ANATOMY OF A DENTAL INSTRUMENT

SCALERS and CURETTES

All dental instruments follow basic design characteristics. The following diagrams outline the key principles of scaler and curette instrument design.

All instruments have three components:

1. **Handle:** for grasping the instrument.
2. **Shank:** connects the handle to the working end and allows adaptation of the working end to tooth surfaces.
3. **Working end:** carries out the function of the instrument and is unique to each instrument type.

INSTRUMENT **HANDLES**

Instrument handles are available in a variety of shapes and styles. The following factors should be considered when selecting instrument handles:

- **Weight:** Hollow handles increase tactile transfer and minimize fatigue.
- **Diameter:** Large handles maximize control and encourage a lighter grasp.
- **Serration:** Knurled handles enhance control by providing a positive gripping surface.

THE INSTRUMENT **SHANK**

The **terminal shank** extends between the blade and the first bend. The terminal shank position is used to correctly adapt the working end. The length of the terminal shank is a determining factor when selecting curettes for subgingival vs. supragingival access.

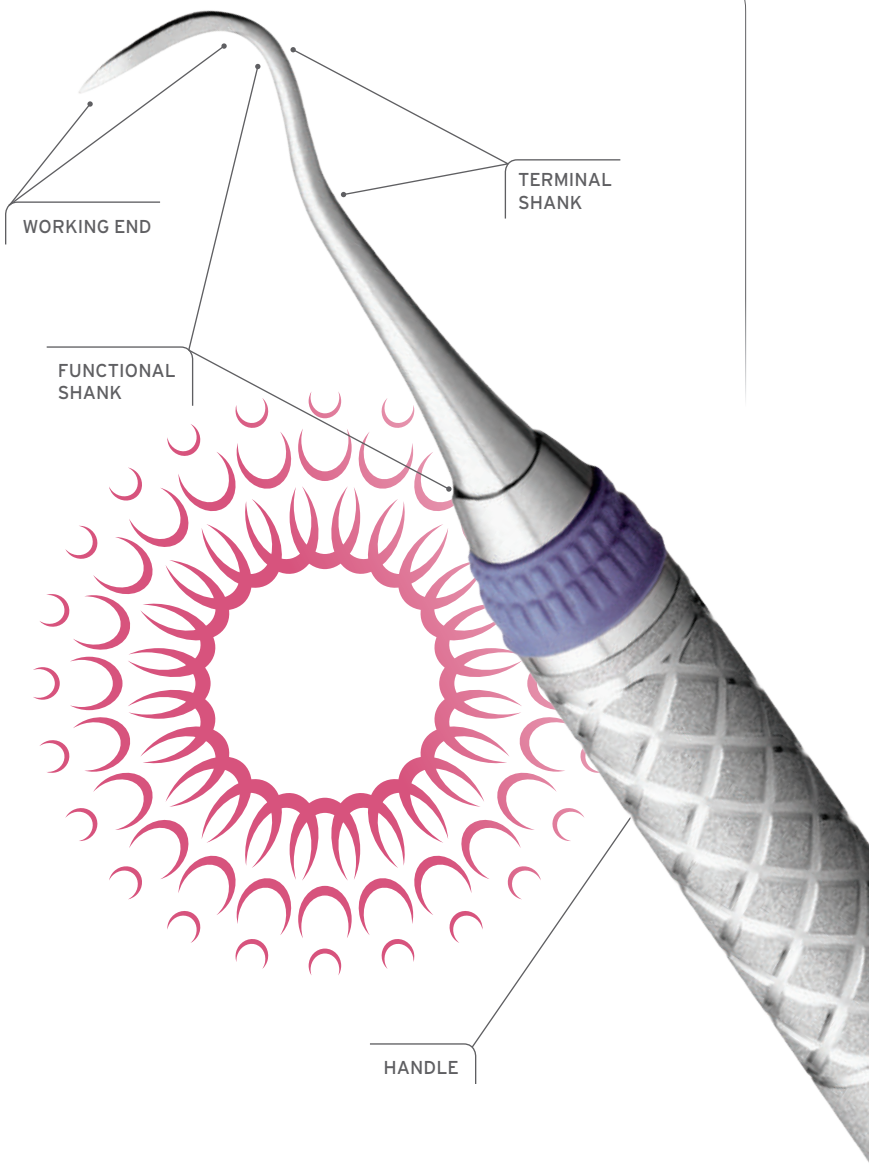
The **functional shank** length extends from the working end to the handle. The functional shank can be short, long, or moderate in length.

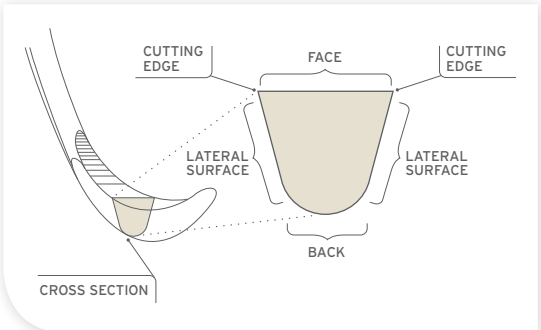
Moderate to long functional shanks are needed to reach the tooth surfaces of posterior teeth or root surfaces of teeth with periodontal pockets. Short functional shanks are used to remove supragingival calculus deposits or to reach the surfaces of anterior teeth.

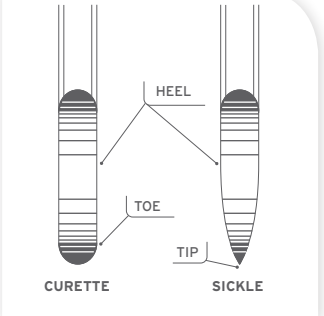
THE SCALER **WORKING END**

The working end (blade) is made up of several components: the face, the lateral surfaces, the cutting edge and the back.

A blade that ends with a rounded tip (toe) is classified as a curette. A blade designed with a pointed tip is classified as a sickle scaler.







Illustrations courtesy of Nield, J.S.: Fundamentals of Dental Hygiene Instrumentation, Ed 2: Lea and Febiger, 1988.

SHANK FLEXIBILITY

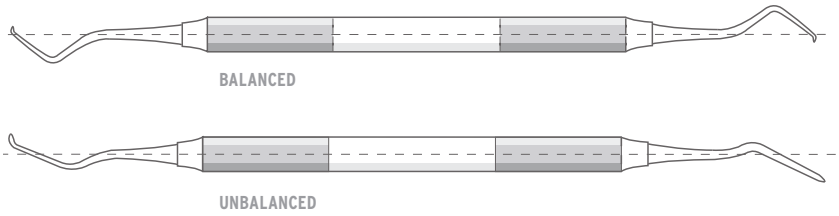
Instrument shanks are flexible, moderately flexible, or rigid in design. Selecting the appropriate shank design should be based on the objective of the procedure (see chart below).

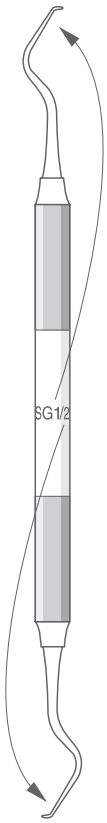
SHANK FLEXIBILITY RELATED TO INSTUMENT USE

SHANK TYPE	USES	EXAMPLES
Flexible	• Detection of subgingival calculus • Removal of fine calculus • Provides the best tactile sensation to the operator's fingers via the shank and handle	• Gracey curettes • Explorers
Moderately flexible	• Removal of moderate or light calculus • Provides good level of tactile sensation, allowing detection and removal of moderate deposits	• Universal curettes
Rigid	• Removal of heavy calculus deposits • Limited tactile sensation	• Rigid curettes • Sickle scalers • Periodontal files • Hoes
Extra Rigid	• Removal of very tenacious calculus • Limited tactile sensation	• Extra Rigid Gracey curettes

INSTRUMENT BALANCE

To function most effectively, an instrument should be balanced. A balanced instrument has working ends that are centered within 2 mm of the long axis of the handle line.





INSTRUMENT MARKINGS

When the design name and number are labeled along the length of the handle, each working end is identified by the number closest to it. In the illustration below, the working end on the left is the Gracey #1 blade, the right is the Gracey #2 blade.

If the design name and number are labeled around the instrument handle, the first number (on the left) identifies the working end at the top and the second number identifies the working end at the bottom of the handle.