

GOOD PRACTICES IN SME

Advanced control systems for compressed air installations



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How does an advanced control system look like in a compressed air installation?

The energy efficiency of multi-compressor installations can be significantly increased through the installation of a central control system for the entire installation, which collects operational data and partially or fully manages the workload of each compressor.

The control strategy of the central control system must consider the different characteristics of each compressor and in particular their mode of regulation. The most common methods of controlling each compressor are:

- Switching the compressor between three modes: under load, idling and off.
- Regulation using a frequency changer.

The main features of a central control system in a compressed air installation:

- Assured information flow on the parameters and operation of the system,
- Access to the operational data of each compressor,
- Comprehensive control of all modes of compressor operation by the control system,
- Defines of the energetically optimal configuration with respect to compressor operation and their load,
- Minimalization of switching states and idling of compressors with a constant rotational speed,
- Additional functions such as remote monitoring, data collection, maintenance planning, remote servicing and/or access to pre-processed operational data through a webserver.

The cost-effectiveness of integrated control systems in compressed air installations depends on factors such as variable demand, number and size of compressors in the installation or their regulation. The average energy savings of installing a control system for a compressed air installation are estimated at 12%.

Source: KAPE based on „Dokument referencyjny na temat Najlepszych Dostępnych Technik w zakresie Efektywności Energetycznej” Komisja Europejska, 2009



Pic. 1 KAESER: compressor control system