

GOOD PRACTICES IN SME

Variable speed drives (VSD) in compressor systems



Designed by freepik

The following document was developed using European Union financing as part of the “Technical support for the promotion of energy audits and energy efficiency investments in small and medium-sized enterprises in Poland”. The opinions presented in this document should not be treated as the official stance of the European Union.

The project was financed by the European Union as part of Structural Reform Support Programme (SRSP) and realized by the Polish National Energy Conservation Agency (KAPE SA) in cooperation with the European Commission on behalf of the Ministry of Climate and Environment.

When to consider a VSD in a compressor system?

Variable speed drives for compressor systems find their use in cases, where the demand for compressed air changes significantly during the day or during the week. These demand variations can be a source of idling for classical compressors, which decreases their energy efficiency. In VSD compressors the rotational speed (and therefore power) of the electric motor is adjusted to the demand for compressed air. Variable speed control is the most economic and energy efficient method of regulation. Research shows that most of the use cases for compressed air have moderate to high fluctuations in compressed air demand, creating a significant potential for energy savings using variable speed compressors.

Apart from energy savings, VSD also ensure:

- stable pressure maintenance in the compressed air system,
- low reactive power of the compressor,
- decreased start current,
- easier compressor start-up.



fot. 1 BOGE: sprężarka z napędem VSD

What to do if the demand spiking often?

If the installation experiences long periods of low demand and shorter periods characterised by significantly higher demand it might be cost-effective investing in two compressors – one with a power rating more appropriate for supplying basic demand, and a second compressed to satisfy peak demand. Both can be additionally equipped with VSDs.

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