

# Constrained Posterior Stabilized (CPS)

Persona® The Personalized Knee

Surgical Technique





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## Introduction

The constrained posterior stabilized (CPS) bearings can be used to provide moderate varus/valgus constraint in patients to facilitate soft tissue balance and stability. The CPS bearing provisionals and implants can only be used when the PCL is removed and should be used in conjunction with the PS femoral components. The CPS bearings are to be used with cemented nonporous femoral and tibial components only and cannot be used with the CR femoral components.

This technique covers CPS specific instructions. Consult/reference the Persona Primary Surgical Technique (97-5026-001-00) for general technique information.

## Constraint Options

The constrained posterior stabilized (CPS) bearings are designed to provide  $\pm 1.5$  degrees varus/valgus constraint and  $\pm 5.5$  degrees internal/external rotation constraint.

The CPS implants can be used in the following situations, depending on the degree of the deformity, the stability of the ligaments, and the quality of the bone. The surgeon is responsible for assessing whether a more constraining implant/system or revision implant/system is necessary.

1. Marked valgus deformity—requiring PCL and lateral soft tissue release.
2. Prior high tibial osteotomies—soft tissue balancing is the same as for a valgus deformity with lateral soft tissue and PCL release.
3. Patellectomy—PCL incomplete or absent.
4. Most revision situations—PCL deficient or nonfunctional.

When greater varus/valgus constraint is needed and/or stems or augments are required, the surgeon should consider using a revision implant system.

**Note:** The CPS components should not be used if the PCL is present.

Please refer to the package inserts for complete product information, including contraindications, warnings, precautions, and adverse effects.



Figure 2



Figure 1



Figure 3

## Initial Knee Assessment

Having established that additional constraint is needed as described in the Persona Primary Surgical Technique (97-5026-001-00), the following steps are used to prepare the bone for the constrained posterior stabilized (CPS) bearings.

### Femoral Box Cut

Make the anterior to posterior CPS box cut with a 1.27 mm (0.050 inch) thick, ½ inch wide reciprocating saw blade, using the CPS cut slot. Avoid undercutting the medial and lateral condyles (Figure 1). This is particularly important for small femurs. After completing the anterior-to-posterior box cut, make the vertical wall cuts by resting the saw blade in a parallel manner against the interior sidewalls of the PS-CPS femoral provisional (Figure 2). By hand, insert

the correct-sized PS-CPS box provisional into the PS-CPS femoral provisional to ensure that adequate bone has been removed for the implant and for proper patella trialing. Separate left and right PS-CPS box provisionals exist in sizes 1–2, 3, 4–5, 6–7, 8–9, 10–11, 12 for corresponding femoral provisionals (Figure 3).

ⓘ **Technique Tip:** If the appropriately sized PS-CPS box provisional does not easily seat into the PS-CPS femoral provisional, perform cleanup cuts to ensure adequate bone has been removed. Do NOT impact the PS-CPS box provisional. Make sure the PS-CPS femoral provisional is fully seated after inserting the correct PS-CPS box provisional.

ⓘ **Technique Tip:** The PS box provisionals are not compatible with CPS trialing.

Persona PS-CPS Box  
Provisional 6-7 Right  
42-5047-007-12



Persona PS-CPS  
Femoral Provisional  
Size 7 Right  
42-5047-062-02



	Color Coded	Side Specific	Shared Sizing
<b>Tibial Sizing Plate/Stemmed Tibial Provisional</b>	No	Yes	No
<b>Bearing Tops</b>	Yes	Yes	Yes
<b>+0 Bottoms</b>	Yes	Yes	Yes
<b>+6 Bottoms</b>	Yes	Yes	Yes
<b>Shims</b>	No	No	Yes

Note: The CPS TASP components are not compatible with the CR, UC, or PS TASP components.

Figure 4

## CPS Tibial Bearing Provisional (TASP) Assembly

As shown (Figure 4), size A and B, size C and D, size E and F, size G and H, and size J tibias share side-specific tibial bottoms, tibial tops and color, respectively.

### CPS TASP Assembly

The CPS TASP consists of three parts: a TASP bottom, a TASP shim, and a TASP top. Select the CPS TASP bottom that matches the cemented tibial sizing plate, stemmed tibial provisional or stemmed cemented tibial component. Select the CPS TASP top that mates with both the CPS TASP bottom and the femoral provisional or component as marked on the anterior face of the CPS TASP top (Figures 5a and 5b).



Figure 5a



Figure 5b

In addition to the markings on the parts, the same colors are used for the mating TASP tops and bottoms. Assemble the CPS TASP top and bottom BEFORE inserting the CPS TASP shim (Figure 5b).

- ⓘ **Technique Tip:** CPS TASP tops, bottoms and shims are not compatible with CR, UC, or PS TASP components.
- ⓘ **Technique Tip:** When the CPS TASP top is used, align the pocket in the CPS TASP top with the post on the CPS TASP bottom (Figure 5a).
- ⓘ **Technique Tip:** As shown on the anterior face of the CPS TASP top, confirm the correct constraint, femoral compatibility, tibial size, and side.

Persona CPS TASP  
Top Right 6-9/EF  
42-5276-007-10



Persona CPS TASP  
Right EF +0 Bottom  
42-5276-005-05



Persona CPS TASP Right  
EF +6 Bottom  
42-5276-005-15



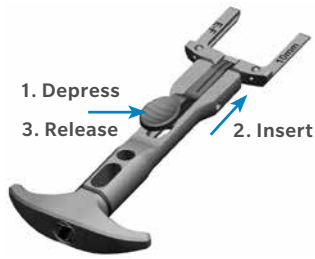


Figure 6a



Figure 7a



Figure 6b



Figure 7b

**CPS TASP Assembly (cont.)**

The shims (10, 12, and 14 mm) are not side-specific. Attach the tibial sizing plate handle to the appropriate AB, CD, EF, GH or J 10 mm shim (Figure 6a). While holding the CPS TASP top and bottom together with one hand, lock the CPS TASP top and bottom together by inserting the appropriate 10 mm shim with the tibial sizing plate handle (Figure 6b). The 10 mm CPS shim will create a CPS TASP construct that matches the thickness of the thinnest tibial bearing component, 10 mm (Figures 7a and 7b). Unlike the CR, UC, and PS TASPs, the CPS shims are incremented by 2 mm to create CPS TASP constructs

of 10, 12, or 14 mm to match the implant offering. The +6 mm bottoms are included for instances where the CPS TASP construct needs to be 16 mm, 18 mm, or 20 mm. In these circumstances, the 10 mm, 12 mm, and 14 mm shims are to be used to create the respective CPS TASP constructs.

**ⓘ Technique Tip:** If using the tibial sizing plate during the trialing phase, ensure that the necessary male-headed screws/pins are removed from the anterior surface of the plate to avoid interference and potential damage to the CPS TASP.

Persona Tibial Sizing Plate Handle  
42-5399-017-00



Persona CPS TASP Shim EF 10 mm  
42-5279-004-00



3.5 mm Hex Driver  
00-5987-089-00



Persona Stemmed Tibial Provisional Size F Right  
42-5321-075-02



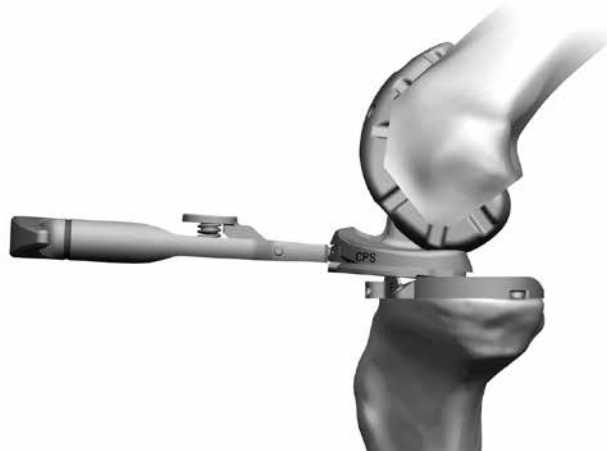


Figure 8

### Stemmed Tibial Provisional Insertion

Steps to insert and fixate the stemmed tibial provisional can be found in the Persona Primary Surgical Technique (97-5026-001-00). Utilizing the fixation screws specified in the Persona Primary Surgical Technique will provide additional stability during trial range of motion.

☰ **Technique Tip:** Apply gentle manual pressure without impacting the TASP construct with either a mallet or hand. The TASP construct includes the TASP top, bottom, shim, and tibial sizing plate handle.

### CPS TASP Insertion

Insert and remove the CPS TASP construct in mid-flexion with the CPS box provisional in place (Figure 8). It is recommended that the thinnest CPS TASP construct (10 mm) be inserted into the joint space to perform an initial ROM assessment. The provisional lockdown screws can be used with the stemmed tibial provisional during ROM assessment to give the CPS TASP construct the necessary rigidity to assess varus/valgus and internal/external rotation constraint.

☰ **Technique Tip:** Ensure the CPS box provisional is in place prior to inserting and removing the CPS TASP construct. To avoid post impingement with the femoral component, place the knee in mid-flexion prior to inserting the TASP component.

☰ **Technique Tip:** The provisional lock down screws specific to the stemmed tibial provisionals are available in two lengths. The shorter provisional lockdown screw should be used with CPS TASP construct thicknesses from 10 mm to 14 mm.



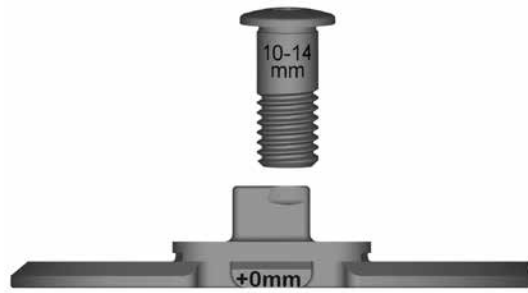


Figure 9a

Use the 10–14 mm provisional lockdown screw with the +0 mm CPS TASP bottom (10–14 mm TASP construct thicknesses).

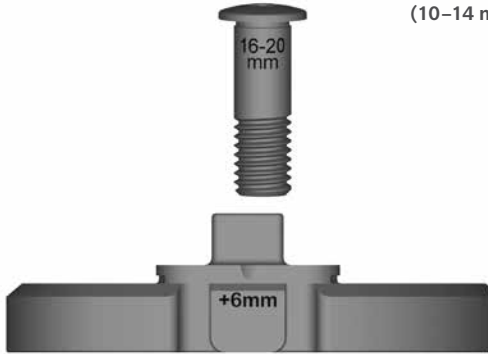


Figure 9b

Use the 16–20 mm provisional lockdown screw with the +6 mm CPS TASP bottom (16–20 mm TASP construct thicknesses).



Figure 10

**CPS TASP Insertion (cont.)**

The longer provisional lockdown screw should be used with CPS TASP construct thicknesses from 16–20 mm (Figures 9a and 9b). The CPS bearing implants do not require a lockdown screw.

Use the 3.5 mm hex driver to tighten the provisional lockdown screw until the head of the provisional lockdown screw has fully seated in the countersink in the CPS TASP top (Figure 10).

**ⓘ Technique Tip:** The bearing inserter should not be used with the CPS TASP.

**CPS TASP Shim Exchange**

If a thicker construct is needed to appropriately fill and balance the joint space:

- Loosen the provisional lockdown screw fully with the 3.5 mm hex driver by rotating counterclockwise (it is not necessary to remove the provisional lockdown screw).
- Place the knee in approximately 5–15 degrees of flexion to facilitate *in-vivo* removal and insertion of the shims with the tibial sizing plate handle.
- Attach the tibial sizing plate handle to the shim and pull anteriorly to remove the shim. Insert a new shim by aligning with the CPS TASP top and bottom and pushing posteriorly. If experiencing significant resistance during insertion, realign the shim with the CPS TASP top and bottom and push posteriorly.

<p>Persona CPS TASP Top Right 6-9/EF 42-5276-007-10</p> 	<p>Persona CPS TASP Right EF +0 Bottom 42-5276-005-05</p> 	<p>Persona CPS TASP Right EF +6 Bottom 42-5276-005-15</p> 	<p>Provisional Lockdown Screw, Short 42-5376-001-00</p> 	<p>Provisional Lockdown Screw, Long 42-5376-001-01</p> 	<p>Persona Tibial Sizing Plate Handle 42-5399-017-00</p> 	<p>Persona Cemented Tibial Sizing Plate Size F Right 42-5399-075-02</p> 
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### CPS TASP Shim Exchange (cont.)

- Retighten the provisional lockdown screw with the 3.5 mm hex driver until the head of the provisional lockdown screw has fully seated in the countersink in the CPS TASP top.

ⓘ **Note/Warning:** Do not overtorque the provisional lockdown screw.

Check ligament stability in extension and in 30, 60, and 90 degree flexion. Attempt to distract the joint in flexion to check flexion gaps. Flex the knee to peak flexion and verify that the spine still engages the cam. Insert the patellar provisional onto the resected patellar surface. Perform a ROM to check patellar tracking. When component position, ROM, and joint stability have been confirmed, remove all provisional components.

If unacceptable flexion/extension gap imbalances exist, refer to the "Balance Flexion/Extension Gaps" section of the Persona Primary Surgical Technique (97-5026-001-00), Appendix B for potential options.

When greater varus/valgus constraint is needed and/or stems or augments are required, the surgeon should consider using a revision implant system.

ⓘ **Technique Tip:** If the CPS TASP construct is used with the femoral and/or tibial components, contact with bone cement should be avoided to prevent potential damage to the CPS TASP components.

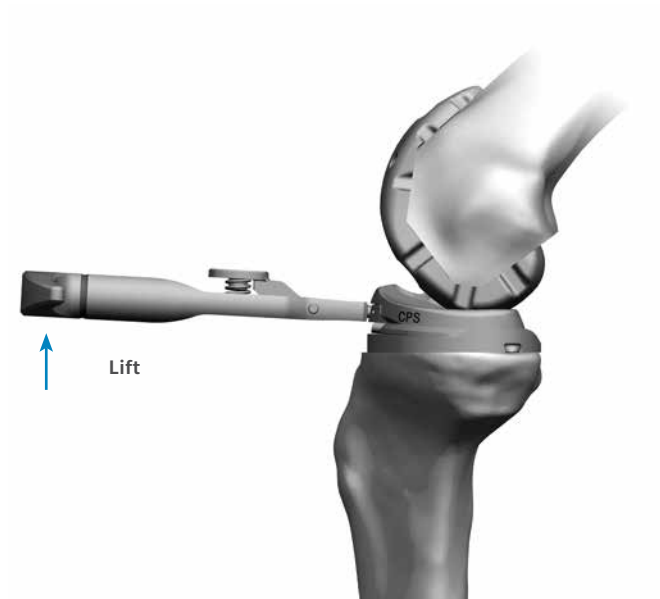


Figure 11

### CPS TASP Removal

Disengage the provisional lockdown screw by rotating the 3.5 mm hex driver in a counterclockwise direction. With the joint in mid-flexion, attach the tibial sizing plate handle to the CPS TASP and lift proximally (Figure 11) until the CPS TASP disassociates from the tibial sizing plate, stemmed tibial provisional or stemmed cemented tibial component.

ⓘ **Note/Warning:** Do not implant the stemmed tibial provisional, CPS TASP, or provisional lockdown screws.

ⓘ **Technique Tip:** Varus/valgus forces may make it difficult to remove the TASP construct. To aid in the removal of the TASP and prevent breakage, ensure that the joint is in a neutral position when removing the TASP construct.

ⓘ **Technique Tip:** Use only the tibial sizing plate handle to remove the CPS TASP construct. The use of other instruments may damage or break the CPS TASP.

ⓘ **Technique Tip:** The lockdown screw can be removed with the TASP by lifting the entire TASP construct proximally after loosening the lockdown screw with the 3.5 mm hex driver. Alternatively, after the lockdown screw has been disengaged from the threads in the stemmed tibial provisional, the magnetic feature of the 2.5 mm male hex driver can be used to remove the lockdown screw from the TASP construct.

After trialing, refer to the Persona Primary Surgical Technique (97-5026-001-00) for steps to implant the final components, taking care to fully cement the keel of the cemented tibial implant.

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