caring for the environment

GA Line ACF HR Series

5 Ton Gas Fired Absorption Chiller

Cooling with Heat Recovery

Cooling Applications with Heat Recovery.
Robur high efficiency chillers use a water-ammonia air-cooled absorption cycle and are designed for outdoor installation. The HR version is engineered for air conditioning applications which require simultaneous hot water production for applications such as domestic hot water or reheat in air handling units.
The heat recovery operation does not interfere with normal chiller operation: when heat recovery is not required, the unit operates as a chiller only.
The recuperator heat exchanger provides an output of 86,400 BTU/h at 122 °F and can deliver water at temperatures up to approximately 176 °F.

Use Cooling with Heat Recovery
Type Air cooled
Heat transfer fluid Water
Cooling Capacity 60,500 BTU/h
Free Heating Capacity 86,400 BTU/h
Outlet water temperature cooling 37.4 °F / heating 176 °F
Main application Chilled water cooling systems with high recovery of heating capacity suitable for domestic hot water supply.
Main advantage Air conditioning with free supply of hot water (maximum temperature 176 °F); availability of hot water from 86 to 176 °F for various applications, such as pre-heating of domestic water or reheat in AHUs, etc.
Additional advantages

- **Single Phase Power**.
- **Modular Systems** containing up to 5 chiller modules are available preassembled from Robur (RTCF HR series).
- Using gas as the primary energy source, **the need of electric power is reduced by approximately 87%** as compared with electric compression units.
- **Minimal Electrical Power Requirements**. Avoid electrical service upgrades and three phase service. Minimize electric demand charges.
- **Smaller Generator Requirements** for those applications requiring off grid power or emergency cooling.
- **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.
- **No Use of Harmful Refrigerants** that contaminate the environment.
- **Outdoor Installation**. No need for indoor equipment room.

Features

- **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).** A single device to fully manage and control Robur units.
- **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.
- **Pre-mixed gas burner.** Stainless steel multiple gas type with ignitor and flame sensor device controlled by an electronic ignition box.
- **Panels** made of galvanized sheet metal with powder epoxy coating, thermally treated.
- **Built-in safety and control devices,** comprised of water flow switch; sealed circuit safety valve and safety by-pass valve between high and low pressure side; generator high temperature limit switch with manual reset; antifreeze control system; redundant gas valve; microprocessor control with LED readout to assist with maintenance and service diagnostics; flue temperature limit switch with automatic reset to avoid overheating.

PERFORMANCE RATINGS [1]			ACF HR
Cooling capacity (no recovery) [2]		BTU/h	60,500
Cooling capacity (with recovery) [3]		BTU/h	61,240
Heating capacity [3]		BTU/h	86,400
Gas input (HHV)		BTU/h	94,900
Ambient operating temperature	maximum	°F	120
	minimum	°F	32
Chilled water temperature	minimum outlet (to hydronic system)	°F	37.4
	maximum inlet (to unit)	°F	113
Maximum hot water outlet temperature		°F	176
Chilled water flow	nominal	GPM	12.2
Internal pressure drop at nominal chilled water flow		Feet of Head	9.7
		psi_g	4.2

ELECTRICAL RATINGS [1]		
Required voltage, 60 Hz, single phase [4]	V	208 - 230
Operating consumption [5]	kW	0.75

PHYSICAL DATA [1]			
Operating weight		pounds	750
Chilled / hot water entering and leaving connections		FPT	1"
Gas inlet connections		FPT	1/2"
Dimensions	width	inches	33 1/2
	length	inches	48 1/2
	height	inches	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 (no recovery): ambient temperature 95 °F. Chilled water outlet temperature 45 °F, chilled water inlet temperature 55 °F.

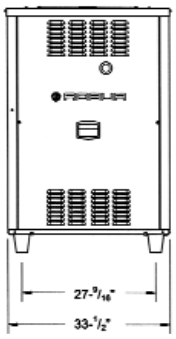
[3] Cooling capacity at standard conditions (with recovery): ambient temperature 95 °F. Chilled water outlet temperature 45 °F, heat recovery system water temperature - delivery 122 °F - return 104 °F.

[4] Units are factory-wired for 208-230 volts operation.

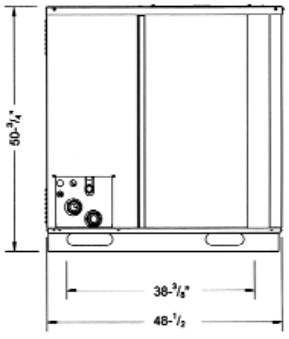
[5] May vary by ± 10% as function of both power supply and electrical motor input tolerance.

Due to continuous product innovation and development, Robur reserves the right to change product specifications without prior notice.

ACF HR dimensions

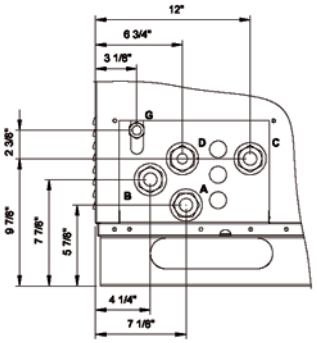


Front view



Right side view

ACF HR connection panel



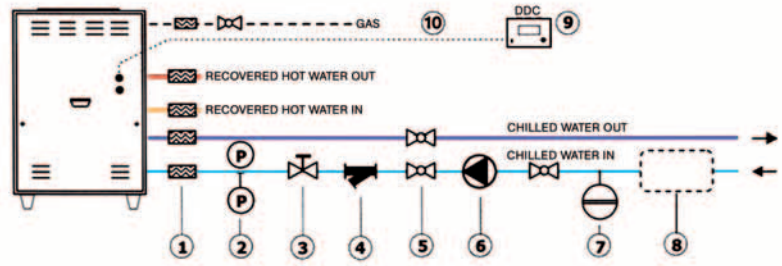
Chiller - CHILLED WATER

A - Water Delivery to Appliance	Ø 1" FPT
B - Water Return to Unit	Ø 1" FPT
G - Gas Supply	Ø 1/2" FPT

Recovery Unit - HOT WATER

C - Water Delivery to Appliance	Ø 1" FPT
D - Water Return to Unit	Ø 1" FPT

ACF HR 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)