Multifunctional Correction System Joints for Children and Adults

Quality for life

Information for Practitioners
Correction System Joints

Indications

The 17BK1 Static Correction System Joint and 17BK2 Dynamic Unit are suitable for users with neurological or orthopaedic diseases in conjunction with contractures of the joints.

**Neurological indications, e.g.**
- Stroke
- Cerebral palsy
- Condition following paraplegia
- Multiple sclerosis
- Spina bifida
- Craniocerebral injuries
- Dystrophy

**Orthopaedic indications, e.g.**
- After knee TEP
- Burns
- Amputation
- After ligament rupture
- Fractures

**Contraindications**
- Structural contracture
  - Deformation: muscles, bones
  - Ankylosis, ossification, fibrosis
- Poor blood circulation

Therapy goal

The objective of contracture treatment is to restore or maintain joint functionality and to avoid deformities.
The 17BK1 Static Correction System Joint for the upper and lower extremities (wrist, elbow, knee, or ankle joints) is suitable for the treatment of children and adults and is used in positioning orthoses. Use of the 17BK2 Dynamic Unit allows for dynamic extension or flexion, depending on the joint and indications. Spring force is used to slowly correct the joint back into the desired position (dynamic contracture treatment).
Static Correction System Joint

17BK1

The individually required angles are continuously adjustable by means of a worm gear. For orientation, control and targeted adjustment of the correction, an angle scale is printed on the joints. An easy-on-easy-off system has been developed for quick application and removal of the orthosis, allowing correction to be unlocked completely. After donning of the orthosis, correction is activated again at the original correction setting. Another setting option is to unlock the joint, with any extension stop angle setting. This allows for physiotherapeutic training.

**Effects**
- Improved rest position
- Protection, safety, and the possibility of step-by-step joint mobilisation during the rehabilitation phase
- Promoting the growth of truncated tissue and/or alteration of modified tissue, resulting in an increase in joint activity
- Prevention of deformities and restoration of joint functions

<table>
<thead>
<tr>
<th>Body height</th>
<th>Wrist</th>
<th>Elbow</th>
<th>Knee</th>
<th>Ankle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child up to 1 m</td>
<td>L/R4</td>
<td>L/R4</td>
<td>L/R4</td>
<td>L/R4</td>
</tr>
<tr>
<td>Child 1 – 1.40 m</td>
<td>L/R4</td>
<td>L/R3</td>
<td>L/R3</td>
<td>L/R3</td>
</tr>
<tr>
<td>Adults up to 1.60 m</td>
<td>L/R4</td>
<td>L/R3</td>
<td>L/R2</td>
<td>L/R2</td>
</tr>
<tr>
<td>Adults 1.60 – 1.90 m</td>
<td>L/R3</td>
<td>L/R2</td>
<td>L/R1</td>
<td>L/R1</td>
</tr>
</tbody>
</table>

The left/right side indications refer to application of the joints on the wrist, knee joint or ankle joint. Due to anatomical characteristics, the sides must be reversed for elbow applications (right to left and left to right).
Characteristics

1 Innovative easy-on-easy-off system
The joint can be unlocked temporarily for easy application and removal of the orthosis. Among other things, this also simplifies hygiene.

2 Therapy range with defined stop position
Unrestricted mobility with continuously adjustable extension stop from -20° to +120°.

3 Correction function
Locking function with continuously adjustable angle setting.

Stable and lightweight
The joints are made from anodised aluminium with hardened steel worm gears.

Size selection matrix
Easy selection of the recommended joint sizes through an easy to use matrix (see table 1).
The 17BK2 Dynamic Unit is available for all four sizes of the 17BK1 Static Correction System Joint and, depending on the joint size, offers a maximum tension of approx. 10 Nm. The tension is continuously adjustable, allowing for individual dynamic treatment of contractures.

**Effects**
- See 17BK1 Static Correction System Joint effects, but in this case with dynamic contracture treatment through individually adjustable tension

**Characteristics**
- Continuously adjustable tension up to ~10 Nm for dynamic contracture treatment
- Individual therapy range from -20° to +120° (continuously adjustable)
- Locking function with switch for complete temporary locking under tension in the desired flexion position.
- Fast installation/removal
- Only for use in combination with the 17BK1 Static Correction System Joint and system splints, we also categorically recommend the use of a medial joint (e.g. 17BK3)
- Can be supplied to fit 17BK1 in four sizes and, corresponding to the size, three different strengths (~ 3 Nm; ~ 6 Nm; and ~10 Nm)
## Technical Information

### 17BK1 / 17BK2

#### Table 2: Size Chart

<table>
<thead>
<tr>
<th>Order no. Correction System Joint</th>
<th>Side</th>
<th>System width</th>
<th>Order no. Dynamic Unit</th>
<th>Max. tension</th>
<th>Medial joint order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17BK1=L1</td>
<td>left</td>
<td>20 mm</td>
<td>17BK2=L1</td>
<td>~ 10 Nm</td>
<td></td>
</tr>
<tr>
<td>17BK1=R1</td>
<td>right</td>
<td>20 mm</td>
<td>17BK2=R1</td>
<td>~ 10 Nm</td>
<td></td>
</tr>
<tr>
<td>17BK1=L2</td>
<td>left</td>
<td>16 mm</td>
<td>17BK2=L2</td>
<td>~ 6 Nm</td>
<td>17BK3=18</td>
</tr>
<tr>
<td>17BK1=R2</td>
<td>right</td>
<td>16 mm</td>
<td>17BK2=R2</td>
<td>~ 6 Nm</td>
<td></td>
</tr>
<tr>
<td>17BK1=L3</td>
<td>left</td>
<td>14 mm</td>
<td>17BK2=L3</td>
<td>~ 6 Nm</td>
<td></td>
</tr>
<tr>
<td>17BK1=R3</td>
<td>right</td>
<td>14 mm</td>
<td>17BK2=R3</td>
<td>~ 6 Nm</td>
<td>17BK3=14</td>
</tr>
<tr>
<td>17BK1=L4</td>
<td>left</td>
<td>12 mm</td>
<td>17BK2=L4</td>
<td>~ 3 Nm</td>
<td></td>
</tr>
<tr>
<td>17BK1=R4</td>
<td>right</td>
<td>12 mm</td>
<td>17BK2=R4</td>
<td>~ 3 Nm</td>
<td></td>
</tr>
</tbody>
</table>

#### Table 3: Selection of the Otto Bock system splints to match the 17BK1 joints

<table>
<thead>
<tr>
<th>Order no.</th>
<th>Material for</th>
<th>Width</th>
<th>Thickness</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>17F52=12×3×220</td>
<td>17BK1=L/R4</td>
<td>12 mm</td>
<td>3 mm</td>
<td>220 mm</td>
</tr>
<tr>
<td>17F52=14×3×220</td>
<td>17BK1=L/R3</td>
<td>14 mm</td>
<td>3 mm</td>
<td>220 mm</td>
</tr>
<tr>
<td>605P8=16</td>
<td>17BK1=L/R2</td>
<td>16 mm</td>
<td>5 mm</td>
<td>approx. 2000 mm</td>
</tr>
<tr>
<td>605P8=20</td>
<td>17BK1=L/R1</td>
<td>20 mm</td>
<td>5 mm</td>
<td>approx. 2000 mm</td>
</tr>
</tbody>
</table>

Alternately, suitable steel or titanium splints can also be used.

**Caution:**

These indications are only recommendations. The correct size for the respective patient has to be determined and specified by the orthotist. The selection of sizes and sides shown in this brochure always relate to therapy in the extension direction. Depending on the application the joints are to be used individually or in pairs. In order to ensure that the orthosis is stable, using a medial joint such as 17BK3 or an integrated plastic joint is categorically recommended. In case of knee and ankle joints, bilateral fitting (in pairs) is mandatory. The 17BK2 Dynamic Unit is always used singly on the lateral joint. The left/right side indications refer to application of the joints on the wrist, knee joint or ankle joint. Due to anatomical characteristics, the sides must be reversed for elbow applications (right to left and left to right).

Delivery condition: The 17BK1 Static Correction System Joint is delivered with an Allen key to make adjustments and to adjust the tension of the 17BK2 Dynamic Unit.

### Order example

<table>
<thead>
<tr>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient</strong></td>
<td>Adult, body height of 1.80 m</td>
</tr>
<tr>
<td><strong>To treat</strong></td>
<td>Knee joint on the right leg, 17BK1 Static Correction Joint incl. 17BK2 Dynamic Unit</td>
</tr>
<tr>
<td><strong>Order recommendation</strong></td>
<td>1x 17BK1=L1, 1x 17BK1=R1, 1x 17BK2=R1</td>
</tr>
<tr>
<td><strong>Splint material</strong></td>
<td>e.g. 605P8=20</td>
</tr>
</tbody>
</table>