

GA Line AYF Series Commercial and Specialty Chiller-Heaters

2 or 4 pipe Gas Fired Absorption Chiller-Heater

Cooling and Heating

Natural gas/LPG cooling and heating: a perfect answer to every need.

Robur high efficiency chiller-heaters use an air-cooled water-ammonia absorption cycle combined with a high efficiency low pressure boiler integrated into one single outdoor system. Their primary energy source is

natural gas or propane gas resulting in minimal electrical service requirements. With no engines or mechanical compressors and few moving parts in the sealed refrigeration cycle, Robur units are a reliable and durable source of chilled and hot water. These environmentally friendly,

commercial grade chiller-heaters offer complete flexibility for residential and light commercial comfort cooling and heating: they are available in a four-pipe version for simultaneous production of hot and chilled water or in a two-pipe version for alternate production.



Use Hydronic air conditioning and heating systems

Type Air cooled

Heat transfer fluid Water
Cooling Capacity (BTU/h) / Outlet Water Temperature

Standard (ST): 60,500 / 37.4 °F
TK: 60,500 / 37.4 °F
HT: 58,400 / 41.0 °F

Heating Capacity (BTU/h) / Outlet Water Temperature
ST, TK, HT: 110,900 / 185 °F

Main Advantage One integrated unit to supply chilled or hot water

Additional Advantages

- **Single Phase Power.**
- **Modular Systems** containing up to 4 units are available preassembled from Robur (RTYF series). Remote management and staging by a Direct Digital Controller (DDC) is a popular option. One DDC can

manage up to 16 units on a common hydronic loop.

- Using gas as the primary energy source, **the need of electric power is reduced by approximately 87%** as compared with electric compression units.
- **Smaller Generator Requirements** for those applications requiring off grid power or emergency cooling and heating.
- **High Reliability** due to few moving parts inside the units.
- **Easy Maintenance**, similar to gas fired boilers.
- **No Water Consumption.** No cooling tower and related water treatment and maintenance.

Features

- **Patented absorption cycle.**
- **Refrigerant circuit** made of low carbon steel and completely sealed.
- **Evaporator** tube and shell tower geometry made of stainless steel.
- **Variable speed condenser fan** for optimal performance and efficiency.
- **Optional Direct Digital Controller (DDC).**
- **Microprocessor Control.** Printed resin electronic circuit with LED display. Ensures optimum operation of the absorption cooling process while allowing easy access of unit data for preventative maintenance and diagnostics.
- **Built-in safety and control devices.**

Specialty Chiller-Heaters

- **TK - Nominal 5 Tons.**
For Industrial & Commercial applications requiring heavy cooling use on a year round basis. This unit's refrigerant charge and accumulator allow for extended running periods and operation at low ambient conditions down to 10 °F.
- **HT - Nominal 5 Tons.**
For installation in climates with design temperatures over 104 °F. The HT is designed for use in high ambient climate areas or in those applications where excessive heat may be generated artificially, such as reflective white rooftops.

PERFORMANCE RATINGS - COOLING ⁽¹⁾

			AYF ST	AYF HT	AYF TK
Cooling capacity ⁽²⁾		BTU/h	60,500	58,400	60,500
Gas input		BTU/h	94,900	94,900	94,900
Ambient operating temperature	maximum	°F	120	131	120
	minimum	°F	32	32	10.4
Chilled water temperature	minimum outlet (to hydronic system)	°F	37.4	41	37.4
	maximum inlet (to unit)	°F	113	113	113
Chilled water flow	nominal	GPM	12.2	11.8	12.2

PERFORMANCE RATINGS - HEATING ⁽¹⁾

Heating capacity	nominal	BTU/h	110,900	110,900	110,900
Gas input	nominal	BTU/h	129,000	129,000	129,000
Ambient operating temperature	maximum	°F	116.6	116.6	116.6
	minimum	°F	-20	-20	-20
Hot water temperature	maximum outlet (to hydronic system)	°F	185	185	185
	maximum inlet (to unit)	°F	167	167	167
Nominal boiler water flow	2 pipe configuration	GPM	12.2	11.8	12.2
	4 pipe configuration	GPM	8.8	8.8	8.8

ELECTRICAL RATINGS ⁽¹⁾

Required voltage, 60 Hz, single phase ⁽³⁾	V		208-230	
Operating consumption - chiller / heater ⁽⁴⁾	kW	0.75 / 0.076	0.75 / 0.076	0.75 / 0.076

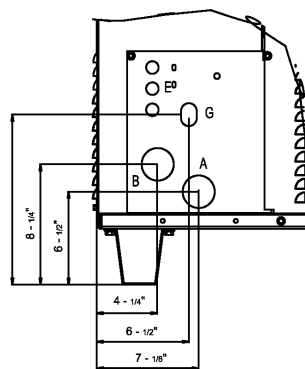
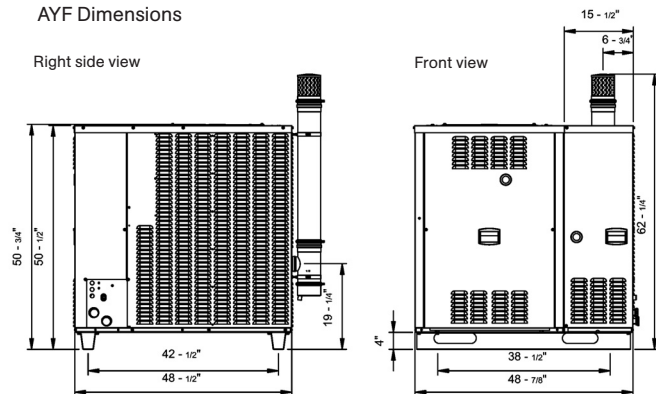
PHYSICAL DATA ⁽¹⁾

Pressure drop - chiller	(4 pipe configuration)	Feet of Head / PSIG	9.67 / 4.20	9.11 / 3.92	9.67 / 4.20
Pressure drop - heater	(4 pipe configuration)	Feet of Head / PSIG	8.30 / 3.60	8.30 / 3.60	8.30 / 3.60
Pressure drop - matched	(2 pipe configuration)	Feet of Head / PSIG	17.13 / 7.40	16.25 / 7.10	17.13 / 7.40
Operating weight		pounds	970	1,035	1,035
Dimensions	width	inches	48 7/8	48 7/8	48 7/8
	length	inches	48 1/2	48 1/2	48 1/2
	height	inches	50 3/4	50 3/4	50 3/4

⁽¹⁾ All illustrations and specifications contained herein are based on the latest information available at the time of publication.
⁽²⁾ Cooling capacity at standard conditions of 95 °F ambient temperature. Chilled water outlet temperature 45 °F, chilled water inlet temperature 55 °F.

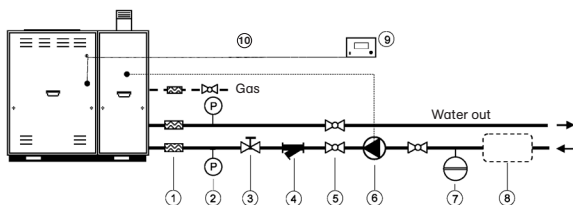
⁽³⁾ Units are factory-wired for 208-230 volts operation.
⁽⁴⁾ May vary by ± 10% as function of both power supply and electrical motor input tolerance.
Due to continuous product innovation and development, Robur reserves the right to change product specifications without prior notice.

AYF Dimensions



AYF 60-119/2 (2 pipe configuration) Connection Panel

- A Chilled/hot water outlet Ø 1" FPT
- B Chilled/hot water inlet Ø 1" FPT
- E Electrical knockouts Ø 7/8" FPT
- G Gas connection Ø 1/2" FPT



AYF 60-119/2 (2 pipe configuration) Hydronic System: Typical Installation Arrangement (External Components not included with Robur Unit)

- 1 Antivibration flexible hoses
- 2 Pressure gauge
- 3 Flow regulating valve
- 4 Water filter
- 5 Shut-off valve
- 6 Circulating water pump
- 7 Expansion tank
- 8 Chilled water storage
- 9 DDC (optional from Robur)
- 10 Can Bus cable (optional from Robur)