NOISE LEVELS – ACOUSTICS

LICON HEAT and its suppliers make use of the most progressive technology in the manufacture of trench heaters and fans. Our fans use EC motors, which are silent, do not vibrate and display extraordinarily low power consumption.

In terms of noise levels, the design of trench heaters must take into account the acoustic load appropriate for their intended use. Requirements for silent operation will be diverse, whether installed in living rooms and offices, or in corridors, halls, etc. For this reason, in addition to design in terms of performance and dimensions, an assessment of the correct acoustic load should not be neglected. This can be achieved using the formula below, where it is understood that sound pressure levels vary in different environments. It is recommend the maximum acoustic load in living rooms as 30 dB L_{pA}.

Acoustic parameters were measured in an accredited testing room in accordance with ČSN EN 9614-2 Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scanning.

Listed sound parameters

The ČSN EN 16430 standard defines the base unit of sound power

[L_{WA}/dB], which is listed for all products equipped with fans.

To facilitate orientation, sound pressure levels **[L_{pa}/dB]** are listed in addition.

The sound pressure values listed were calculated using the following formula. They apply to a distance of 1m from the trench heater (noise source) situated in the centre of a wall beneath a window with one sound reflector surface and an otherwise sound absorbing environment (furnished room).
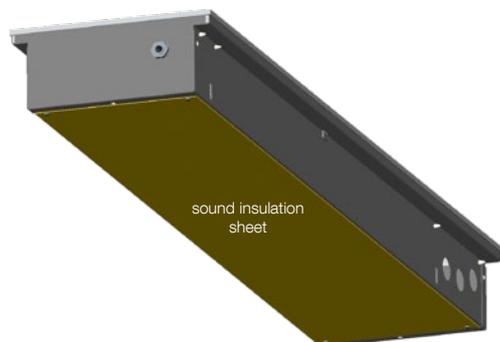
Definition and description of acoustic values

Sound power [L_{WA}/dB]

This is the base unit defining the noise level of a particular device. Sound power is the sound generated by the sound source (energy transmitted into a room). It is not dependent on space or distance. It is used for all further acoustic load calculations for rooms.

Sound pressure [L_{pA}/dB]

This is the measure of the level of sound registered at a certain distance from the sound source. Sound pressure is the change in air pressure generated by the sound source. It is the measure of volume heard by a person.

Example: Conversion of sound power to sound pressure

$$L_{pA} = L_{WA} + 10 \cdot \log \left(\frac{Q}{4 \cdot \pi \cdot r^2} \right)$$

L_{pA}	[dB(A)]	sound pressure level weighted by filter A
L_{WA}	[dB(A)]	sound power level weighted by filter A
Q	[-]	noise emission direction factor
r	[m]	distance from test sample

Casing with sound insulation sheet

In order to further reduce noise, trench heater casings equipped with sound insulation sheeting may be ordered. This sheeting reduces noise levels by approx. 1 to 1.5 dB [L_{WA}] depending on the type, length and fan speed of the trench heater, and is in addition suitable where the trench heater is not built in and has a cavity beneath the casing (eg. for raised floor applications). Sound insulation sheeting is fitted to the underside of the trench heater casing.

sound insulation sheet

sound insulation sheet