



# A comparison of stairlift noise.

ACCORDING TO THE ISO 9614-2 STANDARD

## Goal

Koninklijke Otolift Trapliften is a leading manufacturer of stairlifts. These stairlifts assist people with reduced mobility to get up and down the stairs. In that way, stairlifts offer freedom and access to those with reduced mobility. To assess the noise emission of these stairlifts, Demcon performed independent sound measurements. Using a sound intensity probe, the emitted sound power was obtained. This was also done for other stairlifts from four competitors in order to benchmark the performance in terms of sound emission.

## CORE COMPETENCIES

1. Asses noise emission
2. Independent sound measurements
3. Sound video

### Approach

The measurements have been performed in the anechoic room of the University of Twente, one of the main testing facilities of the Engineering Fluid Dynamics group. Almost all sound reflections are damped in this room due to the sound absorbing walls. Furthermore, the anechoic room is extremely silent: the background noise is less than 20dB(A), which is a lower sound level than for example silent whispering. Consequently, the room is very suitable for acoustical measurements.

We compared five stairlifts in this study: one from Koninklijke Otolift Trapliften and four from competitors. All stairlifts were performing a duty cycle during the measurements: starting in the lowest position, moving upward and subsequently moving downward. We used a manual scanning technique according to the ISO 9614-2 standard to determine the average intensity of each surface enclosing the stairlifts. The overall sound power level was subsequently calculated.

Additional videos were also made with a Sorama sound camera to help identifying the dominant sound source.

### Results

The main result is clear from the graph: the stairlift from the Koninklijke Otolift Trapliften is significantly less noisy than those of its competitors.

We thank the Koninklijke Otolift Trapliften and the University of Twente for this fruitful collaboration.

