

Espire™

Elbow Range





Espire Elbow: The next generation of prosthetic elbow

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 colours, 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. Thought 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, and can be programmed to fit individual needs for everyday tasks.

Espire Elbow Range Overview



Espire™

	Pro	Hybrid	Classic Plus	Classic	Basic
Myocontrol options, including the TruSignal AC Electrodes	●	●	●		
Set-up through the Espire Hub App for iPad	●	●			
Number of inputs/outputs	12/4	12/4	4/4	0	0
Locking functions	Electric	Electric	Manual	Manual	Manual
Elbow function	Powered	Counterbalance	Counterbalance	Counterbalance	Spring-assist
Diverse design options	●	●	●	●	●
Clean-line shell and anatomical shape	●	●	●	●	●

*Please contact Steeper for further details on the compatibility of the Classic Plus.

Advanced Model Features

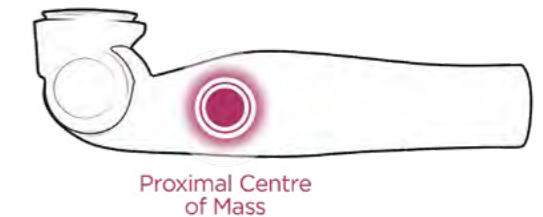
Battery System

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.



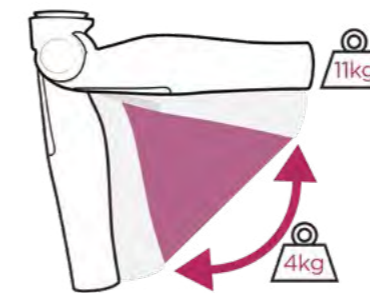
Weight

Understanding the importance of a lightweight prosthesis, the elbow was specifically designed with an optimal centre of mass. With the most proximal centre 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 11kg, and dynamically lift 4kg 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 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 a revolutionary powered elbow that is easy to use and anatomically correct with a natural free-swing motion. Combining a powerful battery and a comfortable centre of mass, this elbow functions all day with ease. The electronic lock, free swing options, and accessible power button add ease to patients' everyday tasks. The Pro is compatible with most terminal devices, switches, touch pads, and electrodes on the market.



Additional Features

- » Users have anatomical, controlled movement as the Pro only takes one second to go through full range of motion.
- » Prosthetists have access to settings for control strategy and device setup via the Espire Hub App.
- » The Pro uses a custom gearbox, which after recent development has reduced the output noise by 15%.
- » The battery compartment and power button are easily accessible for the patient. The power can also be routed to a switch located elsewhere on the prosthesis.



Espire Hybrid

The Espire Hybrid has the same electronics and battery as the Pro - without the powered elbow joint. This model has an adjustable forearm counterbalance mechanism to evenly distribute the weight of the forearm, wrist, and terminal device, negating the effects of gravity. The Hybrid conveniently uses the same inputs as the Pro to control terminal devices and can be programmed via the Hub App.



Additional Features

- » The built-in Bluetooth connection of the Espire Hybrid allows for seamless communication with the Espire Hub App for programming and optimising of thresholds for myoelectric control. This connection through Bluetooth link also allows the wearer and prosthetist to be untethered with wires during the programming and training process.
- » When using TruSignal electrodes, the auto calibrate feature allows the clinician to calibrate the signal to the end-user. This unique feature measures noise levels for each electrode thus removing this noise from the signal being used to control the device.



Espire Classic Plus

The Espire Classic Plus is a mechanical elbow featuring a manual lock and forearm counterbalance mechanism. Using a plug-in board at the top of the arm, prosthetists can attach various inputs and batteries. This model provides a discreet compartment for housing other manufacturers' batteries without having to modify the arm.



Espire Classic

The Espire Classic is a mechanical elbow that features a forearm counterbalance mechanism and manual lock. Contains no electronics or circuitry to provide a lightweight option.

Additional Features

- » The mechanical locking mechanism can be locked or unlocked while under load and can be engaged every 10 degrees (13 positions). A strain-relief is included to reduce the likeliness of damage due to excessive pull on the lock cable.

Additional Features

- » The forearm counterbalance mechanism counteracts the weight of the forearm, wrist, and terminal device, allowing the patient to position the forearm with minimal effort.
- » Wired connection points at the proximal and distal ends of the elbow provides easy connections to a wide variety of compatible myoelectric input and output devices.



Espire Basic

The Espire Basic is a body-powered elbow, featuring a manual lock and an economical dial-adjustable spring-assist to enhance ease of movement. Contains no electronics or circuitry for a lightweight device.

Additional Features

- » Being a body-powered device the Espire Basic has several advantages, most notably; a lower cost, a lighter weight and a higher reliability due to its mechanical simplicity.

Technical Specifications Pro and Hybrid

WEIGHT LIMIT
11.3kg (25 lb)

WEIGHT PRO
Small | 1075g (2.37 lb)
Standard | 1095g (2.41 lb)

WEIGHT HYBRID
Small | 966g (2.13 lb)
Standard | 986g (2.17 lb)

SIDES
Left
Right



MAXIMUM LIFTING FORCE (PRO ONLY)
13.6 N-m (10 ft-lb)

FLEXION ANGLE (PRESET CONTROL)
-5 - 135°

CONNECTIONS
Inputs | 12
Outputs | 4

POWER
Removable, Smart 3,000 mAh 10.8V Li-Ion batteries (Two supplied)

WARRANTY
2 years (additional 2 year warranty available for purchase)

Technical Specifications Classic Plus, Classic and Basic

WEIGHT CLASSIC PLUS
Small | 665g (1.47 lb)
Standard | 685g (1.51 lb)

WEIGHT CLASSIC
Small | 651g (1.44 lb)
Standard | 671g (1.48 lb)

WEIGHT BASIC
Small | 649g (1.43 lb)
Standard | 669g (1.47 lb)



DIAL PLACEMENT OPTIONS
Medial
Lateral

SIDES
Left
Right

WARRANTY
1 year

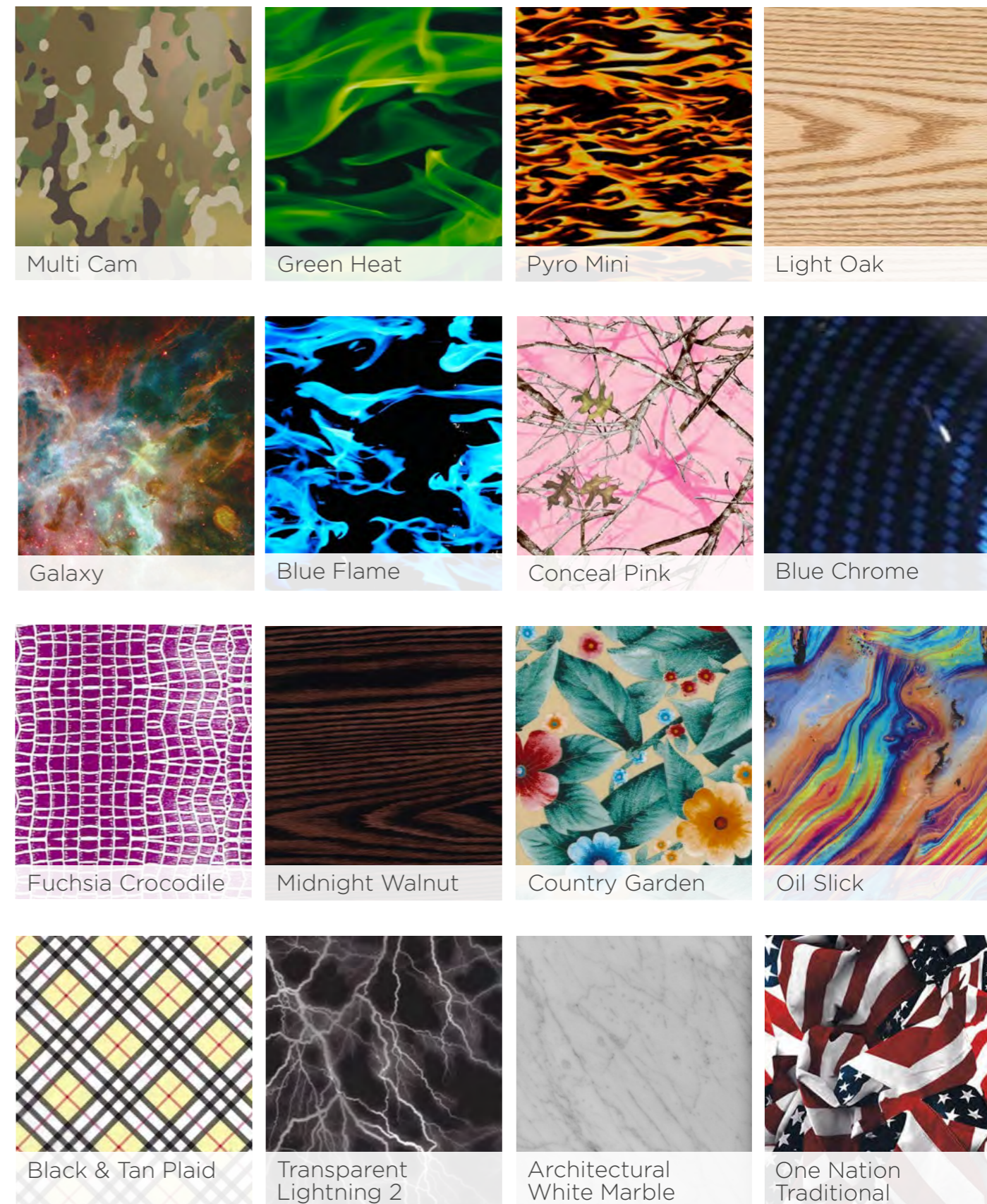
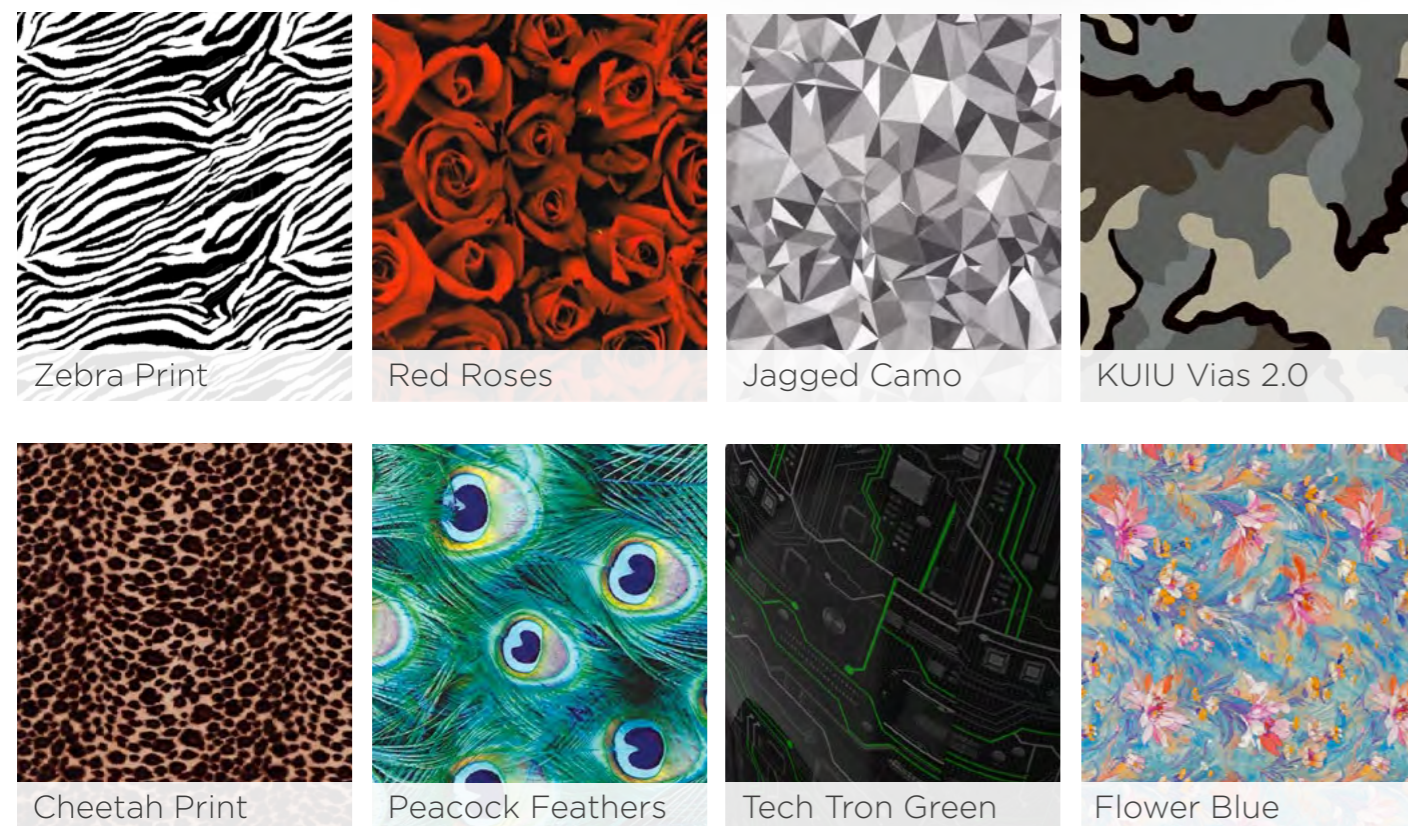
Customise the Espire

Through advanced hydro-graphics, patients can choose from a wide variety of patterns and colours for their arm, so they can wear their Espire Elbow with confidence. This process ensures the elbow remains a lightweight option. If you have questions about all custom colour options* available, please contact our Customer Services Team.

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



Carbon Fibre



This is just a sample of what's available! Contact Steeper Customer Services if you're interested in other options.

Espire Hub App

The Espire Elbow Hub App makes setup easier than ever. Using a wireless Bluetooth connection, prosthetists have access to control strategy and device customisation, negating the need to send the prosthesis back to the manufacturer to change configuration or terminal devices. Every clinician 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.upskillbysteep.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



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.



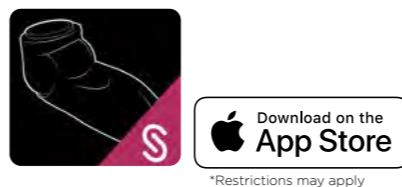
Switching

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 Accessories

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.



Introducing 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.



More Input Control Solutions

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.steepergroup.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.



Contact us at customerservices@steepergroup.com or call +44 (0) 870 240 4133.

Get in touch with a Steeper Product Manager or our friendly Prosthetics Customer Services team today, to discuss your patient's requirements, and to answer any questions you may have.



Espire™ Elbow

Steeper Group
Unit 3 Stourton Link
Intermezzo Drive
Leeds, LS10 1DF
Email: customerservices@steepergroup.com
Tel: +44 (0) 870 240 4133

www.steepergroup.com

STPPR128 Issue 2 December 2020
© 2020 Steeper Group
All rights reserved.

 **steeper**
Creating life's turning points, together