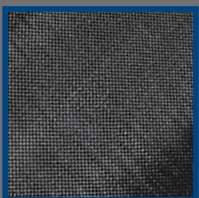
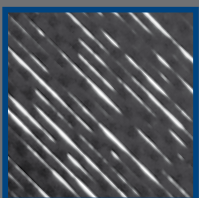


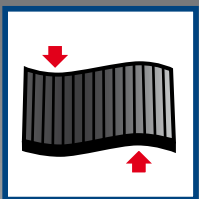
Sheets and Pre-Cut Soles



Unidirectional
fabric structure of
the carbon fibre



Enlarged unidirectional
fabric structure of the
carbon fibre



2D deformable



Design: www.imagewerk.de



Material Properties

- Can be adhered to metal, leather and several sorts of plastic
- 2D forming in the unidirectional orientation of the fibres

Application

- Fabricating sole reinforcements in shoes for reducing the deformation during rolling off

Restrictions

- Cannot be used for 3D forming such as for the fabrication of heel covering foot supports or orthotic foot shells as well as for loads having an effect on several directions such as bands for orthoses

CTS UNIDIREKTIONAL, Carbon Fibre Sheets		
Article number	Dimensions (mm)	Thickness (mm)
PL1356-XXS	500 x 500	Approx. 1.2
PL1356-XS	500 x 500	Approx. 1.6
PL1356-S	500 x 500	Approx. 1.9
PL1356-M	500 x 500	Approx. 2.3
PL1356-H	500 x 500	Approx. 3.2
PL1356-XH	500 x 500	Approx. 4.0

CTS UNIDIREKTIONAL, Carbon Fibre Pre-Cut Soles			
Article number	Shoe size	Thickness (mm)	Unit
SZ1250-S	35 – 37	Approx. 1.6	Pair
SZ1250-M	38 – 40	Approx. 1.6	Pair
SZ1250-L	41 – 43	Approx. 1.6	Pair
SZ1250-XL	44 – 46	Approx. 1.6	Pair
SZ1251-S	35 – 37	Approx. 1.9	Pair
SZ1251-M	38 – 40	Approx. 1.9	Pair
SZ1251-L	41 – 43	Approx. 1.9	Pair
SZ1251-XL	44 – 46	Approx. 1.9	Pair
SZ1252-S	35 – 37	Approx. 2.3	Pair
SZ1252-M	38 – 40	Approx. 2.3	Pair
SZ1252-L	41 – 43	Approx. 2.3	Pair
SZ1252-XL	44 – 46	Approx. 2.3	Pair
SZ1253-S	35 – 37	Approx. 3.2	Pair
SZ1253-M	38 – 40	Approx. 3.2	Pair
SZ1253-X	41 – 43	Approx. 3.2	Pair
SZ1253-XL	44 – 46	Approx. 3.2	Pair

Heat Treatment

To ensure the proper processing temperature, it is **absolutely necessary** to use the temperature marker with article no. ZM1001.

- 160°C in convection oven and heating cabinet
- 140°C in infrared oven

Article number	Description	Content
ZM1001	Temperature marker 160°C	Pce.

Note

Each pre-cut sole has its own fabric layer structure and according to that its own thickness. Since the fabric layer structure is subject to production tolerances, the indicated thicknesses are only reference values. The stiffness of the pre-cut sole is determined by the fabric layer structure. The production tolerances have minor effects on the stiffness. The production tolerances can lead to overlapping within the thicknesses. Moreover, as pair packed pre-cut soles can have different thicknesses.

Load Capacity Information

The pre-cut soles have a prefabricated lengthwise fibre orientation of 0° and should be only loaded in this direction.

If you individually cut to size a sheet, follow the fibre orientation due to the absorption of the appearing forces (see table)!

Loading direction ↔ Fibre orientation	Tensile strength	Bending stiffness	Torsional stiffness
0°	Very high	Very high	Low
90°	Very low	Very low	Low

Load Capacity Comparison:

CTS UNIDIREKTIONAL – Spring Steel (as sole reinforcements for the fabrication of orthopaedic shoes)

Article number		Material	Thickness	Weight ratio	Reinforcement	
Sheets	Pre-cut soles	Spring steel	1.5	1/1	Compared stiffness	100%
PL1356-XXS	-	CTS	1.2	1/7	Lower stiffness	20%
PL1356-XS	SZ1250	CTS	1.6	1/6	Lower stiffness	30%
PL1356-S	SZ1251	CTS	1.9	1/5	Lower stiffness	40%
PL1356-M	SZ1252	CTS	2.3	1/4	Standard	50%
PL1356-H	SZ1253	CTS	3.2	1/3	Like spring steel	100%
PL1356-XH	-	CTS	4.0	1/2	Triple stiffness	300%

In order to increase the stiffness, you can also work CTS UNIDIREKTIONAL into layers (as sandwich).