

Submittal Data  
**GA Line RTCF Series**  
**Commercial and Specialty Chillers**  
Gas Fired Absorption Chillers With Modular Capability  
Cooling

Robur's High Efficiency Modular Chiller-Links are comprised of multiple combinations of the ACF60 Chillers, which utilize an ammonia/water absorption cycle that is air-cooled and designed for outdoor installation. Their primary energy source is natural or

propane gas resulting in minimal, single-phase electrical service requirements. With no engines or mechanical compressors and only three moving parts in each unit, Robur Modular Chiller-Links are a reliable and durable source of chilled water. These environmentally

friendly, commercial grade chillers offer complete flexibility for light commercial and residential comfort air conditioning and industrial process cooling applications.



**Versions**

The RTCF modular links are available in a standard and 3 specialty versions:

**RTCF-ST** - Typically used in climates with design temperatures of 104 °F or lower; up to 30-tons of cooling and water temperatures down to 37.4 °F.

**RTCF-HT** - Designed for applications with climate design temperatures above 104 °F; up to 30-tons of cooling and water temperatures down to 41 °F.

**RTCF-TK** - Designed for applications that require

heavy duty use on a year round basis with operation down to 10.4 °F ambient temperature; up to 30-tons of cooling and water temperatures down to 37.4 °F.

**RTCF-LB** - Designed for medium temperature refrigeration applications requiring water temperatures down to 14 °F and available up to 23-tons cooling.

RTCF units are natural gas or LPG fired and require 208 - 230V 60Hz SINGLE PHASE electrical power.

**Control and safety devices**

All Chiller-Link systems are factory assembled on heavy “C” channel steel rails complete with interconnecting supply and return water lines, gas line and electrical wiring to operate as one integrated system with single point connections. Additional system features include:

- staging of individual Chiller modules by each five ton unit’s microprocessor board or through optional DDC control;
- centralized control panel with individual circuit breakers for each Chiller module.
- single point connection for supply / return water lines, gas line and electrical power source;
- connection points for control switch and water circulating pump;

Every chiller module includes:

- steel sealed circuit, painted with external epoxy paint;
- steel tube air exchanger with single-row coil and aluminum fins;
- titanium stainless steel tube bundle water heat exchanger, with external insulation;
- variable speed condenser fan, microprocessor controlled;
- S60 Electronic Control Board with integrated microprocessor, LCD display and encoder located inside the electric box; it is programmable and it controls and monitors the operation of the chiller module;
- sealed circuit high temperature limit; located on the external wall of the generator; helps prevent overheating of the generator;

- flue gas temperature limit switch; located inside the rear portion of the combustion chamber; helps prevent overheating of the generator;
- sealed circuit safety relief valve;
- premixed multigas burner with ignition and flame sensing device managed by an electronic control box;
- differential air pressure switch; located inside the electric box; it helps manage the combustion system by monitoring the air flowing into the air-gas mixing chamber and stopping the burner if the air flow is too low;
- ignition control box; located inside the electric box; it manages the combustion system controlling the burner ignition, the gas valve, the air pressure

- switch, the air blower and the flame sensor;
- dual gas valve;
- chilled water flow sensor; located on the return chilled water line; it monitors the water flow and helps prevent freezing of the evaporator;
- safety by-pass valve; located inside the sealed system; prevents over pressurizing the sealed system;
- antifreeze function for hydronic system; together with the flow switch, this electronic function, programmed into the microprocessor, helps prevent freezing of the evaporator;
- temperature probes; located both on the sealed system and on the water lines; they monitor functional parameters of the unit.

CUSTOM MODULAR LINK CONFIGURATIONS AVAILABLE: please contact Robur Corporation or your local Robur Sales Representative for various options not listed in the tables below.

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

UNIT SPECIFICATIONS / PERFORMANCE RATINGS <sup>(1)</sup>			RTCF120 ST	RTCF120 HT	RTCF120 TK	RTCF120 LB
Cooling capacity <sup>(2)</sup>	TON		10	10	10	7.7
Delivered Cooling Capacity	BTU/h		121,000	116,700	121,000	90,800
Gas Input,	BTU/h		189,800	189,800	189,800	189,800
Ambient Operating Temperatures	maximum	°F	120	131	120	120
	minimum	°F	32	32	10.4	10.4
Condenser Air Flow per 5 Ton Chiller Module <sup>(3)</sup>	nominal		6,000	6,000	6,000	6,000
	minimum		2,000	2,000	2,000	2,000
	quantity of Chiller Modules		2	2	2	2
Sound Rating <sup>(4)</sup>	min/max	dB(A)	48/58	48/58	48/58	48/58
Inlet Max (To the unit) Chilled Water Temperature		°F	113	113	113	113
Outlet Min (From the unit) Chilled Water Temperature		°F	37.4	41.0	37.4	14

CHILLED WATER DATA <sup>(5)</sup>			RTCF120 ST	RTCF120 HT	RTCF120 TK	RTCF120 LB
Return Water Temperature		°F	55.0	55.0	55.0	33.0
Supply Water Temperature		°F	45.0	45.0	45.0	23.0
Water Quantity Flow Rate, Nominal		GPM	37	45	37	34
Maximum Water Flow Rate		GPM	28.6	28.6	28.6	25.5
Minimum Water Flow Rate		GPM	22.0	22.0	22.0	20.2
Internal Pressure Drop		Ft. of Head (psig)	12.6 (5.4)	12 (5.2)	12.6 (5.4)	17.3 (7.5)
Unit water volume		gallons approximate	5.75	5.75	5.75	5.75

ELECTRICAL			RTCF120 ST	RTCF120 HT	RTCF120 TK	RTCF120 LB
Required Voltage, 60 Hz, Single Phase <sup>(6)</sup>			208/230	208/230	208/230	208/230
Condenser Fan Motor HP (Variable Speed) and quantity			1/2 (2)	1/2 (2)	1/2 (2)	1/2 (2)
Full load/locked rotor amps, each motor, nominal			3.1/6.2	3.1/6.2	3.1/6.2	3.1/6.2
Refrigerant Circuit Pump Motor HP and quantity			1/2 (2)	1/2 (2)	1/2 (2)	1/2 (2)
Full load/locked rotor amps, each motor, nominal			3.1/24.2	3.1/24.2	3.1/24.2	3.1/24.2
Total cooling Operating KW Consumption <sup>(7)</sup>			1.5	1.5	1.5	1.5
Minimum Circuit Ampacity (MCA) / (# of circuits)			16 (1)	16 (1)	16 (1)	16 (1)
Maximum Over Current Protection (MOCP)			21.8	BREAKERS FACTORY INSTALLED		
Electrical Entrance Knockouts		diameter	FIELD INSTALLED			

PIPING CONNECTIONS			RTCF120 ST	RTCF120 HT	RTCF120 TK	RTCF120 LB
Chilled Water Supply and Return		FPT	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Gas Inlet		FPT	1"	1"	1"	1"
Refrigerant Type			R-717	R-717	R-717	R-717

<sup>(1)</sup> All illustrations and specifications contained herein are based on the latest information available at the time of publication approval. Robur reserves the right to make changes at any time without notice, in materials, specifications, and models or to discontinue models.

<sup>(2)</sup> Capacity at standard conditions of 95 °F ambient temperature. Chilled water Outlet temperature 45 °F (23 °F for LB), chilled water Inlet temperature 55°F (33 °F for LB). Capacity characteristics are shown in the table below. Interpolations between tabled values are permissible, but do not extrapolate. For capacities at ambient temperatures higher than in table, contact Robur or your authorized Robur representative.

<sup>(3)</sup> Fan speed is reduced when external temperature is less than 91 °F. Nominal CFM

6,000; Minimal CFM 2,000.

<sup>(4)</sup> Recorded 16 feet from unit in open space. When the ambient temperature is less than 91°F, there is a reduction in condenser fan speed.

<sup>(5)</sup> "Chilled Water" refers to a solution of quality tap water and 10% by volume of inhibited permanent antifreeze. Higher antifreeze concentrations may be required to protect water circuit to lowest expected ambient conditions for the installation area. DO NOT USE WELL WATER.

<sup>(6)</sup> Units are factory-wired for 230 volts, 60 Hz single-phase operation.

<sup>(7)</sup> May vary by ±10% as a function of both power supply and electrical motor input tolerance. Consumption does not include water circulating pump and air handler(s).

UNIT SPECIFICATIONS / PERFORMANCE RATINGS <sup>(1)</sup>			RTCF180 ST	RTCF180 HT	RTCF180 TK	RTCF180 LB
Cooling capacity <sup>(2)</sup>	TON		15	15	15	11.5
Delivered Cooling Capacity	BTU/h		181,500	175,000	181,500	136,200
Gas Input,	BTU/h		284,700	284,700	284,700	284,700
Ambient Operating Temperatures	maximum	°F	120	131	120	120
	minimum	°F	32	32	10.4	10.4
Condenser Air Flow per 5 Ton Chiller Module <sup>(3)</sup>	nominal		6,000	6,000	6,000	6,000
	minimum		2,000	2,000	2,000	2,000
	quantity of Chiller Modules		3	3	3	3
Sound Rating <sup>(4)</sup>	min/max	dB(A)	48/60	48/60	48/60	48/60
Inlet Max (To the unit) Chilled Water Temperature		°F	113	113	113	113
Outlet Min (From the unit) Chilled Water Temperature		°F	37.4	41.0	37.4	14

CHILLED WATER DATA <sup>(5)</sup>			RTCF180 ST	RTCF180 HT	RTCF180 TK	RTCF180 LB
Return Water Temperature		°F	55.0	55.0	55.0	33.0
Supply Water Temperature		°F	45.0	45.0	45.0	23.0
Water Quantity Flow Rate, Nominal		GPM	37	45	37	34
Maximum Water Flow Rate		GPM	42.4	42.4	42.4	38.2
Minimum Water Flow Rate		GPM	33.0	33.0	33.0	30.3
Internal Pressure Drop		Ft. of Head (psig)	12.6 (5.4)	12 (5.2)	12.6 (5.4)	17.3 (7.5)
Unit water volume		gallons approximate	8.75	8.75	8.75	8.75

ELECTRICAL			RTCF180 ST	RTCF180 HT	RTCF180 TK	RTCF180 LB
Required Voltage, 60 Hz, Single Phase <sup>(6)</sup>			208/230	208/230	208/230	208/230
Condenser Fan Motor HP (Variable Speed) and quantity			1/2 (3)	1/2 (3)	1/2 (3)	1/2 (3)
Full load/locked rotor amps, each motor, nominal			3.1/6.2	3.1/6.2	3.1/6.2	3.1/6.2
Refrigerant Circuit Pump Motor HP and quantity			1/2 (3)	1/2 (3)	1/2 (3)	1/2 (3)
Full load/locked rotor amps, each motor, nominal			3.1/24.2	3.1/24.2	3.1/24.2	3.1/24.2
Total cooling Operating KW Consumption <sup>(7)</sup>			2.25	2.25	2.25	2.25
Minimum Circuit Ampacity (MCA) / (# of circuits)			24 (1)	24 (1)	24 (1)	24 (1)
Maximum Over Current Protection (MOCP)			32.7	BREAKERS FACTORY INSTALLED		
Electrical Entrance Knockouts		diameter	FIELD INSTALLED			

PIPING CONNECTIONS			RTCF180 ST	RTCF180 HT	RTCF180 TK	RTCF180 LB
Chilled Water Supply and Return		FPT	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Gas Inlet		FPT	1"	1"	1"	1"
Refrigerant Type			R-717	R-717	R-717	R-717

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<sup>(2)</sup> Capacity at standard conditions of 95 °F ambient temperature. Chilled water Outlet temperature 45°F (23 °F for LB), chilled water Inlet temperature 55 °F (33 °F for LB). Capacity characteristics are shown in the table below. Interpolations between tabled values are permissible, but do not extrapolate. For capacities at ambient temperatures higher than in table, contact Robur or your authorized Robur representative.

<sup>(3)</sup> Aan speed is reduced when external temperature is less than 91 °F. Nominal CFM

6,000; Minimal CFM 2,000.

<sup>(4)</sup> Recorded 16 feet from unit in open space. When the ambient temperature is less than 91°F, there is a reduction in condenser fan speed.

<sup>(5)</sup> "Chilled Water" refers to a solution of quality tap water and 10% by volume of inhibited permanent antifreeze. Higher antifreeze concentrations may be required to protect water circuit to lowest expected ambient conditions for the installation area. DO NOT USE WELL WATER.

<sup>(6)</sup> AUnits are factory-wired for 230 volts, 60 Hz single-phase operation.

<sup>(7)</sup> May vary by ±10% as a function of both power supply and electrical motor input tolerance. Consumption does not include water circulating pump and air handler(s).

UNIT SPECIFICATIONS / PERFORMANCE RATINGS <sup>(1)</sup>			RTCF240 ST	RTCF240 HT	RTCF240 TK	RTCF240 LB
Cooling capacity <sup>(2)</sup>	TON		20	20	20	15
Delivered Cooling Capacity	BTU/h		242,000	233,400	242,000	181,600
Gas Input,	BTU/h		379,600	379,600	379,600	379,600
Ambient Operating Temperatures	maximum	°F	120	131	120	120
	minimum	°F	32	32	10.4	10.4
Condenser Air Flow per 5 Ton Chiller Module <sup>(3)</sup>	nominal		6,000	6,000	6,000	6,000
	minimum		2,000	2,000	2,000	2,000
	quantity of Chiller Modules		4	4	4	4
Sound Rating <sup>(4)</sup>	min/max	dB(A)	48/61	48/61	48/61	48/61
Inlet Max (To the unit) Chilled Water Temperature		°F	113	113	113	113
Outlet Min (From the unit) Chilled Water Temperature		°F	37.4	41.0	37.4	14

CHILLED WATER DATA <sup>(5)</sup>			RTCF240 ST	RTCF240 HT	RTCF240 TK	RTCF240 LB
Return Water Temperature		°F	55.0	55.0	55.0	33.0
Supply Water Temperature		°F	45.0	45.0	45.0	23.0
Water Quantity Flow Rate, Nominal		GPM	49	47	49	46
Maximum Water Flow Rate		GPM	56.5	56.5	56.5	51
Minimum Water Flow Rate		GPM	44.0	44.0	44.0	40.4
Internal Pressure Drop		Ft. of Head (psig)	12.6 (5.4)	12 (5.2)	12.6 (5.4)	17.3 (7.5)
Unit water volume		gallons approximate	11.5	11.5	11.5	11.5

ELECTRICAL			RTCF240 ST	RTCF240 HT	RTCF240 TK	RTCF240 LB
Required Voltage, 60 Hz, Single Phase <sup>(6)</sup>			208/230	208/230	208/230	208/230
Condenser Fan Motor HP (Variable Speed) and quantity			1/2 (4)	1/2 (4)	1/2 (4)	1/2 (4)
Full load/locked rotor amps, each motor, nominal			3.1/6.2	3.1/6.2	3.1/6.2	3.1/6.2
Refrigerant Circuit Pump Motor HP and quantity			1/2 (4)	1/2 (4)	1/2 (4)	1/2 (4)
Full load/locked rotor amps, each motor, nominal			3.1/24.2	3.1/24.2	3.1/24.2	3.1/24.2
Total cooling Operating KW Consumption <sup>(7)</sup>			3	3	3	3
Minimum Circuit Ampacity (MCA) / (# of circuits)			32 (1)	32 (1)	32 (1)	32 (1)
Maximum Over Current Protection (MOCP)			43.6	BREAKERS FACTORY INSTALLED		
Electrical Entrance Knockouts		diameter	FIELD INSTALLED			

PIPING CONNECTIONS			RTCF240 ST	RTCF240 HT	RTCF240 TK	RTCF240 LB
Chilled Water Supply and Return		FPT	2"	2"	2"	2"
Gas Inlet		FPT	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Refrigerant Type			R-717	R-717	R-717	R-717

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<sup>(2)</sup> Capacity at standard conditions of 95 °F ambient temperature. Chilled water Outlet temperature 45 °F (23 °F for LB), chilled water Inlet temperature 55°F (33 °F for LB). Capacity characteristics are shown in the table below. Interpolations between tabled values are permissible, but do not extrapolate. For capacities at ambient temperatures higher than in table, contact Robur or your authorized Robur representative.

<sup>(3)</sup> Fan speed is reduced when external temperature is less than 91 °F. Nominal CFM

6,000; Minimal CFM 2,000.

<sup>(4)</sup> Recorded 16 feet from unit in open space. When the ambient temperature is less than 91°F, there is a reduction in condenser fan speed.

<sup>(5)</sup> "Chilled Water" refers to a solution of quality tap water and 10% by volume of inhibited permanent antifreeze. Higher antifreeze concentrations may be required to protect water circuit to lowest expected ambient conditions for the installation area. DO NOT USE WELL WATER.

<sup>(6)</sup> Units are factory-wired for 230 volts, 60 Hz single-phase operation.

<sup>(7)</sup> May vary by ±10% as a function of both power supply and electrical motor input tolerance. Consumption does not include water circulating pump and air handler(s).

UNIT SPECIFICATIONS / PERFORMANCE RATINGS <sup>(1)</sup>			RTCF300 ST	RTCF300 HT	RTCF300 TK	RTCF300 LB
Cooling capacity <sup>(2)</sup>	TON		25	25	25	19
Delivered Cooling Capacity	BTU/h		302,500	291,800	302,600	227,000
Gas Input,	BTU/h		474,500	474,500	474,500	474,500
Ambient Operating Temperatures	maximum	°F	120	131	120	120
	minimum	°F	32	32	10.4	10.4
Condenser Air Flow per 5 Ton Chiller Module <sup>(3)</sup>	nominal		6,000	6,000	6,000	6,000
	minimum		2,000	2,000	2,000	2,000
	quantity of Chiller Modules		5	5	5	5
Sound Rating <sup>(4)</sup>	min/max	dB(A)	48/62	48/62	48/62	48/62
Inlet Max (To the unit) Chilled Water Temperature		°F	113	113	113	113
Outlet Min (From the unit) Chilled Water Temperature		°F	37.4	41.0	37.4	14

CHILLED WATER DATA <sup>(5)</sup>			RTCF300 ST	RTCF300 HT	RTCF300 TK	RTCF300 LB
Return Water Temperature		°F	55.0	55.0	55.0	33.0
Supply Water Temperature		°F	45.0	45.0	45.0	23.0
Water Quantity Flow Rate, Nominal		GPM	61	59	61	57
Maximum Water Flow Rate		GPM	70.6	70.6	70.6	64
Minimum Water Flow Rate		GPM	55.0	55.0	55.0	50.5
Internal Pressure Drop		Ft. of Head (psig)	12.6 (5.4)	12 (5.2)	12.6 (5.4)	17.3 (7.5)
Unit water volume		gallons approximate	14.25	14.25	14.25	14.25

ELECTRICAL			RTCF300 ST	RTCF300 HT	RTCF300 TK	RTCF300 LB
Required Voltage, 60 Hz, Single Phase <sup>(6)</sup>			208/230	208/230	208/230	208/230
Condenser Fan Motor HP (Variable Speed) and quantity			1/2 (5)	1/2 (5)	1/2 (5)	1/2 (5)
Full load/locked rotor amps, each motor, nominal			3.1/6.2	3.1/6.2	3.1/6.2	3.1/6.2
Refrigerant Circuit Pump Motor HP and quantity			1/2 (5)	1/2 (5)	1/2 (5)	1/2 (5)
Full load/locked rotor amps, each motor, nominal			3.1/24.2	3.1/24.2	3.1/24.2	3.1/24.2
Total cooling Operating KW Consumption <sup>(7)</sup>			3.75	3.75	3.75	3.75
Minimum Circuit Ampacity (MCA) / (# of circuits)			40 (1)	40 (1)	40 (1)	40 (1)
Maximum Over Current Protection (MOCP)			54.5	BREAKERS FACTORY INSTALLED		
Electrical Entrance Knockouts		diameter	FIELD INSTALLED			

PIPING CONNECTIONS			RTCF300 ST	RTCF300 HT	RTCF300 TK	RTCF300 LB
Chilled Water Supply and Return		FPT	2"	2"	2"	2"
Gas Inlet		FPT	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Refrigerant Type			R-717	R-717	R-717	R-717

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<sup>(2)</sup> Capacity at standard conditions of 95 °F ambient temperature. Chilled water Outlet temperature 45°F (23 °F for LB), chilled water Inlet temperature 55 °F (33 °F for LB). Capacity characteristics are shown in the table below. Interpolations between tabled values are permissible, but do not extrapolate. For capacities at ambient temperatures higher than in table, contact Robur or your authorized Robur representative.

<sup>(3)</sup> Aan speed is reduced when external temperature is less than 91 °F. Nominal CFM

6,000; Minimal CFM 2,000.

<sup>(4)</sup> Recorded 16 feet from unit in open space. When the ambient temperature is less than 91°F, there is a reduction in condenser fan speed.

<sup>(5)</sup> "Chilled Water" refers to a solution of quality tap water and 10% by volume of inhibited permanent antifreeze. Higher antifreeze concentrations may be required to protect water circuit to lowest expected ambient conditions for the installation area. DO NOT USE WELL WATER.

<sup>(6)</sup> AUnits are factory-wired for 230 volts, 60 Hz single-phase operation.

<sup>(7)</sup> May vary by ±10% as a function of both power supply and electrical motor input tolerance. Consumption does not include water circulating pump and air handler(s).

UNIT SPECIFICATIONS / PERFORMANCE RATINGS <sup>(1)</sup>			RTCF360 ST	RTCF360 HT	RTCF360 TK	RTCF360 LB
Cooling capacity <sup>(2)</sup>	TON		30	30	30	23
Delivered Cooling Capacity	BTU/h		363,100	350,200	363,100	272,400
Gas Input,	BTU/h		569,400	569,400	569,400	569,400
Ambient Operating Temperatures	maximum	°F	120	131	120	120
	minimum	°F	32	32	10.4	10.4
Condenser Air Flow per 5 Ton Chiller Module <sup>(3)</sup>	nominal		6,000	6,000	6,000	6,000
	minimum		2,000	2,000	2,000	2,000
	quantity of Chiller Modules		6	6	6	6
Sound Rating <sup>(4)</sup>	min/max	dB(A)	48/64	48/64	48/64	48/64
Inlet Max (To the unit) Chilled Water Temperature		°F	113	113	113	113
Outlet Min (From the unit) Chilled Water Temperature		°F	37.4	41.0	37.4	14

CHILLED WATER DATA <sup>(5)</sup>			RTCF360 ST	RTCF360 HT	RTCF360 TK	RTCF360 LB
Return Water Temperature		°F	55.0	55.0	55.0	33.0
Supply Water Temperature		°F	45.0	45.0	45.0	23.0
Water Quantity Flow Rate, Nominal		GPM	73.2	70.8	73.2	68.4
Maximum Water Flow Rate		GPM	84.6	84.6	84.6	76.8
Minimum Water Flow Rate		GPM	66.0	66.0	66.0	60.6
Internal Pressure Drop		Ft. of Head (psig)	12.6 (5.4)	12 (5.2)	12.6 (5.4)	17.3 (7.5)
Unit water volume		gallons approximate	17.25	17.25	17.25	17.25

ELECTRICAL			RTCF360 ST	RTCF360 HT	RTCF360 TK	RTCF360 LB
Required Voltage, 60 Hz, Single Phase <sup>(6)</sup>			208/230	208/230	208/230	208/230
Condenser Fan Motor HP (Variable Speed) and quantity			1/2 (6)	1/2 (6)	1/2 (6)	1/2 (6)
Full load/locked rotor amps, each motor, nominal			3.1/6.2	3.1/6.2	3.1/6.2	3.1/6.2
Refrigerant Circuit Pump Motor HP and quantity			1/2 (6)	1/2 (6)	1/2 (6)	1/2 (6)
Full load/locked rotor amps, each motor, nominal			3.1/24.2	3.1/24.2	3.1/24.2	3.1/24.2
Total cooling Operating KW Consumption <sup>(7)</sup>			4.5	4.5	4.5	4.5
Minimum Circuit Ampacity (MCA) / (# of circuits)			48 (1)	48 (1)	48 (1)	48 (1)
Maximum Over Current Protection (MOCP)			65.4	BREAKERS FACTORY INSTALLED		
Electrical Entrance Knockouts		diameter	FIELD INSTALLED			

PIPING CONNECTIONS			RTCF360 ST	RTCF360 HT	RTCF360 TK	RTCF360 LB
Chilled Water Supply and Return		FPT	2.5"	2.5"	2.5"	2.5"
Gas Inlet		FPT	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Refrigerant Type			R-717	R-717	R-717	R-717

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<sup>(2)</sup> Capacity at standard conditions of 95 °F ambient temperature. Chilled water Outlet temperature 45 °F (23 °F for LB), chilled water Inlet temperature 55°F (33 °F for LB). Capacity characteristics are shown in the table below. Interpolations between tabled values are permissible, but do not extrapolate. For capacities at ambient temperatures higher than in table, contact Robur or your authorized Robur representative.

<sup>(3)</sup> Fan speed is reduced when external temperature is less than 91 °F. Nominal CFM

6,000; Minimal CFM 2,000.

<sup>(4)</sup> Recorded 16 feet from unit in open space. When the ambient temperature is less than 91°F, there is a reduction in condenser fan speed.

<sup>(5)</sup> "Chilled Water" refers to a solution of quality tap water and 10% by volume of inhibited permanent antifreeze. Higher antifreeze concentrations may be required to protect water circuit to lowest expected ambient conditions for the installation area. DO NOT USE WELL WATER.

<sup>(6)</sup> Units are factory-wired for 230 volts, 60 Hz single-phase operation.

<sup>(7)</sup> May vary by ±10% as a function of both power supply and electrical motor input tolerance. Consumption does not include water circulating pump and air handler(s).

**STANDARD VERSION - COOLING CAPACITY (BTU/h)**

External ambient operating temperature	Outlet chilled water temperature			
	37.4 °F	41.0 °F	44.6 °F	48.2 °F
32 °F	59,307	59,912	61,123	62,323
41 °F	59,307	59,912	61,123	62,333
50 °F	59,307	59,912	61,123	62,323
59 °F	59,307	59,912	61,123	62,333
68 °F	59,307	59,912	61,123	62,323
77 °F	58,701	59,912	61,123	62,333
86 °F	54,465	59,307	61,123	62,333
95 °F	40,546	52,650	60,517	61,727
104 °F	--	--	53,255	56,281
113 °F	--	--	40,546	47,203
120 °F	--	--	--	39,336

**HT VERSION - COOLING CAPACITY (BTU/h)**

External ambient operating temperature	Outlet chilled water temperature				
	41.0 °F	44.6 °F	50.0 °F	54.5 °F	57.2 °F
32.0 °F	59,637	59,637	59,637	59,637	60,222
35.6 °F	59,637	59,637	59,637	59,637	60,222
39.2 °F	59,637	59,637	59,637	59,637	60,222
42.8 °F	59,637	59,637	59,637	59,637	60,222
46.4 °F	59,637	59,637	59,637	59,637	60,222
50.0 °F	59,637	59,637	59,637	59,637	60,222
53.6 °F	59,637	59,637	59,637	59,637	60,222
57.2 °F	59,637	59,637	59,637	59,637	60,222
60.8 °F	59,637	59,637	59,637	59,637	60,222
64.4 °F	59,637	59,637	59,637	59,637	60,222
68.0 °F	59,637	59,637	59,637	59,637	60,222
71.6 °F	59,637	59,637	59,637	59,637	60,222
75.2 °F	59,637	59,637	59,637	59,637	60,222
78.8 °F	59,053	59,637	59,637	59,637	60,222
82.4 °F	59,053	59,637	59,637	59,637	60,222
86.0 °F	59,053	59,637	59,637	59,637	60,222
89.6 °F	57,883	59,637	59,637	59,637	60,222
93.2 °F	56,129	59,053	59,053	59,053	59,637
95.0 °F	54,960	58,368	58,468	59,053	59,637
96.8 °F	53,791	57,883	58,468	58,468	59,637
100.4 °F	50,867	56,714	57,883	57,883	59,053
104.0 °F	47,944	54,375	56,714	57,299	58,468
107.6 °F	--	51,452	54,960	56,714	57,883
111.2 °F	--	47,944	53,206	55,545	56,714
114.8 °F	--	--	50,282	53,791	55,545
118.4 °F	--	--	46,774	50,867	53,206
131.0 °F	--	--	--	47,359	50,282



**TK VERSION - COOLING CAPACITY (BTU/h)**

External ambient operating temperature	Outlet chilled water temperature			
	37.4 °F	41.0 °F	44.6 °F	48.2 °F
10.4 °F	71,410	71,410	72,015	72,620
17.6 °F	70,805	70,805	71,410	72,015
24.8 °F	70,200	70,200	70,200	71,410
32.0 °F	69,595	69,595	69,595	70,200
39.2 °F	68,989	68,989	68,989	69,595
46.4 °F	67,779	68,384	68,384	68,989
53.6 °F	67,779	67,779	67,779	68,384
60.8 °F	67,174	67,174	67,779	67,779
68.0 °F	65,964	65,964	67,174	67,174
75.2 °F	64,148	64,148	66,569	66,569
82.4 °F	59,307	61,727	65,358	65,358
89.6 °F	51,439	57,491	62,938	64,148
95.0 °F	41,757	52,650	60,517	62,333
100.4 °F	--	--	56,886	59,912
107.6 °F	--	--	50,229	55,070
113.0 °F	--	--	--	49,624
120.0 °F	--	--	--	42,057

**LB VERSION - COOLING CAPACITY (BTU/h)**

External ambient operating temperature	Outlet chilled water temperature				
	14.0 °F	19.4 °F	23.0 °F	28.4 °F	32.0 °F
32.0 °F	52,007	52,217	52,426	52,801	53,176
33.8 °F	52,007	52,217	52,426	52,801	53,176
35.6 °F	52,007	52,217	52,426	52,801	53,176
37.4 °F	52,007	52,217	52,426	52,801	53,176
39.2 °F	52,007	52,217	52,426	52,801	53,176
41.0 °F	52,007	52,217	52,426	52,801	53,176
42.8 °F	52,007	52,217	52,426	52,801	53,176
44.6 °F	52,007	52,217	52,426	52,801	53,176

**LB VERSION - COOLING CAPACITY (BTU/h)**

External ambient operating temperature	Outlet chilled water temperature				
	14.0 °F	19.4 °F	23.0 °F	28.4 °F	32.0 °F
46.4 °F	52,007	52,200	52,392	52,784	53,176
48.2 °F	52,007	52,183	52,358	52,767	53,176
50.0 °F	52,007	52,166	52,324	52,750	53,176
51.8 °F	51,965	52,127	52,290	52,733	53,176
53.6 °F	51,904	52,080	52,256	52,716	53,176
55.4 °F	51,822	52,022	52,221	52,699	53,176
57.2 °F	51,718	51,952	52,187	52,681	53,176
59.0 °F	51,588	51,884	52,181	52,678	53,176
60.8 °F	51,430	51,793	52,157	52,666	53,176
62.6 °F	51,241	51,677	52,113	52,644	53,176
64.4 °F	51,020	51,533	52,047	52,610	53,172
66.2 °F	50,763	51,360	51,957	52,563	53,169
68.0 °F	50,469	51,155	51,841	52,503	53,166
69.8 °F	50,134	50,915	51,696	52,423	53,149
71.6 °F	49,757	50,638	51,520	52,314	53,107
73.4 °F	49,334	50,322	51,311	52,174	53,038
75.2 °F	48,864	49,965	51,067	52,002	52,937
77.0 °F	48,343	49,564	50,785	51,795	52,805
78.8 °F	47,771	49,117	50,464	51,551	52,637
80.6 °F	47,143	48,622	50,101	51,267	52,432
82.4 °F	46,458	48,076	49,694	50,941	52,188
84.2 °F	45,713	47,476	49,240	50,571	51,901
86.0 °F	44,905	46,822	48,738	50,155	51,571
87.8 °F	44,033	46,109	48,186	49,690	51,194
89.6 °F	43,093	45,337	47,580	49,174	50,768
91.4 °F	42,084	44,502	46,919	48,605	50,291
93.2 °F	41,003	43,602	46,201	47,981	49,760
95.0 °F	39,847	42,635	45,400	47,299	49,174
96.8 °F	38,614	41,599	44,584	46,557	48,530
98.6 °F	37,302	40,491	43,681	45,753	47,825
100.4 °F	35,907	39,309	42,711	44,884	47,057
102.2 °F	34,428	38,051	41,673	43,949	46,225
104.0 °F	32,863	36,713	40,564	42,945	45,325
105.8 °F	31,208	35,295	39,383	41,869	44,356
107.6 °F	29,461	33,794	38,126	40,720	43,314
109.4 °F	27,620	32,206	36,793	39,496	42,198
111.2 °F	25,682	30,531	35,379	38,193	41,006
113.0 °F	23,645	28,765	33,885	36,810	39,735
120.0 °F	--	--	28,004	31,587	35,176

**Glycol percentage information**

(All numbers are approximate - see glycol manufacturer specs for more accurate information)

It is essential, regardless of the glycol in question, to verify that it is adequately inhibited and that the necessary checks are routinely performed during its entire period of use.

Antifreeze liquids for cars, which do not contain inhibiting components (other than mono-ethylene glycol), are not recommended for cooling and heating systems. The manufacturer does not accept any contractual or extra-contractual liability for damage caused by the incorrect use or disposal of glycol antifreeze. It is important to note that the use of glycol modifies

the characteristics of the water in the plant, and in particular its density, viscosity and specific average heat. The table below gives the approximate freezing temperature of water containing monoethylene glycol and the consequent increased pressure drop of the system, according to the percentage of glycol. This table should be taken into account when sizing of

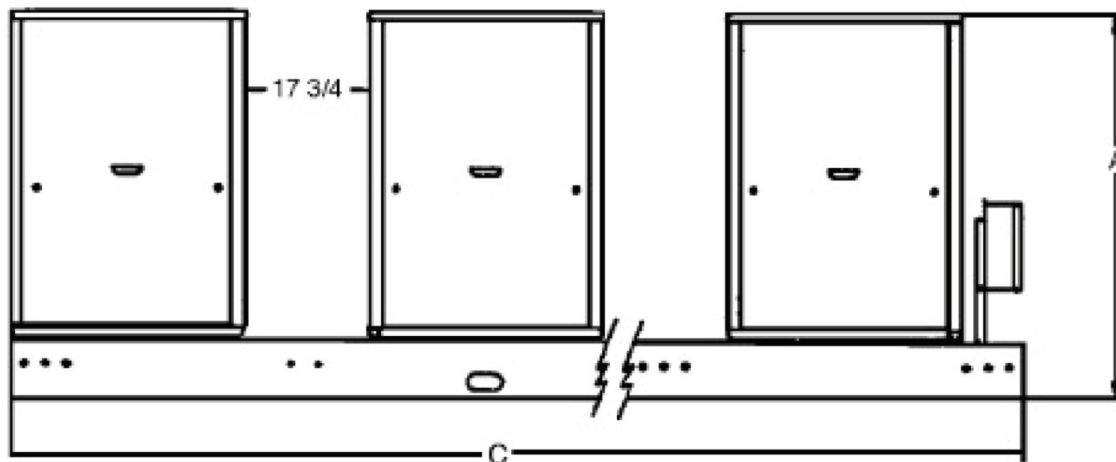
the pipes and the circulation pump for the system. It is advisable to consult the technical specifications of the glycol used to verify pressure drop and capacity loss. If automatic fill systems are used, a seasonal check of the quantity of glycol present in the plant is also necessary.

**APPROXIMATE WATER FREEZING POINT TEMPERATURE**

Percentage of monoethylene glycol	10	15	20	25	30	35	40
Water freezing point temperature (°F)	26.6	23.0	17.6	10.4	5.0	-4.0	-13.0
Percentage of increase in pressure drop	--	6	8	10	12	14	16
Loss of efficiency of unit	--	0.5	1	2	2.5	3	4

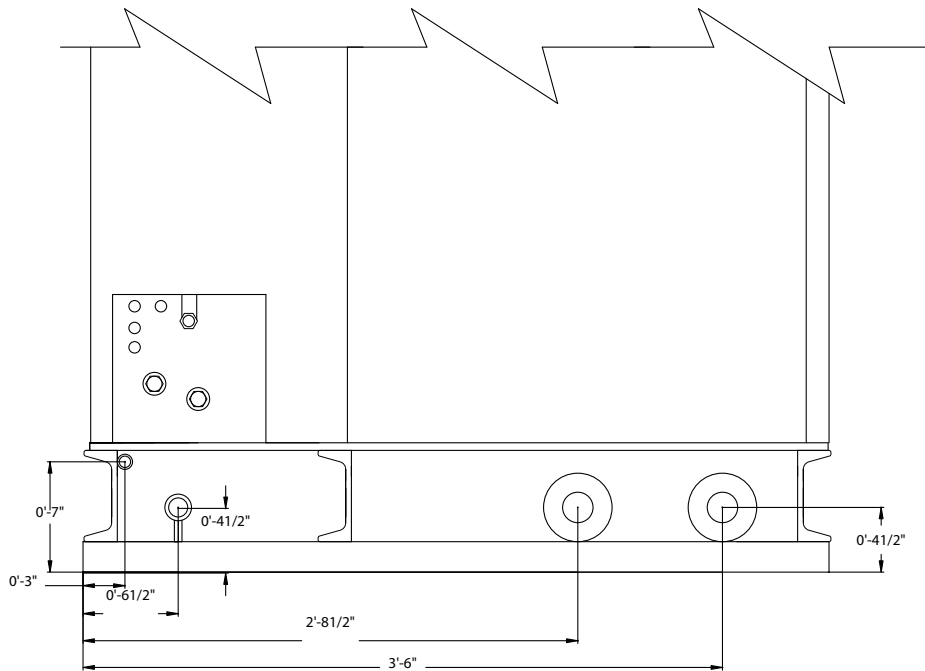
The numbers provided in this table are approximate and you must refer to the glycol manufacturer's instructions for additional instructions and amount of glycol required based on expected ambient conditions.

**RTCF DIMENSIONS (ALL VERSIONS)**



MODEL	A	B depth (not shown)	C	Approximate Weight (lb)	
				shipping	operating
RTCF120	54.00	49.0	102.0	1,992	2,028
RTCF180	54.00	49.0	153.0	2,990	3,042
RTCF240	54.00	49.0	204.0	3,973	4,056
RTCF300	54.00	49.0	255.0	3,973	5,070
RTCF360	54.00	49.0	306.0	6,000	6,138

**RTCF PIPING CONNECTIONS (ALL VERSIONS)**



**Clearances**

- Area required for service and condenser air: minimum clearance of 18" on sides; 36" front and 24" rear.
- Vertical condenser discharge air must not be obstructed by over-hanging objects.
- Keep unit clear of building roof drip line or gutters.
- Other clearance limitations may apply in specialty applications.
- For outdoor installation only. Note: protect water circuit to the lowest expected ambient temperature (a minimum concentration of 20% inhibited permanent antifreeze is required).

**Location**

The RTCF Series package must be installed outdoors in an area of free natural air circulation. Installation inside a room is not allowed.

There must be a minimum clearance of 4 foot horizontally from electric meters, gas meters, regulators, and relief equipment. In no case should the equipment be located above or below these items unless a 4 feet horizontal distance is maintained.

The units can be installed at ground level, on a platform or on the roof (If the structure is capable of supporting its weight).

The noise generated by the condenser/absorber fan during cooling operation is not excessive. However, avoid locating the unit in an area close to sleeping quarters or neighbouring buildings. Installation in building corners, where air turbulence can take place and the equipment noise can be amplified (reverberation),

is to be avoided. Around the unit a free and natural air space is to be provided to allow proper intake of the air needed for unit cooling and for servicing. The minimum clearance from walls, obstructions and other units must be as follows:

- right/left sides: 18 inches;
- rear side: 24 inches;
- front side & control box end 36 inches.

There MUST NOT be any obstructions or structural overhangs (roof edges, balconies) over the top of the unit. The re-circulation of the air discharged from the condenser fans must be avoided. Otherwise, poor unit performance may result. When the unit is installed near buildings, keep the unit away from the roof edge drip line. In no case should the unit be placed near any

external air intakes of the building. For installation on balconies or roofs, the unit should not be located in close proximity of chimney flues, outlets and other such vents. It is important that the unit not be installed in such a manner that hot or contaminated air may be drawn into the air intakes of the unit. Check local codes for required minimum installation distances.

**Ground installation**

Ground level units should be supported on a level concrete pad thick enough to prevent shifting. Thickness shall be determined by local soil conditions. Pad should be slightly larger than the unit's rail structure (6 inches on each side is recommended). Do not allow the concrete pad to touch the building

foundation or structure. Unit operational noise and vibration can be transmitted inside if pad is allowed to come in contact with building.

**Roof / Terrace installation**

The building structure/roof joists must be capable of supporting both the unit and any structural base weight. Check operating weight for your particular model in “RTCF Dimensions” section of this document. Provide for a gangway all around the unit for maintenance purposes.

Clearances must be respected for roof installations as well. Installation on roofs directly above sleeping quarters should be avoided if possible. If not possible, special consideration must be given to the transmission characteristics of the building structure, the use of vibration isolators under the equipment (acoustically insulated bases) and approved flexible connections (vibration-dampening pipe fittings) between the unit and the system piping is

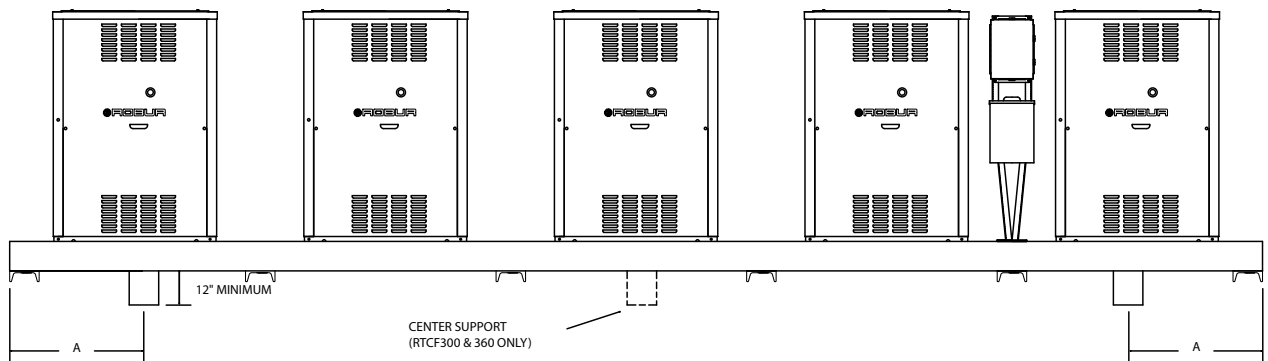
recommended. **Observe all local and State codes.**

**Handling and rigging**

Care must be used in rigging the unit for hoisting. Keep in mind that the unit weights approximately 2,000 to 5,000 pounds and that rough handling or dropping might cause damage to the unit or result in injury to personnel handling the unit. The cables or chains for hoisting should be chosen to support the weight. Attach hoist lines to channel bases’

hoisting slots and use spreader bars to prevent hoist lines from damaging unit panels, condenser coils and fins. The center of gravity from horizontal standpoint will be toward the center and front of the unit. When final positioning of unit, push or pry against base rails only. Complete Handling and Rigging instructions are provided with the unit upon shipping.

**RTCF SUPPORT DIAGRAM (ALL VERSIONS)**



LOCATION OF SUPPORTS				
	RTCF120	RTCF180	RTCF240	RTCF300
A	0" - 12"	18" - 30"	18" - 30"	12" - 24"

**Additional product & application information**

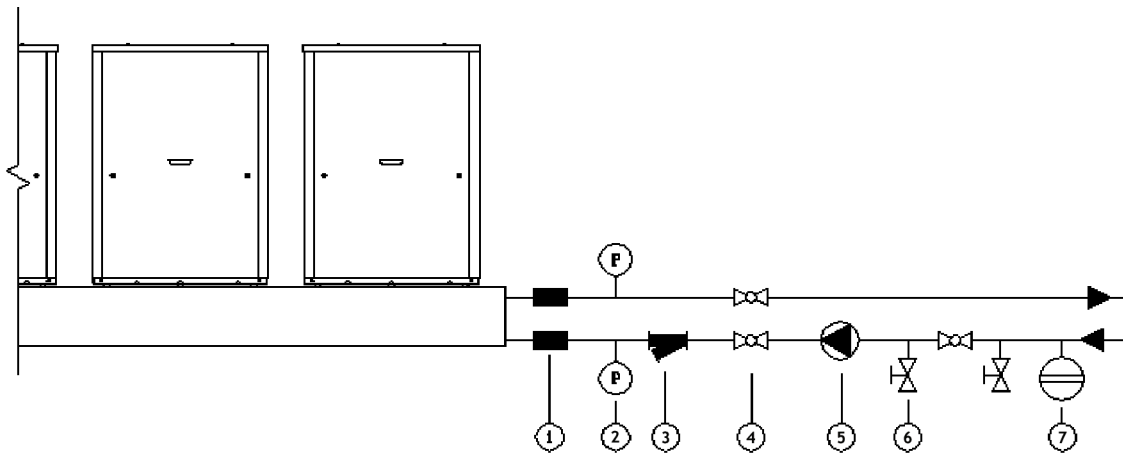
The RTCF Series includes closed evaporators in each five ton Chiller Module. The water loop will be pressurized and require an expansion tank and an air bleed installed at the highest point in the water loop. A concentration of permanent inhibited antifreeze/glycol must be added to the water loop to prevent freezing in your particular region. A minimum 20% concentration is required in all regions. Operating the unit with no antifreeze will result in freezing the water in the units' evaporator during mild weather or light cooling load

conditions. This freezing condition will result in improper water flow through the unit and may ultimately damage the units' evaporators. Chiller-Links do not include a chilled water-circulating pump. A pump must be sized and obtained locally for your particular application. Remember, when sizing the pump, each five ton Chiller module has a nominal flow rate of approximately 12 GPM with an internal pressure drop of 9.5 ft. of head. This flow rate must be provided to each five ton Chiller in the multiple unit configuration. Example: Model RTCF300 Five ACF60's manifolded into

a 25 ton system. Pressure drop for all five units = 9.5 ft. of head. Total flow rate = 60 GPM (5 units X 12 GPM) Also account for the additional pressure drop of the water piping, fittings, antifreeze concentration and coil(s) in the water loop when sizing the pump. The installer must ensure that the water pump and the RTCF unit start at the same time. Also, the pump must continue to run during the units' cycle down period (600 seconds after the opening of the control switch). Contacts in the Chiller-Link's control box may be used for this purpose if the pump's amp

draw does not exceed 4 amps. See RTCF Specification and Installation Manual for additional information. As indicated above, the water loop must contain a properly sized expansion tank and an air bleed must be installed at the highest point of the loop. In addition, water piping must include necessary fittings to properly fill the loop with a water/antifreeze mixture.

**RTCF HYDRONIC SYSTEM: Typical Installation Arrangement (External Components not included with Robur Unit)**



- 1 Antivibration flexible hoses
- 2 Pressure gauge
- 3 Water filter
- 4 Shut-off valve
- 5 Circulating water pump
- 6 Fill/drain valve
- 7 Expansion tank