

Brush for a sonic toothbrush with longitudinal axis vibration

Abstract

The brush has an elongated base body which forms an adapter on a base portion for rotationally fixed coupling to a sonic toothbrush drive in order to oscillate the brush about a longitudinal axis of the base portion. A bristle support is formed on a head portion, in which a plurality of bristles are anchored. An elongated neck portion is formed between the base portion and the head portion. The base body forms a kink angle in such a way that the base portion longitudinal axis and a head portion alignment axis include an angle γ in the range of 7° to 17° . The bristle support has a deflection A in the range of 5% to 15% in relation to a length L of the base body. The plurality of bristles is substantially perpendicular to the head portion alignment axis. The essential part of the bristles has a buckling stress σ_k in the range from 0.1 to 10 MPa, whereby

$$\sigma_k = \frac{\pi^3}{L^2} \cdot E \cdot r^2$$

π = number Pi (= 3.14)

E = Young's modulus of the bristles,

r = half the diameter of the bristle

L = length of the bristle (LB)

(Fig. 2)