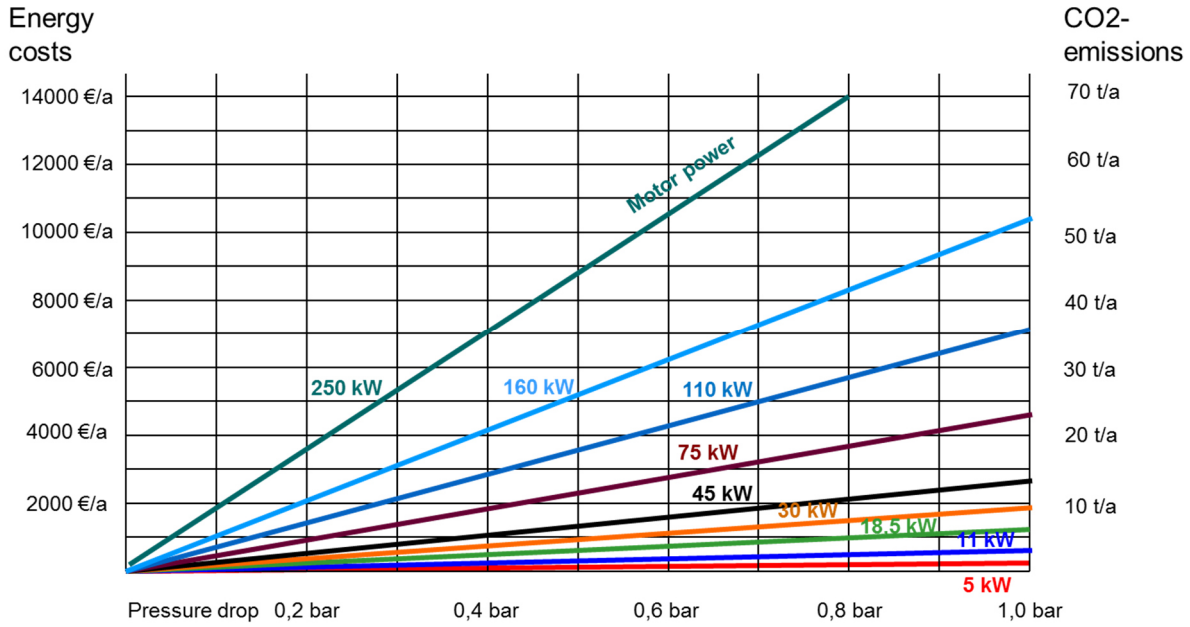
Factsheet

Compressed air filter

The cost of pressure drop

Compressed air filters improve the quality of the compressed air by removing contaminants. As these tend to deposit on the filter material, the pressure drop increases gradually over time. To ensure that there is sufficient pressure available at the consumers, the compressor must compensate this pressure drop, which results in higher energy costs. In the generation of electric power, CO_2 is released, which contributes to climate change. Preventing pressure drop is therefore a good thing for more than one reason.



Assumptions: 8000 Bh/a, 0,1 €/kWh, Power loss per bar 8%, Power plant emissions 0.545 kg CO2/kWh

Calculation of energy costs

For ratings other than the above, the annual energy costs can be calculated as follows:

Formula	Compressor power	*	Differential pressure	*	Power required per bar	*	Operating hours per year	*	Costs per kWh	=	Electricity costs per year
Example	75 kW	*	1,0 bar	*	8%/bar	*	8000 h/a	*	0,1 €/kWh	=	4800 €/a

Recommendation

Coalescing filters or deep filters should be changed the moment the additional energy costs caused by pressure drop exceed the normal energy costs. In many cases, this is already the case at a differential pressure of less than 0.4 bar.

www.beko-technolgies.com
service-eu@beko-technologies.com

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