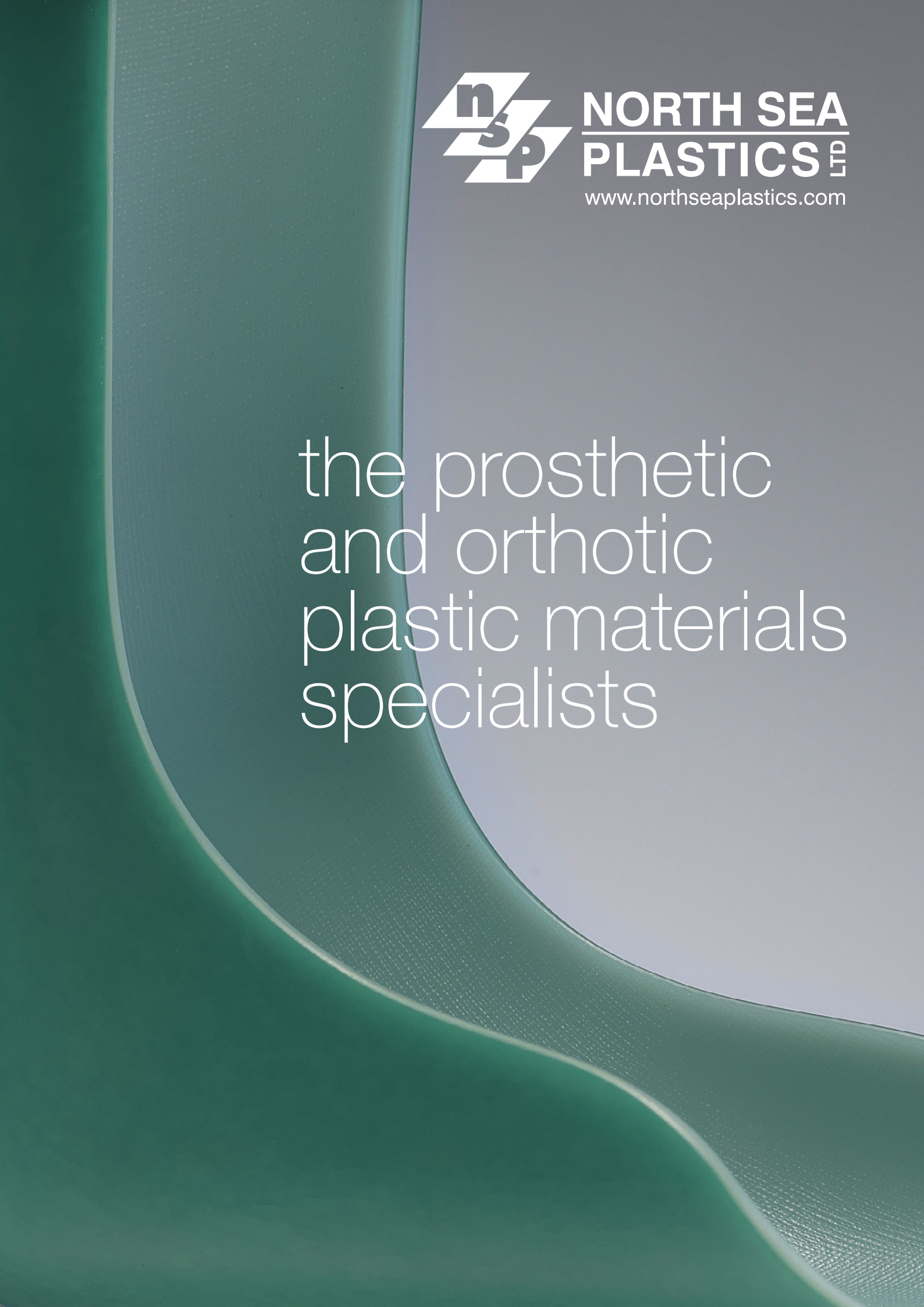
NORTH SEA
PLASTICS LTD
www.northseaplastics.com
the prosthetic
and orthotic
plastic materials
specialists

Contact us >

rely on us...our products mould consistently time after time.

Our knowledge of plastics has led to the development of materials made specifically for use in the orthotics and prosthetics profession.

Our business focus is on providing materials that can be relied upon to mould consistently and to offer top class technical backup and support giving our customers confidence in their manufacturing process and their products.

Our range includes

click to view

Copolymer Polypropylene
Homopolymer Polypropylene
Northplex®
Northvane®
SeaFlex®
Plastazote® foam
Evazote® foam
Northene
CarbonFX®
Northfoam®
SilverShield®

see also

Transfer papers
Laminating materials
Consumables
NSP Drape frames
NSP Ovens

Copolymer Polypropylene

Material Characteristics

Lightweight
Versatile
Rigid
High impact strength

Maintains impact strength down to -20°C/-4°F

Has the ability to constantly flex without fracturing

Shrinkage of less than 1%*

Manufactured to exacting specifications, guaranteeing consistent moulding performance

**As measured in a study conducted by NCTEPO at the University of Strathclyde*

Applications
Ankle Foot Orthosis - AFOs
Bodyjackets
Dynamic Ankle-Foot Orthosis - DAFOs
Definitive Prosthetic Sockets
Functional Foot Orthosis - FFOs
Knee Ankle Foot Orthosis - KAFOs
Lightweight Prosthetic Liner Sockets

Material Specifications >

Copolymer Polypropylene

Material Specification

Sheet size for orthotics:
2440 x 1220mm

Square size for prosthetics
500 x 500mm, 460 x 420mm,
406 x 406mm, 343 x 343mm,
305 x 305mm

Available in the following thickness:
2mm, 3.1mm, 3.5mm, 4.7mm, 6mm,
9mm, 12mm, 15mm
Tolerance on thickness: ±5%

Available in the following colours:
Black, Flesh, Poppy Red, Royal Blue,
Solid White, Yellow

(Colours not available in every thickness. Please contact us for availability).

Moulding temperature:
Orthotics 180°- 200°C / 356°- 392°F
Prosthetics 200°- 220°C / 392°- 428°F

Cooking time:
3 minutes per mm thickness

N.B. As all ovens have slightly different heating characteristics please use our recommended timings as a guide only.

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Homopolymer Polypropylene

Material Characteristics

Lightweight

More rigid than copolymer polypropylene

Brittle

NSP only supplies stress relieved sheet
Non-stress relieved sheet is more brittle than stress relieved

Notch sensitive (if any stress is applied to any cuts or “nicks” at the edge of the material it will crack or split)

Reasonable impact strength

Impact markedly reduced at temperatures below 5^0C/41^0F

Shrinkage of less than 1%*

** Shrinkage by volume as measured in a study conducted by NCTEPO at the University of Strathclyde.*

Applications

Ankle Foot Orthosis - AFOs
Dynamic Ankle-Foot Orthosis - DAFOs
Definitive Prosthetic Sockets
Frame Sockets
Knee Ankle Foot Orthosis - KAFOs

Material Specifications >

Homopolymer Polypropylene

Material Specification

Sheet size for orthotics:
2440 x 1220mm

Square size for prosthetics
500 x 500mm, 460 x 420mm, 406 x 406mm, 343 x 343mm, 305 x 305mm

Available in the following thickness:
2mm, 3mm, 4mm, 5mm, 6mm, 10mm, 12mm, 15mm
Tolerance on thickness: ±5%

Available in the following colours:
Natural

Moulding temperature:
Orthotics 180° - 200°C / 356° - 392°F
Prosthetics 200°C - 220°C / 392° - 428°F

Cooking time:
3 minutes per mm thickness

N.B. As all ovens have slightly different heating characteristics please use our recommended timings as a guide only.

Northplex®

Material Characteristics

Optically clear

Rigid

Northplex is a very strong material
It has 80 - 90% of the impact strength
of polycarbonate (bullet proof glass)

Northplex is notch sensitive

Shrinkage of less than 0.1%*

** Shrinkage by volume as measured by NCTEPO at the University of Strathclyde.*

Applications
Diagnostic / Check Sockets
Post Burns Facial Splint

Material Specifications >

Northplex®

Material Specification

Sheet size for orthotics:
2440 x 1220mm, 2050 x 1250mm

Square size for prosthetics
460 x 420mm, 406 x 406mm,
343 x 343mm, 305 x 305mm

Available in the following thickness:
2mm, 3mm, 4mm, 5mm, 6mm, 9mm, 12mm, 15mm

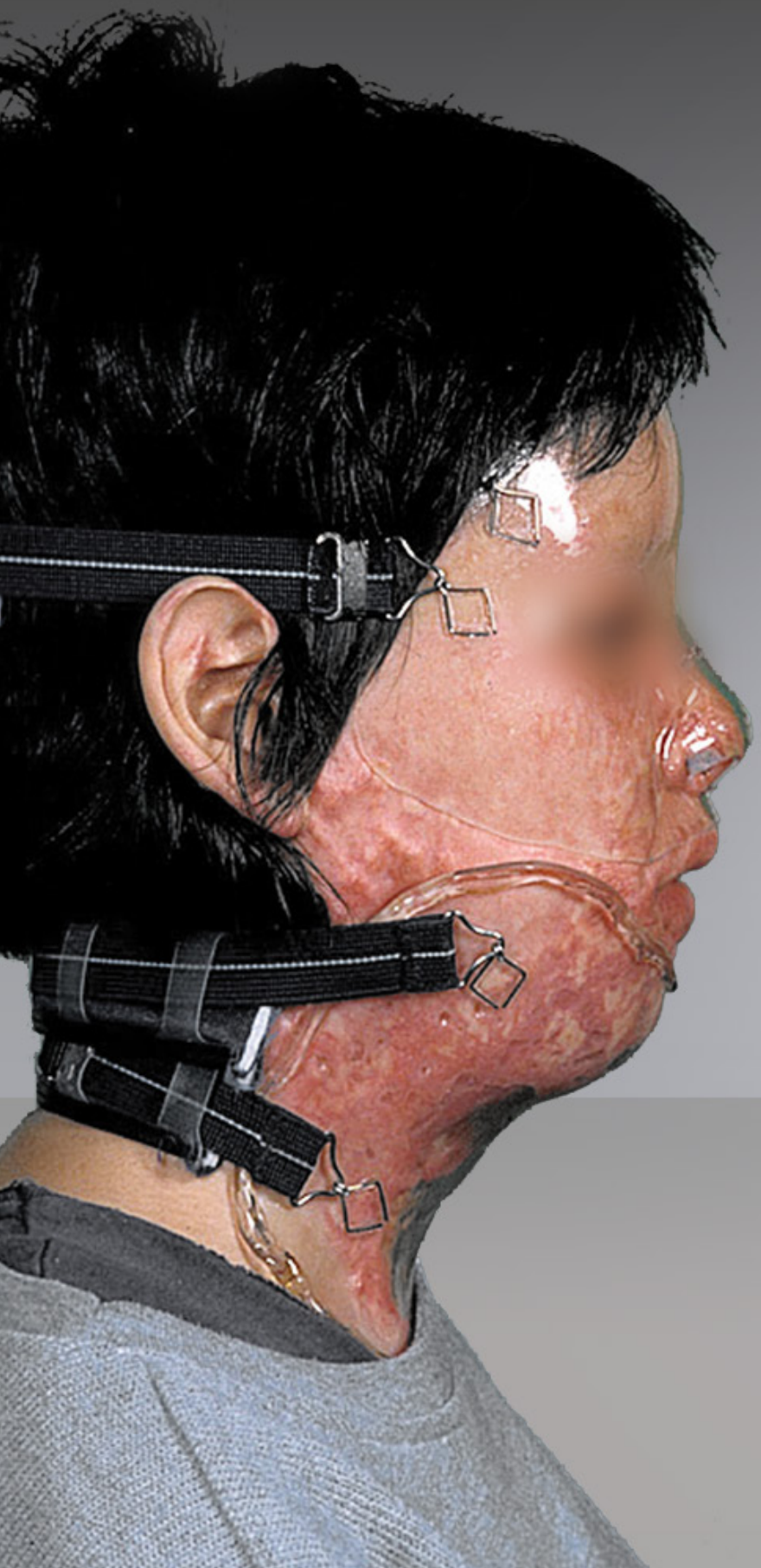
Tolerance on thickness: ±5%

Available in the following colours:
Clear

Moulding temperature:
Orthotics 120°C / 248°F
Prosthetics 160°C / 320°F

Cooking time:
3 minutes per mm thickness

N.B. As all ovens have slightly different heating characteristics please use our recommended timings as a guide only.



Northvane®

Material Characteristics

Very flexible material

No shrinkage

Excellent tear resistance –
can be stitched or riveted

Applications
Bodyjackets
Flexible Liner Sockets
Wristsplints

Material Specifications >

This material is available with Silvershield®

NORTH SEA PLASTICS Ltd
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Northvane®

Material Specification

Sheet size for orthotics:
3.2mm, 4.8mm - 1220mm x 1220mm
6.4mm, 9.5mm, 12.7mm,
16mm - 1220mm x 812mm

Square size for prosthetics
450 x 450mm, 406 x 406mm,
343 x 343mm, 305 x 305mm
460 x 420mm

Available in the following thickness:
3.2mm, 4.8mm, 6.4mm, 9.5mm,
12.7mm, 16mm

Tolerance on thickness:
3.2mm (min 2.4mm, max 4.1mm)
4.8mm (min 3.9mm, max 5.6mm)
6.4mm ±10% (mean)
9.5mm ±15% (mean)
12.5mm and above ±5% (mean)

Available in the following colours:
Natural, White and Black

Moulding temperature:
Orthotics 150°C / 302°F
Prosthetics 150°C / 302°F

Cooking time:
3 minutes per mm thickness

N.B. As all ovens have slightly different heating characteristics please use our recommended timings as a guide only.

This material is available with Silvershield®

NORTH SEA PLASTICS Ltd
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SeaFlex®

Material Characteristics

Unique to North Sea Plastics Ltd.

Excellent tear resistance; Seaflex® can be stitched or riveted

No shrinkage

The latest generation of polyolefin elastomer

Three distinct grades of flexibility giving maximum choice to the end user

SeaFlex 100® - Ultraflex. The most flexible thermoplastic sheet material in the world

SeaFlex 200® - Medium flex. Nearest equivalent to Northvane®

SeaFlex 300® - Stiff. Still more flexible than low density polyethylene

Lightweight - The lightest thermoplastic sheet material in the market

Applications
Flexible Liner Sockets
Lightweight Prosthetic Liner Sockets
Wristsplints
Protective Helmets
Neck Braces
Body Jackets

Material Specifications >

NORTH SEA PLASTICS Ltd
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SeaFlex®

Material Specification

Sheet size for orthotics:
3.2mm, 4.8mm - 1220mm x 1220mm
6.4mm, 9.5mm, 12.7mm,
16mm - 1220mm x 812mm

Square size for prosthetics
450 x 450mm, 406 x 406mm,
343 x 343mm, 305 x 305mm,
460 x 420mm

Available in the following thickness:
3.2mm, 4.8mm, 6.4mm, 9.5mm,
12.7mm, 16mm

Tolerance on thickness:
3.2mm (min 2.4mm, max 4.lmm)
4.8mm (min 3.9mm, max 5.6mm)
6.4mm ±10% (mean)
9.5mm ±15% (mean)
12.5mm and above ±5% (mean)

Available in the following colours:
Natural

Moulding temperature:
Orthotics 150°C / 302°F

Prosthetics 150°C / 302°F
(SeaFlex 300 180°C/356°F)

Cooking time:
3 minutes per mm thickness

N.B. As all ovens have slightly different heating characteristics please use our recommended timings as a guide only.

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Plastazote®
Evazote®

Material Characteristics

Plastazote foam is a closed cell crosslinked polyethylene foam which is blown using Nitrogen gas

Various densities of material available

Good chemical resistance

Will thermoform into simple and complex shapes

Flame retardent grade is available on request

Applications
Light Splinting, Collars, Padding
Wristsplints
Other padding applications

Sheet size:
Sheet sizes vary according to material density

Available in the following thickness:
2mm through to 27mm in most densities

Available in the following colours:
Various colours

Moulding temperature:
140°C - 160°C / 284°C - 320°F

Northene®

Material Characteristics

Northene LDPE:
Semi flexible

Good impact strength

Affected by skin oil exuded in sweat
Can lead to stress cracking

Northene 500:
High Molecular Weight Polyethylene

Very low shrinkage

Rigid

Northene 1000:
Ultra High Molecular Weight Polyethylene

Very low shrinkage

Rigid, strong material

Northene 1000 produces a natural "leaf spring" effect when formed into an AFO

Difficult to mould

Northene HD:
Rigid
Good Impact Strength
Good Flexural Strength

Applications

Northene LDP - Bodyjackets, Wristsplints, Neck Braces, AFOs, Lightweight AK/BK Sockets

Northene 500 - AFOs, KAFOs, Body Jackets, FFOs

Northene 1000 - AFOs & KAFOs

Northene HD - Standing Frames, Body Jackets, AFOs

Material Specifications >

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Northene®

Material Specification

Square size for prosthetics
LDP - 406 x 406mm, 343 x 343mm, 305 x 305mm

Available in the following thickness:
LDP - 3.1mm, 4.7mm, 6mm
500 - 2mm, 3mm, 4mm, 5mm, 6mm
1000 - 2mm, 3mm, 4mm, 5mm, 6mm, 8mm
HD - 3mm, 4mm, 5mm, 6mm

Tolerance on thickness: ±5%

Available in the following colours:
500 - Natural, Skin, Black, Red, Blue
1000 - Skin
LDP & HD - Natural

Moulding temperature:
LDP - Orthotics 150°C / 302°F
Prosthetics 150°C / 302°F

500 - Orthotics 160°C / 320°F

1000 - Orthotics 180°C / 356°F

Cooking time:
3 minutes per mm thickness

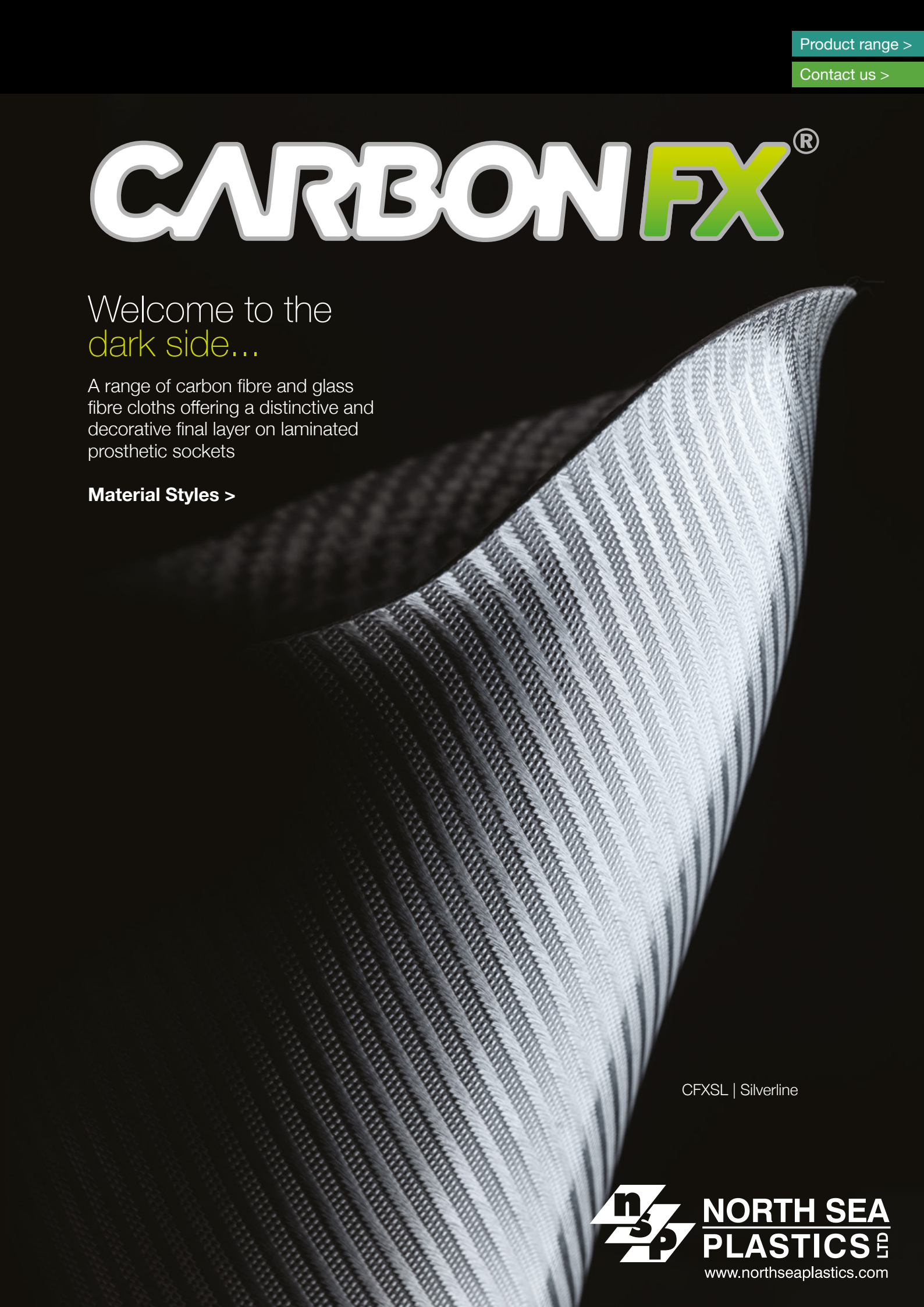
N.B. As all ovens have slightly different heating characteristics please use our recommended timings as a guide only.

CARBONFX®

Welcome to the dark side...

A range of carbon fibre and glass fibre cloths offering a distinctive and decorative final layer on laminated prosthetic sockets

Material Styles >



CFXSL | Silverline

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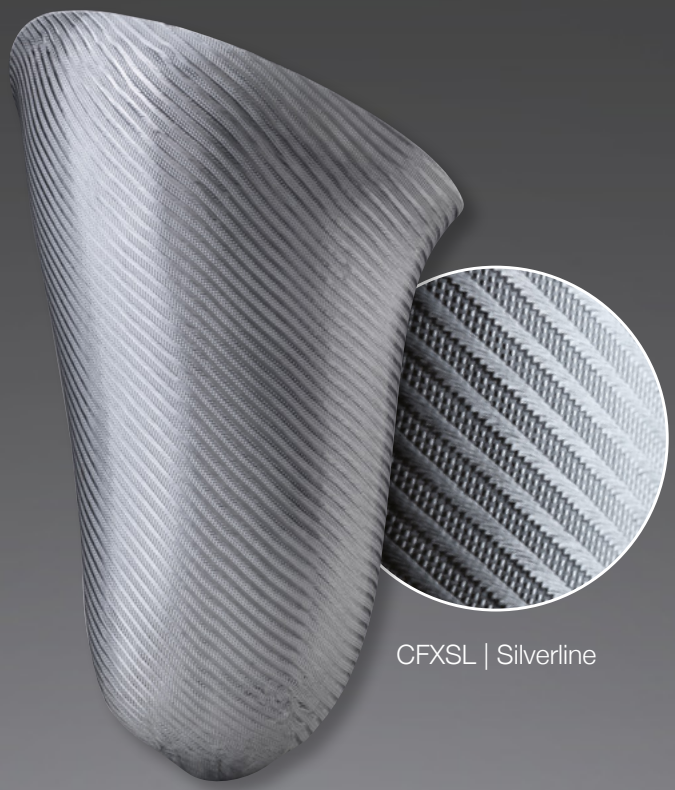
Product range >

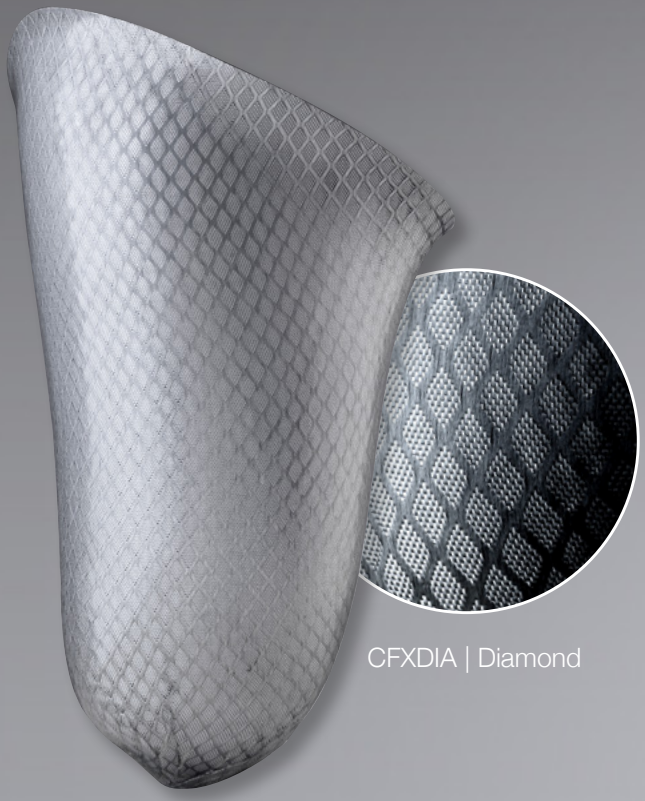
Contact us >

CARBONFX®

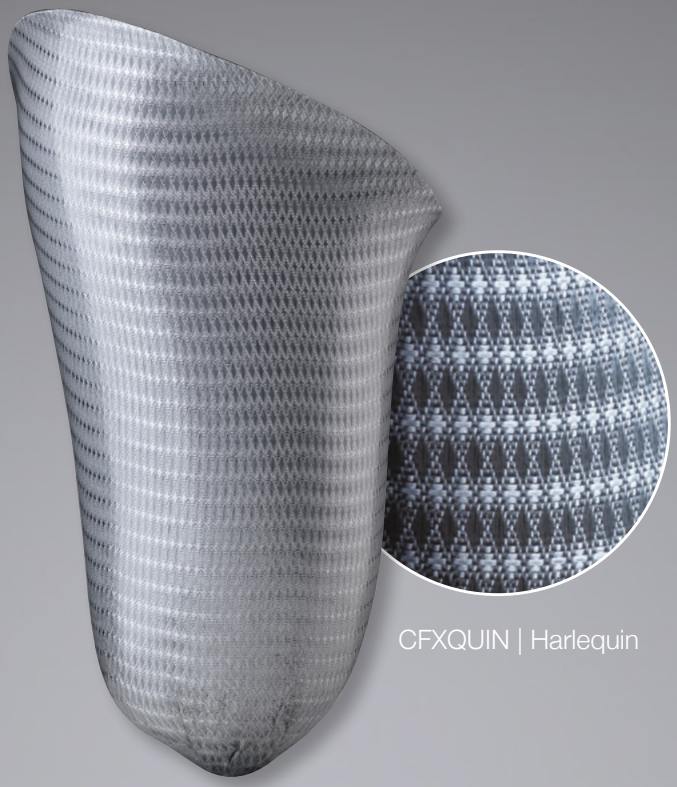
CFXSS | Silver Shadow



CFXSL | Silverline



CFXDIA | Diamond



CFXQUIN | Harlequin

The colours illustrated here are as accurate as digital images will allow but of course cannot be 100% accurate. Contact us for technical advice material samples and further information.

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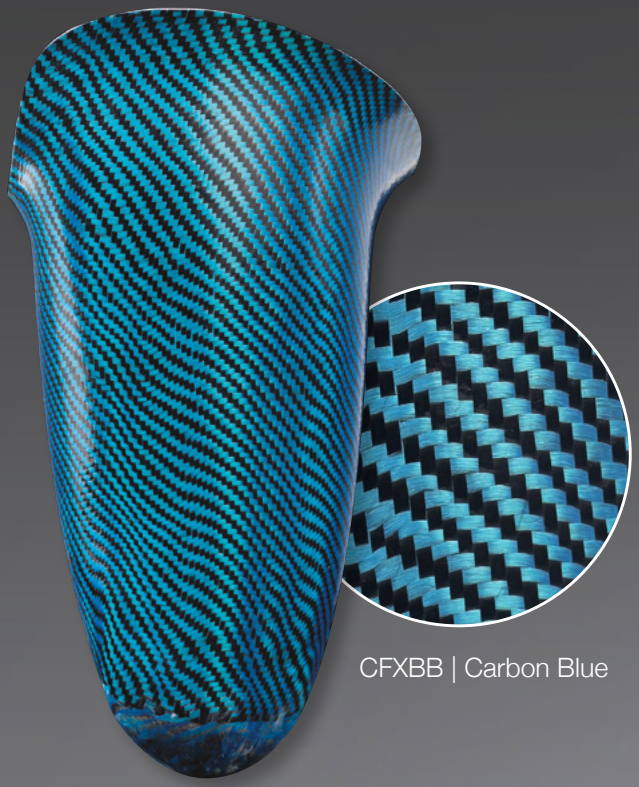
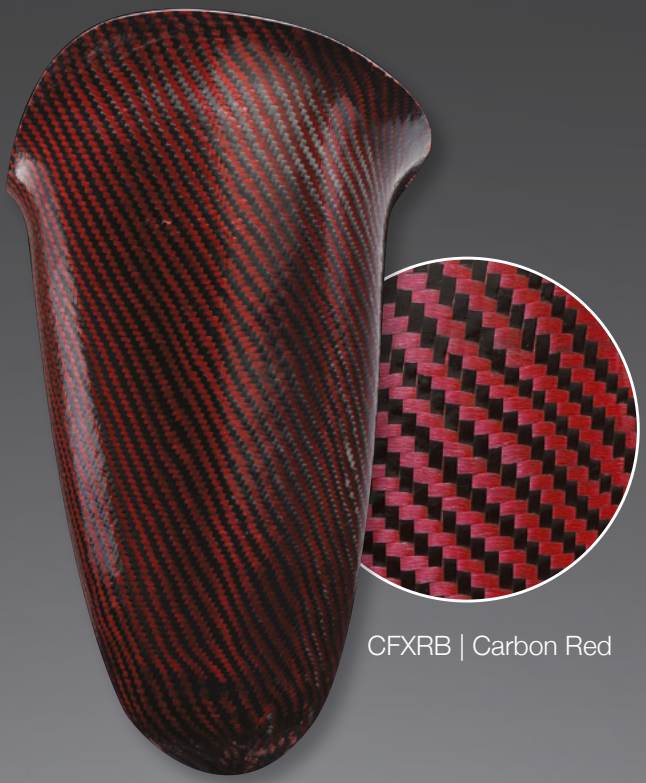
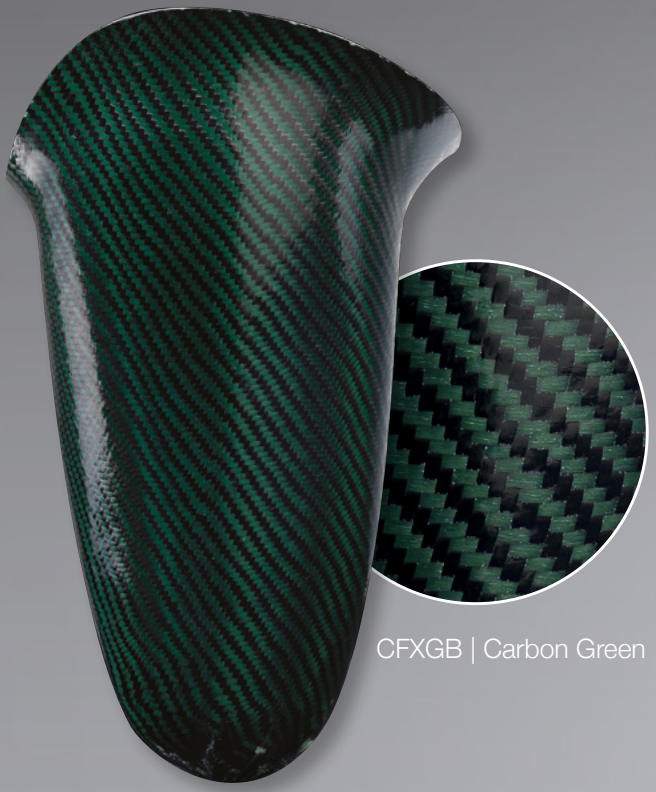
CARBONFX®



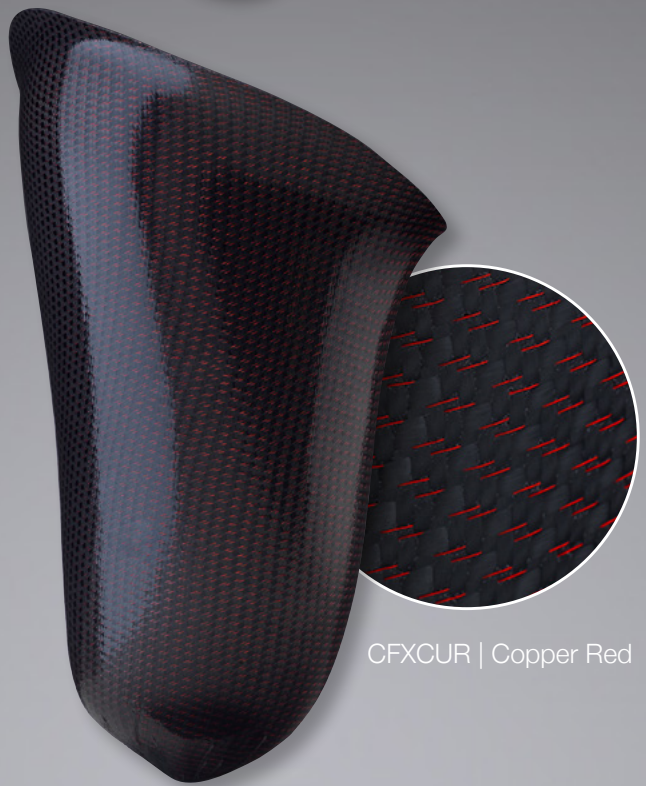
CFXBB | Carbon Blue



CFXRB | Carbon Red



CFXGB | Carbon Green



CFXCUR | Copper Red

The colours illustrated here are as accurate as digital images will allow but of course cannot be 100% accurate. Contact us for technical advice material samples and further information.

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Northfoam® Material Characteristics

Closed cell polyethylene foam

Density 33, 140 and 170 Kg/m³

Northfoam® 33 is a lightweight padding material

Applications
Prosthetic Socket Liner
Foot Insoles

Sheet size:
Northfoam® 140 & 170
- 950 x 950mm

Northfoam® 33 -
Roll form 1m wide

Available in the following thickness:
Northfoam® 140 & 170 -
2mm through to 35mm

Northfoam® 33
- 3mm, 4mm and 6mm

Available in the following colours:
Northfoam® 140 & 170 - Flesh
Northfoam® 33 - White

Moulding temperature:
Northfoam® 140 & 170 -
120°C - 150°C / 266°F - 302°F

Northfoam® 33 - 120°C / 248°F

Cooking time:
3 minutes per mm thickness

N.B. As all ovens have slightly different heating characteristics please use our recommended timings as a guide only.

Northfoam 140 is available with Silvershield®

NORTH SEA PLASTICS LTD
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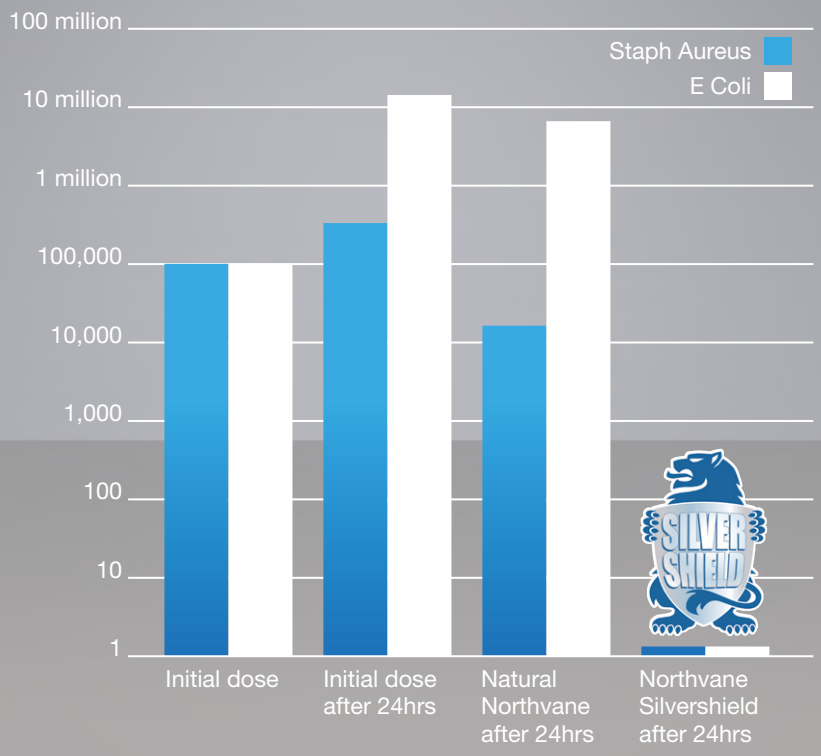
SilverShield® Material Characteristics

- Inhibits development of bacteria
- Laboratory tested against Staphylococcus Aureus and E. Coli
- Helps reduce production of stale odours
- Medically and environmentally safe, non-toxic and non-irritation*
- Free of organic antibacterial agents
- Long term antibacterial effect
- Physical and moulding characteristics are unaffected by antimicrobial agent

Our materials:
SilverShield® is available with other materials from the NSP range as

Northvane® SilverShield®
Northfoam® 140 SilverShield®



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Transfer papers

Our range of Transfer papers have designs specifically made to take into consideration the size of the devices that the patterns will be used on. Even the smallest AFO will benefit from having a complete character on the device, and not some unidentifiable part. Our Transfer papers covers a range of ages, catering for both girls and boys, and even an adult or two.

The papers can be used on all our thermoplastic materials, although it is worth noting that the sublimation ink used on the papers is designed to "go off" at temperatures above 180°C. The use of a release agent is advised when using the paper on Northene low density polyethylene, Northvane®, and SeaFlex®.

Our Transfer papers have also been successfully used on our Northfoam® 170 material.

Transfer papers

We have a selection of plain coloured transfer papers available in the following colours: **black**, **flesh**, **green** and **pink**.


COOL BABES


BLUE CAMOUFLAGE


BLUE JEANS


CATS


FOOTBALL BLACK/WHITE


FOOTBALL BLUE/BLACK


FOOTBALL GREEN/BLACK


FOOTBALL RED/BLACK

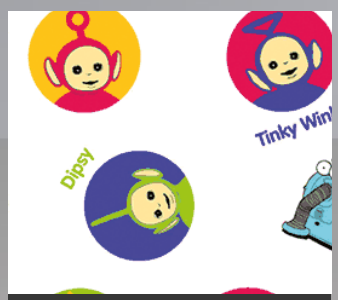

BUNNY PINK/GREEN


SKULLS


PINK SKULLS


DINOSAURS

TELETUBBIES SMALL PATTERN



TELETUBBIES LARGE PATTERN


BUNNY BLUE/GREEN


BROWN CAMOUFLAGE


FLOWER POWER


BUTTERFLIES

NORTH SEA PLASTICS Ltd
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Laminating materials

Carbon Fibre Braid
Our carbon fibre braid range uses two types of carbon fibre size; 6K and 12K. The 6K braid is made utilising 6,000 filaments of carbon fibre per yarn, whereas 12K uses 12,000 filaments.

The practical difference between these two types of carbon fibre is that 6K carbon braid is lighter in weight per linear metre, and the smaller yarn size allows for a tighter weave, producing a prosthetic socket with a thinner wall section. The 12K braid has bulkier yarn which makes it heavier in weight per linear metre, and does not allow for such a tight weave as the 6K, and the resulting prosthetic sockets have a thicker wall section than the 6K.

Glass Fibre Braid
Offers the most cost effective option for laminated prosthetic sockets. The fibres are heavier in weight and bulkier than carbon, and do not offer the overall strength/stiffness of carbon. Typically glass fibre braids will produce a heavier more bulky socket than carbon fibre.

Carbon/Glass Fibre Braid
Our carbon/glass fibre braid is a 50/50 mix of 6K carbon fibre and glass fibre.

Braids are available in three Above Knee (AK) sizes, and two sizes for Below-Knee (BK) prosthetic sockets.

Carbon Fibre Matting
Our matting has 3,000 filaments per yarn and is available in 1000mm width and lengths of up to 50m.

NORTH SEA PLASTICS Ltd
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Consumables

We offer a comprehensive range of consumable materials including:

Latex Cones
Used as part of the thermoforming process. Applying a latex cone over the cast ensures a smooth surface on the inside of a flexible liner. Our unique design of latex cone eliminates the risk of an unsightly seam. Available in three sizes, S/M/L for small below knee casts to large above the knee casts.

Stockings
Incorporating a tight weave to reduce bulk. Short white, long white and long brown stockings are ideal as an air wick in both orthotics and prosthetics.

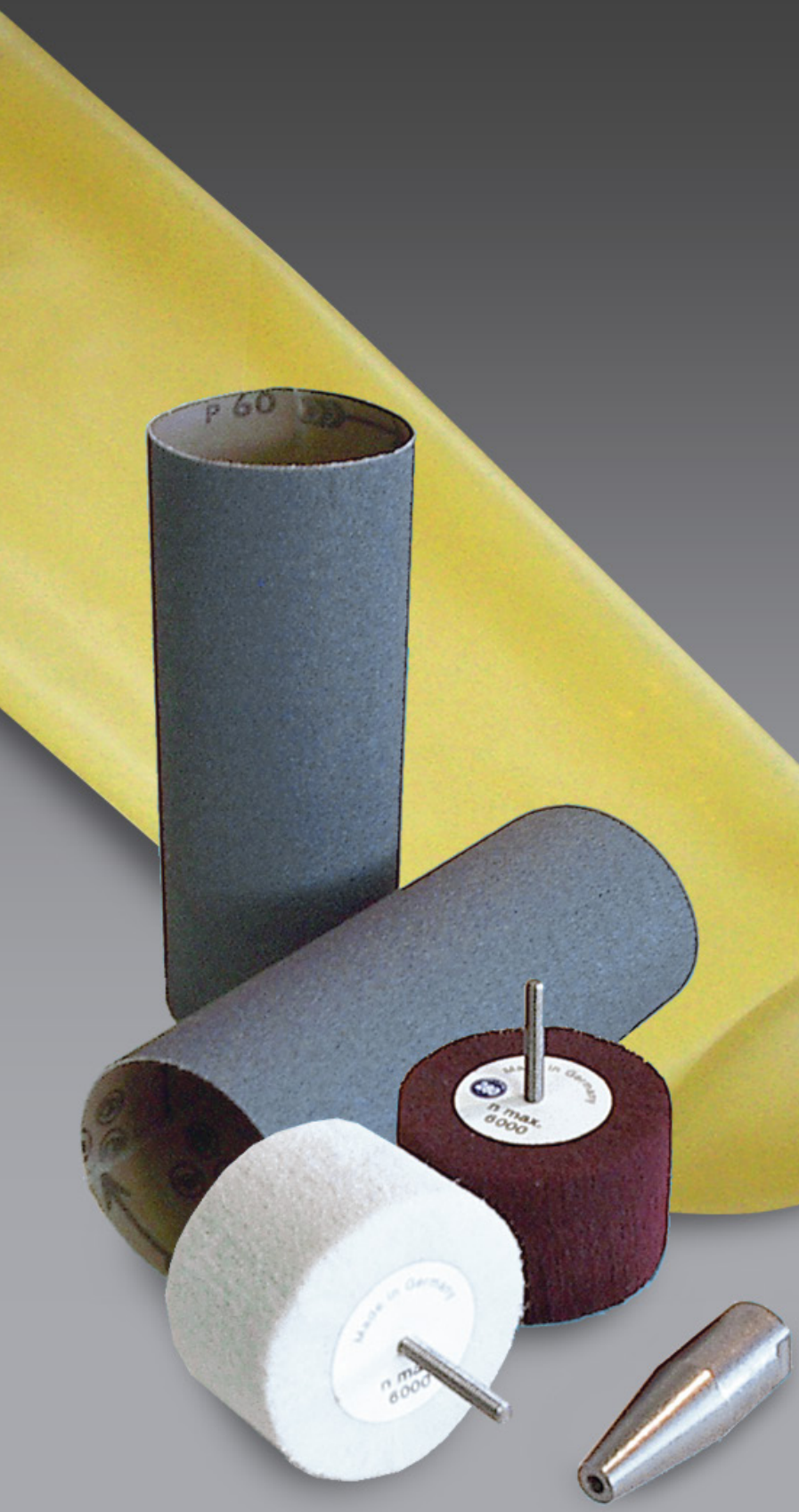
Sanding Sleeves
Using quality Zircon Oxide are self sharpening, clog resistant and long lasting. A range of sizes are available.

Finishing Wheels
With threaded 6mm shaft for safe and easy attachment to a router. Our wheels are boxed in 10's and available in a range of grades. Adapters for use on routers are also available.

PVA Film/Sleeves
Used in the laminating process as a barrier between the cast, the reinforcing materials, and the outside environment. PVA film is used to make custom sized sleeves when a pre-made sleeve is not appropriate.

Tapes & Adhesives
Suitable for use in prosthetics and orthotics.

Contact us or visit our website for details of the full NSP Consumables range.



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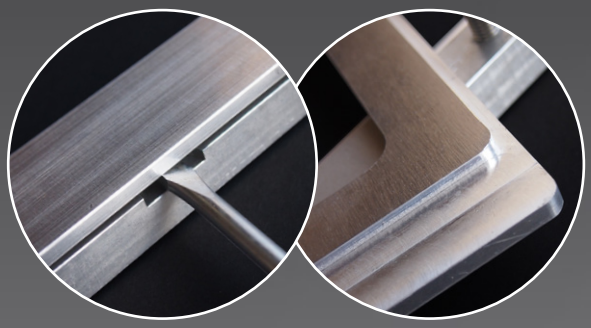
Drape frames

Designed using our knowledge of thermoplastics, and many years of experience, NSP has developed, we believe, a superlative drape frame.

The shape of the frame offers the best draping solution. Over 90% of the plastic in the frame is exposed to direct heat in the oven; this means that less than 10% of the plastic is exposed to indirect heat through contact with the metal frame. In practice, this design makes it easier to drape sockets with an even wall thickness, and avoid sockets with over thick distal ends, and thin proximal walls.



Machined slots on either side of the frame base plate makes it easier to separate the top plate from the base plate.

The main body of the drape frame has been milled from a single piece of aluminium. The top plate of the DFrame has a “built-in” spacer which offers a smart solution when using thicker materials and avoids the need for a separate space bar.

Available in the following sizes:

406mm x 406mm
343mm x 343mm
460mm x 420mm
305mm x 305mm

Convection ovens

Technical Specification - all ovens

Exterior Materials and Finish:
Zinc coated mild steel sheet with a blue stoved epoxy powder paint finish

Working Temperat ure Range:
50°C to 250°C Max

Temperature Stability:
Better than 1°C under steady state conditions

Temperature Uniformity:
Better than 5°C across the support shelf

Temperature Sensor:
Type “K” Mineral Insulated Thermocouple

Temperature Control:
Eurotherm 301 digital 3 term controller

Thermal Insulation:
High quality ceramic fibre blanket

Power Control:
Thyristor based solid state relay working in fast cycle zero voltage switching mode

Air Circulation:
Forced air circulation by rear mounted fan and air guide system

Heating Elements:
Mineral Insulated metal sheathed

Ovens by type >

Stand sold separately.
Pictures are for guidance only.
Actual models may vary.

NORTH SEA PLASTICS LTD
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Convection ovens

Pictures are for guidance only.
Actual models may vary.

Technical Specification - by type

Thermoplastic Heating Oven for ORTHOTICS

Interior Chamber Dimensions:
H 380mm x W1200mm x D 815mm

External Dimensions:
H 730mm x W 1490mm x D 975mm

Power Requirements:
Total heating power is 6.0kW

Power Supply Required:
400 volts 3 phase and Neutral rated at 10 amps per phase

Chamber Access:
Single top hinged door opens upwards manually assisted by gas struts
Door is fitted with a 200mm square multiglazed window
Chamber is illuminated

Thermoplastic Draping Oven for PROSTHETICS

Interior Chamber Dimensions:
H 750mm x W 610mm x D 510mm

External Dimensions:
H 920mm x W 965mm x D 670mm

Power Requirements:
Total heating power is 2.25kW

Power Supply Required:
220/240volts single phase 50/60Hz or 110 volts single phase 60Hz

Chamber Access:
Single front door hinged on left side and fitted with a viewing window 240mm wide x 400mm high
Chamber is illuminated

Contact us

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Kirkintilloch,
Glasgow G66 1SL

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fax: **+44 (0)141 776 6699**

email: **info@northseaplastics.com**

For local distributors visit our website
www.northseaplastics.com >

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