



**TRANE**

## CGAH 020~060

**Liquid Chillers, Air Cooled, Axial Fan.**

- *Reliable, Efficient, and Quiet Operation.*
- *Reduced Maintenance.*
- *Fitted with Scroll Compressors.*

R22

R407C





## From Components to System Technology



Scroll compressor has 64% fewer parts design and only 30% of torque variation than reciprocating type.

### Hermetic type scroll compressor

Scroll compressor provides reliability and efficiency benefits over the compression cycle. The orbiting scrolls touch in all three dimensions, forming a completely enclosed compressor chamber. In addition of the orbiting scrolls only touch with enough force to create the seal so there is no wear between the scroll plates. Since the compression chamber is completely enclosed, the Scroll compressor achieves high efficiencies.

The most outstanding feature of the scroll compressor is that the compressor allows liquid or dirt to pass through without damaging the compressor. In a reciprocating compressor, however, the liquid or dirt has no place to go and can cause serious damage.

### The chiller management system

#### Control

There are two control options of traditional electrical control and SMM module available for the chiller. The traditional electrical control contains the compressor contactors, fan contactors, overload relays, and customer interfaces terminal connection.

While SMM module provides the following functions:

- Control of the leaving chilled water temperature, and the condensing pressure.
- Control of the various operating modes and the safety parameters.

In addition the module has the following features:

- A liquid crystal display for local communication.
- An input for remote stop/start per circuit.
- One output per circuit indicated that a safety function is activated.
- An analog input for adjustment of the chilled water set point. (4/20 mA or 0/10V)
- Programming function for automatic adjustment of the chilled water set point in relation to the outdoor temperature.

#### Leaving chilled water temperature control

The temperature of the water is measured at the evaporator outlet. The SMM module compares this value with the setpoint and starts or stops the compressors following a PID algorithm.

#### Condensing pressure control

The SMM module controls the number of fans operating in a way which always optimizes the COP.

#### Control module

The SMM module includes the following functions.

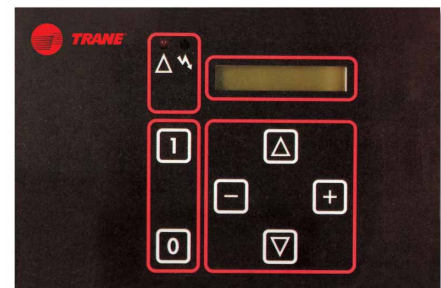
- Short cycle protection taking into account the frequency of compressor starts.
- Automatic restart after a power failure.
- Equalization of the number of starts and the operating hours of the compressors.
- Control of the chilled water pump.
- Control of the evaporator anti-frost heater.

#### Optimization

In order to reduce electricity consumption the SMM module can automatically adjust the chilled water setpoint in relation to the outdoor temperature.

#### Communication

The SMM module caters for different types communication systems. These systems simplify considerably the maintenance and can supply information on the operating conditions of the chiller.



Scroll Manager Module (SMM)

## *The experience of Trane in the control of liquid chillers associated with the most recent technical innovations*

### **Operator interface**

The SMM module includes a communication interface with a liquid crystal display. This interface provides an accurate assessment of the chiller operating conditions and facilitates a rapid diagnosis if a safety function is activated.

### **Remote control**

The dry contacts and the analog inputs, provided as standard, allow for the remote control and surveillance of the chiller.

If a safety function is activated an output via a dry contact is provided. Inputs are available to partially or completely stop the operation of the chiller. An analog input (4/20 mA or 0/10V) allows for the adjustment of the chilled water temperature setpoint.

### **Self diagnostic**

SMM module can be self-explanatory 52 failure causes (by 3 categories) displayed through service codes. It's a powerful tool for chiller system trouble shooting in short time.

### **Trane patented passive parallel unbalanced manifolding system**

Trane evaluated many manifolding systems and chose a passive, parallel unbalance system. The key to this system is a unique, patented, oil separator. The oil separator is located at the junction between the common return suction line from the evaporator and the individual suction lines running to each compressor. The system includes an oil equalizer line connecting the two compressor sumps at the site glass level. In addition, the discharge lines are simply manifolled together.

### **Advantages of Trane's passive manifolding for scroll compressors**

#### **Part load performance**

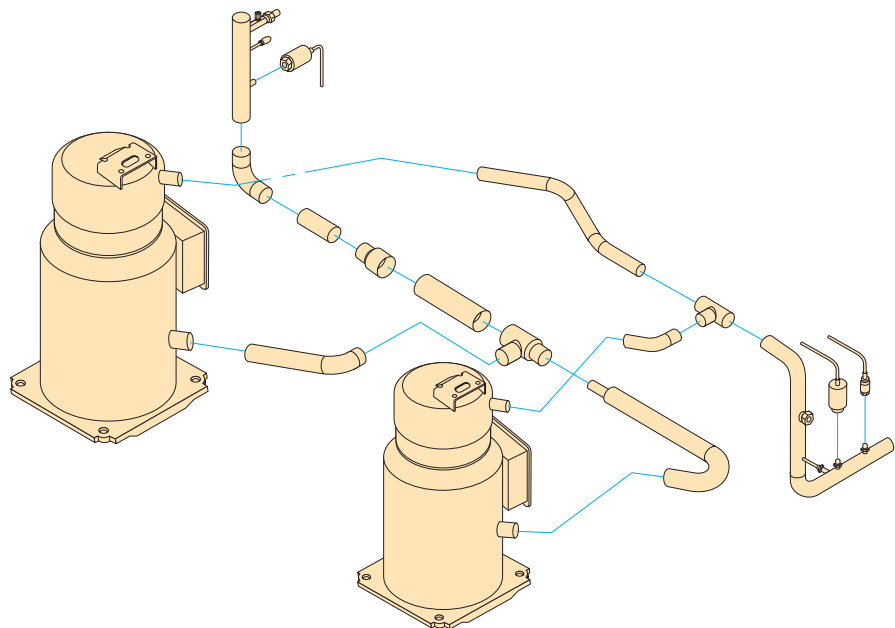
The decision to manifold scroll compressors on air-cooled liquid chiller was done for two reasons. The first reason is part load efficiency. A manifolded set of compressors is more efficient at part load than two compressors with independent refrigerant circuits. This is because the condensers and evaporators are oversized, at part load conditions with manifolded compressors.

For manifold compressors design the power factor is always maintained at high level even at partial load.

Better part load performance is desirable because many more customers are evaluating performance of equipment on a total energy basis using part load performance.

#### **Simplicity and reliability**

The second reason is even distributed refrigerant throughout the patent of unbalanced manifold design. The patented oil separator makes the manifolding system more efficiency by oil completely returns to each compressor circuit, allowing the system to manage the oil levels in both compressors. This separator allows Trane to take advantage of the simplicity and reliability advantages of the passive manifolding system, while eliminating its oil management disadvantages.



Trane patented passive parallel unbalanced manifolding system



## Product Nomenclature

CG	A	H	020	5	B	U	N	M	R	N	A
1,2	3	4	5,6,7	8	9	10	11	12	13	14	15

**DIGIT 1,2,3,4 – Chiller Type**  
CGAH=Air-cooled Chillers

**DIGIT 5,6,7 – Model**

020  
025  
030  
040  
050  
060

**DIGIT 8 – Electrical Power**

2=220V/60Hz/3ø  
3=380V/60Hz/3ø  
4=460V/60Hz/3ø  
5=380V/50Hz/3ø  
6=400V/50Hz/3ø  
7=415V/50Hz/3ø

**DIGIT 9 – Design Sequence**

B=R22  
C=R407C

**DIGIT 10 – Controls**

U=Microprocessor Controller (Standard)  
M=Traditional electrical control (Ambient temperature 15°C or above applicable)

**DIGIT 11 – Built In Water Pump**

N=Without (Standard)  
R=With (Option for models 020 & 025)  
T=With (Option for model 030)

**DIGIT 12 – Main Disconnect Switch**

M=Without (Standard)  
G=With (Optional)

**DIGIT 13 – Operating Ambient Temperature**

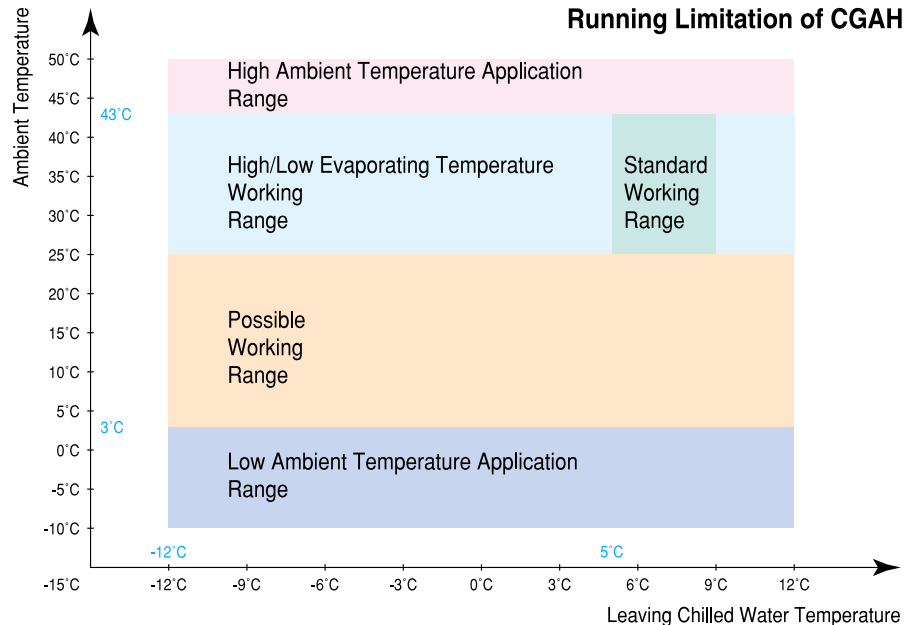
H=High (Maximum 50°C)  
R=Normal (Standard 3°C~43°C)  
L=Low (Minimum -10°C, with microprocessor controller only)

**DIGIT 14 – Options**

N=No options  
B=Blue fin condenser  
J=Compressor sound attenuator  
K=Blue fin condenser & Compressor sound attenuator

**DIGIT 15 – Service Sequence**

A=First



- \* The running requirements and performance data in High/Low Evaporating Temperature Working Range are ready for request.
- \* All the running conditions located in Possible Working Range and Low Ambient Temperature Application Range should be discussed in detail. Please contact your Trane Sales Office for more information.

### CGAH selection guide

To select an air cooled liquid chiller, the following design conditions must be known:

1. Design cooling capacity.
2. Design chilled water temperature(°C).
3. Design temperature drop through the evaporator(°C).
4. Design chilled water flow rate(l/s).
5. Design fouling factor(m<sup>2</sup>k/kW).
6. Design ambient air temperature(°C).

When any of the two factors of 1, 3 and 4 are known, the third can be calculated with the formula:

$$\text{Chilled water flow} = \frac{0.239 \times \text{kW Cooling Capacity}}{\text{Temp drop EVP}(^{\circ}\text{C})}$$

**Selection example:**

**Given:**

4.3 l/s chilled water to be cooled from 10°C to 5°C with a design maximum ambient

temperature of 32°C. Design fouling factor = 0.044 m<sup>2</sup>k/kW, 380V/60Hz/3Ph power supply.

**Find:**

- Cooling capacity.
- Chiller size.
- kW input.
- Pressure drop through the evaporator.

**Selection:**

$$1) \text{ Cooling capacity} = \frac{4.3 \times (10 - 5)}{0.239} = 90.0\text{kW}$$

2) Chiller size:

Find the performance data of CGAH030  
5°C leaving evaporator, 32°C ambient temperature.

Read:

90.8 kW cooling capacity.

30.4 kW total power input.

So CGAH030 will be selected.



## Performance Data

### 50Hz

MODEL		LWT (°C)		Ambient Temperature (°C)																			
				25				30				32				35				40			
				R22		R407C		R22		R407C		R22		R407C		R22		R407C		R22		R407C	
Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P				
	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW			
CGAH 020	5	53.7(183.3)	15.2	51.0(174.1)	15.2	51.1(174.4)	16.8	48.5(165.7)	16.8	50.2(171.3)	17.5	47.7(162.8)	17.5	48.5(165.5)	18.6	46.1(157.3)	18.6	45.7(156.0)	20.7	43.4(148.2)	20.7		
	7	56.5(192.8)	15.4	53.7(183.2)	15.4	53.8(183.6)	17.0	51.1(174.4)	17.0	52.7(179.8)	17.8	50.1(170.9)	17.8	51.0(174.0)	18.9	48.5(165.4)	18.9	48.1(164.1)	21.0	45.7(156.0)	21.0		
	9	59.3(202.4)	15.7	56.3(192.3)	15.7	56.5(192.8)	17.3	53.7(183.2)	17.3	55.4(189.1)	18.0	52.6(179.6)	18.0	53.6(182.9)	19.2	50.9(173.8)	19.2	50.5(172.3)	21.3	48.0(163.7)	21.3		
CGAH 025	5	68.6(234.1)	19.1	65.2(222.4)	19.1	65.5(223.5)	21.0	62.2(212.4)	21.0	64.3(219.4)	21.8	61.1(208.5)	21.8	62.4(212.9)	23.1	59.3(202.3)	23.1	58.9(201.0)	25.5	56.0(191.0)	25.5		
	7	72.2(246.4)	19.4	68.6(234.1)	19.4	68.9(235.1)	21.3	65.5(223.4)	21.3	67.6(230.7)	22.1	64.2(219.2)	22.1	65.7(224.2)	23.4	62.4(213.0)	23.4	62.0(211.6)	25.8	58.9(201.0)	25.8		
	9	75.7(258.3)	19.6	71.9(245.4)	19.6	72.3(246.7)	21.6	68.7(234.4)	21.6	71.0(242.3)	22.4	67.5(230.2)	22.4	68.8(234.8)	23.7	65.4(223.1)	23.7	65.2(222.5)	26.1	61.9(211.4)	26.1		
CGAH 030	5	82.1(280.2)	22.3	78.0(266.2)	22.3	78.5(267.9)	24.4	74.6(254.5)	24.4	77.0(262.8)	25.4	73.2(249.7)	25.4	74.7(254.9)	26.8	71.0(242.2)	26.8	70.6(240.9)	29.5	67.1(228.9)	29.5		
	7	86.2(294.2)	22.6	81.9(279.5)	22.6	82.5(281.5)	24.7	78.4(267.5)	24.7	80.9(276.1)	25.7	76.9(262.3)	25.7	78.5(267.9)	27.2	74.6(254.5)	27.2	74.3(253.5)	29.9	70.6(240.9)	29.9		
	9	90.3(308.1)	22.8	85.8(292.8)	22.8	86.4(294.8)	25.1	82.1(280.1)	25.1	84.8(289.4)	26.0	80.6(274.9)	26.0	82.3(280.8)	27.5	78.2(266.8)	27.5	77.9(265.8)	30.3	74.0(252.6)	30.3		
CGAH 040	5	112.1(382.5)	29.4	106.5(363.5)	29.4	107.1(365.5)	32.2	101.7(347.3)	32.2	105.2(359.0)	33.4	99.9(341.1)	33.4	102.1(348.4)	35.4	97.0(331.0)	35.4	96.5(329.3)	38.9	91.7(312.9)	38.9		
	7	118.0(402.7)	29.7	112.1(382.6)	29.7	112.9(385.3)	32.6	107.3(366.1)	32.6	110.9(378.4)	33.8	105.4(359.6)	33.8	107.6(367.2)	35.8	102.2(348.9)	35.8	101.9(347.7)	39.4	96.8(330.4)	39.4		
	9	124.1(423.5)	30.1	117.9(402.4)	30.1	118.7(405.1)	33.0	112.8(384.9)	33.0	116.6(397.9)	34.2	110.8(378.1)	34.2	113.2(386.3)	36.2	107.5(367.0)	36.2	107.3(366.2)	39.9	101.9(347.9)	39.9		
CGAH 050	5	137.2(468.2)	38.3	130.3(444.8)	38.3	131.1(447.4)	42.0	124.5(425.1)	42.0	128.7(439.2)	43.6	122.3(417.3)	43.6	124.7(425.5)	46.2	118.5(404.3)	46.2	117.8(402.0)	51.0	111.9(381.9)	51.0		
	7	144.3(492.4)	38.8	137.1(467.9)	38.8	138.0(470.9)	42.6	131.1(447.4)	42.6	135.3(461.7)	44.2	128.5(438.7)	44.2	131.2(447.7)	46.8	124.6(425.4)	46.8	124.1(423.5)	51.6	117.9(402.4)	51.6		
	9	151.3(516.3)	39.3	143.7(490.6)	39.3	144.7(493.8)	43.1	137.5(469.2)	43.1	142.0(484.6)	44.8	134.9(460.4)	44.8	137.7(469.9)	47.4	130.8(446.5)	47.4	130.4(445.0)	52.2	123.9(422.8)	52.2		
CGAH 060	5	164.2(560.3)	44.5	156.0(532.4)	44.5	157.0(535.8)	48.8	149.2(509.0)	48.8	153.9(525.2)	50.7	146.2(499.0)	50.7	149.3(509.5)	53.7	141.8(484.1)	53.7	141.2(481.8)	59.1	134.1(457.8)	59.1		
	7	172.4(588.3)	45.1	163.8(559.0)	45.1	164.9(562.7)	49.5	156.7(534.7)	49.5	161.8(552.1)	51.4	153.7(524.6)	51.4	157.1(536.1)	54.4	149.2(509.4)	54.4	148.6(507.1)	59.8	141.2(481.8)	59.8		
	9	180.7(616.6)	45.7	171.7(585.9)	45.7	172.9(590.0)	50.1	164.3(560.6)	50.1	169.7(579.1)	52.0	161.2(550.2)	52.0	164.6(561.7)	55.1	156.4(533.7)	55.1	155.9(532.0)	60.6	148.1(505.5)	60.6		

### 60Hz

MODEL		LWT (°C)		Ambient Temperature (°C)																			
				25				30				32				35				40			
				R22		R407C		R22		R407C		R22		R407C		R22		R407C		R22		R407C	
Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P	Cap.	In.P				
	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW	kW(MBH)	kW			
CGAH 020	5	64.7(220.8)	17.6	61.5(209.8)	17.6	61.7(210.6)	19.5	58.6(200.1)	19.5	60.5(206.5)	20.3	57.5(196.2)	20.3	58.4(199.3)	21.6	55.5(189.4)	21.6	55.0(187.7)	23.9	52.3(178.3)	23.9		
	7	68.0(232.0)	18.0	64.6(220.5)	18.0	64.8(221.1)	19.8	61.6(210.1)	19.8	63.5(216.7)	20.6	60.3(205.9)	20.6	61.4(209.5)	21.9	58.3(199.1)	21.9	57.8(197.2)	24.3	54.9(187.4)	24.3		
	9	71.1(242.6)	18.3	67.5(230.5)	18.3	67.8(231.4)	20.2	64.4(219.8)	20.2	66.4(226.6)	21.0	63.1(215.3)	21.0	64.3(219.4)	22.3	61.1(208.5)	22.3	60.0(206.8)	24.7	57.6(196.5)	24.7		
CGAH 025	5	81.5(278.1)	22.7	77.4(264.2)	22.7	77.9(265.8)	24.9	74.0(252.6)	24.9	76.3(260.4)	25.9	72.5(247.4)	25.9	74.0(252.5)	27.4	70.3(239.9)	27.4	70.0(238.9)	30.0	66.5(227.0)	30.0		
	7	85.6(292.1)	23.1	81.3(277.5)	23.1	81.7(278.8)	25.3	77.6(264.9)	25.3	80.2(273.7)	26.2	76.2(260.0)	26.2	77.8(265.5)	27.8	73.9(252.3)	27.8	73.6(251.2)	30.5	69.9(238.6)	30.5		
	9	89.6(305.8)	23.4	85.1(290.5)	23.4	85.6(292.1)	25.6	81.3(277.5)	25.6	84.0(286.6)	26.6	79.8(272.4)	26.6	81.5(278.1)	28.1	77.4(264.2)	28.1	77.1(263.1)	30.9	73.2(250.0)	30.9		
CGAH 030	5	96.9(330.7)	26.8	92.1(314.2)	26.8	92.5(315.7)	29.3	87.9(299.9)	29.3	90.8(309.9)	30.4	86.3(294.4)	30.4	88.0(300.3)	32.1	83.6(285.3)	32.1	83.4(284.6)	35.2	79.2(270.4)	35.2		
	7	101.6(346.7)	27.2	96.5(329.4)	27.2	97.1(331.4)	29.7	92.2(314.8)	29.7	95.2(324.9)	30.8	90.4(308.7)	30.8	92.4(315.3)	32.6	87.8(299.6)	32.6	87.7(299.3)	35.7	83.3(284.4)	35.7		
	9	106.2(362.4)	27.6	100.9(344.3)	27.6	101.6(346.7)	30.1	96.5(329.4)	30.1	99.8(340.6)	31.2	94.8(323.6)	31.2	96.7(330.0)	33.0	91.9(313.5)	33.0	91.8(313.3)	36.2	87.2(297.6)	36.2		
CGAH 040	5	134.0(457.3)	38.5	127.3(434.5)	38.5	128.1(437.1)	41.8	121.7(415.3)	41.8	125.5(428.3)	43.2	119.2(406.9)	43.2	121.9(416.0)	45.5	115.8(395.2)	45.5	115.4(393.8)	49.6	109.6(374.2)	49.6		
	7	141.0(481.2)	39.0	134.0(457.2)	39.0	134.8(460.0)	42.4	128.1(437.1)	42.4	132.3(451.5)	43.8	125.7(429.0)	43.8	128.3(437.8)	46.1	121.9(416.0)	46.1	121.6(415.0)	50.2	115.5(394.3)	50.2		
	9	148.1(505.4)	39.5	140.7(480.2)	39.5	141.6(483.2)	42.9	134.5(459.1)	42.9	138.9(474.0)	44.4	132.0(450.4)	44.4	134.9(460.3)	46.7	128.2(437.4)	46.7	127.9(436.5)	50.9	121.5(414.7)	50.9		
CGAH 050	5	163.1(556.6)	45.6	154.9(528.8)	45.6	155.7(531.3)	49.9	147.9(504.8)	49.9	152.7(521.1)	51.8	145.1(495.1)	51.8	148.0(505.0)	54.8	140.6(479.9)	54.8	140.0(477.7)	60.2	133.0(453.9)	60.2		
	7	171.2(584.2)	46.2	162.6(555.1)	46.2	163.6(558.3)	50.7	155.4(530.4)	50.7	160.5(547.7)	52.6	152.5(520.4)	52.6	155.6(531.0)	55.6	147.8(504.5)	55.6	147.3(502.7)	61.1	139.9(477.6)	61.1		
	9	179.3(611.9)	46.9	170.3(581.3)	46.9	171.3(584.6)	51.4	162.7(555.4)	51.4	168.1(573.6)	53.3	159.7(545.0)	53.3	163.0(556.2)	56.4	154.9(528.5)	56.4	154.4(526.9)	61.9	146.7(500.6)	61.9		
CGAH 060	5	193.7(661.0)	53.6	184.0(628.0)	53.6	185.0(631.3)	58.6	175.8(599.8)	58.6	181.5(619.4)	60.8	172.4(588.5)	60.8	176.1(600.9)	64.2	167.3(571.0)	64.2	166.9(569.5)	70.5	158.6(541.1)	70.5		
	7	203.1(693.1)	54.4	192.9(658.5)	54.4	194.1(662.4)	59.4	184.4(629.3)	59.4	190.5(650.1)	61.6	181.0(617.7)	61.6	184.8(630.6)	65.1	175.6(599.2)	65.1	175.2(597.9)	71.4	166.4(568.1)	71.4		
	9	212.5(725.2)	55.1	201.9(689.0)	55.1	203.0(692.7)	60.2	192.9(658.2)	60.2	199.3(680.1)	62.5	189.3(646.2)	62.5	193.5(660.3)	66.0	183.8(627.4)	66.0	183.4(625.8)	72.4	174.2(594.6)	72.4		

Notes : (1)Cap.-Cooling Capacity  
 (2)In.P-Total Input Power (Compressors + Fans)  
 (3)LWT-Leaving Water Temperature



## *The Liquid Chillers CGAH Designed for ease of installation, efficient, reliable, quiet operation, and reduced maintenance*

### **Simple installation**

#### **Mounting on site**

The compact size of the CGAH Chiller simplifies installation at jobsite and the low height profile permits easy integration in the building environment. The surface area taken up by the unit is relatively small due to the reduced size and the fact that it can be mounted 1 metre from adjacent walls. Anti-vibration pads are supplied as standard to avoid direct contact between the unit base and the mounting surface.

#### **Electrical connections**

Stuffing boxes located on the back of the panel allow for easy connection of the power cable. A flow detection system is mounted as standard in the factory. It is therefore not necessary to install a flow switch on the field. A dry contact is available on the management module for water pump controls. Space is reserved inside the control panel for the customer mounts chilled water pump contactor.

### **Reliable and quiet operation**

#### **Low sound level**

The scroll compressor is significantly less noisy and generates less vibration than a reciprocating compressor. In addition, on sites where the noise level is critical, the compressors can be fitted with a sound attenuator.

#### **Reduced maintenance**

The scroll compressor does not require routine maintenance due to the absence of fatigued parts, such as springs and valves which require regular replacement.

#### **Factory testing**

All CGAH Chillers are subject to in process and final quality tests before shipment.

#### **Quality assurance**

The Quality Management System applied by Trane has been subject to independent third party assessment and approval to I.S.O. 9001. The products described in this catalogue are designed and manufactured in accordance with the approved system requirements as defined in the Trane Quality Manual.

### **Options**

#### **Diversified power source**

Comply with jobsite power source offering

#### **Traditional control panel**

For some operational considerations CGAH also offer traditional electrical control (switches) for option.

#### **Build-in chilled water pump**

Build-in pump option gives labor and footprint, reduction over the jobsite installation, this option is only suitable for CGAH 020/025/030.

#### **Main disconnect switch**

For local code or convenience/safety requirement.

#### **Low operating ambient temperature application**

Low temperature kit option could be equipped for the cold area application at the lowest of -10 deg. C.

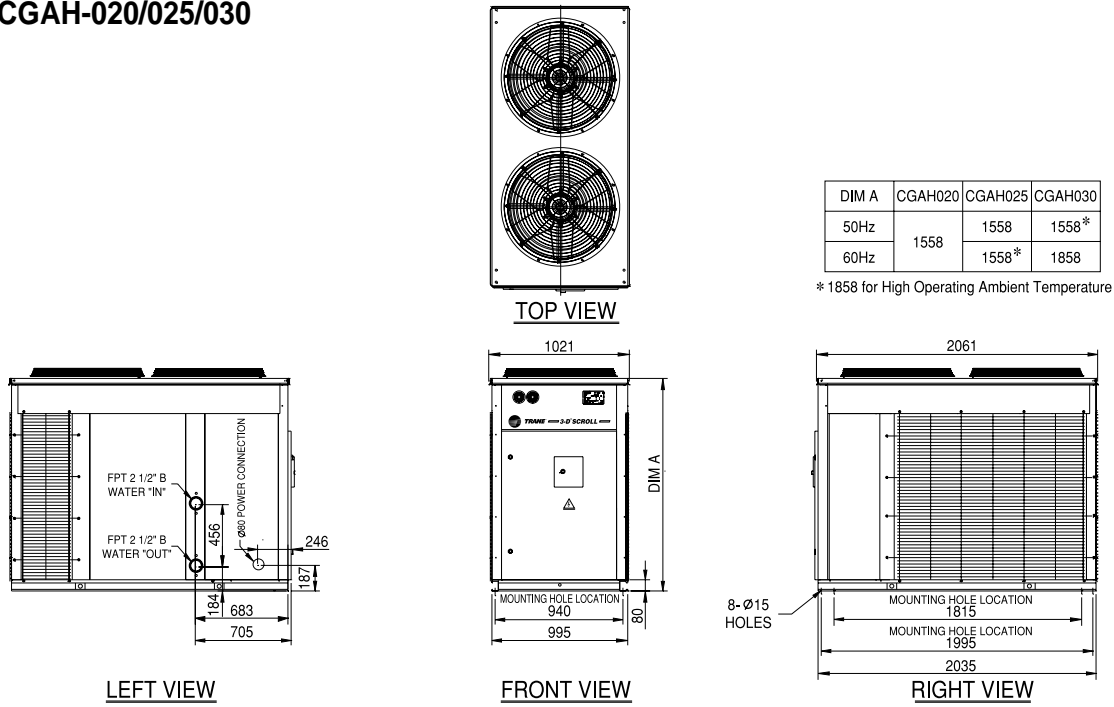
#### **Blue fin condenser**

Epoxy coated blue fin condenser can sustain the erosive environment and keep the some heat transfer effect than normal air-cooled condenser.

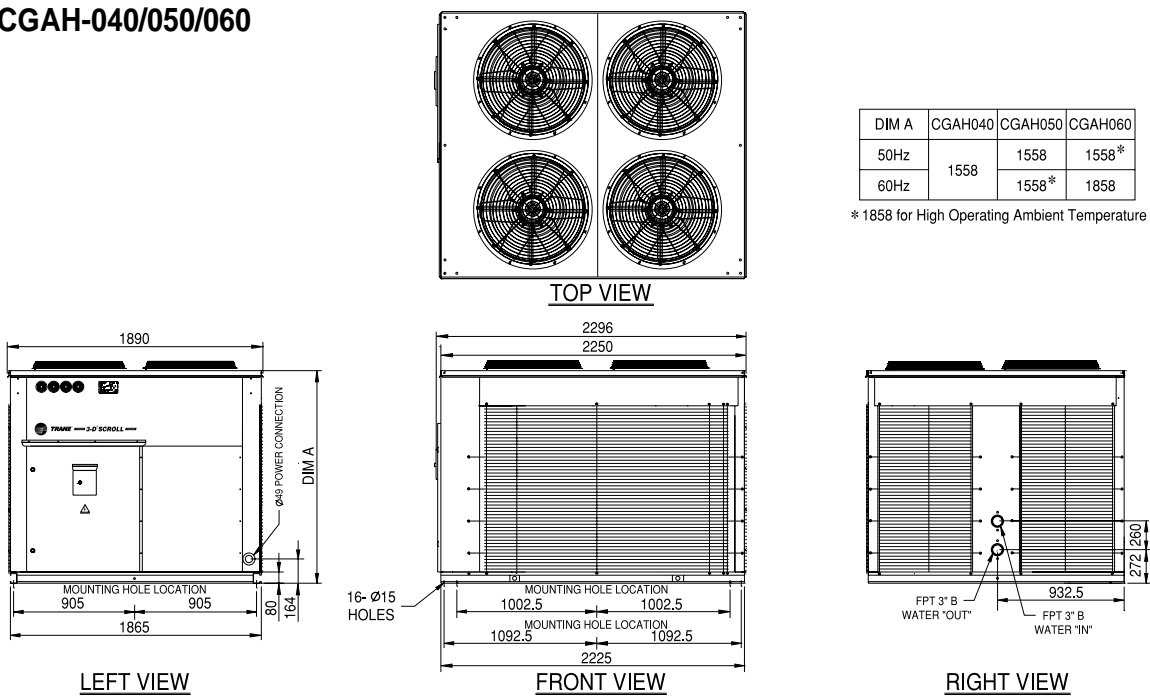
Other option and customization design please contact your Trane Sales Office.

## Unit Dimensions

### CGAH-020/025/030



### CGAH-040/050/060



# General Unit Characteristics

## 50Hz

Model			CGAH020	CGAH025	CGAH030	CGAH040	CGAH050	CGAH060
Compressors			10T+10T	10T+15T	15T+15T	2x(10T+10T)	2x(10T+15T)	2x(15T+15T)
Circuit			1	1	1	2	2	2
Capacity Steps			2	2	2	4	4	4
Max Load Amps(1)	380V	A	42	53	63	84	105	126
	400V	A	40	50	60	80	100	120
	415V	A	39	48	58	77	96	116
Compressors Power input		kW	16.9	21.2	25.0	33.8	42.4	49.9
Compressors Running Current	380V	A	30	40	48	60	80	97
	400V	A	28	38	46	56	76	92
	415V	A	27	37	44	54	73	89
Compressors Starting Current(2)	380V	A	126	181	188	154	217	232
	400V	A	133	190	198	163	228	244
	415V	A	138	197	205	167	237	253
Rated Water Flow		L.P.M.	145	187	223	306	373	447
Evaporator Head Loss(H <sub>2</sub> O)		m	3.6	4.0	4.1	3.6	4.0	4.1
Pump( Option)		Type	End Suction-Side/Top Discharge Centrifugal					
Pump Power input		kW	1.6	1.6	3.2	-	-	-
Pump E.A.H.(H <sub>2</sub> O)		m	20	18	26	-	-	-
Refrigerant		Type	R22 / R407C					
		kg	9.6	12.2	14.5	20.1	24.3	28.9
Number Of Fan(s)		EA	2	2	2	4	4	4
Air Flow Rate		m <sup>3</sup> /s	7.7	7.7	7.2	15.4	15.4	14.4
Nominal Fan Speed		RPM	700	700	700	700	700	700
Fan Motor Full Load Power input Each		kW	1.0	1.0	1.0	1.0	1.0	1.0
Fan Motor Starting Amps Each	400V	A	4.5	4.5	4.5	4.5	4.5	4.5
Fan Motor Full Load Amps Each	400V	A	2.8	2.8	2.8	2.8	2.8	2.8
Operating Weight( w/o pump)		kg	750	850	975	1450	1550	1750

## 60Hz

Model			CGAH020	CGAH025	CGAH030	CGAH040	CGAH050	CGAH060
Compressors			10T+10T	10T+15T	15T+15T	2x(10T+10T)	2x(10T+15T)	2x(15T+15T)
Circuit			1	1	1	2	2	2
Capacity Steps			2	2	2	4	4	4
Max Load Amps(1)	220V	A	84	106	128	170	212	256
	380V	A	48	61	74	98	122	148
	440V	A	42	53	64	85	106	128
Compressors Power input		kW	20.1	26.0	30.7	42.0	52.0	61.4
Compressors Running Current	220V	A	64	80	96	128	160	192
	380V	A	37	46	55	74	92	111
	440V	A	32	40	48	64	80	96
Compressors Starting Current(2)	220V	A	297	452	468	361	532	564
	380V	A	173	253	263	211	300	318
	440V	A	136	191	199	168	231	247
Rated Water Flow		L.P.M.	175	221	263	365	443	526
Evaporator Head Loss(H <sub>2</sub> O)		m	3.5	4.0	4.4	3.5	4.0	4.4
Pump( Option)		Type	End Suction-Side/Top Discharge Centrifugal					
Pump Power input		kW	2.7	2.7	3.9	-	-	-
Pump E.A.H.(H <sub>2</sub> O)		m	31	29	22	-	-	-
Refrigerant		Type	R22 / R407C					
		kg	9.6	12.2	14.5	20.1	24.3	28.9
Number Of Fan(s)		EA	2	2	2	4	4	4
Air Flow Rate		m <sup>3</sup> /s	7.7	7.2	7.5	15.4	14.4	15.0
Nominal Fan Speed		RPM	660	660	660	660	660	660
Fan Motor Full Load Power input Each		kW	0.9	0.9	0.9	0.9	0.9	0.9
Fan Motor Starting Amps Each	220V	A	7.5	7.5	7.5	7.5	7.5	7.5
	380V	A	5.5	5.5	5.5	5.5	5.5	5.5
	440V	A	3.7	3.7	3.7	3.7	3.7	3.7
Fan Motor Full Load Amps Each	220V	A	4.5	4.5	4.5	4.5	4.5	4.5
	380V	A	2.6	2.6	2.6	2.6	2.6	2.6
	440V	A	2.2	2.2	2.2	2.2	2.2	2.2
Operating Weight( w/o pump)		kg	750	900	1050	1450	1650	1900

Notes:

- (1)Maximum load amps to be used for sizing of cables, fuses and disconnect switch.
- (2)Starting amps with one compressor starting, the remaining compressor(s) running at full load.



**TRANE**

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Since The Trane Company has a policy of continuous product improvement, it reserves the right to change design and specifications without notice.