

# ENERGAIR CASE STUDY



**KRUPP HOESCH**  
SPRING IS IN THE AIR

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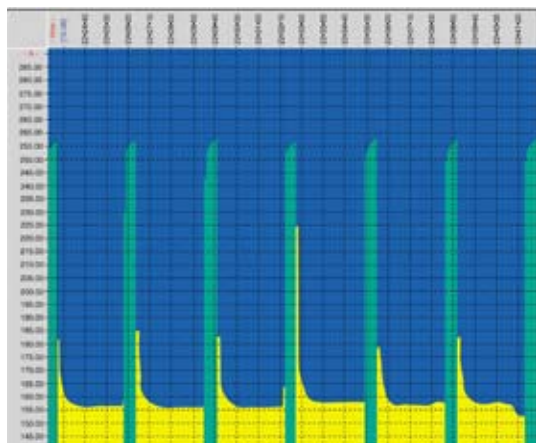
UK automotive spring manufacturer saves 50% in compressed air energy costs using retrofit vsd drive and software from **EnergAir**.

**K**rupp Hoesch Woodhead, the UK and Europe's largest manufacturer of suspension coil springs for the automotive industry, has halved its compressed air energy costs by retrofitting their main compressor with a variable speed drive and control software from EnergAir. A compressed air monitoring report conducted by EnergAir at the Leeds manufacturing site provided a detailed breakdown of how the £11,000 pa savings could be made. The Leeds manufacturing site houses two fully automated production lines that manufacture up to 800 springs an hour, 24hrs a day Monday to Friday. The advanced process is a "once-through" continuous line, where steel bar is heated, coiled, shot peened and painted. Compressed air is used to move actuators throughout the production line, in addition to powering the shot peening process and powder delivery system in the paint plant. In the light of soaring electricity charges and as part of a company wide policy on reducing energy costs, the provision of compressed air was identified as a target area for reductions.

The Maintenance Manager responsible for implementing the company's new energy

efficiency policy, Lionel Theobald commented, "I was aware of the energy savings that are possible using VSD compressors in high duty applications from previous experience with a chemical manufacturer. The 10-year-old Ingersoll Rand compressor we have here had completed 86,000 hours of service and two separate companies had both advised me to purchase a new VSD compressor. Suspecting that this would be their answer no matter what the circumstances, I contacted our compressed air servicing supplier AS Pneumatics who put me in touch with EnergAir. EnergAir confirmed that the compressor did not necessarily require replacement and that it would be possible to retrofit a VSD drive for a fraction of the price of a new compressor".

One of the most difficult tasks faced by industrial maintenance departments today is to justify their recommended expenditure to management and accounts departments. In the case of KHW, accurate efficiency data was the key to demonstrating that savings could be made and therefore justify any investment in a new compressor or a retrofit drive package. This is where EnergAir's monitoring capability proved invaluable. Using non-obtrusive monitoring techniques, the system pressure, compressor load and power consumption were monitored for a full week. Readings were taken every five seconds and the collated data presented graphically. Graham Coats from EnergAir points out "The resulting report clearly showed that from an annual expenditure of £23,000 KHW could save £11,000, virtually halving the annual energy bill for compressed air. It also illustrated that the retrofit drives package recommended by EnergAir would pay for itself within 13 months".





Graham Coats explains further, "The report showed two clear areas where savings could be made, eliminating offload operation and increasing operating efficiency by maintaining system pressure more effectively. Monitoring the loading on the system compared to the energy usage showed the most significant savings. This allowed us to identify the amount of time that system pressure was maintained unnecessarily. A simple function in our EnerSoft control software enabled us to take the compressor completely off-line when it was not needed, making a saving of £9,700 per annum easily achievable. System pressure can be more closely controlled using a VSD and software, hence at KHW we were also able to smooth off periods of system pressurisation and bring the overall system pressure down from 6.7 to 6 bar, making a saving of £1,244 per annum.

EnergAir's recommended package for KHW was fitted in October 2001 and subsequent energy bills have already proved EnergAir's predictions correct. Other benefits that cannot be demonstrated immediately include extending the operating life of the compressor. Thanks to the EnerSoft control software the compressor does not ramp up to peak load each time it is turned on, this ensures that it operates within its most efficient and mechanically ideal parameters, hence reducing wear and extending life.

EnergAir are able to retrofit drives packages to virtually any type of screw compressor. Large turbo and piston type compressors can also be optimised using EnergAir control and monitoring equipment. Multiple compressors offer further scope for energy saving as they can be changed from cascade to pier-to-pier control. EnergAir's 'EnerSoft' software has

been developed by EnergAir specifically for compressor control and can be operated from a PC base. Provided with on-line access, it also facilitates EnergAir's 24hr 'Alert' monitoring service that offers complete peace of mind to users of compressed air for continuous or critical plant processes.

### Fast Facts

- **The site was running a fixed speed compressor which was creating an annual bill of £23,000.**
- **Two production lines are running 24 hrs a day, Monday to Friday.**
- **A VSD was retrofitted to the compressor which was far less costly than installing a new variable speed compressor.**
- **New annual energy costs for compressed air was £12,000 which represents an almost 50% saving in electrical energy pa.**
- **As well as eliminating offload energy the EnergAir system accurately maintains the system pressure.**
- **Capital payback time of just 13 months.**
- **The system reduced the overall system pressure from 6.7 bar to 6.0 bar.**







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