



Empire™ Elbow

Powered, Hybrid & Body Driven



Espire Elbow: Powered, Hybrid & Body Driven

The Espire Elbow by Steeper is a revolutionary elbow range placing importance on user experience by combining function and design. Available in a range of models, builds and colors, it provides greater choice to complement and enhance individual requirements.

The Espire Elbow range is designed to emulate the anatomical shape of the forearm and wrist, blending technology and biology to appeal to a wide range of patients. Consideration has been given to every aspect of the device's appearance, including a natural and comfortable resting position.

The entire range is compatible with a variety of terminal devices on the market with the Pro & Hybrid models being programmable to fit individual needs for everyday tasks.



Espire Elbow Range Overview

	Pro	Hybrid	Classic Plus	Classic
<i>Myocontrol via the TruSignal AC Electrodes</i>	●	●		
<i>Set-up through the Espire Hub App for iPad</i>	●	●		
<i>Compatible with Industry Standard Inputs</i>	●	●	●	
<i>Number of inputs/outputs</i>	12/4	12/4	4/4	0
<i>Locking functions</i>	Electric	Electric	Manual	Manual
<i>Elbow function</i>	Powered	Counterbalance	Counterbalance	Counterbalance
<i>Diverse design options</i>	●	●	●	●
<i>Clean-line shell and anatomical shape</i>	●	●	●	●



Espire™ Elbow | Advanced Model Features

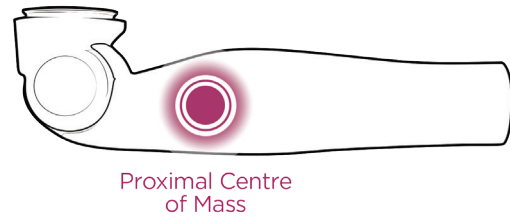
Battery System

The Espire Pro and Hybrid are supplied with two 3,000mAh batteries which each provide a full day of average use. The supplied charging dock can fully recharge a battery in as little as 3½ hours.



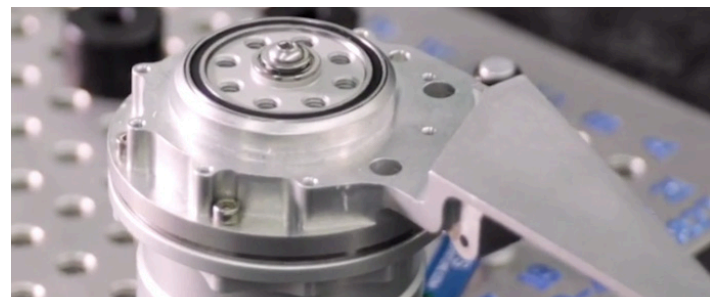
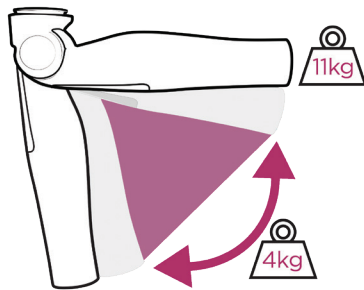
Weight

Understanding the importance of a lightweight prosthesis, the elbow was specifically designed with an optimal center of mass. With the most proximal center of mass on the market, the Espire feels lighter to the user so as not to hinder use.



Lift and Hold

Innovative gear box control enables a high lift and hold capacity. Users can confidently hold 11.3kg with all models, and dynamically lift 4kg with the Pro to perform everyday tasks with ease.



Gearbox

The Pro uses a custom 50W brushless DC motor, which provides the speed and torque needed to flex and extend the elbow. The strategic placement of the gearbox in the elbow joint provides maximum comfort, balance, and control of the limb. It automatically locks in both directions, achieving reliable confidence with elbow movement and positioning.

Power Button

The power button on the Espire Pro and Hybrid, though easily accessible, is recessed to avoid accidental engagement.



Free Swing

The Espire Pro features an electronic, silent free-swing. Free-swing is engaged automatically when the elbow reaches full extension. This feature can also be activated using alternative inputs such as myo signals or switches. Both configurations are easily set up via the Espire Hub App.

Espire™ Pro



The Espire Pro is the fully powered elbow within the Espire range, designed to mimic anatomical shape whilst being intuitive and easy to use. This reliable device offers the patient a removable battery, electric lock, and free swing options.

Compatible with most terminal devices, the elbow comes with two removable 3000mAh batteries which are designed to provide a full day of function each - even when using a powered wrist rotator and multi-articulating hand.

The Pro is easily programmed using the Espire Hub iPad App which uses a Bluetooth connection to customize the device according to the patient's requirements, and control the movement strategy of the elbow.

Features and Benefits

- Powered elbow with powered flexion and extension
- Infinite locking positions with the electric locking mechanism
- Center of mass is optimally positioned as proximal as possible on the device so it is comfortable to wear and feels lightweight
- Gear box control allows user to lift 4kg of weight, and hold 11.3kg
- Can be programmed via the Hub App for iPad to automatically enter free swing or via patient input signal (an iPad is supplied with clinic first purchase)
- A single, multi-colored LED indicator displays information such as battery life, calibration processes and system errors
- Provided with two removable batteries, fully charged in 3½ hours
- Compatible with advanced control options including the Coapt or IBT pattern recognition technology
- Compatible with inputs including TruSignal Electrodes, DC Electrodes, Touch Pads and Linear Transducers
- Minimal servicing with 2 year warranty, extended warranty option for a further 3 years
- Accommodates 12 input and 4 output connections
- Three standard finishes; Brown, Caucasian and Black
- Three enhanced finishes; Pearlescent White, Metallic Silver and Carbon Fiber available
- Custom finishes available, see www.steeperusa.com for more details

Technical Information

Elbow Lock	Locking Positions	Max. Lifting Force	Flexion Angle	Speed	Weight Limit	Size	Weight
Electronic	Infinite	13.6 N-m (10 ft-lb)	-5 - 135°	135°/s	11.3kg (25lb)	Small (45mm)	37 ½ oz (1075 g)
						Standard (50mm)	38 ½ oz (1095 g)



Espire™ Hybrid

The Espire Hybrid offers myoelectric control of the elbow lock and terminal device with mechanical flexion and extension control. To counteract the effects of gravity, the elbow will counterbalance the forearm, wrist, and terminal device.

The myoelectric input capabilities of the device allow it to control terminal devices, and retain an anatomical shape whilst being both high-tech and lightweight.

The Hybrid is easily programmed using the Espire Hub iPad App, which uses a wireless, Bluetooth connection to enable prosthetists to customize the device according to the patient's preference, and also control the movement strategy of the elbow.



Features and Benefits

- Mechanically controlled flexion and extension
- Adjustable counterbalance feature for ease of positioning and a lightweight feel
- Provided with two 3000mAh removable batteries, fully charged in 3½ hours
- Allows the user to hold 11.3kg
- Secure, intuitive electric lock which can be controlled via a selection of inputs
- Compatible with industry standard electrodes, touch pad, linear transducer and TruSignal™ inputs
- Connector cables available for standard inputs
- Compatible with advanced control options including the Coapt or IBT pattern recognition technology
- Can be programmed via the Hub App for iPad to suit patient requirements (an iPad is supplied with first clinic purchase)
- Anatomically shaped with a natural resting position
- Minimal servicing with 2 year warranty, extended warranty option for a further 3 years
- Accommodates 12 input and 4 output connections
- Three standard finishes; Brown, Caucasian and Black
- Three enhanced finishes; Pearlescent White, Metallic Silver and Carbon Fiber available
- Custom finishes available, see www.steeperusa.com for more details

Technical Information

Elbow Joint Control	Elbow Lock	Locking Positions	Lift Compensation	Dial Placement Options	Flexion Angle	Terminal Device Control	
Mechanical	Electronic	13	Counterbalance	Medial or Lateral	-5 - 135°	Electronic	
						Size	Weight
						Small (45mm)	34 oz (966 g)
						Standard (50mm)	35 oz (986 g)



Espire™ Classic Plus

The Classic Plus is a mechanical elbow featuring a forearm counterbalancing mechanism, and a manual lock to allow the patient to freely position the device with minimal effort. The elbow lock is controlled via a cable on the device with a simple upwards pull this can be done with the sound hand or via another body movement captured through a harness. Humeral rotation can be controlled via means of friction adjustment.

Pass through electronics allow various inputs and batteries such as the S-Charge System to be attached using a plug-in board, which are then routed through the elbow to the distal end to enable the use of a wide range of terminal devices.



Features and Benefits

- Counterbalance mechanism comfortably offsets the weight of the forearm, wrist and terminal device
- Pass through electronics allow the control of powered terminal devices
- Two dial placement options available: lateral or medial to adjust the counterbalance mechanism
- Mechanical locking mechanism that can be locked or unlocked under load, with a maximum holding limit of 11.3kg
- Built-in battery compartment to locate a third-party battery
- No external cables are required
- Three standard finishes; Brown, Caucasian and Black
- Three enhanced finishes; Pearlescent White, Metallic Silver and Carbon Fiber available
- Custom finishes available, see www.steeperusa.com for more details

Weight: **Small** (45mm) = 23 ½ oz (665 g)

Standard (50 mm) = 24oz (686 g)

Espire™ Elbow Classic

The Espire Classic is a body-powered mechanical elbow that features a forearm counterbalance mechanism and manual lock. It uses a dial to adjust the effect of the counterbalance which can be located either laterally or medially. This model contains no electronics or circuitry to provide a lightweight option.



Features and Benefits

- Locking the elbow is performed via a cable on the device, and uses a simple upward pull to engage
- Utilizes a forearm counterbalance mechanism to negate the effects of gravity and allows the patient to position the forearm with minimal effort
- Anatomical look and shape offer a natural resting position
- Three standard finishes; Brown, Caucasian and Black
- Three enhanced finishes; Pearlescent White, Metallic Silver and Carbon Fiber available
- Custom finishes available, see www.steeperusa.com for more details

Weight: **Small** (45mm) = 23oz (651 g)

Standard (50 mm) = 23 ½ oz (671 g)

Espire™ Elbow | Power & Inputs

Battery Charger

The Espire's removable 3000 mAh battery provides the user with a full day of function, and every Espire Pro and Hybrid comes with two easily interchangeable batteries.

The battery charging dock supplied allows for the user to plug in the battery using only one hand. The charger can quickly refuel the battery in as little as 3.5 hours, and a dual-bay charger is available to order.



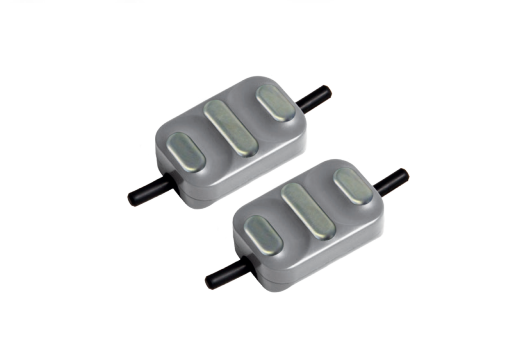
TruSignal Technology

The TruSignal™ AC Myoelectrodes filter the user's myo signals at the source to provide improved accuracy. These on-electrode boards allow the prosthetist to place the electrodes wherever they can get the best signal. The TruSignal technology independently filters signals, sending them directly to the elbow through a shielded cable that keeps the signal protected from electronic noise. Fine-tuning can be done through the Espire Hub App.



Industry Standard Input Options

The Espire accommodates almost every input configuration, including DC cased Electrodes, Touch Pads, Linear Transducers, Switches, and remote power. TMR capabilities are also included and can be controlled with either AC or DC electrodes.



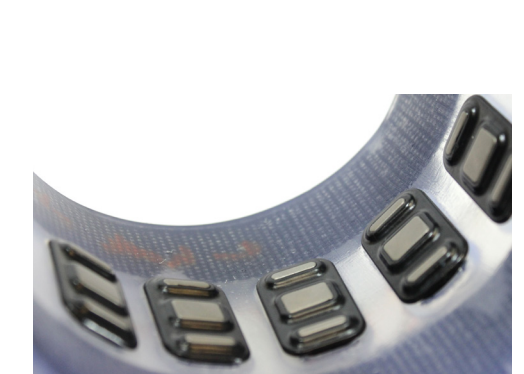
Wrists and Terminal Devices

The Espire Elbow is compatible with a wide range of wrists and terminal devices, accommodating and exceeding the industry standards. Please visit www.steeperusa.com to learn about the hand, wrists, and other terminal device options that can be used in conjunction with the elbow.



Pattern Recognition Technology

To offer optimal natural movement, the Espire Elbow Pro and Hybrid are compatible with IBT Sense and Coapt pattern recognition technology. Based on myoelectric patterns and muscle activity, patients can benefit from the pattern recognition compatibility of the Espire Pro to have smooth control of their prosthesis. This can be calibrated to ensure maximum functionality based on their individual myoelectric patterns and muscle activity. These will need to be ordered through third-party manufacturers.



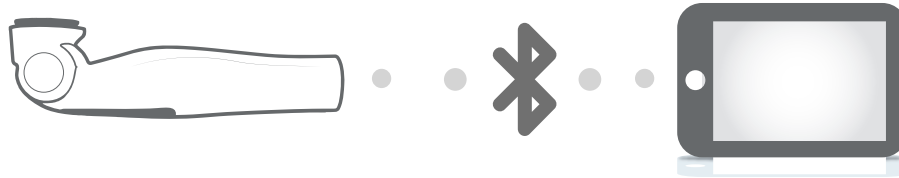
Espire™ Hub App

CONNECT, CONFIGURE, CONTROL.



The Espire Elbow Hub App makes setup easier than ever. Using a wireless Bluetooth connection, prosthetists have access to control strategy and device customization, negating the need to send the prosthesis back to the manufacturer to change configuration or terminal devices. Every clinic will receive an iPad upon their first purchase of the Pro or Hybrid model.

For guidance on using the app and reconfiguring the elbow, please log on to www.upskillbysteeper.com and complete the short **Espire Hub App Training Course**. For any further enquiries, please contact our Customer Services team.



Control switching configurations and sensitivity

View drop-down menu for alarms, device calibration, diagnostics, and system alterations

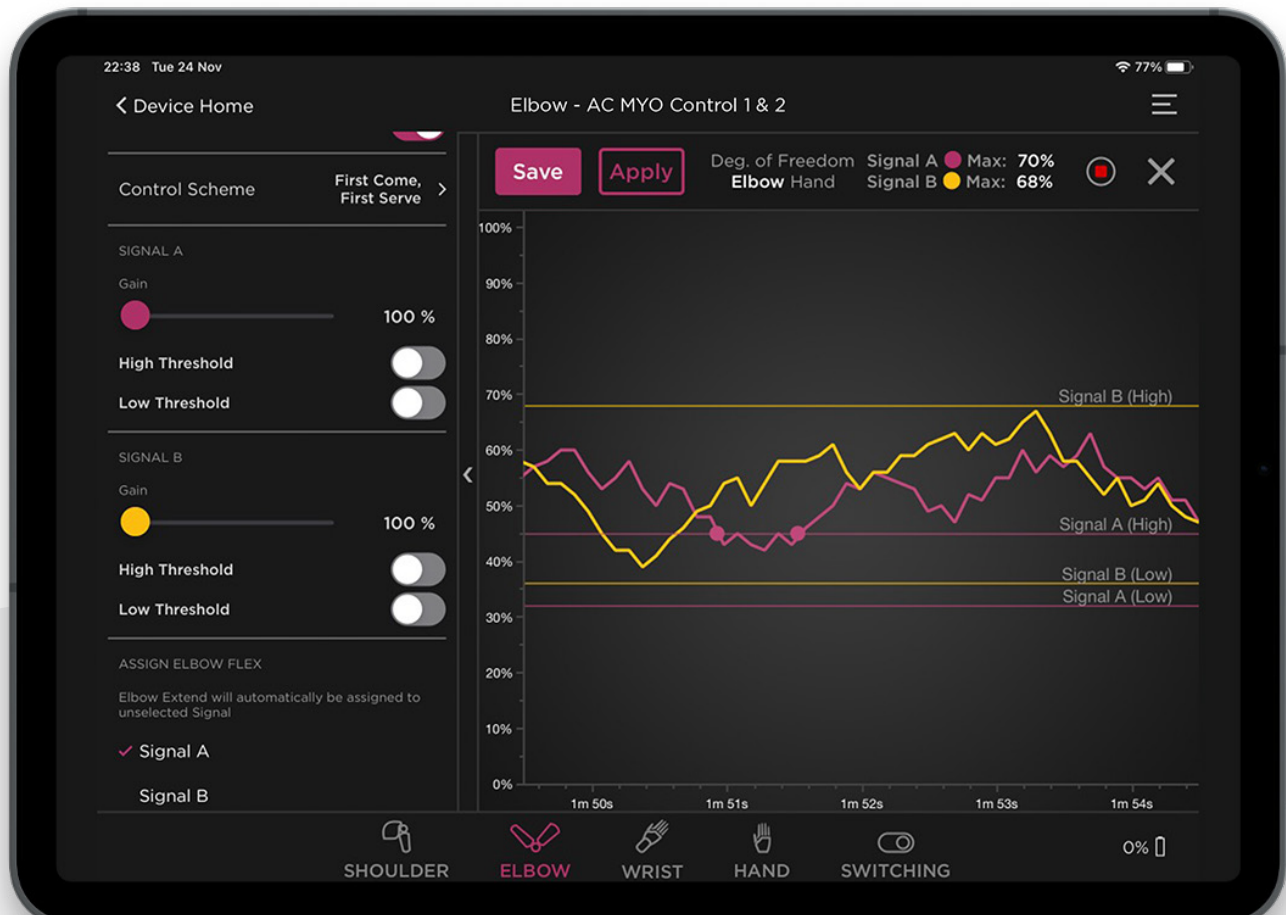


Configure connected devices

Monitor Espire battery



*Restrictions may apply



Myo Control

Once you choose a control scheme (First Come, First Serve or Maximum), you can adjust the high and low threshold of each signal. The app will allow you to watch the live signal data and see when it crosses a threshold. You can also adjust the speed as you see fit.



Switching

If switching between devices is necessary, those settings can be adjusted quickly and easily. With Myoelectric control, there are several options on how to initiate a switch. You may choose Co-Contract, Double Pulse, or Hold Open, under the Control Scheme tab in the upper left corner of the screen.



Advanced Control

The Espire Hub allows for Advanced Control, also known as 4-channel control. Advanced Control is an alternative control method for high-functioning users who want to eliminate switching between two devices.

Espire™ Elbow | Colors & Finishes

Steeper offers a variety of high-quality colors and finishes for the Espire Elbow range. Offering three types of finishing styles; **Standard**, **Enhanced** and **Custom Options**, adding an extra level of personalization that users can use to create their ideal elbow that they can wear in confidence.

Standard

A base range of colors with a satin finish are available in jet black, brown and caucasian.



Jet Black



Brown



Caucasian

Enhanced

Our enhanced color options are finished in gloss and include carbon fiber, metallic silver and pearlescent white.



Carbon Fiber



Silver



White

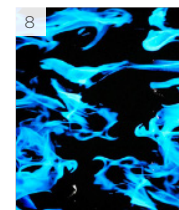
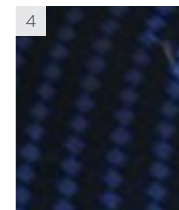
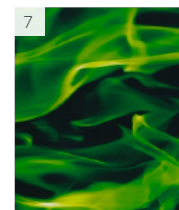
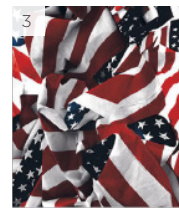
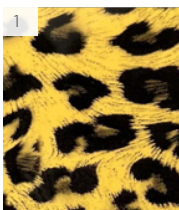
Custom Options

Through advanced hydro graphics and spraying techniques; patients can choose from a wide variety of patterns and colors for their arm, allowing them to wear their Espire elbow with confidence. These processes ensure the elbow remains a lightweight option and can be finished with a satin or gloss coating.

**Please Note: Custom colors will incur an additional cost.*



Rainbow Carbon



and Many More.

To discuss a customer order available, please contact our Customer Services Team on sales@steeperusa.com or 210 481 4126 where a friendly member of our team will be happy to help.



Want To Learn More About The Espire Elbow?

UpSkill by Steeper is an online learning platform for prosthetists, prosthetic technicians and distributor partners. Courses about the Espire Elbow range are available and include how to configure the Pro & Hybrid models using the Espire Hub App and a full overview of the range.

Register for UpSkill by using www.upskillbysteeper.com





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STPPR128 Issue 2 April 2022
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