

Socket-less Socket™ ICON™ BK-Hybrid™



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Introduction to the Socket-less Socket™ ICON BK-Hybrid™:

The ICON BK-Hybrid™ configuration is half conventional socket, and half Socket-less Socket™. It offers the familiar fit and containment of a conventional socket on its distal 1/3, while uniquely providing excellent conformity, heat dissipation, and volume accommodation on the proximal 2/3 and posterior brim. Users should have much greater knee range of motion thanks to the conforming brim. Its unique conformity + adjustability provide greater comfort to be maintained throughout the life of the prosthetic, even with limb volume gain or loss.



The majority of below knee Socket-less Socket™ users are typically fit with the ICON BK-Hybrid™ configuration due to its elegant simplicity. The ICON BK-Hybrid™ can often be retrofit or integrated into an existing conventional socket, making it an ideal solution when conventional sockets require adjustments or repairs. The ICON BK-Hybrid™ can be fit to users ranging in sizes from pediatric to adult, petite to obese, and short limbs to long (including Symes).

Clinical Services Support:

Martin Bionics now includes Clinical Services support along with the purchase of the Socket-less Socket™ technology so that our trained and experienced clinicians can help ensure that every Socket-less Socket™ user achieves maximum comfort outcomes. Martin Bionics can coordinate to do the fitting alongside you via Zoom or Facetime video-call support.

Schedule a phone or video Consultation or Clinical Fitting Collaboration with our Clinical Services Practitioners:

Clinical Consultation: <https://calendly.com/martin-bionics-clinical-services/consultation>

Clinical Fitting Collaboration: <https://calendly.com/martin-bionics-clinical-services/clinical-fitting>

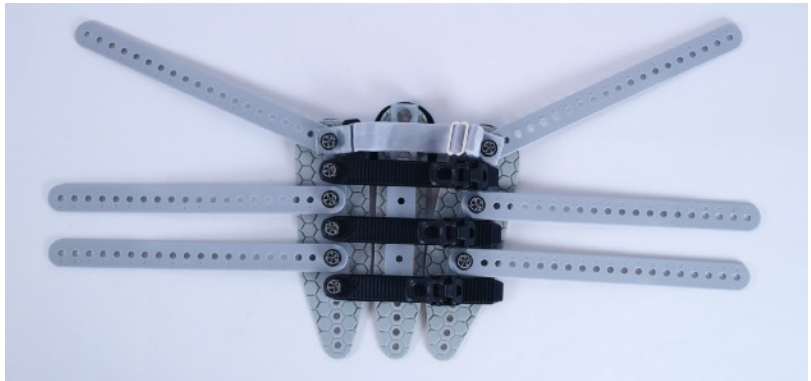
How To Place a Socket-less Socket™ Order:

Web: MartinBionics.com/Order

Phone: 844-MBIONIC (844.624.6642) or 405.839.7326 X729

Email: orders@MartinBionics.com

Ordering Option 1 - Integration Kit: The ICON BK-Hybrid™ integration kit can be ordered as a left or a right, and can be trimmed to length to fit your socket assembly. It can be assembled onto your own sockets within your clinic. Some practitioners keep these off-the-shelf ICON BK-Hybrid™ integration kits on-hand to offer real-time fittings for their patients, or to even convert existing conventional sockets to an ICON BK-Hybrid™ configuration. It can also be special ordered in pediatric sizes as needed.



Ordering Option 2 - Customized Check Socket Integration: Mail us a well-fitting check socket and we will trim down your socket to the appropriate ICON BK-Hybrid™ trim lines and custom assemble the ICON BK-Hybrid™ components within your socket. This custom assembly should provide a fit that is about 90% complete out-of-the-box. Simply micro-adjusted the ICON BK-Hybrid™ components for a perfect fit.

Keep in mind that since the posterior brim of the conventional socket will be removed and replaced with the conforming ICON BK-Hybrid™ components, the fit and comfort of the conventional socket's brim does not matter. Rather the conventional socket's brim simply needs to be at the correct brim height so that the ICON BK-Hybrid™ can be integrated in the correct position.



Suspension Options:

The Socket-less Socket™ designs can use any form of suspension found in conventional sockets, and more. The quality of the suspension has a significant impact on perceived stability and ambulation confidence, just as in any other socket design. The vast majority of fittings will use pin suspension. Pistoning and rotation issues often experienced in conventional sockets with pin systems are eliminated within the Socket-less Socket™ designs.



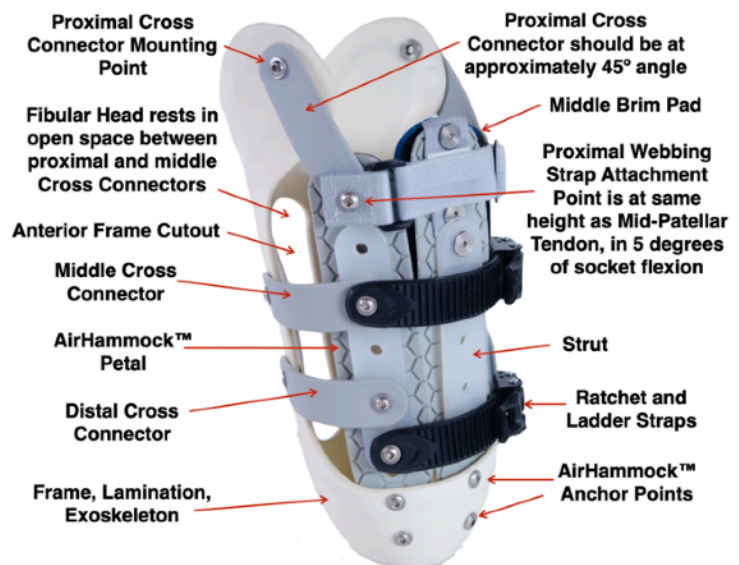
If you intend to integrate a sealing liner, such as an Ossur Seal-In system, the ICON BK-Hybrid™ is a great configuration, since the distal end can remain intact. Simply plan your distal trim lines such that they remain high enough for the seal level. A flexible inner socket can also be integrated within this configuration. See the *Tissue Management* section for integration instructions.

The ICON BK-Hybrid™ comes with our SharkSkin™ material to eliminate micro-movements within the socket and spread the suspension forces 360° around the limb. It's unique unidirectional friction allows the limb to easily slide into the socket for donning, but helps prevent the limb from sliding out until the socket is loosened for doffing. SharkSkin™ is not intended to be the predominant suspension method, but is used as accessory suspension along with pins or lanyards. SharkSkin™ provides the user with a much greater sense of control within the socket, and makes the socket feel lighter weight.



Anatomy of the ICON BK-Hybrid™:

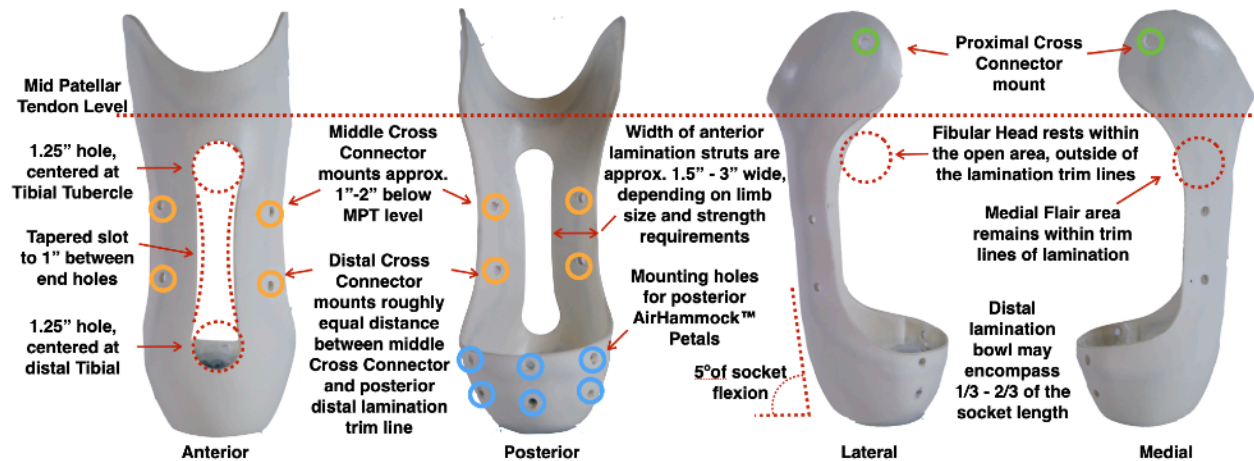
The ICON BK-Hybrid™ uses similar parts as other Socket-less Socket™ configurations, but are specifically and purposefully configured to maximize comfort outcomes for below knee users. Understanding the terminology of these components will be helpful to simplify this training and expedite the fitting process.



ICON BK-Hybrid™ Retrofit and Integration Instructions:

1. **Adjust the Frame Trim Lines:** If you are making a custom-molded frame, the quality of the cast and fit matters, just as how you would fit a conventional PTB socket. The ICON™ BK-Hybrid and ICON™ BK frame shape largely resembles that of a conventional PTB socket, with the exception of the posterior, medial, and lateral trim lines being replaced by Socket-less Socket™ components.

All Socket-less Socket™ configurations can also still utilize a supracondylar or suprapatellar shape, though is rarely needed, as other more progressive options are available such as the Martin Bionics Cierra Cuff Strap™ (see also its independent training document). The ICON BK-Hybrid's™ proximal 'ears' should resemble that of a conventional socket and provide sufficient medial/lateral knee control, just as in conventional sockets.



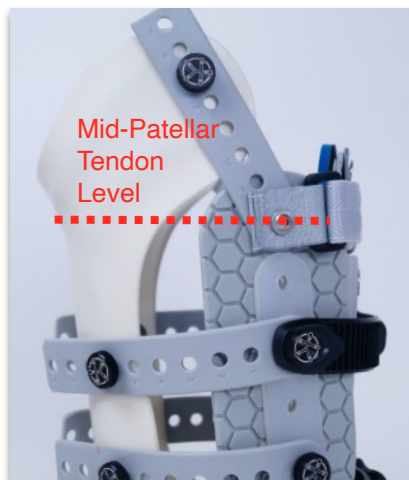
Begin by adjusting the trim lines of the conventional socket frame by removing the proximal 1/2 - 2/3 of the posterior, medial, and lateral aspects of the frame, leaving only the anterior side, distal 1/3 - 1/2, and ears intact. Ensure that the remaining frame structure has enough rigidity and durability since so much material is being removed. For check socket fittings, the anterior cutout can significantly weaken the check socket strength and add excessive flexibility to the system, so sometimes the anterior cutout is integrated in the final laminated socket instead. It is important that there is no flex to the frame at all, as it will prevent a successful fit. If the remaining frame does flex, you may need to reinforce it before beginning the fitting.

2. **Drill Holes for and attach the proximal Cross Connectors:** Drill a 1/4" hole at the proximal posterior corners of the ears of the frame (green circles) for mounting the proximal Cross Connectors with the included Truss Nuts and Thumb Screws. The length of the proximal Cross Connectors should place

the Proximal Strap Attachment Points on the posterior medial Floating Strut and posterior lateral Floating Struts at the mid-patellar tendon (MPT) level, which is the brim height.

3. **Define and Trim the Struts and AirHammock™ Petals Lengths, and Mount:**

With the brim height already established, note where the white plastic Struts intersect with the frame, and cut the Struts to length (red curved line example in the below picture). Trim the adjoining AirHammock™ Petals (yellow curved line) at least 3 (but preferably 5) holes longer than the white plastic Strut so that you have room to attach the AirHammock™ Petal with two mounting points, skipping one hole in between, and still have room for brim height adjustments if needed. This two-point connection prevents the proximal end of the Petals from migrating left or right and holds their orientation.



The three Struts should be relatively parallel with each other and spaced appropriately for the limb size, to allow enough room for tightening, but not too much to limit tissue containment between them. For conical limbs they may slightly taper toward each other. They will typically span from the posterior medial corner of the limb to the posterior lateral corner of the limb. For larger limbs the three Strut assemblies will be further apart, and for smaller limbs the Struts will be closer together.

Mark on the frame where the AirHammock™ Petal's holes line up with the frame (orange circles), skipping one hole of the AirHammock™ Petal in between. It is helpful to use the AirHammock™ Petal as a guide for defining the hole positions. The white plastic Struts should rest immediately on top of the edge of the frame (red arrow).

Drill out the 1/4" holes that have been marked on the frame to receive the AirHammock™ Petals. Mount the AirHammock™ Petals to the inside of the check socket using the Truss Nuts.

4. **Define and Attach the Side Cross Connectors:** In the ICON BK-Hybrid™, the side Cross Connectors help control the angle and position of the posterior medial and posterior lateral Struts. The two sets of side Cross Connectors should circumferentially wrap around to anchor to the anterior sides of the frame. Their attachment points should remain symmetrical on both sides, and are typically parallel with each other, for aesthetic reasons. They should also be relatively evenly spaced apart along the length of the socket.
5. **AirHammock™ Petal Integration Within the Anterior Frame Cutout:** In fittings where you intend to provide a large anterior cutout, it can be helpful to integrate the anterior AirHammock™ Petals to soften the trim line edges of the cutout. For check socket fittings, this anterior cutout can significantly weaken the check socket strength and add excessive flexibility to the system, so sometimes the anterior cutout is integrated in the final laminated socket only. Mount the anterior AirHammock™ Petals using the same Truss Nuts that mount the anterior end of the side Cross Connectors.



Tissue Containment:

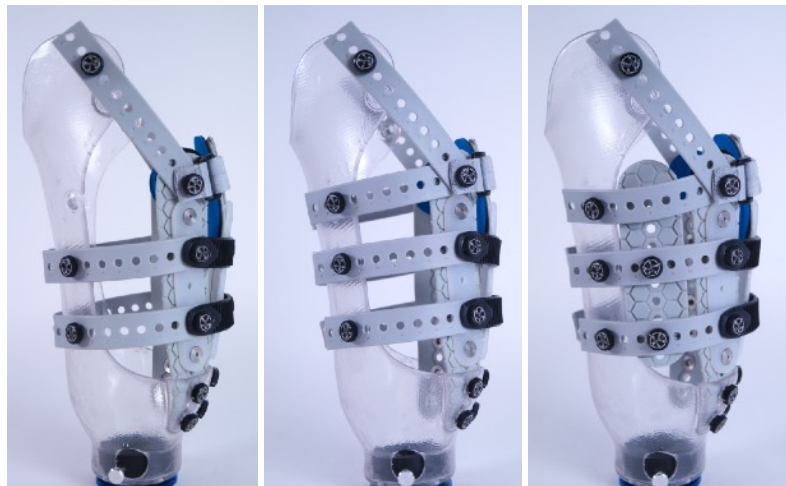
Managing the limb tissue is one of the most important factors in achieving a successful fitting, regardless of which socket configuration is used. The Socket-less Socket™ has a tremendous amount of conformity thanks to its dynamic compliant materials, but once it is donned and tightened to the user it should provide the feel of exceptional stability and containment. If there is insufficient tissue containment the user may experience an “off road shocks” feel from the tissue ballooning out of the socket windows, versus if there is sufficient tissue management the user will experience the preferred “street racing shocks” feel.

The ICON BK-Hybrid™ is the simplest configuration to achieve good tissue containment, since at least the distal 1/3 of the frame remains intact and inherently contains limb tissue. The gel liner dynamics provide additional tissue containment. Liners with less stretch and that have an integrated matrix offer better tissue containment than those with more stretch.

If there is excessive pooching of tissue within the open window areas, there are three methods of better containing the limb tissue:

1. If the distal frame trim lines are too low, they can be raised to provide more tissue containment. For larger patients with more soft tissue, it can be helpful to leave the distal 1/2 of the socket intact, versus trimming off 2/3. Likewise, the anterior frame trim lines can be extended further to wrap around the limb and contain the limb tissue. The anterior frame should not extend beyond the anterior half of the socket.

2. An extra side Cross Connector spanning across the side open windows can be added to help further contain limb tissue, or an additional AirHammock™ Petal can be spanned under the side Cross Connectors to spread out the containment. This added AirHammock™ Petal under the Cross



Connector can be mounted to the Cross Connectors with a Truss Nut.

- Integrating a flexible inner socket within the ICON BK-Hybrid™ can help provide additional tissue containment area while minimizing the rigid frame trim lines, or can be used when suction or vacuum are desired. Watch these videos to see how a flexible inner socket can be integrated within the ICON BK-Hybrid™. While this video is specific to an ICON™ BK configuration, the same principles can be used for an ICON BK-Hybrid™ with low frame trim lines.

EXPLAINING THE THERMOPLASTIC INNER SOCKET



Click to go to: <https://vimeo.com/235623325>

MAKING A THERMOPLASTIC INNER SOCKET



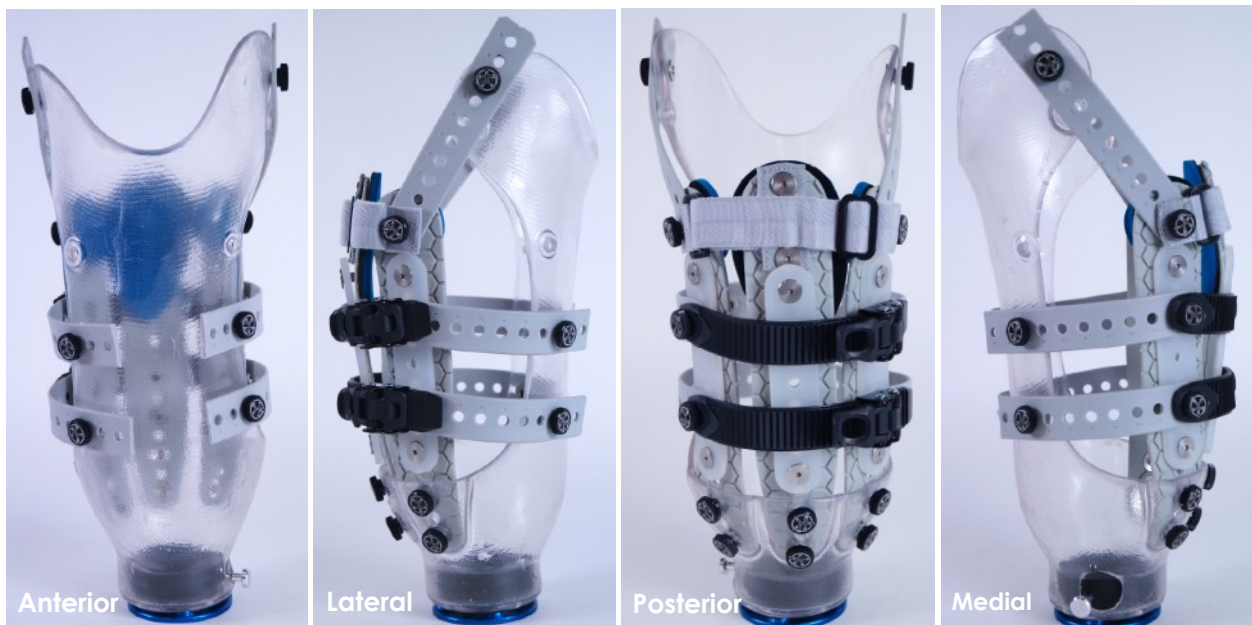
Click to go to: <https://vimeo.com/226355021>

ICON BK-Hybrid™ Fitting Adjustments:

1. **Know What to Adjust, and What Not to Adjust:** As a general rule of thumb, only adjust the spans of the Cross Connectors and the lengths of the Struts and related AirHammock™ Petals. The specific positions that the Cross Connectors are attached to the Struts, and the general sub-component assembly is defined and purposeful and should typically not be modified. Too often when practitioners attempt creative freedom of re-assembling the Socket-less Socket™ with their own creative flair, the fitting will be unsuccessful. There is specific purpose in why the Socket-less Socket™ is configured the way it is.
2. **Adjust the Side Cross Connector Lengths:** Once the socket is donned, adjust the side Cross Connectors lengths such that they are evenly snug to the limb shape when the adjustor Ratchets are in their loose position.

If the side Cross Connectors are too loose, there will not be sufficient room for the Ratchets to tighten down on the limb tissue and achieve the appropriate fit. Simply shorten the side Cross Connector's lengths to provide more Ratchet adjustability. This should place the posterior medial and posterior lateral Struts in the posterior corners of the limb, providing enough space between them and the posterior middle Strut to allow sufficient tightening of the Ratchets.

No Cross Connector should have 'pooching' or 'bowing', which occurs if one Cross Connector is too long, or another is too short. All Cross Connectors should sit flush with the limb when they are all appropriately sized.



Each multi-hole Cross Connector has numbered holes (0-19). Holes 1 to 19 are 1/2" apart. The distance between holes "0" and "1" however is 3/4". This allows for down to a 1/4" resolution in adjustability. If for instance a Cross Connector is connected between adjoining Struts using the holes number 1 and number 8, the span is 3 1/2" between the two anchor points. If the span needs to increase by 1/2", you would move the anchor from hole number 8 to hole number 9. However if 1/2" increase in span is too much and only a 1/4" increase is needed, the Cross Connector can be repositioned from holes 1 and 9, to holes 0 and 7, and the resultant decrease is 1/4" less in span.

3. **Adjust the Brim:** The contouring of the brim is modular and can be customized to the user through simple adjustments. If the brim height is too low, extend the distal mounting where the AirHammock™ Petals attach to the frame to raise the brim, and vice versa to shorten the brim height. When adjusting the brim height, always do so by adjusting the length of the AirHammock™ Petal and Struts distal ends, so that the top of the brim is effectively lowered or raised from the bottom. Never alter the top of the Strut and AirHammock™ Petal assembly.

For long limbs or for Symes, the posterior brim height can typically be lowered by an additional 1/2", and for very short limbs the brim could be raised if additional anterior/posterior support is needed. This is similar to conventional sockets posterior trim lines being lower for longer limbs and taller for shorter limbs.

In the ICON BK-Hybrid™ configuration the proximal Cross Connectors control how far the brim flares outward, as well as how the AirHammock™ Petals wrap around the hamstrings. If specific contouring is needed around a prominent hamstring tendon, it is fine to lower one side of the brim height to accommodate for the tendon, or you can extend the length of the proximal Cross Connector(s) to provide more circumferential room at the brim level.

The middle AirHammock™ Petal and middle Brim Pad purposely rests slightly higher than the brim level, but its conformity allows it to fold over and provide a larger recurve during knee flexion as it folds behind the knee, which typically increases comfort. If the brim is impinging behind the knee, this middle Petal assembly can be either trimmed to the same brim height as the other Petals, or can be significantly lengthened to provide greater recurve.



4. **Adjust the Ratchet Tightness:** The Socket-less Socket™ configurations eliminate the use of prosthetic socks since the Ratchet assembly enables the socket to be tightened or loosened in real-time. Just like in using prosthetic socks, the tighter the fit, the more body weight is supported through the body of the limb tissue, and the more offloading occurs for the distal end of the limb. Thanks to the Socket-less Socket's™ unique conformity, users often prefer to tighten the Ratchets fairly snug around the limb. Since most ICON BK-Hybrid™ assemblies have at least 2 Ratchets, they can be tightened in 'zones' to provide the most comfortable fit at the top separate from the fit at the bottom.

If the Ratchets are running out of room for adjustability, the posterior medial Strut and posterior lateral Strut can be re-mounted to the frame further apart from each other, to provide more room in between for the Ratchets to tighten down around the limb. Or, the Ratchet and/or Ladder Straps can be mounted further apart on the side Cross Connectors, versus mounting to the Struts directly.

For very small limbs circumferentially, the standard AirHammock™ Petals can be trimmed narrower or replaced with narrower versions available so they are not as scrunched together, and to provide more room for adjustability of the Ratchets.

5. **Alignment:** The ICON™ BK-Hybrid uses standard BK socket alignment principles. Attach the prosthetic foot components to the socket with a standard 4-hole pyramid, just as you would with a conventional socket.

Troubleshooting and Advanced Technical Solutions:

1. When you first try the socket on the patient, make sure that the assembly setup is appropriate for the limb size and shape. Look specifically for:
 - A. Is the brim at the correct level? Or, is there any impingement of the hamstring tendons due to unique anatomical contouring? The brim can be shifted in position side to side through Cross Connector length adjustments, or up and down through Strut and AirHammock™ Petal length adjustments. See *Adjustments the Brim* section if needed.
 - B. Can the Ratchets be sufficiently tightened around the limb, and are the Struts appropriately spaced around the limb to allow enough room for Ratchet tightening, but not too much room to limit tissue containment between them? See *Adjust the Ratchet Tightness* section if needed.
 - C. Are the side Cross Connectors snug to the limb shape without any bowing or gapping? See *Adjust the Side Cross Connector Lengths* sections if needed.
 - D. Is the limb tissue pooching through the openings on the medial or lateral sides of the socket? Consider adding an additional Cross Connector or AirHammock™ Petal across the opening to provide more tissue containment. Likewise the side trim lines of the frame could be extended posteriorly to contain more tissue, giving less space between the frame and the medial and lateral posterior Struts, although this adjustment is considerably more labor intensive than simply adding an AirHammock™ Petal. See *Tissue Containment* section if needed.
 - E. Is the frame correctly contoured to the user's limb shape? If there is an inward bowing or step-off where the AirHammock™ Petals anchor to the distal frame, it may be an indication of:

- Over tightened distal Ratchet (left image)
- Too much space between the Strut and frame (right image). The Strut length should rest up against the lamination.



2. **The Socket-less Socket™ Adjustability is Predominantly Below the Mid-Patellar Tendon Level:** The Socket-less Socket™ design provides a large amount of adjustability and volume accommodation, however, that adjustability is predominantly below the mid-patellar tendon level. While there is considerably more margin for comfort thanks to the conforming materials, if your patient loses considerable volume primarily around the knee, socks or removable padding may still be needed in those areas to maintain ML stability.
3. **How to Manage Sensitive Areas of the Limb:** Plan ahead where to place the Socket-less Socket™ components around the limb, looking specifically for the below items, and plan accordingly using a similar thought process of how you would address these items if making a conventional socket.
 - Driving Patella
 - Tracking Fibular Head
 - Tissue movement or tightness when contracting muscles
 - Prominent Tibia in full extension
 - Nerves that run where you plan on putting pressure
 - Protruding Medial Femoral Condyle in flexion (often an overlooked source limiting ROM at knee)
 - Medial Hamstrings that anchor more distally on the Tibia

If for instance the anterior Medial Femoral Condyle is prominent in flexion, you may need a place for it to exit to not limit range of motion at the knee. To do so, the medial trim lines of the frame may contour such that the medial Femoral Condyle rests in open free space with no rigid frame structure to hit. Likewise, if the distal Tibia is prominent, make sure you have sufficient relief for it within the frame. With the flexible posterior brim, there may be slightly more motion to the Tibia in flexion and you may need to make the distal Tibia relief slightly larger and extended more distal.

4. **Adjusting the Brim Contouring Around Prominent Hamstring Tendons:** If there is impingement around a prominent Hamstring Tendon, either the corresponding AirHammock™ Petal and Strut are too high or the proximal Cross Connector may be too tight as it wraps around the limb. To remedy this, either shorten the AirHammock™ Petal and Strut to the appropriate height, or shorten the proximal Cross Connector to move the Strut to the side of the hamstring. Alternatively you can extend the trim line of the ear posteriorly to keep the proximal Cross Connector from cutting off the

hamstring, creating a pocket for the hamstring. This is typically more prevalent on the medial Hamstring than the lateral Hamstring.

On conical limbs, the medial Strut length may need to be shortened or you may need to spread out the AirHammock™ Petals at the proximal end to accommodate for the Hamstrings.

5. **Ensure that the Lateral Middle Cross Connector is Not Pressing Against the Fibular Head:** On the lateral side of the socket, the Fibular Head should rest between the frame trim lines and the middle Cross Connector, without any rigid structure to hit. If the Fibular Head is abnormally placed within the socket, the Cross Connectors should be repositioned, so that they are not impinging on the sensitive area.

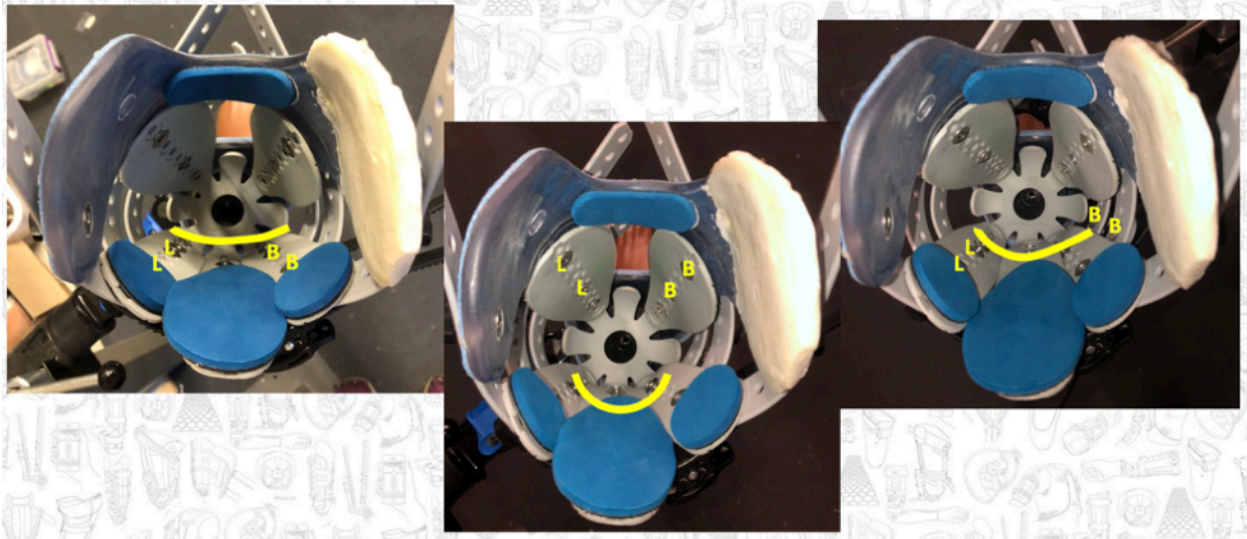
6. **Contouring the Struts for Irregular Shaped Limbs - Plastic vs. Aluminum Struts:** In typical BK Socket-less Socket™ configurations white plastic struts are used on the three posterior AirHammock™ Petals. However, for limb shapes with considerable shape contouring, the plastic struts can be replaced by aluminum Struts which can be custom bent to better match the limb shape. This can help provide better contouring of the Hammock if the Struts are not aligning to the limb shape.



7. **Avoid Placing Truss Nuts over Sensitive Areas:** For all Socket-less Socket™ configurations, consider where Truss Nuts will be mounted within the socket. Try to avoid Truss Nuts being placed over sensitive or bony areas, as the user may feel the rigidity of that component. Given the customizable modularity you can typically position the Truss Nuts wherever is needed within the configuration for the user to avoid sensitive spots, or you can simply recess the Truss Nut mounting within the lamination so that it does not protrude.

8. **Ratchet and Ladder Strap Anchor Points can be Customized to Change the Socket Shape:** In most assemblies, the Ratchet and Ladder Strap are anchored to the posterior medial and posterior lateral Struts. However, in some cases where you need to accommodate for unique limb contouring, such as if the limb requires a slightly more rounded posterior Hammock shape, the Ratchet and Ladder placement can be moved to alter how the Hammock curvature wraps around the limb. The images below show the Ladder Strap (L) and Ratchet buckles (B) attachment points on the

Hammock and their corresponding impact on the induced Hammock curvature. As those components' attachment points are spread further apart, it provides increase curvature to the Hammock shape.



9. **Is the Anterior Cutout too Large, Causing the Tibia to Protrude Through?** For the ICON™ BK and ICON BK-Hybrid™, the anterior cutout should use 1.25" holes at the top and bottom, with a tapered hourglass shape in between. The underlying AirHammock™ Petals should be within about 1/2" apart in the final assembly. If the anterior cutout is too large, as is shown in the picture to the right, the tibia can protrude through, and cause a sense of loss of stability.



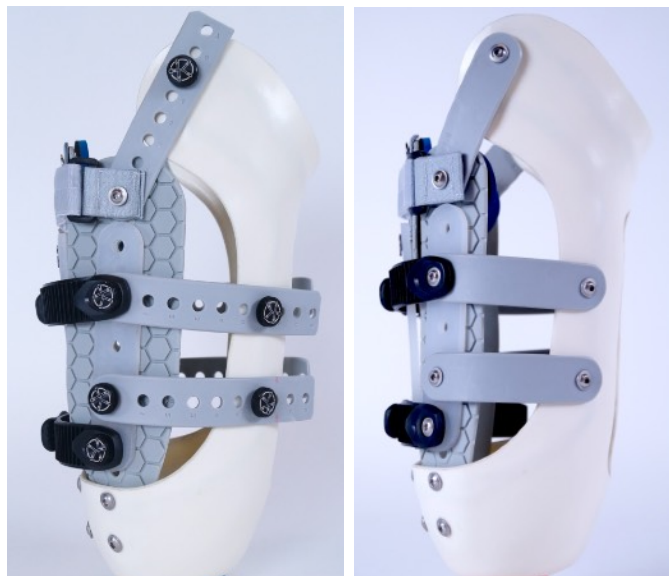
Finishing Out the Socket:

Attention to detail is very important, and the patient deserves it, so please ensure that the final fabrication and assembly has the quality workmanship you'd be proud to put your name on.

Final Lamination: The final fabrication can be completed within your own clinic or through Martin Bionics central fabrication services. If you fabricate the definitive lamination in your clinic, make sure the lamination is strong enough to not flex under load, considering the micro-frame trim lines.

Before fabricating the lamination, pre-plan to recess any Truss Nut's within the lamination, so that the inner side of the Truss Nut does not protrude toward the limb past the lamination thickness. This is especially helpful for mounting areas where there is not an AirHammock™ Petal, as the AirHammock™ Petals have a recess built in for the Truss Nut. The anterior AirHammock™ Petals themselves can also be recessed within the lamination.

Smooth Cross Connectors: Swap out all multi-hole Cross Connectors with smooth Cross Connectors by drilling the corresponding holes in the smooth version at the same mounting positions and trimming them to length. Do not leave multi-hole Cross Connectors on the definitive socket, and do not leave extra length of Cross Connector protruding past the Truss Nut attachment points, as this results in an un-cosmetic appearance and lacks attention to detail.



Truss Nuts: Do not use the thumb screws for final assembly, as they are only meant for check socket use within the clinic setting. Replace any Thumb Screws with the definitive Truss Nuts and Screws for out-of-clinic and definitive use. **Be sure to apply Loctite 242 to ALL Truss Nuts prior to delivery of the socket**, as the socket does not come with Loctite pre-applied. If they are not Loctited, they will back out over time. If they are Loctited and sized appropriately, they should not back out.

The Truss Nuts are available in 1/16" increments, and it is very important to ensure that for any parts that need freedom to swivel, including all Cross Connector and Ratchet /Ladder adjusters, that the Truss Nut length is 1/16" longer than the build height of the various sub-components that are being attached together. If the Truss Nuts are clamped where swivel movement is desired, the screw may back out over time.

Increased Muscle Use:

In conventional sockets, users often complain that they feel like their limb muscles are hitting a rigid wall when they try to flex. Conventional sockets do not promote muscle contraction during walking, and most amputees experience considerable limb muscle atrophy over time.

“I actually feel as I’m walking that the muscles in my residual limb are trying to perform as they used to when I had my original foot.”

Joel, Socket-less Socket™ User

The Socket-less Socket's™ conforming materials and open structure allows the limb muscles to freely flex and results in the user feeling like they are using their limb muscles again, similar to how they used them when walking with a sound limb. Many Socket-less Socket™ users find that for the first few days of walking in the Socket-less Socket™ that their limb muscles can feel sore - similar to the feeling of having not been to the gym in a year, and having just completed a large workout. Within a few days the muscles acclimatize to being used again and the feeling goes away.

Many users declare that their limb feels stronger and looks more muscular after a few weeks of use. The inherent adjustability that the Socket-less Socket™ uniquely offers allows the socket to remain fitting well, while accommodating for increased muscle growth.

Other Features and Benefits of the ICON BK-Hybrid™:

Nearest to a Conventional Socket: For patients who desire a more simplified and streamlined appearance but who want the unique Socket-less Socket™ benefits of better range of motion, decreased sweating, increased sitting comfort, self-adjustable volume accommodation, and excellent comfort, the ICON BK-Hybrid™ is an excellent choice.

The Lowest Clearance: The ICON BK-Hybrid™ has the same distal build height as a conventional socket since there is no distal Receptacle in this configuration. Therefore, this can be an especially helpful configuration for long limbs or Symes level fittings where clearance can be an issue.

More of a “Solid Feel”: This design offers greater sensory feedback from the ground, since there is not a distal Receptacle, as is often used in the ICON BK™ design. A more solid feel is generally a beneficial quality for bilateral patients or those with considerable contralateral issues.

Users Love the Micro-Adjustability to Their Fit: The Socket-less Socket™ uniquely offers user-adjustable volume accommodation. We’ve found that even those who do not fluctuate in volume (less than 2 ply per day) still love the ability to micro-adjust the socket fit in real-time. For long periods of sitting such as a car ride or plane flight, many users will loosen the socket, and then tighten it back up upon standing. In most cases these adjustments can even be made through pants, without the need to remove pants to adjust socket fit as in conventional sockets. Most users can ‘feel’ the difference of just one click of the Ratchets tighter or looser - which is only about 2mm of circumferential tightening.

The Socket-less Socket™ Simplifies Donning, Especially for Geriatric Populations: The Socket-less Socket™ is simpler to don in sitting or in standing, and it does not require pushing or pulling of soft tissue into a static contained bucket.

Excellent Durability and Long Life Expectancy of the Socket-less Socket™: The dynamic and conformable materials used in the Socket-less Socket™ system are incredibly durable and are designed to give a long life-expectancy. We see very few durability related issues, but if something were to need replaced, our unique modularity allows the socket to be repaired quickly and easily and is often field serviceable. More importantly, the socket should remain comfortable for much longer than a traditional socket, as the user-adjustable conformable materials match the socket to the user, versus the user’s limb having to match to a static piece of plastic. The human body is very dynamic, and making the socket’s fit dynamic as well provides a longer lasting comfortable socket.

Contraindications of the ICON™ BK-Hybrid:

Can you Fit Short Limbs with the ICON™ BK-Hybrid? The uniquely conforming anatomical contouring of the Socket-less Socket™ enables for an incredibly secure fit even with short limbs. If the limb length, and hence socket length, is too short, there may not be sufficient room for the ICON BK-Hybrid™ components to fit. The ICON BK-Hybrid™ components should have at least 2 holes of length to the posterior Struts (2” long). For short limbs consider also the modular Cierra Cuff Strap™ option to provide increased knee stability and/or suspension. See the separate Cierra Cuff Strap™ training at Socket-Soft.com.



Does Not Accommodate as Much Volume Change as Other Socket-less Socket™ Configurations: The ICON™ BK-Hybrid accommodates for a large amount of volume change, though predominantly in the proximal 2/3 of the limb since the distal end of this socket configuration is static. In some cases a 'sock-ply equivalent' of 10+ ply up or down will still maintain a comfortable fit. Since there is so much adjustability in this configuration, the limb will typically remain comfortable regardless if the patient also has volume change on the distal 1/3 of the limb. However, if the patient requires more adjustability around the distal end of the limb, an ICON BK™ or Soft-Socket™ configuration may be beneficial as they are adjustable along their entire length.

Socket-less Socket™ ICON BK-Hybrid™ Coding:

Medicare has approved coding for the Socket-less Socket™. The Socket-less Socket™ has numerous possible configurations including selecting various forms of suspension and tissue management options. You will bill according to the socket design you make for your patient, using existing coding. For many fittings, the coding will be similar to the code set that may be used with a conventional socket.

Code(s)	Description
L5301, L5540 or L5700	ICON BK and ICON BK-Hybrid: Base Code, Definitive, Preparatory, or Replacement Socket
L5050 or L5540 or L5703	ICON BK and ICON BK-Hybrid (for Symes use): Base Code, Definitive, Preparatory, or Replacement Socket
L5629	Addition to Lower Extremity, Below Knee or Symes, Acrylic Socket
L5940	Addition, Endoskeletal System, Below Knee or Symes, Ultralight Materials
	The following may be used depending on socket assembly configuration
L5620	Addition to lower extremity, test socket
L5645	Addition to lower extremity, flexible inner socket, external frame
L5646	Addition to lower extremity, air, fluid, gel, or equal, cushion socket
L5637	Addition to lower extremity, total contact
L5910	Addition to lower extremity, endoskeletal system, alignable system.
L5634	Addition to lower extremity, posterior opening socket
Suspension Codes	Pin/Lanyard, Suction, Vacuum, or others

Certification of Training and CEU Credits:

All practitioners fitting this Martin Bionics technology are required to confirm that they have completed this Martin Bionics socket training by clicking on the button below before fitting this technology.

Through completing this training you are eligible to receive CEU credits from the American Board for Certification. Click the button below, input your name and credential numbers, and we'll provide you with a quiz for CEU credits.

[Click Here to Complete the Training and to Register to Fit the ICON BK-Hybrid™](#)

Warranty and Credits

Thorough review and understanding of the Socket-less Socket™ training materials has a significant impact on the success of the socket fitting. The Martin Bionics' Clinical Services team will support your Socket-less Socket™ fittings to help maximize comfort and ensure that every fitting is as successful as possible. In the event there are challenges in the fitting process, our Clinical Services team can join you via a Zoom or FaceTime call, where we can typically help diagnose and resolve the issue with specific socket adjustment suggestions.

If the socket is ultimately not the correct configuration for the end-user, we can re-configure the socket to another configuration to better match the user's clinical needs.

If even after the Clinical Services support the patient rejects the Socket-less Socket™, we will provide a credit toward fitting another patient, at the actual Socket Component invoiced price, less check socket, final fabrication, and shipping expense as applicable. All Socket-less Socket™ components will need to be returned within 30 days and the original invoice paid in order to issue the credit toward another fitting.

While we rarely find the need to repair or replace socket sub-components, the modularity of the Socket-less Socket™ allows it to be easily repaired. Martin Bionics will support replacement parts if premature wear and tear are found based on a flaw in Martin Bionics workmanship.

You can find the most recent and additional training resources at MartinBionics.com/Socket-Soft, as we update our training regularly.

If you have any questions during your socket fitting, contact our Clinical Services team at 844-MBIONIC, or schedule for our trained and experienced Clinical Services team to join you via phone or video-call for a Clinical Consultation or Clinical Fitting Collaboration using the links below.

Clinical Consultation: <https://calendly.com/martin-bionics-clinical-services/consultation>

Clinical Fitting Collaboration: <https://calendly.com/martin-bionics-clinical-services/clinical-fitting>