

Optimise the network pressure

If the pressure in the compressed air network is too high, the costs of compressed air and energy will rise with no additional benefit. Leakage losses will also increase, and tools that use compressed air will wear out faster.

Action

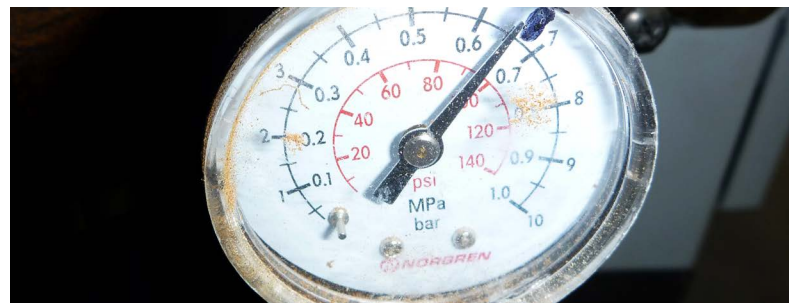
Adjust the network pressure on the compressor to the actual requirements.

Requirement

If the network pressure is below 5 bar, there is virtually no further scope for optimisation. For optimisation of the network pressure to be (financially) worthwhile, the pressure should be above 7 bar.

What to do

- Read the pressure setting on the compressor (e.g. 9 bar).
- Note the operating pressure for every application (machine, compressed air tool or systems).
- The main applications (90% of consumption) determine the nominal pressure required in the compressed air network (e.g. 6 bar). According to a rule of thumb, the pressure set on the compressor should be about 1 bar higher (e.g. 7 bar). This compensates for pressure losses in the lines.
- For applications that require higher pressure (9 bar), you can install a pressure intensifier or a booster-compressor. If the high pressure is required because the compressed air cylinders are too small, you could also replace them with larger ones.
- If large consumers require a lower pressure (e.g. 2 bar), consider a second compressed air system.



Costs – outlay

- If the pressure in the pipe system is 1 bar too high, the energy costs increase by 7% – without any additional benefit.

Please note

- Excessively high pressure on the tool shortens its lifetime as well as increasing wear and operating costs.
- Optimising the network pressure of complex systems with multiple compressors is a challenging task that requires experience. In case of doubt, it is advisable to call in an expert.
- Higher pressure means more leakage losses – so less pressure automatically reduces the leakage losses.
- Users often keep the pressure high because it gives them more reserve energy in the compressed air reservoir. If the reserve energy is required, another option is to install an additional larger reservoir so the pressure can be reduced.

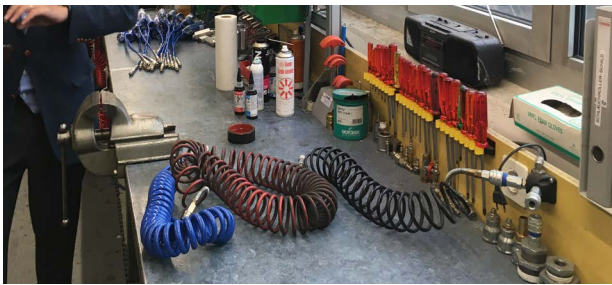
Additional explanations

Connection accessories: minimise pressure losses

Consistently and continuously replace old hoses for equipment that requires high air consumption with modern PU (polyurethane) hoses. Follow these basic rules:

- Short, straight hoses
- Large inner diameters for hoses
- Only use spiral hoses for the final 3 to 5 metres in front of the work location
- No unused metres of hose on the hose reel
- Couplings compliant with the European standard, with diameters of 7.2 mm, instead of couplers that meet the Swiss standard with diameters of only 5.5 mm.

You can find more information in the [Guideline on optimising compressed air](#) from SwissEnergy.



Only use spiral hoses for the final metres.

High-pressure jet nozzles

If you use jet nozzles that require high pressure, you should check whether you could use a nozzle with a larger diameter and lower pressure.

Check whether the workshop needs to be integrated

Almost every workshop uses compressed air – for example, to paint or varnish workpieces, blow chips away at the lathe, pump up the company van's tyres, or blow off the filter mats from the ventilation system. To keep things simple, the workshop is often connected directly to the production department's existing compressed air network.

In practice, however, experts frequently encounter systems that are set only for the workshop's requirements, at a pressure of 6.3 bar (or more) – even though the production plant could operate at 4.9 bar without any problems. These 2 bars of "surplus" pressure increase energy costs by 14% – or even more if the leakage rate is high.

So, check whether the workshop really does need to be connected to the compressed air network. A small decentralised compressor is often a much more suitable solution for the workshop.

Additional information

- Short film: [Energy efficiency in companies: maximum performance from pneumatic tools](#)



- [Guideline on optimising compressed air](#), information for staff responsible for compressed air
- [4-step check to optimise a compressed air system](#), work instrument for staff responsible for compressed air
- [Guidance on compressed air](#), boosting efficiency in compressed air systems