

Air-Cooled Scroll

Job Information

Stennis Riverine Training Facility
New Orleans
(B29)Rob Hoffman



Taa	CH-1	Product Version	1.0.0.1
Model Number	CGAM040	Unit nominal tonnage	40 tons
Quantity	1	Unit type	High efficiency

Unit Information

Chilled water system type	Variable primary flow direct		
Capacity	38.20 tons	NPLV	14.3 EER
Full load efficiency	10.0 EER	IPLV	14.3 EER

Evaporator Information

Evap application	Std cooling	Evap fluid freeze point	32.00 F
Evap entering temp	54.00 F	Evap fouling factor	0.00010 hr-ft ² -deg F/Btu
Evap leaving temp	44.00 F	Min evap flow rate	47.20 gpm
Evap flow rate	91.20 gpm	Press drop at min evap flow	5.60 ft H2O
Evap press drop	19.60 ft H2O	Max evap flow rate	110.00 gpm
Evap fluid type	Water	Press drop at max evap flow	28.00 ft H2O

Condenser Information

Unit application	Wide ambient	Total cond airflow	34348 cfm
Cond fin material	Lanced aluminum	Ambient air temp	95.00 F
		Elevation	0.00 ft

Electrical Information

Starter type	Across the line		Total compressor power	40.70 kW	
Incoming power line connection	Single point		Number of cond fans	4	
Unit voltage	460 volt 3 phases		Fan motor power	4.60 kW	
Unit hertz	60 hertz		FLA - cond fan (each)	2.90 A	
Unit power	45.60 kW				
	RLA	LRA		MCA	MOP
Compressor A	18.60 A	130.00 A	Single point power	91.80 A	110.00 A
Compressor B	18.60 A	130.00 A			
Compressor D	18.60 A	130.00 A			
Compressor E	18.60 A	130.00 A			

General Information

Manufacturing plant	Pueblo, USA	Shipping weight	3359.0 lb
Sound attenuator package	Comprehensive acoustic package	Operating weight	3377.0 lb
Full load sound power	86 dBA	Length	114.000 in
Refrigerant (HFC-410A)-ckt 1	29.0 lb	Width	88.600 in
Refrigerant (HFC-410A)-ckt 2	29.0 lb	Height	84.800 in

Air-Cooled Scroll

Job Information

Stennis Riverine Training Facility
New Orleans
(B29)Rob Hoffman



Taa	CH-1	Product Version	1.0.0.1
Model Number	CGAM040	Unit nominal tonnage	40 tons
Quantity	1	Unit type	High efficiency

Information for LEED Projects

ASHRAE 90.1/CSA compliance	ASHRAE	Full load efficiency	10.0 EER
Refrigerant (HFC-410A)-ckt 1	29.0 lb	IPLV	14.3 EER
Refrigerant (HFC-410A)-ckt 2	29.0 lb	Total compressor power	40.70 kW
Rated capacity (ARI)	38.20 tons	Fan motor power	4.60 kW

Note: This product meets the minimum equipment efficiency requirements of ASHRAE Standard 90.1-2004 and -2007 (which are based on ARI standard rating conditions) and, therefore, also meets the LEED "Minimum Energy Performance" prerequisite in the Energy & Atmosphere section. The efficiencies and power data listed above are at actual user-entered conditions. Refer to the product catalog for performance at

The LEED Green Building Rating System™, developed by the U.S. Green Building Council, provides independent, third-party verification that a building project meets green building and performance measures.



General

Units are constructed of a galvanized steel frame with galvanized steel panels and access doors. Component surfaces are finished with a powder-coated paint. All paint meets the requirement for outdoor equipment of the U.S. Navy and other Federal Government Agencies. This paint finish is durable enough to withstand a 1000-consecutive-hour salt spray application in accordance with standard ASTM B117.

Compressor and Motor

The unit is equipped with two or more hermetic, direct-drive, 3600 rpm 60 Hz suction gas-cooled scroll compressors. The simple design has only three major moving parts and a completely enclosed compression chamber which leads to increased efficiency. Overload protection is internal to the compressors. The compressor includes: centrifugal oil pump, oil level sight glass and oil charging valve. Each compressor will have compressor heaters installed and properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

Unit-Mounted Starter

The control panel is designed per UL 1995. The starter is in an across-the-line configuration, factory-mounted and fully pre-wired to the compressor motor and control panel. Typically, Trane scroll compressors are up to full speed in one second when started across-the-line.

A factory-installed, factory-wired 820 VA control power transformer provides all unit control power (120 Vac secondary) and Trane CH530 module power (24 Vac secondary).

Power line connection type is standard with a terminal block.

Power Connection

Power connections include main three-phase power and one separate 120V, 15 amp customer provided single phase power connection is required to power the heaters.

Evaporator

Braze plate evaporator is made of stainless steel with copper as the braze material. It is designed to withstand a refrigerant side working pressure of 430 psig (29.6 bars) and a waterside working pressure of 150 psig (10.5 bars). Evaporator is tested at 1.1 times maximum allowable refrigerant side working pressure and 1.5 times maximum allowable water side working pressure. It has one water pass. Immersion heaters protect the evaporator to an ambient of -20°F (-29°C). A water strainer and a flow switch are factory installed.

Condenser

Air-cooled condenser coils have lanced aluminum fins mechanically bonded to internally-finned copper tubing.

The condenser coil has an integral subcooling circuit. The maximum allowable working pressure of the condenser is 650 psig (44.8 bars). Condensers are factory proof and leak tested at 715 psig (49.3 bars).

Direct-drive vertical discharge condenser fans are balanced and individually protected. Three-phase condenser fan motors with permanently lubricated ball bearings and external thermal overload protection are provided.

A variable speed drive on the first fan of each circuit allows the unit to start and operate with ambient temperatures between 0.0 F and 125.0 F.

Refrigerant Circuits

The unit has dual refrigerant circuits. Each refrigerant circuit has Trane scroll compressors piped in parallel with a passive oil management system. A passive oil management system maintains proper oil levels within compressors and has no moving parts. Each refrigerant circuit includes filter drier, electronic expansion valve, liquid line and discharge service valves. Capacity modulation is achieved by turning compressors on and off. The unit has four capacity stages.

Unit Controls



The microprocessor-based control panel is factory-installed and factory-tested. The control system is powered by a pre-wired control power transformer, and will turn on and off compressors to meet the load. Microprocessor-based chilled water reset based on return water is standard. The unit comes with a factory installed flow switch.

The Trane CH530 microprocessor automatically acts to prevent unit shutdown due to abnormal operating conditions associated with low evaporator refrigerant temperature and high condensing temperature. If an abnormal operating condition continues and the protective limit is reached, the machine will shut down.

The panel includes machine protection for the following conditions: low evaporator refrigerant temperature and pressure, high condenser refrigerant pressure, critical sensor or detection circuit faults, lost communication between modules, phase loss, phase reversal, over temperature protection, external and local emergency stop, and loss of evaporator water flow.

When a fault is detected, the control system conducts more than 100 diagnostic checks and displays results. The display will identify the fault, indicate date, time, and operating mode at time of occurrence, and provide type of reset required and a help message.

Data contained in available reports includes: water and air temperatures, refrigerant pressures and temperatures, flow switch status, EXV position, and compressor starts and run-time. All necessary settings and setpoints are programmed into the microprocessor-based controller via the operator interface. The controller is capable of receiving signals simultaneously from a variety of control sources, in any combination, and priority order of control sources can be programmed.

Comprehensive Acoustic Package

Acoustical treatment for compressors is factory installed.

Isolators

Molded elastomeric isolators, sized to reduce vibration transmission to the supporting structure when the unit is installed, ship with the chiller.