However the optimization process can only be done by using a coupled optimization tool. The calculated pay-back period of the drive structures with exhaust-air recovery system is less than 2 years.

As shown in this article pneumatic drive systems often hold significant saving potentials. Drive systems with energy saving solutions can utilize these potentials within a manageable pay-back period.

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Nomenclature

Designation	Denotation	Unit
c_p	Specific isobare heat capacity	[J/kg·K]
d	Diameter	[m]
E	Energy	[J]
E_{ex}	Exergy	[J]
$\dot{E}_{ex}$	Exergy flow	[J/s]
k	Thermal transmittance	[W/m^2·K]
m	Mass	[kg]
$\dot{m}$	Mass flow	[kg/s]
n	Polytropic coefficient	-
p	Pressure	[Pa]
p_0	Ambient pressure	[Pa]
R	Specific gas constant	[J/kg·K]
s	Stroke	[m]
T	Temperature	[K]
T_0	Ambient temperature	[K]
V	Volume	[m^3]
x	Displacement	[m]
$\dot{x}$	Velocity	[m/s]
κ	Isentropic coefficient	-
ρ_0	Density of the ambience	[kg/m^3]

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