



FERRO-LOC Metal detector for surgical use with autoclavable probes

Introduction:

This metal detector for surgical use is especially designed for uses in the whole human body to locate all kinds of metallic pieces.

It's an effective tool for the removal of all sorts of metallic intrusions (see Diagramm of results). It's one of the most sensible metal detectors

An essential problem with implanted or penetrated metal pieces is that the exact location is a time consuming process when working with x-rays or ultrasonic equipment and also in case of complex position.

While X-ray (or ultrasonic) is only an indirect picture giving method, with a FERRO-LOC the metal is traced out directly and immediately due to the three-dimensional searching possibility. It takes only a few seconds!

For different applications are optimized probes available.

The lasting of operations is reduced considerably with the metal detector. From hours into a few minutes! Sometimes only to seconds! Thereby life of many injured people was already saved.

Besides reduction of medication, unnecessary tissue-cuts are avoided. In crisis situations the frequency of operation is considerably higher. It was used since 1992 in UN-missions with best results. Therefore the FERRO-LOC is standardized as equipment of the NATO since 1995.

FERRO-LOC
ECONOMY

NATO-Code: 6530-12-338-5904



FERRO-LOC-economy-new

one of the most sensible surgical metal detectors.

Complete equipment incl. one standard probe 6 mm, autoclavable, additional sound system, battery driven with 6 V, two plastic wound hooks, autoclavable, battery charger 230V/50 Hz, operating manual (English, German, France). For prices in US-\$ see price-list. All prices excl. V.A.T. (F.O.B. Hamburg). Warranty: 36 months.

Advantages:

- Reduction in surgery time
- Whole human body
- High location depth
- Completely sterilizable probes
- Fast and exact location
- Also for bone surgery
- Less narcotics during surgery
- Tissue saving
- Shorter healing process
- Very easy handling
- Battery powered, rechargeable
- Maintenance free



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Applications (pictures see next page)

Can you imagine that metal pieces which penetrated in a human body can be localized so simply and fast that they can be removed carefully right away?

Certainly you have already made the experience, that sometimes it is very difficult to locate a penetrated metal piece, even when working with modern x-ray equipment, due to shades or complex positions.

However, with the metal detector FERRO-LOC a surgeon is able to locate any metal piece; even metal pieces in bones can be found.

FERRO-LOC offers a three dimensional location method unlike x-rays procedures which shows a two dimensional picture.

Because of the thin probe of FERRO-LOC all kinds of splinters, nails, wires, bullets, screws, plates and implants are locatable in a few seconds.

Precious time can be saved by using FERRO-LOC during the operation so that the patient has not to be under anesthetic for a long time. Furthermore, the patient does not have to endure any harmful effects of x-rays.

FERRO-LOC is completely harmless, easy to handle and precise in locating any metal object. Even the head of a pin can be located within a distance of 20-30 mm in a human body.

The completely sterilizable probe is only 6mm in diameter. When using the probe, the scale of FERRO-LOC indicates the location of metal pieces. A maximum swing or deflection on the light-scale shows that a metal piece is exactly in front of the probe's top.

Each deviation from the direct path to the metal object is recognizable through a shorter length of the swing on the light-scale. The farther the metal piece is away, the shorter the

swing gets.

A light point (peakholder) on the scale indicates the respective maximum of approach.

Depending on the size and distance of the metal piece, the sensitivity will be automatically adapted by three steps shown on the scale which offers the best location possible.

To spread apart wounds of small and medium incisions, the enclosed hooks of synthetic material should be used. Standard metal hooks are appropriate only for an extensive surgery.

Additional support is given by an acoustic signal of the FERRO-LOC. Whenever the optimum position is reached a short acoustic signal rings out; because of that, a surgeon can locate a metal piece without permanently looking on the scale.



FERRO-LOC in medical-case (after some years using in critical missions)



With the help of the signal the surgeon has the opportunity to concentrate on the patients wound and not as much as on the scale anymore. As a result, the signal makes the location of metal objects easier and faster.

By using FERRO-LOC metal pieces can be found so precisely and fast that the time of an operation will be remarkably shorter.

The patient will recover from the anesthetic much better and he won't have to suffer from many incisions or even x-rays.

FERRO-LOC has been tested successfully at civil and military missions. In conflict areas, the lifes of people who are wounded from shell-splinters and bullets have been saved with the help of FERRO-LOC.



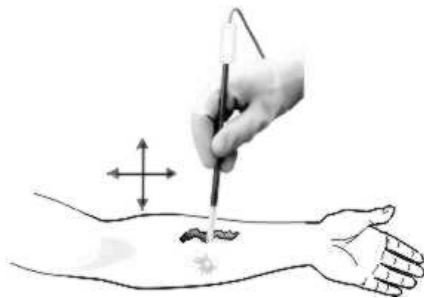
Applications (cont.)

In contrast to x-ray equipment, the simple power supply (one battery charge is sufficient for several operations) of FERRO-LOC permits a mobile employment.

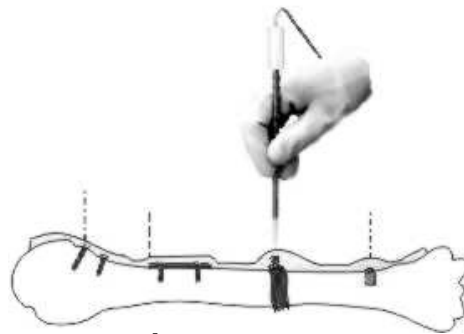
The built in battery can be charged quickly via external loader. The searching probes are exchangeable and because the duration of one sterilization process is about 20 minutes it makes sense to order several probes.



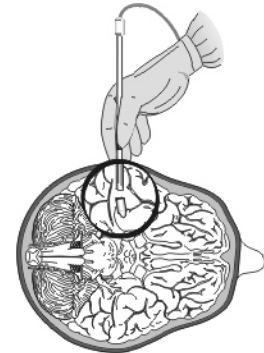
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wounds



bone surgery
for all sorts of implants and metals

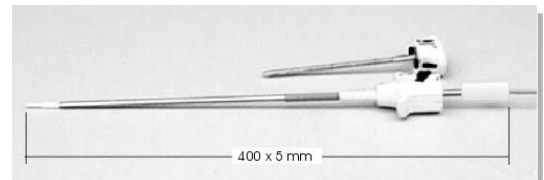


brain surgery

For different applications you can use optimized probes.



MACRO probe
for fast, external orientation. Very high location depth (pin head 50 mm). Diameter of probe 20 mm. Autoclavable. Warranty: 36 month



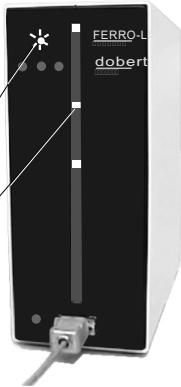
ENDO probe
for Trocare 5 mm. Location depth (pin head 20 mm). Diameter 5 mm. Autoclavable. Warranty: 36 month

results of removing metal



effects conventional methods vs. FERRO-LOC

- 1 Remove charge-connector
- 2 Connect probe (automatically switch on) unsteril area!
- 3 Allow 2 min. warm-up
Blinking lamp(s).
After warm up constant light and short acoustic signal



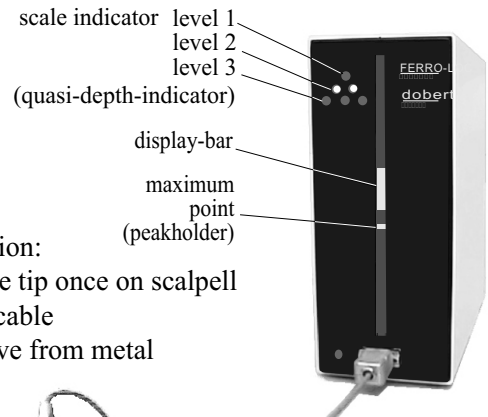
- 4 Check battery power (upper part of scale)

— — — sterile area of surgery — — —
probe/cable/connector after sterilization
at 140 °C (275 °F), 20-30 minutes

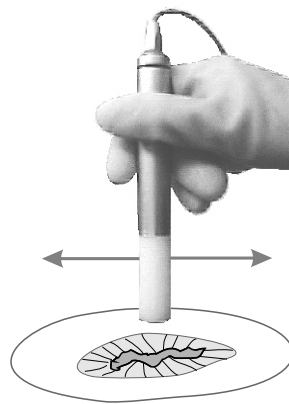


use probes only in sterile area!

Start



- 5 Initialization:
with probe tip once on scalpel
or probe-cable
and remove from metal



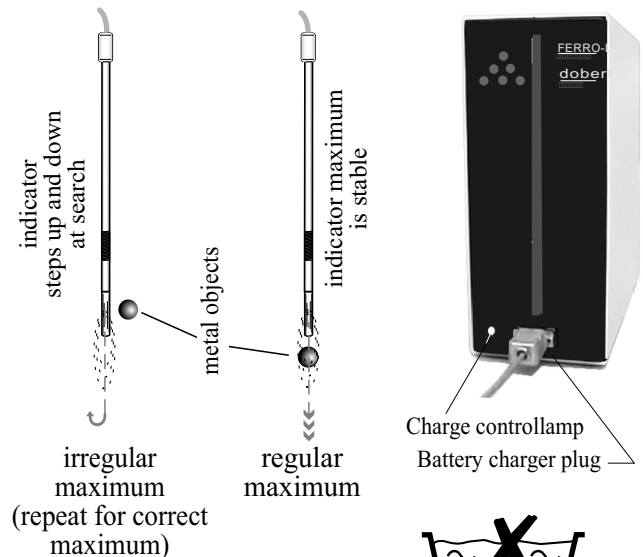
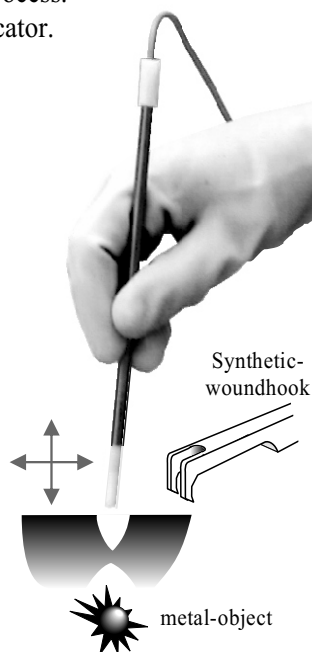
- 6 Starting search process
with MACRO-Probe:
Look at maximum
of indicator.
Repeat searching process
several times

Fast overview with MACRO-PROBE

- 7 Exact location with MICRO-Probe:
Change probe and wait for warm-up.
Initialize probe like MACRO-Probe
and start with searching process.
Look at maximum of indicator.
Repeat searching process
several times for correct
localization.

Acoustic-signal at
recovery maximum.
(for irregular maximum
see annotation).

If necessary, use steril
wound hooks
(autoclavable
synthetic material).



- 8 Cleaning:
cleaning probes complete with cable and
connectors, hooks at 140 °C (275 °F), 20/30 min.
Central-unit: standard detergents
After use, charge battery! Unit is overload-protect



Check probes periodically at service!



Exact location with MICRO-PROBE

Annotation