

Dodge Hybrid Refrigeration Systems

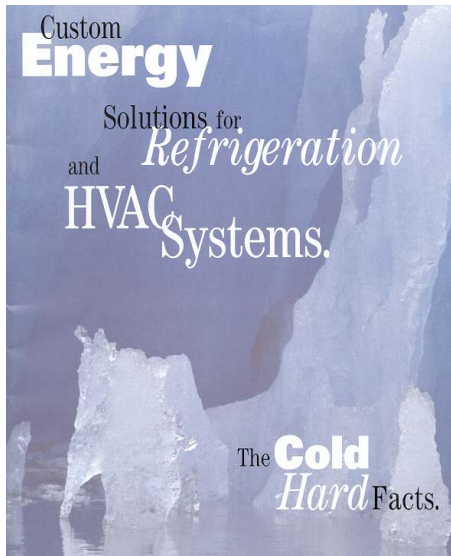
PREDICTABLE SAVINGS

Dodge Hybrid Refrigeration Systems provide the most reliable means available to increase your system's efficiency while reducing electrical energy consumption.

ANNUAL SAVINGS OF 15% TO OVER 50%

Depending on the Application

Power used by the compressor will be reduced by more than **1.2% for every degree F** that the condensing temperature is lowered. **ASK ABOUT REBATES.**



FROM EVALUATION TO SATISFACTION

We can provide a wide variety of Hybrid Systems for various applications. Our representatives will work with you to evaluate your present system for applicability.

These Hybrid Systems can be configured to work with the majority of existing systems in the market.

Working with you, we provide a tailored Hybrid Refrigeration System designed to bring your equipment to optimum operating performance – quickly and cost effectively.

PROVEN BENEFITS

No other energy saving retrofit has received as much analysis and testing. The US Department of Commerce called it the highest potential energy saving technology available today. Since 1984, more than 12,000 of these systems have been installed in grocery stores, cold storage plants, industrial facilities and commercial buildings. Field installations have been monitored and savings confirmed by numerous universities, power companies and government energy agencies.

This technology is formally recommended by the US Department of Energy, FEMP, US ARMY Corp of Engineers, the Defense Industrial Supply Agency, ESCO's and OEM's.

RELIABILITY

The central component of the Dodge Hybrid Refrigeration System is an ultra-reliable magnetically coupled pump that is appropriately sized to the system. It cannot be affected by motor burnout and has no moving seals to wear out.



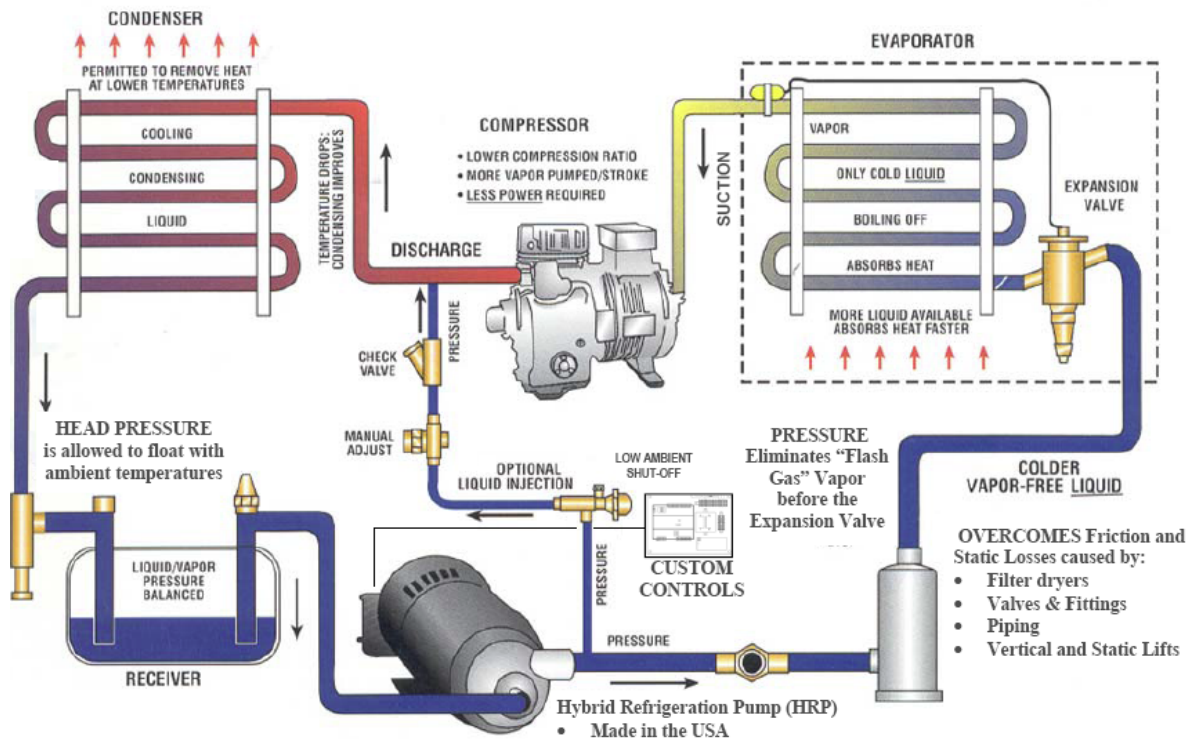
A WELL KEPT SECRET

In spite of the fact that liquid pumps are used to move every other type of volatile fluid, including the gasoline in your car, many people in the refrigeration industry still use high pressures on the compressor to try to deliver liquid to the cooling coil. Your system, as delivered, was designed to operate year-round as though the temperature outside were 95°F. For most of the time, this reduces the capacity of the system and increases the power consumed by the compressor. Once the Dodge Hybrid Refrigeration System is installed, adjustments are made which allow your system pressures to be reduced while your capacities are increased. These Systems allow your equipment to operate at lower levels of temperature and pressure, reducing maintenance and equipment replacement costs.

HOW IT WORKS

The Hybrid Refrigeration System provides a solid column of liquid (no flash gas) to the expansion valve. By lowering the condenser temperature, colder liquid is provided to the expansion valve increasing the capacity of the evaporator. The expansion valve will maintain full capacity with as little as 30 psi differential. The lower compression ratio provides more refrigerant per stroke with less power used. Lift and long run problems are also eliminated.

DEI Hybrid Refrigeration System



Safety and alternate System configurations not shown.

Dodge Engineering & Controls, Inc.

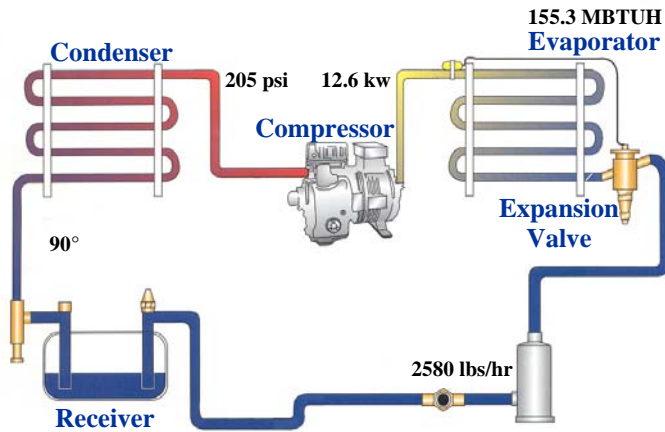
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Refrigeration System Comparison

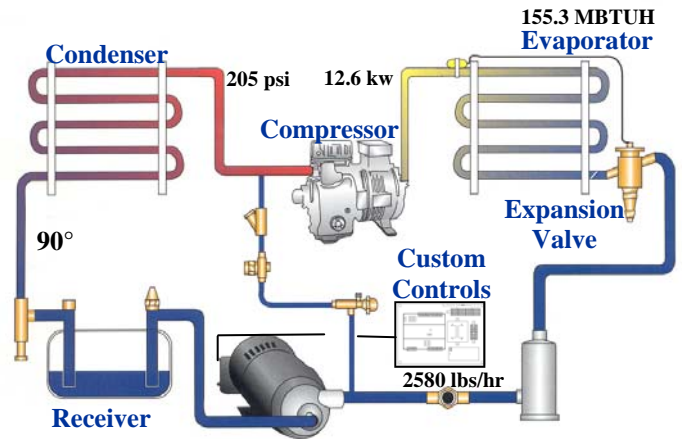
STANDARD SYSTEM



Condensing Temperature at 50° 70° & 90°

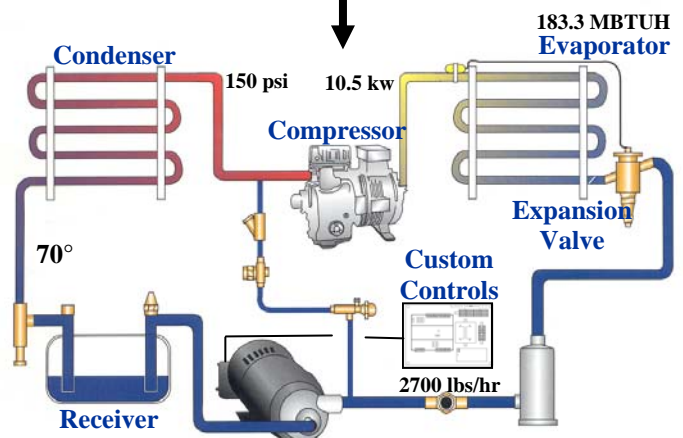
Both the Standard System as well as the DEI Hybrid Refrigeration System is running with a 90°F saturated condensing temperature setpoint. Energy savings increase as the condensing temperature setpoint is decreased. Unlike standard systems, a DEI Hybrid Refrigeration System can take advantage of lower saturated condensing temperatures without the risk of flash gas in the system.

HYBRID REFRIGERATION SYSTEM



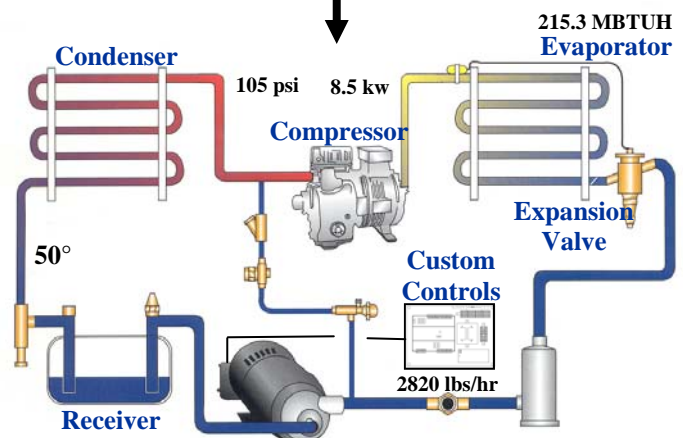
Hybrid Refrigeration Pump (HRP)*
Condensing Temperature at 90°

With the DEI Hybrid Refrigeration System, the saturated condensing temperature setpoint can be decreased to 70°F. Notice the power usage of the compressor drops from 12.6 KW to 10.5 KW, with the result of a decrease of 16.7%. Also, the evaporator energy output (MBTUH) changed from 155.3 to 183.3, showing an increase in evaporator energy output of 18%. This increase in capacity satisfies the cooling setpoint sooner, while still using less compressor power.



Hybrid Refrigeration Pump (HRP)*
Condensing Temperature at 70°

With a 50°F saturated condensing temperature setpoint, the evaporator output efficiency is even more dramatic. The compressor power (KW) usage decreases by 32.5%, while the evaporator energy output (MBTUH) increases by 38.6%. Just think of the energy dollars you can save at your facility!



Hybrid Refrigeration Pump (HRP)*
Condensing Temperature at 50°

*Safety, custom controls and alternate configurations not shown.
Note: The example of this System is based on 404 Refrigerant.