

Energy Efficiency in Pneumatics

Save costs with the Rexroth formula: -15, -25, -35



Energy efficiency in pneumatics – use everything you can





Set your sails with us and save energy with Rexroth

When generating and using compressed air, there are many places in the system where energy can be lost. Targeted measures within a comprehensive energy saving concept help you avoid these losses and significantly reduce energy consumption.

Since energy costs comprise more than half the total cost of ownership in pneumatics today, a constructive evaluation of pneumatic applications quickly pays off.

Avoiding dead volumes and **optimizing pressures** is our motto.

Three factors must be taken into consideration:

1. Dimensioning

The correct component dimensions are a prerequisite for optimal energy usage. The idea that „a lot helps a lot“ is not applicable here. Over-dimensioning causes an unnecessarily high air consumption.

2. Hose lengths

The longer the hose connections, the more volume must be filled. Decentralization of units, as well as a reduction of hoses and connections, results in potential savings.

3. Pressure regulation

Only use as much pressure as necessary. That is the intelligent way to handle energy and excludes waste.

A 4-stroke engine with 15 HP – a 15 m² front yard



Why use big equipment to do small jobs?

The right dimensioning is the basis for energy efficiency.

Even great efforts at saving energy will not lead to an optimum solution if the components are not designed exactly to requirements in the first place. Over-dimensioning, „more than necessary“ when in doubt and „one size bigger“ just in case are common practice. Our online tools make it possible to determine the correct dimensions easily and reliably. Of course, all our experts are also there to support you if needed.

Compact components

Reducing cylinder diameters help to save air volume. At least 15% of air volume can be saved through compact and economical machine designs by using cylinders and valves designed to be much smaller.



Use our online tools for your applications! Configurators, calculation programs, and energy saving calculators.



The LS04 valve series for optimized nominal flow. CCI compact cylinders have a construction that is up to 60% smaller.

- 15%

energy savings through the use of more compact cylinders and valves with optimized nominal flows.

Hose length 35 meters – Spray volume 35 drops



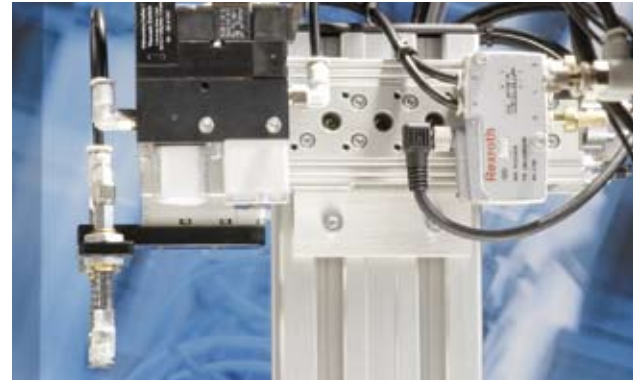
Why create unnecessary problems with long hoses

Decentralization of the air supply

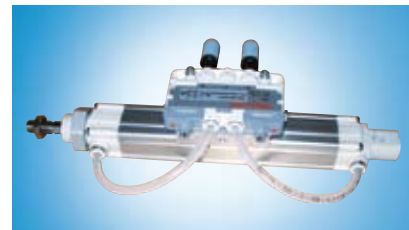
Centralized systems not only have the reputation of being cumbersome and using long lines, they also consume a lot of energy. Small, decentralized units with competence and intelligence at the site of the application are the picture of efficiency. What applies to organizations, also applies to automation technology processes. The concentration of pneumatic functions prevents pressure losses through long lines from the control cabinet to the pneumatic drive.

Hose length = almost zero

Hose connections can almost completely be spared by using cylinder/valve units: a saving of 35%! A direct connection of valves and cylinders prevents pressure losses, which arise from long lines. Additional advantages include: simple installation and maintenance, faster response times, and higher cycle frequencies.



LS04 valves and ECS or EBS ejectors can be assembled right next to the actuator.



Cylinder/valve units instead of long lines from the control cabinet to the pneumatic drive.

- 35%

energy savings through the use of cylinder/valve units.



25 coal briquettes – 25 m³ of smoke



Why create unnecessary aggravation through too much energy?

Save energy with intelligent pressure regulation.

It is not easy to react perfectly to every situation in life. Too little pressure won't get you where you want to go, and overreacting wastes too much energy. Sensitivity and intelligence are needed. The right pressure for each task can lower energy consumption by 25%. Pressure regulators provide the sensitive pressure control required for this by combining digital control electronics with innovative proportional technology.

Only the required pressure

The intelligent control constantly compares the specified value with the actual value to ensure exact metering. In addition, cylinder strokes can usually be driven in idle with a reduced pressure. The required pressure is provided by a dynamic electropneumatic control as soon as the application requires full performance.



Weight compensation, force compensation, print run control, paint or lacquer dosing, or press-fit processes are typical pressure control tasks.



Pressure control valves in the ED series control and regulate force, flow, rpm, position or speed.

- 25%

energy savings through the use of E/P pressure control valves

Don't put it off

What about your individual energy saving formula?

Are -15%, -25%, -35% the right values for you? Not only is every application different, the overall machine concept and types of components used influence the potential for savings. Because we have been making these comparisons with modern components and systems, these values are relatively moderate. The savings could be much greater in applications with outdated components. Ask us and save your energy!

Rexroth offers you even more energy efficiency!

In addition to savings in compressed air through nominal widths appropriate for the application, the use of cylinders/valve units and controlled actuators instead of switched ones, Rexroth's pneumatic solutions offer more approaches for saving energy and environmental protection. To **avoid leakage losses**, Rexroth also offers a large range of almost leak-free components.

The most effective components guarantee optimum energy usage through **the lowest power consumption** by electrical coils.

Energy-saving functions for on/off valves. Modern Rexroth bus modules enable a controlled energy shutoff during current breaks and thus lead to a **reduction in energy consumption** of up to 66%. **Material efficiency.** Reduced resource consumption through innovative concepts for material savings and the use of materials that are manufactured with little energy.

Environmental compatibility. Minimum use of oils and lubricants.

Recyclable. Increased use of natural materials and reusable plastics.

Give us a call us if you have decided to save energy with Rexroth!



The daily costs increase,
and the earth cannot wait forever



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