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Introduction
This surgical protocol is a supplement to the Duracon Total Stabilizer Revision Knee System Surgical Protocol (Lit. No. LTSST).

The Duracon Trial Cutting Guide is an intramedullary based instrumentation system focused on the restoration of the joint line and proper flexion-extension gap assessment.
Tibial and Femoral Canal Preparation
Duracon Trial Cutting Guide

**Tibial Preparation**
Prepare the tibia following the Duracon Total Stabilizer Revision Knee System Surgical Protocol (Lit. No. LTSST, pages 8-11). If an offset is needed, use the tibial offset reamer to prepare for the tibial offset. Insert the assembled trial into the tibia (Figure 1 and Figure 2).

*Note: The Duracon Trial Cutting Guide (TCG) is designed for use with its own mating tibial insert trial. The trial insert does not have a post to allow for more accurate assessment of the ligaments during surgery.*

**Femoral Canal Preparation**
Prepare the femoral canal to accept a stem as described in the Duracon Total Stabilizer Revision Knee System Surgical Protocol (Lit. No. LTSST, pages 3-5). If an offset is needed, use the femoral offset reamer to prepare for the femoral offset (Lit. No. LTSST, page 16) (Figure 3).

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**Femoral Offset Reamer**
6633-9-901

**Reamer Depth Stop**
6633-9-917 80mm stem with offset
6633-9-921 155mm stem with offset

**Tibial Boss/Offset Reamer**
6633-9-911

**Command T-Handle**
6266-5-401

**IM Reamers**
6633-9-408 8mm
6633-9-409 9mm
6633-9-410 10mm
6633-9-411 11mm
6633-9-412 12mm
6633-9-413 13mm
6633-9-414 14mm
6633-9-415 15mm
6633-9-416 16mm
6633-9-417 17mm
6633-9-418 18mm
6633-9-419 19mm
6633-9-420 20mm
6633-9-421 21mm
6633-9-422 22mm
6633-9-423 23mm
Femoral/Tibial Trial Selection
Duracon Trial Cutting Guide

Femoral/Tibial Trial Selection
Select the appropriate size femoral trial cutting guide, offset adapter, and corresponding tibial insert trial (Table 1).

Appropriate sizing should be determined independent of the bone that is remaining and can be achieved through the use:
- Previous operative notes
- Size of the original implant removed
- X-ray templates

Table 1 - Trial Cutting Guide Instrument Sizes

<table>
<thead>
<tr>
<th>Category</th>
<th>Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Femoral Cutting Guides</td>
<td>X-Small, Small, Medium, Medium-Large, Large, X-Large</td>
</tr>
<tr>
<td>Valgus Adapter</td>
<td>Left (8200-7215), Right (8200-7216)</td>
</tr>
<tr>
<td>Offset Adapter</td>
<td>0mm, 2mm, 4mm, 6mm, 8mm</td>
</tr>
<tr>
<td>Tibial Insert Trial Sizes</td>
<td>Small, Medium, Large, X-Large</td>
</tr>
<tr>
<td>Tibial Insert Trial Thickness</td>
<td>11mm, 13mm, 16mm, 19mm, 22mm, 25mm, 28mm, 31mm</td>
</tr>
</tbody>
</table>

The Duracon Trial Cutting Guide (TCG) can be assembled for either a left or right knee using the appropriate left or right Valgus adapter. Assemble the valgus adapter into the dovetail assembly and tighten the locking screw (Figure 4).
Assembly
Assemble the trial cutting guide, offset adapter, and appropriate size trial stem as shown (Figure 5).

A neutral offset adapter may be used initially to construct the trial cutting guide assembly until the need for a femoral offset is determined.

First, assemble the trial stem to the offset adapter, then assemble the offset adapter into the Trial Cutting Guide housing and secure the anterior set screw. Once “finger tight” pressure is achieved, rotate counterclockwise 1/2 turn to allow the offset adapter to rotate freely. The anterior set screw will be fully secured after the appropriate offset and rotation is determined (Figure 6).

Note: Rotating counterclockwise 1/2 turn will allow the offset adapter to rotate freely without disassembling from the Trial Cutting Guide housing. Rotating counterclockwise more than 1/2 turn will cause the offset adapter to fall out of the Trial Cutting Guide housing.

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**Torx Screwdriver**
8200-5110

**Tibial Insert Trial**
T73-7-XXYY
XX = 03, 05, 07, 09, 011, 013
YY = 11, 13, 16, 19, 22, 25, 28, 31

**Offset Adapter**
- 8200-7100 Neutral
- 8200-7102 2mm
- 8200-7104 4mm
- 8200-7106 6mm
- 8200-7108 8mm
**Trial Cutting Guide Orientation**

Duracon Trial Cutting Guide

**Note:** Femoral chamfer cuts cannot be made with the TCG. However, if bone loss is minimal and it is determined that chamfer cuts are required, the Duracon Total Stabilizer (TS) All-In-One Cutting Block may be used to make chamfer cuts (Lit. No. LTSST, Page 15).

**Joint Line Restoration**

Insert the TCG into the femoral canal (Figure 7) and align the TCG medial epicondyle (ME) scribe line reference mark with the medial epicondyle (Figure 8). The ME scribe line is 28mm from the distal surface of the TCG. When the ME scribe line is in line with the medial epicondyle, the distal surface of the TCG will be approximately located at the joint line. (The joint line can also be estimated using pre-operative radiographs and anatomic landmarks.)

Place an initial fixation pin in the middle of the medial slot on the TCG (Figure 9 and Figure 10). Pinning the medial slot will fix the proximal/distal position while allowing for slight internal and external rotation of the TCG.

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1/8" Headless Pins
7650-1038

Joint Line Scale
8200-0065
Femoral Offsetting

There are several ways to determine the proper femoral offset required.

1) Start with a neutral offset and measure or estimate the distance from the inferior surface of the anterior flange of the TCG to the anterior femur (Figure 11) or,

2) Line up the femoral sizing "C" templates with the trial stem and measure or estimate the distance from the anterior femur to the inferior surface of the anterior flange of the TCG.

Note: A 4mm offset is typical for many revision scenarios, and if A/P offset is not necessary, the offset adapter may be used to displace the femur medially or laterally.

Note: When adjusting the offset of the TCG, the entire offset adapter and stem construct will be rotating.

To adjust the offset, insert the hex driver into the distal face of the offset adapter and rotate (Figure 12). After final offset position has been determined, tighten the anterior set screw to secure the offset position on the TCG (Figure 6, page 4).

If an offset is required, record the final position of the offset by reading the location of the hash mark on the offset adapter relative to the clock face on the TCG (Figure 13). The clock recording will be required when assembling the implant. If an offset is not required, use the 0 adapter (Figure 14).
Preliminary Trial Assessment

With the joint line restored and the appropriate offset determined, a preliminary trial assessment should be conducted with the trial tibial components in place (Figure 15).

Select the appropriate trial tibial insert and place it onto the trial tibia. Select the insert that provides varus/valgus stability in full extension.
Rotation
With the knee flexed at 90°, appropriate external rotation can be set by positioning the TCG on the tibial trial insert so that it is seated with no varus/valgus tilt. The transepicondylar axis or Whiteside’s axis can be used to estimate rotation as well.

A second headless fixation pin should then be placed in the TCG’s anterior pin hole to fix the TCG position once rotation has been established (Figure 17). Place as many pins as necessary to securely fix the TCG on the distal femur.

*Note: Headless pins may now be replaced with short headed fixation pins to facilitate joint reduction.*

*Note: The TCG trial inserts do not have a post. This allows for a more accurate assessment of the ligaments during trialing.*
Trial Cutting Guide Orientation (continued)
Duracon Trial Cutting Guide

Trial Assessment
Once the TCG is fixed to the femur, a trial reduction may be conducted. Reduce the extensor mechanism and patella. The inferior pole of the patella should rest approximately 14mm above the joint line with the knee in 90° of flexion unless patella baja or patella alta was present pre-operatively. Tracking of the patella can then be assessed (Figure 18).

Note: A suture or towel clip may be used to facilitate reduction and trial assessment (Figure 19).

It should be noted that the flexion gap often feels "too loose" in the revision situation even when the appropriately sized femoral implant is positioned at the joint line. Using the TCG gives the surgeon the unique opportunity to upsize the femoral component and offset the next size femur to selectively fill the flexion gap that feels "too loose." However, if upsizing results in poor tracking and "overstuffing of the joint", the surgeon need only return to the previous size TCG and offset.

Note: A full evaluation of stability and range of motion can be performed before making any resections on the distal femur. Adjustment of the implant position and size is possible before making any femoral bone cuts.
Femoral bone Cuts
Duracon Trial Cutting Guide

Note: A Stryker 152 saw blade (narrow-thick) or a reciprocating saw blade are recommended for augment cuts and the box cut.

Augment Cuts
With the TCG properly positioned, visually determine the appropriate posterior and distal resections required (Figure 20 and Figure 21). A blade runner may be used to assess the level of resection if necessary. The appropriate cut is selected by resting the blade on the surface of the TCG apertures that will provide a clean up cut.

Note: If an augment cannot effectively “fill the gap,” i.e., deficiencies greater than 10mm distally or 10mm posteriorly, a bone graft may be required.

Box Cut
When making the box cut, cut along the outer sides of the box guide and cut completely through the femur (Figure 23). Complete the proximal anterior and posterior box cut after the TCG has been removed using the initial resection as the guide (Figure 24).
Final Trial Assessment
Duracon Trial Cutting Guide

A final trial assessment should be conducted with the Duracon TS trial femoral components to verify the accuracy of the cuts and that the offset has been properly recreated (Figure 26).

See the Duracon Total Revision Knee System Surgical Protocol (Lit. No. LTSST, page 22) for details on trial assembly and trial reduction.

Figure 26 ▲ Final Trial Assessment
Quick Pictorial Surgical Technique Reference
Duracon Trial Cutting Guide

1. Tibial Canal Preparation
2. Femoral Canal Preparation
3. Trial Cutting Guide Assembly
4. TCG Femoral Canal Insertion
5. Joint Line Restoration to Medial Epicondyle
6. Initial Fixation Pin Insertion
8. Preliminary Trial Assessment

9. Rotational Alignment Place 2nd Fixation Pin

10. Trial Reduction

7. Trial Cutting Guide Offsetting
Quick Pictorial Surgical Technique Reference
Duracon Trial Cutting Guide

11. Posterior Femoral Cuts

12. Distal Femoral Cuts

13. Box Cut

14. Box Cut Proximal Wall

15. Final Trial Assessment
Sizing Information

Duracon Trial Cutting Guide

Duracon TS Femoral Component Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>A/P (mm)</th>
<th>M/L (mm)</th>
<th>Resected A/P (mm)</th>
<th>Distal Thickness (mm)</th>
<th>Posterior Thickness (mm)</th>
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Duracon TS Tibial Tray Specifications

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<th>M/L (mm)</th>
<th>Stem Length (mm)</th>
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Duracon TS Tibial Insert Specifications

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<th>Thickness (mm)</th>
<th>Post Height (mm)</th>
<th>Jump Height* (mm)</th>
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<th>Internal/External Constraint</th>
<th>Posterior Slope</th>
<th>Cam Engagement</th>
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<td>Small, Med., Large, X-Large</td>
<td>11, 13, 16, 19, 22, 25, 28, 31</td>
<td>30</td>
<td>20</td>
<td>18</td>
<td>±2°</td>
<td>2°</td>
<td>0°</td>
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*The distance the femoral component must travel to clear the post in full flexion.
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