

High Frequency Linear Array Transducer



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If you have comments about the user documentation, please write to us at the email address above. We would like to hear from you.

BK Medical Customer Satisfaction

Input from our customers helps us improve our products and services. As part of our customer satisfaction program, we contact a sample of our customers a few months after they receive their orders. If you receive an email message from us asking for your feedback, we hope you will be willing to answer some questions about your experience buying and using our products. Your opinions are important to us. You are of course always welcome to contact us via your BK Medical representative or by contacting us directly.

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Introduction

This is the user guide for High Frequency Linear Transducer Type 8870 and must be used together with *Care, Cleaning & Safety* which contains important safety information.

8870 is suitable for a wide range of small part and musculoskeletal studies and for vascular examinations.

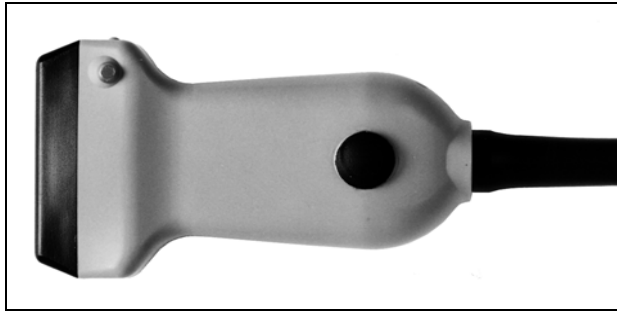


Figure 1. High Frequency Linear Array Transducer Type 8870.

Scanning Plane

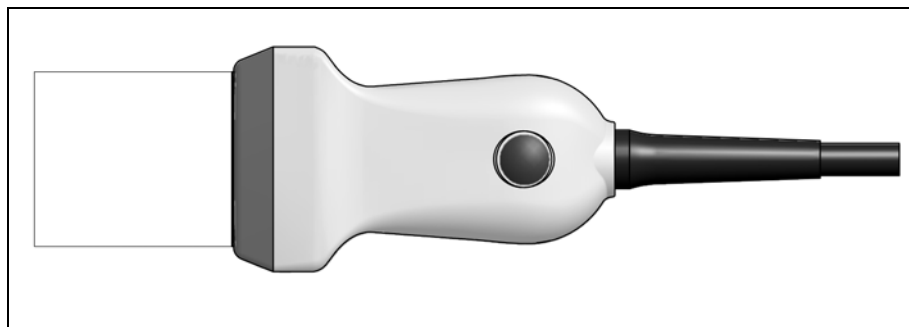


Figure 2. Scanning plane of Type 8870.

General Information

Product specifications for this transducer can be found in the Product Data sheet that accompanies this user guide.

Acoustic output data and data about EMC (electromagnetic compatibility) for this transducer are on the Technical Data CD that accompanies this user guide. A full explanation of acoustic output is given in your scanner user guide.



WARNING

If at any time the scanner malfunctions, or the image is severely distorted or degraded, or you suspect in any way that the scanner is not functioning correctly:

- Remove all transducers from contact with the patient.
- Turn off the scanner. Unplug the scanner from the wall and make sure it cannot be used until it has been checked.
- Do not remove the scanner cover.

Contact your BK Medical representative or hospital technician.



WARNING

Always keep the exposure level (the acoustic output level and the exposure time) as low as possible.

Service and Repair



WARNING

Service and repair of BK Medical electromedical equipment must be carried out only by the manufacturer or its authorized representatives. BK Medical reserves the right to disclaim all responsibility, including but not limited to responsibility for the operating safety, reliability and performance of equipment serviced or repaired by other parties. After service or repairs have been carried out, a qualified electrical engineer or hospital technician should verify the safety of all equipment.

Caring for the Transducer

The transducer may be damaged during use or processing, so it must be checked before use for cracks or irregularities in the surface. It should also be checked thoroughly once a month following the procedure in *Care, Cleaning & Safety* that accompanies this user guide.

Cleaning and Disinfection

To ensure the best results when using BK Medical equipment, it is important to maintain a strict cleaning routine.

Full details of cleaning and disinfection procedures can be found in the *Care, Cleaning & Safety* booklet that accompanies this user guide. A list of disinfectants that the transducer can withstand are listed in the Product Data sheet that accompanies this user guide.

Sterile covers are available. See the Product Data sheet for more details.



WARNING

Users of this equipment have an obligation and responsibility to provide the highest degree of infection control possible to patients, co-workers and themselves. To avoid cross contamination, follow all infection control policies for personnel and equipment that have been established for your office, department, or hospital.

Caution:

Keep all plugs and sockets absolutely dry at all times.

Starting Scanning

All equipment must be cleaned and disinfected before use.

Connecting the Transducer

**WARNING**

Keep all plugs and sockets absolutely dry at all times.

The transducer is connected to the scanner using the array Transducer Socket on the scanner. To connect, the transducer plug's locking lever should first be in a horizontal position. Align the plug to the scanner socket and insert securely. Turn the locking lever clockwise to lock in place.

When connected, the transducer complies with Type BF requirements of EN60601-1 (IEC 60601-1).

Changing Frequency

The Multi-Frequency Imaging (MFI) facility enables you to select the scanning frequency. See the applicable scanner user guide for instructions. The selected frequency is displayed at the top of the screen.

Using a Transducer Cover

The transducer should be enclosed in a transducer cover or a standard condom. See the Product Data sheet for a list of available transducer covers.

**WARNING**

Because of reports of severe allergic reactions to medical devices containing latex (natural rubber), FDA is advising health-care professionals to identify their latex-sensitive patients and be prepared to treat allergic reactions promptly.

Apply gel to the tip of the transducer. This improves the screen images by preventing image artifacts caused by air bubbles.

Pull the transducer cover over the transducer.

Gel also creates a good acoustic contact between the skin and the transducer; therefore, apply a small amount to the outside of the cover prior to scanning. Re-apply the gel frequently to ensure good screen images.

**WARNING**

Use only water-soluble agents or gels. Petroleum or mineral oil-based materials may harm the cover materials.

Using the Transducer Control Button

The transducer has a control button that you can press to **Start** or **Stop** scanning (freeze frame). Press the button for more than one second to make a copy of the image.

Each time the button is pressed, a “beep” is emitted.

Changing Orientation

To change the orientation of the image on the monitor, refer to the applicable scanner user guide for instructions.

Puncture Facilities

Puncture and biopsy is possible with Type 8870 transducer. The puncture attachment is illustrated in the following pages with a brief description of its use and operating instructions.

**WARNING**

It is essential for the patient's safety that only the correct puncture attachment is used with Type 8870. Never use unauthorized combinations of transducers and puncture attachments or other manufacturers puncture attachments.

UA1251

The puncture attachment (Figure 3) comprises a mounting bracket, which secures the puncture attachment to the transducer handle, and a needle guide. There are three screws marked A, B, and C in Figure 3 A is for securing the puncture attachment to the transducer, B is to allow the needle guide to be adjusted to three different angles of insertion, C is for holding the needle in place.

To mount UA 1251:

- 1** Mount the puncture attachment by fitting the metal mounting bracket on to the transducer.
- 2** The metal raised knobs on either side of the transducer fit into the indentations on the bracket. The ridge on the thin side of the transducer fits into the groove on the bracket.
- 3** Tighten the screw (A) to secure the bracket to the transducer.

Adjusting the angle of UA 1251:

There are three different angles of insertion available; 30°, 45° and 60° with respect to the transducer's image axis.

- 1** Loosen screw B until the needle guide can move forward and backward.
- 2** Move the needle guide until it clicks into place in one of the three indentations on the mounting bracket.
- 3** Tighten screw B until the needle guide is securely fixed.

Adjusting the needle guide:

The needle guide can accommodate needles from diameter 0.6mm to 3.4mm.

- 1** Loosen screw C.
- 2** Insert needle.
- 3** Tighten screw C until the needle is held firmly.

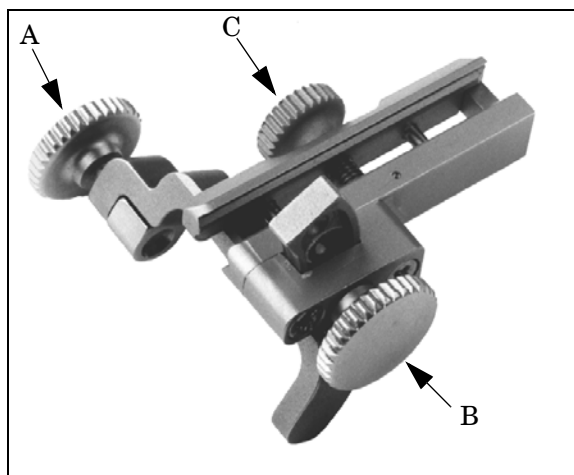


Figure 3. Puncture attachment UA 1251.

All parts of the puncture attachment can be autoclaved or disinfected by immersion in a suitable solution.



Figure 4. Type 8870 with puncture attachment UA1251 mounted.

Performing Puncture and Biopsy



WARNING

It is essential for the patient's safety that only the correct puncture attachments, as described in this guide, are used. Never use unauthorized combinations of transducers and puncture attachments or other manufacturers puncture attachments.

Before beginning a puncture or biopsy procedure, always check that the type number of the transducer and the type number or description of the puncture attachment match exactly those displayed on the scanner monitor.



WARNING

The puncture line on the scan image is an indication of the expected needle path. The needle tip echo should be monitored at all times so any deviation from the desired path can be corrected.

Cover the transducer with a sterile transducer cover.

If the transducer cover is damaged when attaching the puncture attachment, replace it with a new cover.

See the Product Data sheet for a list of available transducer covers.

Press the scanner **Qvodwsf** or **!Cjpt z!** control button to superimpose a puncture line on the scan image.

If more than one puncture line is available, refer to the applicable scanner user guide for instructions on how to change which one appears.

Move the transducer until the puncture line transects the target. Insert the needle and monitor it as it moves along the puncture line to the target. The needle tip echo will be seen as a bright dot on the screen.



WARNING

If the needle guide is detached from the transducer during interventional procedures, cover the transducer with a new transducer cover.

To remove the puncture line from the image, refer to the applicable scanner user guide for instructions.



WARNING

When performing a biopsy, always make sure that the needle is fully drawn back inside the needle guide before moving the probe.

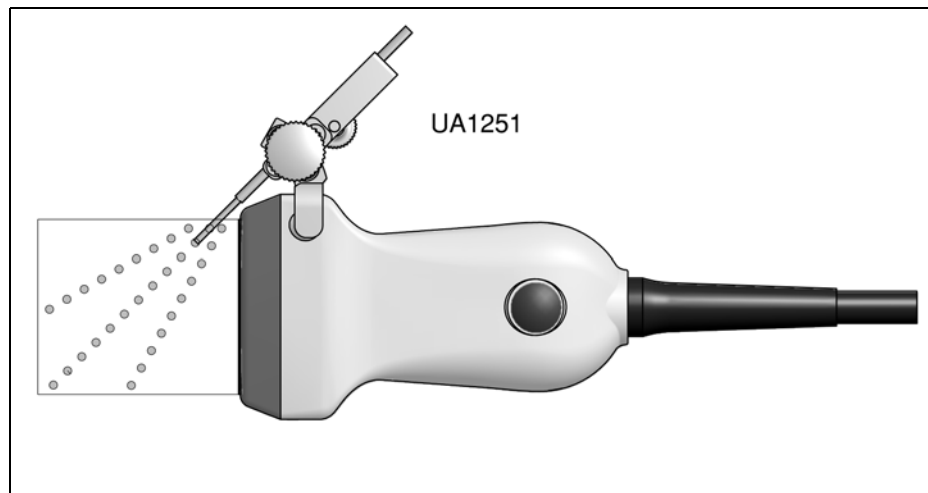


Figure 5. Puncture lines for UA1251 with Type 8870.

The transducer and puncture attachment can be removed without disturbing the position of the needle during puncture.

Cleaning after Puncture and Biopsy

If biological materials are allowed to dry on the transducer, disinfection and sterilization processes may not be effective. Therefore, you must clean transducers immediately after use.

Use a suitable brush to make sure that biological material and gel are removed from all channels and grooves. See *Care, Cleaning & Safety* for cleaning instructions.

Disposal

When the transducer is scrapped at the end of its life, national rules for the relevant material in each individual land must be followed. Within the EU, when you discard the transducer, you must send it to appropriate facilities for recovery and recycling. See the applicable scanner user guide for further details.

**WARNING**

For contaminated disposals such as transducer covers or needle guides, follow disposal control policies established for your office, department or hospital.

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