the above table can be custom-made.



## ! OPTION

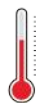


## ! DESIGN DATA

• Fluid : Compressed Air



Inlet Pressure 7 barg  
Design Pressure 9.7 barg  
Differential Pressure 0.2 bar

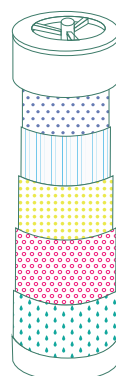


Max. Inlet Temperature 60°C  
Min. Inlet Temperature 5°C

## ! PRODUCT IMAGE



## ! FLOW DIAGRAM



1. Internal Core Layer
2. Filtering Layer
3. Main Layer
4. Coalescing Layer
5. Drain Layer

## Filter Elements

Model	Particle removal	Oil Removal (@ 20°C)	Max operating Temp	Differential Pressure (barg)		Differential pressure indicator (replacement of element)		Elements	
			°C	Dry	Wet	DPI Color	Month	Colour	Material
H Y E	40	40 Micron	65	0.05	0.15	RED	6	White	Polyethylene
	5	5 Micron		0.05	0.15			White	Polyethylene
	1	1 Micron	54	0.15	0.3			Red	Borosilicate
	0.1	1 Micron		0.15	0.3			White	Borosilicate
	0.01	1 Micron		0.15	0.3			Yellow	Borosilicate
	0.003	–		0.1	0.2			White	Activated Carbon

## Filter

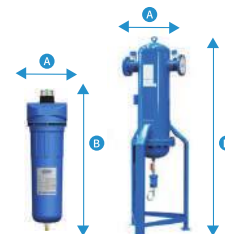
Model	Flow rate		Max Pressure	Connection	Quantity of element	Dimension	Weight
	Nm³/min	CFM					
H Y F	15AN	0.8	13	PT 15A	1	85 x 185	0.8
	20AN	1.7		PT 20A	1	85 x 225	1
	25AN	3.4		PT 25A	1	105 x 330	1.9
	40AN	10		PT 40A	1	165 x 440	5.5
	50AN	14		PT 50A	1	165 x 540	6.5
	65A	28	9.7	FLG. 65A	2	550 x 1143	88
	80A	42		FLG. 80A	3	550 x 1143	103
	100A	70		FLG. 100A	5	600 x 1180	120
	125A	84		FLG. 125A	6	700 x 1251	170
	150A	112		FLG. 150A	8	700 x 1251	180
	200A	196		FLG. 200A	11	1000 x 2367	300
	250A	330		FLG. 250A	19	1200 x 2705	400

## High-pressure filter








Model	Flow rate		Max Pressure	Connection	Quantity of element	Dimension	Weight
	Nm³/min	CFM					
H Y F	15H	1	35.0	PT 15A	1	106 x 340	17
	20H	1.9		PT 20A	1	106 x 390	19
	25H	3.4		PT 25A	1	106 x 510	21
	40H	10		PT 40A	1	144 x 700	25
	50H	14		PT 50A	1	185 x 925	28

## References

- Special pressure or stainless steel is custom made.
- The filter support is a standard for HYF-125A or bigger models.
- HYE – XX – 50A (bolt type) is applied to the element of HYF-65A or higher, and the quantity varies depending on the model, so please check the quantity before ordering.
- Filter nomenclature
  - Filter Model : HYF-40-15AN(filter – filtering rate – connection diameter)
  - Element Model : HYE-40-15AN(Element – filtering rate – Connection Diameter)



**Air Receiver Tank**

DESIGN DATA		CALCULATION FORMULA		OPTION	
<ul style="list-style-type: none"> <li>Fluid : Compressed Air</li> </ul>  Inlet Pressure      7 barg  Design Temperature      100°C		<ul style="list-style-type: none"> <li>Air Receiver Tank Calculation Formula</li> </ul> $V = \frac{P_1}{P_2 - P_3} (Q_1 - Q_2) t$ <p>V Receiver tank capacity m<sup>3</sup>      P<sub>1</sub> Compressor outlet pressure kg/cm<sup>2</sup>(a)</p> <p>t Interval in second to use over flowed compressed air min      P<sub>2</sub> Receiver tank pressure kg/cm<sup>2</sup>(a)</p> <p>Q<sub>1</sub> Required air volume m<sup>3</sup>      P<sub>3</sub> Receiver outlet pressure kg/cm<sup>2</sup>(a)</p> <p>Q<sub>2</sub> Compressor outlet air volume m<sup>3</sup></p>		 DRAIN TRAP  SUS MATERIAL  OVER SIZE  HIGH PRESSURE	
					

## Technical Specification

Model		Capacity	Connction	O.D.	Height (H)	Anchor Hole	Weight
		m³	A	mm	mm	mm	kg
G S	0003A	0.3	25A	609	1,450	16	150
	0005	0.5	40A	660	1,770	16	210
	001	1	50A	916	1,908	16	400
	0015	1.5	50A	1,013	2,246	16	560
	002	2	65A	1,150	2,358	20	832
	0025	2.5	80A	1,284	2,559	20	970
	003	3	80A	1,299	2,720	20	1,300
	0042	4	100A	1,489	2,820	20	1,500
	005	5	100A	1,504	3,437	20	1,750
	0061	6	150A	1,626	3,460	22	2,500
	007	7	150A	1,626	4,078	22	2,700
	008	8	150A	1,606	4,580	22	3,000
	010	10	200A	1,878	4,287	24	3,100
	012	12	200A	1,960	4,657	24	3,800
	013	13	200A	2,134	4,300	24	4,000
	016	16	250A	2,480	4,025	24	5,000

## References

- ASME specifications other than KS specifications can also be custom-made.
- High-pressure products with high design pressure can also be custom-made.
- Customized-engineering products without this table are also available.
- Specifications are subject to change without notice to improve product performance and quality.

## Need for receiver tanks

- Reduce management costs of air compressors by reducing the load and no load cycles of air compressors.
- By temporarily storing hot air discharged from the air compressor and naturally cooling the compressed air, condensate is discharged and the load on the rear end facility is reduced.
- Minimize pressure fluctuations that affect the production process or quality.
- Securing the stability of the production process according to emergency situations.

## Condensate Drain(Drain)

A condensate drain is essential apparatus designed to prevent system failure, extend the life of the equipment and prevent a product defect by periodically discharging condensate which is produced during dehumidification of compressed air.



HAD-10	
Operating Temp.	2 ~ 60℃
Operating Press.	0.5~16barg
Type	Float
Inlet Connection	PT 15A
Outlet Connection	PT 6A
Dimension(mm)	68Φ x 102
Weight	0.1kg



HAD-20	
Operating Temp.	2 ~ 60℃
Operating Press.	0.5~16barg
Type	Float
Inlet Connection	PT 15A
Outlet Connection	PT 6A
Dimension(mm)	84Φ x 184
Weight	0.5kg



HAD-100	
Operating Temp.	2 ~ 60℃
Operating Press.	0.5~16barg
Type	Disk
Inlet Connection	PT 15A
Outlet Connection	PT 15A
Dimension(mm)	86Φ x 175
Weight	0.8kg



EDV-15T	
Operating Temp.	2 ~ 60℃
Operating Press.	0~15barg
Type	Elec. Timer
Inlet Connection	PT 15A
Outlet Connection	PT 15A
Dimension(mm)	95 x 90 x 102
Weight	0.6kg



Drain Master	
Operating Temp.	2 ~ 80℃
Operating Press.	0.8~16barg
Type	Level Sensing
Inlet Connection	PT 15A
Outlet Connection	PT 10A
Dimension(mm)	165 x 80 x 155
Weight	1.3kg

Differential Pressure Indicator



HDI-30

HDI-50

Activated Alumina



Carbon Molecular Sieve

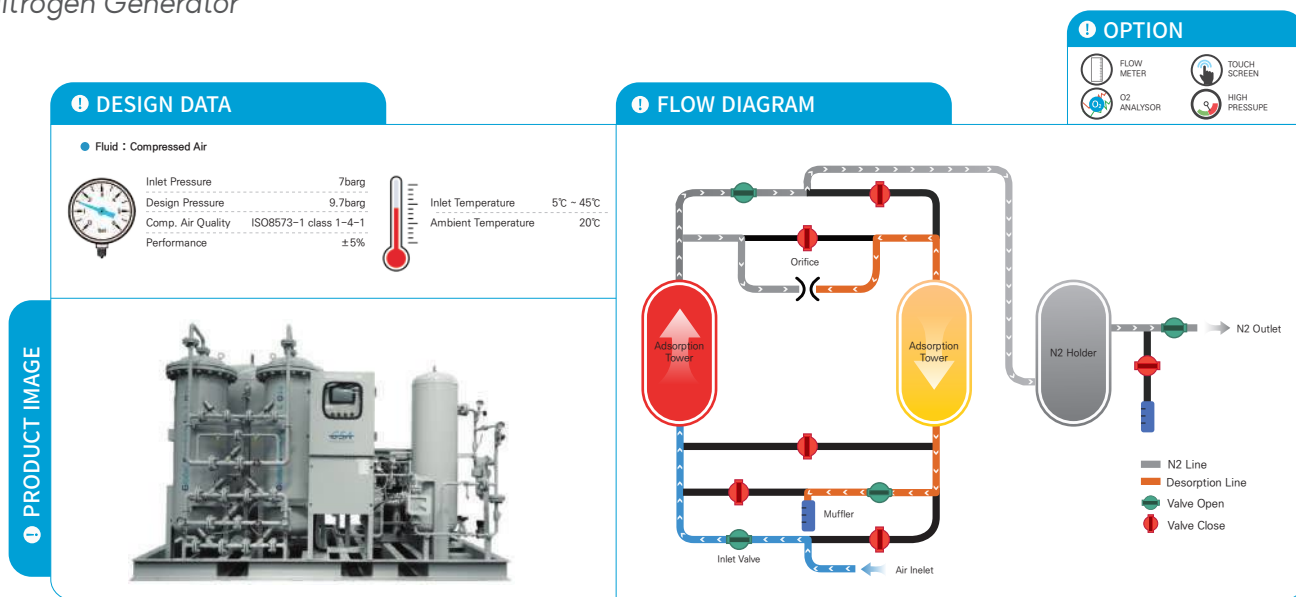


Zeolite Molecular Sieve



# N<sub>2</sub> PSA

## Nitrogen Generator



PRODUCT IMAGE



## Technical Specification

Nitrogen Capacity (Nm <sup>3</sup> /h)														
95% (1.5N)	9.3	16.2	23.6	37.9	55.0	67.4	82.7	100.4	145.8	228.5	301.5	409.3	479.8	648.3
97% (1.7N)	8.6	14.9	21.7	34.9	50.7	62.1	76.1	92.5	134.2	210.4	277.5	376.8	441.7	596.8
98% (1.8N)	8.1	14.2	20.7	33.2	48.3	59.1	72.4	88.0	127.6	200.14	264.0	358.4	420.1	567.7
99% (2N)	7.4	12.9	18.8	30.2	43.9	53.7	65.9	80.0	116.1	182.0	240.1	326.0	382.1	516.3
99.50% (2.5N)	6.7	11.7	17.1	27.5	40.0	48.9	60.0	72.9	105.8	165.8	218.7	297.0	348.1	470.4
99.90% (3N)	5.4	9.5	13.8	22.1	32.2	39.4	48.4	58.7	85.2	133.6	176.3	239.4	280.6	379.1
99.95% (3.5N)	4.6	8.0	11.6	18.6	27.0	33.1	40.6	49.3	71.5	112.2	147.9	200.9	235.5	318.2
99.99% (4N)	3.8	6.7	9.7	15.6	22.7	27.7	34.0	41.3	60.0	94.1	124.1	168.5	197.5	266.8
99.999% (5N)	2.6	4.6	6.7	10.8	15.7	19.2	23.5	28.6	41.5	65.1	85.9	116.6	136.7	184.7

Dimensions (mm)														
L	2,200	2,600	2,800	3,000	3,500	3,600	3,700	3,800	4,100	4,900	5,300	6,000	6,200	6,400
W	1,300	1,450	1,750	2,100	2,300	2,450	2,450	2,550	2,700	3,300	3,600	4,100	4,400	4,600
H	2,050	2,050	2,050	2,100	2,100	2,100	2,300	2,350	2,650	2,700	2,800	3,200	3,250	3,300

Required Compressed Air (Nm <sup>3</sup> /h)														
Capa.	19	33	48	77	112	137	168	204	296	464	612	831	974	1,316

## References

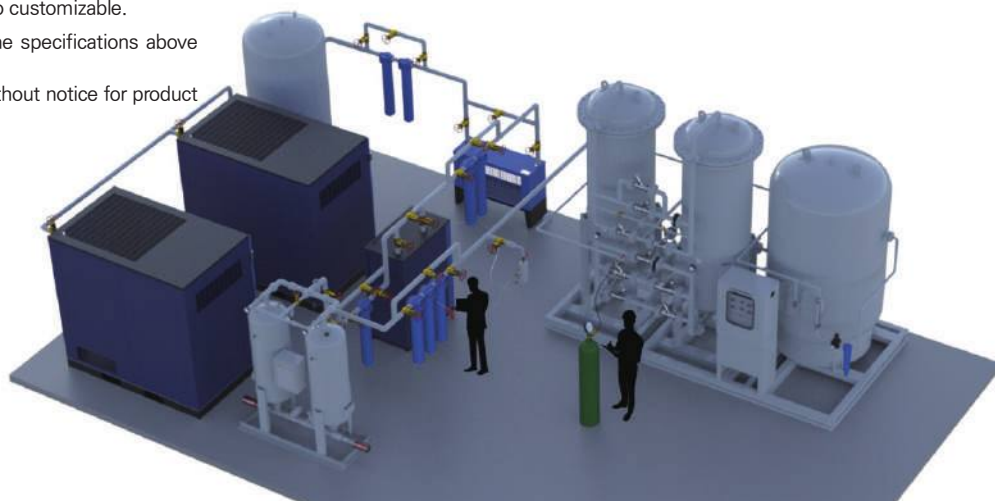
- Models under membrane type as well as PSA are also customizable.
- Models under ASME in addition to KS are also customizable.
- Large models bigger than those stated in the specifications above are also customizable.
- The Specifications are subject to changes without notice for product improvement.

## Nomenclature

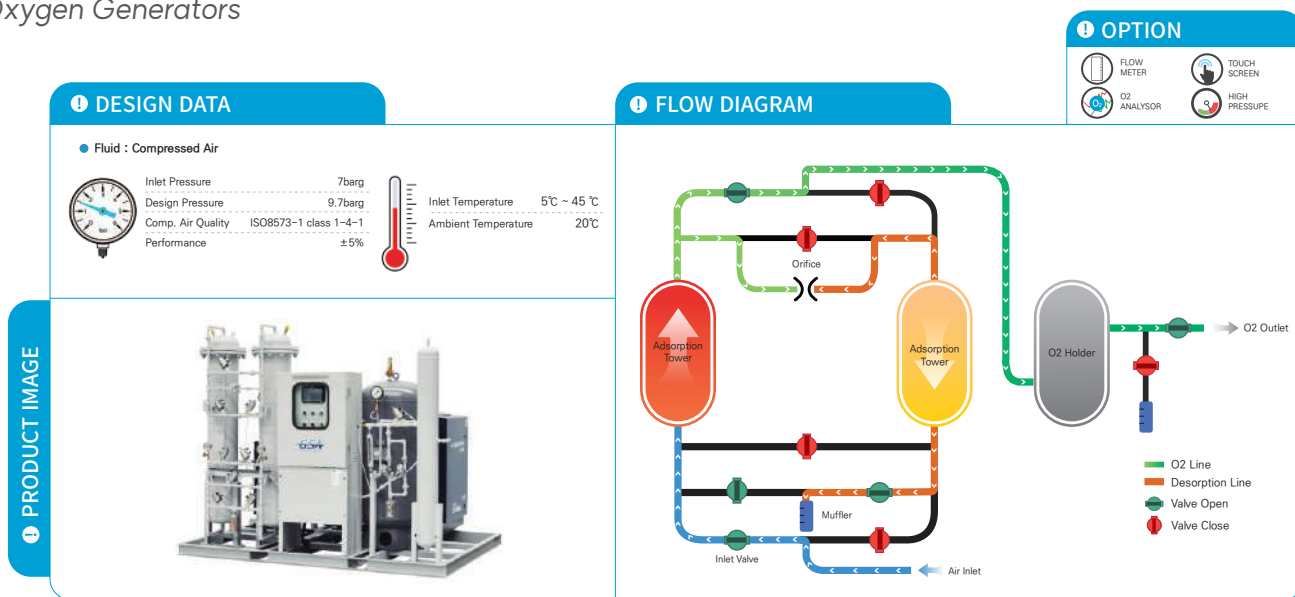
GNG - XX - XXX

Purity

Product Flow Rate







## Technical Specification

Oxygen Capacity (Nm³/h)														
90%	1.7	2.9	4.3	6.8	9.9	12.1	14.9	18.1	26.2	41.1	54.2	73.7	86.3	116.6
93%	1.5	2.7	3.9	6.3	9.1	11.1	13.6	16.6	24.0	37.7	49.7	67.5	79.1	106.9
95%	1.4	2.5	3.6	5.8	8.4	10.3	12.6	15.3	22.2	34.8	46.0	62.4	73.2	98.9
Dimensions (mm)														
L	2,100	2,400	2,650	2,850	3,300	3,400	3,550	3,650	4,000	4,700	5,100	5,800	6,000	6,200
W	1,200	1,350	1,600	1,950	2,150	2,350	2,400	2,500	2,600	3,100	3,500	4,000	4,250	4,500
H	2,000	2,050	2,100	2,100	2,100	2,100	2,200	2,230	2,540	2,600	2,700	3,000	3,150	3,300
Required Compressed Air (Nm³/h)														
Capa.	19	33	48	77	112	137	168	204	296	464	612	831	974	1,316

## Components

Power consumption (kW)														
Air Comp.	4	5.5	7.5	11	15	18	22	27	37	55	75	90	110	150
Ref. Dryer	0.46	0.62	0.68	0.72	1.3	1.3	1.6	1.6	2.1	2.3	3.0	4.6	5.1	8.5
Oxy. Gener.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total	5.46	7.12	9.18	12.72	17.3	20.3	24.6	29.6	40.1	58.3	79.0	95.6	116.1	159.5

## References

- Models under VSA as well as PSA are also customizable.
- Models under ASME in addition to KS are also customizable.
- Large models bigger than those stated in the specification above are also customizable.
- The specifications are subject to changes without notice for product improvement.

## Nomenclature

GOG - XX - XXX

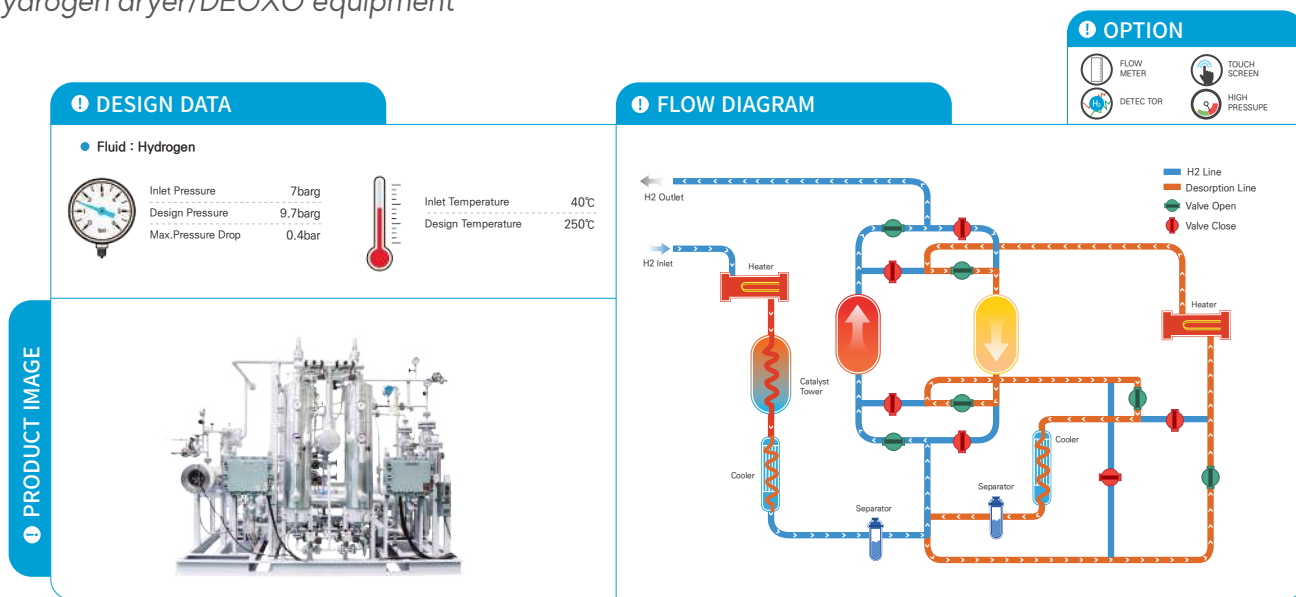
Purity

Product Flow Rate



# H<sub>2</sub> Dryer

Hydrogen dryer/DEOXO equipment

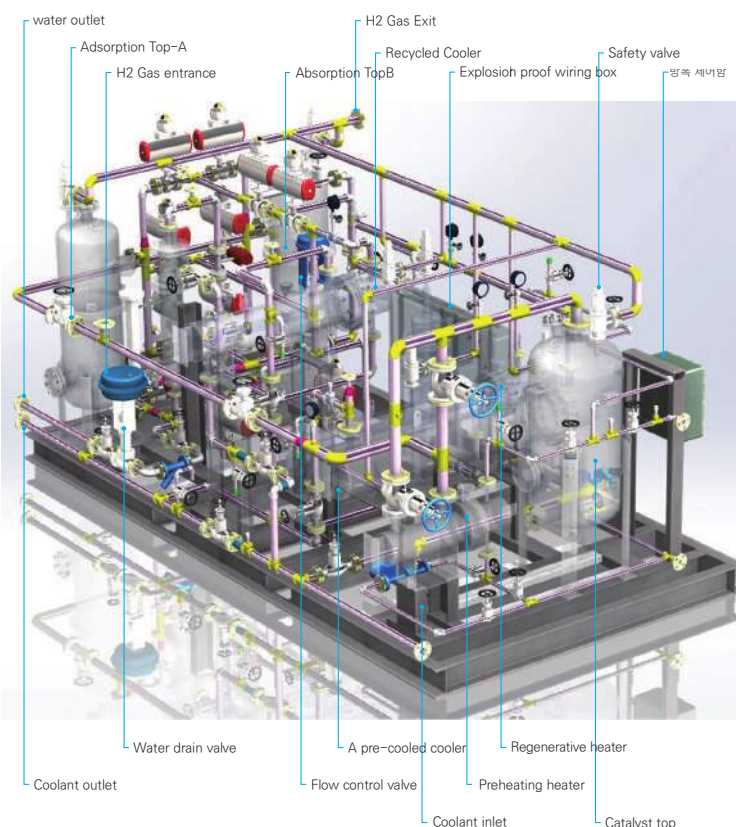


## Utilization and Installation of Hydrogen Dryer

As interest and demand for eco-friendly energy resources are gradually increasing due to greenhouse gas problems such as carbon dioxide and climate change, hydrogen is attracting attention as a new energy resource to replace fossil fuels. Hydrogen is the ultimate eco-friendly energy source and is a clean and infinite resource that does not generate any byproducts other than water, and its application fields have recently been expanding, including hydrogen fuel cells and automobiles. As hydrogen is attracting attention as an alternative energy source, interest in how to produce hydrogen is also growing. The most commonly used methods of hydrogen production include the use of by-product hydrogen separately generated by petrochemical processes, and the natural gas reforming method that decomposes natural gas into high-temperature/high-pressure water vapor to produce hydrogen. The natural gas reforming method is the most widely used method and has the advantage of producing hydrogen at a low cost. Finally, there is a water electrolysis method that electrolyzes water to get hydrogen. Since the purity of hydrogen has a significant impact on the performance of fuel cells, refining techniques for obtaining high purity hydrogen are very important. A hydrogen dryer is a device that purifies hydrogen by removing oxygen in hydrogen in the form of moisture using a Pd (palladium) catalyst and an adsorbent.

## Utilization and Installation of Hydrogen Dryer

- Purification of hydrogen produced from hydrogen PSA.
- Purification of hydrogen produced by water electrolysis facilities.
- Onsite hydrogen supply line to purify hydrogen gas.
- Requires supply of cooling water and hot steam.
- Alternative design for explosion-proof electric heaters instead of hot steam.



## Characteristics of GSA Hydrogen Dryer

- Use of high-quality adsorbents and catalysts.
- Excellent operating performance using reliable valves and instruments.
- Specially designed explosion-proof electric heaters are available (system configuration is possible without the supply of preheating heaters and steam used in regenerative heaters)
- Water is discharged smoothly by using a level switch consisting of five stages and hydrogen leakage is prevented due to failure, etc.
- Accurate system control through various instruments such as Control Valve and Flow Meter.
- Design various design codes (other than KS/ASME/GOST/DOSH)
- High-efficiency heat exchangers are applied to pre-coolers and regeneration coolers.
- Designed to meet user needs.

### Carbon dioxide removal equipment



No.	Description		Specification	Unit
1	Inlet Conditions	Air Flow Capacity	160 ~ 15,000	Nm³/h
2		Feed Air Pressure	5 ~ 8.5	barg
3		Feed Air Temperature	≤ 38	℃
4		Feed Air CO <sub>2</sub> Purity	≤ 450	ppm
5	Outlet Conditions	Product Air Dew Point	≤ -65	℃
6		Product Air CO <sub>2</sub> Purity	≤ 5	ppm
7	Standard Process Time	Adsorption	4	hr
		Heating Regeneration	2.5	hr
		Cooling Regeneration	1.5	hr
8	Regeneration Conditions	Temperature	180 ~ 230	℃
		Pressure	0.2 ~ 0.3	barg
9	Differential Pressure		0.2	bar

Compressed air contains nitrogen, oxygen, moisture, and CO<sub>2</sub>. This facility is intended to remove moisture and CO<sub>2</sub> contained in compressed air and can be used in various industrial fields, including semiconductors and fuel cells. The adsorption tower of this facility contains activated alumina to remove moisture in the compressed air, and the upper part is filled with Molecular Sieves to adsorb a small amount of moisture and CO<sub>2</sub> to effectively remove moisture and CO<sub>2</sub> in the compressed air. Normally, dew points below -65°C and CO<sub>2</sub> below 5 ppm are removed. Commonly used compressed air is not a big problem even if it contains CO<sub>2</sub> components. However, some processes require ultra-dry air without CO<sub>2</sub>. If moisture or CO<sub>2</sub> components are not removed, it will cause serious quality problems in the process or in the final product.

Operation of the CO<sub>2</sub> removal unit is performed automatically according to the sequence of PLCs or mycoms. Compressed air containing moisture and CO<sub>2</sub> flows into the lower part of the two adsorption towers under the adsorption process and then through the adsorbate layer and into the upper part. In the process of moving up, the difference in diffusion rate due to the pores of the adsorbent separates moisture and CO<sub>2</sub> from compressed air and supplies dry compressed air from which CO<sub>2</sub> has been removed. While one of the two adsorption towers is undergoing the adsorption process, the other is subjected to a regenerative process. The regeneration process consists of a heating process and a cooling process, and the heating process uses high-temperature air heated by an electric heater to adsorbate moisture and CO<sub>2</sub> components adsorbed on the adsorbent and then release them to the atmosphere. The cooling process is a regenerative process that cools the heated adsorbent to achieve good adsorption. When the heating and cooling regeneration processes are completed, a dynamic pressure process is performed to raise the regeneration tower to the same pressure as the supply pressure. After the dynamic pressure process is completed, the two adsorption towers are switched and the adsorption tower that has undergone the adsorption process is subjected to a regeneration process, and the adsorption tower that has undergone the regeneration process is subjected to an adsorption process. This series of processes proceed automatically in a given sequence and continues to supply dry air with CO<sub>2</sub> removed.

# Gas Equipment

Gas purifier and gas separation facilities



## High purity gas and ultra purity gas

High purity gas is used in various fields such as the semiconductor industry, petrochemical, metal industry, experiments and research. In particular, high-purity gases in the production sector, including semiconductors and displays, are critical to maintaining the properties and quality of products.

General industrial gases are not completely removed from the manufacturing process and may be contaminated by impurities during transportation or storage.

## The Necessity of High-Purity Purification Equipment

It is necessary to refine low-purity gases to provide the desired purity gas in various fields requiring high purity gas.

Continuous use of high-purity gas is economical enough because it does not cause problems due to insufficient supply or delayed delivery as well as the purchase cost spent.

### N<sub>2</sub> Purifier

Supplies high-purity nitrogen whose impurity concentration(10ppm or above)

- High-pressure nitrogen refining facilities
- A low-pressure nitrogen refining facility

### O<sub>2</sub> Purifier

Supply of high purity oxygen by removing CO<sub>2</sub>, CO components, etc. to stored oxygen by using PD catalyst and adsorbent to reduce the impurity concentration of 10 ppm or less to 10 ppm or less.

- High-pressure oxygen refining facilities
- Low-pressure oxygen refining facilities

### CH<sub>4</sub> Purifier

Refining facilities for the use of methane as fuel by removing large amounts of impurities, such as nitrogen and carbon dioxide, from natural gas, which is a major source of methane.

### CO<sub>2</sub> Removal system

Equipment for removing CO<sub>2</sub> gas from compressed air.

### H<sub>2</sub> Purifier

Hydrogen gas with an impurity concentration of 10 ppm or more is purified and supplied with high purity hydrogen of 10 ppm or less using an adsorbent and heating getter.

- Hydrogen Refining Facilities Using Heating Getter
- Hydrogen temperature refining facility

### He Low temperature purifier

Refine helium gas with an impurity concentration of 10 ppm or more with high purity helium of 10 ppb or less using liquefied nitrogen gas and supply it.

### Ar Recovery & Purification System

After pre-treating the recovered argon, remove nitrogen, oxygen, and moisture using an adsorbent to supply it.

### Ar Purifier

Supply of high purity argon by removing N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub>, and CO components in stored argon using PD catalyst and adsorbent to reduce the impurity concentration of 10 ppm or less to 10 ppb or less.

- High-pressure argon refining equipment
- Low-pressure argon refining facilities

### Carbon dioxide(CO<sub>2</sub>) purification and liquefaction Equipment

Carbon dioxide produced by increased demand for energy and various causes accounts for 80% of greenhouse gases, but is used in various fields Carbon dioxide (CO<sub>2</sub>) purification and liquefaction facility for removing impurities from collected carbon dioxide and liquefaction.





# Customer satisfaction Realization

Customer satisfaction is the best value pursued by GSA. We provide the best products and services in a timely manner and listen to your voice. All our executives and employees are trusted by our customers through their passionate and unremitting efforts.



## The Best Quality

GSA provides only the highest quality products to ensure that customers are always in optimal production at the lowest cost. To maintain the best quality, all our products are manufactured according to international standards and standards. Our company produces only the highest quality products by periodically checking the quality problems that occur in various places and constantly correcting and supplementing the quality programs and processes.



## Flexibility

GSA offers maximum flexibility in production as well as design. For example, if a customer can save on shipping or shipping costs, we strive from the customer's point of view by reducing the height or width of the product so that it can be placed in a regular or HQ container rather than a Flat Rack container.



## Reasonable Price

GSA provides high-quality products at a reasonable level as a result of significant cost savings without compromising quality through mass ordering of materials and simplification of manufacturing processes.



## Reliability

The GSA is challenging the zero defect rate 365 days a year. Because the defect is caused by errors in the production process and production activities, we are making the best effort to find and implement a perfect solution to completely eliminate those errors. The company's efforts toward perfection have resulted in customer trust in the market.



## The fast delivery

GSA optimally manages the production load by applying the integrated production management system to the production line to meet the delivery date and shipment deadline that the customer wants. At the same time, for urgent orders from customers, customer-oriented production flexibility is used to meet the delivery date.





# Dew point conversion table

## Dew Point conversion method

Dew Point measured at Atmospheric pressure condition differs from at system pressure condition. Each Dew Point can be converted by using the following chart.

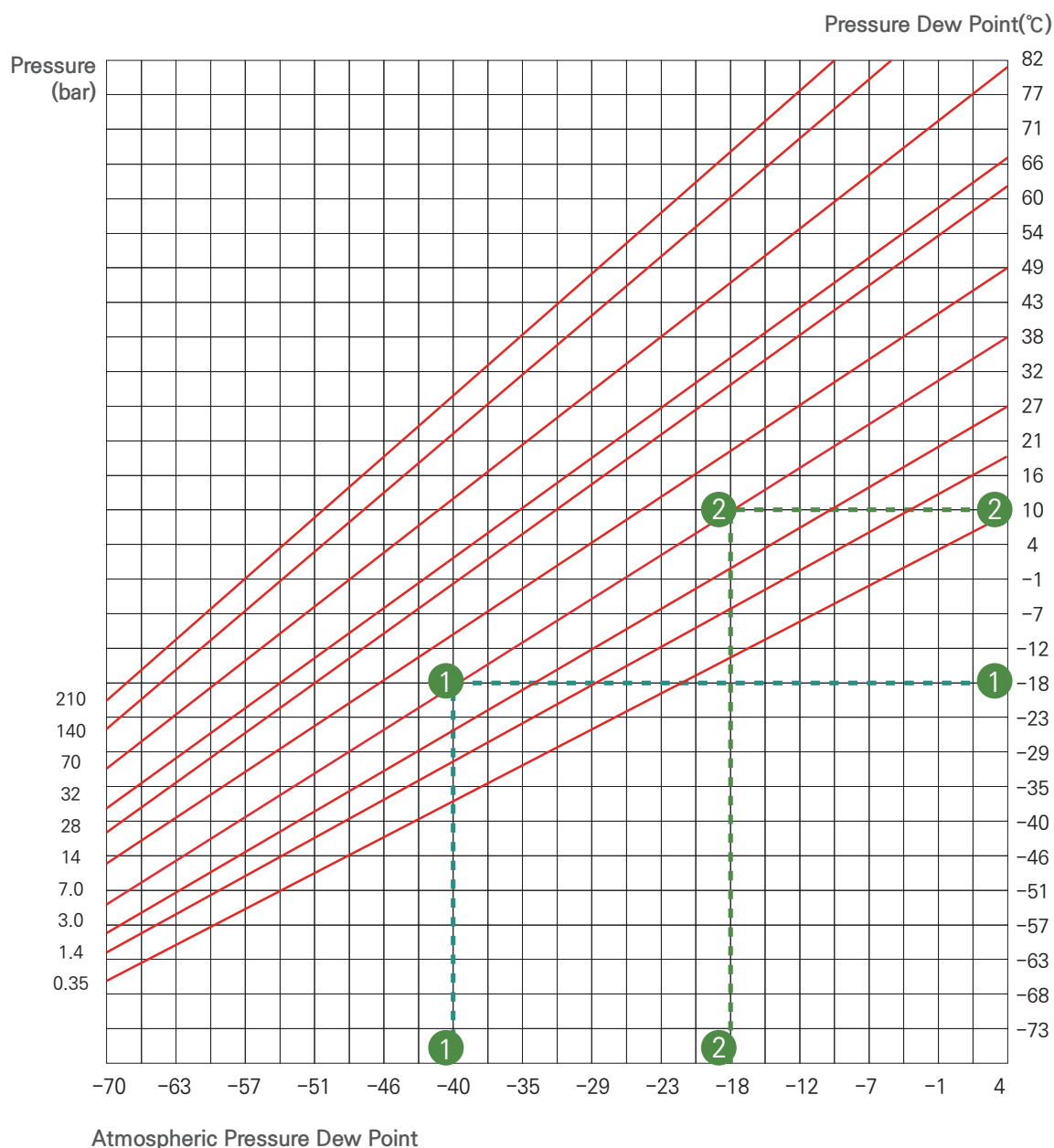
### At 7.0 bar, pressure dew point $-18^{\circ}\text{C}$ , what is the atmospheric pressure dew point?

Locate the pressure dew point  $-18^{\circ}\text{C}$  on the right side of the chart, draw a horizontal line to the left, and go down vertically from the point where the pressure intersects the pressure line at 7.0 bar to obtain the pressure dew point  $-40^{\circ}\text{C}$ .

(Pressure 7.0 bar, Pressure Dew Point  $-18^{\circ}\text{C}$  can be converted to atomic Dew Point  $-40^{\circ}\text{C}$  by following the line ①) What is the pressure dew point at the pressure 7.0 bar at  $-18^{\circ}\text{C}$ ?

Locate the atmospheric pressure dew point  $-18^{\circ}\text{C}$  at the bottom of the chart and draw a vertical line and follow it horizontally at the point where it intersects the pressure line at 7.0 bar to obtain the atmospheric pressure dew point of  $10^{\circ}\text{C}$ .

(Atmospheric Pressure, Dew Point  $-18^{\circ}\text{C}$  can be converted to 7.0bar Pressure Dew Point  $10^{\circ}\text{C}$  by following the line ②)



## Amount of Saturated Water Vapor Table

RH 100% : g/m<sup>3</sup>

60℃	129.7200	28℃	27.2210	-4℃	3.5199	-37℃	0.1642
59℃	124.2100	27℃	25.7600	-5℃	3.2444	-38℃	0.1476
58℃	118.8900	26℃	24.3660	-6℃	2.9888	-39℃	0.1326
57℃	113.7700	25℃	23.0380	-7℃	2.7516	-40℃	0.1189
56℃	108.8300	24℃	21.7730	-8℃	2.5314	-41℃	0.1066
55℃	104.0800	23℃	20.5680	-9℃	2.3267	-42℃	0.0954
54℃	99.4920	22℃	19.4210	-10℃	2.1379	-43℃	0.0854
53℃	95.0840	21℃	18.3290	-11℃	1.9632	-44℃	0.0763
52℃	90.8360	20℃	17.2910	-12℃	1.8014	-45℃	0.0682
51℃	86.7550	19℃	15.5620	-13℃	1.6517	-46℃	0.0608
50℃	82.8230	18℃	15.3660	-14℃	1.5133	-47℃	0.0542
49℃	79.0420	17℃	14.4750	-15℃	1.3856	-48℃	0.0482
48℃	75.4140	16℃	13.6290	-16℃	1.2679	-49℃	0.0429
47℃	71.9250	15℃	12.8270	-17℃	1.1596	-50℃	0.0381
46℃	68.5700	14℃	12.0650	-18℃	1.0595	-51℃	0.0338
45℃	65.3500	13℃	11.3430	-19℃	0.9673	-52℃	0.0299
44℃	62.2590	12℃	10.6590	-20℃	0.8821	-53℃	0.0265
43℃	59.2930	11℃	10.0110	-21℃	0.8044	-54℃	0.0234
42℃	56.4480	10℃	9.3977	-22℃	0.7328	-55℃	0.0207
41℃	53.7180	9℃	8.8171	-23℃	0.6670	-56℃	0.0183
40℃	51.1020	8℃	8.2686	-24℃	0.6067	-57℃	0.0161
39℃	48.5950	7℃	7.7494	-25℃	0.5514	-58℃	0.0142
38℃	46.1930	6℃	7.2589	-26℃	0.5008	-59℃	0.0125
37℃	43.8930	5℃	6.7958	-27℃	0.4544	-60℃	0.0109
36℃	41.6910	4℃	6.3588	-28℃	0.4120	-62℃	0.00840
35℃	39.5830	3℃	5.9466	-29℃	0.3733	-63℃	0.00734
34℃	37.5680	2℃	5.5579	-30℃	0.3379	-65℃	0.00560
33℃	35.6410	1.7℃	5.4458	-31℃	0.3056	-68℃	0.00369
32℃	33.7990	1℃	5.1917	-32℃	0.2762	-70℃	0.00277
31℃	32.0390	0℃	4.8467	-33℃	0.2493	-73℃	0.00179
30℃	30.3580	-1℃	4.4777	-34℃	0.2249	-75℃	0.00133
29℃	28.7560	-2℃	4.1352	-35℃	0.2027	-78℃	0.000836
28℃	27.2210	-3℃	3.8167	-36℃	0.1826	-80℃	0.000610

Ref. Air Dryers

Desiccant Air Dryers

Accessories

Gas Equipments

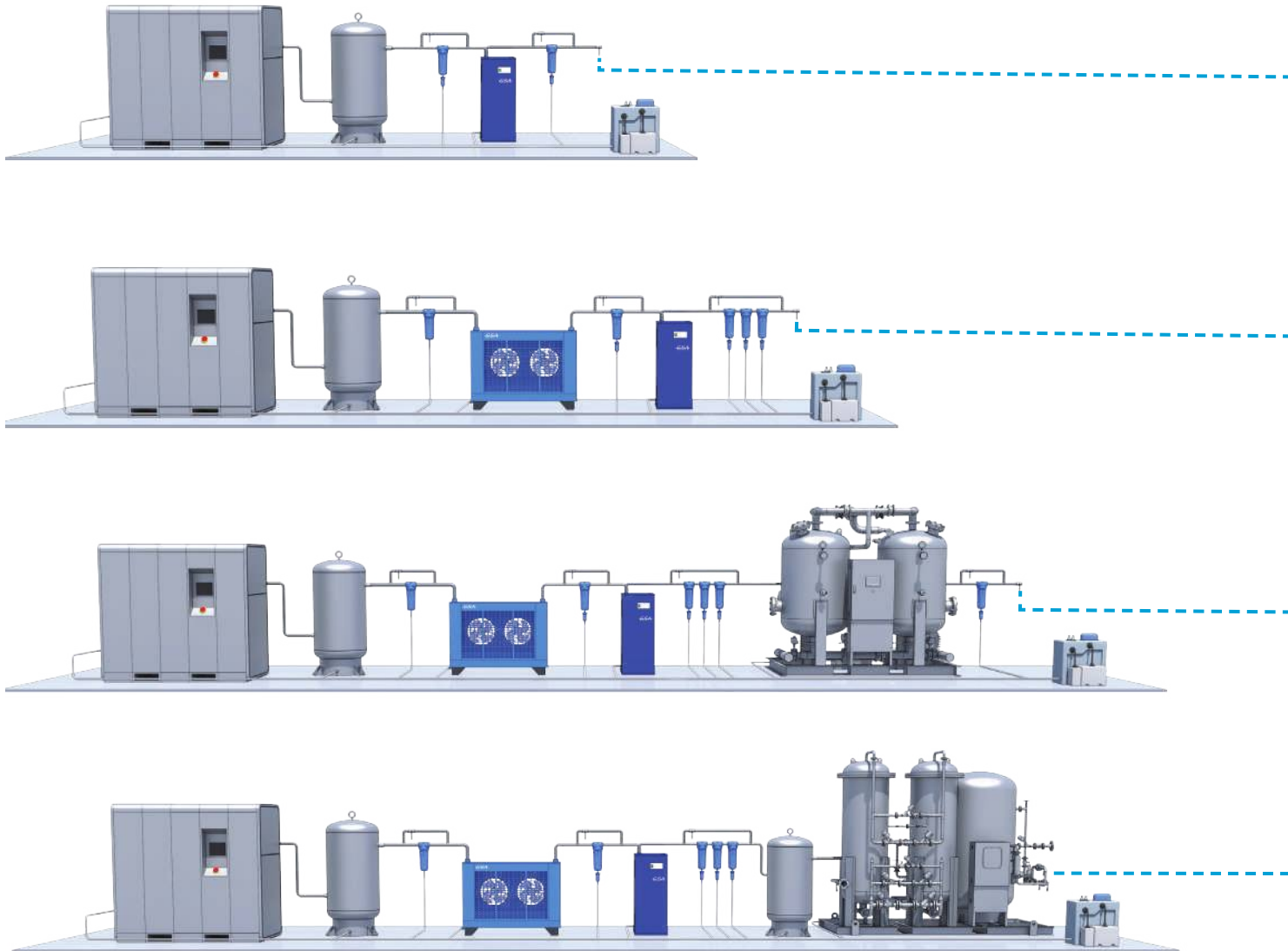
Useful Information

## Air & Gas Treatment System Example

When air in the atmosphere is inhaled and pressurized by air compressor, the system life of production line and various pneumatic devices and the deterioration of function are critical. Therefore, pollution control shall be preceded by economical reliability, maintenance, and so on.

Compressed air is saturated with water. Since the compressed air is heated during the compression, aftercooler is then used to remove the heat of compression. During this stage, when ambient air is compressed, a significant quantity of condensate is made.

This condensate, if not removed, will cause erosion, damage to pneumatic equipment and instruments. Filtering and drying processes remove particles, moisture, microbes, and chemicals from compressed air. Clean, dry air protects the air system reduces maintenance costs and increases finished product yields.

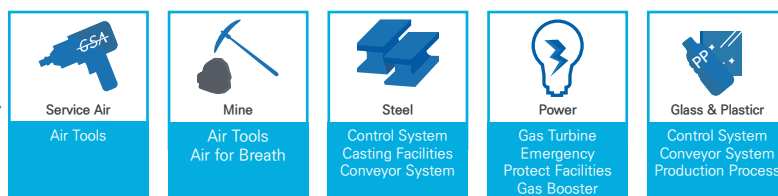


# COMPRESSED AIR QUALITY CLASS ISO8573.1:2010

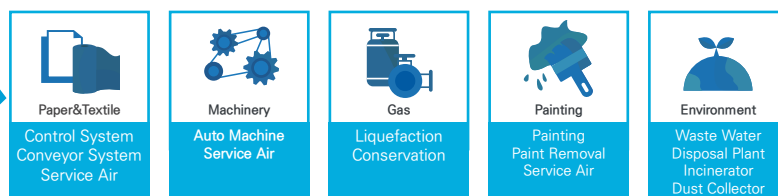
ISO8573-1:2010 CLASS	Maximum number of particles per m <sup>3</sup>			Vapour Pressure Dew Point(°C) @ 7 barg	Total Oil mg/m <sup>3</sup>
	0.1 ~ 0.5 micron	0.5 ~ 1.0 micron	1.0 ~ 5.0 micron		
1	20,000	400	10	-70	0.01
2	400,000	6,000	100	-40	0.10
3	-	90,000	1,000	-20	1.00
4	-	-	10,000	+3	5.00
5	-	-	100,000	+7	-
6	-	-	-	+10	-

- Air Quality Class Description ISO8573.1:2010 Class(Particle, Water, Oil)
- Example SO8573.1:2010 Class 1.2.1
  - Particle 1 : 0.1 ~ 0.5 micron/m<sup>3</sup>(Particle Max 100ea) 0.5 ~ 1.0 micron/m<sup>3</sup> Particle Max 1ea 1.0 ~ 5.0 micron/m<sup>3</sup>(Particle 0) 1.0 ~ 5.0 micron/m<sup>3</sup>(Particle 0))
  - Water 2 : -40°C(Pressure Dew Point -40°C)
  - Oil : 0.01mg/m<sup>3</sup>(Total Oil 0.01mg/m<sup>3</sup>)

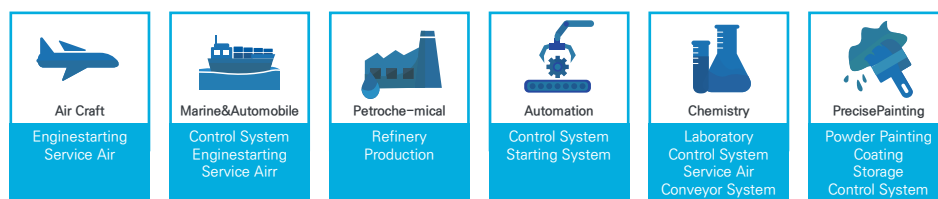
Dew Point 4°C | Total Oil 1 ppm | Particle 1 µm



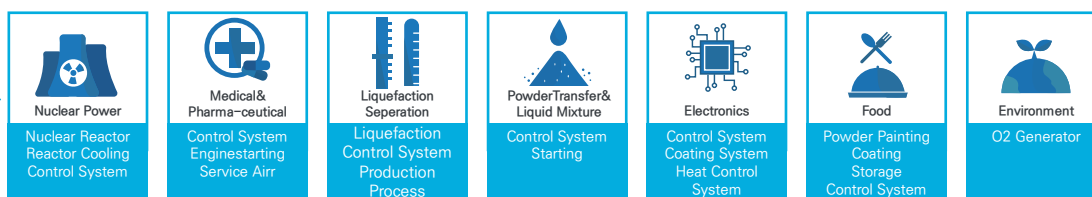
Dew Point 4°C | Total Oil 0.1 ppm | Particle 1 µm



Dew Point -40°C | Total Oil 0.01 ppm | Particle 1 µm



Dew Point -70°C | Total Oil 0.003 ppm | Particle 1 µm



Ref. Air Dryers

Desiccant Air Dryers

Accessories

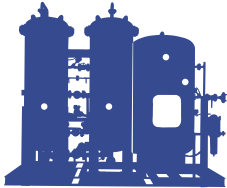
Gas Equipments

Useful Information



### 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.

