Introducing ColdSaver
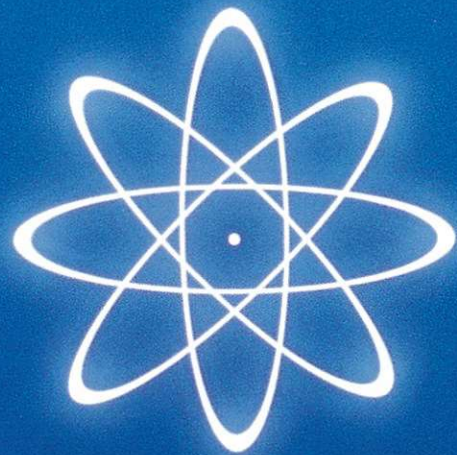
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ColdSaver

Through the efforts of the advanced engineering staff at Russell, a new system has been developed to give you substantial energy savings, longer equipment life, and more refrigeration capacity for your money.

The use of a specially designed expansion device combined with a unique pressure stabilizer and quick start module reduces the energy consumed by the compressor at lower outside temperatures.

The compressor and components last longer because the pressure and temperature in the system are substantially reduced.

The ColdSaver starts refrigerating immediately upon demand for cooling — resulting in more refrigeration capacity. Conventional systems must run until they develop a level of pressure, before cooling can begin.

How Does It Work?

The ColdSaver is an energy saving system which lets the pressure of a refrigeration unit decrease as the outside air temperature drops. By allowing the pressure to drop, the power consumption is reduced. At the lower pressure the compressor can circulate the refrigerant more easily.

At 95° outside temperature, the refrigerant pressure is 200 pounds in both the Standard and the ColdSaver. However, as the temperature drops, the pressure in the ColdSaver

also drops. The standard system pressure will only decrease to 180 pounds, but the ColdSaver pressure continues to fall with the outside air. At 45° outside, the pressure in the ColdSaver is a mere 80 pounds.

As a result, the compressor must push only against 80 pounds, rather than the 180 pounds. Energy savings are considerable.

Features

- Substantial energy savings
- Increases refrigeration capacity
- Stretches equipment life

- Factory engineered components
- Reduces installation costs
- Proven reliability

Application

ColdSaver is available on Russell 1/2 thru 10 horsepower outdoor systems.

ColdSaver is ideal for multiple compressor systems that are rejecting their heat to one air cooled condenser which makes subcooling circuits next to impossible to install.

ColdSaver provides a subcooled liquid to the evaporator expansion valve thus eliminating the need for a liquid line heat exchanger. The elimination of the heat exchanger results in a lower return gas temperature to the compressor which in turn reduces the compressor's discharge temperatures. This is advantageous in systems operating with R-22 as high discharge temperatures can adversely affect the life of the compressor.

On existing systems that cannot can be retrofitted with a subcooling circuit in the condenser coil, ColdSaver can be supplied as an option on replacement evaporators (a slight modification to the condensing unit piping is necessary).

Even when outdoor ambient temperatures are over 100°F, ColdSaver can ensure a solid column of subcooled liquid to the evaporator. This solid column of liquid eliminates flash gas, and the associated problems of reduced capacity, and hunting controls.
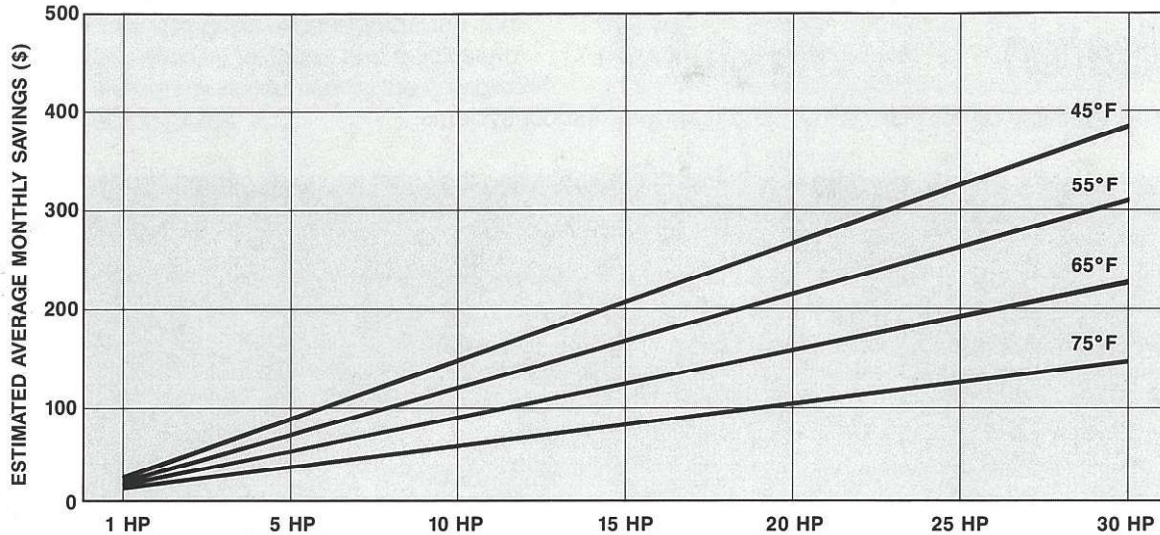
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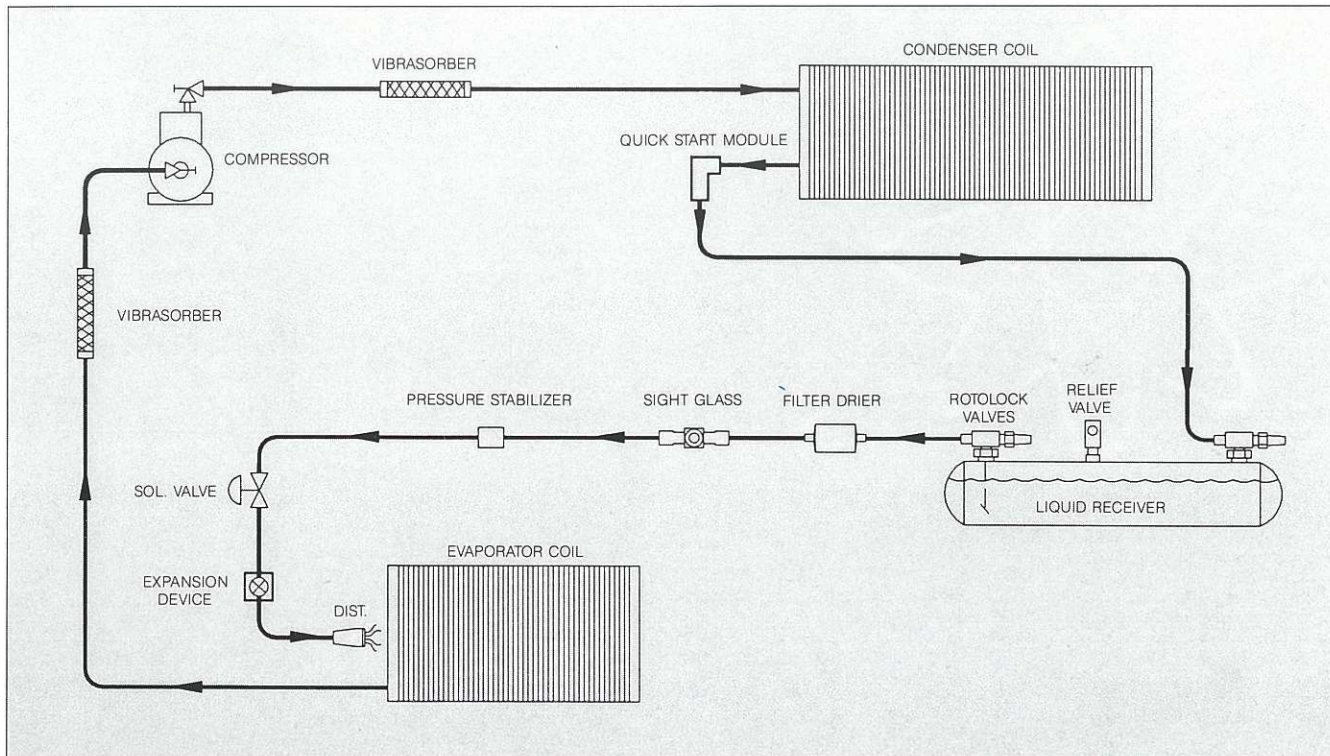
ColdSaver Projected Monthly Savings @ $0.10/KWH

To estimate your average monthly savings — determine the average annual temperature from the table and total the H.P. of the compressors used in the ColdSaver.

1. Find total H.P. at bottom of chart.
2. Go up to annual average temperature.
3. Estimated savings are shown on the left.

Average Annual Outdoor Air Temperature

STATE & STATION		ANNUAL AVG.	STATE & STATION		ANNUAL AVG.	STATE & STATION		ANNUAL AVG.	STATE & STATION		ANNUAL AVG.
AL	Mobile	70	IA	Des Moines	50	NM	Albuquerque	60	VT	Burlington	45
AK	Juneau	40	KS	Wichita	55	NY	Buffalo	45	VA	Richmond	60
AZ	Phoenix	70	KY	Louisville	55		New York	55	WA	Seattle	50
AR	Little Rock	60	LA	New Orleans	70	NC	Charlotte	60	WV	Charleston	55
CA	Los Angeles	60	ME	Portland	45	ND	Bismarck	45	WI	Milwaukee	45
	San Francisco	55	MD	Baltimore	55	OH	Cleveland	50	WY	Cheyenne	45
CO	Denver	50	MA	Boston	50		Columbus	50			
CT	Hartford	50	MI	Detroit	50	OK	Oklahoma City	60		**CANADA**	
DE	Wilmington	55	MN	Sault St. Marie	40	OR	Portland	55	ALB	Calgary	40
D.C.	Washington	55		Minneapolis	45	PA	Philadelphia	50	B.C.	Vancouver	50
FL	Jacksonville	70	MS	Jackson	65	RI	Providence	50	MAN	Winnipeg	35
	Miami	75	MO	St. Louis	55	SC	Columbia	65	N.B.	St. John	45
GA	Atlanta	60	MT	Great Falls	45	SD	Sioux Falls	45	N.F.	St. John's	40
HI	Honolulu	75	NE	Omaha	50	TN	Nashville	60	N.S.	Halifax	45
ID	Boise	50	NV	Reno	50	TX	Dallas	65	ONT	Toronto	45
IL	Chicago	50	NH	Concord	45		El Paso	65	QUE	Montreal	45
IN	Indianapolis	50	NJ	Atlantic City	55	UT	Salt Lake City	50	YUK	Dawson	25

DEGREE FAHRENHEIT

ColdSaver Specification

ColdSaver (patent pending) shall include liquid line pressure stabilizer integrated with a ColdSaver quick start module and expansion device for each compressor operating a walk-in cooler or freezer. During extremely low ambient conditions system must begin refrigerating within 90 seconds of cooling demand. Components must be factory engineered and mounted.

Russell