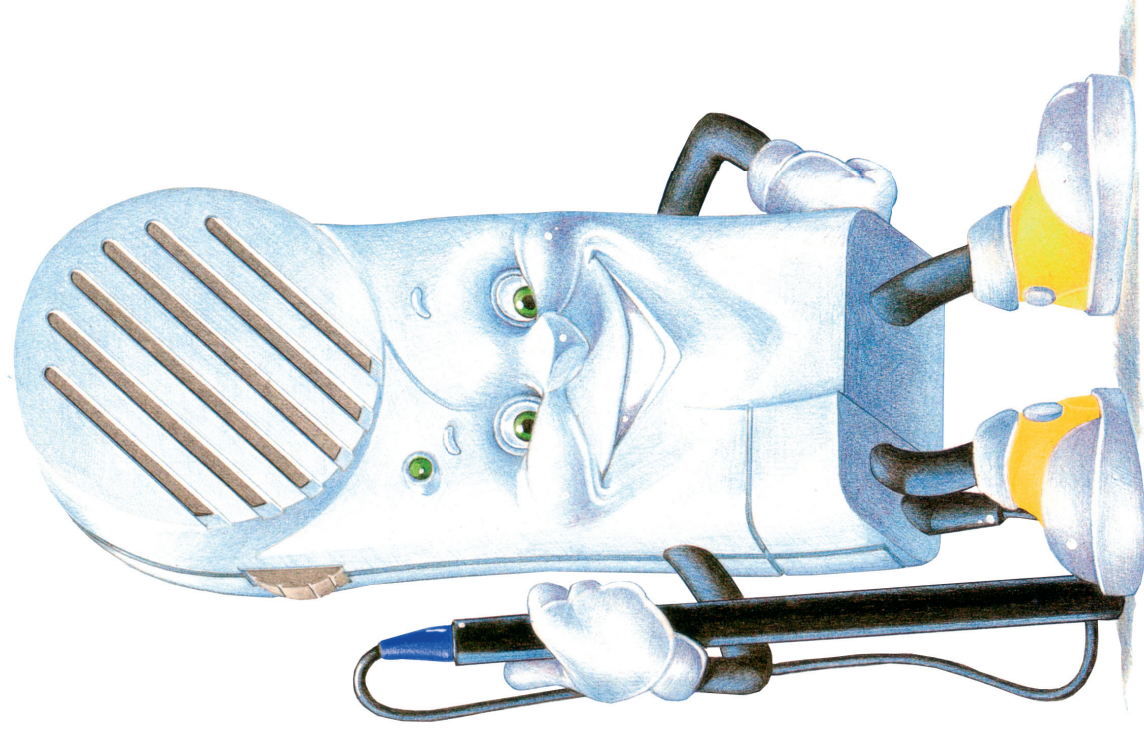


# handydop<sup>®</sup>

the allrounder for your  
unidirectional doppler sonography



handydop <sup>®</sup> technical data <small>(technical data is subject to change without notice)</small>	
<b>hand device</b>	<b>Battery charger</b>
<b>Basic equipment</b>	<b>Line voltage</b>
<ul style="list-style-type: none"> <li>- integrated speakers</li> <li>- electrical energy-saving shutdown</li> <li>- charge control</li> <li>- connector for headphones</li> <li>- connector for battery charger</li> </ul>	230 VAC / 50 Hz
<b>Power supply</b>	<b>Output voltage</b>
2 NiMH batteries, 9V Operating time at full charge min. 2 hours in permanent use. Charging time for completely empty batteries max. 3 hours.	12 V
<b>Weight</b>	<b>Output power</b>
Approx. 450 g	300 mA
<b>Dimensions</b>	<b>Dimensions</b>
180 x 70 x 40 mm (W x H x D)	50 x 50 x 50 mm (W x H x D)
<b>2 MHz ultrasoundprobe</b>	<b>8MHz ultrasoundprobe</b>
<b>Transmitting power</b>	<b>Transmitting power</b>
< 15 mW / cm <sup>2</sup> (I <sub>SPTA</sub> )	< 100 mW / cm <sup>2</sup> (I <sub>SPTA</sub> )
<b>Dimensions</b>	<b>Dimensions</b>
37 x 55 mm (diameter x length)	10 x 95 mm (diameter x length)
<b>Sensitivity range</b>	<b>Sensitivity range</b>
No entry	8 - 25 mm
<b>Headphones</b>	
Only use the headphones recommended by ELCAT GmbH	
<b>Further comments</b>	
<p>The device is not for the use in areas with risk of explosion.                      The device is operated with a safety low-level voltage according to EN60601-1.                      The device is constructed according to EN60601-1.                      The customer-service has to be carried out by ELCAT or by expressly authorized persons.                      In case of use with external devices a check has to be run by the involved producers to secure the patients safety.</p>	

Are you interested in the handydop<sup>®</sup>?  
Then call us!

We would be pleased to tell you more about your possibilities with the handydop!

**ELCAT** GmbH  
**medical systems**

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Presented by

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FRANZBÜHLER  
 medizinische systeme

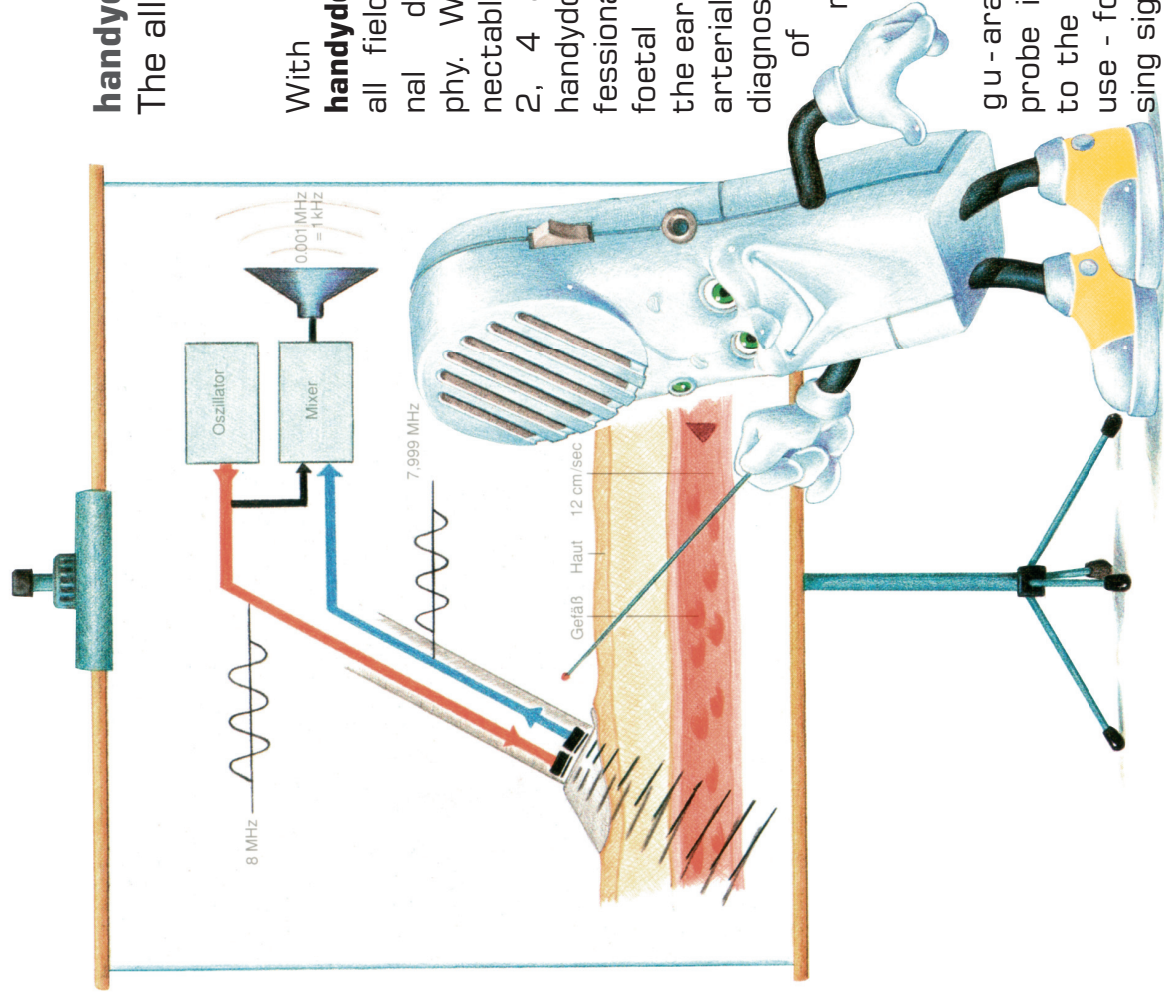
**ELCAT**  
 innovative medical products

handydop<sup>®</sup> INT

**handydop®** works on the doppler principle

In every probe a transmission crystal is inserted, which continuously sends out ultrasound. If this sound ray hits moving structures, the frequency of the reflected ray will be changed - as demanded by the doppler principle. The frequency modulated signal is captured by the receiver crystal of the probe and passed on to the signal processing unit which

finds out the doppler frequency shift. This alteration is the difference between transmitted and received signal and reacts in proportion to the reflectors moving speed. That is why handydop supplies you with a signal that represents the flowing speed of blood or the characteristic sounds of the foetal heart.



**handydop® ...**  
The allround-talent

With the **ELCAT handydop®** you cover all fields of unidirectional doppler sonography. With variable connectable probes from 2, 4 and 8 MHz the handydop becomes a professional for detecting foetal heart activity in the early pregnancy or for arterial and venous vessel diagnosis. Its new type of transmitting and receiving electronics, integrated in the respective probe plug, that every probe is optimally tuned to the respective field of use - for an uncompromising signal quality.



case



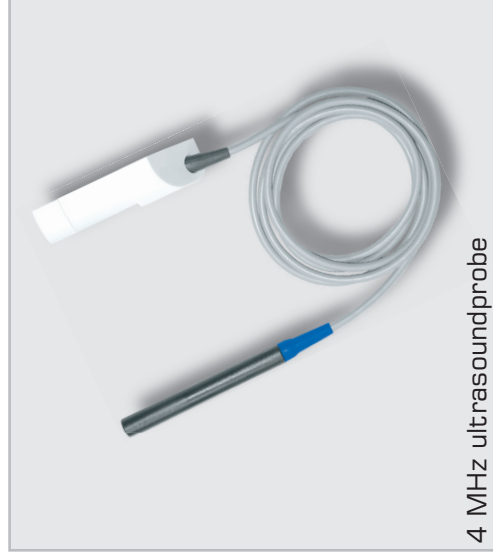
aquasonic gel



Battery charger LG20



2 MHz ultrasoundprobe



4 MHz ultrasoundprobe



**handydop®** device with 8 MHz ultrasoundprobe



## Post-stenotic blood pressure measurement with the 8MHz-probe

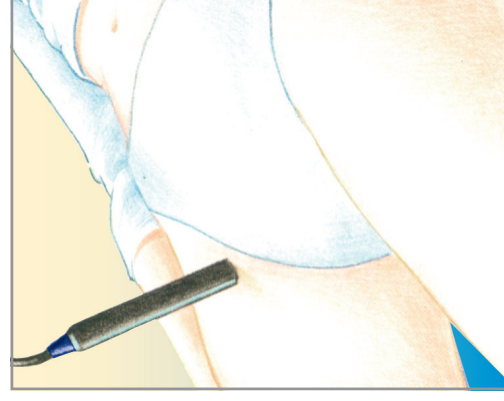


The post-stenotic blood pressure measurement is especially suitable for detecting and evaluating peripheral arterial occlusion. For that, you have to locate the A. tibialis posterior, which is easy to find, or the A. dorsalis pedis with the doppler probe. The sphygmomanometer cuff, which must be seated right above the ankle, has to be pumped up to an oversystolic level. While letting off the cuff pressure, you can read the „post-stenotic pressure“ at the time of the first

hearable doppler sound. This reading has to be compared with the systemic pressure that is measured in the same way as mentioned above, but above the A. brachialis. Then the pressure gradient is calculated. This gradient correlates with the degree of stenosis, e. g.:

$$\frac{\text{systemic pressure} \quad 120 \text{ mmHg}}{\text{post-stenotic pressure} = 80 \text{ mmHg}} - \text{pressure-gradient} = 40 \text{ mmHg}$$

## Detection of acute profound venous thrombosis with the 4MHz probe



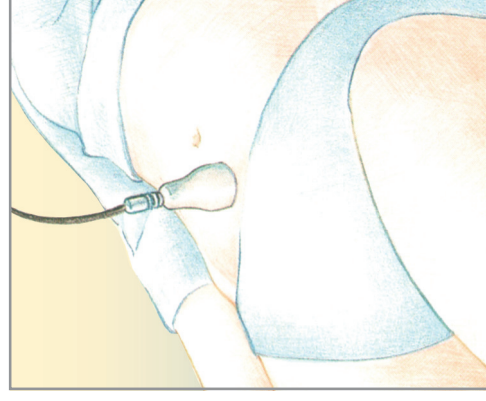
The detection of a profound venous thrombosis belongs to the most important doppler applications.

Therefore the V. femoralis in the inguinal region has to be located with the 4 MHz-probe and the patient has to start a forced breathing.

With a patent V. iliaca, the inspirative pressure increase leads to a streaming stop. In case of a haemodynamic relevant stenosis, this dependency on the breathing is missing.

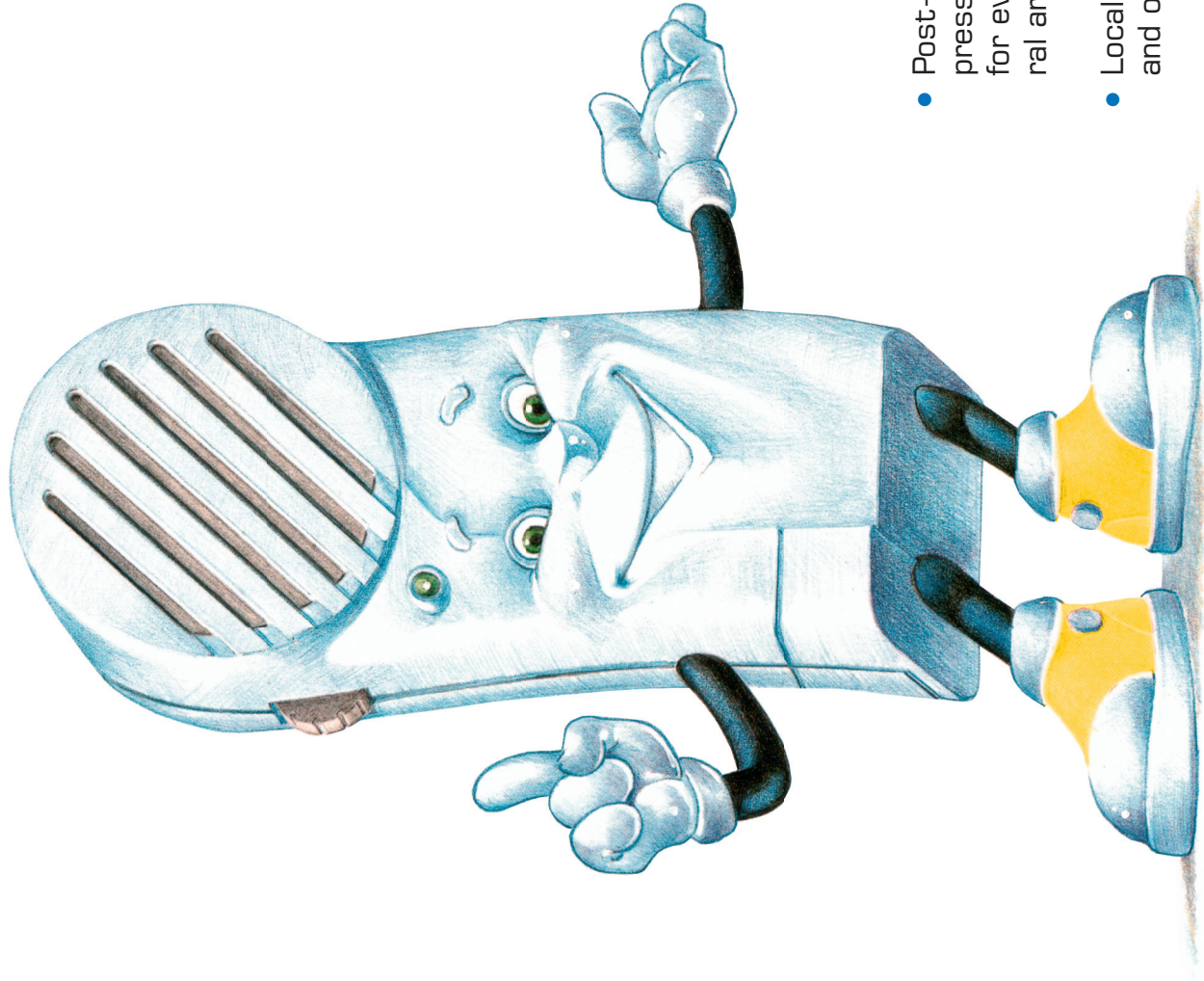
The cause of this pathological streaming is the high post thrombotic pressure, which causes a reduced, but completely even venous re-flow via the collaterals.

## Possibilities for using the 2MHz ultrasound-probe



With the 2 MHz-probe your handydop becomes a foetal puls detector for the following indications:

1. Detection of foetal heart activity beginning in the 9th week of pregnancy and also in the further course of pregnancy.
2. Demonstration of foetal life when the affinity for pregnancy is missing.
3. Check of foetal vitality, when there is indication for amniotic death during the early pregnancy.



Discover the versatility of your handydop®

- Post-stenotic blood pressure measurement for evaluation of peripheral arterial occlusion
- Localisation of stenosis and occlusions
- Detection of venous insufficiency and venous thrombosis
- Comfortable blood pressure measurement for shock patients and children
- Differentiation between testicle torsion and epididymitis
- Detection of foetal heart activity



Depending on the configuration, you get all the components of your **handydop®** orderly packed in a rigid suitcase:

- **handydop®** basic device
- 8 MHz probe
- 4 MHz probe
- 2 MHz probe
- battery charger
- aquasonic gel



... for being always completely equipped, even at home visits!

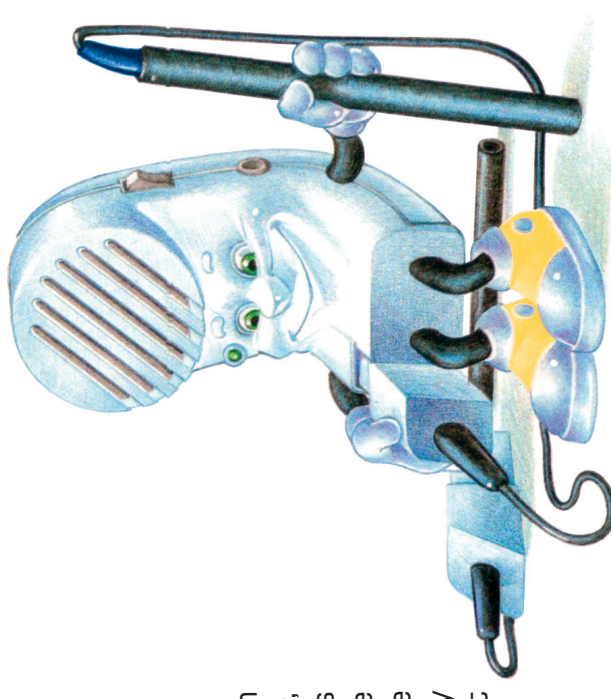
It was conceived according to ergonomic standards ...



Its operating elements are arranged in a way that offers you the possibility to use it with left hand as well as with right hand. Professional industrial design influenced the development, that's why the shape is this handy - working with a doppler becomes non-tiring and comfortable.

... captivates with a functional probe exchange ...

Where probe plugs were fastened with complicated screwing mechanisms so far, there is only a little button left. Press it softly and you can pull out the probe without any effort. Now the new probe plug has to be put in the slot correctly and a silent „click“ tells you the right position - ready !



... and is extremely efficient!

The necessary energy for the optimal signal quality comes from two rechargeable 9V-NiMH batteries. An electronic energy-saving shutdown definitely prolongs the operating time of your handydop. A control-electronic keeps your batteries from overcharging and deep discharging. If the performance reduces, you just have to put your handydop on the battery charger overnight. The next day, it will be ready to „get back to work“.

