

## Technology Offer

### Title:

Pultruded carbon and glass fibre reinforced polymer rods, tubes and shafts for use in high load low weight applications (Ref: 10 DE 1486 3GPL )

(Open)

### Abstract:

**A small German company is specialized in developing and producing pultruded semi finished carbon fibre and glass fibre reinforced polymer parts, e.g. rods, tubes and shafts used in industry for manufacturing of roboter arms, spring elements and all sorts of sports equipment. The company offers technical cooperation, supply and transfer of knowledge in this materials to manufactures interested in using light weight composites structures for the first time for the development of new products.**

### Description:

Round profiles made of carbon fibre reinforced polymers (CFRP) and glass fibre reinforced polymers (GRP) are used where light weight, high breaking resistance, corrosion resistance and long-life cycles are demanded. At any places where round metal profiles are used these days, carbon and fiber glass can be used in the future. CFRP material were initially developed for the aeronautical industry, race technology and military use, but they have a wide field of potential applications. Industrial designers and developers do have to get used with the advantages of this future oriented fiber composite materials.

The company is specialised in the production of rods, tubes and plates of carbon fibre reinforced polymers and glass fibre reinforce polymers. It has the capacity to manufacture semi finished parts, limited-lot production and also large scale production. The semi finished parts are used by various industries e.g. as antennas for cars, as mounts for aircraft, as fitness beams, as grappers for robots and for automated handling systems. A pioneer user of CFRP materials is the sports industry with products like golf clubs, fishing rods and tennis rackets. But also mechanical engineering and medical industry will depend more and more on CFRP materials.



The development division is continuously improving the production processes and developing new innovative products tailored to meet specific customers' needs.

Cooperation is offered to industrial partners who want to improve their products with respect to weight, breaking resistance, corrosion resistance and long-life cycles. Cooperation partners may be from automotive, mechanical engineering, sports and recreation, aeronautics, construction, nautical industry or other. Transfer of knowledge in using semi finished parts from this new materials is offered, as well as development and supply of tailored CFRP and GRP rods, tubes and plates.

### Innovations and advantages of the offer

Development cooperation and transfer of knowledge in the practical use of innovative CFRP and GRP materials, combined with supply of (tailored) ready-to-use semi finished parts.

Physical advantages of CFRP are:

- High rigidity
- High strength
- Low density
- Corrosion resistance
- High fatigue strength
- low temperature expansion



constructible characteristics



Advantages of CFRP parts in machines and vehicles are:

- Low mass
- High speed of operation
- Excellent fatigue resistance
- quiet running due to shock absorption
- Easy installment and demounting
- Low maintenance cost
- little downtime
- low energy costs during production and life cycle

**Current and Potential Domain of Application**

Production of industrial or consumer products, e.g. in automotive, mechanical engineering, sports and recreation, aeronautics, construction or nautical industry

**Other Profile Details**

Organisation: Bayern Innovativ Bayerische Gesellschaft für Innovation und Wissenstra

Network Partner: Bavaria2Europe

Country: Germany

Entry Date: Mon, March 01, 2010

Validation Date:

Deadline: Thu, January 27, 2011

**List of Keywords**

Technology

- ✦ Design and Modelling / Prototypes
- ✦ Composite materials

Market

- ✦ Other Medical/Health Related
- ✦ Industrial Automation
- ✦ Industrial Equipment and Machinery
- ✦ Machine tools, other metal working equipment (excluding numeric control)
- ✦ Other Industrial Products (not elsewhere classified)

**Further Information (Technical Details Concerning the Profile)**

GRP rods, drawn and ground: these tapered or cylindrical shaped rods have diameters from 0,8 to 25 mm with 0,05mm tolerances. Length is up to 5000 mm GRP rods, drawn with diagonal layer winding, wrapped on drums Resin matrix: epoxy and polyester, diameter from 3mm to 9 mm Pultruded GRP rods, smooth surface, non ground Resin matrix: polyester, diameter from 3mm to 13 mm Pultruded GPR rods, diameters from 1mm to 25mm Maximum standard length is 2000 mm, greater length on request GRP and CFRP tubes, produced with prepreg winding: diameters from 3mm to 80mm, tolerances from 0,03mm these tubes are tapered or cylindrical shaped (tapering from 1:1000 to 6,5:1000) up to 1850mm length GRP and CFRP tubes, produced with filament winding procedure: diameters from 50mm up to 400mm, length depending on core bearing up to 6000mm. Pultruded GRP and CFRP tubes: OD from 2mm up to 18mm, wall thickness minimum 1mm, std length 3000mm. Prepreg pressed GRP and CFRP plates: maximum size 1100x2000mm, max thickness 10mm Telescopic system up to 9000mm length

**Current Stage of Development**

Already on the market

**Exploitation of RTD Results**

Others

**Intellectual Property Rights**

Secret know-how

*Comments*

**Organisation/Company**

Type: Industry  
Size: 11-50

#### Collaboration Type

- ✦ Joint further development
- ✦ Adaptation to specific needs
- ✦ Transfer of knowledge in new raw materials
- ✦ New way to use an existing production line
- ✦ Assembly

#### Comments

- Type of partner sought:

Industry

- Specific area of activity of the partner:

Production of industrial or consumer products, e.g. in automotive, mechanical engineering, sports and recreation, aeronautics, construction or nautical industry

- Task to be performed by the partner sought:

Definition of requirements, test of materials and semi finished parts, implementing knowledge about the use of GRP or CFRP parts for the own production

#### Targeted Countries

ALL

#### Contact Details

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