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Project Octopus

Confidential Teaser

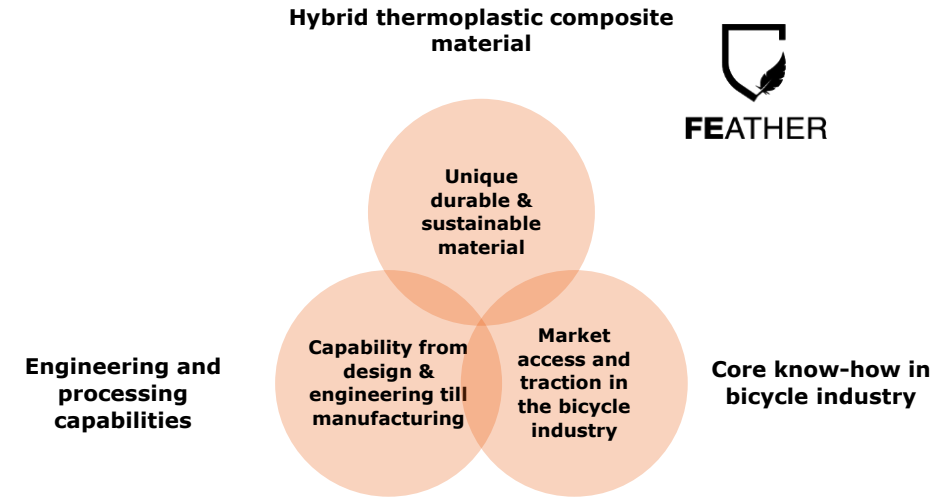
Private and confidential

REIN4CED is an engineering and manufacturing company offering a unique technology platform to manufacture durable and recyclable high-performance lightweight products based on thermoplastic composites. With major technical and market risks addressed, REIN4CED is looking for a partner to support its ambition to scale-up and expand its technology

REIN4CED at a glance

- REIN4CED is a Belgian-based engineering and manufacturing company **transforming reinforced thermoplastic tapes in advanced composite parts and products**.
- REIN4CED has established significant expertise and reputation through the development of:
  - FEATHER™, a proprietary and **patented**[A] **hybrid thermoplastic composite** offering unmatched structural integrity and improved recyclability as compared to traditional carbon thermoset composites; and,
  - A **unique capability and capacity to design, engineer and manufacture**[B] advanced thermoplastic composite parts and products in industrial volumes
- Today, the Company is led by Johan Miermans (CEO) and Michaël Callens (CTO) and is supported by a **seasoned management team** with over 100 years of combined experience in product engineering and manufacturing.
- The Company operates a **flexible and semi-automated**, state-of-the-art manufacturing plant of 1,300 m^2 located in Winksele (Belgium). Over the last years, **REIN4CED invested substantially (c. €6.5m)** in advanced equipment to transform thermoplastic UD[C] tapes into final parts and products.
- Building on its technology platform, REIN4CED has engineered, and is manufacturing durable, **recyclable and high-performance bicycle frames** to reputable players. These products demonstrate the complexity, performance, quality and precision that can be obtained with REIN4CED's technology platform.
- The company is currently raising funds to accelerate its proposition in the bike industry and deploy its technology to other applications. For that, REIN4CED will also **leverage its accumulated engineering and production know-how to support its customers in setting up large-scale manufacturing sites** of their own in a time and cost efficient manner.

Unique selling proposition



Note: [A] Hybrid material patent application number: WO 2018/050875
[B] Process patent application number: WO 2021/224460
[C] Uni-directional

Key investment highlights

REIN4CED
Engineering & manufacturing

Patented unique hybrid composite material[A] assuring durability and sustainability

Thermoplastic composite development, manufacturing[B] know-how and patent

State-of-the-art facility equipped with modern machinery

Future-proof organisation structure

Meeting current critical market demand with a customer-validated offering

Scalable robust strategy going-forward

Note: [A] Hybrid material patent application number: WO 2018/050875
[B] Process patent application number: WO 2021/224460

Patented hybrid composite material assuring durability and sustainability, outperforming traditional carbon fibre composites without compromising stiffness and weight

Traditional carbon fibre composites

Carbon fibre in the bicycle industry

- Premium product: lightweight & high-performance
- Standard material of choice for specific bike segments
- Based on standard thermoset systems and manual manufacturing

Leading to disadvantages:

- **Poor impact resistance**
- **Dramatic fracture behaviour**
- **Based on chemical reaction of the resin**
- **Non-recyclable**



Hybrid composite material – Durable!

Carbon fibre		Steel fibre	
	✓ High stiffness		✓ High stiffness
	✓ High strength		✓ Ductile fracture
	✓ Low density		✓ Conservation structural integrity
	– Brittle fracture		– Low yield point
	– No warning		– High density

REIN4CED has developed an innovative, patented hybrid composite material

*While focusing on **durability**, FEATHER™ is appreciated and noticed by bicycle magazines, bicycle reviewers and end consumers.*

FEATHER™

- ✓ High stiffness
- ✓ High strength
- ✓ Low density
- ✓ Ductile fracture
- ✓ Conservation of integrity

- **Higher impact resistance:** up to 4x higher;
- **Higher tolerance to damages:** higher threshold for cracks and delamination in the material; and,
- **Visibility of impact**: upon impact, the steel deforms plastically leading to an indentation and visible damage

Hybrid composite material – Sustainable!

Next generation of composites is set to redefine the standards of sustainability, aiming to become the most environmental-friendly carbon fibre frame.

Set-up of internal Reduce – Reuse – Recycle Program

- **Reduce** the amount of base materials
- **Reuse** waste material in the production process
- **Recycle** end-of-life product recycling

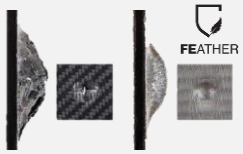
- **High-level of recyclability** given remelting and consolidation possibilities of the materials
- Materials have **no limited shelf life** and allow for **end-of-life recycling**

REIN4CED's **thermoplastic composite development, manufacturing know-how and patent** has allowed it to stepwise establish itself as a leading transformer of advanced thermoplastic, reinforced UD tape into highly engineered products

REIN4CED's track record

Patented hybrid composite laminate

- Development of the patented hybrid composite laminate branded via FEATHER™ because of its outperformance on multiple criteria and its specific use cases across a variety of end markets



Secured commercial traction and developed the technology platform

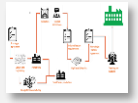
- Deliberate choice to produce with thermoplastic matrix
- Matured a novel and automated approach through:
  - 1) Process testing and validation in lab environment
  - 2) Upscaling and building a semi-automated manufacturing facility
  - 3) Real life manufacturing and go-to-market customer-validated bicycle frames

Scaled the technologies & validated market interest

- Deliberate strategy to generate and validate B2B market traction by targeting the high-end bicycle segment
- Commercialising and validating end consumer interest by producing the Kellys Theos F-series frame
- Set-up collaborations with world leading players to scale to a global level to meet customer demand

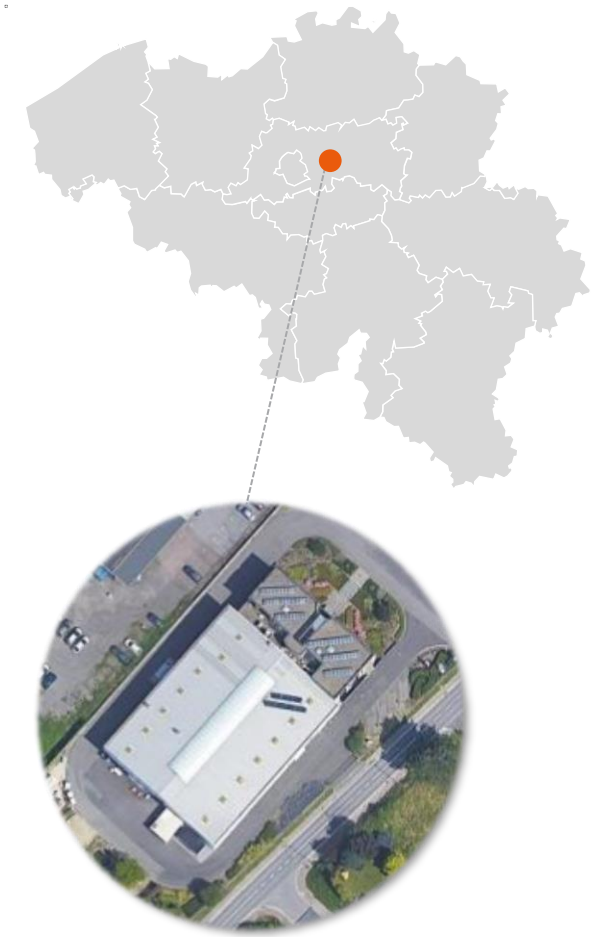
Scaling and leveraging on the technology platform to meet market demand

- REIN4CED's offering holds the key to unlock the full potential of thermoplastics composite materials:
  - Application engineering capabilities
  - Small series production
  - Design, build and support start-up of large-scale manufacturing sites



2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023

State-of-the-art facility equipped with modern machinery to manufacture prototypes and small series via scalable high-end manufacturing equipment with different levels of automation



Location:
Diependaalweg 4A, 3020 Winksele, Belgium

Winksele pilot plant

- 20km east of Brussels
- Prototypes and small series of thermoplastic products
- Technology centre to continue technology and product development
- Support the transfer of the technology platform to high volume manufacturing plants

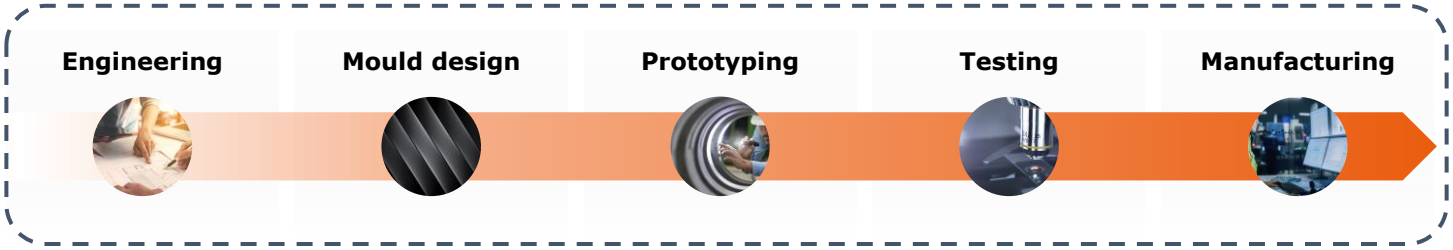
Key facts of the real estate

- **Land surface:** *5,750m²*
- **Building surface:** *1,300 m²*
- **Yearly rental cost:** €121k in FY22

Key facts of equipment and machinery

- **Annual capacity:** 6,000 frames per shift
- **Total capex:** €6.5m

REIN4CED's in-house offering



Meeting current critical market demand with a customer-validated offering has sparked the interest from global brands and demonstrated the potential in broader products and markets

REIN4CED's offering addresses critical market needs and sector trends

Reshoring
Including higher supply chain flexibility, faster time-to-market and reduction of CO_2 emission.

Sustainability
Sustainable alternative to traditional thermoset composites

Durability & performance
Significantly higher durability without sacrificing performance

Working capital management
Faster time-to-market and hence a reduction in working capital

Kellys frame exceeds market standards:

- A fatigue life of 20x higher than bicycle standards
- Higher head tube impact performance
- The bearings are mounted directly in the carbon
- Complex design features

The demonstrated technology platform in the bicycle industry makes REIN4CED ready to accelerate into broader products and markets

Rationale for the initial focus on the bicycle industry

- Innovation driven industry
- Familiarity with carbon fibre reinforced composites
- Evidenced attractiveness of REIN4CED's offering

Key take-aways for scaling beyond the bicycle industry

- **Product development**: Demonstrated capability to capture customer needs.
- **Manufacturing capabilities**: Flexible manufacturing facility enabling the supply of prototypes up to small series production
- **Cost control**: Developed a model to estimate the cost of thermoplastic composite products in small and large series production

Ready to enter new markets with its new technology platform

- Ready to accelerate beyond the bicycle industry into other end-markets
- Hiring of experienced executives with extensive background in the thermoplastic and automotive industries

Future potential

Sports & leisure

Automotive

Aerospace

Other industries

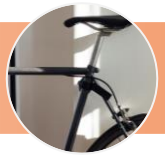
Scalable robust strategy going-forward is the key to unlock the full potential of manufacturing high performance products with thermoplastic composite materials, backed by a structured process leading to a fast and efficient scaling

REIN4CED journey

Building manufacturing know-how | **Large-scale manufacturing**


Process testing and validation in lab environment


Industrial production process


In-house automated production


Application engineering for large-scale projects


Factory engineering


Technology transfer

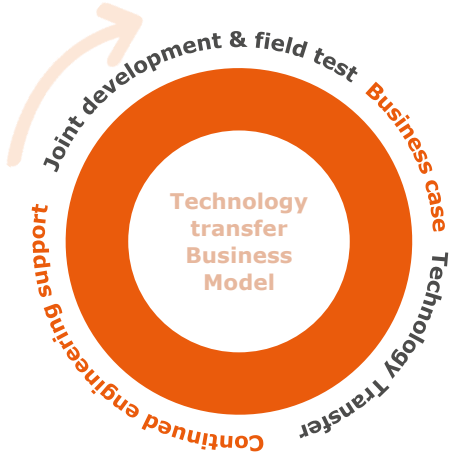

Continued engineering support

Main business model drivers

Next to a known activity in small series production, REIN4CED will scale its technology platform to high volumes with partners in a JV and/or licencing model.

Scalability

Unique position in the bicycle market and ready to expand to other markets



De-risking operations

Focus on core competencies

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