



Surgical instruments

Contents

2.1 Design and Intended Use – 16

Surgical instruments are manufactured for a specific purpose, which is evident from the construction and design of the instrument. Instruments are matt metallic, black and/or have a golden handle as identification, which indicates that a carbide insert has been inserted in the front of the working part (► Chap. 1). These instruments do not need to be refinished and the manufacturers give a longer warranty on such instruments.

We distinguish between cutting, grasping, clamping, and retracting instruments. Some of them look very similar on the outside, but the function is made clear by the different corrugation at the jaws.

The naming of the instruments has different reasons. Sometimes it depends on the inventor, for example, **Kocher clamp**, or on their intended use, such as **dissecting scissors**. If the manufacturer is considered the name giver, a name of the surgeon who modified the instrument according to his ideas may be added, for example, **abdominal retractor by Fritsch**.

In order to ensure consistency of terminology in the following, it must be possible to name the individual parts of the instrument correctly. This also makes it easier to describe an error when requesting a repair or to provide explanations on how to handle the instrument when training new employees.

In addition to the assistance, the scrub nurse is also responsible for ensuring that the intended purpose of the instrument is observed in order to preserve its functionality.

2.1 Design and Intended Use

An instrument is designed in such a way that it is optimal for the user as well as for the application. Regardless of the size of the hand that guides the instrument, it must lie well in the hand, be of optimal weight, and be easy to guide. Depending on the purpose, it can be cut, held, clamped, locked or kept closed with pressure.

In addition to the purpose of the instrument, it must be possible to reprocess it without any problems (► Chap. 7). Depending on the intended use, instruments must be able to be closed and, if necessary, fixed in the closed position (locking). Either the surgeon closes the instrument only by hand, for example, with micro-instruments and some needle holders, or there is a ratchet option with which the working parts can be kept closed without effort. In this case the OR staff must know which instrument may be closed with how many grids of the ratchet. (For preparation in the CSSD the instrument must be

open, for sterilization grids may not be closed under any circumstances; ► Chap. 7)

An instrument consists of one, two or more parts. Two-part instruments are connected either by springs or screws or olives in the jaw.

We distinguish the following parts of an instrument:

- The **rings** that hold the surgeon's fingers. They can be of the same size or different sizes to accommodate one or more fingers.
- The **branches**, the part of the instrument between ring and jaw.
- The **grip surfaces** on which an instrument is held. This part of the instrument is roughened or grooved to provide a good grip for the surgeon's fingers.
- The **lock** or **ratchet** is the device that allows an instrument to be closed and the closure to be kept. This lock has different grids, the closing of which is discussed accordingly with the instruments in the following text.
- The **working part**, or mouth or jaws, which grasps and holds the corresponding tissue or material.

Some instruments are equipped with elastic working parts that allow them to reopen automatically. This makes it easier for the surgeon to feel how much pressure the instrument must be used with.