

# RECP Best Practice Catalogue

*Arresting compressed air leakages*  
*Developed within the framework of MED TEST II*  
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UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



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# Best Practice - Arresting compressed air leakages

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<b>SECTOR:</b>	<b>Food &amp; Beverage</b>
<b>SUBSECTOR:</b>	Bakery and farinaceous products
<b>PRODUCTS</b>	Puff Pastries
<b>CATEGORY</b>	Process control or modification
<b>APPLICABILITY</b>	Utilities

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<b>COMPANY NAME</b>	---
<b>COMPANY SIZE</b>	Large

# Best Practice - Arresting compressed air leakages

## Description of the problem (Base scenario):

As per the conducted energy measurements and audit, a lot of leakages in the compressed air network and the end users were noted and shall be fixed to reduce losses of electricity.

The compressed air system consists of four compressors with rated power of 110 kW each. One of them is with variable speed drive (VSD) technology, which is programmed to operate in parallel with one of the other three compressors alternately. These compressors provide the production lines with the required compressed air at a pressure around 8 bar. Two tests were conducted for the compressed air system which are Free Air Delivery (FAD) test and no-load test (Factory is OFF). It was noted that there is a huge amount of air leakages in the network at the no-load mode, by measuring the time of operating and non-operating for the compressors at specified period when there is no load or demand in the factory. By measuring the FAD and loading/no loading time the air leakage rate can be calculated with value of 2,295 m<sup>3</sup>/hr (61% of FAD).

## Description of the solution

Since there are a lot of leakages in the compressed air network and at the end users, arresting at least 90% of these leakages will reduce the operating time of the compressors, which will be reflected on its energy consumption.

It is recommended to make the no-load test by the factory staff every week in order to check the air leakages rate in the factory and arrest it immediately.

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## Economic Benefits

Air leakage rate: 2,295 m<sup>3</sup>/hr

Specific power use: 0.0898 kW/(m<sup>3</sup>/hr)

Power loss : 206 kW

Annual losses: 206 kW\*5,616 hr/yr=1,157,900kWh/yr

Energy saving after arresting 90% of air leakages: 1,042,000 kWh/year

Annual Saving: € 130,609 /year

## Environmental Benefits

Energy Saving = 1,042,000 kWh/year (10.63% of the electrical energy)

Reduced CO<sub>2</sub> emission= 604 ton/year

## Health and safety impact

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<b>Capital investments &amp; financial indicators</b>	€8,670 Payback period = 0.2 year
<b>Suppliers</b>	Local
<b>Other aspects</b>	-----
<b>Implementation</b>	Implemented