

# GSA Air Dryers

## HYD-N2 series

Refrigerated air dryers (Cycling)

*Global Standard Air & Gas*

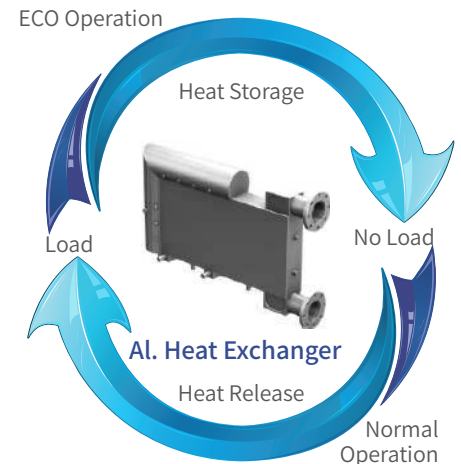


# Energy saving by generation-II refrigerated air dryer

## Generation-II, Energy-saving, Refrigerated Air Dryer

GSA's generation-II, energy-saving refrigerated air dryer is a cycling system designed to save energy in a simple and efficient fashion. It is relatively simple, compact and highly reliable compared to products which use variable-speed drive (VSD) designed to control the RPM of the refrigerant compressor and a brushless DC (BLDC) motor or those with phase change materials (PCM) or thermal mass.

The aluminum heat exchanger of the generation-II, energy-saving refrigerated air dryer plays a role of thermal mass which has great heat transfer performances. Since the product is made with a single material, it has no thermal resistance. Therefore, cooling energy stored in the heat exchanger can be utilized efficiently. It generates the greatest efficiency at the lowest costs when load is low or the compressed air use pattern is intermittent with a long length of time by maximizing the use of cooling energy accumulated in the heat exchanger.

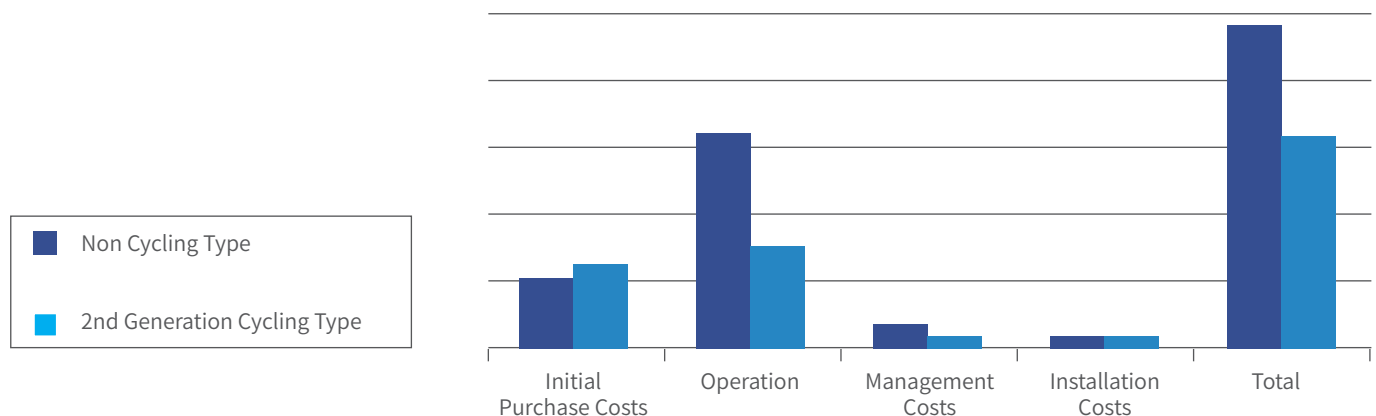


## Stored Heat of Aluminum Heat Exchanger

Compared to other heat exchangers, an aluminum heat exchanger is greater in terms of accumulated heat under the same mass due to high specific heat. With great thermal conductivity, it displays great cooling effects of compressed air with high and stable dew points. Under same mass, the machine is 2.3 times and 1.9 times greater than copper and stainless steel respectively in terms of cooling capacity. With great thermal conductivity, furthermore, it ensures stable operation according to load changes.

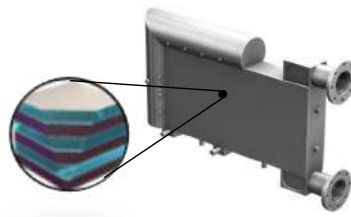
Heat Exchanger	Material	Specific Heat (J/kg)	Thermal Conductivity (kcal/mh°C)	Heat Capacity (J/°C)	Ratio of Heat Storage Capacity
Shell & Tube	Copper	389	332	3890	100%
Plate heat exchanger	Stainless	464	14	4640	120%
Aluminum Block	Aluminum	896	196	8960	230%

## Comparison of Operating Costs for Decade



# Highly reliable cycling, energy-saving dryer

Features of the machine built with diverse innovative technologies



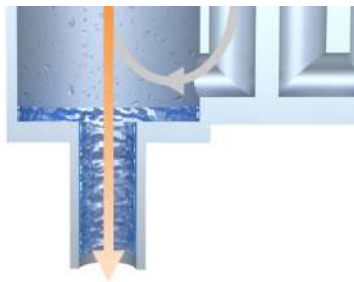
### High-efficiency Aluminum Heat Exchanger

With a high-efficiency aluminum heat exchanger, GSA refrigerated air dryer offer larger heat-exchange area and performance guarantees of stable dew point than any other brands adopting other types of heat exchangers such as shell & tube and plate ones. Made with a single material, it has no thermal resistance and a little risk of corrosion or freezing burst.



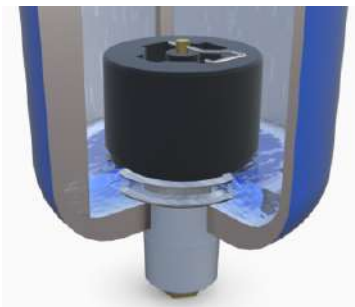
### Simple and Smart Controller

The simple but functional controller helps users observe the exact dew point and check energy-saving status through the ECO lamp. In addition, this multifunctional controller offers a 4.3" color TFT touch panel (optional) and various mobile communication features such as WiFi and BT.



### Efficient Condensate Separation Technology

It separates a large amount of condensate produced during heat exchange efficiently by increasing the volume of a separator. Therefore, this machine offers stable performances and dew points even under diverse load and pressure conditions.



### Highly reliable drain without loss of compressed air

The efficiency of compressed air facilities was enhanced by applying a magnetic float-integrated AUTO DRAIN which guarantees no loss of compressed air. The magnetic float ensures great operating performances. In addition, decrease in drain performances or failure resulting from oil or diverse substances in the air was minimized.

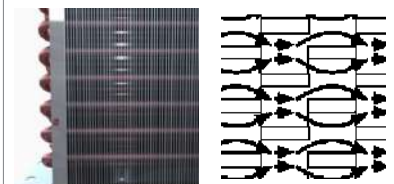


DP < 0.2



### Minimizing the loss of compressed air with low differential pressure

The occurrence of differential pressure was minimized by offering a large heat-exchange area and a sufficient cross-sectional area for compressed air flow. The efficiency of the compressed air system can be enhanced due to low differential pressure after increasing heat-exchange efficiency and minimizing resistance. In addition, operating costs can be reduced.



### Efficiency maximization with the use of a high-efficiency condenser

To ensure stable performances at high temperature or under unfavorable circumstances, grooved copper tube and corrugated split fin were applied. In addition, a condenser which has a high coefficient of heat transfer due to great fin adhesion after complete and uniform tube expansion was adopted. Therefore, it ensures stable operation in diverse situations such as a high-temperature region.

## Technical Specification Table

### Design Conditions

- Inlet Pressure: 7 barg
- Inlet Temperature: 38°C
- Pressure Dew Point: 2-10°C
- Design Pressure: 14 barg
- Design Temperature: 70°C
- Ambient Temperature: 32°C

### References

- All models use R-134a and R-22. We can also offer other alternative refrigerant specifications.
- The flow rate is set at 60Hz.
- It can be custom-ordered if electrical specifications are different.
- It can be custom-made if operating pressure is 15barg or higher.
- Large models above the specifications can also be provided.
- Specifications are subject to changes without notice for quality improvement.



Model No.	Connection Size	Air Compressor Applied	Flow Rate	Minimum Electric Energy	Power Supply	Dimensions (mm)			Weight	
	A	HP	Nm <sup>3</sup> /min	kW	V / Ph / Hz	A	B	C	kg	
H Y D	5N2	PT 15A	5	0.15	220 / 1 / 50, 60	247	557	723	36	
	7N2	PT 15A	7	0.15		247	557	723	36	
	10N2	PT 20A	10	1		0.16	247	557	723	36
	15N2	PT 25A	15	1.5		0.24	428	508	709	45
	20N2	PT 25A	20	2.6		0.28	428	508	709	45
	30N2	PT 25A	30	3.9		0.45	358	658	864	66
	50N2	PT 40A	50	6.7	0.7	408	708	952	89	
	75N2	PT 50A	75	10.5	1.05	458	798	1045	120	
	100N2	PT 50A	100	14.2	1.15	380 / 3 / 50, 60	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

• (The electric energy in the above table is calculated under a 50% load factor. It may differ depending on operating circumstances.)

## Capacity Correction Factor

Correction Factor by Inlet Air Temperature												
Inlet Air Temperature (°C)	28	33	38	43	48	53	58	63	68	70		
Correction Factor	1.46	1.2	1	0.85	0.73	0.63	0.55	0.48	0.42	0.4		
Correction Factor by Inlet Air Pressure												
Inlet Air Pressure (barg)	4	5	6	7	8	9	10	11	12	13	14	15
Correction Factor	0.84	0.9	0.95	1	1.03	1.06	1.09	1.11	1.13	1.15	1.17	1.18
Correction Factor by Ambient Temperature (Air-cooled type)												
Ambient Temperature (°C)	27	32	37	40	45	50						
Correction Factor	1.05	1	0.92	0.82	0.76	0.69						