Slash Energy Consumption and Improve Safety with SMC's Standby Valve

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SMC Pneumatics, worldwide leading experts in automation, has developed a series of standby valve solutions which can be incorporated into a system to drastically reduce energy consumption especially during brief, recurring equipment stoppages.

With safety and energy efficiency in mind, the VEX1500/1700 Power Valves help to reduce equipment pressure loss during downtime, lowering the amount of compressed air lost due to leaks at full operating pressure. Once the equipment is turned back on again, it returns to full operating pressure from standby within a matter of seconds.

Brian Abbott, SMC Pneumatics Product Manager explains that interruptions in industrial processes are the rule, not the exception. "Standby mode pays off most with short, frequent breaks. Numerous causes for standby mode include tool changes, shift changes, planned or unplanned maintenance and, of course equipment malfunctions".

With most industrial processes requiring a standby mode, there is no reason not to enquire. SMC's standby valve solution can be designed to form part of a system to help lower energy costs when machines are stopped for longer periods, such as overnight or over the weekend.

"All the loads remain pressurised, albeit at a lower pressure, and maintain a defined position. This lowers leakage losses and compressed air consumption during equipment start-up."

Costs cut up to 70% in practice

"Overseas, data has been collected in customer applications which show that the VEX solution offers significant cost savings," explains Abbott. "For example, a trial was run in which a keg filling and washing machine was equipped with a VEX1500 standby valve at a beer brewery. The machine runs for three days a week and cleans itself automatically at night. Unfortunately, leaks in the system lose around 250 litres of compressed air per minute. We adjusted the VEX valve to automatically reduce system pressure to 2 bar and keep it there during breaks. That minimises the pressure loss and at the same time, the system starts up within seconds when regular operations resume. Measurements taken on this system have shown potential savings in excess of 70%."

Abbott elaborates on the savings experienced with another great application story from an international car manufacturer. "A car maker operates a machine in its car body construction unit 24 hours a day, 251-plus days a year. The operating pressure is 6 bar but the VEX1700 standby valves reduced the pressure to 2 bar during breaks. This approach eliminated nearly 90% of the compressed air lost during these breaks (from approx. 1,130 m^3 to 130 m^3). When averaged over the entire operating time, the standby valve cut costs by around 25%!"

One valve – three functions

The VEX1500/1700 standby valves perform three functions, namely: vent, shut down and hold. Each line is designed for a different sized connection:

- VEX1500-X115: ½" and ¾"

- VEX1700-X115: 1”

The series is engineered for an operating pressure range of 0.05 to 9 bar and can remain in standby mode between 0.5 and 9 bar The optimum standby pressure is around 3,5 bar.