Digital Scroll or Hot Gas?

Why Digital Scroll Compression is an Effective Alternative to Hot Gas Bypass

Digital scroll compression and hot gas bypass are two different methods of load-matching in a system. Although digital scroll compression and hot gas bypass both aim to regulate temperature in a cooling system, digital scroll compression does so in a more effective and efficient way. This offers multiple benefits to the end user.

Feature	Digital Scroll	Hot Gas Bypass	Benefit
More Precise Temperature and Humidity Control	✔	–	Modulation makes it easier to hit the exact desired temperature
Higher Efficiency and Energy Savings	✔	–	Less energy consumption = lower energy costs
Lower Installation Costs	✔	–	No extra time and money needed for installing extra piping
Lower Maintenance Costs	✔	–	Less run time = longer lifecycle of parts

How Digital Scroll Compression Works

Unlike hot gas bypass, digital systems are not required to run at 100% power all of the time. Instead, digital systems turn on and off to match the required load.

The on and off cycles of a digital scroll compressor typically occur over 20 second intervals. For example, if 50% power is required, the compressor will stay on for 10 seconds and then shut off for 10 seconds.

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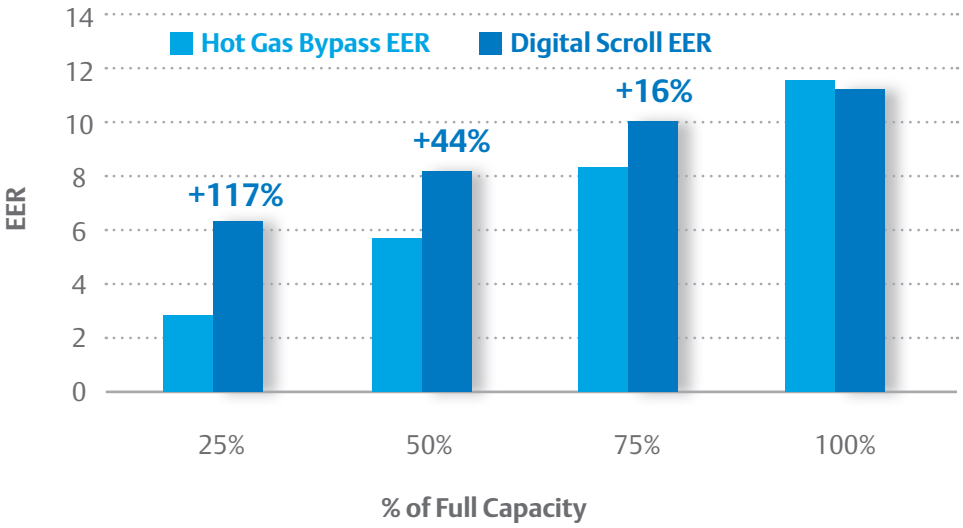
Digital scroll compressors can typically run anywhere between 10–100% of full load capacity and are infinitely variable between these values. By modulating capacity in this way, the digital compressor reduces unnecessary power consumption thus reducing energy costs and increasing the life and overall efficiency of the system.

Digital Scroll vs Hot Gas Bypass Efficiency Comparison



The Technology

If you are looking to switch from hot gas bypass to a single digital scroll compressor system, Emerson offers the EC3-D72 series: a stand-alone universal superheat controller with a built-in synchronization control for the Copeland Scroll Digital™ compressor.

For more information visit us online at **Emerson.com**