

bebionic3

3.0 bebionic glove



The bebionic glove is made from a multi-layered, variable hardness, silicone-based material, lined with fabric mesh. This construction resists soiling, wear and puncture damage.



CAUTION

The bebionic glove has been designed specifically for use with the bebionic hand.

The use of other gloves may damage the hand and will void the warranty.

bebionic gloves provide high compliance with gripped objects. The fabric liner allows the glove to slide over the joints during motion, this reduces the amount of power need to drive the hand and increases battery life.

The standard glove is supplied in 19 skin tones and in a solid black color.

bebionic gloves provide an additional barrier to dirt, dust and moisture ingress to the hand. Direct exposure to water, or situations where dirt and dust are prevalent should be avoided as these have the potential to interfere with or damage the hands performance.

bebionic glove

3.1 Fitting the bebionic glove



1. Move the thumb into the opposed position.

! CAUTION

Do not use talcum powder or lubricant when fitting the glove



2. Switch the hand OFF by pressing down the program switch on the back of the hand for approximately three seconds.



5. Fold up the base of the glove.



6. Pull the glove over the hand



CAUTION

Do not attempt to fit the glove unless the hand is in glove donning mode.



3. Press and hold the program switch for four seconds. The hand will automatically drive into glove mode.



4. The thumb will be in the position shown above when the hand is in glove mode.



7. Ensure the fingers and thumb of the hand align correctly with the fingers and thumb of the glove.



8. Hold down the program switch for four seconds to exit glove donning mode and begin using the hand.

bebionic glove

3.2 Removing the bebionic glove



1. Firstly oppose the thumb. Then turn the hand OFF by pressing the program switch for approximately three seconds. Next put the hand into glove donning mode by pressing the program switch for 4 seconds.



2. Roll up the base of the glove and pull the whole glove off from the back of the hand.



3. Do not pull the fingers individually as this can damage the glove and the hand.



4. Exit glove donning mode by pressing and holding the program switch for four seconds, the hand will automatically drive out of glove donning mode and will be active in the default grip.

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3.3 Care instructions and information

Care

Take care when fitting and using the bebionic glove. Try to avoid contact with sharp or pointed objects.

High Definition Nails

Silicone gloves have nails painted by hand following the manufacturing process.

We do not recommend the use of polystyrene nails attached with Cyano-acrylic glue as attempts to remove the nails bonded with this adhesive will permanently damage the glove.

Cleaning

General soiling can be removed with soap and water. After cleaning remove all traces of the cleaner and wipe the surface dry. Most dyes will be fully removed by this process. A liquid domestic fabric softener can be diluted to reduce the 'tackiness' of the surface. The material used will resist most staining media.

For any other enquiries please contact your local supplier.



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4.0 connections and compatibility



A bebionic system is very versatile and allows a number of different wrist, power and connectivity options.

Most options are detailed in the following section of this document. However if you have a question regarding a specific build not outlined in this document please contact customer services.

The bebionic hand may also be used with other manufacturers' electrodes and wrists. This means the bebionic3 hand can be fitted into an existing system without having to change every single component.

4.1 Wrist Options

There are currently three wrist options for the bebionic hand.



Electric Quick Disconnect (EQD) -

Allows the hand to be removed with a rotating action. The EQD wrist allows the patient to quickly rotate and remove or attach terminal devices as required.



Short Wrist -

Low profile connector for applications where there is a long residual limb. A short wrist lamination assembly is supplied attached to these hands. The hand can be rotated against a constant friction, which can be adjusted by the patient.



Multi-Flex Wrist -

Offers passive wrist movement in all directions and the ability to lock in 30° flexion, 30° extension or a neutral position. Lateral deviation remains available while the wrist is locked in the preferred flexion angle.

4.2 Battery Options

WARNING

Only the following battery options should be used with the bebionic3. Use of other battery systems is not recommended.



BBI=2200

Typical Capacity:
2200mAh

Voltage (Nominal): 7.4V

Size:
18.5mm x 36.5mm x 70mm
($\frac{3}{4}$ " x $1\frac{3}{8}$ " x $2\frac{3}{4}$ ")

BBI=1300S

Typical Capacity:
1300mAh

Voltage (Nominal): 7.4V

Size:
8.6mm x 3mm x 66.5mm (x2)
($\frac{3}{4}$ " x $\frac{1}{8}$ " x $2\frac{5}{8}$ ")

BBI=2200S

Typical Capacity:
2200mAh

Voltage (Nominal): 7.4V

Size:
18.5mm x 18.5mm x 70mm
(x2) ($\frac{3}{4}$ " x $\frac{3}{4}$ " x $2\frac{3}{4}$ ")

4.3 Power Information

WARNING

System cables **MUST NOT** be cut while power is ON. This will short the battery and damage the system. Any damage caused in this way will void the bebionic warranty.

Power Cables

A bebionic hand uses five actuators and therefore requires a higher current supply than single motor devices. This can be accommodated safely using bebionic power cables. Other power cable types may not be efficient or safe. However, cables from other manufacturers may be adequate for signaling application.

Low Power Condition

When the battery capacity approaches its lower limit the hand operation will slow down and begin to respond only to OPEN signals. This occurs to ensure the hand stops in an open position to prevent the hand becoming locked onto an object when the power has been completely drained from the battery. The battery must be recharged for further use.

CAUTION

When attaching or detaching a bebionic hand to/from a prosthesis, it is important to first disconnect power by moving the battery switch to the OFF position.

This is to avoid a potential current surge to the hand when it connects/disconnects with the power source.

WARNING

The prosthesis **MUST NOT** be worn whilst the batteries are charging.



Battery Switch / Charging Module

An ON/OFF switch is integrated into the charge module. The switch disconnects power completely, and has two positions. When the switch is positioned closest to the charge port, power is OFF and the battery can be charged by connecting the lead from the bebionic charger. When the switch is furthest away from the charge point, power is switched ON. The battery cannot be charged in this position.

The ON/OFF switch / charge module is fitted to the battery and requires an additional connector cable to link to the hand.

The connector cable for EQD hands, as shown on page 32, is supplied with each battery. For short wrist or friction wrist options a different connector cable (CBBHA72), as shown on page 20, will need to be ordered separately and connected to the battery pack in place of the EQD connector cable.

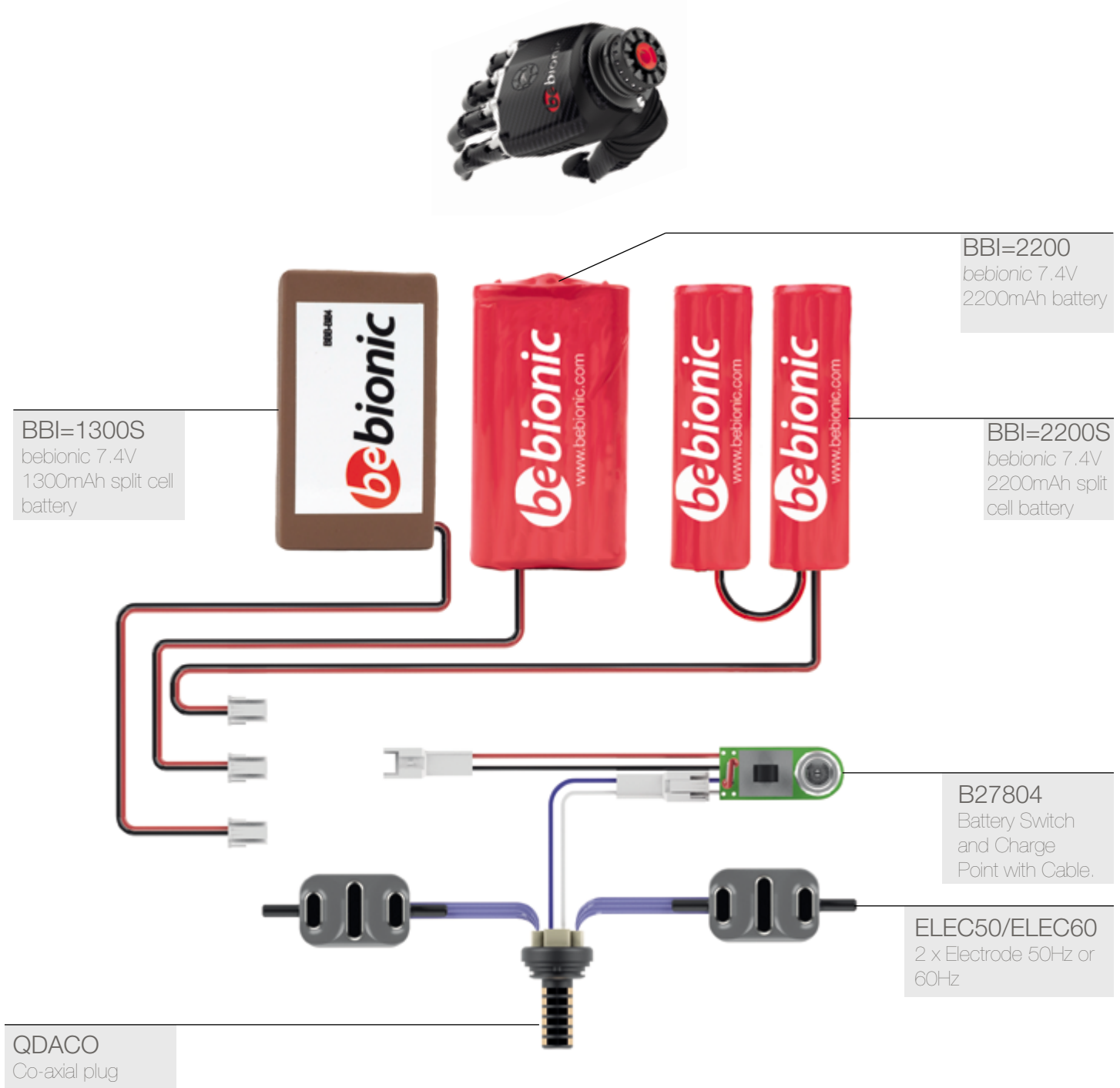
A small laminating dummy is included in the kit. Prior to lamination this should be placed in a suitable location and orientation on the forearm model. The position chosen should allow sufficient space between the inner and outer sockets to allow easy access to the switch and plug point by the user.

WARNING

It is **NOT** recommended to route the power supply to the hand without passing through the switch.

4.4 System Connections

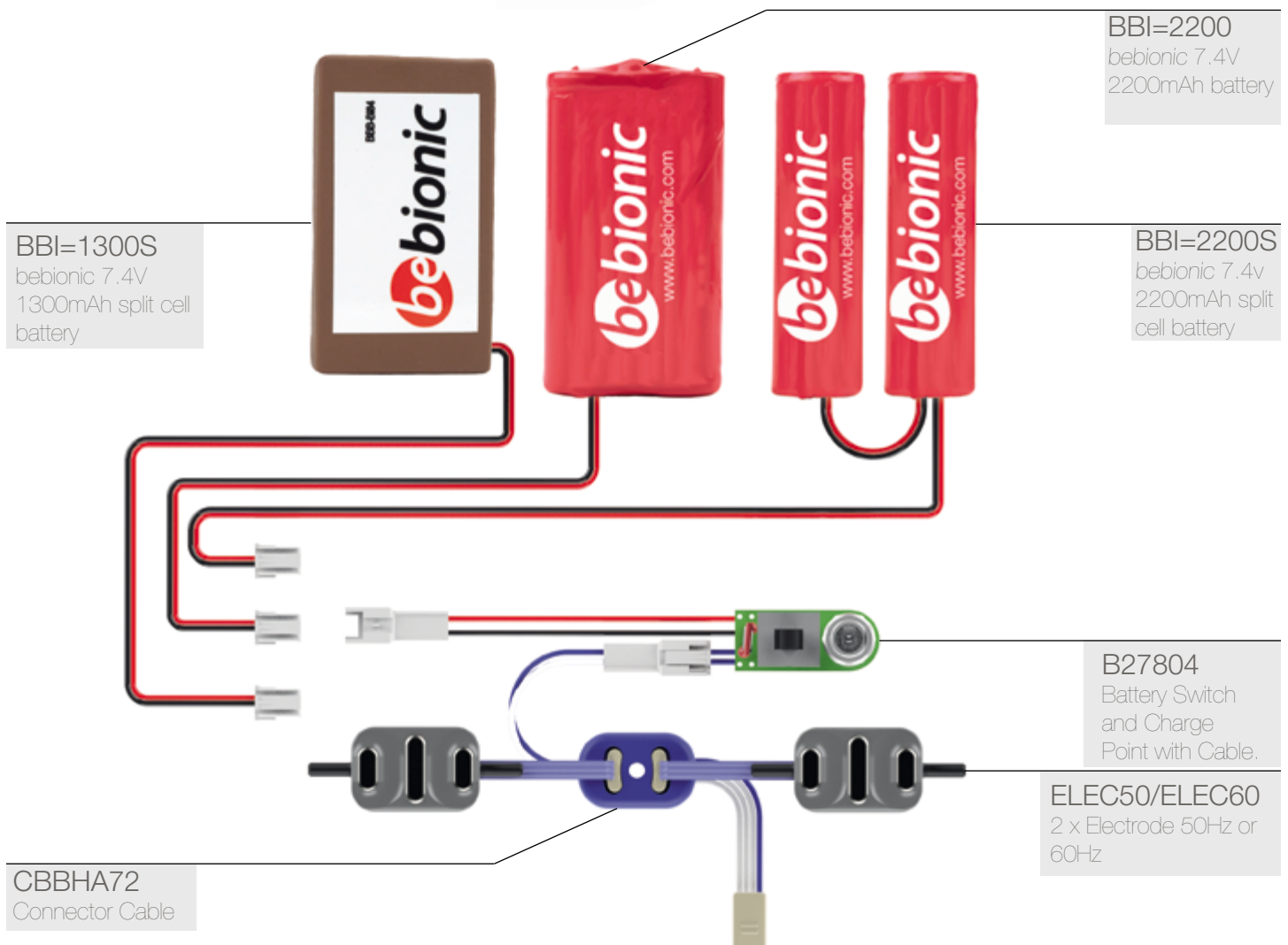
The system detailed below is suitable for a bebionic hand with an
Electronic Quick Disconnect Wrist
(Including Multi-Flex Wrist)



Please note: Part **B27804** is supplied with each battery pack and will not need to be ordered separately.
Components not to scale.

The system detailed below is suitable for a
bebionic hand with a

Short Wrist



Please note: Part **B27804** is supplied with each battery pack and will not need to be ordered separately, however part **CBBHA72** will need to be ordered separately for hands with short wrist.

Components not to scale.

4.5 System Compatibility

The bebionic hand is potentially compatible with a number of different parts from other suppliers. A common list is shown on the page opposite. Please adhere to the advice given below.

! CAUTION

The bebionic system has not been exhaustively tested with all alternative electrodes, wrists and control systems. Any damage caused will be held to be outside the design parameters of our system.

The statements above do not imply that RSLSteeper / SteeperUSA recommend or warrant these combinations.

We believe, based on the manufacturers' literature, that these combinations will work effectively. However, it is the responsibility of the bebionic practitioner to test and warrant the combination. These combinations may invalidate warranties given by other manufacturers. The practitioner should confirm the warranty position with these manufacturers.

Electrodes

We recommend RSLSteeper / SteeperUSA ELEC50 or ELEC60. Both are available to purchase and are optimized for use with bebionic3



Inputs

Supplier	Part Number	Type of Input
RSLSteeper / SteeperUSA	ELEC50 and ELEC60	Myoelectrode
Otto Bock™	9X18, 9X37	Switch
Otto Bock™	13E125, 13E200, 13E202	MyoBock Electrode
Otto Bock™	9X50, 9X52	Linear Transducer
LTI	DC200B=	Myoelectrode
LTI	TP01, TP02	Force Sensitive Resistor

Elbows

Supplier	Part Number	Name
Otto Bock™	12K44=	ErgoArm Hybrid Plus™
Otto Bock™	12K50=	ErgoArm Electronic Plus™
LTI	BE330	Boston Elbow Digital
Motion Control		Utah Arm™ 3 and 3+

Wrist

Supplier	Part Number	Name
Otto Bock™	10S17 + 13E205	Wrist Rotator and MyoRotronic
Motion Control		MC Wrist Rotator

Wrist Mode	Type	Compatibility
Program 1	Two Electrodes - Fast Rise	bebionic Mode 4
Program 2	Two Electrodes - Co-Contraction	bebionic Mode 4
Program 3	Two Electrodes - Safety Co-Contraction	bebionic Mode 4
Program 4	Two Electrodes + One Switch - Actuate and Hold	bebionic Mode 4 and Mode 5
Program 5	One Electrode - or One Linear Transducer - Quick Pull	bebionic Mode 0 and Mode 3

Please note: Devices or components not listed above are not recommended.