COVERED LIP WHISTLE

AKD 03.07

Material:

Item Code	Qty	Description
DW300-1L	1	Flue pipe, model
P1100-1E	1	Measuring tape, L=300 cm

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Setup:
Only the whistle and a rolling tape measure are needed for the experiment.

Experiment:
The piston whistle is blown. The pitch can be varied by moving the piston. The frequency of the tone can be calculated. To do this, you need the length of the tube and the length of the piston that has remained in the tube.

The tube length starts at the bottom of the lip.

On the piston, measure up to the note played.

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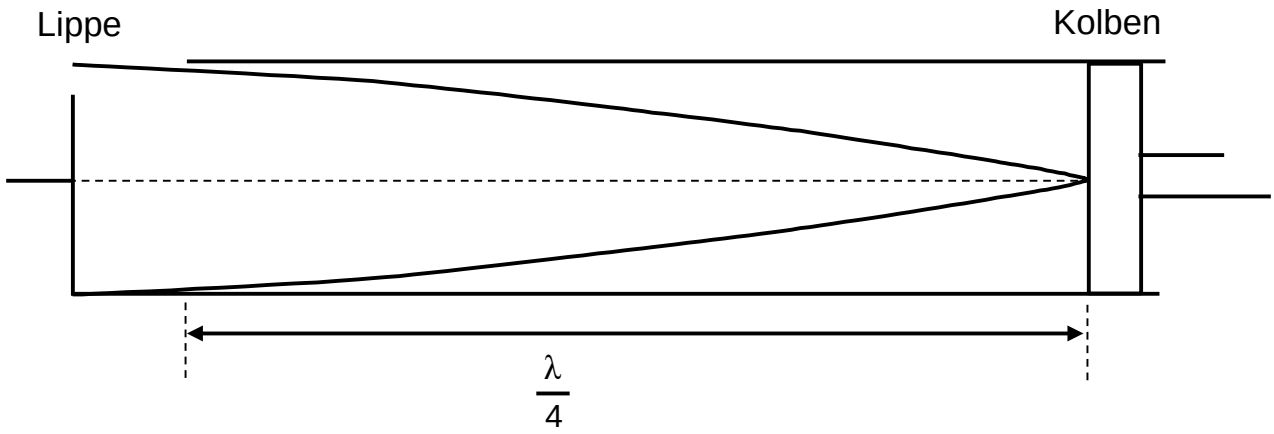
Explanation:
A vibration bulge is formed at the lip and a node at the piston. The wavelength is four times the tube length to the piston. The frequency is calculated from this. The tube length is measured at the bottom of the lip.



Calculation:
For the approximate calculation of the generated tone applies:

$$Frequency\ (f) = \frac{Speed\ of\ sound\ (c)}{Wavelength\ (\lambda)} = \frac{335\ m/s}{4\ times\ pipe\ length\ [m]}$$

Note:
The air oscillation can be understood as a standing longitudinal wave. No oscillation can take place at the piston, so a node is formed. A vibration bulge is formed at the lip. In the case of the fundamental vibration, the wavelength is therefore 4 times the tube length.
The calculation is very inaccurate, especially since the felt on the piston can be compressed during measurement. In addition, the piston is not 100% tight, which must also be taken into account. The calculated frequency is only an approximation.