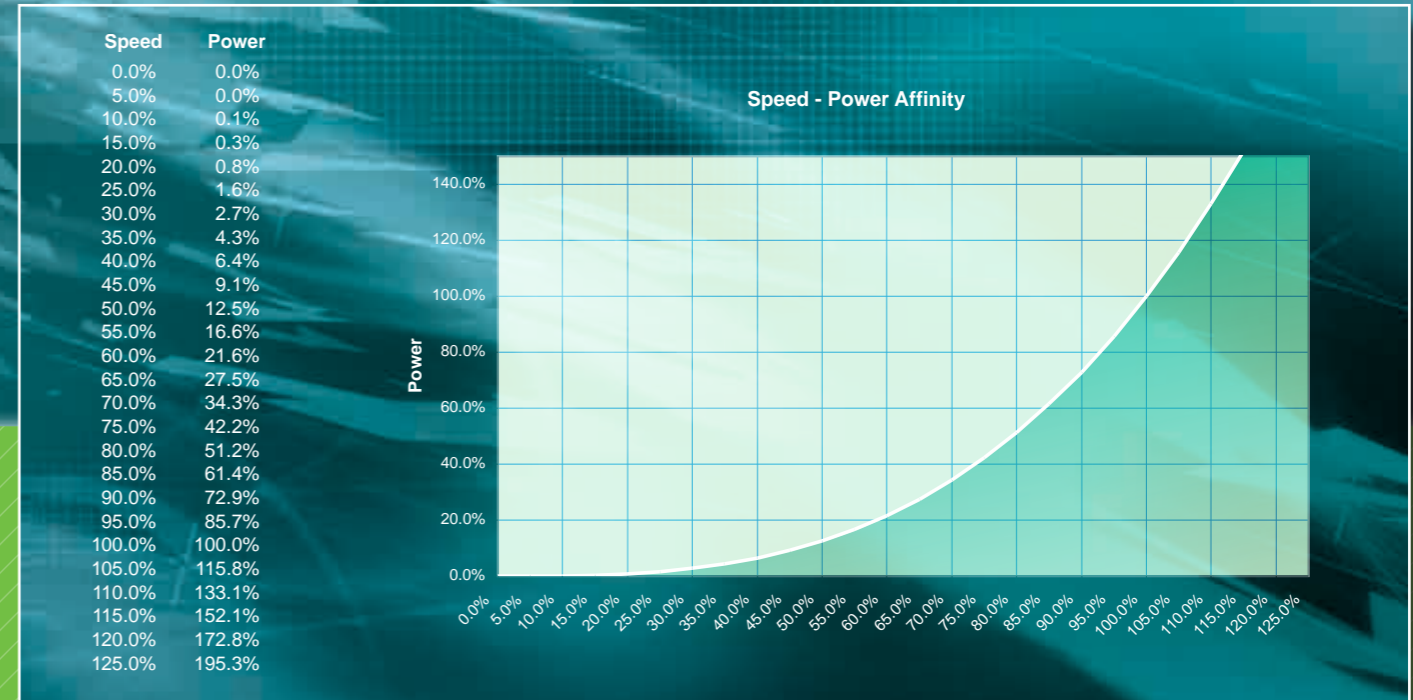


YOU CAN ONLY SAVE WASTED ENERGY: Q(E)D

SAVING ENERGY IS ONE OF INDUSTRY'S MAJOR GOALS. BUT IT'S WORTH REMEMBERING THAT ONLY ENERGY WHICH IS BEING WASTED CAN BE SAVED. THE REST IS REQUIRED TO POWER THE EQUIPMENT SO IT CAN DO WHATEVER JOB IT'S DESIGNED FOR. HOWEVER, IF THERE IS ENERGY TO BE SAVED, THE FENNER QD:HVAC IS THE INVERTER TO DO IT.



Fenner®



The Fenner QD (QuickDrive) Inverter is single-mindedly designed to save energy. With hardware optimised for driving pump and fan loads, its return on investment is demonstrable, quick, and sizeable. In fact, installation of a Fenner QD:HVAC can take as little as two hours, and the cost of the inverter can be recouped in no more than six months. In addition, if the QD:HVAC is part of a CapEx project it qualifies for an ECA – Enhanced Capital Allowance.

But how do you know if energy is being wasted, and how does the Fenner QD: HVAC help to save it?

Absorbing facts

Energy is often wasted, and power can often be reduced, because equipment is frequently over-powered for the job in hand.

For example, the original equipment specification may include a power safety margin of, say, 10%. Then the designer

– unaware of this – adds another 10%, and so on, and so on. Another increasingly common reason for excess power provision is that the equipment is no longer doing a job of the scale it was designed for, perhaps due to reduced production levels.

Power reduction in fans and centrifugal pumps is particularly successful because of the unique affinity they offer between speed and absorbed power. For example, a 20% reduction in the speed of operation results in a power reduction of $(1 - 0.8^3) \times 100 = 48.8\%$ (see graph, opposite).

One major benefit of installing a variable speed drive such as the Fenner QD:HVAC is that it helps to save energy now by reducing power use to the required level. But if and when a return to the original power level is required, the QD:HVAC can quickly and easily be adjusted to meet it.

Identifying an over-powered pump or fan can be relatively easy.

If an installed damper or throttle valve is permanently partially closed, this is a clear indication that the equipment is oversized, and therefore wasting energy. In a centrifugal water pump, the height to which the water must be lifted up the pipework can be compared with the pump's rated pressure (shown as 'bars' on the pump's nameplate). One bar equals 10m of lift, so if the number of bars (x 10) equates to more than the required height of lift in metres, the pump is wasting energy.

High-end features, lower cost

The Fenner QD:HVAC is packed with the kind of features normally found only on high-end models, yet this is a mid-price drive. The drive itself is one of the most efficient on the market, converting 100% of energy in to 98.4% energy out. So it not only saves energy once installed, but saves on the purchase price too.

Pumping applications benefit from the QD:HVAC's soft start and stop (reducing water hammer), dry run detection (extending pump life), pump blockage detection, and automatic cleaning cycles. It can also co-ordinate three additional fixed-speed pumps in a sequential/cascade system, enabling the fine tuning of demand and energy consumption from a single inverter.

For fan systems, the software includes broken belt detection, and fire mode as standard. The drive can be connected to a building's fire alarm system via a single digital input, and will then operate in a pre-determined way (running at maximum speed in reverse, for example) during a fire emergency. Whilst operating in fire mode, the QD:HVAC will ignore all minor faults and warnings, continuing to run until the motor, wires or the drive itself is destroyed.

In critical pump and fan applications, the inverter's automatic bypass feature allows QD:HVAC to switch-in a conventional motor starter if a fault is detected in the inverter.

This means production is maintained without interruption, and repairs can be scheduled rather than carried out on an expensive emergency call-out basis.

Optimising energy use

Every Fenner QD inverter has provision for a 24V output, capable of powering a sensor to measure flow, pressure, or temperature – whichever is most significant to the application. The inverter can also autonomously regulate motor speed to hold a steady sensor reading. The operation of the equipment can then easily be adjusted to match the identified demand – the key to saving energy.

All models in the QD range also incorporate an energy optimiser feature to automatically adjust motor voltage and reduce the motor losses which occur when running at less than full load – a condition most motors have, most of the time.

So if you want to make the most of energy-saving opportunities, the Fenner QD:HVAC inverter is your most effective option.

