



# Cranial Cruciate Ligament (CCL) Stifle Brace INSTRUCTIONS FOR USE

The Caerus Cranial Cruciate Ligament (CCL) Stifle Brace provides an off-the-shelf solution to CCL and Stifle joint injury

stabilization. The modular system allows for a customizable fit through the use of Boa® Closure Systems, adjustable hub-hinges, and Caerus proprietary thermoformable plastic technology. The thermoplastic design allows the system to be spot heated to modify the shape and fit.

This innovative mix of technology provides prophylactic support for injuries to the Stifle joint and ligaments. The Caerus CCL Stifle Brace is also used as a cast alternative with accessibility after CCL surgery or as a rehabilitative device after surgery. Caerus protective padding provides comfort and cushion and can be removed, washed and replaced to maintain proper hygiene. Caerus Bracing and Fracture Management Brace Systems provide an instant cost-effective solution without long lead times and repeated casting.

### CCL Brace Indications

The Caerus CCL Stifle Brace provides prophylactic and rehabilitative support for injuries to the stifle joint and ligament, such as CCL surgery. Provides tibia or fibula extremity fracture management, with the added advantage of sophisticated acute rehabilitative device post-surgery or injury. Can also be used as a sophisticated wound cover with access points after surgery.

### Warnings and Precautions

It is up to the veterinary care provider and pet owner to determine the pet's ability to tolerate the application of the Caerus CCL Stifle Brace. While pets have demonstrated good tolerance utilizing the CCL Stifle Brace, it may be appropriate to apply a cone to the pet to reduce interference.

The CCL Stifle Brace wear schedule is dictated by the veterinary care provider based on indications and diagnosis. The veterinary care provider and pet owner should together watch for potential over tightening of Boa dynamic tensioning system on the brace.

If areas of irritation appear, the pet owner should immediately contact the veterinary care provider and arrange for adjustment.

### Application



A majority of the time the Caerus CCL Brace System will readily fit the patient. For optimal results, pre-warm the Brace in the Caerus Slim Line Heater. (Figure 1)

This step provides a more customized fit to the specific patient.



A key functional and aesthetic design element of the Caerus CCL Stifle Brace is the exclusive dynamic tensioning system comprised of the Boa® closure system, incorporated with Hook and Loop attachment Tabs. (Figure 2)

### Opening the Boa Hook and Loop Attachments



Lift up on Boa® reel to unlock system. (Figure 3)



Lift up on either side Hook Tab to evenly extend lace out from the reel. (Figure 4)



Do this for both the upper (femur) section and lower (tibia/fibula) sections (Figure 5)



The opposite side Hook Tab may also be detached to ease brace application. (Figure 6)

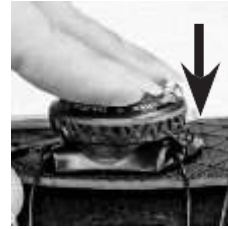
### Closing the Boa Hook and Loop Attachments



Reapply the Hook Tabs over their respective Loop areas. (Figure 7)



The inner edge of the Hook tab, with Boa lace guides should lay over the aluminum Upright. (Figure 8)



Push down on Boa reel until it clicks. (Figure 9)



Turn reel clockwise to take up slack in the lace. (Figure 10)  
Tighten until desired snug but not too tight fit is achieved.

**NOTE:** The system is not secure unless Boa reel is closed and slack has been removed from lace.

### Hub Hinge System



The Caerus CCL Stifle Brace features a proprietary 3-way hub hinge system. This innovative design provides an anatomical fit that accommodates to specific joint movements resulting in a more comfortable fit, while offering needed support. Range of Motion (ROM) Stops limit joint ROM following surgery or injury. (Figure 11)



The Uprights allow Axial Rotation which accommodates for tibial migration during movement. (Figure 12)



Valgus/Varus Deviation facilitates correct clamshell positioning during fitting. (Figure 13)

### Attaching Hardware

The Hub Hinge Uprights are assembled pre-attached to the CCL Stifle Brace. In the event they are removed, in the case of greater length adjustment, follow instructions below.

Hub Hinge Uprights should be oriented as shown. (Figure 14)



To attach the Upright, insert the double anchor post on the inside of the thermoformable clamshell. (Figure 15)



After locating the upright in the desired position, insert and finger tighten the two (2) Phillips dome head screws into the double anchor post. Tighten with a Phillips style screw driver (not provided). (Figure 16)

### Adjust Length

Hub Hinge Uprights are easily adjusted vertically at all attachment points to accommodate variations in limb lengths.



To adjust, loosen the Phillips screws slightly and slide upright up or down along channel to desired position. (Figure 17)

Re-tighten. Repeat on opposite side, ensuring both sides are equal in position and length.

### Adjust Range of Motion (ROM)



The Hub Hinges offer full and incremental ROM adjustment in varying degrees, including complete lock-out in any position. To adjust ROM, loosen and remove the Phillips screws located in the Hub. (Figure 18)



Determine desired ROM. Re insert screws to provide the intended protected ROM. (Figure 19)



If full ROM is desired, the set screws may be removed entirely. (Figure 20)



To set in lockout or full extension, position the hinge at the desired angle. Insert screws at points closest to the pivot to prevent the hinge from moving from this position. (Figure 21)

### CCL Stifle Brace Application



To apply, fully open both sections of the brace, by releasing the Boa Reels and lifting the Hook Tabs away from the Loop material on the clamshell. (Figure 22)



If length adjustment is required, loosen the Upright screws (Figure 23)



Apply the brace to the anterior aspect of the extremity. The Caerus logo should be facing front. (Figure 24)



Align each section to the desired location, paying particular attention that the Hub Hinge pivots are aligned with the stifle joint axis. If loosened re-tighten the Phillips dome head screws. (Figure 25)



Close the brace, by placing the back (caudal) shells to fit within the front (cranial) clamshells. Re-apply the Hook Tabs to their respective Loop areas on the clamshells. Close each section of the brace, by tightening the Boa reels, working from lower (distal) to upper (proximal) sections. (Figure 26)

**NOTE:** Since the Caudal clamshells are completely detachable, specific length adjustments, upward or downward, are available to further provide an optimal fit.

**SPECIAL NOTE:** Moving the caudal section up helps prevent tibial drawer. Moving the caudal shell down addresses migration taking stress off the cranial portion of the tarsus.

Adjust the ROM as condition indicates, as described above.

### Spot Heating



The brace may be spot molded to provide a better fit and eliminate areas of irritation. (Figure 27)

Use a hair dryer on medium heat and high speed heat the area. Keep the heat source four to six inches away from the brace. The material will soften in approximately two minutes. Be careful not to overheat.



The Caerus Slim Line Heater may also be used, as described earlier. See Figure 1. (Figure 28)

Once pliable, bend the material to the desired position and hold until the material hardens. Reapply the brace. The brace may be reheated and remolded as needed.

The Brace thermoplastic and foam may also be trimmed to fit uneven contours.

### Care and Cleaning

If brace and/or padding becomes wet or soiled, remove the foam padding to hand wash with mild soap and air dry. Padding may be replaced with Caerus Replacement Padding. Exposing brace to temperatures over 130°F may cause the brace to lose its shape.

### Check Screws Weekly



At least weekly, check and if necessary, re-tighten the Phillips screws on both the Hub Hinge and Uprights. (Figure 29)

### Protocol and Wearing Recommendations

The following recommendations are general guidelines only. Each protocol should be tailored to the individual needs of the patient and be based on injury severity and healing progress. The patient should be closely monitored for healing progress, advancements in mobility and weight bearing, as well as brace fit and adjustment needs during the healing process. Protocols should be reevaluated and modified as needed by veterinary care provider.

### Break-In Period

We recommend an initial break-in period of a half hour on, half hour off. This allows the dog to accommodate to something so snug-fitting. As important, this allows the skin to build up a tolerance. Gradually increase time as tolerated.

### Knuckling

Your pet may "knuckle over" the first week of wearing the device. This is normal at first, but typically subsides.

### Waterproof

The brace can be worn in water. Use caution and make sure not to leave a wet brace on your pet. The foam is non-porous and does not trap water, but the straps and padding do take time to dry. Make sure that brace is completely dry before re-fitting.

### Dog Types, Weight Ranges and Tibial Measurement Ranges

- Extra Small fits 10 to 25 lbs., such as Shiatsu and Pug - 2.75" - 4.0"
- Small fits 25 to 40 lbs., such as Whippet and Shetland Sheepdog - 3.75" - 5.5"
- Medium - 40 to 65 lbs. - Boxer, Bull Dog, Cocker Spaniel, Australian Sheppard, Greyhound - 5.0" - 7.0"
- Large - 65 to 90 lbs. - Labrador, German Sheppard, Doberman, Husky, Border Collie - 6.0" - 8.0"
- Extra Large - 90+ lbs. - Great Dane, St. Bernard, Weimaraner, Bernese Mountain Dog - 7.0" - 11.0"

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