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Turning Air Compressors into an Energy Source

More than just providing plant air, they're also a useful source of heat, energy savings, and sustainable operations

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The Dilemma

The rise in energy prices is an unwelcome reality in today's manufacturing and business environment. While the rate of price increases for natural gas, heating oil, and other sources may vary from year to year, the upward trajectory is clear. Energy cost reduction strategies are vital to staying competitive.

A related goal is protecting the environment and focusing on sustainable development. Some industries are under increasing pressure to reduce their carbon footprint, and many companies are proactively taking steps to do so.

With manufacturing plants and other facilities doing what they can to streamline their operations and improve efficiencies, part of that challenge is for facility engineers to optimize the energy efficiency of their operations and extract as much productivity out of every unit of energy paid for and consumed.

Compressed Air as an Energy Source

One important way operational efficiencies can be increased is by harnessing heat from compressed air systems, which are a major component of industrial energy consumption.

Moreover, with energy consumption representing the majority of a compressor's total life cycle cost, the wise use of that energy takes on even more importance.

The law of thermodynamics and the principle of the conservation of energy tell us that energy cannot be created or destroyed; it can only change form. The air that enters a compressor at atmospheric pressure has a base level of energy content. As the compression process increases the air pressure and raises its temperature, more energy is added. The heat must be removed to maintain proper compressor operating temperatures and to cool the compressed air to make it suitable for plant use, and most of this heat can be harnessed for other uses.

Energy cost savings through system optimization

Potential energy cost savings through heat recovery

