

GSA Air Chiller

HYD-CH series

Compressed air / gas chillers

Global Standard Air & Gas



Low-temperature Chilling Technology for Compressed Air & Gas

Compressed Air & Gas Chiller



High Temp.
Air or Gas



Cool
Down to -70°C

GSA manufactures and distributes a wide variety of products which can help its clients enhance their productivity and product quality.

The Air and Gas Chiller is a product specially designed to meet such client needs. It has been widely used in various fields such as temperature-sensitive manufacturing sectors, food & drink, medicine, petrochemicals and shipbuilding & marine industry.

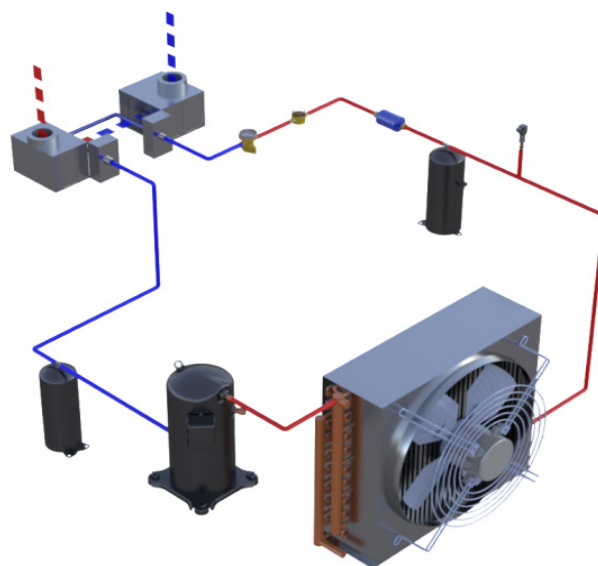
It is used to cool down high-temperature fluids or maintain outlet temperature at a certain level. Fluids can be used in cooling various gases such as nitrogen and oxygen as well as common compressed air. Depending on a cooling range, the Air & Gas Chiller can be divided into 2 different categories: In a standard air & gas chiller, 50-60°C fluids are cooled down to 10-20°C. For this, no particular facilities but a filter are needed. A low-temperature air & gas chiller usually cools down fluids up to below zero temperatures. It needs pre-treatment equipment to dehumidify the fluids. Therefore, it is required to keep dew points of the fluids below cooling temperature. In addition, they should be properly insulated to prevent heat loss from low temperature. In a low-temperature air & gas chiller, fluids can be chilled up to -70°C. It features a relatively complicated system, compared to standard chiller.

Compressed Air & Gas Chilling Features and Mechanism

GSA's air chiller is designed to cool down high-temperature compressed air and gas to wide temperature ranges and meet diverse client needs. It features a refrigerant circuit and ensures the best performances through various apparatus for temperature and refrigerant control.

The air and gas chiller features various layouts depending on the fluid temperature/pressure, fluid type or cooling temperature. High-temperature fluids are cooled down when heat is exchanged with a refrigerant by a specially designed heat exchanger. It can check various information in addition to inlet/outlet temperature through a multifunctional controller and operating situations in realtime through an option. The condensate generated during cooling is eliminated through a separate drain system. If necessary to control outlet temperature (option), it is controlled precisely by an expansion or hot-gas control valve.

An expansion valve or hot-gas electronic control valve is able to control outlet temperature in a quick and accurate operation through organic mechanism between a step motor which can control opening rates precisely (at least hundred – thousand steps) and a controller.



Applications

Just like many other gas systems including refrigerated and desiccant dryers, AIR & GAS CHILLER is now being used in diverse industries. The Air and Gas Chiller has been widely used in various fields such as temperature-sensitive manufacturing sectors (e.g., glass mold surface cooling, high-temperature metal cooling, etc.), pharmaceuticals, food & drink and medicine.

In low-temperature models, air and gas can be cooled up to -70°C. They are available in chilling various gases.

GSA has manufactured and provided products which meet diverse client needs with the latest technologies which have been accumulated for a long period of time. The company also offers rational and efficient solutions with diverse energy-saving features.



Pharmaceutical
and Medicine



Food & Beverage



Shipbuilding &
Maritime



Petrochemical



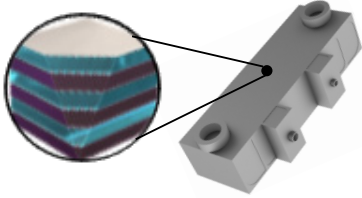
Electrical &
Electronic



Steel

Highly Reliable Compressed Air & Gas Chiller

Product with Diverse Innovative Technologies



High-efficiency Aluminum Heat Exchanger

With a high-efficiency aluminum heat exchanger, GSA refrigerated air dryer offers stable performances with a larger heat-transfer area and greater efficiency than other types of heat exchangers such as shell & tube and plate ones. Made with the same material, the GSA air dryer has no thermal resistance and is free from heat exchanger freeze-up or corrosion.



Smart Controller with Diverse Latest Technologies (Options)

The simple and functional controller helps users read the exact inlet & outlet temperature. You can also monitor the temperature and status of your chiller by your mobile phone. You can check various operation information through the 4.3" color TFT LCD touch-type controller, and you can easily and conveniently manage the dryer anytime, anywhere through smart control and communication functions. (Options or some products)



Highly Reliable Drain without Compressed Air Loss

The demister inside the heat exchanger and the large separation space provide excellent condensate separation efficiency. The separated condensate is discharged through a ball-type or level sensor-type auto drain with no loss of compressed air. The ball-type auto drain has excellent operating performance. The number of drain malfunctions or failures due to oil or various particles contained in compressed air is very low. Maintenance is very convenient.



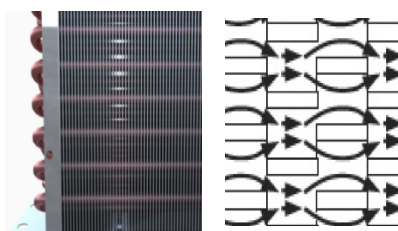
Outlet Temperature Control (Option)

A multifunctional controller featuring PID precision control, an expansion valve having a precision electronic valve which enables precise step control (in 2,000 steps) and a hot-gas bypass valve offers precision control under diverse situations. A high-precision electronic valve is durable and makes little noise. It optimizes a system through auto control and reduces energy consumption.



Minimization of Compressed Air Loss with Low Differential Pressure

We minimized differential pressure with a large heat-transfer area and sufficient cross section for the passage of compressed air. We enhanced heat-exchange efficiency and reduced differential pressure by minimizing resistance, making it possible to operate the compressed air system more efficiently at lower costs.



Efficiency Maximization with High-efficiency Condenser

For stable performances even under unfavorable circumstances such as high temperature, grooved copper tube and corrugated split fin were applied. Since they are expanded in a complete and uniform tube expansion, fin adhesion is high, applying condensate with a high coefficient of heat transfer. Therefore, it guarantees stable operations under diverse environments including hot temperature.

Technical Specification

Design Conditions

- Inlet Pressure: 7barg
- Inlet Temperature: 32 °C
- Inlet air conditions : Dry air
- Temperature difference (ΔT) : 15 °C
- Design Pressure: 14barg
- Ambient Temperature: 32 °C

References

- All models use either R-134a or R-22 refrigerant. Other models adopting different types of refrigerants are also available.
- The flow rate is based on 60Hz.
- Other electrical specifications are also available.
- A unit with 15barg or higher operating pressure is customizable.
- Large models bigger than those stated in the specifications are also customizable.
- The specifications are subject to changes without notice for product improvement.
- Wet air can reduce the cooling performance when compared to dry air.



Model	Fluid	Connection	Flow rate	Power Consumption	Power Supply	Dimensions (mm)			Weight
		A	m ³ /min	kW	V / Ph / Hz	A	B	C	kg
H Y D	5CH	PT 15A	0.5	0.32	220 / 1 / 50, 60	245	555	755	32
	7CH	PT 15A	0.8	0.33		245	555	755	32
	10CH	PT 15A	1	0.34		245	555	755	32
	15CH	PT 25A	1.5	0.5		425	505	710	41
	20CH	PT 25A	2.6	0.58		425	505	710	41
	30CH	PT 25A	3.9	0.91		355	655	865	62
	50CH	PT 40A	6.7	1.39		405	705	955	83
	75CH	PT 50A	10.5	2.05		455	795	1045	115
	100CH	PT 50A	14.2	2.34	380 / 3 / 50, 60 440 / 3 / 50, 60	455	855	1145	120
	150CH	PT 65A	21	2.89		565	1005	1330	165
	200CH	FLG. 80A	30	4.18		550	1200	1450	225
	250CH	FLG. 100A	39	4.4		700	1200	1580	240
	300CH	FLG. 100A	47	4.6		700	1200	1580	245
	400CH	FLG. 100A	56	9.7		900	1590	1915	560

Correction Factors

Correction Factor by Inlet Air Temperature (Dry Air)												
Inlet Air Temperature (°C)	25	32	35	40	45	50						
Correction Factor	1.15	1.00	0.85	0.7	0.6	0.5						
Correction Factor by Inlet Air Pressure												
Inlet Air Pressure (barg)	4	5	6	7	8	9	10	11	12	13	14	
Correction Factor	0.77	0.86	0.93	1.00	1.05	1.1	1.14	1.18	1.21	1.24	1.27	
Correction Factor by Ambient Temperature												
Ambient Temperature (°C)	27	32	37	40	45	50						
Correction Factor	1.02	1.00	0.8	0.75	0.65	0.5						

