



Installation, Operation, and Maintenance

Model #: CGAM 052F 2L02 AXD2 A1A1 A1AX XA1C 1AXX XXXX XAXA 3A1D 1XXL XX
Serial #: U14H44059

Year: 2014
Size: 52 Tons

Air-Cooled Scroll Chillers

Model CGAM

20 – 130 Tons — Made in USA



Shipping Weight: 3,761 lbs
Operating Weight: 3,806 lbs

L: 9' 6"
W: 7' 5"
H: 7' 1"

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

August 2015

CG-SVX17H-EN

IR Ingersoll Rand



CGAM 052 F 2 L0 2 A X D 2 A 1 A 1 A 1 A X X A 1 C 1 A X X X X X X X A X A 3 A 1

Model Number Descriptions

Unit Model Number Description

Digits 1-4— Chiller Model

CGAM= Air-Cooled Scroll Packaged Chiller

Digits 5-7— Unit Nominal Ton

020 = 20 Tons
026 = 26 Tons
030 = 30 Tons
035 = 35 Tons
040 = 40 Tons
052 = 52 Tons
060 = 60 Tons
070 = 70 Tons
080 = 80 Tons
090 = 90 Tons
100 = 100 Tons
110 = 110 Tons
120 = 120 Tons
130 = 130 Tons

Digit 8— Unit Voltage

A = 208 Volt 60 Hz 3 Phase
B = 230 Volt 60 Hz 3 Phase
D = 380 Volt 60 Hz 3 Phase
E = 400 Volt 50 Hz 3 Phase
F = 460 Volt 60 Hz 3 Phase
G = 575 Volt 60 Hz 3 Phase

Digit 9— Manufacturing Plant

2 = Pueblo, USA

Digits 10-11— Design Sequence

** = Factory/ABU Assigned

Digit 12— Unit Type

2 = High Efficiency
3 = Extra Efficiency

Digit 13— Agency Listing

X = No Agency Listing
A = UL Listed to U.S. and Canadian Safety Standard

Digit 14— Pressure Vessel Code

X = No Pressure Vessel Code

Digit 15— Unit Application

B = High Ambient (32-125°F/0-52°C)
D = Wide Ambient (0-125°F/-18-52°C)
J = Extreme Low Ambient — down to -20°F (-28.9°C)

Digit 16— Refrigerant Isolation Valves

2 = Refrigerant Isolation Valves (Discharge Valve)

Digit 17— Seismically Rated

A = Not Seismically Rated Unit
B = IBC Seismically Rated Unit
C = OSHPD Seismically Rated Unit

Digit 18— Freeze Protection (Factor-Installed Only)

X = Without Freeze Protection
1 = With Freeze Protection (External T-Stat Control)

Digit 19— Insulation

A = Factory Insulation - All Cold Parts
B = Insulation for High Humidity/Low Evap Temp

Digit 20— Factory Charge

1 = Full Factory Refrigerant Charge (HFC R-410A)
2 = Nitrogen Charge

Digit 21— Evaporator Application

A = Standard Cooling (42 to 65°F/5.5 to 18°C)
B = Low Temperature Processing (lower than 42°F/5.5°C)
C = Ice-Making - Hardwired Interface (20 to 65°F/-7 to 18°C)
D = Low Leaving Water (below 10°F/-12.2°C)

Digit 22— Water Connections

1 = Grooved Pipe Connection

Digit 23— Condenser Fin Material

A = Lanced Aluminum Fins
C = Non-Lanced Copper Fins
D = Lanced Aluminum Fins w/ CompleteCoat™
H = Microchannel Coils
J = Microchannel Coils w/ CompleteCoat

Digit 24— Condenser Heat Recovery

X = No Heat Recovery
1 = Partial Heat Recovery with Fan Control

Digit 25— Not Used

X

Digit 26— Starter Type

A = Across the Line Starter/ Direct on Line

Digit 27— Incoming Power Line Connection

1 = Single Point Power Connection

Digit 28— Power Line Connection Type

A = Terminal Block
C = Circuit Breaker
D = Circuit Breaker with High Fault Rated Control Panel

Digit 29— Enclosure Type

1 = Water Tight (per UL 1995 Standard)

Digit 30— Unit Operator Interface

A = Dyna-View/English

Digit 31— Remote Interface (Digital Comm)

X = No Remote Digital Communication
2 = LonTalk/Tracer Summit Interface
3 = Time of Day Scheduling
4 = BACNet Interface

Digit 32— External Chilled/Hot Water and Current Demand Limit Setpoint

X = No External Chilled Water Setpoint
A = External Chilled Water and Demand Limit Setpoint 4-20mA
B = External Chilled Water and Demand Limit Setpoint 2-10Vdc

Digit 33— Percent Capacity

X = Without % Capacity
1 = With % Capacity

Digit 34— Programmable Relays

X = No Programmable Relays
A = Programmable Relays

Digit 35— Pump Type

X = No Pumps and No Contactors
8 = Dual High Head Pump

Digit 36— Pump Flow Control

X = No Pump Control
B = Pump Flow Controlled by Variable Speed Drive

Digit 37— Buffer Tank

X = No Buffer Tank
1 = With Buffer Tank

Digit 38— Short Circuit Rating

X = No Short Circuit Rating
A = Default A Short Circuit Rating
B = High A Short Circuit Rating

Digit 39— Installation Accessories

X = No Installation Accessories
1 = Elastomeric Isolators
3 = Seismically Rated Isolators

Digit 40— Water Strainer

A = With Water Strainer Factory Installed

Digit 41— Sound Attenuator Package

3 = Super Quiet
5 = Comprehensive Acoustic Package

Digit 42— Appearance Options

X = No Appearance Options
A = Architectural Louvered Panels
B = Half Louvers

Digit 43— Exterior Finish

1 = Standard Paint



Model Number Descriptions

Digit 44— Label, Literature Language

- B = Spanish
- D = English**
- E = French and English

Digit 45— Phase Reversal Protection

- 1 = Phase Reversal Protection**

Digit 46— Shipping Package

- X = No Skid (Standard)**
- A = Unit Containerization Package

Digit 47— Performance Test Options

- X = No Performance Test**
- 2 = 1 Point Test with Report
- 3 = Witness Test with Report

Digit 48— Flow Switch Set Point

- C = Flow Switch Set Point 15
- F = Flow Switch Set Point 35
- H = Flow Switch Set Point 45
- L = Flow Switch Set Point 60**

Digit 49— Not Used

X

Digit 50— Specials

- X = None**
- S = Special

Note: If a digit is not defined it may be held for future use.

Compressor Model Number Description

Digits 1-4— Compressor Model

- CSHD= Light Commercial
- CSHN= Commercial
- CSHL= Permanent Magnet

Digits 5-7— Capacity

- 125 = CSHD
- 161 = CSHD
- 184 = CSHN
- 250 = CSHN
- 315 = CSHN
- 374 = CSHN or CSHL

Digit 8— Voltage

- J = 200-230/60/3
- K = 460/60/3 - 400/50/3
- F = 230/50/3
- D = 575/60/3
- X = 380/60/3

Digit 9— Unloading

- 0 = No Unloading

Digit 10— Design Sequence

- Factory Assigned

Digit 11— Protection Module Voltage

- 0= Internal Line Break
- A= 115 VAC
- B= 230 VAC
- H= 24 VAC
- K= 115/230 VAC

Digit 12— Basic Compressor Variation

- M= Suction & Discharge Tube, Oil Equalizer with Seal Nut, Grade 32 POE oil

General Data

Table 1. General data - 60 Hz - high efficiency - IP

Size		20	26	30	35	40	52	60	70	80	90	100	110	120	130
Compressor															
Number	#	2	2	2	2	4	4	4	4	4	4	4	4	4	6
Tonnage/ckt(a)		10+10	13+13	15+15	15+20	10+10	13+13	15+15	15+20	20+20	20+25	25+25	25+30	30+30	20+20+25
Evaporator															
Water storage	(gal)	1.4	2.2	2.2	3.2	2.4	4.1	5.0	7.5	7.0	9.0	10.3	11.5	11.5	12.3
Min. flow	(gpm)	30	38	42	50	57	74	84	100	115	129	145	157	170	184
Max. flow	(gpm)	69	89	100	117	136	176	201	238	275	307	346	375	407	440
Water connection	(in)	2	2.5	2.5	2.5	3	3	3	3	4	4	4	4	4	4
Condenser															
Round Tube and Plate Fin Coils															
Quantity of coils	#	1	1	1	1	2	2	2	2	4	4	4	4	4	4
Coil length	(in)	91	91	127	127	91	91	127	127	121	121	144	144	144	180
Coil height	(in)	68	68	68	68	68	68	68	68	42	42	42	42	42	42
Number of rows	#	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Fins per foot	(fpf)	192	192	192	192	192	192	192	192	192	192	192	192	192	192
Microchannel Coils															
Quantity of coils	#	1	1	1	1	2	2	2	2	8	8	8	8	8	8
Coil length	(in)	91	91	127	127	91	91	127	127	68+46	68+46	68+68	68+68	68+68	68+104
Coil height(b)	(in)	42+10	42+10	42+10	42+10	42+10	42+10	42+10	42+10	34+7	34+7	34+7	34+7	34+7	34+7
Tube width	(in)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fan															
Quantity	#	2	2	3	3	4	4	6	6	6	6	8	8	8	10
Diameter	(in)	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8
Airflow per fan	(cfm)	9413	9420	9168	9173	9413	9420	9168	9173	9470	9472	9094	9096	9098	9094
Power per motor	(HP)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Motor RPM	(rpm)	840	840	840	840	840	840	840	840	840	840	840	840	840	840
Tip speed	(ft/min)	6333	6333	6333	6333	6333	6333	6333	6333	6333	6333	6333	6333	6333	6333
General Unit															
Refrig circuits	#	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Capacity steps	%	50-100	50-100	50-100	43-100	25-50-75-100	25-50-75-100	25-50-75-100	21-43-71-100	25-50-75-100	22-44-72-100	25-50-75-100	23-45-73-100	25-50-75-100	15-31-46-62-81-100
Min ambient - wide	(°F)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min ambient - high	(°F)	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Min ambient - extreme low	(°F)	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
Round Tube and Plate Fin Coils															
Refrig charge/ckt(a)	(lbs)	32	34	44	48	32	32	44	48	74	78	90	86	86	112
Oil charge/ckt(a)	(gal)	1.7	1.7	1.9	3.5	1.7	1.7	1.9	3.5	3.5	3.5	3.5	3.7	3.8	5.8
Microchannel Coils															
Refrig charge/ckt (a)	(lbs)	18	19.5	25	27.5	18	18	25	27.5	37	39	45	43	43	56
Oil charge/ckt(a)	(gal)	1.4	1.4	1.6	2.9	1.4	1.4	1.6	2.9	2.9	2.9	2.9	3.0	3.1	5.4
Pump Package															
Avail head pressure(c)	(ft H ₂ O)	78.2	77.7	71.1	67.6	67.1	58.6	76.7	63.5	82.0	78.1	69.0	61.9	71.3	62.2

Weights

Table 9. Weights — 60 Hz — round tube and plate fin condenser

Tons	Base Unit Without Pump				Base Unit With Pump				Base Unit With Pump and Buffer Tank				Partial Heat Recovery - add				Copper - add		Seismic Isolator - add	
	Shipping		Operating		Shipping		Operating		Shipping		Operating		Shipping		Operating					
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg		
	High Efficiency																			
20	2185	991	2209	1002	2725	1236	2274	1031	3252	1475	3424	1553	40	18	24	11	258	117	160	73
26	2249	1020	2280	1034	2789	1265	2351	1066	3316	1504	3495	1585	40	18	31	14	258	117	160	73
30	2846	1291	2879	1306	3388	1537	2955	1340	3915	1776	4094	1857	46	21	35	16	359	163	160	73
35	2877	1305	2921	1325	3419	1551	3004	1363	3946	1790	4135	1876	46	21	44	20	359	163	160	73
40	3666	1663	3697	1677	4286	1944	3765	1708	4877	2212	4906	2225	95	43	33	15	516	234	160	73
52	3761	1706	3805	1726	4378	1986	3887	1763	4969	2254	5015	2275	95	43	49	22	516	234	160	73
60	4978	2258	5033	2283	5814	2637	5150	2336	6404	2905	6267	2843	110	50	60	27	719	326	240	109
70	5046	2289	5121	2323	5882	2668	5257	2385	6473	2936	6355	2883	110	50	79	36	719	326	240	109
80	5606	2543	5692	2582	6486	2942	5911	2681	7077	3210	7091	3217	170	77	90	41	1270	576	240	109
90	5860	2658	5961	2704	6737	3056	6196	2811	7328	3324	7360	3339	170	77	108	49	1270	576	240	109
100	6647	3015	6759	3066	7549	3424	7006	3178	8265	3749	8518	3864	179	81	119	54	1512	686	240	109
110	6724	3050	6845	3105	7628	3460	7102	3222	8344	3785	8605	3903	179	81	130	59	1512	686	240	109
120	6762	3067	6883	3122	8018	3637	7140	3239	8735	3962	8642	3920	179	81	132	60	1512	686	240	109
130	7754	3517	7899	3583	9006	4085	8176	3708	9722	4410	9653	4379	179	81	157	71	1889	857	320	145
Extra Efficiency																				
20	2258	1024	2281	1035	2798	1269	2347	1065	3325	1508	3497	1586	39	18	24	11	258	117	-	-
26	2322	1053	2351	1066	2863	1298	2424	1099	3389	1537	3567	1618	39	18	31	14	258	117	-	-
30	2945	1336	2979	1351	3487	1582	3054	1385	4014	1821	4194	1902	47	21	36	16	360	163	-	-
35	3023	1371	3065	1390	3565	1617	3150	1429	4092	1856	4280	1942	47	21	44	20	360	163	-	-
40	3812	1729	3843	1743	4431	2010	3910	1774	5022	2278	5052	2291	94	43	34	15	516	234	-	-
52	3959	1796	4004	1816	4578	2077	4086	1853	5169	2345	5213	2365	94	43	49	22	516	234	-	-
60	5177	2348	5232	2373	6013	2727	5348	2426	6604	2996	6466	2933	111	50	59	27	720	326	-	-
70	5118	2322	5194	2356	5954	2701	5330	2418	6545	2969	6428	2916	111	50	80	36	720	326	-	-
110	6724	3050	6845	3105	7628	3460	7102	3222	8344	3785	8605	3903	179	81	130	59	1512	686	-	-
120	6762	3067	6883	3122	8018	3637	7140	3239	8735	3962	8642	3920	179	81	132	60	1512	686	-	-

Notes:

- Weights based on aluminum fins, refrigerant charge, isolators, circuit breakers and louvers.
- Base unit weights are shown above on the left side for units without a pump package, units with a pump package and units with both pump package buffer tank options. The partial heat recovery and copper weights are in addition to the base unit weights.
- All weights $\pm 3\%$.