

# Fiber blow in technology

Fiber Engineering developed a new process which enables production of fiber based parts without using sheets as semi product. It is a direct blown process into moulds, called **FIM** (Fiber Injection Moulding).

We produce parts with a small or non offcut – this depends on specification of our customers. And especially with our technology it is possible to implement different densities in parts with a very high exactness. This feature allows production of weight reduced parts. High density with a lot of material only in desired areas for stiffness reasons.

In beginning we started with thermoplastic binders. Meanwhile we realized several parts with duroplastic binders too.

Advantage of thermoplastic binder: easy recycling and easy production.

Advantage of duroplastic binder: usage for higher temperature range, especially in combination with glass, basalt or carbon.

The FIM technology enables a lot of possibilities of 3D fiber formed parts. Mostly lighter, cheaper and better than parts with other materials.

#### Fiber Engineering offers

- Consulting for fiber based parts
- Developing and production of 3D fiber parts (prototypes and series parts)
- Production of moulds and machines for series production of 3D fiber formed parts with FIM process.

## Areas for FIM





## **Excellent advantages of this process are:**

- > 3D formed parts with homogeneous or non homogeneous density in equal or non equal thickness
- Production of formed parts with deep draw, vertical high walls with complex contour possible
- > Lighter acoustic solution in comparison with PUR-foam with same acoustical data
- > Optimal lay on tin with acoustic part, no internal tension in formed part
- > saving of raw materials, 100% usage possible
- > a lot of different fibers useable (cotton, wool, PES, PP, basalt, glas, hemp, ...)
- > usage of recycling materials



#### **Possible densities in formed parts:**







Existing part Material: special PUR, non burning Weight: 200g Body: soft





Incl.20% recycling cotton impregnated

Mixture with Panox fibers

<u>Data:</u> Fullfill requirement UL94 V-0 (TL1011) Weight reduction with 25% possible



#### **Properties:**

- blown part
- stable shape
- easy to install in car body
- fullfill TL1011, non burning part
- weight reduction possible (25%)
- no toxic gases
- easy recycling
- no cutting
- no offcut

Different thickness with same

References ccmd/usa

FIM line for serial production

production of two parts in 1 cycle

capacity appr. 200-300.000 cycles/year

cycle time appr. 60-90s

VW Passat, new midsize car, seriell parts

floor insulation

dashboard with soft and hard layer

Aksys/Germany

VW PQ46, Passat, prototype parts

**Carpet and Acoustic/Austria** 

Audi A4, belt box cover, prototype parts

Others

Head rest, seats















Thank you very much for your attention!

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