Energy Efficient
Central Chilling

Provide chilled fluid for industrial applications from a central location with the Conair Water-Cooled W-SK Series Central Chillers.

The simple design of the screw compressor provides both full load and part load efficiencies unmatched in the industry, and results in lower energy costs when compared to reciprocating compressors.

Model W-127SK

Cooling Capacities from 86 Tons to 268 Tons

The Conair Water-Cooled W-SK Series Central Chillers are engineered for improved efficiency and reliability. The screw compressor is the most advanced compressor in the industry. The unit protects against starting and running overload, under and over voltages, phase loss, phase reversals, high winding temperature and rapid recycling.

The microprocessor control maintains chilled water temperature more accurately, resulting in less temperature drift.

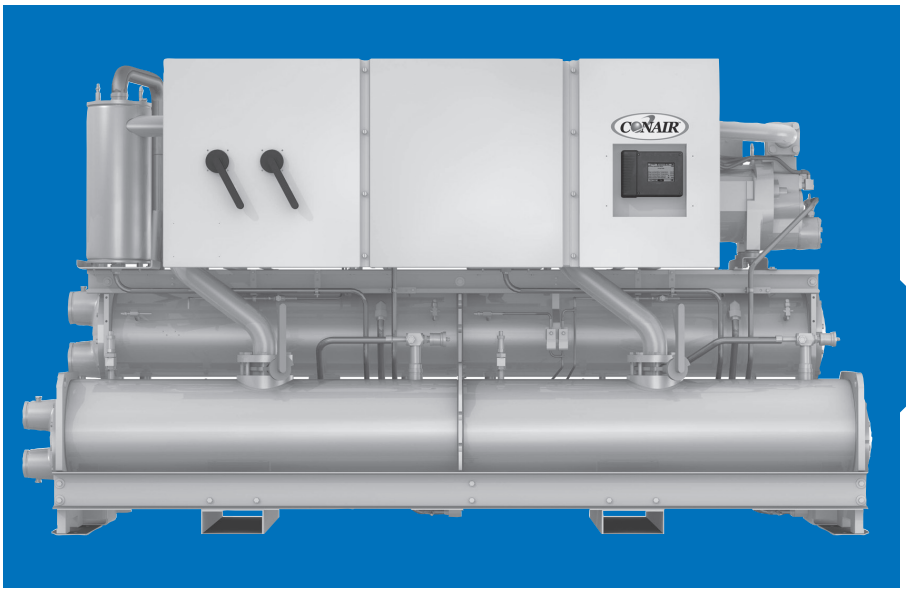
The microprocessor monitors temperature and rate of change over time, controlling compressor loading for efficient chiller operation.

The screw compressor's positive displacement design along with staging dual refrigerant circuits result in lower energy costs.

- **Eco-friendly and energy efficient**
  All models use environmentally-friendly HCFC-free R-134a refrigerant and have ASHRAE 90.1 compliant energy efficiency ratings for improved energy-savings.
- **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.
- **Trouble-free operation**
  Smart safety features and over 40 diagnostic displays for easy and virtually trouble-free operation that includes one year warranty on parts and labor.
- **Easy setup**
  Small unit size, factory wiring, easy lifting procedures and startup control logic result in quick and easy installation. And includes one day of startup services by a factory-trained technician.

Features

- **Easy access controls**
  Control has automatic compressor and condenser fan sequencing, load limiting, and anti-recycle functions.
- **Operator interface**
  Monitors temperature and rate of change over time, effectively controlling compressor loading.



- **Dual refrigerant circuits**
  Chillers have dual refrigerant circuits. Compressors are designed to handle liquid slugging.
- **Water regulating valves**
  for condenser water lower than 85°F {29.4°C}.
- **Flow switch**
  Field installed to positively detect flow loss of evaporator fluid flow.
- **Helical rotary compressor**
  Compressor has only four moving parts; direct-drive, low speed for high efficiency and high reliability.
- **Evaporator**
  Shell-and-tube evaporator uses seamless, internally finned copper tubes, roller-expanded into tube sheets.
- **Energy efficient**
  Results in lower energy costs when compared with reciprocating compressor designs.

Control

01

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

LCD Touch Screen with LED Backlight
02

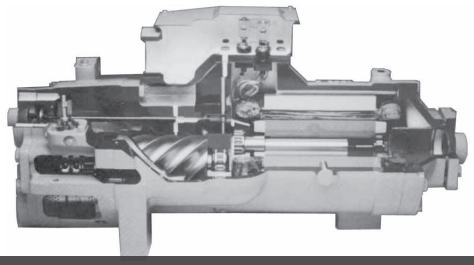
Easy-to-read screen provides system information.

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

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

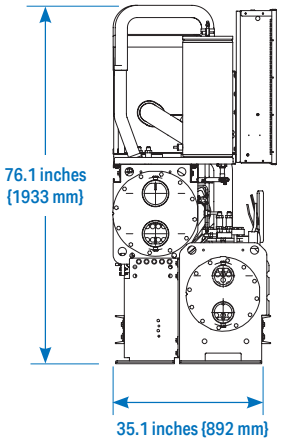


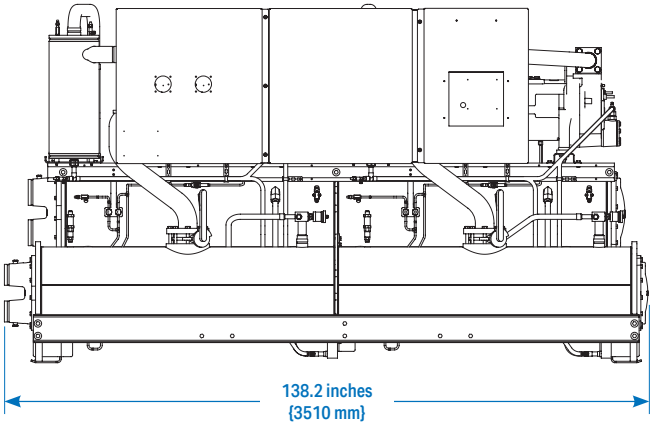
Cutaway of the screw compressor

Options

- Different LWT Ranges
  Standard leaving water temperature ranges from 40° to 65°F {4.4° to 18.3°C} and optional temperature ranges from 0° to 39°F {-17.8° to 3.9°C}.
- Remote Setpoint
  Input for integration into the control system. Choose 0-5 vDC or 0-10 vDC.
- Disconnect
  External handle allows local power shutoff to control center.
- Compressor Warranty
  Choose an additional two- to five-year compressor component replacement warranty.
- Wye-delta starter
  Reduces energy surges during chiller start-up.
- Remote condenser
  Air-cooled remote condenser option to replace water cooled condenser on chiller. Refrigerant piping on site is required.

Specifications





Specification Notes (see following pages)

* Based on entering condenser water temperature of 85°F {29.4°C}, leaving condenser water temperature of 95°F {35°C}, leaving chilled water temperature as shown and 10°F {5.56°C} water temperature drop through the evaporator. Capacity ratings are (+/-) 5% and are subject to change without notice.

† Leaving water temperature setpoints lower than 45°F {4.4°C} may require low temperature processing, 3-pass evaporator, or high efficiency performance option in order to operate properly. Consult factory for pricing. Not available for W-163SK models with remote condenser option. Capacities shown have been selected with low temperature processing.

‡ 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) is for listed nominal design flow of 100% water.

** Tower water flow based on nominal capacity with 85°F {29.4°C} entering water temperature and 10°F {5.6°C} water temperature drop through the evaporator.

†† GRV: Grooved pipe connections.

‡‡ MCA: Minimum circuit ampacity. MOP: Maximum overcurrent protection. Rated voltage usage range: 200/3/60 (180-220), 230/3/60 (208-254), 400/3/50 (364-440), 460/3/60 (414-506), 575/3/60 (516-633). Starters for 400/3/50, 460/3/60 and 575/3/60 standard will be Across-the-Line; starters for 200/3/60 and 230/3/60 will be Wye-Delta.

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

Specifications

Model	W-86SK	W-98SK	W-112SK	W-127SK	W-140SK	W-149SK	W-163SK
Capacity* in tons {kcal} at 95°F {35°C} ambient and leaving water temperature							
35°F {1.7°C} †	61.4 {185,671}	72.8 {220,144}	83.3 {251,895}	92.5 {279,715}	98.2 {296,952}	104.5 {316,003}	N/A
40°F {4.4°C} †	71.1 {215,003}	84.9 {256,733}	96.6 {292,114}	107.5 {325,075}	114.5 {346,242}	121.7 {368,015}	N/A
45°F {7.2°C}	78.1 {236,170}	89.4 {270,341}	102.2 {309,048}	115.7 {349,871}	127.1 {384,344}	135.2 {408,838}	147.8 {446,940}
50°F {10.0°C}	85.9 {259,757}	98.1 {296,649}	112.2 {339,287}	127.0 {384,042}	139.7 {422,446}	148.7 {449,661}	162.6 {491,694}
55°F {12.8°C}	94.1 {284,554}	107.3 {324,470}	122.7 {371,039}	138.8 {419,724}	153.2 {463,269}	163.0 {492,904}	178.3 {539,170}
60°F {15.5°C}	102.9 {311,164}	117.0 {353,802}	133.8 {404,604}	151.4 {457,826}	167.5 {506,512}	178.2 {538,868}	194.9 {589,368}
65°F {15.5°C}	112.2 {339,287}	127.4 {385,251}	145.7 {440,589}	164.7 {498,044}	182.6 {552,173}	194.3 {587,553}	212.6 {642,892}
Performance characteristics							
Qty of refrigerant circuits/ compressors	2 / 2						
Minimum operating tons at 50°F {10°C}	15.5	17.7	20.2	22.9	25.1	26.8	29.3
Chilled water flow gpm {lpm} ‡	205.7 {779}	234.7 {888}	268.5 {1016}	303.9 {1150}	334.4 {1266}	355.8 {1347}	389.0 {1473}
Evaporator pressure drop psi {bar} §	7.4 {0.51}	9.4 {0.65}		9.6 {0.66}	10.7 {0.74}	10.4 {0.72}	10.3 {0.71}
Tower water flow gpm {lpm} **	244.0 {924}	278.00 {1052}	318.1 {1204}	359.8 {1362}	394.6 {1494}	419.8 {1589}	459.6 {1740}
Condenser pressure drop psi {bar} §	8.7 {0.60}	7.9 {0.55}	7.7 {0.53}	8.6 {0.59}	8.8 {0.61}	9.9 {0.68}	9.0 {0.62}
Dimensions, weights, amps (chiller only) inches {mm}							
Evaporator connections GRV ††	4.0 {102}				5.0 {127}		
Condenser connections GRV ††	5.0 {127}						
Weight lb {kg}							
Shipping	5705 {2588}	5721 {2595}	5902 {2677}	6074 {2755}	6248 {2834}	6244 {2832}	6649 {3016}
Installed	5900 {2676}	5933 {2691}	6140 {2785}	6332 {2872}	6530 {2962}	6535 {2964}	6971 {3162}
Utility requirements							

Power consumption amps ‡‡	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP
200V/3 phase/60hz	216	300	249	350	291	400	324	450	356	500	382	500	425	600
230V/3 phase/60hz	188	250	217	300	252	350	280	400	309	450	332	450	368	500
460V/3 phase/60hz	94	125	110	150	127	175	141	200	155	225	166	225	185	250
575V/3 phase/60hz	76	100	87	110	102	150	114	150	125	175	134	175	148	200
Performance characteristics @ 50 Hz electrical service														
Capacity* in tons {kcal} at 95°F {35°C} ambient and leaving water temperature:														
50°F {10°C}	94.5 {285,763}		107.3 {324,470}		114.2 {345,335}		121.1 {366,200}		134.6 {407,024}		148.2 {448,149}		159.9 {483,530}	
Chilled water flow gpm {lpm}	226.1 {856}		256.8 {972}		273.3 {1035}		289.8 {1097}		326.4 {1236}		354.6 {1342}		382.7 {1449}	
Evaporator pressure drop psi {bar} §	7.0 {0.48}		7.1 {0.49}		7.9 {0.55}		8.8 {0.61}		9.0 {0.62}		8.7 {0.60}		10.0 {0.69}	
Tower water flow gpm {lpm} **	267.6 {1013}		303.6 {1149}		322.6 {1221}		341.9 {1294}		384.0 {1454}		415.9 {1574}		450.5 {1705}	
Condenser pressure drop psi {bar} §	7.4 {0.51}		7.1 {0.49}		7.0 {0.48}		7.8 {0.54}		8.4 {0.58}		7.4 {0.51}		8.7 {0.60}	
Power consumption, amps ‡‡	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP
400V/3 phase/50hz	123	175	137	175	152	200	164	225	180	250	193	250	211	300

Model	W-174SK	W-188SK	W-204SK	W-222K	W-243SK	W-268SK
Capacity* in tons {kcal} at 95°F {35°C} ambient and leaving water temperature						
35°F {1.7°C} †	112.9 {341,404}	122.0 {368,922}	133.5 {403,697}	145.7 {440,589}	156.5 {473,248}	167.1 {505,302}
40°F {4.4°C} †	131.6 {397,952}	142.3 {430,308}	156.1 {472,039}	170.3 {514,979}	184.2 {557,012}	199.0 {601,766}
45°F {7.2°C}	156.3 {472,643}	170.6 {515,886}	186.2 {563,059}	202.3 {611,745}	221.4 {669,502}	243.5 {736,332}
50°F {10.0°C}	172.0 {520,119}	187.7 {567,595}	204.8 {619,305}	222.5 {672,829}	243.3 {735,727}	267.8 {809,814}
55°F {12.8°C}	188.7 {570,619}	205.9 {622,631}	224.6 {679,179}	244.0 {737,844}	266.5 {805,883}	293.5 {887,529}
60°F {15.5°C}	206.4 {624,143}	225.1 {680,691}	245.6 {742,682}	266.9 {807,092}	290.8 {879,365}	320.7 {969,781}
65°F {15.5°C}	225.1 {680,691}	245.5 {742,380}	267.8 {809,814}	290.9 {879,667}	316.4 {956,778}	349.3 {1,056,266}
Performance characteristics						
Qty of refrigerant circuits/ compressors	2 / 2					
Minimum operating tons at 50°F {10°C}	31.0	33.8	36.9	40.1	43.8	48.2
Chilled water flow gpm {lpm} ‡	411.8 {1559}	449.5 {1702}	490.4 {1856}	532.8 {2017}	582.6 {2205}	641.3 {2428}
Evaporator pressure drop psi {bar} §	11.0 {0.76}	11.4 {0.78}	11.0 {0.76}		10.0 {0.69}	9.6 {0.66}
Tower water flow gpm {lpm}	479.6 {1815}	523.7 {1982}	570.2 {2158}	618.1 {2340}	678.6 {2569}	746.6 {2826}
Condenser pressure drop psi {bar} §	10.0 {0.69}	10.2 {0.70}			9.0 {0.62}	6.8 {0.47}
Dimensions, weights, amps (chiller only) inches {mm}						
Evaporator connections GRV **	5.00 {127}				6.00 {152}	
Condenser connections GRV **	6.00 {152}					
Weight lb {kg}						
Shipping	7544 {3422}	8036 {3645}	8098 {3673}	8157 {3700}	8995 {4080}	9478 {4299}
Installed	7884 {3576}	8395 {3808}	8490 {3851}	8578 {3891}	9493 {4306}	10,071 {4568}
Utility requirements						

Power consumption amps ††	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP
200V/3 phase/60hz	415	600	446	600	484	700	515	700	583	800	637	800
230V/3 phase/60hz	362	500	389	500	421	600	447	600	509	700	558	800
460V/3 phase/60hz	183	250	196	250	213	300	227	300	256	350	279	400
575V/3 phase/60hz	146	200	157	225	171	250	182	250	204	300	222	300
Performance characteristics @ 50 Hz electrical service												
Capacity* in tons {kcal} at 95°F {35°C} ambient and leaving water temperature:												
50°F {10°C}	174.1 {526,470}		184.6 {558,221}		203.4 {615,071}		223.0 {674,341}		243.5 {736,332}		265.8 {803,766}	
Chilled water flow gpm {lpm}	416.7 {1577}		442.0 {1673}		486.9 {1843}		534.0 {2021}		582.9 {2207}		636.5 {2409}	
Evaporator pressure drop psi {bar} §	10. 0 {0.69}		9.2 {0.64}		9.4 {0.65}		8.6 {0.59}		9.1 {0.63}		9.5 {0.65}	
Tower water flow gpm {lpm}	489.8 {1854}		512.4 {1940}		565.1 {2139}		619.3 {2344}		677.9 {2566}		739.9 {2801}	
Condenser pressure drop psi {bar} §	8.8 {0.61}		8.3 {0.57}		8.6 {0.59}		7.6 {0.53}		9.0 {0.62}		8.2 {0.56}	
Power consumption, amps ††	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP	MCA	MOP
400V/3 phase/50hz	225	300	223	300	247	350	266	350	296	400	320	450

Specification Notes (see previous page)