

Czech, yet still supranational Duratec overtook all manufacturers of the carbon fibres by the newly developed technology that was named AFCF (accurately fitted continuous fibre). Thanks to this technology the Company starts the production of the full carbon frames for the bicycles that is completely different from the procedures used by the competing companies. The AFCF technology secures the maximum usage of every composite fibre and it avoids application of

any unnecessary material influencing the material strength. It is possible to offer the full carbon frame with unambiguously unique properties to the customers by means of the up-to-date technology that has been developed by the research workers and designers of the Duratec Company during two years. The AFCF technology is still the most valuable know-how of the Company and therefore its detailed production procedure will not be published unlike the innovations prepared by Locked Composite, CEE,

Sandwich system, Exceter concept and others. The materials manufactured by the world renowned producers, as for example Specmaterials, Richmond or Hexcell, are used for the products of the Duratec Company. The cutting NC plotter enables an accurate cutting of the shears. The product quality is predetermined by the technology itself that enables and secures the maximum accuracy of the production. It is moreover enhanced by the high quality of the used material.

AFCF METHOD FOR THE PRODUCTION OF FULL CARBON FRAMES

What is the basis of the manufacturing secret? It can be described by several basic points.

The high-modular carbon fibre made by the Hexcell Company is the original material for the production of the full carbon frames. 🗣️



- 2 Each composite layer and its individual fibres are placed exactly at the desired direction. This is done without any deformations, warping and deviations – the exact structure is therefore defined!
- 3 The AFCF production technology determines precisely the material structure and it uses every fibre of the composite. It is therefore possible to achieve a very low weight of the product.
- 4 Up to 95 % of the fibres at the places of the tube joints run through continuously without any sharp bending and without any structure failure. The stress locators are removed completely and the frame is extremely tough and strong.
- 5 The first full carbon frame in the world

- 6 Monocoque (front triangle and rear fork) is made as one piece. The stressed joints at the hub area are not glued and they do not contain any broken fibres. The maximum toughness at the hub area is the result of this production technology.
- 7 Very clean and smooth inner wall of the frame tubes.
- 8 The individual shears of the composite do not overlap at the place of the seam / weld and therefore all problems possibly created by the resin accumulated in these parts of the frame are eliminated.

AFCF Technology vs. Other Production Procedures

The advantages and absolute exceptionality of the AFCF technology from the Duratec “workshop” is proved also by its comparison with other traditional methods of the productions of the bicycle frames.

AFCF vs. Tube to Tube Method

As it has been indicated already, the monocoque made by the AFCF technology excludes any unnecessary material at the places of the tube joints in advance. Strictly speaking the tube ends do not exist at all! The monocoque with the AFCF identification mark is not cemented and there are no layers that could cause a useless thickening of the frame. Moreover 90 % of the frame is hardened at once. It minimizes the amount of the glued places, possibility of unsticking as well as weight. On the contrary the final strength of the frame reaches the maximum value.

AFCF vs. Classical Monocoque Method / Steel Form

The monocoque made by the AFCF method can be tailor-made according to the designed geometry of the FOG system. Thanks to the progressive AFCF technology it is also possible to offer a wide scale of the standard sizes. The comparison of other parameters proves also other advantages of the AFCF technology – the composite layers are set so precisely that any risk of their undesirable move during the hardening is eliminated. No defect caused by the resin “roll-out” can take place.

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DURATEC