

CENTRI®

A Fillauer Company

COMFIL® MATERIAL
MANUAL

COMPOSITE OR PLASTIC?

The COMFIL material combines the high localized strength of carbon composite with the modeling properties of thermoplastics. Available in unidirectional and bidirectional, the carbon fibers are interwoven with a revolutionary thermoplastic fiber that allows the material to be heated and formed at lower temperatures. This thermoplastic material also acts as a high-strength matrix for active performance and flexibility.

The COMFIL material can be simply custom formed to your mold with a heat gun or by placing the material into an oven to achieve molding and extra reinforcement materials can be simply heated and applied to customize your brace for the patient's needs. Your custom lay-up is then placed into a standard oven under vacuum at a maximum of 230^o for 30- 45 minutes to consolidate the lay-up into one piece for an individual orthotics or prosthetic solution.

The COMFIL material is also fully heat remoldable and allows adjustable fitting just like thermoplastics and unlike prepregs.

The material comes in unidirectional and bidirectional reinforcement for different structural properties with three different thicknesses and can be cut simply with scissors.

PREPARATION

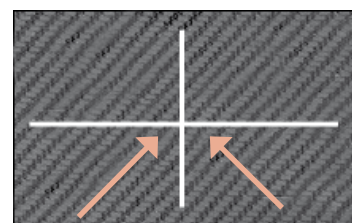
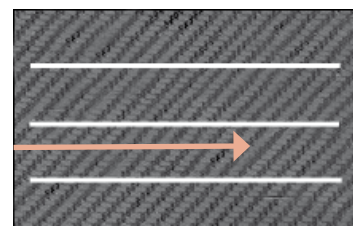
Plaster preparation:

- Dry the plaster
- Cover the plaster with a cotton stockinette
- Draw out the orthoses design



Material

- Cut the parts of the various Comfil materials you want to use. Make sure you get the right strength and flexibility through fiber direction
- The UD material should be cut in the length direction of the fibers.
- The BI material should be cut at a 45° angle on the sheet to allow for easy shaping and flexibility.
- Cut the pieces as close to the finished models you want. Anything to reduce grinding after completion
- Grind the material with long, sweeping movements (avoid overheating the material when grinding)



MANUFACTURING



Heat the Comfil material with a heat gun at the highest temperature in a sweeping motion until the material becomes ductile. Shape the material into the basic shape with light pressure. Finish shaping by pressing the material firm against the plaster.



Then proceed with the next part. Overlapping material for maximal sufficient adhesion and strength. Begin to shape the material by affixing it on the already formed part. Make sure there is no air between the different elements and between the material and plaster.



Continue section by section until the orthosis lay up is finished. Before the orthosis is laminated in the oven grind the edges smooth. After grinding, if necessary, try the orthosis on the patient. Remember that the orthosis is not yet at full strength.

MANUFACTURING



When all parts are in place, take it off the plaster. Dress the plaster with a release film. Use heat-resistant tape to attach the release film. Place the orthosis back on the plaster, be careful not to damage the film.

Release Film - 700 000 023
Tape - 700 000 015



To obtain a shiny surface on the orthosis stretch a silicon sheet over the orthosis, stretch the material enough to prevent wrinkles. Use heat-resistant tape to attach the material. Then place a cotton stockinette over the silicone, as a breather for the vacuum.

Silicone sheet - 700 000 016
Tape - 700 000 015
Cotton stockinette - 636 508 020

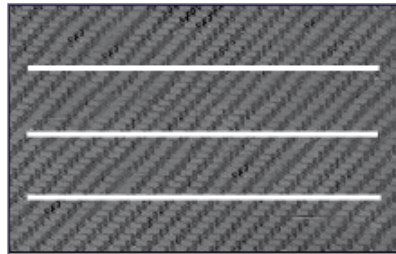


Prepare the vacuum bag by sealing one end with sealing tape.
Prepare the vacuum stand by wrapping sealing tape under the vacuum hole.
Cover the plaster with the vacuum bag and then seal it by tying the bag against the sealing tape.
Pull vacuum on the bag. For best results you need .08 bars or higher vacuum.
Place the plaster in the oven for approx. 40 min at 230° Take out the plaster and let it cool under vacuum. **Important:** the vacuum must be on as long as the material is hot. The plaster can be cooled rapidly by placing it in cold water.

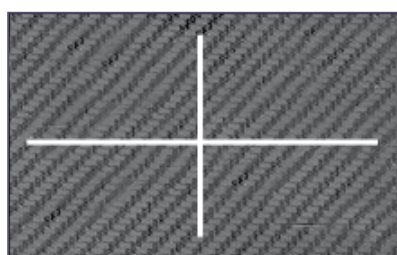
Sealing tape - 700 000 014
Vacuum Bag - 700 000 012

Sheets

COMFIL® Thermo Formable Composite UD Form		
Product no.	Description	
700 010 101	COMFIL® UD Form, Carbonfiber 1000 x 600 x 1,6mm	Good for Bars and other rigid parts
700 010 103	COMFIL® UD Form, Carbon & Glassfiber 1000 x 600 x 2,55mm	Good for Bars and rigid insoles
700 010 126	COMFIL® UD Form, Carbonfiber 1000 x 600 x 0,7mm	Good for Reinforcement



COMFIL® Thermo Formable Composite BI Form		
Product no.	Description	Good for:
700 010 121	COMFIL® BI Form, Glassfiber black 1000 x 600 x 0,75mm	Opening parts
700 010 122	COMFIL® BI Form, Glassfiber black 1000 x 600 x 1,5mm	Flexible toe-off parts
700 010 123	COMFIL® BI Form, Carbon & Glass- fiber 1000 x 600 x 1,5mm	Rigid foot plate
700 010 124	COMFIL® BI Form, Carbonfiber 1000 x 600 x 0,7mm	Difficult shapes
700 010 127	COMFIL® BI Form, Carbonfiber 1000 x 600 x 0,5mm	Difficult shapes
700 010 128	COMFIL® BI Form, Glassfiber 1000 x 600 x 0,7 mm	Difficult shapes
700 010 130	COMFIL® BI Form, Aramid 1000 x 600 x 0,9mm	Flexible parts

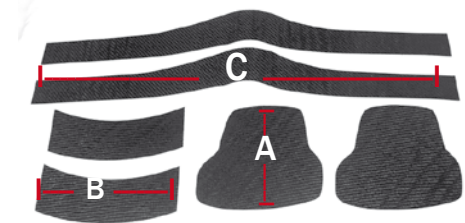


Insoles, AFO Kit & Bars

Thermo Formable Composite Insole		
Product no.	Description	Pair
700 030 121	Insole Flexibel, Glassfiber Black 1,5mm	Size 35 - 37
700 030 122	Insole Flexibel, Glassfiber Black 1,5mm	Size 38 - 40
700 030 123	Insole Flexibel, Glassfiber Black 1,5mm	Size 41 - 43
700 030 124	Insole Flexibel, Glassfiber Black 1,5mm	Size 44 - 46
700 030 141	Insole Rigid, Carbon & Glassfiber 2,5 mm	Size 35 - 37
700 030 142	Insole Rigid, Carbon & Glassfiber 2,5 mm	Size 38 - 40
700 030 143	Insole Rigid, Carbon & Glassfiber 2,5 mm	Size 41 - 43
700 030 144	Insole Rigid, Carbon & Glassfiber 2,5 mm	Size 44 - 46



AFO Kits		
Product no.	Description	Length
700 020 111	Small	A - 148 mm B - 150 mm C - 600 mm
700 020 112	Medium	A - 168 mm B - 185 mm C - 600 mm
700 020 113	Large	A - 195 mm B - 215 mm C - 1000 mm



Bars	
Product no.	Description
700 020 321	UD Form, Carbon- & Glassfiber 600 x 20 x 2,55mm
700 020 331	UD Form, Carbonfiber 600 x 20 x 1,6 mm
700 040 420	UD Form, Carbonfiber 600 x 20 x 3,2 mm



Accessories



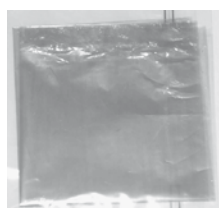
Cotton stockinette



PET- stockinette



L-PET stockinette



Release film, sheet
red & blue

Accessories			
Product no.	Description	Unit	Function
636 508 020	Cotton stockinette 8 cm	Roll/ 20 m	Air evacuation for vacuum
636 511 020	Cotton stockinette 11 cm	Roll/ 20 m	Air evacuation for vacuum
636 518 020	Cotton stockinette 18 cm	Roll/ 20 m	Air evacuation for vacuum
636 525 020	Cotton stockinette 25 cm	Roll/ 20 m	Air evacuation for vacuum
700 070 031	PET- stockinette 10 cm	Roll/ 30m	Air evacuation for vacuum
700 070 034	PET - stockinette 18 cm	Roll/ 22m	Air evacuation for vacuum
700 070 021	L-Pet stockinette 10 cm	Roll/ 30 m	Matrix for extra shiny surface
700 070 024	L-Pet stockinette 18 cm	Roll/ 20 m	Matrix for extra shiny surface
700 000 023	Release film red, sheet , very stretchy 1220 x 1000 x 0,025 mm	EA	Prevent moisture from reaching the carbon fiber
700 080 202	Release film blue, sheet 1220 x 1000 x 0,025mm	EA	

Accessories



Silicone sheet



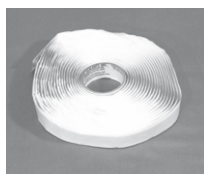
Silicone bag



Vacuum bag, roll



Teflon sheet



Sealing tape



Tape, High Temp



Silicone glove



Angled scissor shear

Accessories

Product no.	Description	Unit	Function
700 000 016	Silicone sheet, transparent, glossy 920 x 920 x 0,8 mm, 40 Shore A	EA	For glossy surface
700 000 022	Silicone sheet, transparent, matt finish, extra soft 1200 x 1000 x 1 mm, 30 Shore A	EA	For matt surface
700 000 011	Silicone sheet, red, shiny finish 1200 x 1000 x 0,5 mm	EA	For shiny surface
700 000 021	Silicone sheet red, 1200 x 1000 x 2mm	EA	Distans material
700 000 105	Silicone bag, Small	EA	For shiny surface
700 000 107	Silicone bag, Medium	EA	For shiny surface
700 000 109	Silicone bag, Large	EA	For shiny surface
700 000 012	Vacuum bag, roll, 457 x 0,05 mm	Roll/ 10 m	
700 000 010	Teflon sheet, 1000 x 1000 x 0,25 mm	EA	Cover in the oven when heating the material up
700 000 014	Sealing tape, double adhesive 3 x 12 mm, 232° C	Roll/ 7,6 m	To seal the vacuum bag
700 000 015	Tape, high temp. 204° C	Roll/ 33 m	To fasten the release film to the plaster
700 070 010	Silicone glove	EA	
700 000 017	Angled Scissor Shear	EA	

Equipment for vacuum



Vacuum ejector x 2
incl. muffler



Water reduction filter
incl hose



Water reduction filter



Vacuum pipe incl. hose



Stand for vacuum pipe



Vacuum stand & pipe for
nylon bag technique

Equipment for vacuum	
Product no.	Description
700 000 007	Vacuum ejector X 2 incl. muffler
700 000 008	Waterreduction filter incl. hose for silicone bag technique
700 000 033	Waterreduction filter incl. hose for nylon bag technique
700 000 034	Vacuum pipe incl. hose
700 000 035	Stand for vacuum pipe
700 000 031	Vacuum stand & pipe, for nylon bag technique
700 000 036	Filter only, for waterreduction system





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