

# Saving

# Energy

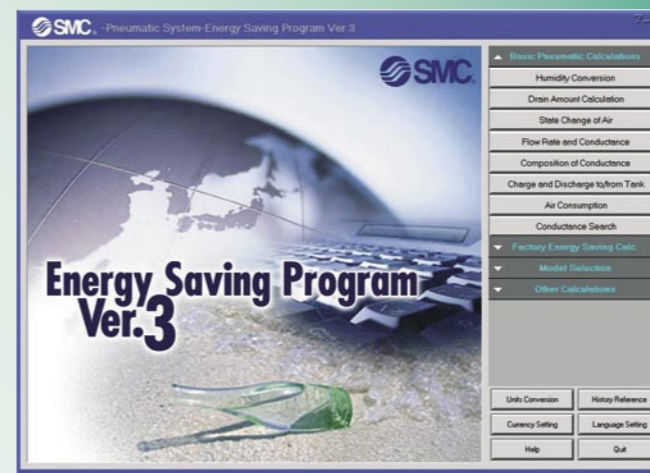
## ENERGY SAVING QUICK & EASY

- **Switch off** your **compressors** during idle time – an inoperative compressor draws between 40 and 60% of full load power.
- **Place the valve as close as possible to the cylinder.** this will save the unnecessary energy to pressurize and depressurize the driving piping length,
- Energy saving starts and ends with **measurement. Flow & Pressure Switches** can identify the amount of air used before and after any improvements. With them you will find the problem areas and solve the pressure / flow fluctuations.
- **Do not abuse air.** When you are not using air tools, switch them off.
- **Introduce a leak prevention programme** – by regularly reviewing your system for leaks, compressed air wastage can be kept to an absolute minimum.
- **Use a well designed pneumatic system** - by accurately estimating your needs when initially designing your system, the selection of energy efficient products can be made ensuring minimal pressure falls and compressed air wastage.

## ENERGY SAVING PROGRAM V.3

We have developed one of the most advanced "user friendly" cd based Energy Saving Programmes available. Within minutes this software can help you specify the best products for your new pneumatic systems and additionally, it can also help you analyse your existing system. With simple simulation the most cost efficient improvements can be seen immediately.

Used in conjunction with our V.2 Model Selection Software, it's the most cost effective way when designing a pneumatic system!



## GREEN PROCUREMENT

SMC are firmly committed to producing products that are environmentally cleaner and continuously assess all the materials used. Gradually we are eliminating those materials which are known to be environmentally harmful (RoSH European Directive), such as mercury, lead, cadmium, hexavalent chromium and PBB/PBDE flame retardants.

If you would like to receive more information on SMC's Green Procurement Policy please contact your local SMC office and ask for an electronic copy (pdf) of our latest Green Product leaflet.



I LOVE  
THE EARTH  
I LOVE  
GREEN PRODUCTS

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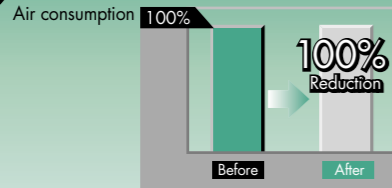
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# Money the Planet

# Save & Help

# Leakage

## Reduce the "hiss"



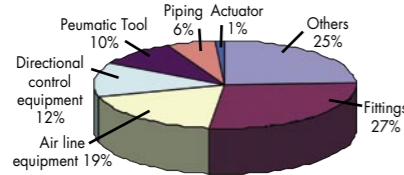
How many times have you walked around a factory accompanied by the ever present background noise of air leakage?

The hissing sound is actually the noise made by escaping air, which not only wastes energy, with potentially harmful long term effects on the environment, but costs organisations substantial amounts of money!

Hole Diameter	Air Leakage (dm <sup>3</sup> /min (ANR))	Annual Loss (€ /year)
0.5	13	44.5
2	204	682
5	1275	4256

Line pressure: 5 Bar Working hours: 2500 Hrs/year  
Compressed Air unit Cost: 0.022 €/m<sup>3</sup>

Whilst compressed air systems will always have some leakage, many factories today have leakage which can account for as much as **25-30%** of the compressor's output. If this was reduced to a more acceptable and recognised levels of **5-10%**, the savings made could be the difference between profitability or loss! So where do you search for leaks? "Just about everywhere!" However, it is often more common to find them around fittings and piping.....



### Wastage related to air leakage

- Compressor overload – resulting in higher operational costs.
- Pressure fluctuation – reduced air tool efficiency and durability.
- Secondary procurement – the need to purchase additional compressors to maintain performance levels.
- Higher maintenance costs.
- Probable increases in machine downtime.

### Leak Prevention

- Maintain good air quality in the system - contaminants or moisture in the air system will cause increased leakage and equipment malfunction.
- Special care should be taken during the assembly of all fittings and tubing etc - use a special tube cutter, including leakage resistant equipment and allow sufficient time for accurate installation.



- Stop air consumption during non operational times – install a 3/2 or 2/2 port solenoid valve to cut off the compressed air supply when it is not needed.



- Accurately estimate the correct air pressure for the system – over pressurisation will result in more compressed air leakage and higher energy costs.

# Are your energy costs spiralling out of control? Using compressed air can be more expensive than you think!

Would you like to reduce your energy costs and help the environment at the same time?

As world leaders in Automation Control, we can offer you the best Energy Saving Solutions around.

**CALL SMC. FOR A FREE – no obligation – CONSULTATION and see the huge savings that can be made!**



ENERGY SAVING



- Help reduce global warming
- Reduce CO2 emissions
- Help meet your ISO 14001 needs
- Cut your electricity bills
- Benefit from government assistance schemes
- Reduce your energy taxes and levies



ENERGY SAVING

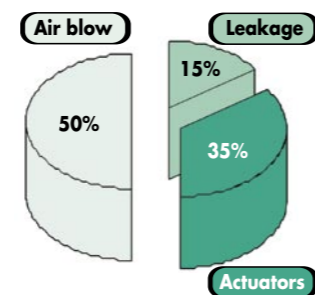


As world leaders in **Pneumatics**, we have developed an energy saving programme which recognises the key areas in many factories where energy loss can be saved.

For example, around 90% of the electricity consumed by a modern compressor is lost in waste heat and not in the production of compressed air. This makes compressed air 10 times more expensive than the cost of the electricity consumed in its production!

By focussing on the installation of an energy efficient compressed air system in your facilities, we can guarantee savings which could make the difference between making a profit or a loss!

### Compressed Air Consumption by Application



### In terms of energy savings for compressed air, there are three big areas:

**1. Air Generation.** Compressors and other air supply side equipment.

**2. Air Distribution.** Piping, fittings, valves, FRL units,...

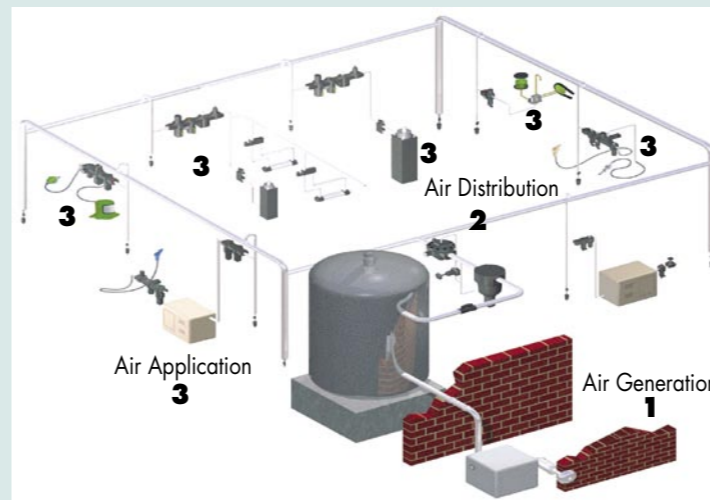
**3. Air Applications.** Actuators, Air blow, Suction units... Within these areas substantial energy and monetary savings can be made!



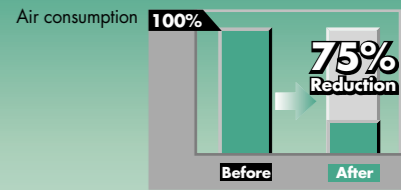
ENERGY SAVING



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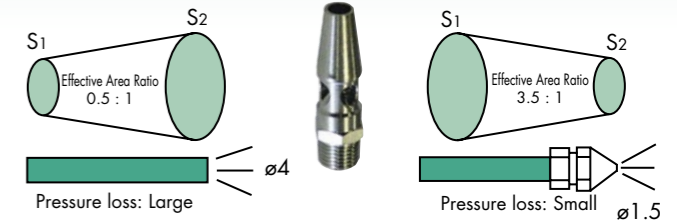


# Air blow



Many industries use air blow as part of their manufacturing processes. Often this can account for up to 50% of the total compressed air consumed, but this is often overlooked when energy costs are under scrutiny.

An "open blow" system where the air is blown through the air outlet without the use of end fittings (nozzles) is now recognised as one of the biggest consumers of compressed air.

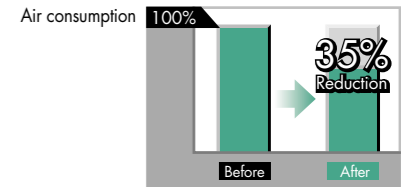


	Nozzle Diameter (mm)	Pressure Before Nozzle (MPa)	Impact Pressure (MPa)	Work-Piece distance (mm)	Flow Rate (dm <sup>3</sup> /min (ANR))
Current	4	0.02	0.014	100	121
Improvement 1	1.7	0.10	0.014	100	49
Improvement 2	1	0.28	0.014	100	33

### PREVENTION OF WASTAGE IN AIR BLOW:

- Use a regulator, to insure the right pressure at the nozzle.
- Reduce pressure loss in upstream piping.
- Check the distance to the work piece and select the correct diameter of nozzle.
- Install a solenoid valve to reduce the blow time operation – from constant to intermittent operation.

# Actuators



In a single machine the number of air operated cylinders can vary from one to a complex multi-cylinder machine application and today's manufacturers can often use hundreds of pneumatics cylinders in their production facilities.

### ACTUATOR RELATED WASTAGE & PREVENTION

- In many cases, the air pressure required to extend the cylinder is greater than the air pressure required to retract the piston rod and yet the same pressure is used – therefore install a pressure regulator.
- Select the stroke and bore size to your speed and load requirements – do not oversize the pneumatic cylinder.
- A solenoid valve's flow characteristics affects a cylinders response time – the valve should be sized to meet the required operating conditions.
- As the piping length increases, please note that the total stroke time increase as well.

