



TEMPERATURE CONTROLLERS... PORTABLE CHILLERS... CENTRAL CHILLERS... PUMP TANK STATIONS... TOWER SYSTEMS...

SUBJECT: COPELAND SCROLL COMPRESSORS

#7-A-245

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Copeland Scroll compressors are used on most **ADVANTAGE** portable and central chillers, from 3 to 90 tons, air and water cooled.

Copeland Scroll compressors have several benefits over other types of compressors. Scroll Compressors...

- Have only three moving parts. Fewer moving parts mean increased reliability. By comparison, piston compressors have up to nine moving parts per cylinder. **Benefit: fewer maintenance calls.**
- Do not use complex internal suction and discharge valves. Because of this, scroll compressors are more tolerant to liquid refrigerant and debris. **Benefit: durability.**
- Are more efficient over their entire operating range, thanks to less cycling and 100% volumetric efficiency. **Benefit: higher efficiency.**
- Are compact in overall size, are light weight, and are simple in design. **Benefit: easy service and maintenance.**
- Operate at a lower sound and vibration levels. **Benefit: quiet operation.**



Scroll compressor

Scroll Compressor Cycle:



1. Refrigerant enters outer opening as one scroll orbits the other.

2. The open passage is sealed as refrigerant is drawn into the compression chamber.

3. As one scroll continues orbiting, the refrigerant is compressed into an increasingly smaller, crescent-shaped pocket.

4. By the time the refrigerant reaches a central port in the stationary scroll, it has achieved maximum (discharge) pressure.

5. During actual operation, all passages are in various stages of compression at all times, resulting in near-continuous intake and discharge for optimum performance.

Information in this document provided by Copeland Document #2000-63.