Switch off sub-systems at night and weekends – and save costs

95% of leaks occur in the pipe network. This makes it worthwhile to disconnect sub-systems without permanent consumers from the compressed air network during the night and at weekends, when production ceases.

Action

Disconnect complete sub-systems and machines from the compressed air generator when no compressed air is required.

Requirement

You must make sure that no continuous consumers of compressed air (such as ventilation flaps, diaphragm pumps, slide valves for water pipes, etc.) are integrated into the sub-systems.

What to do

- In your compressed air distribution system, look for sub-systems that do not require compressed air after the end of operating hours (closing time).
- From your supplier, obtain a ball valve that can be controlled with a time switch. The ball valve should have the same dimensions as the compressed air pipe at the position where it is installed.
- Programme the time switch so that it closes the ball valve 30 minutes after the end of the operating period, and opens it again 30 minutes before operation restarts.

Costs – outlay

- Suppliers' prices for an electrical ball valve with a time switch start at CHF 350. The installation costs have to be added to this.
- The amortisation period for the investment depends on the size of the system and the number of leaks. Empirical values indicate that the investment pays for itself in about one year.

Please note

- If you intend to use this solution to disconnect the entire compressed air network, install the ball valve at the point where the compressed air line exits from the compressor chamber.
- Important: A slow-opening ball valve must be used. Solenoid valves are not suitable because they open too quickly. This causes what are known as pressure shocks or surges, which can cause major damage (ripped filters, water or oil in the pipe network).

Additional explanations

Disconnect machines with a solenoid valve from the compressed air network

Many machines operate with uncontrolled continuous consumers of compressed air, and they have leaks. They still consume compressed air when the machine is not operating.

In most cases, therefore, the machine can be disconnected from the compressed air supply when it is not operating. For this purpose, a solenoid valve is installed in the compressed air supply line upstream of the machine. The valve opens as soon as the machine starts operating, and closes when the machine is turned off. In case of doubt, ask your machine supplier whether the machine can be disconnected outside operating times. You can find more information in the Guideline on optimising compressed air from SwissEnergy.

A solenoid valve automatically disconnects a machine from the compressed air network.

Switching sub-systems or the entire compressed air system on and off manually

Individual sub-systems or the entire compressed air system can also be switched off and back on manually.

But be careful to avoid errors when switching on and off manually, because if the ball valve is wrenched open when switching on instead of being opened slowly, the system can be damaged. Filters can be torn, and water or oil can penetrate the pipe network and cause serious damage to the machines.

Experience also shows that people repeatedly forget to switch off manually. The compressed air system continues to operate even though no compressed air consumers are active.

You can find instructions on switching on and off manually in the Guideline on optimising compressed air from SwissEnergy.

Additional information

- Short film: Energy efficiency in companies: switch off the compressed air

- Guideline on optimising compressed air, information for staff responsible for compressed air
- 4-step check to optimise a compressed air system, work instrument for staff responsible for compressed air
- Guidance on compressed air, boosting efficiency in compressed air systems

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