



AeroSilento – a new high quality supply of oil-free air or vacuum in laboratory



To supply vacuum or compressed air, e.g. for the aeration of fermenters and bioreactors in biotechnological laboratories not equipped by central air and vacuum lines, LAMBDA has developed an innovative, microprocessor controlled, pressure-regulated compact and virtually noiseless air compressor and vacuum pump – the LAMBDA AeroSilento.

There are hundreds of air compressors and vacuum pumps available on the market. However, when an oil-free, compact, low pulsation and very quiet pump is required, the choice becomes limited.

The LAMBDA AeroSilento uses the scroll principle based on an almost unknown mechanism using two spirals. One spiral is stationary while the other rotates around the first one. This movement generates a series of closed compartments with gradually decreasing volume and increasing pressure. The transport of gas is smooth and progressive. Additionally, the multiple mechanical closures through the contact of both spirals results in a very good pressure stability. This means that the final pressure does not decrease with the flow rate, as it is usual in other compressor types. The scroll principle was invented about one hundred years ago. However, it could not be produced without the use of modern, numerically controlled machines.

The scroll-pump system has been selected because of its inherent high-quality features:



- **maintenance-free** operation
- **oil-free** operation
- **low pulsation**
- **extremely low noise** level (comparable to a PC)
- **long lifetime**
- **excellent** flow and pressure **stability**
- can be used as a **compressor** as well as a **vacuum pump**
- **very small** dimensions (front dimensions of about half a page)

Technical properties

Max. air flow rate:	5 l/min
Max. pressure:	0.2 MPa
Output pressure regulation:	fully automatic pressure regulation from 0 to 200 kPa (2 atm or 2 bars)
Vacuum:	4 kPa (0.04 atm or about 40 mbar)
Power supply:	100 to 240 VAC/50-60 Hz, 150 W
Noise level:	29 dB
Dimensions:	15 x 16 x 30 cm (W x H x D)
Weight:	4.5 kg
Safety:	conform CE
Warranty:	2 years

OPERATING INSTRUCTIONS

Use of the LAMBDA AeroSilento for pressure-regulated, oil-free air supply

The setup of the LAMBDA AeroSilento air compressor is very easy:

- Connect the tubing to the air output hose barb on the rear of the AeroSilento and to the tubing barb of the instrument or recipient to be supplied with the compressed air (e.g. to the air input hose barb on the back of the LAMBDA MINIFOR laboratory fermentor-bioreactor).
- Switch the power on with mains switch at the rear of the air compressor.
- The display indicates the actual pressure.
- Press the ▼ or ▲ button once to see the preset pressure value. A point is displayed on the last digit.
- Press the ▼ and ▲ buttons once again to set the desired pressure in kPa. The speed of the compressor motor will automatically be adjusted to the required flow rate until the preset pressure is attained.
- When both buttons ▼ and ▲ are pressed simultaneously, the compressor is reset to 0 kPa.



Both, the air compressor motor and electronics are over-charge protected.



Do not exceed the maximum pressure of 200 kPa (or 2 atm) !



The LAMBDA AeroSilento air compressor is not constructed for work with corrosive, explosive or flammable vapors.

Use of the LAMBDA AeroSilento as a vacuum pump

The LAMBDA AeroSilento can also be used as a low noise vacuum pump. In this case, connect the tubing to the air input hose barb at the front of the instrument. Disconnect the tubing from the air output hose barb at the rear of the AeroSilento low noise vacuum pump.

Vapor condensation

Under certain operating conditions, the vapors can condensate into the liquid phase inside or outside the compressor. Therefore, it is advisable to let the air stream pass through a low temperature condenser or similar device. This will prevent the formation of condensate in the compressor and a possible corrosion inside the pump.

An optional electronic Peltier cooling trap for the AeroSilento air compressor is available (art. no. 8091). It can be simply connected to the “Peltier cooling trap” socket on the rear side of the pressure-regulated air compressor.

Elimination of condensate

Because of the compression-expansion process, liquid water regularly forms in compressors and must be removed periodically.

The incorporated gas tank in the AeroSilento is heated and therefore the formation of condensates inside is unlikely. Should this still happen, the pump is so light that it is possible to remove the condensate easily:

1. Remove the tubing from the air output hose barb at the rear of the AeroSilento.
2. Set a low pressure (e.g. 10-20 kPa) using the pressure setting buttons ▼ and ▲.
3. Place the output hose above any convenient bucket.
4. Switch on the AeroSilento and tilt it with the front side up. If any condensate is present, it will now flow out. When no more condensate is coming out, place the air compressor back to the horizontal position, switch it off and restore the previous tubing connections.

For more information and servicing please contact us:

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