



# AIR-COOLED LIQUID CHILLER



5-18 TONS

*CGAT R-407C Series 50 Hz*

TRANE  
TECHNOLOGIES





# CGAT - Human Comfort Solutions

## An answer to all your needs...

At Trane, we have listened to our customers. After many surveys and studies we have identified very strong demands in terms of

- installation
- acoustics
- energy efficiency
- reliability
- maintenance

for chilled water applications. That is why we have redesigned our water chillers and have come up with a new concept CGAT

**With CGAT chillers, you will find an answer to fit all your applications, whether it is comfort or process cooling.**

## Installation

All chillers are completely factory-wired with necessary capacity and safety controls, enclosed in a weathertight control panel with knockouts for jobsites fully assembled, tested, charged and ready to provide chilled water. No messy field assembly or refrigerant charging is required. Further, the unit has been designed for a single power and water connection.

## Maximum Efficiency and Reliability

- Lower noise operation and higher efficiency with the new generation higher EER scroll compressor.
- 64% fewer parts than a comparable capacity reciprocating compressor.
- Single rotating assembly minimizes the friction and mechanical losses.
- Smooth operation, similar to a centrifugal compressor, give low torque variation and extend motor life, and minimal vibration reducing wear.
- Solid mount with no internal suspension to be worn out.
- Integral inlet dirt separator removes contaminants.
- Rolling element bearings for higher efficiency reduced friction. No suction or discharge valves for improved efficiency compared to a reciprocating compressor.
- Protect compressor life with under/over voltage and phase protection.

## Easy Service

Our design allows you to remove any or all panels for service. We have paid careful attention to service details, and all units feature coded wiring, hinged control boxes, and mechanical controls for easy service.



## New Control Improvement

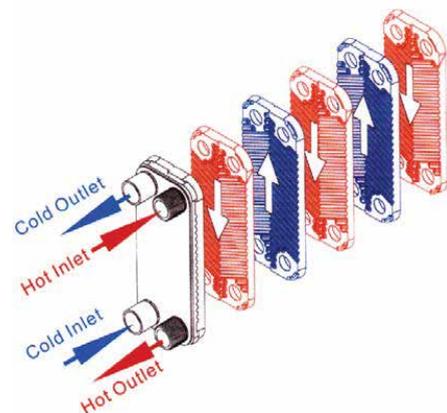
New control has been designed to provide more benefits to both building owner and service technician for optimum chiller control.

## Water Pump (Option)

A durable horizontal multistage centrifugal chilled water pump can be optionally installed from factory for the ease of field installation.

## Environmental Friendly

Use non-ozone depletion R-407C refrigerant to provide steady comfort with reliability and flexibility for all applications with effort to cool down the earth and protect our environment.

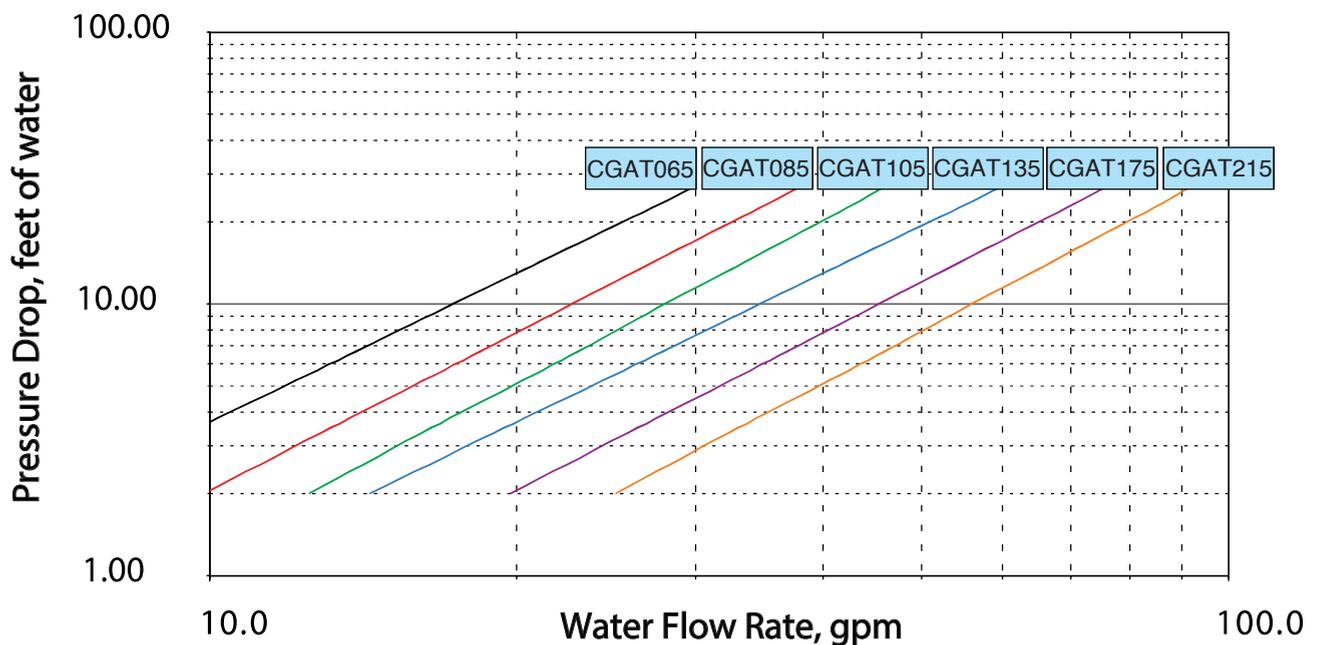


# TRANE - Human Comfort Solutions

## Air - Cooled Liquid Chiller



## Evaporator water pressure drop (feet of water)





# General Data

Model		CGAT065	CGAT085	CGAT105	CGAT135	CGAT175	CGAT215
<b>Unit Performance</b>							
Cooling Capacity	MBH	65.2	86.3	104.4	133.1	175.4	214.9
Main Power Supply	V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
MCA	A	21.7	26.2	26.2	39.3	47.4	47.4
No. of Refrigerant Circuits		1	1	1	2	2	2
<b>Compressor (Each)</b>							
Type				Hermetic Scroll			
Qty		1	1	1	2	2	2
Rated Amps	A	16.4	20.0	20.0	16.4	20.0	20.0
Locked-Rotor Amps	A	95.0	153.0	153.0	95.0	153.0	153.0
<b>Evaporator</b>							
Type				Braze-plate			
Water Flow Rate	GPM	13.0	17.3	20.9	26.6	35.1	43.0
<b>Water Connections</b>							
Type				Male			
Diameter		1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
<b>Outdoor Coil</b>							
Type				Corrugated Fin			
Rows		2	2	2	2	2	2
Fins per inch (fpf)		16 (192)	16 (192)	16 (192)	16 (192)	16 (192)	16 (192)
<b>Outdoor Fan</b>							
Type				Propeller			
Qty		1	1	1	2	2	2
Diameter	inch			28			
Drive Type				Direct			
Air Flow	CFM	4900	5800	6800	9800	11600	13600
<b>Fan Motor (Each)</b>							
QTY		1	1	1	2	2	2
Motor Output	Watt	300	300	300	300	300	300
Rated Amps	A	1.20	1.20	1.20	1.20	1.20	1.20
Locked-Rotor Amps	A	2.06	3.06	3.06	3.06	3.06	3.06
<b>Dimensions</b>							
Height	mm	1070	1070	1070	1050	1050	1050
Width	mm	950	950	950	2200	2200	2200
Depth	mm	1040	1040	1040	1050	1050	1050
Weight Uncrated	kg	181	204	250	406	452	472
<b>R-407C Refrigerant Charge</b> (per circuit)	kg	4.0	4.3	6.0	4.0	5.0	6.0

**Notes:**

Product design and specification are subject to change without notice.



## Performance Data - Cooling capacity

Model	LWT deg. F	Entering air temperature on condensing coil							
		75 deg. F		85 deg. F		95 deg. F		105 deg. F	
		Cooling Capacity MBH	Water Flow Rate US gpm.	Cooling Capacity MBH	Water Flow Rate US gpm.	Cooling Capacity MBH	Water Flow Rate US gpm.	Cooling Capacity MBH	Water Flow Rate US gpm.
CGAT065	42	68.2	13.6	66.7	13.3	63.3	12.7	59.9	12.0
	44	70.5	14.1	68.2	13.6	64.8	13.0	61.4	12.3
	45	72.4	14.5	69.0	13.8	65.2	13.0	62.2	12.4
	46	74.3	14.9	70.9	14.2	67.5	13.5	64.1	12.8
	48	75.1	15.0	71.7	14.3	68.2	13.6	64.8	13.0
	50	78.5	15.7	75.1	15.0	71.7	14.3	68.2	13.6
CGAT085	42	90.6	18.1	87.2	17.4	83.8	16.8	78.5	15.7
	44	94.4	18.9	91.0	18.2	85.3	17.1	80.8	16.2
	45	96.3	19.3	92.1	18.4	86.3	17.3	82.6	16.5
	46	98.2	19.6	92.1	18.4	88.0	17.6	84.5	16.9
	48	98.9	19.8	95.2	19.0	91.7	18.3	85.3	17.1
	50	102.4	20.5	98.9	19.8	92.1	18.4	88.7	17.7
CGAT105	42	111.1	22.2	104.3	20.9	100.8	20.2	94.0	18.8
	44	114.9	23.0	108.0	21.6	103.5	20.9	97.8	19.6
	45	116.0	23.2	109.9	22.0	104.4	20.9	99.7	19.9
	46	116.0	23.2	111.8	22.4	105.8	21.2	101.6	20.3
	48	119.0	23.8	115.6	23.1	108.8	21.8	105.4	21.1
	50	122.8	24.6	119.4	23.9	112.6	22.5	105.8	21.2
CGAT135	42	140.3	28.1	135.0	27.0	128.1	25.6	121.3	24.3
	44	145.6	29.1	138.8	27.8	131.9	26.4	125.1	25.0
	45	147.5	29.5	140.7	28.1	133.1	26.6	127.0	25.4
	46	149.4	29.9	142.5	28.5	135.7	27.1	128.9	25.8
	48	153.2	30.6	146.3	29.3	139.5	27.9	132.7	26.5
	50	157.0	31.4	150.1	30.0	146.7	29.3	136.5	27.3
CGAT175	42	186.1	37.2	177.8	35.6	169.1	33.8	158.8	31.8
	44	192.2	38.4	183.1	36.6	172.9	34.6	164.9	33.0
	45	195.2	39.0	185.8	37.2	175.4	35.1	167.9	33.6
	46	197.1	39.4	189.6	37.9	179.3	35.9	169.8	34.0
	48	204.0	40.8	194.1	38.8	183.9	36.8	173.6	34.7
	50	208.1	41.6	197.9	39.6	187.7	37.5	177.4	35.5
CGAT215	42	223.7	44.7	213.4	42.7	203.2	40.6	191.5	38.3
	44	229.7	45.9	219.5	43.9	209.3	41.9	196.8	39.4
	45	233.5	46.7	223.3	44.7	214.9	43.0	199.4	39.9
	46	237.3	47.5	227.1	45.4	216.0	43.2	203.2	40.6
	48	241.9	48.4	231.6	46.3	221.0	44.2	207.8	41.6
	50	249.1	49.8	238.8	47.8	225.2	45.0	215.0	43.0

Notes :

1. Ratings based on ARI Standard 590-92.
2. Data based on 10 deg.F water temperature rise.
3. LWT - LeavingWater Temperature.
4. Product design and specification are subject to change without notice.

# Mechanical Specification

## General

Unit shall be assembled on heavy gauge steel mounting/lifting rails and shall be weatherproof. Units shall include a hermetic scroll compressor (s), fin and tube condenser coil, fans and motors, controls and fully charge of R-407C. Units rated in accordance with ARI Standard 590-92.

## Casing

Unit casing shall be constructed of 18 gauge zinc coated heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized and finished with a polyester with a polyester powder painting and weather-resistant baked enamel finish. Units surface shall be tested 500 hours in salt spray test. Units shall have removable end panels which allow access to all major components and controls.

## Refrigeration System Single Compressor

CGAT065-105 model shall have a single refrigeration circuit with an intergral subcooling circuit. CGAT065 - 105 shall have both a liquid line and suction gas line access valve with gauge port and one direct drive hermetic scroll compressor with centrifugal oil pump providing positive lubrication to moving parts. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of nameplate voltage. Internal temperature and current-sensitive motor overloads shall be included for maximum protection. Scroll type compressor shall provide inherently low vibration and noise by having no suction and discharge valves. External high, low pressure cutout devieces and filter drier shall be provided.

## Refrigeration System Dual Compressor

CGAT135 - 215 shall have two separate and independent refrigeration circuits. Each refrigeration circuit shall have an integral subcooling circuits.

CGAT135 - 215 models shall have two direct drive hermetic scroll compressors with centrifugal oil pump and provide positive lubrication to all moving parts. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of nameplate voltage. Internal temperature and current-sensitive motor overloads shall be included for maximum protection. External high, low pressure cutout devices shall be provided.

## Evaporator

The evaporator shall have independent refrigerant circuit. The evaporator shall be brazed plate heat exchanger. For units with two evaporators, the connecting water manifold shall be provided. Evaporator shall be insulated with 1-inch closed-cell insulation.

## Condenser Coil

Coil shall be internally finned of smooth bore 3/8 inch copper tubes mechanically bonded to configured aluminum plate fin as standard. Factory pressure and leak tested to 375 psig air pressure.

## Condenser Fan and Motor (s)

Direct-drive, statically and dynamically balanced 28 inch propeller fan (s) with aluminum blades and electro coated steel hubs shall be used in draw through vertical discharge position.

Either permanently lubricated totally enclosed or open construction motors shall be provided and shall have built in current and thermal overload protection. Motor (s) shall have either ball or sleeve bearing type.

## Controls

The chiller shall be completely factory-wired with necessary safety control or terminal block for power wiring in a weathertight enclosure. Control shall control up to maximum of 4 compressors, automatically balanced for their loading. Water temperature display can be interchangeable between degree C and F. Additional digital wired display can be connected to PCB as remote display in control room. Safety control shall include high and low pressure switches with manual reset, compressor overload, under lower voltage with phase protection, compressor timedelay, water temperature error sensor, and display for error codes.



New PCB



New Digital Wired Display

## Accessories (Optional)

- Copper fin / Blue fin or Anti-corrosion coating coil shall protect corrosion on sea coast application.
- Wire Guard : Protect coil from delivery damage.
- Digital Room Thermostat for fan coil unit : fully communicates with CGAT PCB to provide optimum comfort to room occupantions.



Digital Room Thermostat



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