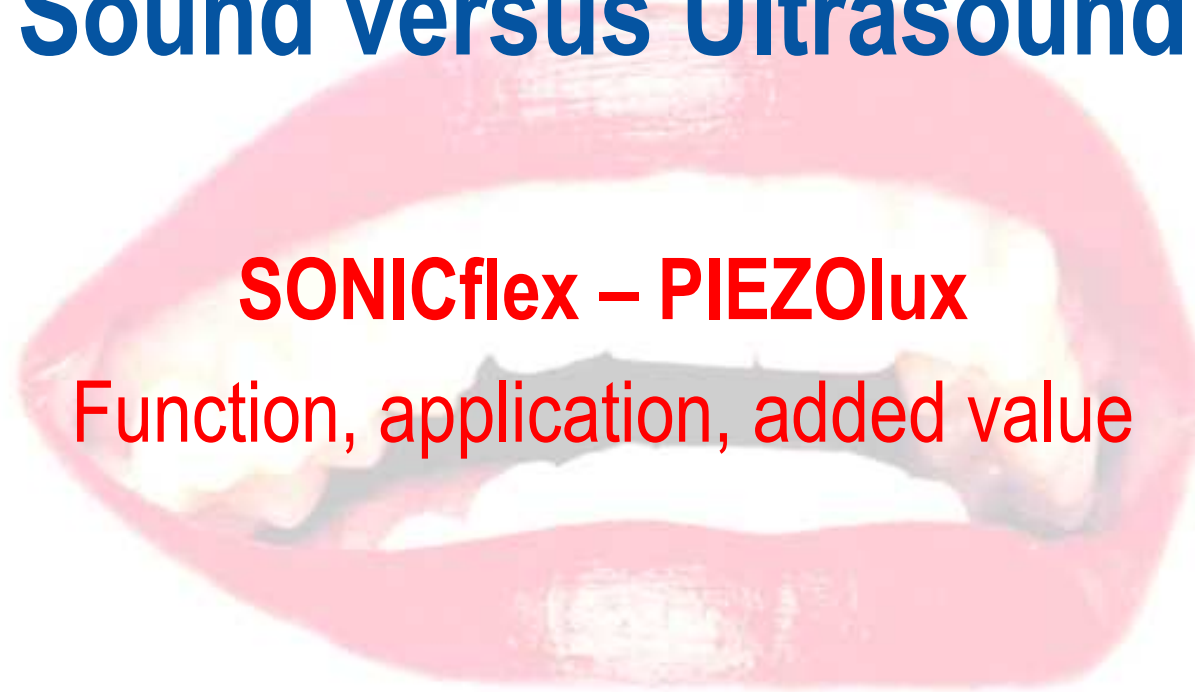




Sound versus Ultrasound



SONICflex – PIEZOlux

Function, application, added value



KaVo. Dental Excellence.



Sound vs. ultrasound



KaVo. Dental Excellence.

Mechanically operated scalers

- widely can replace difficult to use and tiring hand instruments
- require highest accurateness in use in order to avoid damages on hard tooth substance
- Are successfully and safely used with
 - appropriate education and experience
 - adherence to consequently systematic mode of application

Source: G.Petersilka, Th. Flemmig: Subgingivale Wurzeloberflächenbearbeitung mit Schall- und Ultraschallscalern, Parodontologie 1999: 3: 233 - 244



Sound vs. ultrasound



KaVo. Dental Excellence.

Mechanically operated scalers

→ effect in comparison to manual treatment:

- time savings in education and application
- more convenience for patients
- more tireless work for user

Sources: G.Petersilka: Mechanische Wurzeloberflächenbearbeitung, Dentalhygiene Journal 4/99: 35 – 36
A. Busslinger et al.: A comparative in vitro study of a magnetostrictive and a piezoelectric ultrasonic scaling instrument, University of Zurich, 2000



Sound vs. ultrasound KaVo-handpieces



KaVo. Dental Excellence.

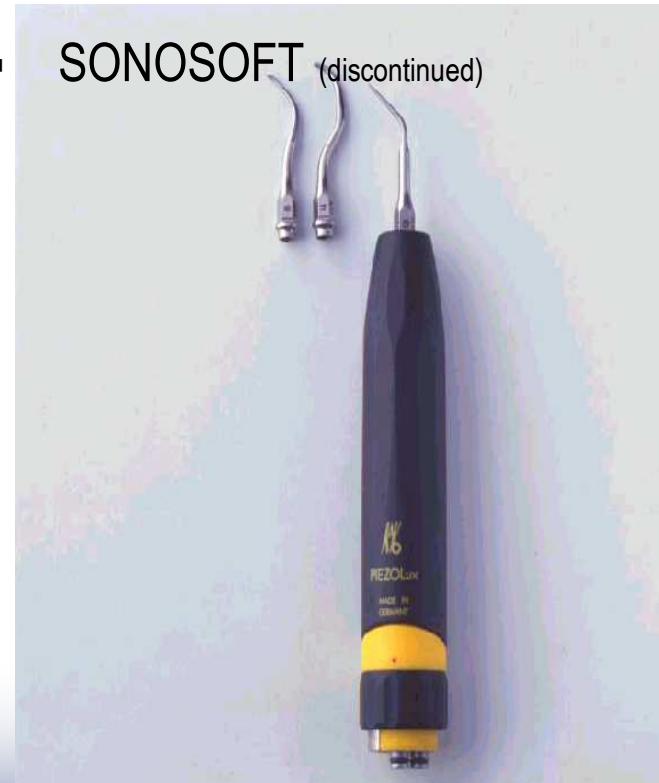
Sonic scaler

- SONICflex 2003 L/2003
- SONICflex 2000 N



Ultrasonic scaler

- PIEZOlux
- SONOSOFT (discontinued)



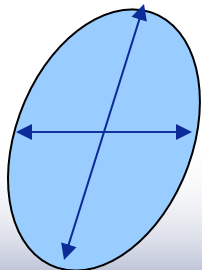


Sound vs. ultrasound Function

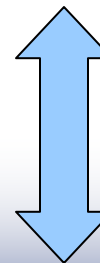


KaVo. Dental Excellence.

- Air driven
 - MULTiflex-connection
- Frequency of oscillations ca. 6.000 Hz
 - Hollow cylinder inside the handpiece starts rotating due to supply of compressed air
- Elliptical tip movement
 - All tip's surfaces are active
- Electrically driven
 - Fix mounted to the unit
- Frequency of oscillations ca. 30.000 Hz
 - Contractions of a quartz crystal under alternating voltage
- Linear tip movement
 - Only two tip surfaces are active at once



Longitudinal and transversal movements



Longitudinal movements



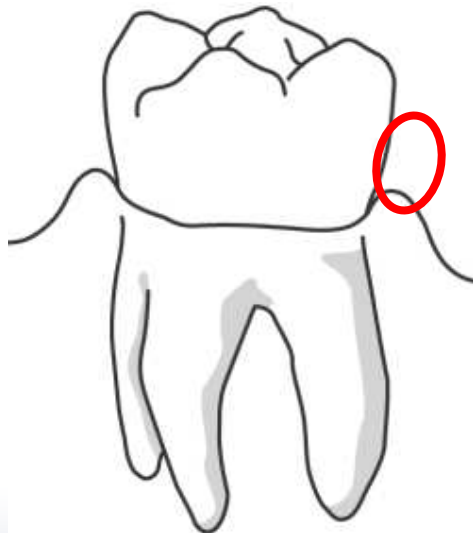
Sound vs. ultrasound Function



KaVo. Dental Excellence.

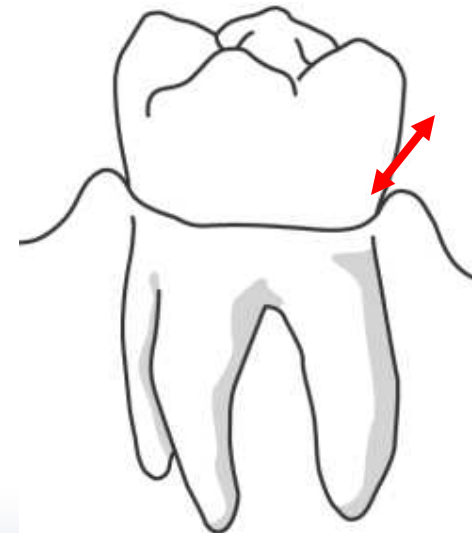
- Small-sized rotary movement

- Affects removal independently from tip's application onto the tooth surface



- Scraping movement

- Removal is directly influenced by the angle of tip's application





Sound vs. ultrasound Function



KaVo. Dental Excellence.

- Small-sized rotary movement

→ Affects removal independently from tip's application onto the tooth surface



- Scraping movement

→ Removal is directly influenced by the angle of tip's application





Sound vs. ultrasound Function



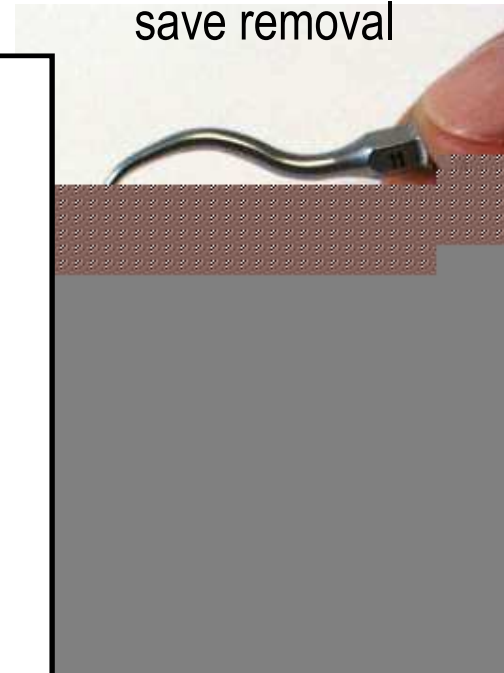
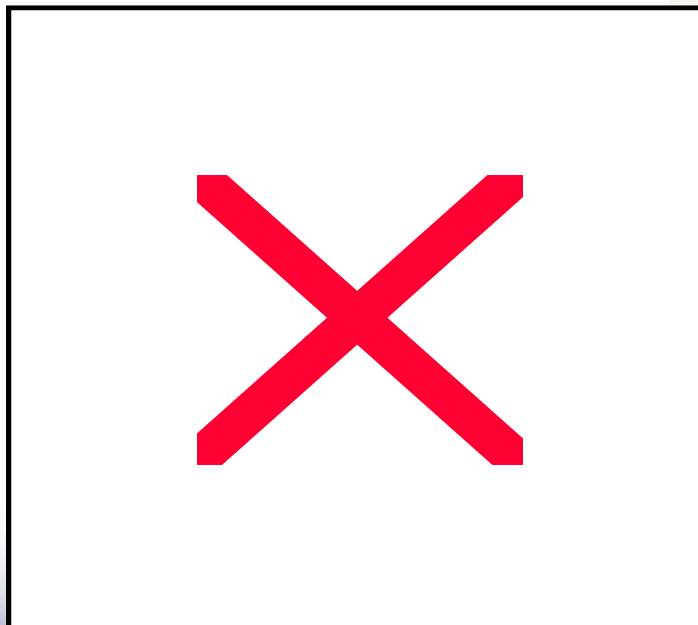
KaVo. Dental Excellence.

- Gracil tip design

- Good view on working area
- Substance sparing treatment
- Painless for patients

- Compact tip design

- Safety in work under high ultrasound frequency
- Right application of tip warranties a save removal



Left/down:
SONICflex scaler

Right/up:
PIEZOLUX scaler



Sound vs. Ultrasound Function



KaVo. Dental Excellence.

- SONICflex scaler-tips

→ For supragingival calculus removal



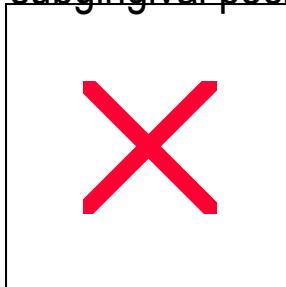
- PIEZOlux scaler-tips

→ For supragingival calculus removal



- SONICflex paro/periodontal-tips

→ For subgingival pocket cleaning



- PIEZOlux paro/periodontal-tips

→ For subgingival pocket cleaning





Sound vs. ultrasound Function



KaVo. Dental Excellence.

- Spray-cooling

- Low temperature growth due to low sound frequency and long dimensions of the elliptical movement
- Optional supply of medicinal solutions by use of adapter

- Spray-cooling

- Very high temperature growth due to high ultrasound frequency and short dimensions of linear movement





Sound vs. ultrasound Application



KaVo. Dental Excellence.

- Regulation in three power levels with constant frequency*
*provided that the air pressure is constant
 - Change of oscillation amplitude
 - 120 μ
 - 150 μ
 - 240 μ
- Low contact pressure
 - To much pressure damps down the oscillation
- Regulation via foot control with constant frequency
 - Change of oscillation amplitude from 50 – 70 μ
- Low contact pressure
 - Oscillation continues independently from contact pressure



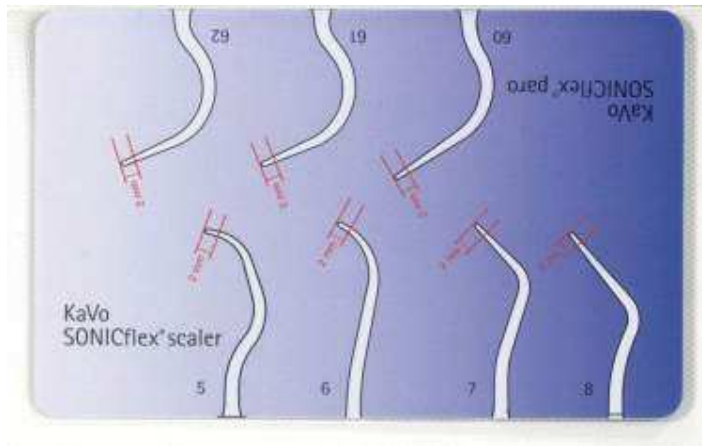


Sound vs. ultrasound*

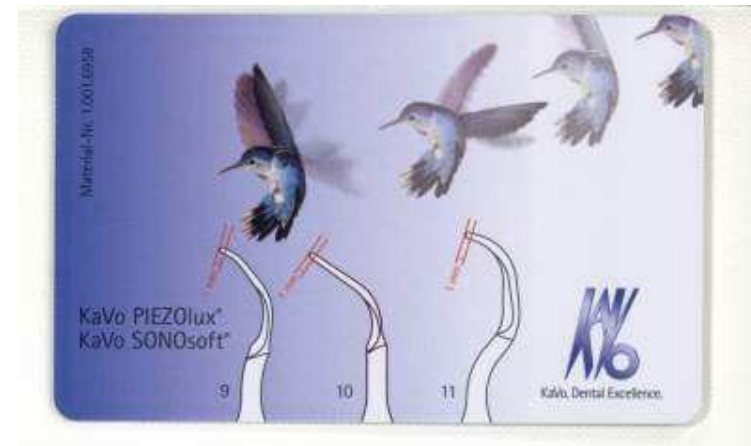


KaVo. Dental Excellence.

- Active working surface = top end of the tip
 - Constant tip wear control - in time tip exchange necessary
- Active working surface = top end of the tip
 - Constant tip wear control – in time tip exchange necessary



2 mm



1 mm

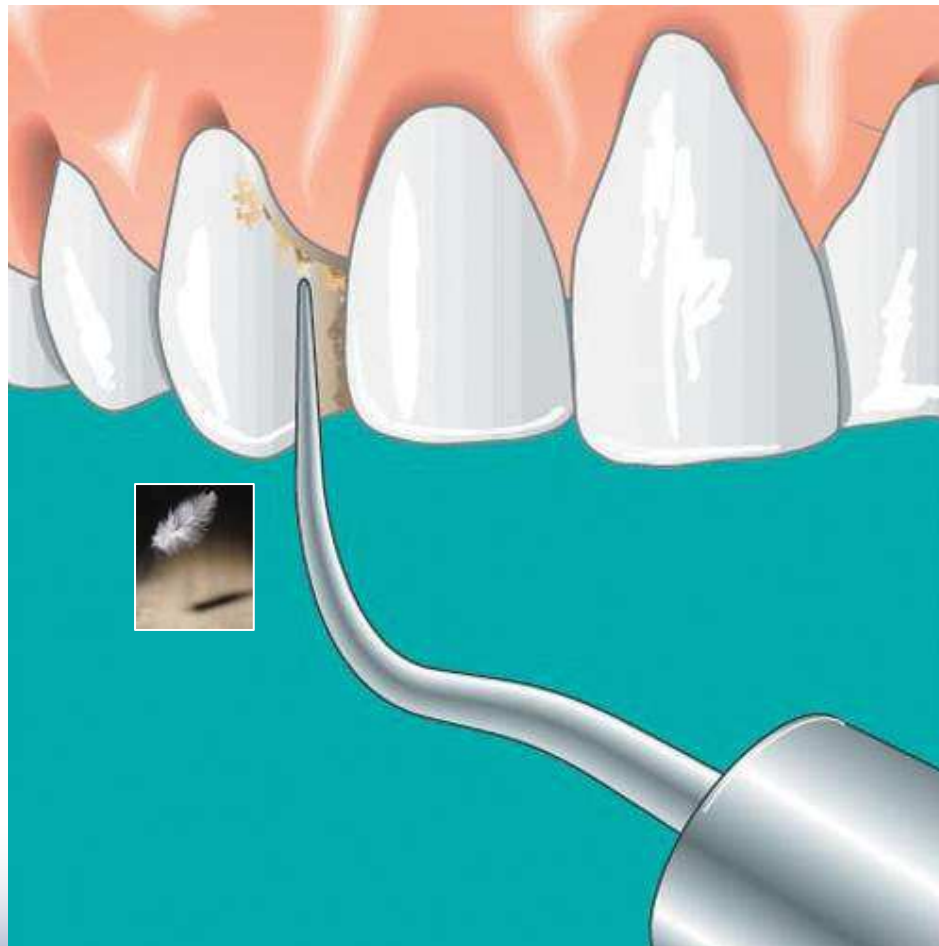
*measuring device/order no. 1.001.6958



Sound vs. ultrasound Application



KaVo. Dental Excellence.





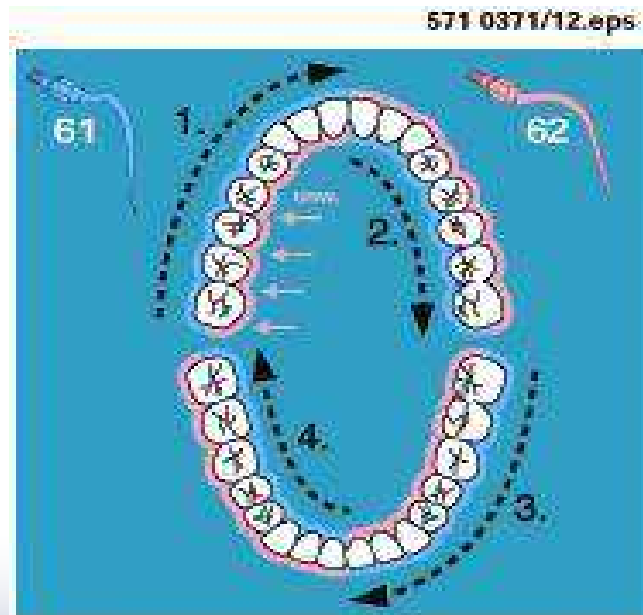
Sound vs. ultrasound Application



KaVo. Dental Excellence.

Systematical treatment procedure

Aim: complete plaque and calculus removal by reaching all supra- and subgingival surfaces



Example:

SONICflex paro



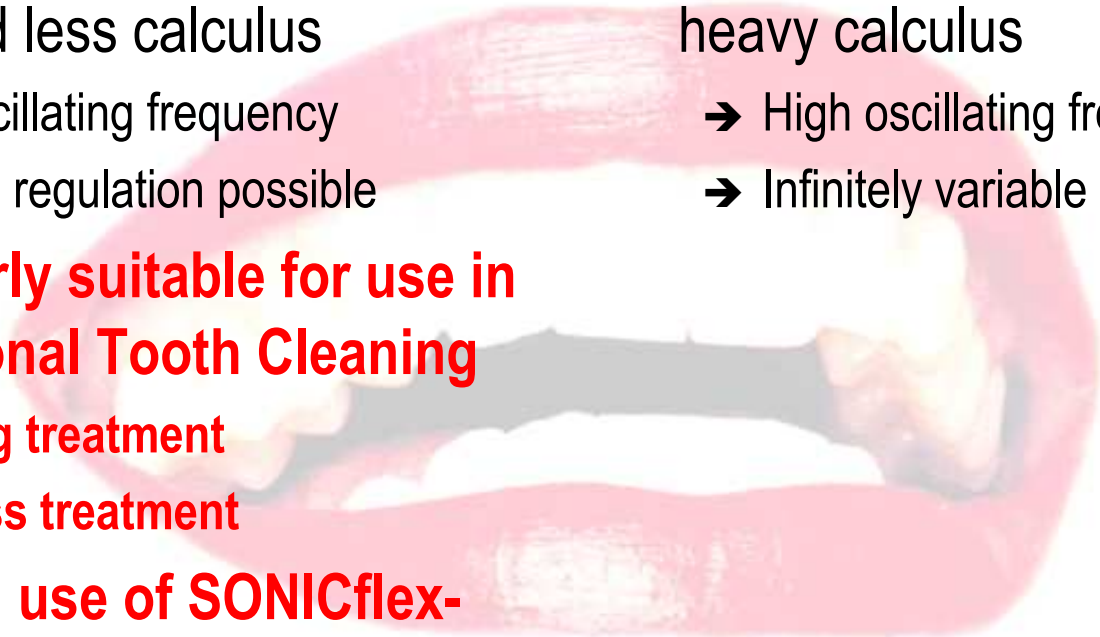
Sound vs. ultrasound

Fields of application



KaVo. Dental Excellence.

- Effective use for removal of heavy and less calculus
 - Low oscillating frequency
 - Defined regulation possible
- **Particularly suitable for use in Professional Tooth Cleaning**
 - **Sparing treatment**
 - **Painless treatment**
- **Universal use of SONICflex-Airscaler with wide range of different SONICflex-LINE tips**
- Effective use for removal of heavy calculus
 - High oscillating frequency
 - Infinitely variable





Sound vs. ultrasound

Added value



KaVo. Dental Excellence.

- **Individual choice of units equipment**
 - SONICflex: simple adaptation onto the MULTIflex-coupling
 - PIEZOlux: seizure of one instrument module at the dentist's element
- **Adaptation of instruments according to users needs and treatment concepts**
 - Dental hygienist/dentist
 - Implementation of a recall-orientated prophylactical concept
 - Traditional treatment methods even without any delegation of prophylactical procedures
- **Safety in use**
 - SONICflex: Oscillations damping with too much contact pressure/higher working noise;
Removal independently from localisation of the tip to the tooth surface
 - PIEZOlux: very careful application necessary; oscillation continues independently from contact pressure
- **Patient's appreciation**
 - SONICflex: painless treatment
 - PIEZOlux: very often unpleasant/painful feeling