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INTRODUCTION



THUASNE ORTHO-NEURO SOLUTIONS APPLY MODERN,
TECHNOLOGICALLY ADVANCED PROCESSES AND MATERIALS
TO IMPROVE OPTIONS FOR PROSTHETIC AND ORTHOTIC
CLINICIANS AND OUTCOMES FOR END USERS.

Processes

Thuasne have independently developed and utilise a *Patented* pre-preg manufacturing process.

Design

Thuasne maintains focus on three modern design features for optimal outcomes.

- **1:** The combined properties of the constituent parts
- 2: The geometry, size and length of the fibres
- 3: The ratio of fibre to matrix

Our team of experts, inclusive of HCPC registered clinicians assist in the application of engineering principles to Prosthetic and Orthotic science.

Communication

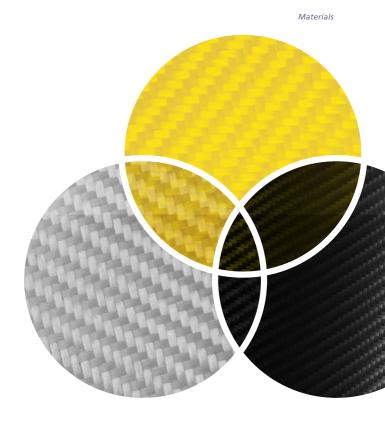
Our technical team prefer anatomical, clinical language.

Our clinical support team can visit facilities for collaborative working and we encourage VoIP meetings to improve communication.

We follow data protection rules as guided by GDPR.

Product Guide

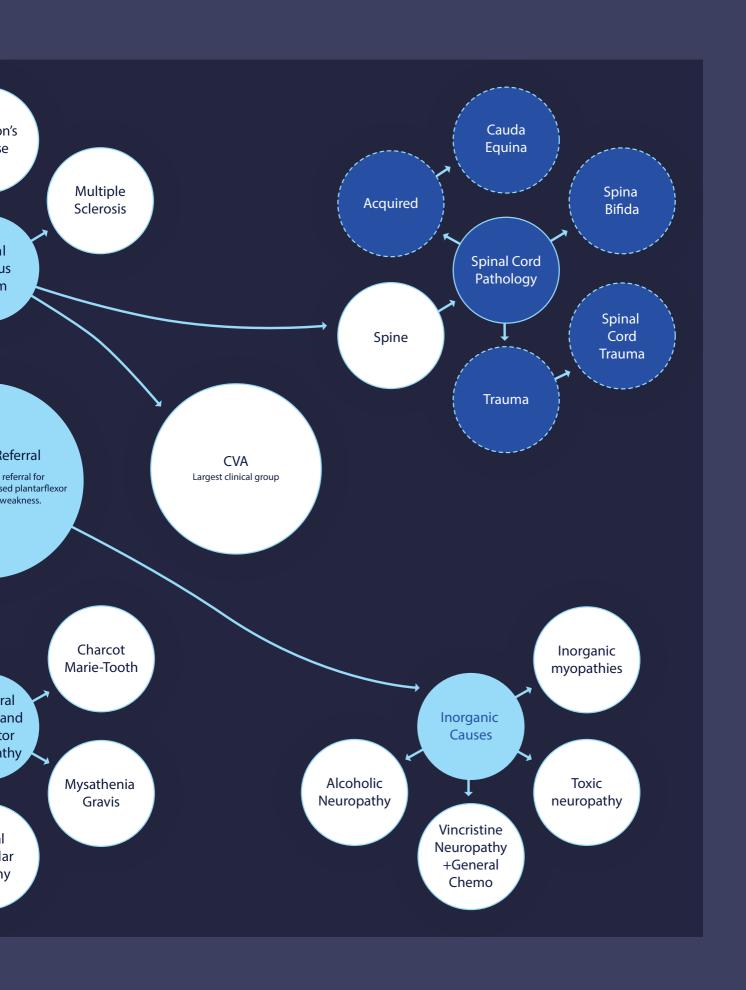
This product guide demonstrates the scope of composite products, materials and processes. It's contents are tested standardised designs.



THUASNE COMPOSITE FIBRE ENGINEERS ARE DEDICATED TO HIGH QUALITY, CLINICALLY EFFECTIVE MANUFACTURING IN SUPPORT OF THE PROSTHETIC AND ORTHOTIC INDUSTRY.

LOWER LIMB PATHOLOGY TREE









CARBON FIBRE FOOTPLATES PREFABRICATED

| SIZE | MEN US SHOE SIZE | WOMEN US SHOE SIZE |
|------|------------------|--------------------|
| SM | 6 – 8½ | 5 – 10 |
| MD | 7 – 10 | 8 – 12 |
| LG | 9 – 12 | 11 – 15½ |
| XL | 11 – 14 | _ |
| 2XL | 13 – 16 | - |

^{*} Available in left and right

- Pre-preg based carbon fibre footplates
- Very thin
- Extremely lightweight
- Strong and durable
- Can be used inside the shoe or set between the sole unit
- Textured surface for adhesion of covers
- Profiled footplates suitable for 10mm-20mm heel pitches
- Can be custom made to drawn templates or to footwear

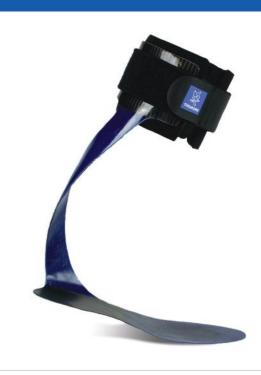
Indications

- Hallux rigitus
- Morton's neuroma
- Stress fractures
- Toe walking

SPRYSTEP ORIGINAL AFOPREFABRICATED

SPRYSTEP FLEX AFOPREFABRICATED





- Prefabricated item ordered from size chart
- Custom option available = Custom SpryStep Original
- Trimmable with scissors at toes
- Fully assembled on delivery
- Medium rigidity
- Posterior calf cuff
- Lateral strut sweeping upwards to posterior.

- Prefabricated item ordered from size chart
- Custom option available = Custom SpryStep Flex
- Trimmable with scissors at toes
- Fully assembled on delivery
- Very flexible dynamic structure
- Posterior calf cuff
- Lateral strut sweeping upwards to medial calf.

| FOOT LEN | HEIGHT | |
|----------|---------------------|---|
| MIN | MAX | (MM) |
| 215 | 245 | 300 |
| 230 | 260 | 320 |
| 245 | 275 | 340 |
| 260 | 290 | 360 |
| 290 | 305 | 380 |
| | MIN 215 230 245 260 | 215 245 230 260 245 275 260 290 |

| CIZE | FOOT LEN | GTH (ММ) | HEIGHT |
|------|----------|----------|--------|
| SIZE | MIN | MAX | (MM) |
| XS | 215 | 245 | 300 |
| S | 230 | 260 | 320 |
| M | 245 | 275 | 340 |
| L | 260 | 290 | 360 |
| XL | 290 | 305 | 380 |

SPRYSTEP PLUS AFOPREFABRICATED

SPRYSTEP MAX AFO PREFABRICATED





- Prefabricated item ordered from size chart
- Custom option available = Custom SpryStep Plus
- Trimmable with scissors at toes
- Anatomically embossed padding
- Fully assembled on delivery
- Medium to firm rigidity
- Anterior calf cuff
- Sweeping lateral strut into peroneal area.
- **FOOT LENGTH CALF CIRC*** 25mm **CALF** below fibula head HEIGHT (MM) CIRC VARIANCE SIZE (MM) MIN MAX MAX MIN + OR -XS 215 245 290 370 330 S 230 260 325 400 360 245 355 395 М 275 430 40 L 260 290 385 465 425 40 ΧL 305 40 290 420 495 455
- *If measures fall outside variance please see the custom made Plus option

- Prefabricated item ordered from size chart
- Custom option **not** available (See Vector AFO for other options)
- Trimmable with scissors at toes
- Anatomically embossed padding
- Fully assembled on delivery
- Firm rigidity
- Anterior calf cuff
- Lateral strut forward of lateral malleoli.

| SIZE | FOOT LEN | GTH (MM) | HEIGHT |
|------|----------|----------|--------|
| JIZL | MIN | MAX | (MM) |
| XS | 195 | 215 | 335 |
| S | 210 | 230 | 370 |
| M | 230 | 255 | 395 |
| L | 255 | 275 | 420 |
| XL | 275 | 290 | 420 |



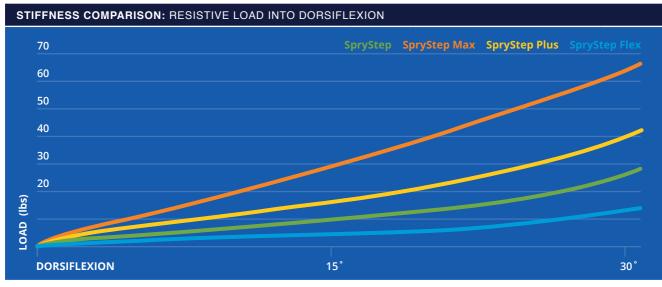
SPRYSTEP PAEDIATRIC AFOPREFABRICATED



- Prefabricated from size chart
- Custom option available = Custom Sprystep Original
- Broadly trimmable with scissors at the toe, medial side of footplate and calf cuff
- Built with medium flexibility for dynamic children
- Lightweight, durable composite construction
- Lateral strut sweeping upwards to posterior
- Fits easily into most styles of shoe.

| SIZE | SHOE SIZE | FOOT LENGTH (MM) | | CALF HEIG | нт (мм) |
|------|-----------|------------------|-----|-----------|---------|
| SIZE | (EU) | MIN* | MAX | MIN** | MAX |
| XS | 17-22 | 95 | 145 | 160 | 180 |
| S | 22-26 | 110 | 160 | 190 | 210 |
| M | 26-28 | 125 | 175 | 220 | 240 |
| L | 28-31 | 140 | 190 | 250 | 270 |
| XL | 31-33 | 155 | 205 | 280 | 300 |

| SPR | YSTEP PRODUCT SELECTION GUIDANCE | FLEX | ORIGINAL | PLUS | MAX | CUSTOM |
|-----------------|--|------|----------|------|-----|--------|
| | Proprioception | ✓ | ✓ | | | ✓ |
| | Fatigueable footdrop | ✓ | ✓ | ✓ | | ✓ |
| | Footslap | ✓ | ✓ | ✓ | | ✓ |
| | Footdrop | | ✓ | ✓ | | ✓ |
| | Excessive plantarflexion during swing phase (secondary to weak dorsiflexors) | | ✓ | ✓ | | ✓ |
| 끨 | Weakness of the pretibial muscles <=3 | | ✓ | ✓ | | ✓ |
| ANKLE | Plantar flexor strength 4 | | ✓ | ✓ | ✓ | ✓ |
| | Plantar flexor strength 3 or 4 | | | ✓ | ✓ | ✓ |
| | Plantar flexor strength 2 | | | | ✓ | ✓ |
| | Pain in movement toward dorsiflexion | | | | ✓ | ✓ |
| | Partial foot amputation (Chopart or more distal) | | | | ✓ | ✓ |
| | Partial foot amputation (Chopart) | | | | ✓ | ✓ |
| | Plantar flexor strength 0 or 1 | | | | ✓ | ✓ |
| | Knee Hyperextension | | ✓ | | | ✓ |
| Ω | Mild Knee instability during stance phase | | ✓ | ✓ | ✓ | ✓ |
| ō | Mild Quad weakness | | | ✓ | ✓ | ✓ |
| KNEE CONDITIONS | Excessive knee flexion during stance phase (secondary to weak planter flexors) | | | ✓ | ✓ | ✓ |
| Ö | Moderate Knee instability during stance phase | | | ✓ | ✓ | ✓ |
| ä | Pronounced Knee instability during stance phase | | | | ✓ | ✓ |
| ₹ | Moderate Quad weakness | | | | ✓ | ✓ |
| | Pronounced Quad weakness | | | | | ✓ |
| | Plantarflexion contracture | | | | | ✓ |
| | Knee hyperextension caused by calf muscle spasticity | | | | | ✓ |
| | High tone | | | | | ✓ |
| | Inconsistent oedema | | | | | ✓ |
| | Non-correctable triplanar instability | | | | | ✓ |
| Ë | High pitched footwear | | | | | ✓ |
| отнев | Compromised footwear choice | | | | | ✓ |
| | Running/High impact Activities | ✓ | | | | ✓ |
| | Circumduction | ✓ | ✓ | ✓ | | ✓ |
| | Vaulting | | ✓ | ✓ | | ✓ |
| | High Knee Gait | | ✓ | ✓ | | ✓ |
| | Hip Hiking / Contralateral trunk lean | | ✓ | ✓ | | ✓ |
| | | | | | | |



PRODUCTS

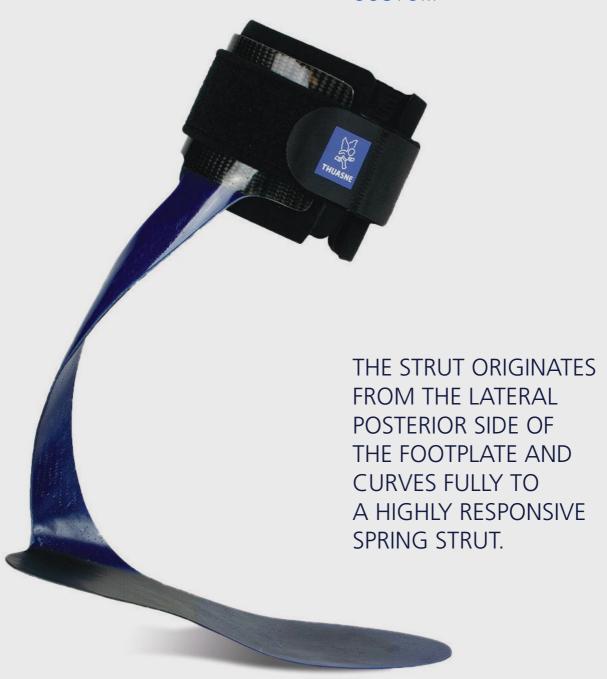
CUSTOM ANKLE FOOT ORTHOSES (AFO)

Composite materials lend themselves to AFO intervention by being lightweight strong and energy storing.





SPRYSTEP FLEX AFO CUSTOM



Indications

- Fatiqueable footdrop
- Footslap
- Footdrop
- Weakness of the pretibial muscles
- Mild plantarflexion weakness
- For high activity level (running)
- For atypical activity of daily living (eg: kneeling for gardening)

The custom Sprystep Flex can be made to a scan or cast

Flat or cupped footplates can be incorporated into the design.

Tolerant of a full range of movement with a 'spring' sensation

CUSTOM SPRYSTEP FLEX AFO

PRESCRIPTION FORM

| ADMINISTRATIVE DETAILS | | | |
|---|--|--|--|
| Date/ Facility | PO No | | |
| Orthotist E-mail | Appointment Date// | | |
| END USER DETAILS | | | |
| Client Reference | O Left O Right | | |
| End User Relevant Medical History | | | |
| | Height | | |
| BIOMECHANICAL OBJECTIVES | | | |
| ○ Control Dorsiflexion Weakness ○ Control Plantar Fle | xion weakness Ocontrol Ankle Varus Instability | | |
| ○ Control Ankle Valgus Instability ○ Resist Knee Hypere | extension in Stance | | |
| Other | | | |
| OPTION 1 MADE TO A CAST OR SCAN Negative Cast is correct | ○ OPTION 2 MADE TO MEASUREMENT Flat Footplate only (no cupped option). 13mm heel pitch. | | |
| Negative Cast imperfect (DESCRIBE) | | | |
| -5 | | | |
| Ankle plantarflexion angle | Calf Heightмм | | |
| Tibial crest inclination angle | Calf CircMM | | |
| Maximum height of AFO | Foot LengthMM | | |
| Y (| | | |
| | * Slight variations to measures can be made on the prefabricated tooling. | | |
| | STRAP OPTIONS | | |
| | Velfoam wrap with crocodile clip (DEFAULT) Calf ○ | | |
| | Suede Returning Calf O | | |
| O Custom SpryStep with Cupped Footplate (DEFAULT) | Other | | |
| Y (| Include floating pads on straps | | |
| | O Include a spare set of straps | | |
| | SHOE SIZING | | |
| | Shoe Size | | |
| | Match Template traced on form | | |
| Custom SpryStep with Flat Footplate | Shoe provided to match | | |
| Castom sprystop man nat rostplate | | | |
| PITCH MEASURE | NOTES | | |
| Rear foot | | | |
| Forefoot | | | |
| • | | | |

SPRYSTEP ORIGINAL AFO

CUSTOM

THE STRUT ORIGINATES
FROM THE LATERAL POSTERIOR
SIDE OF THE FOOTPLATE
AND STRAIGHTENS IN THE
POSTERIOR MIDLINE TO
A SEMI RIGID CALF CUFF.



Indications

- Fatigueable footdrop
- Footslap
- Footdrop
- Weakness of the pretibial muscles
- Mild plantarflexor weakness
- Knee Hyperextension
- Mild Knee instability during stance phase
- Circumduction
- Vaulting
- High Knee Gait
- Hip Hiking / Contralateral trunk lean

The Custom SpryStep Original can be made to a scan or cast.

Flat or cupped footplates can be incorporated into the design.

The geometry allows easy donning whilst being geometrically strong.

CUSTOM SPRYSTEP ORIGINAL AFO

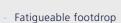
PRESCRIPTION FORM

| ADMINISTRATIVE DETAILS | | | |
|--|---|-------|--|
| Date/ Facility | PO No | | |
| Orthotist E-mail | Appointment Date/ | | |
| END USER DETAILS | | | |
| Client Reference | O Left O Right | | |
| End User Relevant Medical History | | | |
| | | | |
| | Weight Height | | |
| BIOMECHANICAL OBJECTIVES | | | |
| ○ Control Dorsiflexion Weakness ○ Control Plantar Fle | xion weakness | | |
| Control Ankle Valgus Instability Resist Knee Hypere | | | |
| Other | | | |
| | | | |
| ○ OPTION 1 MADE TO A CAST OR SCAN | ○ OPTION 2 MADE TO MEASUREMENT | | |
| Negative Cast is correct | Flat Footplate only (no cupped option). 13mm heel pitch. | | |
| Negative Cast imperfect (DESCRIBE) | 1 U | | |
| | | | |
| Ankle plantarflexion angle | Calf Height | | |
| Tibial crest inclination angle | Calf Circ | | |
| Maximum height of AFO | Foot LengthMM | | |
| Y I V I I I | | | |
| | | | |
| | * Slight variations to measures can be made on the prefabricated tooling. | | |
| | STRAP OPTIONS | | |
| | Velfoam wrap with crocodile clip (DEFAULT) Calf ○ | | |
| | Suede Returning Calf | | |
| O Custom SpryStep Original with Cupped Footplate (DEFAULT) | Other | | |
| V + V + V + V | Include floating pads on straps | •••• | |
| | Include a spare set of straps | | |
| | niciade a spare set of straps | | |
| | SHOE SIZING | | |
| | Shoe Size | | |
| | Match Template traced on form | | |
| Custom SpryStep Original with Flat Footplate | Shoe provided to match | | |
| | | | |
| PITCH MEASURE | NOTES | | |
| Rear foot | | | |
| Forefoot | | ••••• | |
| | | | |

SPRYSTEP PLUS AFO CUSTOM

THE STRUT ORIGINATES
FROM THE LATERAL
POSTERIOR SIDE OF THE
FOOTPLATE AND CURVES
AROUND TO THE POSTERIOR
MIDLINE BEFORE RETURNING
TO THE LATERAL PROXIMAL
ANTERIOR CALF CUFF.

MEDIUM RIGIDITY
STRUT FOR GROUND
REACTION FEEDBACK.



Indications

- Footslap
- Footdrop
- Excessive plantarflexion during swing phase
- Weakness of the pretibial muscles
- Mild Knee instability during stance phase
- Mild Quad weakness
- Excessive knee flexion during stance phase
- Circumduction
- Vaulting
- High Knee Gait
- Hip Hiking / Contralateral trunk lean

The Custom SpryStep Plus AFO can be made to a scan or cast.

Flat or cupped footplates can be incorporated into the design.

The geometry allows easy donning whilst being geometrically strong.

CUSTOM SPRYSTEP PLUS AFO

PRESCRIPTION FORM

| ADMINISTRATIVE DETAILS Date// Facility | | | | |
|--|--------------------|--|------------------|--|
| Orthotist E-mail | | ······································ | Appointment | . Date// |
| END USER DETAILS | | | | |
| Client Reference | | | ○ Left ○ Rig | ght |
| End User Relevant Medical History | | | | |
| | | | | |
| | | | Weight | Height |
| | | | | |
| BIOMECHANICAL OBJECTIVES | | | | |
| | | tar Flexion weakness | | ikle Varus Instability |
| | | Hyperextension in Stance | | |
| Other | | | | |
| CAST/SCAN | | | | |
| Negative Cast is correctNegative Cast | st imperfect (DESC | CRIBE) | | |
| Ankle plantarflexion angle | | | | |
| | | | | |
| O Custom SpryStep Plus with Cupped Footpla | te (DEFAULT) | Custom SpryStep Plu | s with Flat Foot | plate |
| STRAP OPTIONS | | SHOE SIZING | | PITCH MEASURE |
| Velfoam wrap with crocodile clip (DEFAULT) | Calf O | Shoe Size | | \sim |
| Suede Returning | Calf O | Match Template traced on form | ١ | The state of the s |
| Other | | Shoe provided to match | | |
| Include floating pads on straps | | | | |
| O Include a spare set of straps | | | | Rear foot |
| | | | | Forefoot |
| NOTES | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |



SPRYSTEP VECTOR AFO CUSTOM

A CHOICE OF FIVE STRUT STIFFNESSES ALLOW THE VECTOR TO ADDRESS A WIDE RANGE OF PATHOLOGIES.



Indications

The Vector AFO is a custom AFO which can be prescribed with five different stiffness of strut. The custom made and variable stiffness design makes the Vector AFO inclusive in its indications.

The Vector is a custom shell composite AFO made to a cast or scan.

Calf and footplate copolymer shells are supported by a composite fibre superstructure.

The composite fibre trim avoids boney prominences allowing a high margin of fitting error.

The strut originates from the lateral posterior side of the footplate, curving around to the posterior mid-line.

A rigid carbon anterior shell can be chosen as an option if ground reaction forces are of high importance.



SPRYSTEP VECTOR AFO

PRESCRIPTION FORM

| ADMINISTRATIVE DETAILS | 5 | | |
|--|---------------------------|---|-----------------------------------|
| Date/ Facility | | | PO No. |
| Orthotist E-mail | | | Appointment Date// |
| End User Relevant Medical History | | | |
| | | | |
| BIOMECHANICAL OBJECT | TIVES | | |
| O Control Dorsiflexion Weakness | ○ Control P | lantar Flexion weakness | O Control Ankle Varus Instability |
| Ocontrol Ankle Valgus Instability Other | | 71 | Resist Knee Flexion in Stance |
| CAST/SCAN | | | |
| Negative Cast is correct | Negative Cast imperfect (| DESCRIBE) | |
| Ankle plantarflexion angle | Tibial crest | inclination angle | Maximum height of AFO |
| Overwrite to indicate any desired of the control of | | design shown Proximal height of poste | rior calf cuff |
| Default vector | | Anterior Shell Option | nor can can |
| STRAP OPTIONS | | SHOE SIZING | PITCH MEASURE |
| Leather Returning (DEFAULT) | Calf O Ankle O | Shoe Size | |
| Suede Returning | Calf O Ankle O | Match Template traced on form | 1 Too |
| Other | | Shoe provided to match | |
| ○ Include a spare set of straps | | | |
| | | FOOTWEAR DESCRIPTION Type of footwear client typically v | Rear footvears Forefoot |

Strut stiffness will vary based upon patients height, weight, activity level, ROM, MMT and the particular segments of stance or swing you wish to impact or control. For example, this means that a number 3 stiffness might provide a high level of control in a 135lb, 5'8" individual but a very low or light level of control in a 210lb 6'2" individual. Conversely if the individual is large but their activity level is low the strut stiffness may drop in spite of their size. **We need very clear information for these items:**

| WEIGHT (KGS) HEIGHT (CM) | | | |
|--|---|-------------------------|--|
| DANIOE OF MOTION | DEVICE SHOULD ALLOW | | |
| RANGE OF MOTION | Flexible: Guides the lower limb during swing with minimal restriction to tibial advancement in stance | | |
| a) Knee ROM° shy of full extension | Moderate: Supports the foot and ankle in swing with m | | |
| b) With knee extended, ankle ROM, from° to° | resistance and spring to tibial advance | | |
| DEFORMITY | Firm: Strong foot and ankle control with resistance to tibia advancement forcing a ground reaction response in stance | | |
| Describe any deformity if present | O Rigid: Strong foot and ankle control wi | | |
| ○ Uncorrectable ○ Correctable | to tibial advancement in stance blockir influencing proximal segments. | ng movement and | |
| ACTIVITY LEVEL (CHECK ONE) | | | |
| O Limited Ambulator: Sits to stands and transfers | | | |
| O Household Ambulator: level surfaces with walking aids | | - | |
| O Limited Community Ambulator: level surfaces with walking aids | | CA KO | |
| Active Community Ambulator: Mild in/declines with or without walking aids | | | |
| Independent Ambulator: Varied cadence, uneven surfaces and no walking aids | | | |
| O Active Ambulator: Walking, running some sporting activity | Gluteal Strength Test | Hamstring Strength test | |
| OBSERVATIONAL GAIT ANALYSIS (ALL APPLYING) | | | |
| ○ Footslap | | 11/ | |
| ○ Footdrop | RITO | So . | |
| O Ankle inversion tendency | | | |
| O Ankle eversion tendency | ()) P | | |
| O Internal rotation | | (1 A) | |
| O External rotation | | J. F | |
| O Hypertonic presentation | | 11)0 | |
| O Hypotonic presentation | Y \\ \ | 1 Book | |
| ○ Knee hyperextension in stance | Ankle Dorsiflexion strength test | Heel Rise Test | |
| Orouch in stance | | 1 | |
| O Knee instability in stance | | | |
| ○ Vaulting | MUSCULAR STRENGTH TESTS | | |
| O Contralateral trunk lean | Quadriceps strength (CIRCLE) 0 1 2 3 | 4 5 | |
| O Antalgic Gait | Hamstrings strength (CIRCLE) 0 1 2 3 | 4 5 | |
| O Fluctuating Oedema | Dorsiflexion strength (CIRCLE) 0 1 2 3 | 4 5 | |
| NOTES | Plantar-flexor strength - No. of single limb | b heel raises | |
| | | | |
| | | | |
| | | | |

SPRYSTEP AFOCASTING GUIDELINES

Please ensure the Prescription form is close to hand.

After a full clinical assessment, you should have detailed and clear clinical goals which can be communicated to us on the prescription form. These goals, along with biomechanical data, will be reflected in what corrections are appropriate during negative cast taking and manual rectification.

Depending on the treatment model being used; you should consider both sagittal and frontal plane control (Intrinsic and extrinsic) and the effect that this will have on the transverse plane, Range of Movement, V2 Catch and shank inclination goals.

PRE-CASTING

Plaster bandage is the process preferred for AFO shape capture. This is due to the ability to manipulate the foot position during setting and the capability to highlight complex anatomical shape.

Footwear choice is symbiotic with a good clinical outcome. Appropriate footwear should be extra depth fitting, stable and fastenable. Athletic/Cross Trainer Shoes are often the best example of such footwear.

Understanding the heel sole differential of the footwear choice allows an improved AFO/ Shoe fitting interface. The heel sole differential is the difference between the height of the sole at the heel and the height of the sole at the ball of the foot.

A semi-weightbearing cast using a casting board is preferred.

Appropriate risk analysis should be undertaken by the clinician to ensure the end user is not likely to be injured or be too quickly fatigued during the casting process.



Safe and prepared environment

CASTING

Avoid having the cutting strip running along any area that requires high definition shape capture. Perhaps consider a lubricated removable cutting tube, if using shears.

Also try to avoid placing the cutting strip/tube on area where the definitive orthosis will interface with the leg.

Cling film may assist with demoulding the cast and protecting the end user from residue – but should not be applied in a way that deforms soft tissue.



Application of Cling film protection

Stockinette can be used to hold the cutting strip in place and if possible, use a pitch board to accurately replicate the footwear and raise combinations to be used with the definitive orthosis.



Stockinette with cut off strip away from orthosis interface points

With the pitch board in use please decide if you want the shank at 90 degrees or another assessed and clinically validated sagittal plane angle that replicates your mid-stance goal. Maintain this throughout the casting session.

Also consider the desired frontal plane alignment in mid-stance. Your cast should represent this and approach as close to neutral coronal plane alignment as clinically possible.

If high proximal trim lines are to be used then please consider extending the back of the cast to encapsulate the hamstring insertions.



Mark position of bony landmarks on the stockinette

Knowledge of the anatomical land mark positions assist with the placement of the major AFO components such as the foot trims and strut position. This can be achieved by marking the stockinette

Anatomical landmarks of importance include:

- Tibial tuberosity
- · Line of tibial crest
- Head of the fibula
- · Lateral malleoli
- Medial malleoli
- Base of 5th metatarsal
- Head of 5th metatarsal
- Head of 1st metatarsal
- Navicular



Wrap evenly from the proximal trim distally.

Plaster bandage should be wrapped from above the intended proximal trim distally. Three layers at the top edge will provide sufficient strength and when wrapping down incorporate at least 50% of the previous layer.



Plantigrade neutral position on pitch board



Ensure subtalar neutral

Once the plaster is wrapped a pitch board can be used to influence the shape of the plantar surface to match the footwear.

The leg should be vertical from the saggital angle. The midline of the leg should be vertical. On most normal legs the leading tibial crest should be in approximately 7° of inclination.

The sagittal position is a more obvious position to assess than the coronal. The aim in a fully correctable foot and ankle complex is to encourage a sub talar neutral position whilst the sagittal angle is plantigrade. This can be assessed by palpating the medio-lateral head of the subtalar bone and ensuring they are equally palpable on each side.



Cutting off the cast

Once set the cast can be removed according to the clinicians preferred cutting methodology.

Using a sharp scalpel is often the cleanest, easiest and safest way to remove newly set plaster bandage despite there being obvious sharps risk when the safety is poorly considered.



Removing and sealing the complete negative cast

Once removed the negative cast can be sealed with extra plaster bandage to keep it strong for transport.

When preparing a cast for transport try not to seal it in a non-breathable material like plastic bubble wrap or plastic bags as it will remain wet and weak.

The best packing materials are cardboard based, strong and tolerant enough of some abuse during shipping.

NOTES





SPRYSTEP KNEE ORTHOSES (KO) CUSTOM

STRONG, THIN AND LIGHTWEIGHT.

CUSTOM KNEE ORTHOSES THAT ARE ELEGANT AND FUNCTIONAL.

The Sprystep Knee Orthose leverages advanced composite materials to provide elegant and high quality solutions.

Varied geometry options dependent upon the biomechanical aim

Moderate stiffness with the option to reinforce.

Anatomical contours for comfort on force pattern application

Extremely lightweight and thin

Full range of Townsend joints are applicable. Requests can be made for TM5, Single Pivot, Five Bar. With accessories such as trigger release, twist cable or bump and range stops. Full range of Townsend joints are applicable with range and bumper stops.

Customisation | SHELL CONFIGURATION



Chevron-Shaped Tibia



Posterior Tibia



Full Shell Option & Flexible Edges Option

KNEE COMPONENT



TMS



Five Bar



Single Pivot

*Sections marked with an asterisk MUST be completed otherwise manufacturing will not proceed.

SPRYSTEP KO

PRESCRIPTION FORM

| ADMINISTRATIVE DE | TAILS | | | | | | | | |
|-----------------------------------|-------------------|---|---|---|--------------|-------------------|---------|-----|---|
| Date/ | Facility | | | | | PO No | | | |
| Orthotist E-mail | | | | | | Appointmer | nt Date | / | / |
| END USER DETAILS Client Reference | | | | | | | | | |
| End User Relevant Medical | | | | | | | | | |
| | | | | | | | | | |
| SHAPE CAPTURE TE | CHNIQUE | | | | | | | | |
| ○ Plaster/Fibreglass cast | O Direct Scar | 1 | | | | | | | |
| | | | | | | | | | |
| OBJECTIVES | | | | | | | | | |
| O ACL O PCL | O LCL | O MCL | O M | lenincus Dam | age: O Med | ial O Lateral | | | |
| SPRYSTEP KO DEFAULT SPECIFICAT | TION | | | | | | | AMM | |
| ✓ Custom to cast or digital | scan | | | |) | | | | |
| ✓ Anterior shell configuration | on | | Proximal C | irc 180mm a | bove mid pat | tella= | | | |
| ✓ Anatomical contouring | | | | | | | | | |
| ✓ TF1 aluminium knee com | ponent | | | | | | | | |
| ✓ Range adjustable bumper | r stoppers | | Mid-Patelli | - 14 1 |) | | 4 | | |
| ✓ Replaceable strapping pa | ickage | | Mid-Patella | a IVI-L= | | | M | | |
| ✓ Condyle pads | | | | | | | | | |
| ✓ Breathable liner | | | | | | | - | | |
| ✓ 360mm height (180mm t | tibial and thigh) | | Distal Circ | 180mm belo | w mid patell | a= | | | |
| | | | Knee cont | racture or RC | M limitation | (Full ROM is assu | umed): | | |
| STRAP OPTIONS | | | | | | | | | |
| * Force changes to default style | | | | | | | | | |
| SHELL CONFIGURATI | ON: | | | | | | | | |
| TIBIAL: O Posterior Tibia | Chevron Tik | oia O Ful | l Shell In-Fill | ○ 25mm l | Extension | 50mm Extension | n | | |
| THIGH: O Posterior Thigh | h O Full Shell In | -Fill O 25 | mm Extensio | n O 50mm l | Extension | | | | |
| STIFFNESS | | NOTES | TO MANU | FACTURE | R | | | | |
| O Decrease structural rigidit | ty | | | | | | | | |
| O Increase structural rigidit | ty | | | | | | | | |
| | | • | | | | | | | |
| STRAPPING OPTION | | | | | | | | | |
| ○ CS Package ○ PC Strap | 0 | ••••• | | | | | | | |
| O Include spare set | | ••••• | • | • | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

SPRYSTEP KAFO

FEATURES

THE **SPRYSTEP KNEE ANKLE FOOT ORTHOSIS** IS A PREMIUM SERIES OF CUSTOM KAFO DESIGNS UTILISING THE MOST
TECHNOLOGICALLY ADVANCED COMPOSITE MATERIALS AND MANUFACTURING AVAILABLE TO MODERN ENGINEERING.



High Strength

The highest standard materials from aerospace, marine and high end sports.





Improve clinical results particularly for weight susceptible patient populations.

Biomechanical stiffness



Stiffness where orthotic control is needed and flexibility in other sections for tuned Biomechanics.

Optimised Trimlines



Minimalistic trim lines using material only where force systems dictate.

Resilient



Structure and components tested to 2,000,000 cycles.





SPRYSTEP KAFO POSTERIOR CONFIGURATION

COMBINING A POSTERIOR UPPER LEG SHELL WITH THE FAMILIARITY OF THE HELICAL **SPRYSTEP ORIGINAL** STYLE LOWER LEG SECTION.

The posterior configuration mimics the traditional approach to KAFO force patterns by suspending the wearers leg back into a lightweight minimalistic construction. SPRYSTEP KAFO ANTERIOR CONFIGURATION

UTILISING AN ANTERIOR
UPPER LEG SHELL COMBINED
WITH AN ANTERIORLY CURVED
SPRYSTEP PLUS
STYLE AFO SECTION.

The anterior configuration KAFO force patterns are obtained by suspending the wearers leg forward into an anterior minimalistic structure. Often preferable to ease the donning process.





SPRYSTEP KAFO HYPEREXTENSION RESIST CONFIGURATION

LEVERAGING THE FAMILIAR
HELICAL **SPRYSTEP ORIGINAL**LOWER LEG SECTION IN
COMBINATION WITH ANTERIOR
UPPER LEG STRUCTURE.

This configuration focusses control to resist knee hyperextension during stance using a minimalistic approach.

Ideal for mid to mild levels of hyperextension presentations.

SPRYSTEP KAFO FLEXION RESIST CONFIGURATION

ANTERIORLY POSITIONED LOWER LEG SECTION RESISTS STANCE PHASE FLEXION FORCES AND IS REINFORCED BY THE POSTERIOR UPPER LEG STRUCTURE.

This configuration focusses on resisting knee flexion during stance using a minimalistic approach.



SPRYSTEP KAFO

KNEE COMPONENT OPTIONS

Five Bar Knee Component

OPTION 1 Free Moving

OPTION 2 Locking with integrated cable

The robust, durable nature of the Townsend five bar joint series makes it a perfect accompaniment to the SpryStep KAFO frame. In either free moving or locking functions.



Twist Release Mechanism

This component houses integrated cables to the knee joints.

It acts as a simple release lever. It can also hold the locking mechanism in an unlocked position to allow free movement of the knee.



Single Pivot Knee Component

Locking with integrated cable

The single pivot complements the minimalistic geometry of the Sprystep KAFO frames.

It combines with the twist release mechanism. It can be used as a locking joint with release for sitting. Or, a free movement joint while walking. Perfect for a free moving posterior offset option or a simple sturdy locking solution.



SPRYSTEP KAFO ACCESSORY OPTIONS

Coronal Plane Extensions

Varus or valgus extensions can be applied to the SpryStep KAFO in cases where such force patterns need reinforcement.





Moulded Inner Liner

Moulded Inner Liner

Moulded inner linings to the foot section of the SpryStep KAFO control triplanar subtalar movements.

SPRYSTEP KAFO

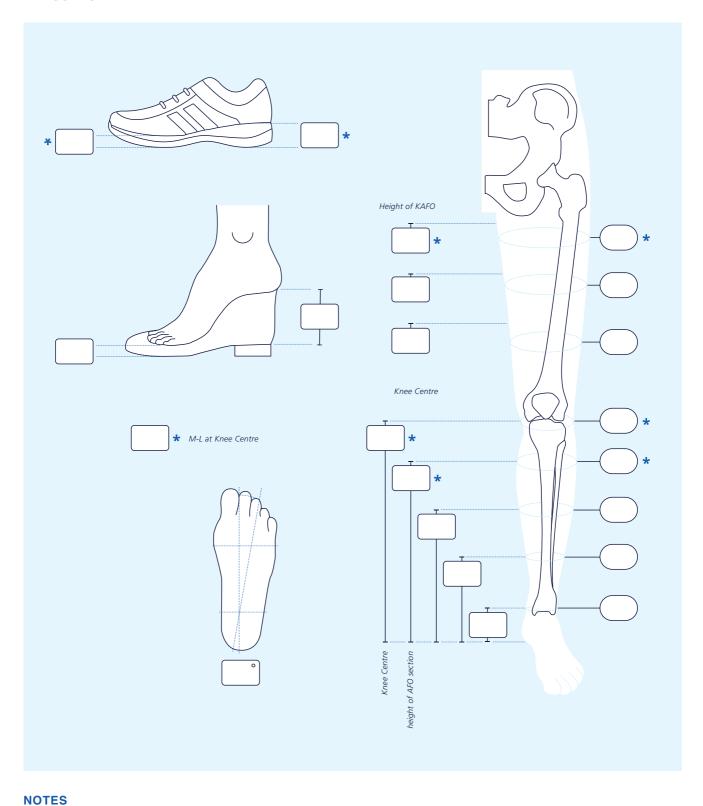
PRESCRIPTION FORM

| *Sections marked with an asterisk MU | JST be completed otherwise | manufacturing will not | proceed. |
|--|--------------------------------|------------------------|--|
| | | | PO No |
| END USER DETAILS | | | |
| Client Reference | | | O Left O Right |
| | | | |
| | | | Weight* Height |
| BIOMECHANICAL OBJECTIVE | S | | |
| O Control Dorsiflexion Weakness | O Control Plantarfle | exion weakness | O Control Ankle Varus Instability |
| O Control Ankle Valgus Instability | O Resist Knee Hype | rextension in Stance | Resist Knee Flexion in Stance |
| Knee valgus control | O Control Knee vari | us | O Posterior/Anterior Knee Drawer Control |
| Other | | | |
| CAST | | | |
| | itive Cast imperfect - Describ | ne | |
| OPOSTERIOR | • ANTERIOR | O HYPEREXTENSIO | ON RESIST OF LEXION RESIST |
| | | | |
| KNEE COMPONENT CHOICE | | | ANE EXTENSION |
| O Five Bar Free | | 3 | O section extension |
| Five Bar Cable Locking | | O Varus Resist AFO | section extension |
| Single Pivot Cable Locking | | LININGS | |
| CABLE TERMINATION | | ○ None ○ Thig | h O Calf |
| Twist Release mechanism (DEFAULT) | Exposed cable loop. | Honeycomb felt | |
| | , . | 3mm Adhered Pl | |
| STRAPPING OPTIONS | Thigh Calf | | attazote o mign o cun |
| Velcro return external to shell (DEFAULT) | | 2 050 | |
| Other | | MOULDED INN | IFR BOOT |

O High Dorsal Wrap Version

○ None (DEFAULT) ○ Low Version

MEASURES



PRODUCT CODES AND DESCRIPTIONS

Custom

| PRODUCT DESCRIPTION | PRODUCT CODE |
|------------------------------|-----------------|
| Carbon Fibre Footplates | MM3060010019901 |
| Custom Sprystep Original AFO | MM3060040019901 |
| Custom Sprystep Flex AFO | MM3060040029901 |
| Custom Sprystep Plus AFO | MM3060040039901 |
| Vector AFO | MM3060050019901 |
| Sprystep KAFO | MM3060030019902 |

Off the shelf

| PROD | UCT DESCRIPTION | PRODUCT CODE |
|-------------------|-------------------------------------|----------------|
| | Sprystep Original Extra Small Right | U0170360005001 |
| | Sprystep Original Extra Small Left | U0170360005002 |
| A | Sprystep Original Small Right | U0170360105001 |
| <u> </u> | Sprystep Original Small Left | U0170360105002 |
| OR | Sprystep Original Medium Right | U0170360205001 |
| STE | Sprystep Original Medium Left | U0170360205002 |
| SPRYSTEP ORIGINAL | Sprystep Original Large Right | U0170360305001 |
| S | Sprystep Original Large Left | U0170360305002 |
| | Sprystep Original Extra Large Right | U0170360405001 |
| | Sprystep Original Extra Large Left | U0170360405002 |
| | Sprystep Plus Extra Small Left | U0172260005002 |
| | Sprystep Plus Extra Small Right | U0172260005001 |
| 10 | Sprystep Plus Small Left | U0172260105002 |
| LUS | Sprystep Plus Small Right | U0172260105001 |
| SPRYSTEP PLUS | Sprystep Plus Medium Left | U0172260205002 |
| YST | Sprystep Plus Medium Right | U0172260205001 |
| SPR | Sprystep Plus Large Left | U0172260305002 |
| | Sprystep Plus Large Right | U0172260305001 |
| | Sprystep Plus Extra Large Left | U0172260405002 |
| | Sprystep Plus Extra Large Right | U0172260405001 |
| | Sprystep Max Extra Small Left | U0173260005002 |
| | Sprystep Max Extra Small Right | U0173260005001 |
| | Sprystep Max Small Left | U0173260105002 |
| SPRYSTEP MAX | Sprystep Max Small Right | U0173260105001 |
| H. | Sprystep Max Medium Left | U0173260205002 |
| YST | Sprystep Max Medium Right | U0173260205001 |
| SPR | Sprystep Max Large Left | U0173260305002 |
| | Sprystep Max Large Right | U0173260305001 |
| | Sprystep Max Extra Large Left | U0173260405002 |
| | Sprystep Max Extra Large Right | U0173260405001 |
| | Sprystep Flex Extra Small Left | U0171260005002 |
| | Sprystep Flex Extra Small Right | U0171260005001 |
| | Sprystep Flex Small Left | U0171260105002 |
| SPRYSTEP FLEX | Sprystep Flex Small Right | U0171260105001 |
| HP. | Sprystep Flex Medium Left | U0171260205002 |
| YST | Sprystep Flex Medium Right | U0171260205001 |
| SPR | Sprystep Flex Large Left | U0171260305002 |
| | Sprystep Flex Large Right | U0171260305001 |
| | Sprystep Flex Extra Large Left | U0171260405002 |
| | Sprystep Flex Extra Large Right | U0171260405001 |

Notes

REFERENCES

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Hachisuka, K. et al. 2007 'Oxygen consumption, oxygen cost and physiological cost index in polio survivors: A comparison of walking without orthosis, with an ordinary or a carbon-fibre reinforced plastic knee-ankle-foot orthosis', Journal of Rehabilitation Medicine, 39(8), pp. 646–650. doi: 10.2340/16501977-0105.

Heim M, Yaacobi E, Azaria M. A pilot study to determine the efficiency of lightweight carbon fibre orthoses in the management of patients suffering from post-poliomyelitis syndrome. Clin Rehabil 1997; 11: 302-305

Steinfeldt F, Seifert W, Gunther KP. Modern carbon Fibre orthoses in the management of polio patients — a critical evaluation of the functional aspects. Z Orthop Ihre Grenzgeb 2003; 141:357-361

Hachisuka, K. et al. (no date) 'Clinical application of carbon fibre reinforced plastic leg orthosis for polio survivors and its advantages and disadvantages'. doi: 10.1080/03093640600574474.



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