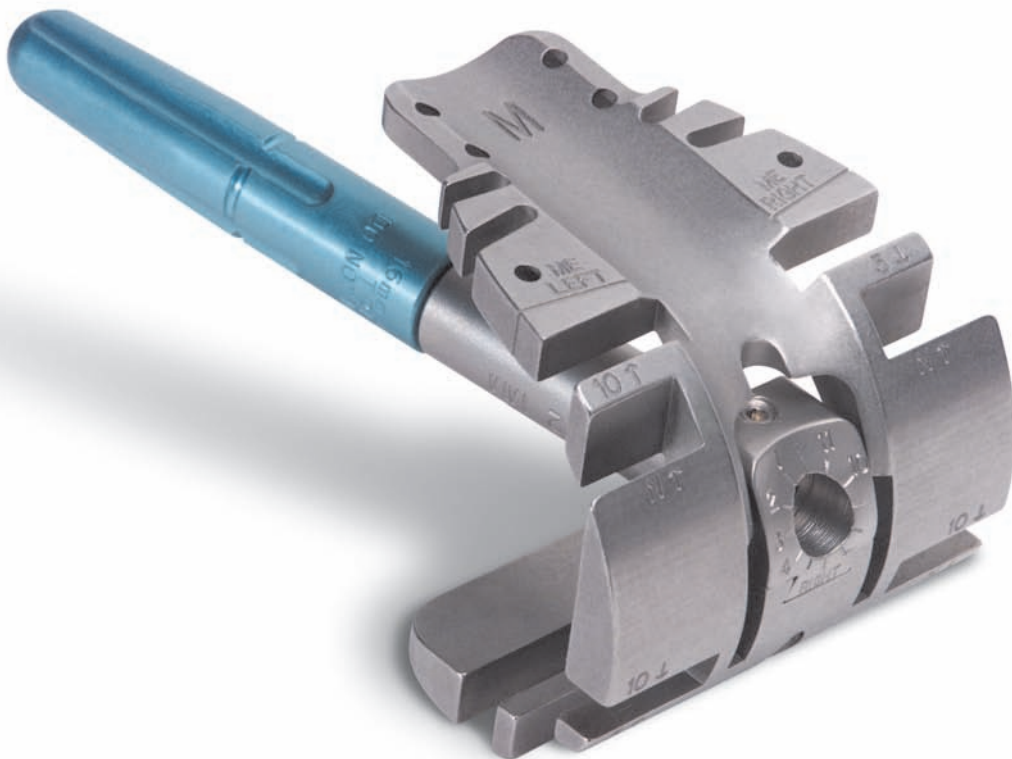


# Duracon® TS

## Total Stabilizer Knee System

Duracon TS  
Trial Cutting Guide Surgical  
Protocol



# Duracon® TS

## Total Stabilizer Knee System

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**Duracon TS**  
Trial Cutting Guide Surgical Protocol

### **Acknowledgements**

Stryker Orthopaedics would like to thank Dr. Masini for his help in developing the Duracon Trial Cutting Guide.

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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).

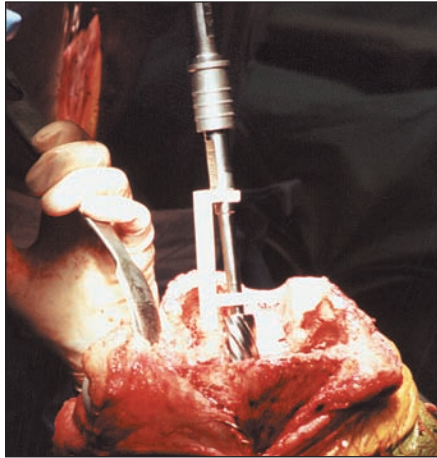


Figure 1 ▲ Tibial Canal Preparation

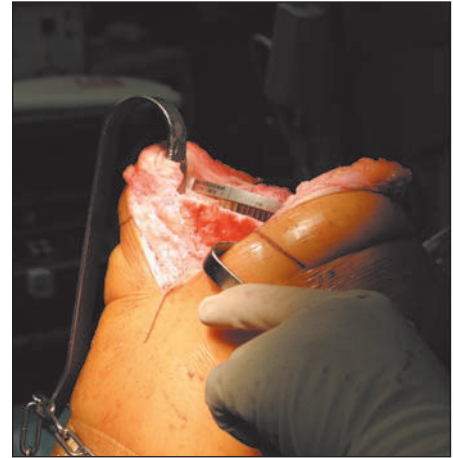


Figure 2 ▲ Tibial Trial Assembly and Insertion

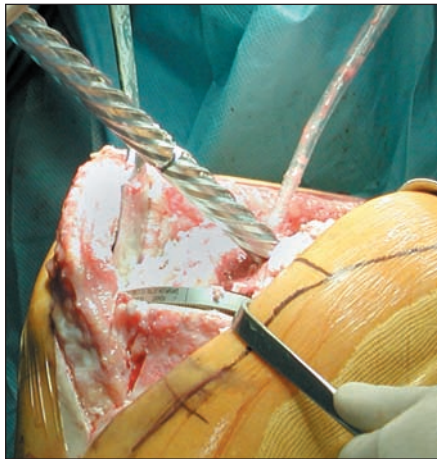


Figure 3 ▲ Femoral Canal Preparation



#### 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

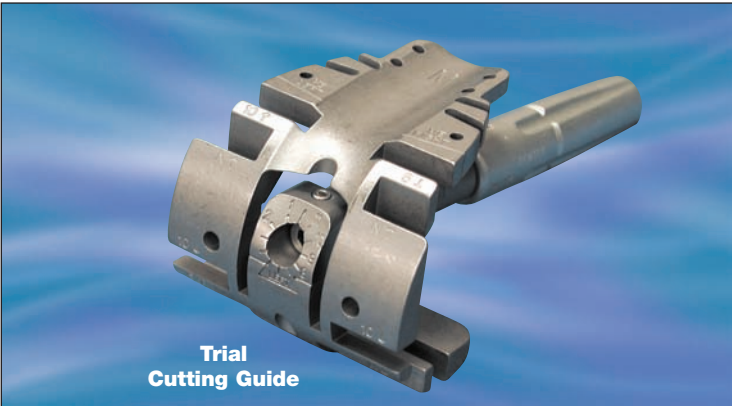
## Duracon Trial Cutting Guide

### 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:

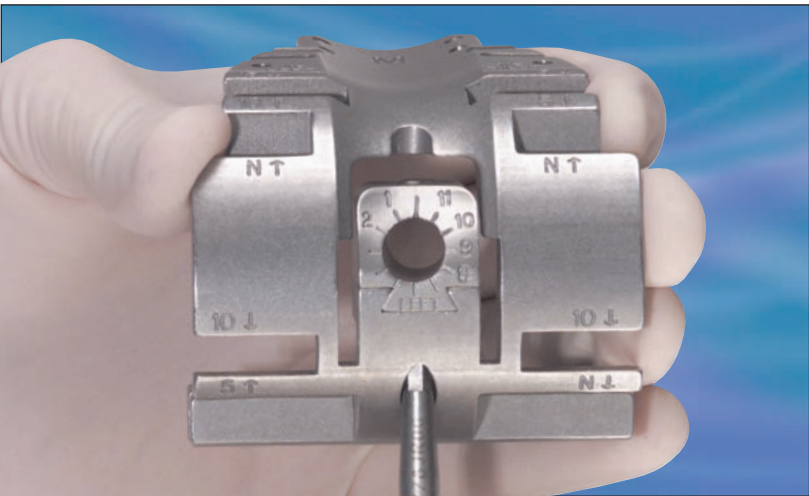
- Previous operative notes
- Size of the original implant removed
- X-ray templates



**Table 1 ▼ Trial Cutting Guide Instrument Sizes**

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

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**).



**Figure 4 ▲ Assemble the Valgus Adapter And Tighten Locking Screw**



#### Trial Cutting Guide

8200-7003	X-Small
8200-7005	Small
8200-7007	Medium
8200-7009	Medium-Large
8200-7011	Large
8200-7013	X-Large



#### Valgus Adapter

8200-7715	Left
8200-7716	Right

#### Instrument Trays

8200-7111	Outer Case
8200-7112	Instrument Tray
8200-7113	Trial Tray

# Femoral/Tibial Trial Selection (continued)

## Duracon Trial Cutting Guide

### 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.**

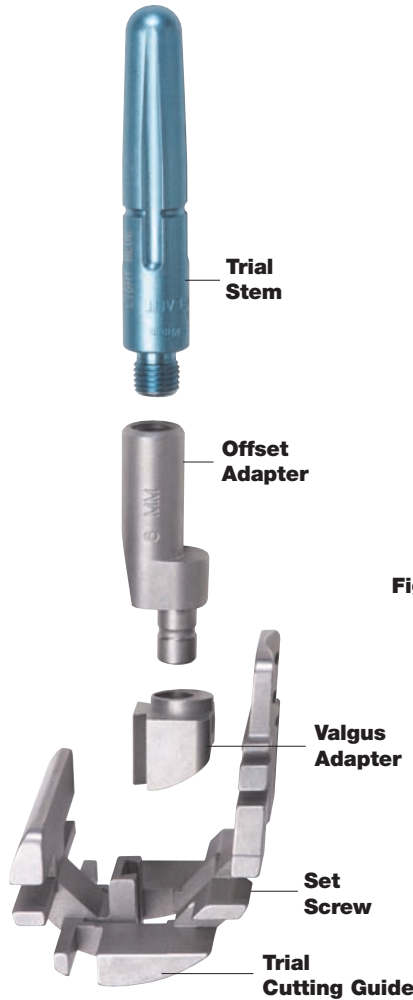


Figure 5 ▲ Trial Cutting Guide Assembly



Figure 6 ▲ Anterior Set Screw Is Fully Secured



**Torx Screwdriver**

8200-5110



**Tibial Insert Trial**

T73-7-XXXX  
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

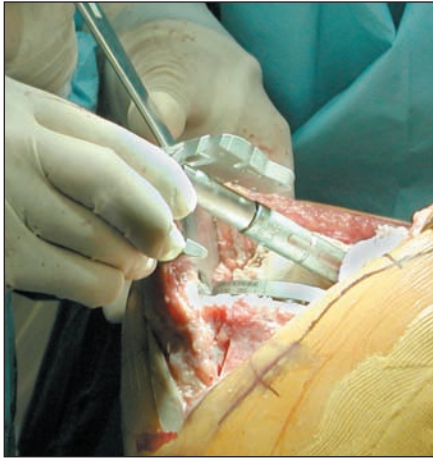
## Duracon Trial Cutting Guide

**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).**

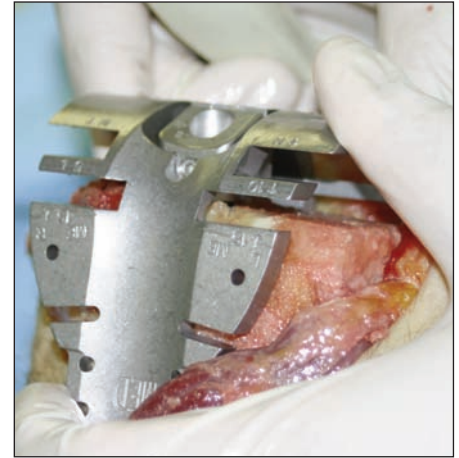
### Joint Line Restoration

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.)

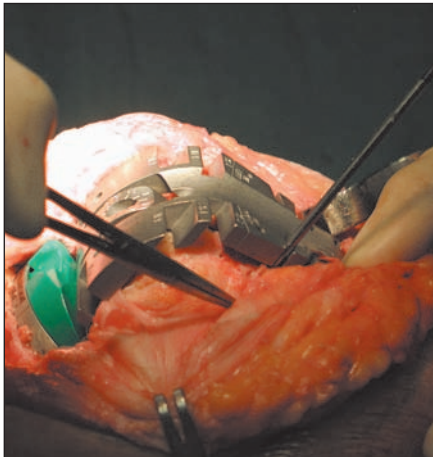
Place an initial fixation pin in the middle of the medial slot on the TCG (**Figure 9** and **Figure 10**). Pinning the medial slot will fix the proximal/distal position while allowing for slight internal and external rotation of the TCG.



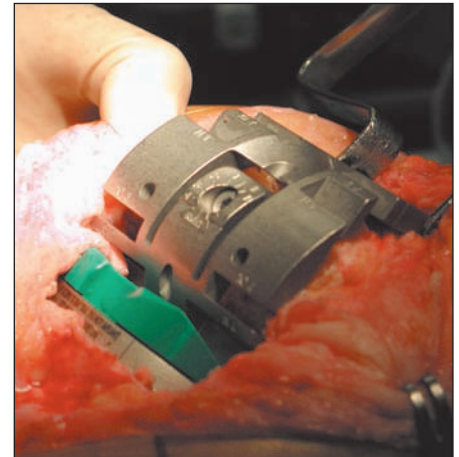
**Figure 7 ▲ TCG Femoral Canal Insertion**



**Figure 8 ▲ Joint Line Restoration to Medial Epicondyle**



**Figure 9 ▲ Initial Fixation Pin Insertion**



**Figure 10 ▲ Initial Fixation Pin - Extension**

**1/8" Headless Pins**

7650-1038



**Joint Line Scale**

8200-0065

# Trial Cutting Guide Orientation (continued)

## Duracon Trial Cutting Guide

### 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).



Figure 11 ▲ Offset Measuring

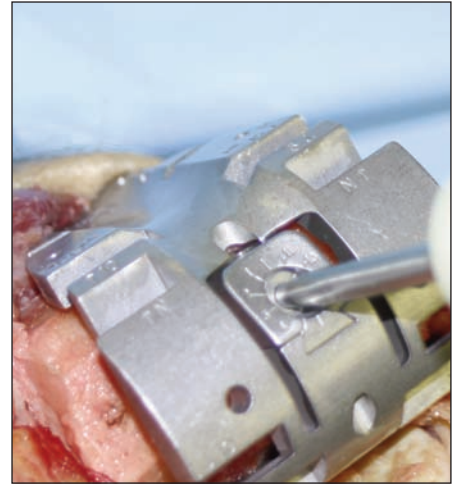


Figure 12 ▲ Trial Cutting Guide Offsetting

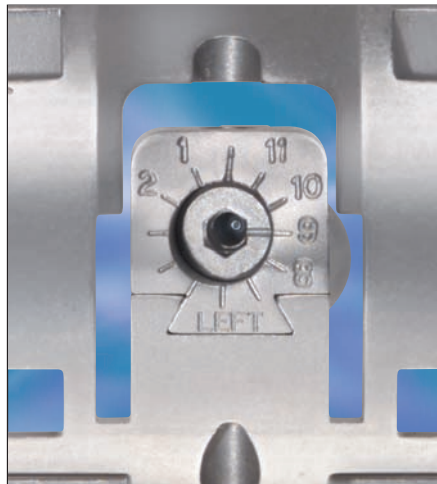


Figure 13 ▲ Trial Cutting Guide Clock Face



Figure 14 ▲ Determining Appropriate Offset and Rotation



### Femoral Sizing Template

6633-9-436 X-Small  
6633-9-438 Small  
6633-9-440 Medium  
6633-9-442 Medium-Large  
6633-9-444 Large  
6633-9-446 X-Large  
6633-9-448 XX-Large

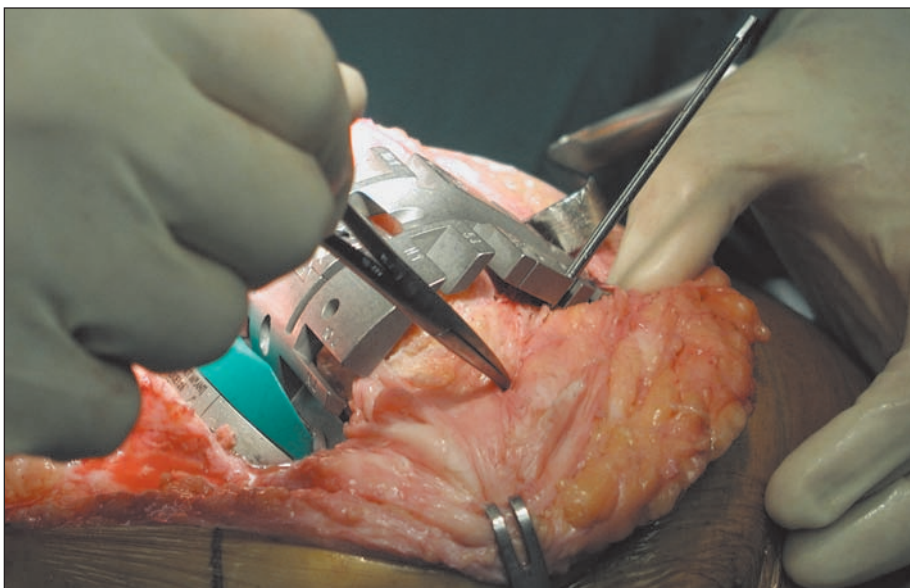
# Trial Cutting Guide Orientation (continued)

## Duracon Trial Cutting Guide

### 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.



**Figure 15 ▲ Preliminary Trial Assessment**

# Trial Cutting Guide Orientation (continued)

## Duracon Trial Cutting Guide

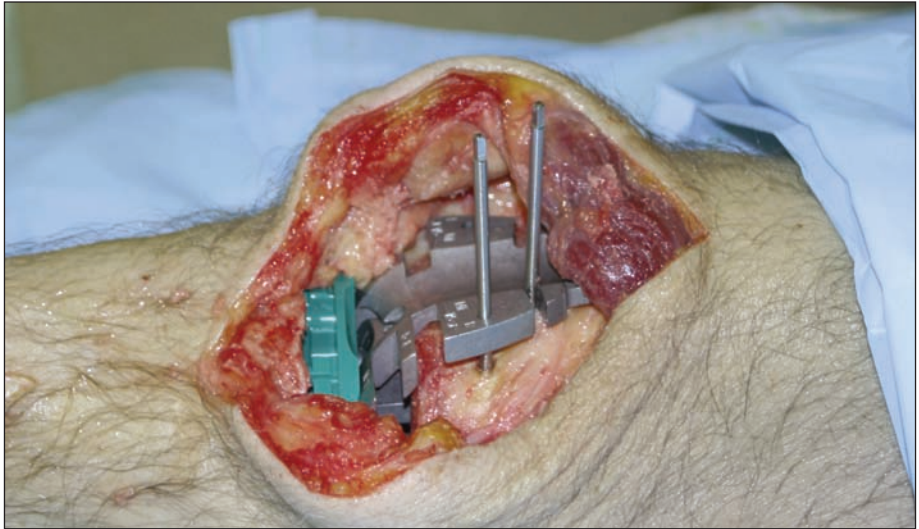
### Rotation

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.**



**Figure 17 ▲ Second Fixation Pin – Rotation**



### Headed Fixation Pin

7650-1136 1" Headed Pin

7650-1137 3" Headed Pin

# 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.**

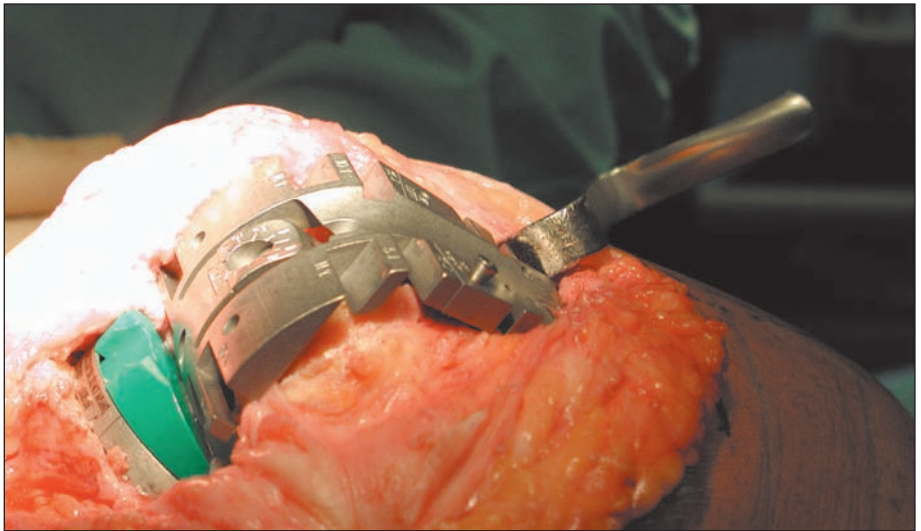


Figure 18 ▲ Preliminary Trial Reduction

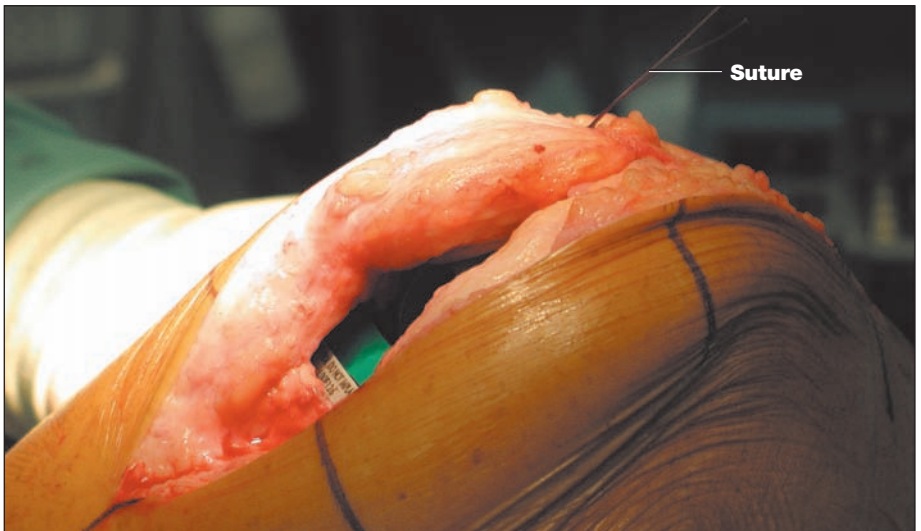


Figure 19 ▲ Preliminary Trial Reduction With Suture

# 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.**

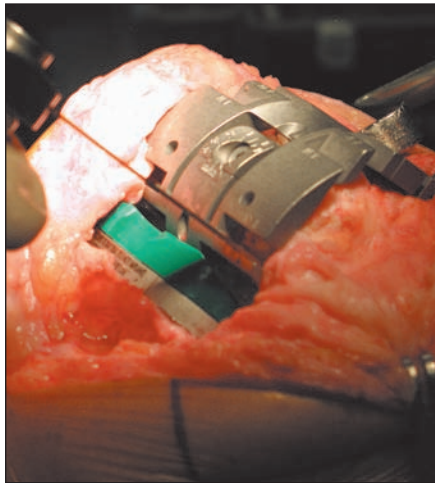
### Augment Cuts

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.

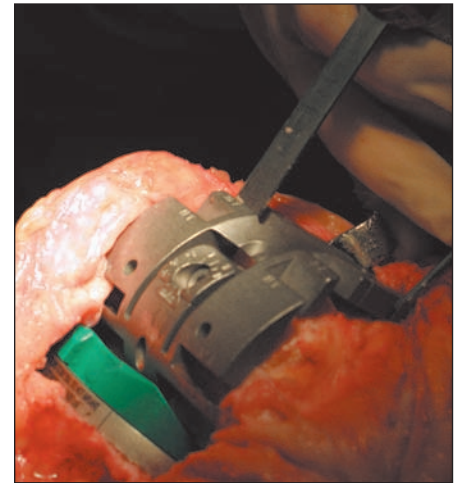
**Note: If an augment cannot effectively “fill the gap,” i.e., deficiencies greater than 10mm distally or 10mm posteriorly, a bone graft may be required.**

### Box Cut

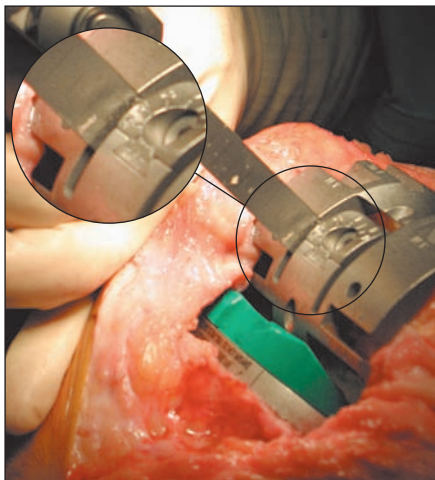
When making the box cut, cut along the outer sides of the box guide and cut completely through the femur (**Figure 23**). Complete the proximal anterior and posterior box cut after the TCG has been removed using the initial resection as the guide (**Figure 24**).



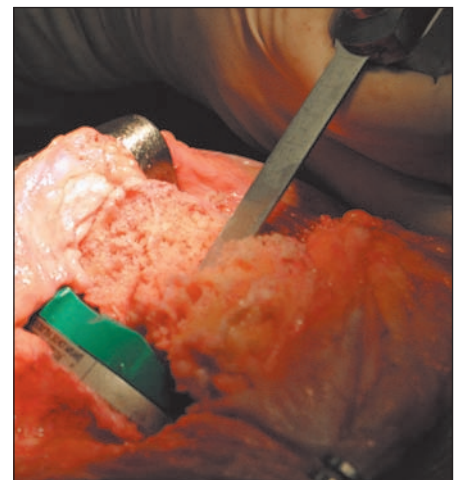
**Figure 20 ▲ Posterior Femoral Cuts**



**Figure 21 ▲ Distal Femoral Cuts**



**Figure 23 ▲ Box Cut – Side Walls**



**Figure 24 ▲ Box Cut – Proximal Wall**

# 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**

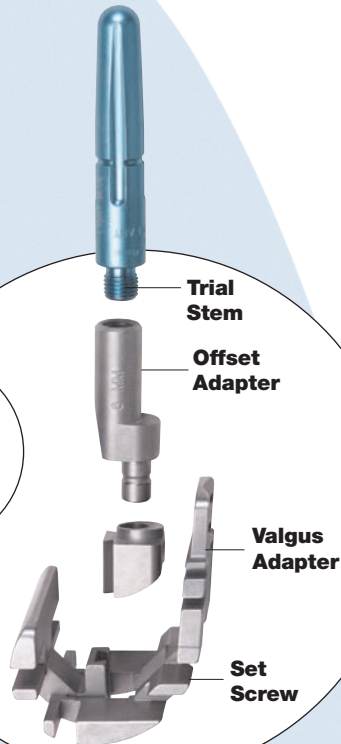
# Quick Pictorial Surgical Technique Reference

## Duracon Trial Cutting Guide

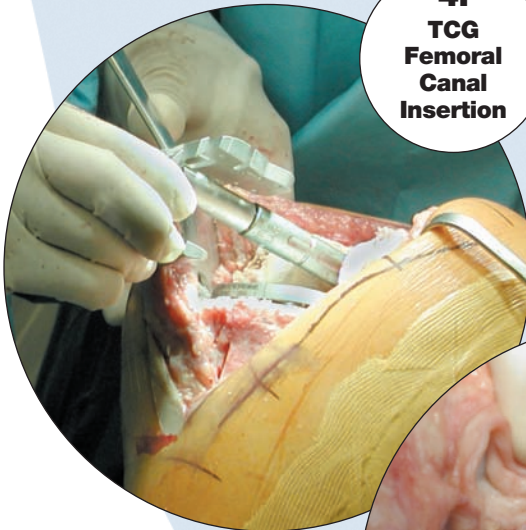
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**Tibial**  
**Canal**  
**Preparation**

**2.**  
**Femoral**  
**Canal**  
**Preparation**

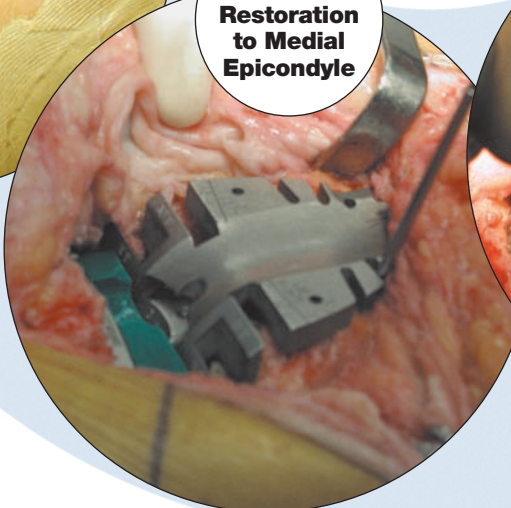
**3.**  
**Trial**  
**Cutting**  
**Guide**  
**Assembly**



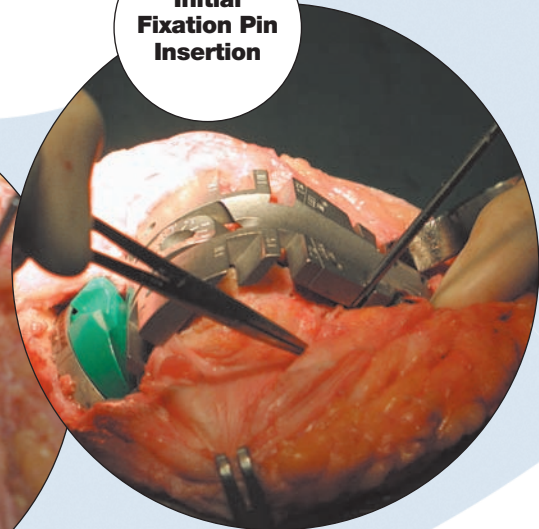
**4.**  
**TCG**  
**Femoral**  
**Canal**  
**Insertion**



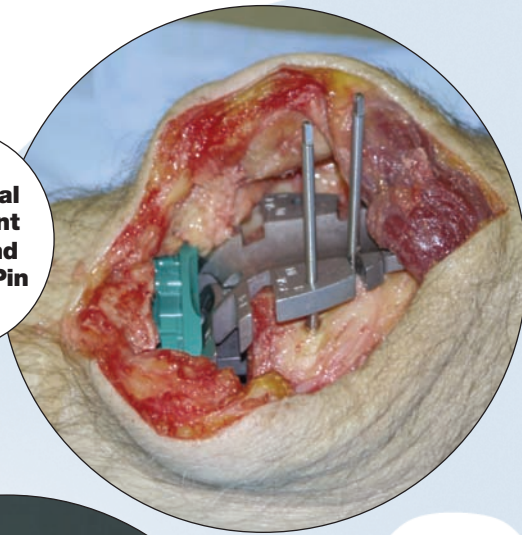
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**Joint Line**  
**Restoration**  
**to Medial**  
**Epicondyle**



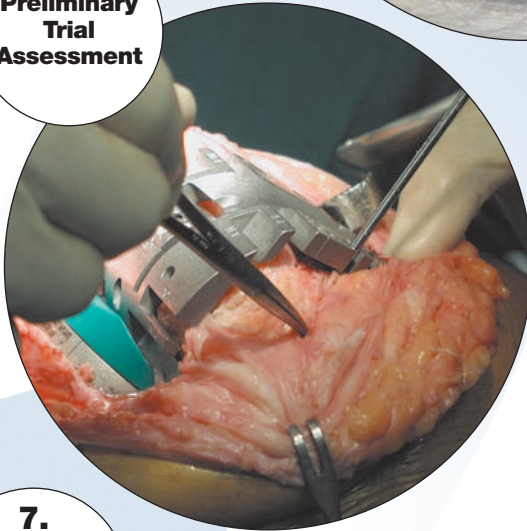
**6.**  
**Initial**  
**Fixation Pin**  
**Insertion**



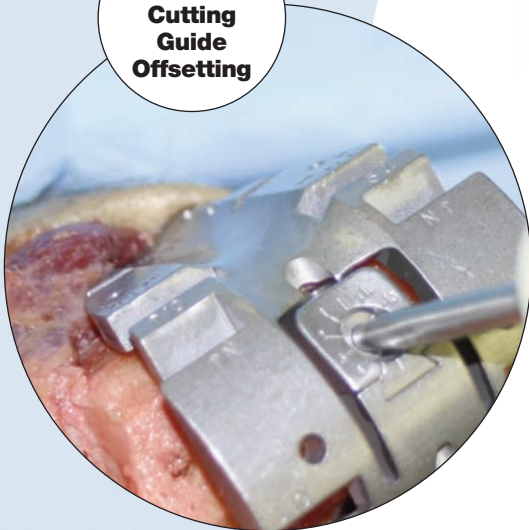
**9.  
Rotational  
Alignment  
Place 2nd  
Fixation Pin**



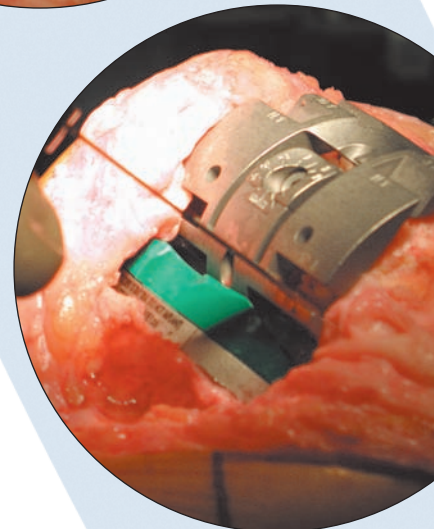
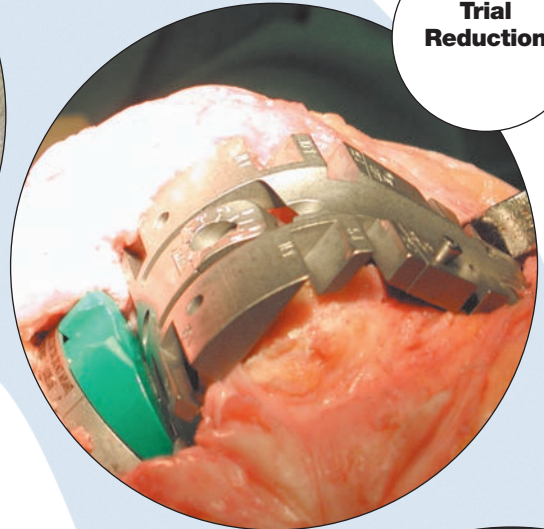
**8.  
Preliminary  
Trial  
Assessment**



**7.  
Trial  
Cutting  
Guide  
Offsetting**



**10.  
Trial  
Reduction**



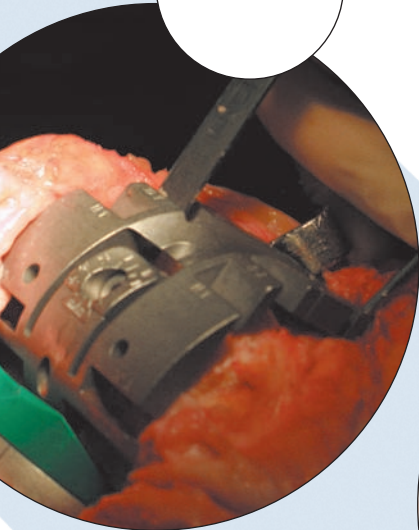
# Quick Pictorial Surgical Technique Reference

## Duracon Trial Cutting Guide

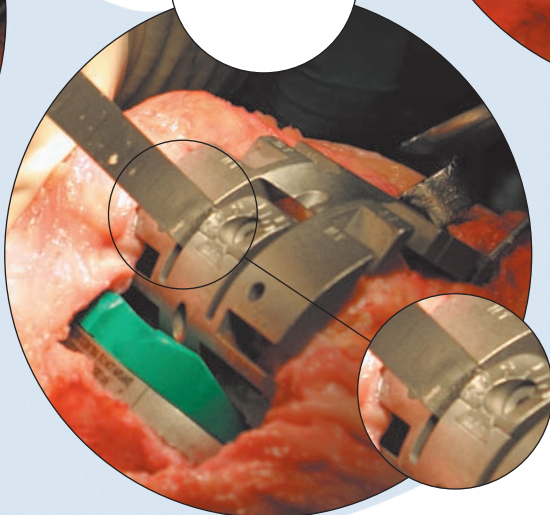
**11.**  
Posterior  
Femoral Cuts



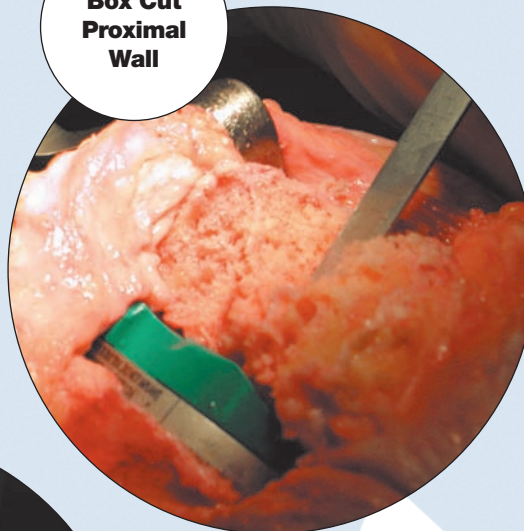
**12.**  
Distal  
Femoral Cuts



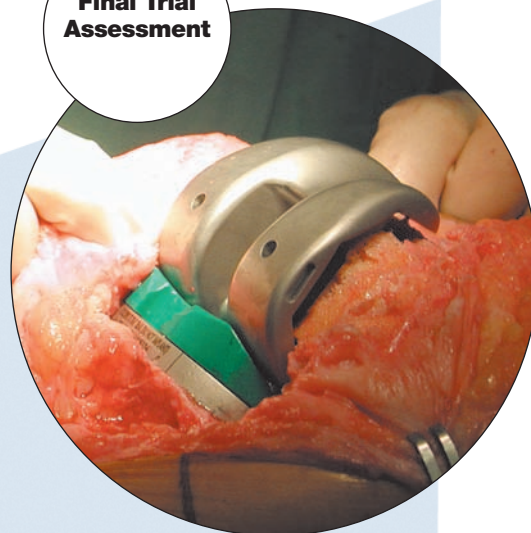
**13.**  
Box Cut



**14.**  
Box Cut  
Proximal  
Wall

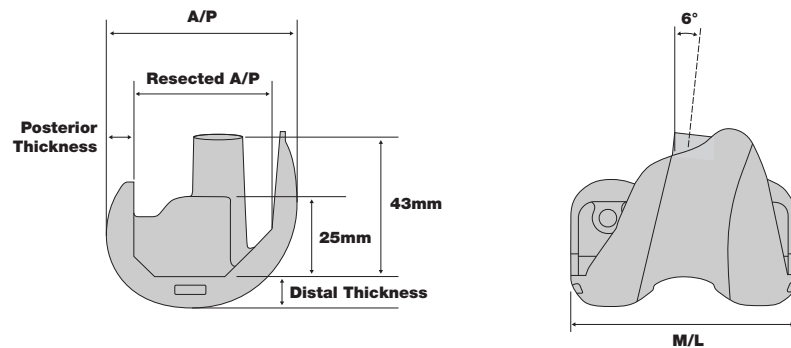


**15.**  
Final Trial  
Assessment



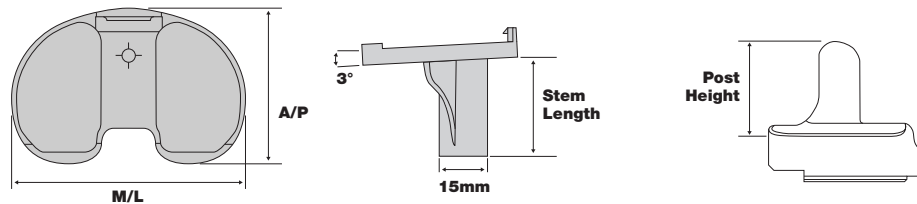
# Sizing Information

## Duracon Trial Cutting Guide



Duracon TS Femoral Component Specifications					
Size	A/P (mm)	M/L (mm)	Resected A/P (mm)	Distal Thickness (mm)	Posterior Thickness (mm)
X-Small	52	62	36	10	8.5
Small	55	65	39	10	8.5
Medium	59	70	42	10	8.5
Medium-Large	62	74	45	10	8.5
Large	66	75	50	10	8.5
X-Large	71	78	54	12	9.5

- 24mm box width
- 15mm stem diameter



Duracon TS Tibial Tray Specifications			
Size	A/P (mm)	M/L (mm)	Stem Length (mm)
Small 1	42	67	30
Small 2	45	69	30
Medium 1	48	72	30
Medium 2	50	74	30
Large 1	53	77	40
Large 2	55	79	40
X-Large 1	58	82	40
X-Large 2	60	85	40

Duracon TS Tibial Insert Specifications	
Size	Small, Med., Large, X-Large
Thickness (mm)	11, 13, 16, 19, 22, 25, 28, 31
Post Height (mm)	30
Jump Height* (mm)	20
Post Width (mm)	18
Varus/Valgus Constraint	±2°
Internal/External Constraint	±2°
Posterior Slope	2°
Cam Engagement	0°

\*The distance the femoral component must travel to clear the post in full flexion.



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