

## A new solution to an old problem - a standardized brush for moving tactile stimulation

A large range of different tools has historically been used for the investigation of the various percepts that can be the result of mechanical stimulation of the human skin. Among them you can find cotton wicks, von Frey hairs, sharp needle-point objects, weighted pins, brushes etc. The current trend is to standardize these objects, so as to make investigations comparable among investigators and clinics. The SENSELab Brush no. 5 is an attempt to provide a brush with excellent characteristics for the investigation of Brush Stroke Allodynia, but also for general use where there is a need to investigate percepts to moving (light) touch to the human skin.

The figure illustrates normal use of the Brush. It is brought in contact with the skin and then moved a few millimetres in the direction of the skin until the brush filaments slightly bends. Depending on the investigation protocol it may be moved in different directions for different distances and at different speeds. A normal procedure would be to bring the Brush in contact with the skin and during a 1 second long stroke move the brush for 40 mm, after which the Brush is lifted. This stroke may be repeated at a specific time interval and for a specific number of times.



### Key application

- Evaluation of brush stroke allodynia

## Technical Specifications

### Intended use

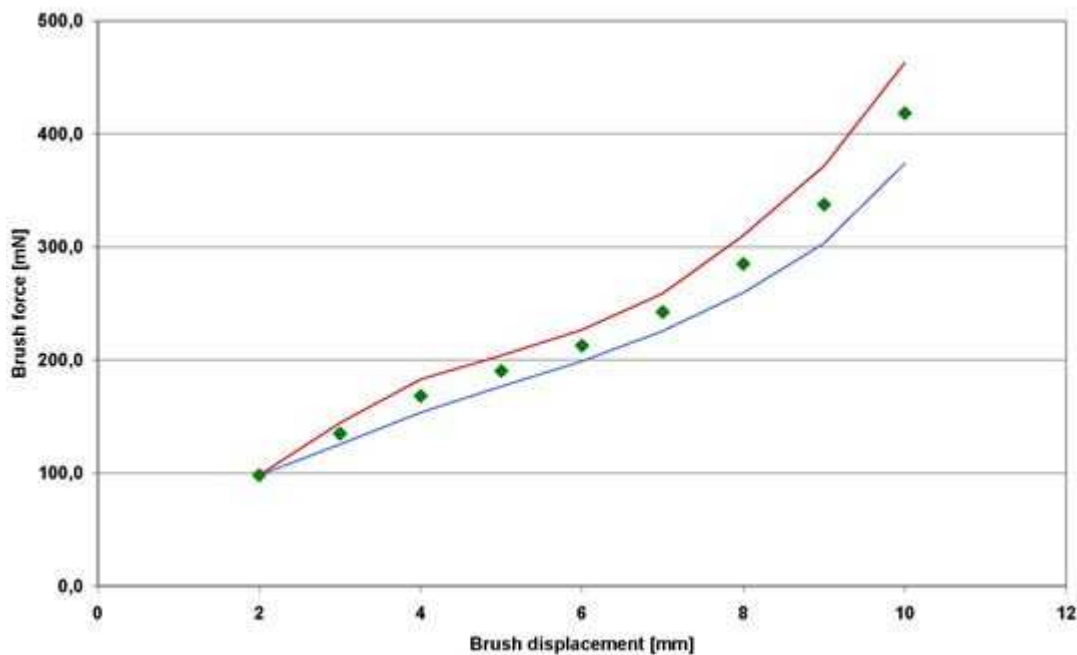
Investigation of dynamic mechanical allodynia.

### Physical characteristics

Brush handle material:	Lacquered wood
Ferule material:	Brass
Brush filaments	Mixture of synthetic and natural (sable) hairs
	Free filament length: 20 mm
Brush tip	Flat tip, 15 x 5 mm (W x D)

### Force developed by the brush

Measured as moved parallel to a silicone rubber sheet with friction characteristics comparable to human skin. Mean downward force of brush against silicone during a stroke is kept at 100 mN at contact +2mm. The brush is then further lowered downward in steps of 1 mm and the mean force (downward, against the skin) during a stroke is determined for each step. The figure below illustrates the relationship between the Brush displacement perpendicular to the skin and the mean force determined from measurements on two different batches of Brushes.



Mean force (green diamonds) registered when moving the SENSELab Brush no. 5 against "skin" +/- 1 std. dev. given by red and blue lines