
LTI Locking Shoulder Joint

- 36 locking positions in flexion
- Operate as a free-swing joint
- Only 2³/₈" (60 mm) diameter
- Light weight - only 172 grams
- Adjustable abduction friction
- Supplied with exoskeletal plate
- Optional endoskeletal bracket
- Left or right-hand control
- 3-spoke mount available



Made from high strength aerospace alloys, the LTI Locking Shoulder Joint is a durable alternative for people with an upper limb amputation. The shoulder swings in a natural arc during gait, but it can be locked in 36 positions, or every 10°. Abduction/adduction is achieved by using a second hinge with adjustable friction. The user can free the joint manually or by using the optional nudge control. When free, the joint moves so easily that a bilateral amputee can reposition the entire arm by merely leaning forward while pushing the lock release.

The size and weight of this joint make it suitable for pediatric use even though it is designed to support the loads imposed by a large adult. At just over 2³/₈ inches in diameter and 172 grams, it can conveniently fit both adolescent and adult prosthetic systems. The shallow depth and pre-shaped humeral attachment plate allows prosthetists to construct the prosthesis with a natural shoulder line.

The new LTI Locking Shoulder Joint has been redesigned to provide more strength and greater resistance to wear. Hard-coated aluminum release mechanisms have been replaced by hardened steel parts for longer life. Bushings have been replaced by ball bearings for smoother operation and less friction. Finally, the humeral friction adjustment now has a bronze bushing for finer adjustment and less wear.

The LTI Locking Shoulder Joint can be used in both endo- and exo-skeletal prosthetic systems. The joint is supplied with a convenient exo-skeletal humeral mounting plate, but an optional endo-skeletal clamp is also available. The joint is normally mounted to the socket with a standard mounting disk. This essentially clamps the plastic socket material between the joint mechanism and the disk. If the socket does not have adequate stiffness to support this joint, an optional 3-spoke mounting plate can easily be substituted providing exceptional strength.

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Socket with Lock Release Lever

The LTI Locking Shoulder Joint can be used in body-powered or externally-powered prosthetic systems. Often this joint becomes part of a hybrid system consisting of some electric and some mechanical components. The joint is designed so that power cables leading to the elbow or terminal devices can pass through the center of the abduction joint to protect and conceal the wiring. This opening has been increased to $\frac{5}{8}$ " (15 mm) making it easy to pass wires and connectors through.

The joint can be controlled in several ways; the user can simply activate the lever on the side of the joint to lock/unlock it. A nudge switch or remote release lever (as shown in the diagram above) can be used to provide a more accessible control for the user's convenience.

The Shoulder Joint is supplied with an alternating lock/unlock actuator mechanism which allows the user to simply pull on the lever or a cable to lock, and pull again to unlock. The Lock Release mechanisms (listed to the right) can be used with this joint to position the control in a convenient location for the user to activate with their sound-side limb or with their chin. The base plate also has a cable clamp, thus providing a convenient location for securing and adjusting cable length.

An optional electric actuator (SJ75) is planned and will also perform the lock/unlock action. It will be operated by any convenient switch, or similar input device. This approach is preferred for users who have externally-powered prostheses and find it difficult to activate the mechanical release levers (like bi-lateral amputees or amputees with limited range of motion in their sound-side limb).

The humeral attachment plate has been lengthened and is now provided with mounting holes on both ends. One end is bent 30° creating a natural shoulder shape, the other is straight. The prosthetist can reverse this plate and use the end they prefer – straight or bent.

To Order:

SJ90	LTI Locking Shoulder Joint
SJ43L	Lock Release, Spring Loaded, Left
SJ44R	Lock Release, Spring Loaded, Right
SJ45L	Lock Release, Sierra Nudge, Left
SJ46R	Lock Release, Sierra Nudge, Right
SJ60	3-Spoke Mounting Plate
SJ62	Endoskeletal Adapter Kit
SJ61	Spare Exoskeletal Attachment Plate
SJ75	Powered Actuator Kit – available soon

Patent Pending

6/06

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