Designed to Perform
Year-Round

The Conair Air-Cooled A-SK series Central Chillers are engineered to meet the most demanding needs of plastic processors. The modular microprocessor control coordinates the actions of the chiller and provides stand-alone operation of the unit. These chillers are space conscious — they can be positioned as close as 4 ft. {1.2 m} from a vertical wall.

Model A-296SK

Chilling Capacity from 156 to 527 Tons

The Conair A-SK series air-cooled central chillers provide better control of process temperature, better reliability and greater efficiency. These chillers are designed for year-round applications in ambient conditions from 30° to 115°F {-1° to 46°C}.

Made of high strength cast iron, the screw compressor is designed for less thermal distortion, less leakage, and higher efficiencies. The variable unloader valve provides stable temperature control under varying loads.

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

Options include low ambient operation, louvered air intake, remote temperature setpoint, and extended compressor warranty.

- **High-efficiency compressor**
  The helical rotary compressor is a direct drive, low speed design with only four moving parts for high reliability and low maintenance.
- **Customized to fit your needs**
  Conair has the central chiller to match your process. Pick nominal chilling capacities from 156 tons to 527 tons.
- **Suction gas-cooled motor**
  The motor operates at lower temperatures for a longer motor life.
- **Rugged compressor design**
  The screw compressor has only four moving parts eliminating the need for pistons, connecting rods, wrist pins and valves. Fewer moving parts means less internal friction and greater efficiency.

Features

- **Top air discharge**
  Direct-drive condenser fans release air away from personnel, building.
- **Evaporator**
  Tube-in-shell evaporator is designed with seamless internally finned copper tubes, roller-expanded into tube sheets.
- **Condenser**
  Air-cooled condenser coils have aluminum fins mechanically bonded to seamless copper tubing.
- **Suction gas-cooled motor**
  Motor operates at lower temperatures for longer motor life.

- **Dual refrigerant circuits**
  Chillers have dual refrigerant circuits. Compressors are designed to handle liquid slugging.
- **Helical rotary compressor**
  Compressor has only four moving parts; direct-drive, low-speed for high-efficiency and high-reliability.
- **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**
  Control has automatic compressor and condenser fan sequencing, load limiting, and anti-recycle functions.

Control

01

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

LCD Display
02

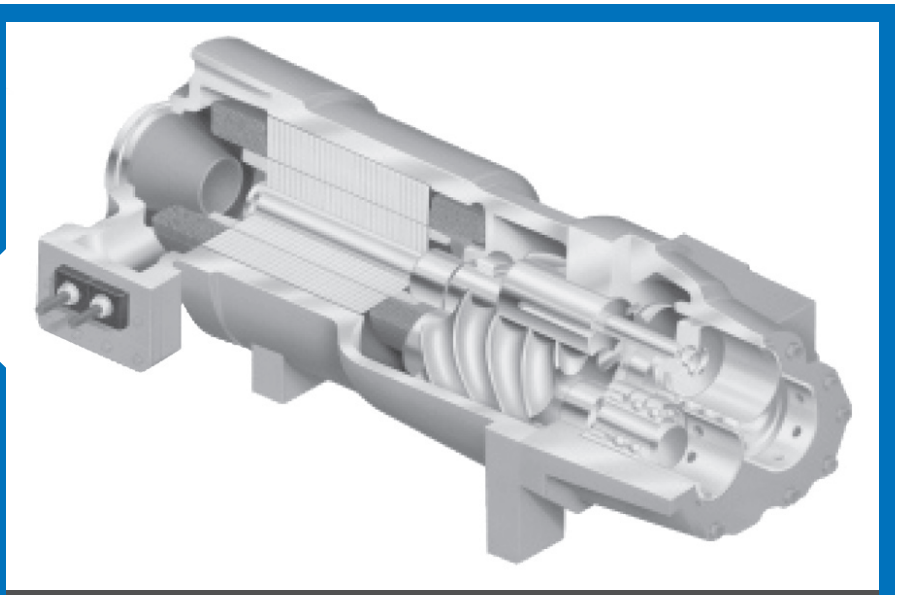
Easy-to-read screen provides system information.

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.

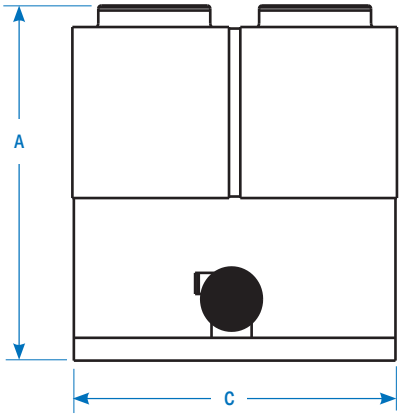
Helical Rotary Screw Compressor

- Helical screw design results in part load performance far superior to single reciprocating compressors.
- Only four moving parts when compared to reciprocating compressors; there are no pistons, connecting rods, suction and dis charge valves or mechanical oil pump.
- Latest heat transfer technology results in increased condenser and evaporator tube efficiency.
- Reduced rotor tip clearance results in reduced leakage between the high and low pressure cavities during compression.
- Resistant to liquid slugging this compressor design can handle amounts of liquid refrigerant that would severely damage a reciprocating compressor.

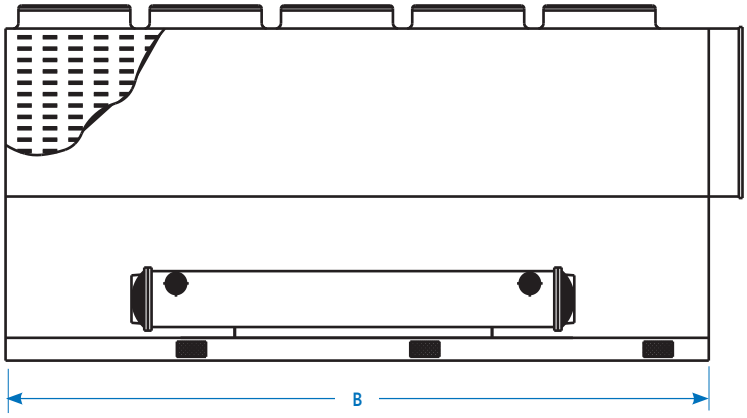


Cutaway of helical rotary screw compressor

Specifications



Front view



Side view

Specification Notes (see following pages)

* Based on water temperature (100% water) leaving the chiller, 50°F {10°C} water temperature drop through the evaporator, standard pump selections, 95°F {35°C} ambient air temperature, for the 60 Hz units. Capacity ratings are (+/-) 5% based on compressor manufacturer's ratings and are subject to change without notice.

† Leaving water temperature setpoints lower than 40°F {4.4°C} requires the "Low Temperature Processing" option and the use of Glycol. Capacities shown are with 30% Propylene Glycol. Capacities with 6°F {3.3°C} temperature drop to meet minimum evaporator flow requirements.

‡ Chilled water flow is based on nominal capacity at 50°F {10°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. Where two numbers are listed, dual power source is required. An additional 120/1/60, 15 amp customer provided power connection is required to power evaporator heaters. Rated Voltage Usage Range: 200/3/60 (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	A-156SK		A-171SK		A-187SK		A-204SK		A-222SK		A-244SK		A-266SK	
Capacity* in tons {kcal} at 95°F {35°C} ambient and leaving water temperature														
20°F {-6.7°C} †	79.3 {239,799}		87.5 {264,596}		97.6 {295,137}		107.0 {323,563}		116.5 {352,290}		120.6 {364,688}		131.9 {398,859}	
25°F {-3.9°C} †	80.6 {243,730}		88.6 {267,922}		102.7 {310,560}		112.9 {341,404}		122.7 {371,039}		141.2 {426,982}		154.5 {467,200}	
30°F {-1.1°C} †	97.0 {293,323}		106.6 {322,353}		119.5 {361,362}		130.9 {395,835}		142.5 {430,913}		160.2 {484,437}		175.4 {530,401}	
35°F {1.7°C} †	110.9 {335,356}		121.8 {368,317}		135.0 {408,233}		147.6 {446,335}		160.8 {486,251}		178.8 {540,682}		195.8 {592,089}	
40°F {4.4°C} †	128.4 {388,275}		141.1 {426,679}		154.5 {467,200}		168.6 {509,838}		183.6 {555,197}		201.5 {609,326}		220.9 {667,990}	
45°F {7.2°C}	140.7 {425,470}		154.6 {467,503}		169.1 {511,350}		184.3 {557,314}		200.6 {606,604}		220.1 {665,571}		241.3 {729,679}	
50°F {10.0°C}	153.5 {464,176}		168.6 {509,838}		184.3 {557,314}		200.7 {606,907}		218.2 {659,826}		239.3 {723,631}		262.5 {793,787}	
55°F {12.8°C}	166.7 {504,092}		183.1 {553,685}		200.0 {604,790}		217.5 {657,709}		236.2 {714,257}		259.1 {783,505}		284.2 {859,406}	
60°F {15.5°C}	180.3 {545,218}		198.1 {599,044}		216.2 {653,778}		234.8 {710,023}		254.8 {770,502}		279.4 {844,892}		306.4 {926,538}	
Performance characteristics														
Qty of refrigerant circuits/ compressors	2 / 2													
Modulating capacity range	15% to 100%		13.5% to 100%		15% to 100%		13.8% to 100%		15% to 100%		13.6% to 100%		15% to 100%	
Chilled water flow gpm {lpm} ‡	367.4 {1391}		403.6 {1528}		441.1 {1670}		480.2 {1818}		522.1 {1976}		572.7 {2168}		628.2 {2378}	
Evaporator pressure drop psi {bar} §	5.5 {0.38}		5.7 {0.39}		5.9 {0.41}		6.1 {0.42}		6.0 {0.41}		9.1 {0.63}		9.0 {0.62}	
Evaporator volume, gal {l}	29.0 {109.8}		32.0 {121.1}		33.0 {124.9}		35.0 {132.5}		39.0 {147.6}		38.0 {143.8}		42.0 {159.0}	
Dimensions, weights inches {mm}														
A - Height	93.0 {2362}													
B - Width	89.0 {2261}													
C - Length	196.0 {4978}						232.0 {5893}				268.0 {6807}			
Connections GRV **	4.0 {102}				6.0 {152}									
Weight lb {kg}														
Shipping	10,995 {4987}		11,034 {5005}		11,073 {5023}		12,685 {5754}		13,104 {5944}		14,687 {6662}		14,853 {6737}	
Installed	10,752 {4877}		10,769 {4885}		10,796 {4897}		12,391 {5620}		12,784 {5799}		14,370 {6518}		14,507 {6580}	
Utility requirements														
Power consumption amps ††	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**
200V/3 phase/60hz	660	800	730	1000	785	1000	874	1200	947	1200	1045	1200	1124	1200
230V/3 phase/60hz	581	800	641	800	691	800	770	1000	843	1000	920	1200	898	1200
460V/3 phase/60hz	288	400	317	450	341	450	380	500	412	500	454	600	489	600
575V/3 phase/60hz	230	300	254	350	273	350	304	400	329	450	364	500	392	600
Performance characteristics @ 50 Hz electrical service														
Capacity* in tons {kcal} at 95°F {35°C} ambient and leaving water temperature:														
50°F {10°C}	147.9 {447,242}		161.3 {487,763}		175.1 {529,494}		193.7 {585,739}		213.7 {646,218}		N/A		256.5 {775,643}	
Chilled water flow gpm {lpm}	353.9 {1340}		386.0 {1461}		419.1 {1586}		463.5 {1755}		511.3 {1935}		N/A		613.9 {2324}	
Evaporator pressure drop psi {bar} §	5.2 {0.36}		5.3 {0.36}		5.4 {0.37}		5.8 {0.40}		5.8 {0.40}		N/A		6.9 {0.48}	
Power consumption, amps ††	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP
400V/3 phase/50hz	333	450	373	500	406	500	446	600	479	600	N/A	N/A	563	700

Model	A-296SK		A-332SK		A-375SK		A-440SK		A-484SK		A-527SK	
Capacity* in tons {kcal} at 95°F {35°C} ambient and leaving water temperature												
20°F {-6.7°C} †	140.4 {424,563}		159.3 {481,715}		183.2 {553,988}		226.9 {686,134}		252.8 {764,454}		277.1 {837,936}	
25°F {-3.9°C} †	170.5 {515,583}		191.9 {580,296}		218.7 {661,338}		264.4 {799,532}		292.4 {884,203}		320.0 {967,664}	
30°F {-1.1°C} †	195.6 {591,485}		219.5 {663,757}		249.5 {754,475}		299.1 {904,463}		329.7 {996,996}		360.6 {1,090,436}	
35°F {1.7°C} †	219.6 {664,059}		246.0 {743,892}		279.4 {844,892}		333.1 {1,007,278}		366.7 {1,108,882}		401.0 {1,212,604}	
40°F {4.4°C} †	249.3 {753,871}		278.7 {842,775}		316.3 {956,475}		374.6 {1,132,772}		411.9 {1,245,565}		450.3 {1,361,685}	
45°F {7.2°C}	272.3 {823,421}		304.4 {920,490}		345.4 {1,044,472}		408.5 {1,235,283}		449.1 {1,358,056}		491.1 {1,485,062}	
50°F {10.0°C}	296.9 {897,811}		330.9 {1,000,625}		375.6 {1,135,795}		443.6 {1,341,424}		487.5 {1,474,175}		533.3 {1,612,672}	
55°F {12.8°C}	322.0 {973,712}		358.3 {1,083,481}		406.6 {1,229,538}		479.7 {1,450,589}		527.1 {1,593,924}		576.6 {1,743,609}	
60°F {15.5°C}	347.9 {1,052,032}		386.5 {1,168,757}		438.4 {1,325,700}		516.9 {1,563,080}		567.6 {1,716,394}		620.8 {1,877,268}	
Performance characteristics												
Qty of refrigerant circuits/ compressors	2 / 3						2 / 4					
Modulating capacity range	9.5% to 100%		10% to 100%		8.8% to 100%		7.5% to 100%		6.8% to 100%		7.5% to 100%	
Chilled water flow gpm {lpm} ‡	710.8 {2691}		792.2 {2999}		899.1 {3403}		1061.8 {4019}		1167.0 {4418}		1276.4 {4832}	
Evaporator pressure drop psi {bar} §	6.9 {0.47}		7.2 {0.50}		7.6 {0.53}		9.1 {0.63}		10.1 {0.70}		10.3 {0.71}	
Evaporator volume, gal {l}	60.0 {227.1}		66.0 {249.8}		70.0 {265.0}		81.0 {306.6}		84.0 {318.0}		88.0 {333.1}	
Dimensions, weights inches {mm}												
A - Height	96.0 {2438}											
B - Width	89.0 {2261}											
C - Length	362.0 {9195}		434.0 {11,024}				470.0 {11,938}		542.0 {13,767}			
Connections GRV **	8.00 {203}											
Weight lb {kg}												
Shipping	19,536 {8861}		21,103 {9572}		21,904 {9935}		25,754 {11,682}		26,373 {11,963}		27,798 {12,609}	
Installed	18,876 {8562}		19,572 {8878}		21,450 {9730}		25,074 {11,373}		25,678 {11,647}		27,056 {12,272}	
Utility requirements												
Power consumption amps ††	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**	**MCA**	**MOP**
200V/3 phase/60hz	785/522	1000/800	947/522	1200/800	1124/522	1200/800	947/947	1200/1200	1124/947	1200/1200	1124/1124	1200/1200
230V/3 phase/60hz	681/459	800/700	834/459	1000/700	989/459	1200/700	834/834	1000/1000	989/834	1200/1000	989/989	1200/1200
460V/3 phase/60hz	536	70	600	700	678	800	786	864	1000	934	934	1000
575V/3 phase/60hz	430	500	481	600	544	700	628	700	693	1000	750	1000
Performance characteristics @ 50 Hz electrical service												
Capacity* in tons {kcal} at 95°F {35°C} ambient and leaving water temperature:												
50°F {10°C}	284.8 {861,221}		323.8 {979,155}		352.6 {1,077,131}		433.7 {1,311,487}		N/A			
Chilled water flow gpm {lpm}	681.8 {2581}		775.1 {2934}		852.5 {3227}		1038.1 {3930}		N/A			
Evaporator pressure drop psi {bar} §	6.4 {0.44}		6.9 {0.47}		7.8 {0.54}		8.7 {0.60}		N/A			
Power consumption, amps ††	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP
400V/3 phase/50hz	629	800	694	800	770	800	909	1000	N/A			

Specification Notes (see previous page)