Anorectal 3D Transducer

USES
• Anorectal imaging
• Endovaginal imaging of the pelvic floor

BENEFITS
• 360° anorectal transducer with built-in 3D imaging
• High resolution gives detailed views of the rectal wall
• Fully encapsulated transducer means that no moving parts are in contact with the patient
• Long shaft gives excellent image quality all the way from the anal canal to the sigmoid colon
• Combination of high resolution and good penetration lets you do complete examination with one transducer
• High resolution overview of the complete pelvic floor

General Description
2052 is an anorectal transducer designed for use with BK Medical's ultrasound systems.

Applications
Rectal wall: For imaging the rectal wall, an optional water standoff system is available (includes a water standoff collar, a recto-sigmoidoscope with obturator, and non-sterile water standoff condoms).
Pelvic floor: The transducer is also suitable for transvaginal imaging of the pelvic floor, including the anterior and posterior compartments.

Unmatched Transducer Design
• Moving parts do not touch patient: The 360° rotating imaging head is fully encapsulated in the cylindrical transducer: no moving parts touch the patient. This eliminates changes in anatomical presentation, which would otherwise tend to cause artifacts in the ultrasound image.
• Control buttons on handle: These buttons move the head 60-mm back and forth. With the 2052 and the 2202 Pro Focus system, an on-screen control can also be used to monitor and change the position of the imaging head. It is extremely easy to position the imaging head precisely and to acquire 3D data sets.
• Broad frequency range – one transducer for anal canal, rectal wall and pelvic floor: The unique double-crystal design covers a very broad frequency range, giving both high resolution and good penetration. You can carry out a complete examination of the anal canal, rectal wall and pelvic floor with just one transducer and without having to readjust or reinsert the instrument. The long, slender transducer shaft can cover the entire rectum plus the sigmoid colon.

Multifrequency Imaging
With its two crystals, the transducer can carry out B-mode imaging at six different center frequencies ranging from 16 to 6 MHz.

3D Data Acquisition
The integrated 3D option in the 2202 and 1202 ultrasound systems lets you acquire 3D data sets with the transducer. The 3D acquisition mechanism is fully integrated into the transducer, making it very easy to use.
A variable friction support arm and transducer support collar are available for holding the transducer in a secure position for acquiring precise high resolution data sets.

Sterilization and Disinfection
The 2052 can be disinfected by immersion in the solutions listed under Specifications.
2052 can be processed by using STERIS SYSTEM 1™ and STERIS SYSTEM 1E.
The water standoff collar, reusable rectosigmoidoscope and obturator can be autoclaved.

Safety
2052 is designed and tested in accordance with EN60601-1 (IEC 60601-1), “Medical Electrical Equipment, General Requirements for Safety.” When used with BK Medical’s ultrasound systems, Type B requirements are met.*

* STERIS SYSTEM 1 is not market cleared in the USA.
### OPERATIONAL FACILITIES
Built-in control buttons for start/stop/copy and for positioning the imaging head.

### SAFETY
When used with BK Medical’s ultrasound systems, this transducer complies with Safety Standard EN60601-1 (IEC60601-1) Type B.

### FREQUENCY RANGE
16–6 MHz (depending on crystal)

### ENVIRONMENTAL
- **Operating pressure:** 700–1060 hPa (normal atmospheric pressure)
- **Operating Temperature:** +10 to +60 °C (±50 to +104 °F)
- **Storage Temperature:** -25 to +70 °C (-13 to +158 °F)
- **Wet test Temperature:** Max. +40 °C (+104 °F)
- **Wettest Length:** Max. 15 hours per 24 hours

### STERILIZATION AND DISINFECTION
Complete details and procedures can be found in Care, Cleaning & Safety.

### RESISTANCE TO CHEMICALS DURING DISINFECTION*
- 2052 can be processed using:
  - STERIS SYSTEM 1®** and SYSTEM 1E Immersion
  - STERIS SYSTEM 1®** and SYSTEM 1E Wiping

### POWER SUPPLY
Internally from system

### CABLE LENGTH
2.3 m (7.5 ft)

### TRADEMARKS
- • STERIS SYSTEM 1 and STERIS SYSTEM 1E are registered trademarks of STERIS Corporation.
- • Cidex OPA is a registered trademark of Advanced Sterilization Products (ASP), a Johnson & Johnson Company.
- • Korsolex is a registered trademark of Bode Chemie GmbH.
- • Perasafe is a registered trademark of Antec International.
- • Sterilox is a registered trademark of Sterilox Technologies, Inc.
- • Tristel is a registered trademark of Tristel Pharmaceutical.

* Sterilization processes are harsh and can shorten the life of the product.
** STERIS SYSTEM 1 is not market cleared in the USA.

### RESISTANCE TO CHEMICALS DURING DISINFECTION*
- Immersion
  - Immersion for less than 10 minutes in each hour in:
    - Glutaraldehyde (2-3.4% in water)
    - Follow manufacturer’s instructions for use.
  - The following disinfectants can also be used (but not exceeding maximum watertight immersion time specified for this transducer):
    - Cidex® OPA
    - Korsolex® Basic
    - Korsolex® Extra
    - Perasafe®
    - Sterilox®
    - Tristel*

### Wiping
- Ethanol (70% in water)
- Follow manufacturer’s instructions for use.

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- **Storage Temperature:** -25 to +70 °C (-13 to +158 °F)
- **Watertight Immersion Temperature:** Max. +40 °C (+104 °F)
- **Watertight Immersion Time:** Max. 15 hours per 24 hours

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<table>
<thead>
<tr>
<th>Units</th>
<th>2052</th>
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<tbody>
<tr>
<td>Crystals</td>
<td>12</td>
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<tr>
<td>Crystal Diameter</td>
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<tr>
<td>Number of Elements</td>
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<tr>
<td>B-Mode Frequency</td>
<td>MHz</td>
</tr>
<tr>
<td>Entrance Beam Diameter</td>
<td>mm</td>
</tr>
<tr>
<td>Focal Length (Typical)*</td>
<td>mm</td>
</tr>
<tr>
<td>Focal Range (Typical)*</td>
<td>mm</td>
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<tr>
<td>Focal Area*</td>
<td></td>
</tr>
<tr>
<td>Axial Resolution on Pro Focus 2202**</td>
<td></td>
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<tr>
<td>Axial Resolution on flex Focus 1202**</td>
<td></td>
</tr>
<tr>
<td>Lateral Resolution on Pro Focus 2202 (Measured at 21 mm)**</td>
<td></td>
</tr>
<tr>
<td>Lateral Resolution on flex Focus 1202 (Measured at 32 mm)**</td>
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</tr>
<tr>
<td>Absolute Max Ultrasonic Power</td>
<td>mW</td>
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<tr>
<td>Image Field</td>
<td>Sector Angle 360°</td>
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<tr>
<td>Basic Imaging Modes</td>
<td>B-mode</td>
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<tr>
<td>Penetration Depth on Pro Focus 2202**</td>
<td>mm</td>
</tr>
<tr>
<td>Penetration Depth on flex Focus 1202**</td>
<td>mm</td>
</tr>
<tr>
<td>Beam Angle to Rotating Axis</td>
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<tr>
<td>Dimensions</td>
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<tr>
<td>Weight (Approximate)</td>
<td>g</td>
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<tr>
<td>Applications (Typical)</td>
<td>Transrectal &amp; Transvaginal</td>
</tr>
<tr>
<td>Systems Supported</td>
<td>flex Focus 400, flex Focus 500, flex Focus 800, Pro Focus UltraView &amp; Pro Focus UltraView 800</td>
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* Values measured in water.
** Measurements according to IEC/TS 61390 and JIS T 1501. Penetration depth is measured in an ultrasound phantom and recalculated corresponding to a realistic tissue attenuation of 0.5 dB/cm/MHz.

Ordering Information 2052

<table>
<thead>
<tr>
<th>ACCESSORIES INCLUDED</th>
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<tbody>
<tr>
<td>KE4322: Carrying Case</td>
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<tr>
<th>ACCESSORIES AVAILABLE</th>
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<tbody>
<tr>
<td>Water Standoff System:</td>
</tr>
<tr>
<td>UA0671: Water Standoff Collar</td>
</tr>
<tr>
<td>UA0672: Rectosigmoidoscope Kit D00164 with Obturator D00163, compatible with Welch Allyn® Light Source</td>
</tr>
<tr>
<td>UA0673: Rectosigmoidoscope Kit D00165 with Obturator D00163, compatible with Storz® Light Source</td>
</tr>
<tr>
<td>UA0674: O-Rings for UA0671 (pack of 10)</td>
</tr>
<tr>
<td>UA0675: Glycerin-based Lubricant</td>
</tr>
<tr>
<td>UA0676: Plastic Extension Tube (30cm)</td>
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</tbody>
</table>

| UA0677: 2-way Stopcock |
| UA0678: Plastic Syringe |
| UA0683: Disposable Rectosigmoidoscope |
| UA0037: Non-Sterile Water Standoff Condors (pack of 24) |
| UA0005: Sterile Latex covers (pack of 24) |

3D Imaging:

| UA0553: Variable Friction Support Arm |
| UA0679: Transducer Support Collar (for use with Variable Friction Support Arm UA0553) |

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<tr>
<th>TRANSUDER COVERS</th>
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<tr>
<td>UA0068: NeoGuard™ Latex-Free Transducer Cover, sterile (pack of 24)</td>
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</tr>
<tr>
<td>• Welch Allyn® is a registered trademark of Welch Allyn.</td>
</tr>
<tr>
<td>• Storz® is a registered trademark of Bausch &amp; Lomb Incorporated.</td>
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</table>

2052 Technical Drawing

All measurements are in mm.

LEGAL MANUFACTURER: BK Medical ApS, Mileparken 34, DK-2730 Herlev, Denmark. Tel.: +45 44528100 Fax: +45 44528199 Email: info@bkmed.dk