

kneeGRIP®

Matrix

Surgical Positioning Device

Includes The kneeGRIP® + Matrix

**Design Rational
Technical Instructions**



www.sunmedica.com
1800-995-8715

kneeGRIP Matrix

Surgical Positioning Device

Includes The kneeGRIP® + Matrix

DESCRIPTION

The **kneeGRIP® Matrix** is part of a system that supports the lower extremity for knee surgery such as a total knee replacement. The **kneeGRIP® Matrix** is used with the **kneeGRIP® System** which utilizes a Lateral Upright Thigh Support and a Foot Support. The **kneeGRIP® Matrix** consists of a *Matrix Plate* and a *Matrix Boot*. Both of the **kneeGRIP® Matrix** parts are made of aluminum and are designed to be sterilized prior to use during surgery. The **kneeGRIP®** system parts are not sterile and are used under the sterile drapes.

Matrix Plate: A sterilizable heavy aluminum plate with a matrix of conical holes to accept the Knob portion of the Boot. The holes are in two rows to allow placement of the boot and subsequent multiple flexed positions of the knee. The sterilized plate sits on top of the sterile drapes.

Matrix Boot: A sterilizable aluminum leg/foot holder with a Knob under the heel part that engages the conical holes in the plate. The Boot can be easily moved from hole to hole allowing for multiple flexed positions of the knee. The sterilized Boot requires a interposing sterile pad to be placed prior to applying to the leg/ankle/foot. The Boot and foam are held in place with a wrap such as Coban®.



Matrix Set

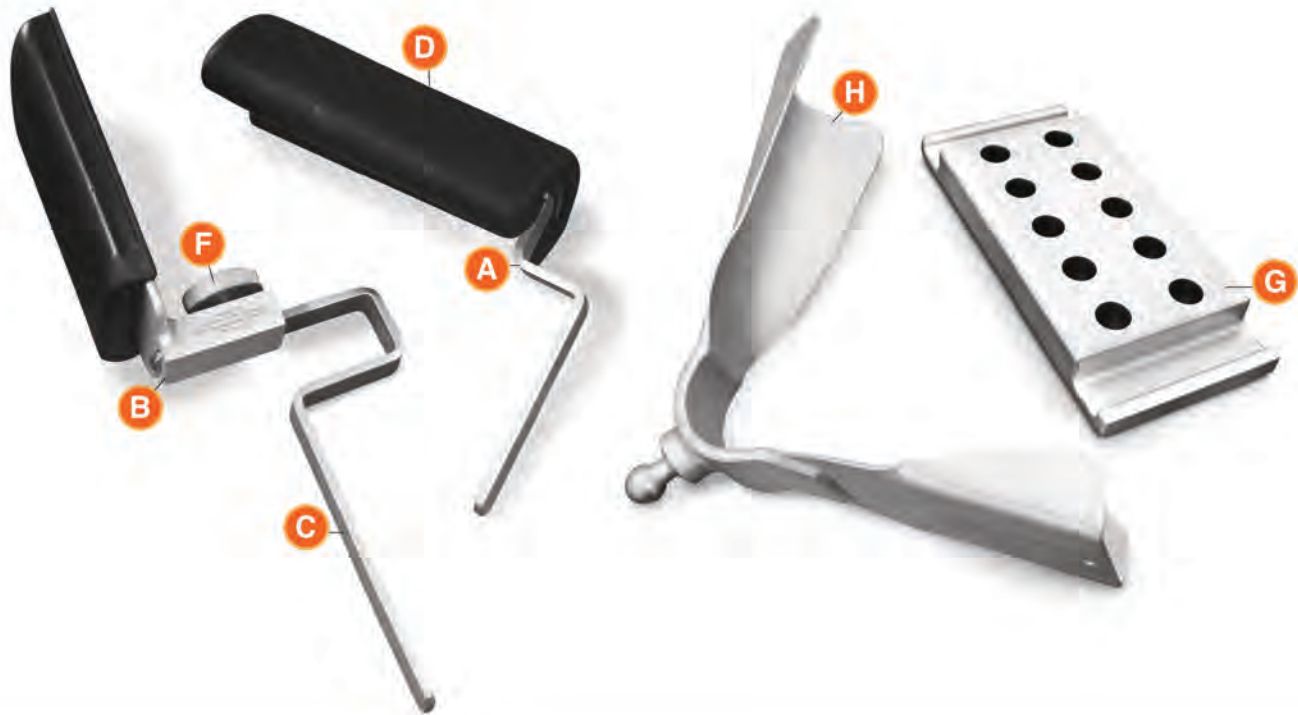


kneeGRIP® Set
(used to position the Matrix
under the sterile drapes)

kneeGRIP® Matrix

Surgical Positioning Device

Includes The kneeGRIP® + Matrix



PARTS DIAGRAM

kneeGRIP® + Matrix = kneeGRIP® Matrix

- | | |
|---|--|
| A kneeGRIP® Foot Support | E kneeGRIP® 8" Upright Support Pad |
| B kneeGRIP® 8" Upright Support | F kneeGRIP® Thumb Screw |
| C kneeGRIP® 8" Upright Support Bar
& thighGRIP® Bar (AKA "?" Bar) | G Matrix Plate |
| D kneeGRIP® Foot Support Foam Pad | H Matrix Boot |
| | I Matrix Foam Kit - (Sterilized Pouch)
<i>Disposable Boot Foam + 1 Roll of Coban®</i> |

Indications

The kneeGRIP® Matrix is designed to support and position the lower extremity during knee surgery. The kneeGRIP® Matrix is to be used in conjunction with the kneeGRIP® system.

Contraindications

The kneeGRIP® Matrix relies on good skin integrity and normal circulation over the contact areas. This device should not be used where the skin is abnormal, fragile, where there is compromised circulation or where skin lesions or disease are present at the contact areas. The Matrix Boot requires padding between the boot and the patient, such as a sterile foam pad (available from SunMedica).

The kneeGRIP® Matrix may not fit the very large or very small patient. For these patients, use an alternative method of lower extremity holder.

Precautions

Application of the kneeGRIP® Matrix system requires accurate positioning of the kneeGRIP® Foot and Upright Thigh Support under the drapes, appropriate sterile draping of the patient, accurate placement of the sterile Matrix Plate on the table under the thigh and knee, and well placed foam padding between the patient and the sterile Matrix Boot. Therefore, this device should only be used by an experienced surgeon trained in lower extremity anatomy and sterile techniques.

Disclaimer

SunMedica is not responsible for injury or harm as a result of misuse or abuse of this product. Call SunMedica for any questions regarding proper use.

DIRECTIONS FOR USE:

Patient Position:

The patient is generally placed in a supine position. The well leg is supported on a pillow and a second pillow supports both ankles and heels. The **kneeGRIP® Matrix** is used in conjunction with the **kneeGRIP®** system's Foot Support and Lateral Upright Thigh Support.

Positioner Preparation:

The **kneeGRIP® Matrix Set** should be cleaned between cases using standard cleaning techniques for sterile tools/equipment used during a knee surgery. The **kneeGRIP®** System's Foot Support and Lateral Upright Thigh Support do not need to be sterilized, as they will be protected under appropriate draping. The **Matrix Boot and Matrix Plate** will need to be **sterilized** and packed appropriately for use on a sterile operating field.

Sequence of Placing the kneeGRIP® Matrix Positioner:

STEP 1

Position the Foot Support

STEP 2

Position the Upright Support

STEP 3

Sterile Draping Considerations

STEP 4

Placement of the Matrix Plate on the Operating Room Table

STEP 5

Placement of the Matrix Boot on the Leg/Ankle/Foot



STEP 1:

Position the Foot Support

The **Foot Support (A)** requires a 1" x 1/4" bar clamp that attaches to the operating table (not provided).

The height of the support depends on the softness of the operating table surface, the size of the patient and the thickness of the drapes.

Place the Foot Support proximal edge about four fingerbreadths distal to the joint line of the knee with the knee extended. Make sure that the **Foot Support** is about 2 cm above the table (about the width of the fingers).

See Figure 1.

Looking Ahead: This allows the sterile drapes and the slotted edge of the Matrix Plate to slide under edge of the Foot Support securing the Matrix Plate to the table without direct attachment to the operating room table.



Figure 1



STEP 2:

Position the Upright Support

The **Upright Support (B)** is positioned so that with the knee and hip flexed, the proximal thigh (and tourniquet) is supported, preventing abduction of the hip. Place the cephalad border of the **Upright Support** at the level of the greater trochanter. Slide the support toward the lateral thigh so that it just touches the tourniquet.

The **Upright Support Bar (C)**, also known as the “?” Bar should be used to allow appropriate adjustment. Flex the knee and place the foot onto the Foot Support.

Allow the hip to abduct and be supported by the lateral Upright Support. See Figure 2.



Figure 2



STEP 3: Sterile Draping Considerations

Sterile draping techniques vary widely. Important considerations for using the **kneeGRIP® Matrix** are: The lower extremity must be draped such as to allow free unencumbered motion of the knee and hip. See Figure 3.

The draping under the proximal thigh must be “generous” so that when the *Matrix Plate* is positioned on the table (Step 4) and the knee is flexed, the drapes aren’t stretched or tight. See Figure 4.



Figure 3

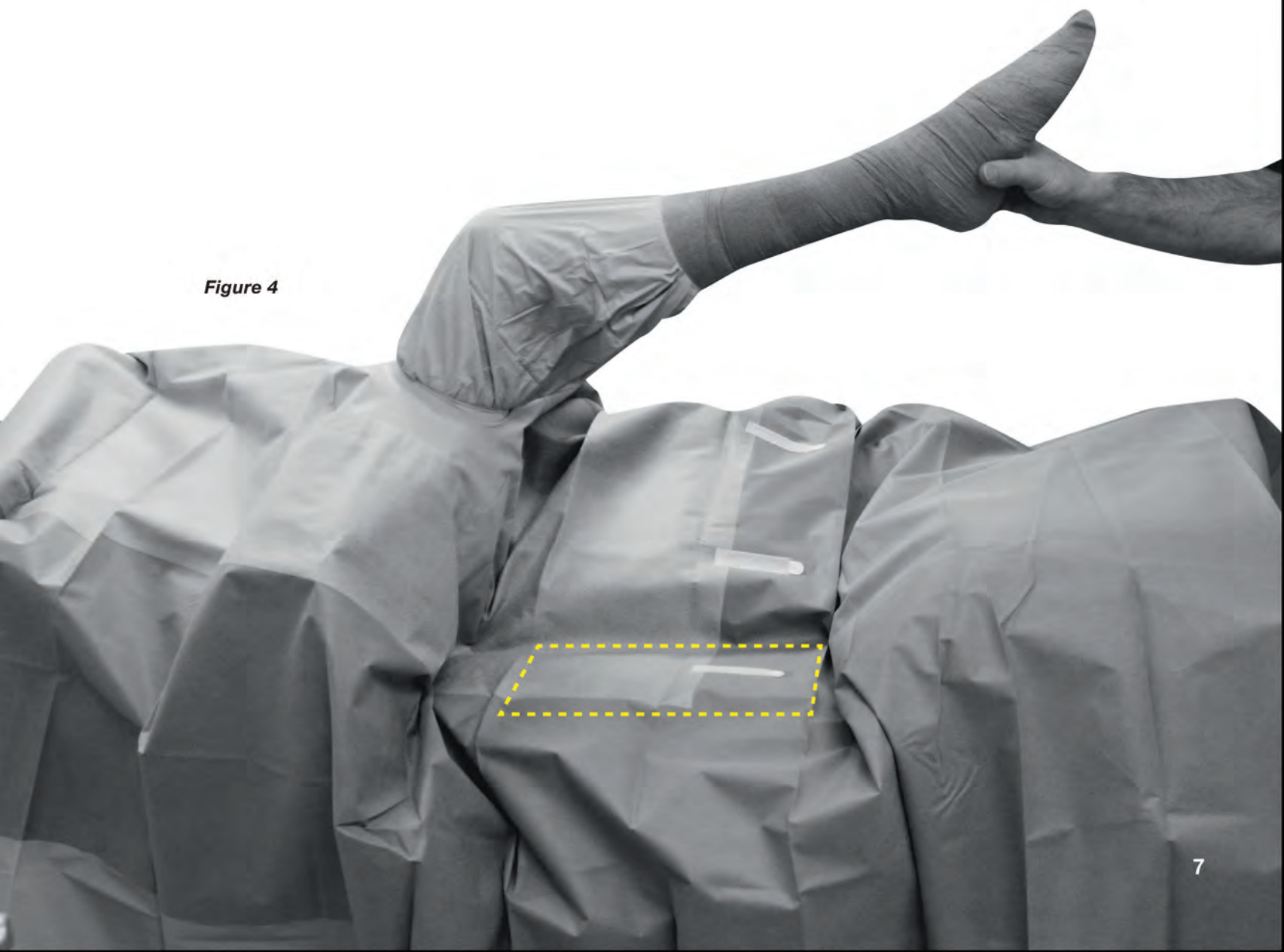


Figure 4

STEP 4: Placement of the Matrix Plate on the Operating Room Table

The extremity is draped in a sterile fashion as described in Step 3. The up-side of the **Matrix Plate (G)** has the smaller openings of the *conical holes* and the end slots face up.

The sterile **Matrix Plate** is positioned on the operating table under the thigh, adjacent to the **Foot Support (A)** (which is under the sterile drapes).

The *end slot (1)* of the **Matrix Plate** is slid under the leading edge of the **Foot Support (A)** taking care not to disrupt the sterile field. Again, **it is important to drape generously under the thigh** to keep the drapes loose and allow easy motion of the lower extremity, especially in the markedly flexed position. See Figure 5.

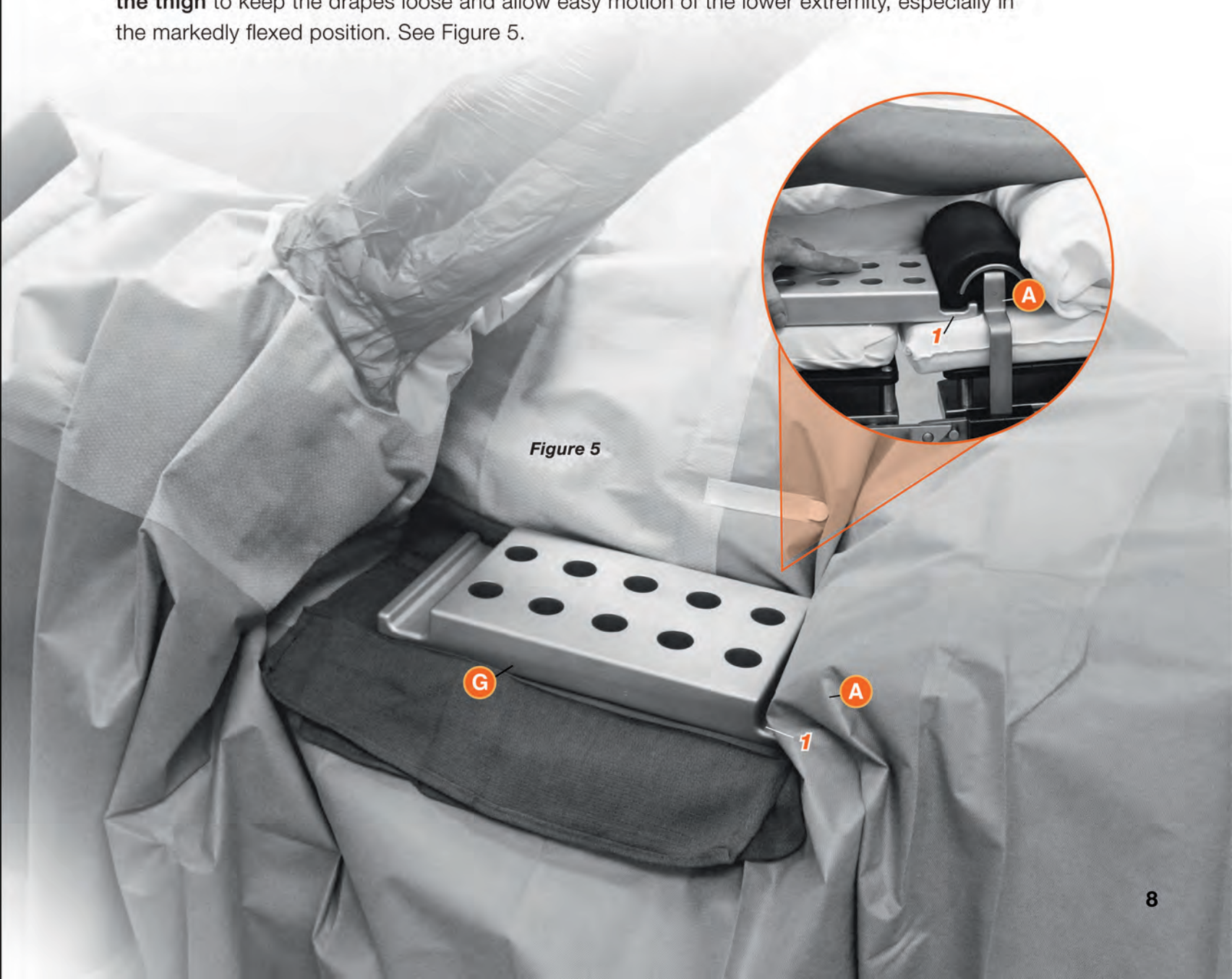
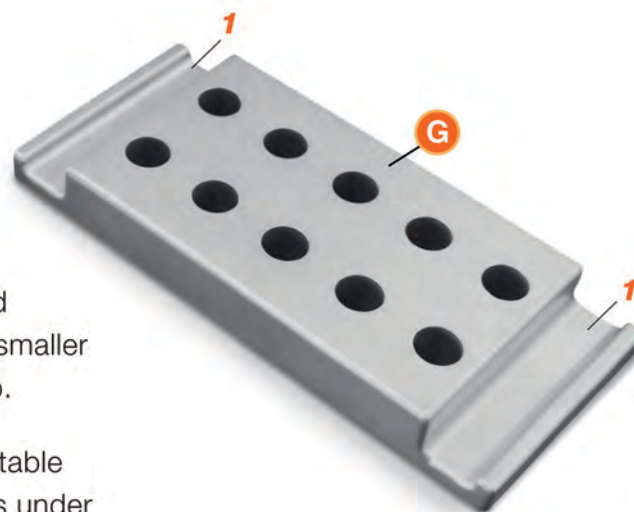
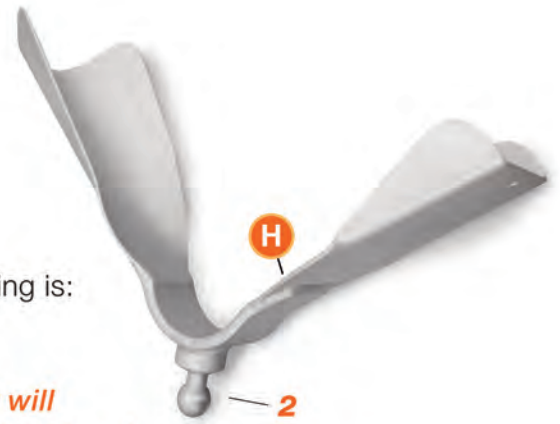


Figure 5

STEP 5: Placement of the Matrix Boot on the Leg/Ankle/Foot

The suggested sequence for **Matrix Boot (H)** donning and doffing is:



1 If a tourniquet is used, exsanguinate and inflate the tourniquet prior to placement of the boot. **The rigidity of the Matrix Boot will not allow good exsanguination, therefore it is important to do this prior to placement of the Matrix Boot on the patient.**

2 After the tourniquet is up (or not used) place the **sterile** Foam Pad on the **Matrix Boot**, taking care to make sure all the edges will be covered. Place the boot/foam over the back of the leg/heel/foot. Make sure the heel is over the **knob (2)** of the **Matrix Boot**. Secure with a wrap such as Coban®. See Figure 6.

3 To adjust the position of the flexed knee, place the knob of the **Matrix Boot** into any of the conical holes of the **Matrix Plate**. The position can be easily changed by just lifting the boot (knob) out of one conical hole and placing into another. See Figure 7.

Figure 7



Figure 6

4

Once the **Matrix Boot** is no longer needed (usually after the knee components are in place) then unwrap the coban® and remove the **Matrix Boot**. The **Matrix Boot** is usually removed before tourniquet release and wound closure.



Cleaning & Maintenance

It is not uncommon to pass the **Matrix Boot** and **Matrix Plate** off of the sterile field at the beginning of wound closure (Step 4 above). This allows additional time for cleaning and sterilization of the **kneeGRIP® Matrix** for any subsequent cases.

The **kneeGRIP® Matrix** parts are durable aluminum and can be cleaned with ultrasound, and any cleaning agents. Any standard sterilization technique is acceptable. There are no moving parts to maintain.

Contact

For any questions contact SunMedica at 1800-995-8715 or email us at service@sunmedica.com.