

Distal Cut First Sizing and A/P Resection Guide

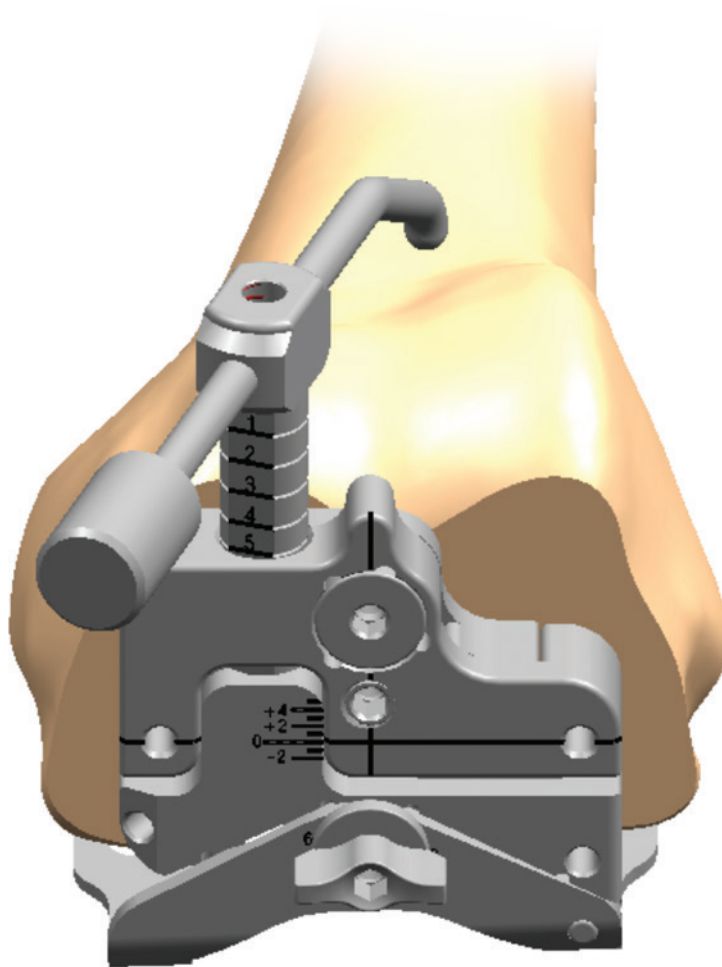


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Introduction

This technique addendum is intended to be a reference for sizing and shifting the 4-in-1 femoral cutting guide. Due to differing femoral anatomy, this may be needed when the planned resections do not remove enough bone or remove too much bone at the surgeon's discretion. The resection check should always be used in the anterior cutting slot of the 4-in-1 block to determine resection level, as it is important to make any shift decisions prior to making any bone resections. When making the resections, it is important to start with the anterior resection first as it leaves the most options for shifting the block after the resection has been made.

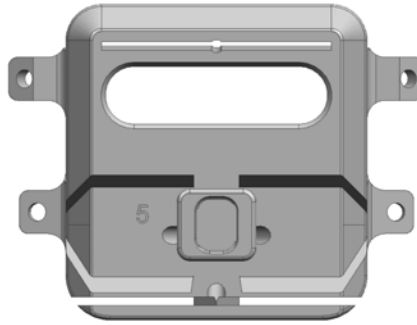
Nota Bene

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Instruments

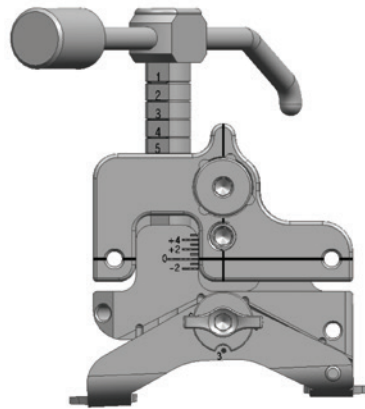
4-in-1 Cut Block

Used to make the anterior, posterior and chamfer resections matching the implant.



Variable sizing guide

Used to determine size, set external rotation and Anterior/Posterior position of the 4-in-1 cutting block.



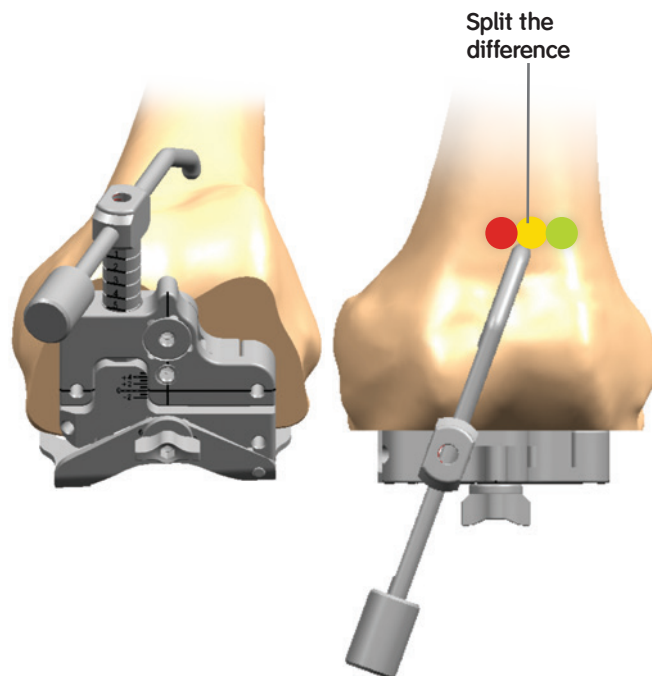
Downsizing drill guide

Used to shift the holes for the 4-in-1 cutting block 2mm in either the anterior or posterior directions.



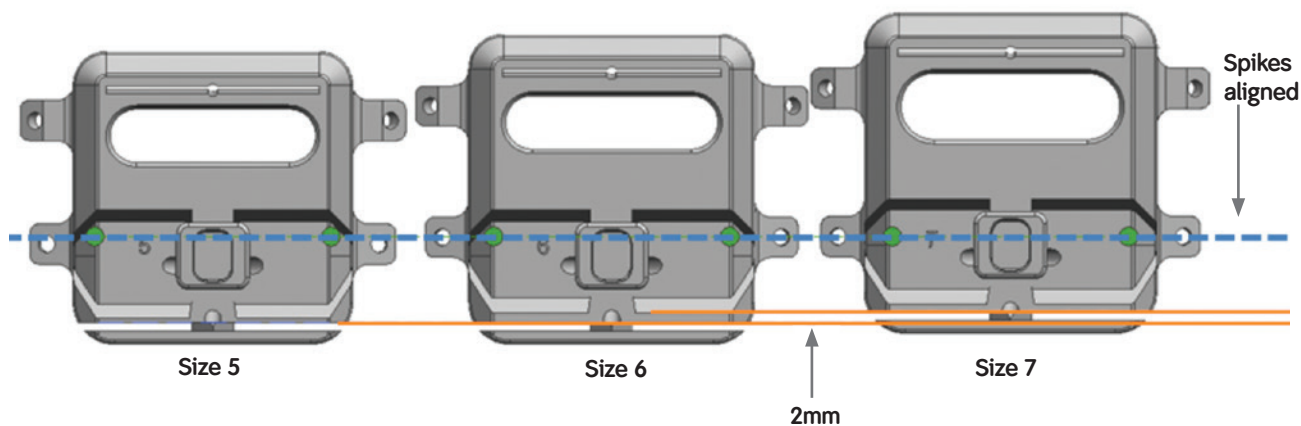
Sizing the femur

For most accurate sizing, find a balance between the lateral cortex and mid sulcus on the anterior femur. It has been found that when using this sizing guide that splitting the difference tends to be the most accurate sizing.



A/P resection dimensions

As the 4-in-1 cutting blocks change in size, the anterior resection changes accordingly but the posterior resection stays the same. *The exception to this rule is the 2mm larger posterior resection with the size 7 and 8, 4-in-1 blocks.* This is done in order to accommodate the larger posterior condyle thickness on these implants (11.5mm vs. 9.5mm).



LEGION® TKS A/P box dimensions

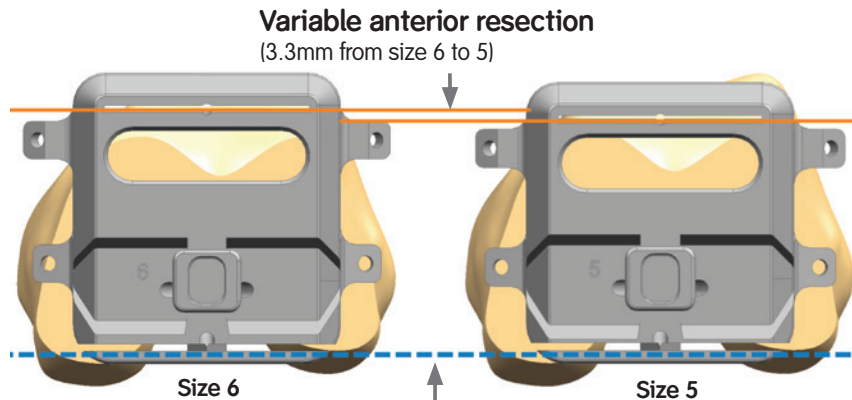
Size	2	3N	3	4N	4	5N	5	6N	6	7	8
AP Box (mm)	34.3	38.1	38.1	41.7	41.7	45.0	45.0	48.3	48.3	50.3	54.9

Downsizing or upsizing the 4-in-1 Cutting Block while maintaining same flexion gap

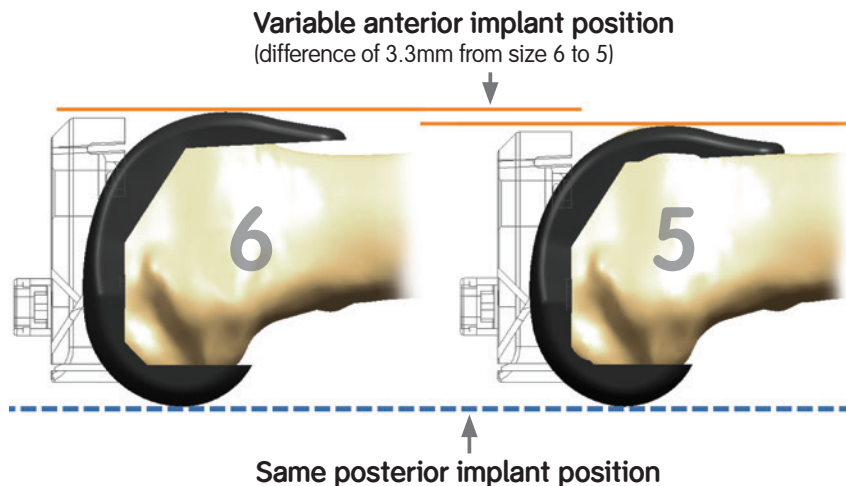
Occasionally it may be determined that a smaller or larger sized femoral component would be more adequate than the one planned with the variable sizing guide.

To downsize the femur put the next size smaller 4-in-1 cutting block into the same holes that were originally planned. The 4-in-1 block dimensions vary anteriorly and not posteriorly so this will result in additional anterior resection. All of the bone is removed anteriorly in order to avoid over stuffing the joint although this increases the risk of notching. If there is a risk of notching the femur with all of the bone removed anteriorly, follow the techniques described in the following section for **shifting the 4-in-1 Cutting Block**.

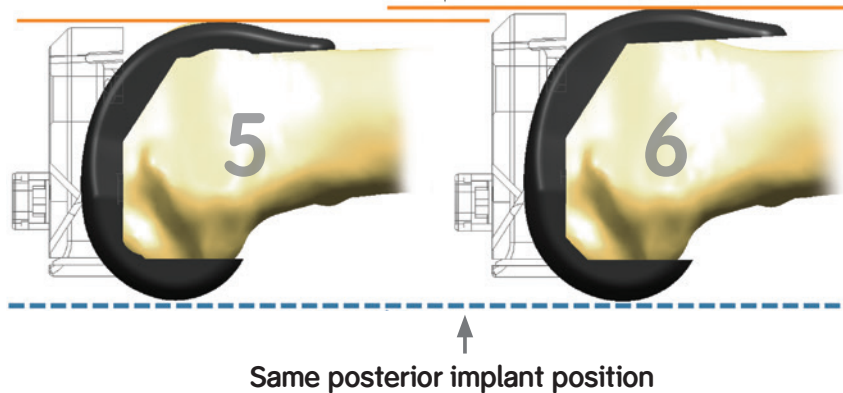
To upsize the femur put the next size larger 4-in-1 cutting block into the same holes that were originally planned. The 4-in-1 block dimensions vary anteriorly and not posteriorly so this will result in less anterior resection. If there is a risk of over stuffing the joint, some bone still needs to be removed anteriorly, or if the anterior cut has already been made, follow the techniques described in the following section for **shifting the 4-in-1 Cutting Block**.



Same posterior resection
(Size 7 and 8 take additional 2mm of bone but replaces this with the implant)



Variable anterior implant position
(difference of 3.3mm from size 6 to 5)



Shifting the 4-in-1 Cutting Block

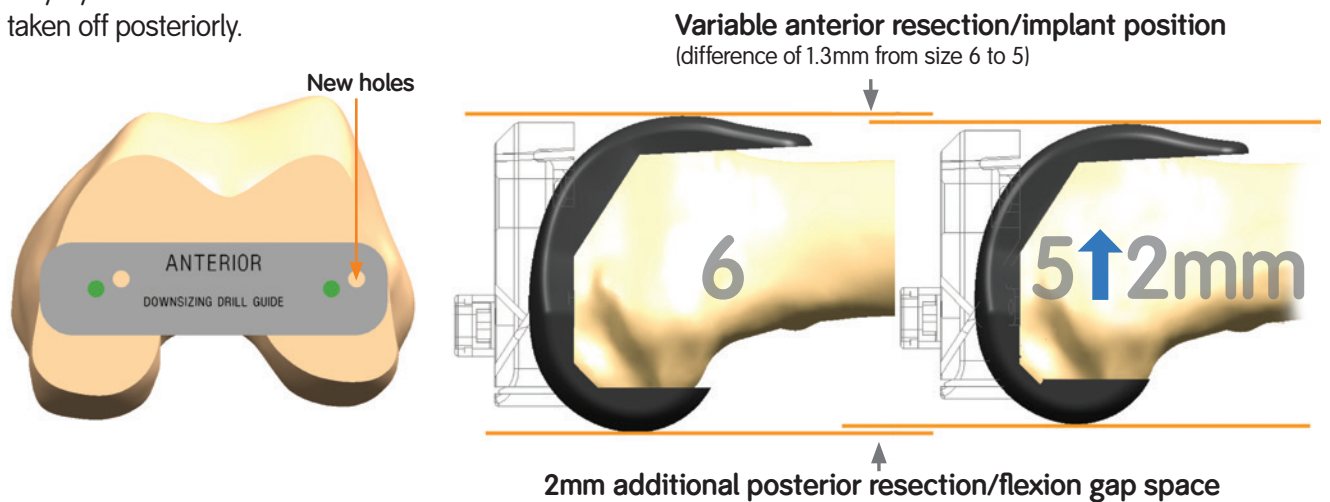
Shifting the 4-in-1 cutting block is at the surgeon's discretion according to how much more or less anterior resection needs to be made. Shifting the 4-in-1 block is mandatory when downsizing from a 7 to a 6 if the posterior resections have already been made.

More anterior resection

If more anterior resection is desired there are two ways to accomplish this, each having a different result on the flexion gap space.

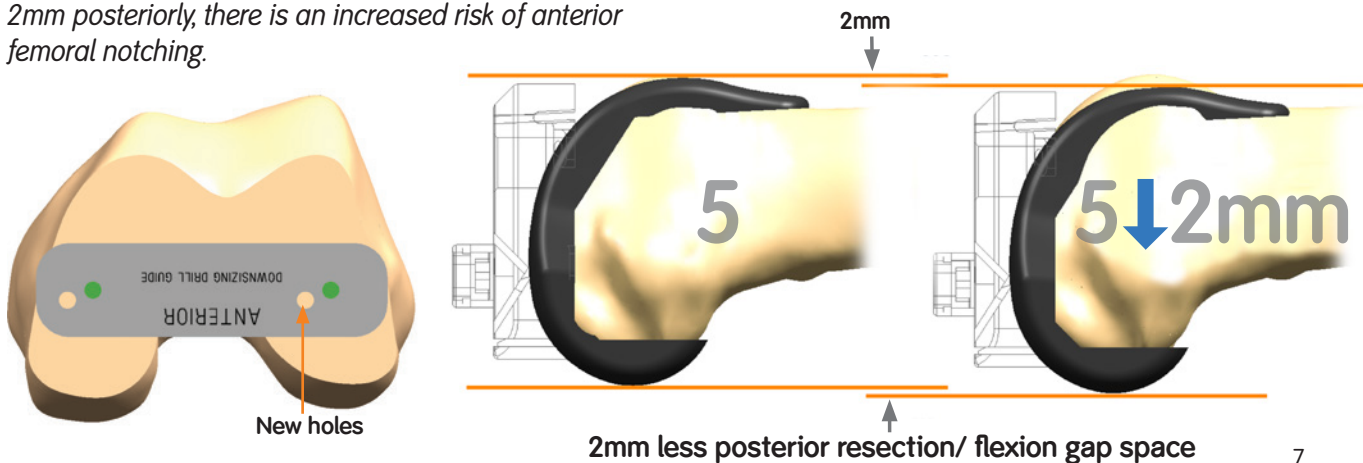
Increased flexion gap space

Use the downsizing drill guide to shift holes 2mm anteriorly and use the next smaller size 4-in-1 cutting block. The anterior resection will vary by size and 2mm of additional bone will be taken off posteriorly.



Decreased flexion gap space

Use the downsizing drill guide with lettering facing upside down in order to shift holes 2mm posteriorly and use the same size 4-in-1 cutting block. This will result in 2mm more anterior resection and 2mm less posterior resection. *By shifting the same size block 2mm posteriorly, there is an increased risk of anterior femoral notching.*

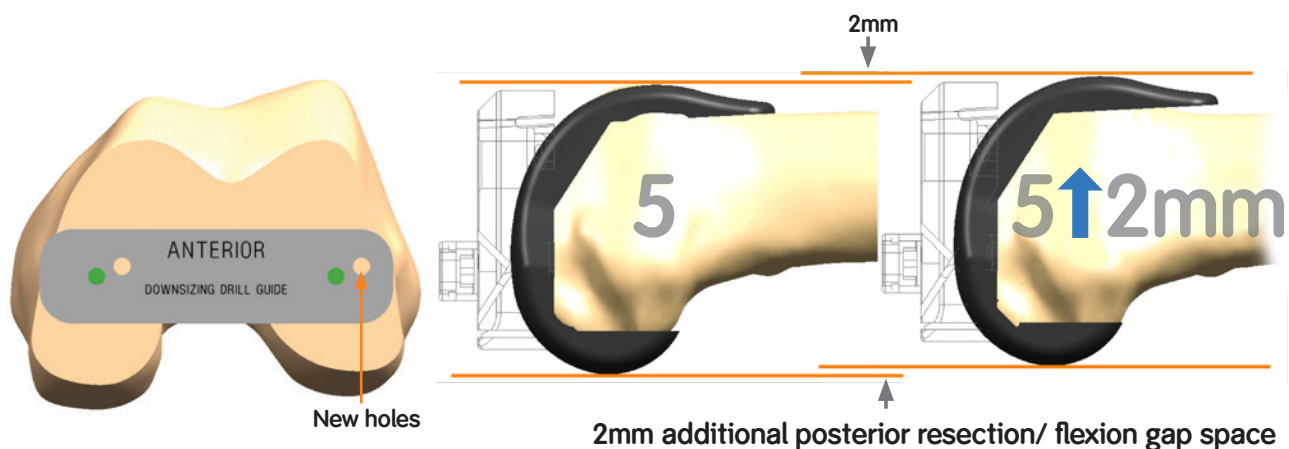


Less anterior resection

**** Not possible if anterior cut has already been made. If less anterior resection is desired there are two ways to accomplish this, each having a different result on the flexion gap space.*

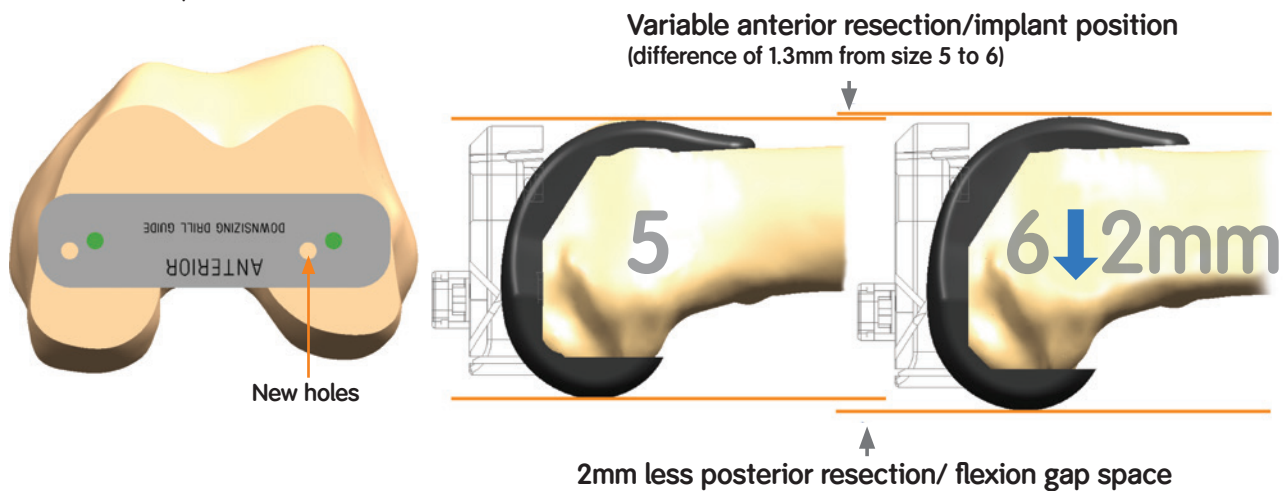
Increased flexion gap space

Use the downsizing drill guide to shift holes 2mm anterior and use the same size 4-in-1 cutting block. This will result in 2mm less anterior resection and 2mm more posterior resection.



Decreased flexion gap space

Use downsizing shim with lettering facing upside down in order to shift holes 2mm posteriorly and use the next larger size 4-in-1 cut block. This will result in an anterior resection that varies by size and 2mm less posterior resection.

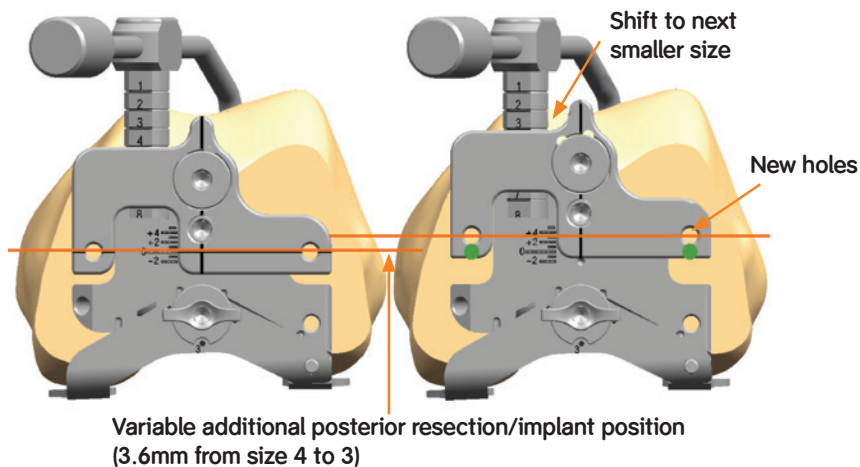


Same anterior resection

If the anterior resection is adequate but a different posterior resection is desired there are two ways to accomplish this, each having a different result on the flexion gap space.

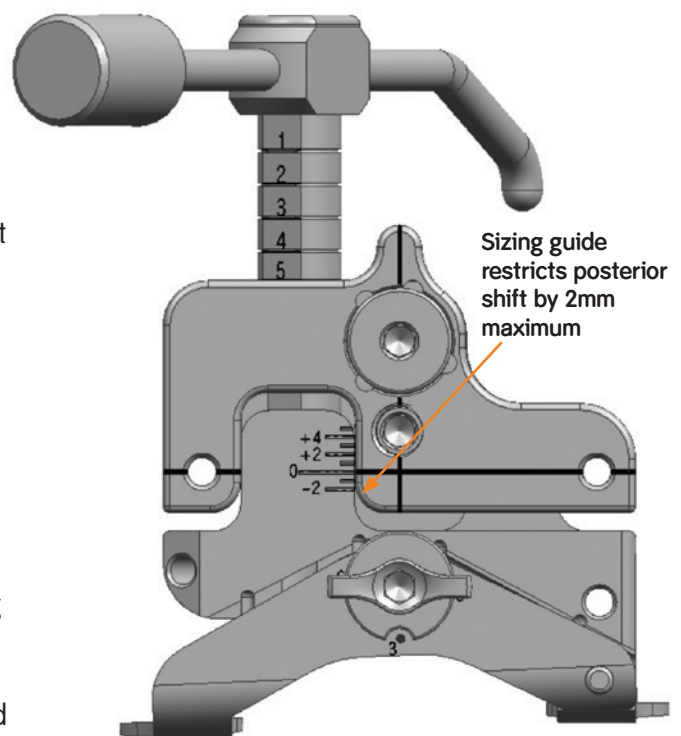
Increased flexion gap space

Place the variable sizing guide back on the femur and shift to the next smaller size. Re-drill the holes and use the corresponding size 4-in-1 cutting block. This will result in more posterior resection, however, the thickness will vary by size. For example, shifting from a size 4 to a size 3 will result in the guide shifting 3.6mm anteriorly to the smaller size based on the AP box difference (41.7mm for size 4 vs. 38.1mm for size 3).



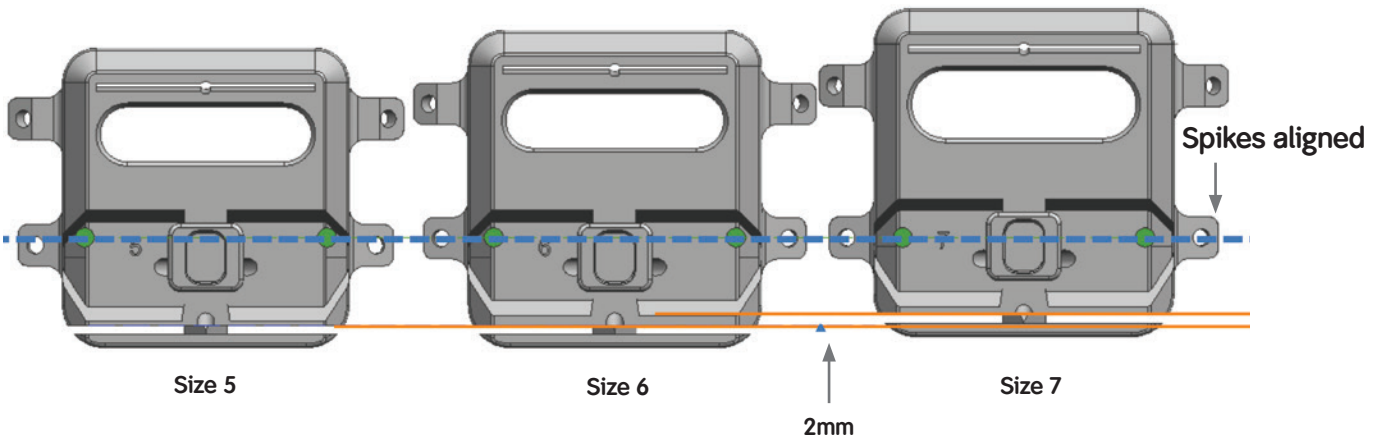
Decreased flexion gap space

*** Not possible if anterior cut has already been made. It is not possible to achieve this if the anterior cut has already been made. This is because in order to decrease the flexion gap space in this scenario, the anterior resection must shift to accommodate the same or next larger size. The sizing guide restricts the amount of posterior shift by 2mm maximum. For example, shifting from a size 4 to a size 5 requires that the holes be shifted by 3.3mm to maintain the anterior resection due to the difference in AP box sizes (45.0mm for size 5 vs. 41.7mm for size 4). This will decrease the flexion gap of the size 5 by 2mm while shifting the anterior resection anteriorly by the 1.3mm difference. The purpose of this is to safeguard against femoral notching when performing this shift and upsize maneuver. If a decreased flexion gap space is desired, the downsizing drill guide should be used as previously described in the **"Decreased Flexion Gap Space"** sections which will result in an anterior resection that varies by size and 2mm less posterior resection.



Special consideration for sizes 6 and 7

If both the anterior and posterior cuts have already been made and then it is then determined necessary to change sizes, special consideration must be given if moving between sizes 6 and 7 due to the 2mm difference in posterior cut.



Shifting from size 7 to size 6

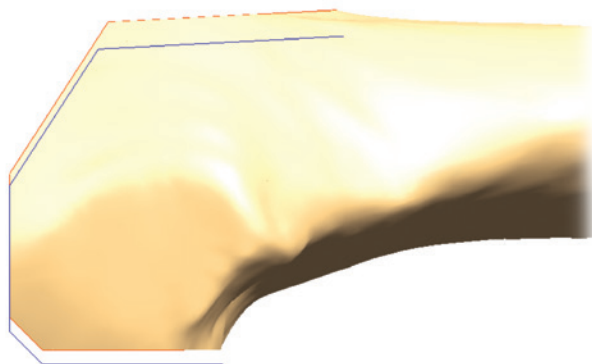
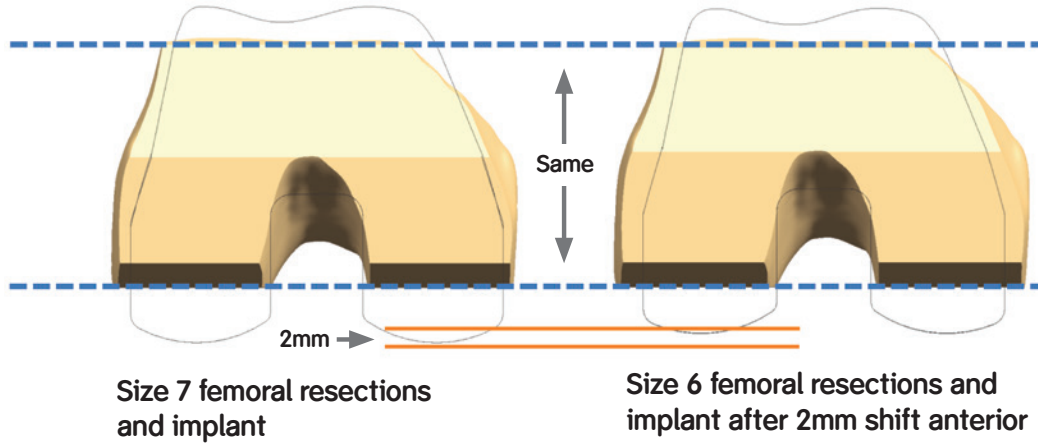
The reason for shifting down from a size 7 to a size 6 after bone resections are the following: overstuffing of the patellofemoral joint and/or a tight flexion gap during range of motion trialing. For both situations, the downsizing shim must be used.

To maintain flexion gap (flexion balanced but patellofemoral joint is tight)

Unfortunately, the surgeon must make a decision between increasing the flexion gap by 2mm to address the patellofemoral joint or maintaining the flexion gap and accepting the patellofemoral joint tightness. The reason for this decision is that with the posterior resection already made for the size 7, it is impossible to downsize to a size 6 without adding posterior augments to make up for the additional posterior bone removal previously made with the size 7 to maintain the flexion gap. If the patellofemoral joint is a higher priority than the flexion gap, follow the next step **To increase flexion gap space by 2mm.**

To increase flexion gap space by 2mm

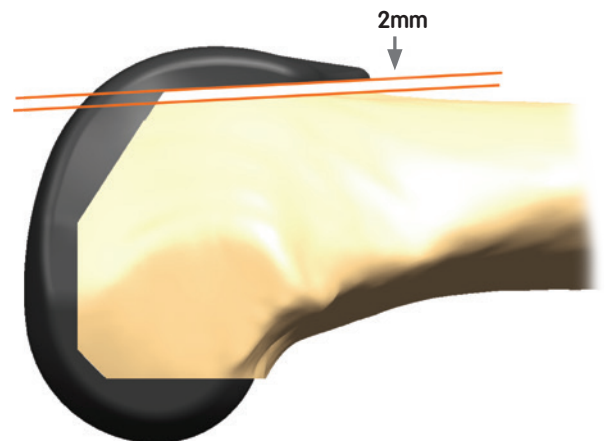
Use the downsizing shim to shift holes 2mm anterior and use the size 6 4-in-1 cut block. This will result in an equivalent posterior resection and an increase in the flexion gap by 2mm due to posterior condyles of the size 6 being 2mm less than the previous size 7. This will also result in the same anterior resection due to the fact that the A/P dimensions of these sizes differ by 2mm.



Size 7 resections (Orange) with size 6 resections (Blue) without 2mm anterior shift

Shifting from size 6 to size 7

It is not recommended to upsize from a size 6 to a size 7 if all femoral resections have been made as this will leave a gap or multiple gaps between the implant to bone mating surfaces. This could place additional stress on the cement mantle.



Size 7 implant on size 6 femoral resections with anterior flange gap

Catalog Information

LEGION® PS OXINIUM® Femorals

Cat. No.	Description
71421202	LEGION PS OXINIUM Femoral Size 2 Right
71421203	LEGION PS OXINIUM Femoral Size 3 Right
71421204	LEGION PS OXINIUM Femoral Size 4 Right
71421205	LEGION PS OXINIUM Femoral Size 5 Right
71421206	LEGION PS OXINIUM Femoral Size 6 Right
71421207	LEGION PS OXINIUM Femoral Size 7 Right
71421208	LEGION PS OXINIUM Femoral Size 8 Right
71421212	LEGION PS OXINIUM Femoral Size 2 Left
71421213	LEGION PS OXINIUM Femoral Size 3 Left
71421214	LEGION PS OXINIUM Femoral Size 4 Left
71421215	LEGION PS OXINIUM Femoral Size 5 Left
71421216	LEGION PS OXINIUM Femoral Size 6 Left
71421217	LEGION PS OXINIUM Femoral Size 7 Left
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Cat. No.	Description
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71421223	LEGION CR OXINIUM Femoral Size 3 Right
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71421225	LEGION CR OXINIUM Femoral Size 5 Right
71421226	LEGION CR OXINIUM Femoral Size 6 Right
71421227	LEGION CR OXINIUM Femoral Size 7 Right
71421228	LEGION CR OXINIUM Femoral Size 8 Right
71421232	LEGION CR OXINIUM Femoral Size 2 Left
71421233	LEGION CR OXINIUM Femoral Size 3 Left
71421234	LEGION CR OXINIUM Femoral Size 4 Left
71421235	LEGION CR OXINIUM Femoral Size 5 Left
71421236	LEGION CR OXINIUM Femoral Size 6 Left
71421237	LEGION CR OXINIUM Femoral Size 7 Left
71421238	LEGION CR OXINIUM Femoral Size 8 Left

LEGION Narrow CR OXINIUM Femorals

Cat. No.	Description
71421243	LEGION Narrow CR OXINIUM Size 3N Left
71421244	LEGION Narrow CR OXINIUM Size 4N Left
71421245	LEGION Narrow CR OXINIUM Size 5N Left
71421246	LEGION Narrow CR OXINIUM Size 6N Left
71421253	LEGION Narrow CR OXINIUM Size 3N Right
71421254	LEGION Narrow CR OXINIUM Size 4N Right
71421255	LEGION Narrow CR OXINIUM Size 5N Right
71421256	LEGION Narrow CR OXINIUM Size 6N Right

LEGION Narrow PS OXINIUM Femorals

Cat. No.	Description
71421263	LEGION Narrow PS OXINIUM Size 3N Left
71421264	LEGION Narrow PS OXINIUM Size 4N Left
71421265	LEGION Narrow PS OXINIUM Size 5N Left
71421266	LEGION Narrow PS OXINIUM Size 6N Left
71421273	LEGION Narrow PS OXINIUM Size 3N Right
71421274	LEGION Narrow PS OXINIUM Size 4N Right
71421275	LEGION Narrow PS OXINIUM Size 5N Right
71421276	LEGION Narrow PS OXINIUM Size 6N Right

LEGION CR Non-Porous Femorals

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71423202	LEGION CR Non-Porous Femoral Size 2 Left
71423203	LEGION CR Non-Porous Femoral Size 3 Left
71423204	LEGION CR Non-Porous Femoral Size 4 Left
71423205	LEGION CR Non-Porous Femoral Size 5 Left
71423206	LEGION CR Non-Porous Femoral Size 6 Left
71423207	LEGION CR Non-Porous Femoral Size 7 Left
71423208	LEGION CR Non-Porous Femoral Size 8 Left
71423212	LEGION CR Non-Porous Femoral Size 2 Right
71423213	LEGION CR Non-Porous Femoral Size 3 Right
71423214	LEGION CR Non-Porous Femoral Size 4 Right
71423215	LEGION CR Non-Porous Femoral Size 5 Right
71423216	LEGION CR Non-Porous Femoral Size 6 Right
71423217	LEGION CR Non-Porous Femoral Size 7 Right
71423218	LEGION CR Non-Porous Femoral Size 8 Right

LEGION PS Non-Porous Femorals

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71423223	LEGION PS Non-Porous Femoral Size 3 Left
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71423234	LEGION PS Non-Porous Femoral Size 4 Right
71423235	LEGION PS Non-Porous Femoral Size 5 Right
71423236	LEGION PS Non-Porous Femoral Size 6 Right
71423237	LEGION PS Non-Porous Femoral Size 7 Right
71423238	LEGION PS Non-Porous Femoral Size 8 Right

LEGION® Porous CR Femorals

Cat. No.	Description
71423242	LEGION Porous CR Femoral Size 2 Left
71423243	LEGION Porous CR Femoral Size 3 Left
71423244	LEGION Porous CR Femoral Size 4 Left
71423245	LEGION Porous CR Femoral Size 5 Left
71423246	LEGION Porous CR Femoral Size 6 Left
71423247	LEGION Porous CR Femoral Size 7 Left
71423248	LEGION Porous CR Femoral Size 8 Left
71423252	LEGION Porous CR Femoral Size 2 Right
71423253	LEGION Porous CR Femoral Size 3 Right
71423254	LEGION Porous CR Femoral Size 4 Right
71423255	LEGION Porous CR Femoral Size 5 Right
71423256	LEGION Porous CR Femoral Size 6 Right
71423257	LEGION Porous CR Femoral Size 7 Right
71423258	LEGION Porous CR Femoral Size 8 Right

LEGION® Porous HA CR Femorals

Cat. No.	Description
71425202	LEGION Porous CR HA Femoral Size 2 Left
71425203	LEGION Porous CR HA Femoral Size 3 Left
71425204	LEGION Porous CR HA Femoral Size 4 Left
71425205	LEGION Porous CR HA Femoral Size 5 Left
71425206	LEGION Porous CR HA Femoral Size 6 Left
71425207	LEGION Porous CR HA Femoral Size 7 Left
71425208	LEGION Porous CR HA Femoral Size 8 Left
71425212	LEGION Porous CR HA Femoral Size 2 Right
71425213	LEGION Porous CR HA Femoral Size 3 Right
71425214	LEGION Porous CR HA Femoral Size 4 Right
71425215	LEGION Porous CR HA Femoral Size 5 Right
71425216	LEGION Porous CR HA Femoral Size 6 Right
71425217	LEGION Porous CR HA Femoral Size 7 Right
71425218	LEGION Porous CR HA Femoral Size 8 Right

LEGION CR Non-Porous Narrow Femorals

Cat. No.	Description
71933640	LEGION CR Non-Porous Narrow Femoral Size 3 Left
71933641	LEGION CR Non-Porous Narrow Femoral Size 4 Left
71933642	LEGION CR Non-Porous Narrow Femoral Size 5 Left
71933643	LEGION CR Non-Porous Narrow Femoral Size 6 Left
71933644	LEGION CR Non-Porous Narrow Femoral Size 3 Right
71933645	LEGION CR Non-Porous Narrow Femoral Size 4 Right
71933646	LEGION CR Non-Porous Narrow Femoral Size 5 Right
71933647	LEGION CR Non-Porous Narrow Femoral Size 6 Right

LEGION PS Non-Porous Narrow Femorals

Cat. No.	Description
71933648	LEGION PS Non-Porous Narrow Femoral Size 3 Left
71933649	LEGION PS Non-Porous Narrow Femoral Size 4 Left
71933650	LEGION PS Non-Porous Narrow Femoral Size 5 Left
71933651	LEGION PS Non-Porous Narrow Femoral Size 6 Left
71933652	LEGION PS Non-Porous Narrow Femoral Size 3 Right
71933653	LEGION PS Non-Porous Narrow Femoral Size 4 Right
71933654	LEGION PS Non-Porous Narrow Femoral Size 5 Right
71933655	LEGION PS Non-Porous Narrow Femoral Size 6 Right

GENESIS II Femoral Flex-Lok Pegs

Cat. No.	Description
71420063	GENESIS II Femoral Flex-Lok Peg

GENESIS II Primary Femoral Lug

Cat. No.	Description
71420999	GENESIS II Primary Femoral Lug

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04177 V2 71282201 REVA 10/22