

Year-Round Chilling With Precise Control

Engineered to meet the most demanding job schedules, these chillers are ideal for plastic processors. Units are self-contained and easy to install and maintain. The modular microprocessor control coordinates the actions of the chillers and provides stand-alone operation of the unit. The small size, convenient lifting and complete wiring allow fast, easy integration into your central cooling system.



Nominal Capacity from 22 Tons to 136 Tons

The Conair air-cooled central chillers are totally self-contained for easy, economical installation and use. These chillers are designed for year-round applications in ambient conditions from 0°F to 125°F {-18°C to 52°C}.

Made of high strength cast iron, the scroll compressor is designed for less thermal distortion, less leakage, and higher efficiencies.

The air-cooled chillers automatically shut down during a loss of flow to protect the evaporator from freezing.

All units are factory tested with water running through the evaporator to confirm proper operation.

▶ **State-of-the-art precision control**

The up-front, easy-to-use control is the brain of the chiller. PLC displays process status information as well as lets you make quick setting changes. Control uses common English language interface and no symbols or codes.

▶ **Customized to fit your needs**

Choose sizes, capacities and horsepower; Conair has the chiller to match your process. Pick capacities from 22 tons up to 136 tons.

▶ **Simple compressor design**

The scroll compressor has 70% fewer parts than an equal capacity reciprocating compressor, eliminating the need for pistons, connecting rods, wrist pins and valves. Fewer moving parts mean less internal friction and greater efficiency.

▶ **“Smart” auto lead/lag**

The chiller is designed for even compressor starts and even run times to decrease wear on the compressors.



Features

- Top air discharge**
 Direct-drive condenser fans release air away from personnel, building.
- Evaporator**
 Brazed plate evaporator is designed with seamless internally finned copper tubes, roller-expanded into tube sheets.
- Factory tested**
 All chillers are factory tested at typical ambient air and water conditions to confirm proper operation.
- Flow Switch**
 Factory installed to positively detect flow loss of evaporator solution.
- Refrigerant circuit**
 Larger chillers have dual refrigerant circuits with two compressors. Passive oil management maintains proper oil levels within compressor.
- 3-D Scroll compressor**
 The compressor has simple mechanical design with minimal moving parts, inherently low vibration for increased efficiency.
- Heavy gauge galvanized steel panels**
 Fourteen and Sixteen gauge panels and access doors for support and strength. All are finished with heavy-duty paint.
- Weather protected control**
 The control has automatic compressor and condenser fan sequencing, load limiting, and anti-recycle functions.
- Condenser**
 Air-cooled condenser coils have aluminum fins mechanically bonded to seamless copper tubing.



Control

01

File Tabs

Advanced interface allowing the user to access set-points, active temperatures, modes, electrical data, pressures and diagnostics.

02

LCD Display

Easy-to-read screen provides system information.



Microprocessor Control with Human Interface Panel (HMI)

- Designed to take corrective action to prevent unit shutdown.
- Limit compressor operation with smart safety controls, avoiding compressor or evaporator failures.
- Built-in chiller flow protection automatically detects no-water flow condition.
- Improved chiller start-up, load limiting, compressor anti-recycle timing, and lead/lag functions.
- Alarm diagnostic displays specific information for quick action.
- Service menu offers easy troubleshooting by controlling all outputs individually.
- Chiller capacity algorithm optimizes setpoint control and provides evaporator freeze protection.
- Failure protections include loss of chilled solution flow, chiller freeze protection, chilled solution flow interlock, head pressure control, pump down control, and low ambient lockout.



Scroll Compressor

- **70% fewer parts** - When compared to an equal capacity reciprocating compressor. Fewer moving parts means greater efficiency.
- **Single orbiting scroll** - eliminates the need for pistons, connecting rods, wrist pins and valves.
- **Non-ozone depleting refrigerant** - HFC-410A.
- **Smooth compression cycle** - with torque variations only 30% of that produced by a reciprocating compressor, stress on the motor is very low; noise and vibration are reduced.
- **Matched scroll plates** - touch in all three dimensions, forming a completely enclosed compression chamber for higher efficiency.
- **Suction gas-cooled motor** - keeps the motor cooler for longer life and better efficiency.



Options

Different LWT Ranges

Standard leaving water temperature ranges from 42°F to 65°F {5.6°C to 18.3°C} and optional temperature range from 20°F to 65°F {-6.7°C to -18.3°C}.

Remote Setpoint

Input for integration into the control system. Choose 0-5VDC or 0-10VDC.

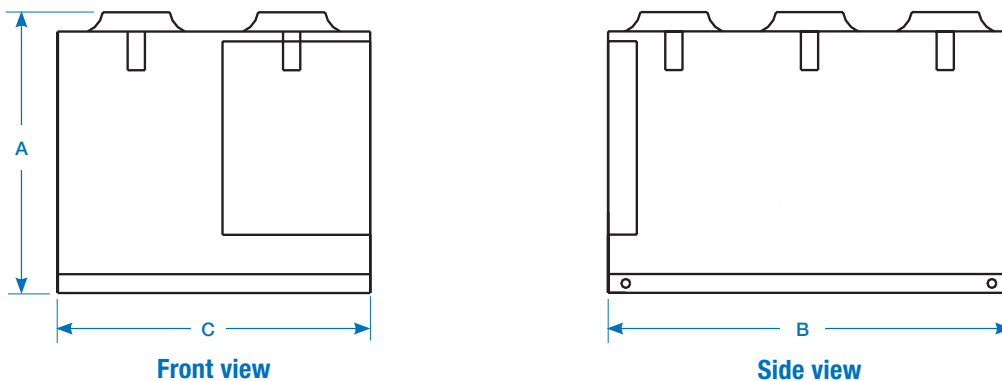
Compressor Warranty

Five-year compressor replacement warranty.

Disconnect

External handle allows local power shutoff to control center.

Specifications



Specification Notes (see following pages)

* Capacity data based on ambient air temperature of 95°F {35°C}, leaving water temperature as shown, 10°F {5.6°C} water temperature drop through evaporator, and 60 Hz electrical supply unless noted. Capacity ratings are +/- 5% based on compressor manufacturer's ratings and are subject to change without notice.

† Leaving water temperature setpoints lower than 42°F {5.6°C} require the optional "Low Temperature Processing" package and the use of Glycol. Capacities shown are with 30% Propylene Glycol.

‡ Chilled water flow is based on nominal capacity at 50°F {10.0°C} leaving water temperature and 10°F {5.6°C} water temperature drop through the evaporator.

§ Differential pressure (drop) through evaporator is for listed nominal design flow of 100% water.

** GRV: Grooved pipe connections.

†† MCA: Minimum circuit ampacity. MOP: Maximum overcurrent protection. An additional 120/1/60, 15 amp customer provided power connection is required to power evaporator heaters. Rated voltage usage range: 200/30/60 (180-220), 230/3/60 (208-254), 460/3/60 (414-506), 575/3/60 (516-633).

Specifications may change without notice. Check with a Conair representative for the most current information.



Specifications

Model	ESA-22		ESA-27		ESA-31		ESA-37		ESA-42		ESA-54		ESA-63								
Capacity* in tons (kcal) at 95°F (35°C) ambient and leaving water temperature																					
20°F (-6.7°C) †	12.1 {36,590}		15.7 {47,476}		17.2 {52,012}		20.4 {61,689}		22.9 {69,248}		30.2 {91,323}		33.9 {102,512}								
25°F (-3.9°C) †	13.4 {40,521}		17.3 {52,314}		19.1 {57,757}		22.7 {68,644}		25.1 {75,901}		33.5 {101,302}		37.9 {114,608}								
30°F (-1.1°C) †	14.9 {45,057}		19.1 {57,757}		21.2 {64,108}		25.1 {75,901}		28.0 {84,671}		37.1 {112,189}		42.1 {127,308}								
35°F (1.7°C) †	16.3 {49,290}		21.0 {63,503}		23.4 {70,760}		27.6 {83,461}		31.0 {93,742}		40.8 {123,377}		46.6 {140,916}								
40°F (4.4°C) †	17.9 {54,129}		22.9 {69,248}		25.6 {77,413}		30.2 {91,323}		34.3 {103,721}		44.6 {134,868}		51.3 {155,129}								
45°F (7.2°C)	19.9 {60,177}		25.4 {76,808}		28.7 {86,787}		33.7 {101,907}		38.9 {117,632}		49.8 {150,593}		57.6 {174,179}								
50°F (10.0°C)	21.6 {65,317}		27.4 {82,856}		31.1 {94,045}		36.5 {110,374}		42.3 {127,913}		53.9 {162,991}		62.7 {189,602}								
55°F (12.8°C)	23.3 {70,458}		29.5 {89,207}		33.6 {101,605}		39.3 {118,841}		45.9 {138,799}		58.0 {175,389}		67.9 {205,326}								
60°F (15.5°C)	25.0 {75,599}		31.6 {95,557}		36.2 {109,467}		42.2 {127,611}		49.7 {150,290}		62.3 {188,392}		73.2 {221,353}								
65°F (18.3°C)	26.8 {81,042}		33.7 {101,907}		38.8 {117,329}		45.2 {136,683}		53.4 {161,479}		66.6 {201,395}		78.7 {237,985}								
Performance characteristics																					
Qty of refrigerant circuits/ compressors	1 / 2										2 / 4										
Unloading steps, %	50-100										43-100										
Chilled water flow gpm {lpm} †	51.6 {195}		65.6 {248}		74.5 {282}		87.3 {330}		101.4 {384}		128.9 {488}		150.0 {568}								
Evaporator pressure drop psi {bar} §	7.2 {0.50}		6.5 {0.45}		8.3 {0.57}		6.4 {0.44}		9.5 {0.66}		8.7 {0.60}										
Evaporator volume, gal {l}	1.4 {5.3}		1.8 {6.8}		2.2 {8.3}		2.8 {10.6}		2.5 {9.5}		3.9 {14.8}		5.0 {18.9}								
Dimensions, weights, amps (chiller only) inches (mm)																					
A - Height	84.7 {2151}										84.8 {2154}										
B - Width	50.6 {1285}										88.6 {2250}										
C - Length	114.0 {2896}				150.0 {3810}				114.0 {2896}				150.0 {3810}								
Connections GRV **	2.00 {51}				2.50 {64}						3.00 {76}										
Weight lb {kg}																					
Shipping	1967 {892}		1995 {905}		2561 {1162}		2580 {1170}		3507 {1591}		3584 {1626}		4640 {2105}								
Installed	2030 {921}		2060 {934}		2629 {1192}		2654 {1204}		3578 {1623}		3666 {1663}		4730 {2145}								
Utility requirements																					
Power consumption amps ††																					
200V/3 phase/60hz	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP							
230V/3 phase/60hz	105.1	125	120.6	150	154.6	200	183.6	225	197.3	225	246.2	250	287.9	300							
460V/3 phase/60hz	92.3	125	115.6	150	135.5	175	168.3	200	197.7	225	219.8	250	259.2	300							
575V/3 phase/60hz	49.2	60	57.7	80	68.3	90	77.3	110	94.6	210	105.7	125	131.6	150							
575V/3 phase/60hz	41.0	50	48.2	60	54.1	70	61.7	80	79.4	90	93.0	110	106.8	125							
Performance characteristics @ 50 Hz electrical service																					
Capacity* in tons (kcal) at 95°F (35°C) ambient and leaving water temperature:																					
50°F (10°C)	18.4 {55,641}		23.3 {70,458}		26.6 {80,437}		30.7 {92,835}		35.9 {108,560}		45.3 {136,985}		53.3 {161,177}								
Power consumption amps ††	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP							
400V/3 phase/50hz	48.6	60	51.7	70	66.6	90	77.0	110	84.8	100	101.8	110	132.5	150							
Model																					
	ESA-73		ESA-84		ESA-94		ESA-106		ESA-115		ESA-125		ESA-136								
Capacity* in tons (kcal) at 95°F (35°C) ambient and leaving water temperature																					
20°F (-6.7°C) †	40.5 {122,470}		46.0 {139,102}		52.2 {157,850}		58.2 {175,994}		63.8 {192,928}		70.0 {211,676}		75.5 {228,097}								
25°F (-3.9°C) †	45.1 {136,380}		51.3 {155,129}		58.2 {175,994}		64.9 {196,254}		71.0 {214,700}		77.9 {235,566}		84.0 {253,776}								
30°F (-1.1°C) †	50.0 {151,197}		56.9 {172,063}		64.4 {194,742}		72.0 {217,724}		78.6 {237,682}		86.1 {260,362}		93.0 {280,967}								
35°F (1.7°C) †	55.1 {166,620}		62.7 {189,602}		71.0 {214,700}		79.4 {240,102}		86.7 {262,176}		94.8 {286,670}		102.4 {309,366}								
40°F (4.4°C) †	60.4 {182,647}		68.8 {208,048}		77.8 {235,263}		87.2 {263,688}		95.0 {287,275}		103.8 {313,886}		112.2 {338,973}								
45°F (7.2°C)	67.4 {203,814}		77.1 {233,147}		86.8 {262,479}		97.6 {295,137}		106.1 {320,841}		115.8 {350,173}		125.4 {378,852}								
50°F (10.0°C)	73.1 {221,051}		83.6 {252,802}		94.0 {284,251}		106.0 {320,539}		115.1 {348,057}		125.3 {378,901}		135.9 {410,574}								
55°F (12.8°C)	78.9 {238,590}		90.4 {273,365}		101.5 {306,931}		114.5 {346,242}		124.2 {375,575}		135.1 {408,536}		146.7 {443,202}								
60°F (15.5°C)	84.9 {256,733}		97.2 {293,928}		109.0 {329,611}		123.3 {372,853}		133.5 {403,697}		145.0 {438,473}		157.7 {476,435}								
65°F (18.3°C)	91.0 {275,179}		104.2 {315,096}		116.7 {352,895}		132.2 {399,766}		143.0 {432,425}		155.1 {469,015}		169.0 {510,574}								
Performance characteristics																					
Qty of refrigerant circuits/ compressors	2 / 4										2 / 6										
Unloading steps, %	21-43-71-100				25-50-75-100				22-44-72-100				25-50-75-100			23-45-73-100		25-50-75-100		15-31-46-62-8	
Chilled water flow gpm {lpm} †	174.9 {662}				200.0 {757}				225.0 {852}				253.5 {960}			275.3 {1,042}		300.0 {1,136}		325.0 {1,230}	
Evaporator pressure drop psi {bar} §	6.9 {0.48}				7.7 {0.53}				6.7 {0.46}				7.0 {0.48}			7.3 {0.50}		8.6 {0.59}		7.6 {0.53}	
Evaporator volume, gal {l}	5.7 {21.6}				7.0 {26.5}				7.5 {28.4}				8.6 {32.6}			10.3 {39.0}		12.3 {46.6}			
Dimensions, weights, amps (chiller only) inches (mm)																					
A - Height	84.8 {2154}				92.4 {2347}								92.5 {2350}								
B - Width	88.6 {2250}								89.0 {2261}												
C - Length	150.0 {3810}				143.1 {3635}								165.9 {4214}			201.9 {5128}					
Connections GRV **	3.0 {76}												4.0 {102}								
Weight lb {kg}																					
Shipping	4656 {2112}				5278 {2394}				5637 {2557}				6283 {2850}			6328 {2870}		7511 {3407}			
Installed	4751 {2155}				5384 {2442}				5746 {2606}				6401 {2903}			6461 {2931}		7618 {3455}			
Utility requirements																					
Power consumption amps ††																					
200V/3 phase/60hz	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP							
230V/3 phase/60hz	354.5	400	413.7	500	441.4	500	478.4	500	523.4	600	563.4	600	569.3	600							
460V/3 phase/60hz	317.2	350	368.8	400	392.9	450	427.5	500	477.4	500	521.6	600	531.3	600							
575V/3 phase/60hz	147.8	175	162.2	175	182.3	200	206.5	225	226.1	250	243.6	250	261.1	300							
575V/3 phase/60hz	119.8	125	131.4	150	148.5	175	168.9	200	179.3	200	188.5	225	211.7	225							
Performance characteristics @ 50 Hz electrical service																					
Capacity* in tons (kcal) at 95°F (35°C) ambient and leaving water temperature:																					
50°F (10°C)	61.4 {185,671}		71.3 {215,608}		80.6 {243,730}		89.8 {271,551}		98.4 {297,557}		104.7 {316,608}		N/A								
Power consumption amps ††	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP							
400V/3 phase/50hz	147.2	175	160.2	175	181.1	200	199.7	225	214.4	250	223.2	250	N/A	N/A							

Specification Notes (see previous page)

