KLEEMANN
Your 1st Choice in Lifts

NOISE AND VIBRATION LEVELS IN CITY

1. Description

Present document provides the noise and vibration levels for KLEEMANN CITY MRL. The document provides a brief overview on the basics of noise and defines the specific values that users may expect in case of that kind of lifts. Measurements have been carried out using the device Henning equipment and NTI Audio XL2 M2230 microphone, applying the procedures described in ISO 18738:2003 'Measurement of lift ride quality'.

It has to be noted that the measurements were carried out in KLEEMANN premises. Several issues (as the shaft's size, the installation quality etc.) may affect the measured values, so different values are expected in different installations. However, the following data is a realistic approach over the noise and vibration levels.

2. Noise in lifts

The following types of noise are present during lift operation:

- Machine operation noise
- Landing and car door noise
- Noise from guide shoes sliding on guide rails
- Cooling fan noise (inverter, cabin)
- Noise from switching relays

2-1. Noise values

➢ Noise in adjacent rooms: LpAmax 25-30 dB (A)

VDI 2566-1/2:2004 defines a maximum allowed A-weighted sound level LpAmax in adjacent rooms of 30 dB (A). This issue is under the responsibility of the building designer (construction of walls).

➢ Noise in the shaft: LpAmax 61 dB (A)

VDI 2566-1/2:2004 defines a maximum allowed A-weighted sound level LpAmax in the shaft of 75 dB(A).

- Door noise: LpAmax 53-55 dB (A)

VDI 2566-1/2:2004 defines a maximum allowed A-weighted sound level LpAmax for doors operation of 65 dB (A).

- Noise in the car LpAmax 52-55 dB (A)

The noise in the car can vary as it is influenced by several parameters, such as the alignment of guide rails.

3. Vertical and lateral car vibration

Car vibrations can be separated to vertical and lateral. Actually, they are micro-accelerations measured in m/s^2.

Vertical acceleration can be felt by the passenger's feet as also by the stomach and the internal ear. Their main sources are the power unit and the frequency converter (if any) while they are transferred to the car through the suspension ropes.

Lateral car vibrations are caused by not sufficient alignment of the guide rails and non-smooth guide rail transitions. They are also caused by low frequent lateral movements of the car.

In the lift industry car vibrations recognized unit is milli-g (mg). One mg is equal to $0,01m/s^2$.

3-1. Vibration values

- Lateral car vibrations

ISO A95 : 14 – 17 mg

- Vertical car vibrations

ISO A95 : 15 – 20 mg