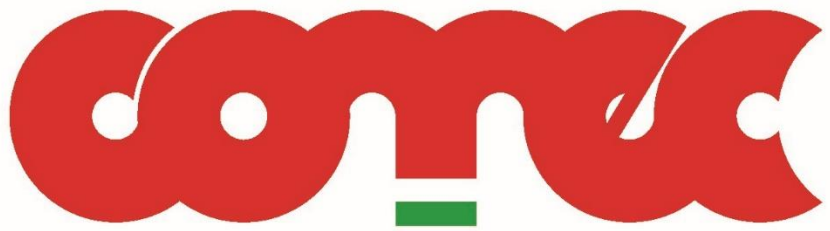


ABOUT US

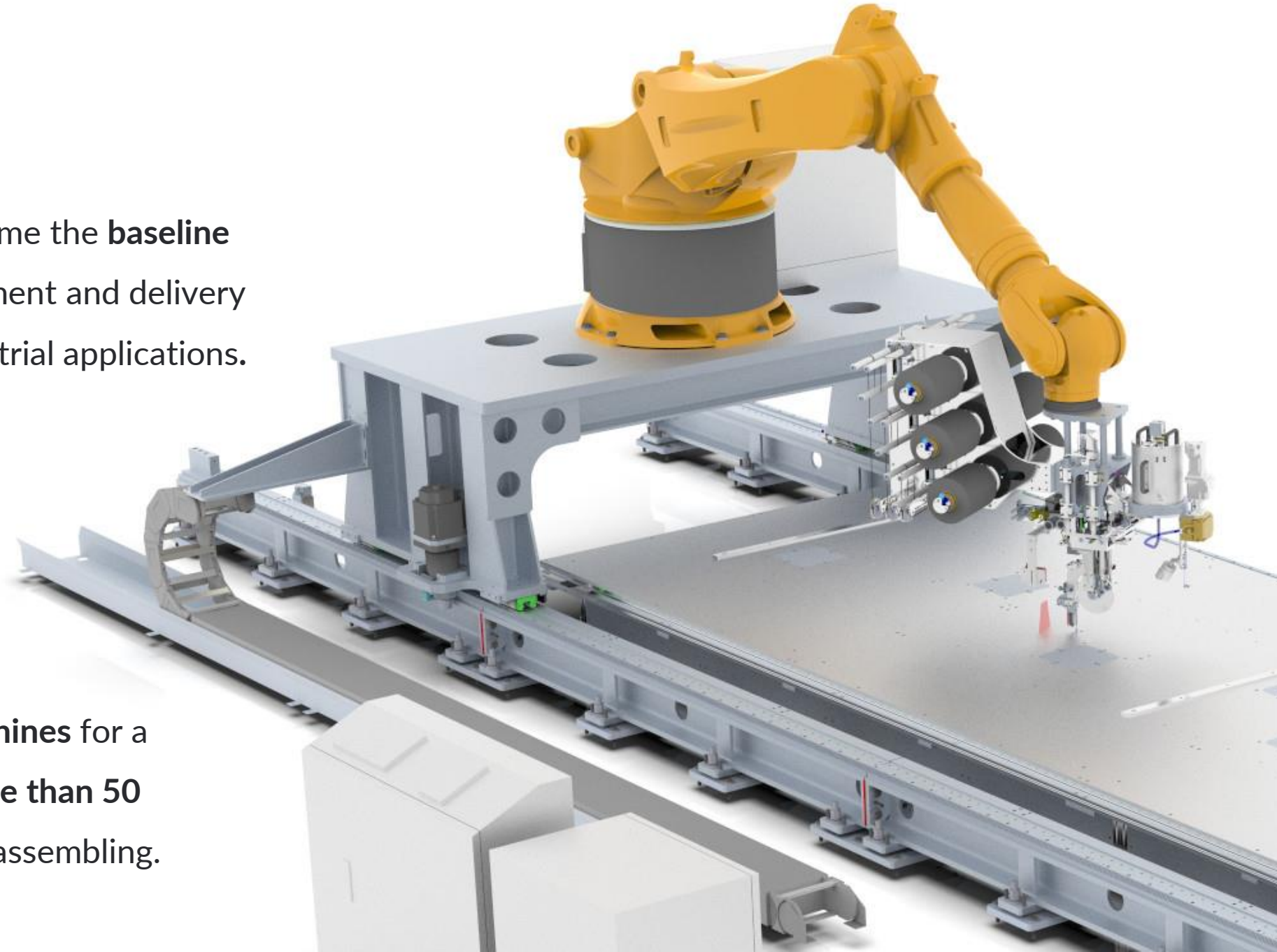
- Founded in **1965** as a family business
- More than **50 years** of experience in automation and **machine assembling** and over than **10 years** in **composite machines manufacturing**
- **Customer oriented** approach
- **Internal** design, production and R&D department
- **ISO 9001:2015** certification
- **6000 sqm** of production area and offices
- 10 M in turnover, **exporters abroad**
- **55 workers**
- **High OEE** (Overall Equipment Efficiency)

VISION

COMEC Innovative aims to become the **baseline of expectations** for the development and delivery of **composite machines** for industrial applications.

MISSION

To manufacture **customized machines** for a mass production based upon **more than 50 years of experience** in machines assembling.



SOME OF OUR REFERENCES

'TORAY'

HYUNDAI

AVIO
ADVANCED VISION INTO ORBIT

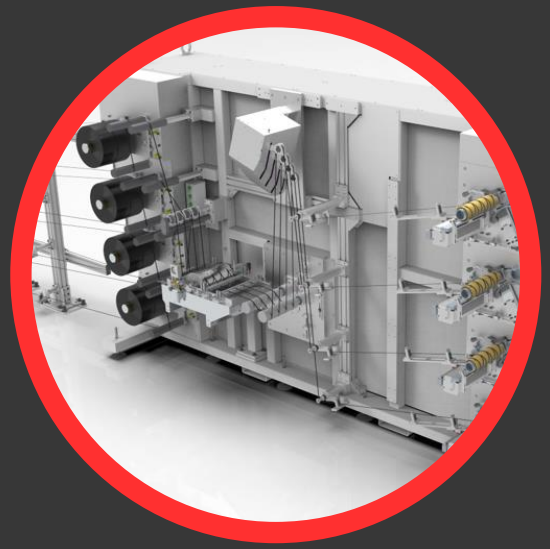
LAMBORGHINI

MITSUBISHI MOTORS

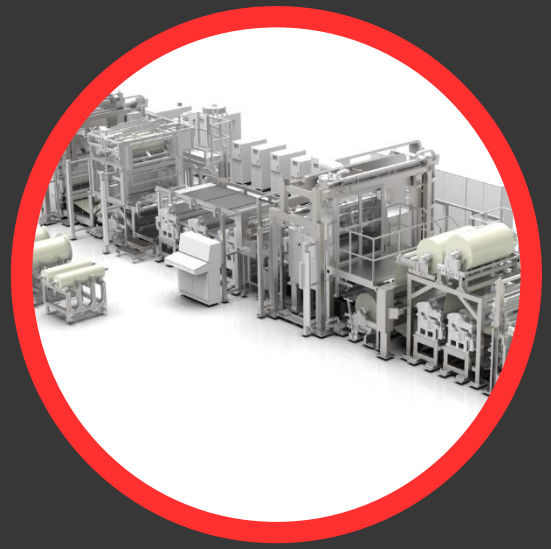
LEONARDO

HUNTSMAN

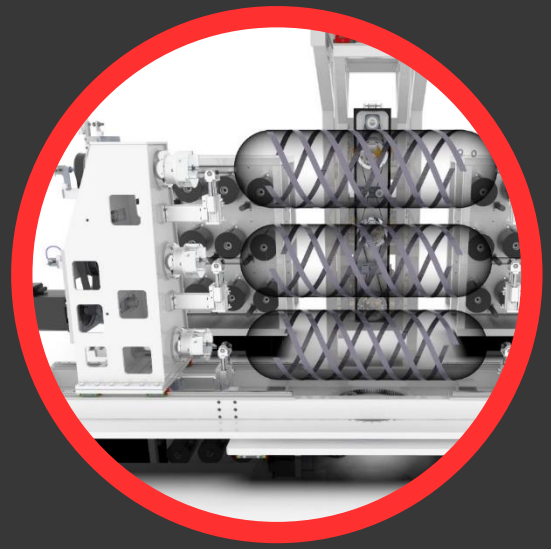
OUR MACHINES



TOWPREG

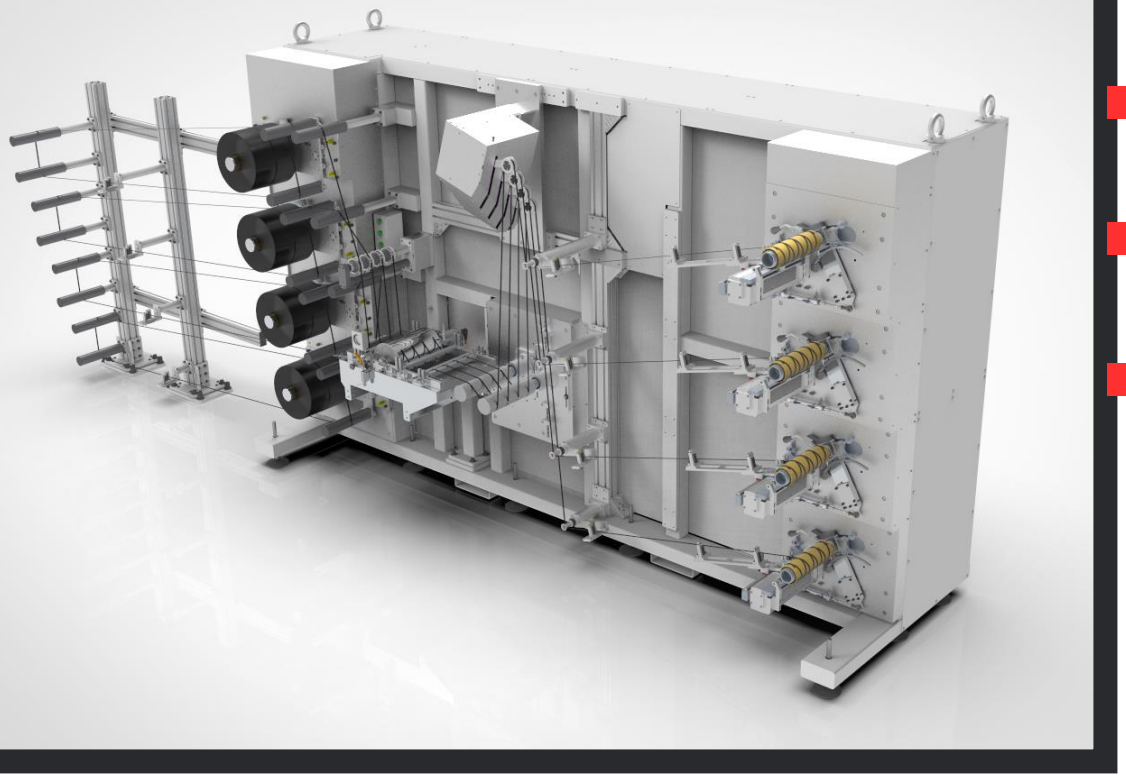


PREPREG



FILAMENT WINDING

AFP / ATL



HIGH LINE SPEED

HIGH RESIN CONTENT ACCURACY

WIDE RANGE OF RESIN TYPE

TOW PREG

After many years we have developed our **reliable "TOW Quattro" machine**, adaptable to different fibers and resins. It can reach process speed of **100 m/min** and produce more than **100 tons/year of towpreg (2 shifts)**. The impregnation system is hotmelt **resin bath or mechanical nozzle**. There is the possibility to include a customizable **cooling zone** (down to 5°C) with humidity control (down to 25%).

Tension Control	Fully Automated
Rolls Temperature	Up to 120°C
Resin Content Accuracy	Up to ± 2%
Bandwidth Control	Up to ± 0,1 mm

R & D LABORATORY

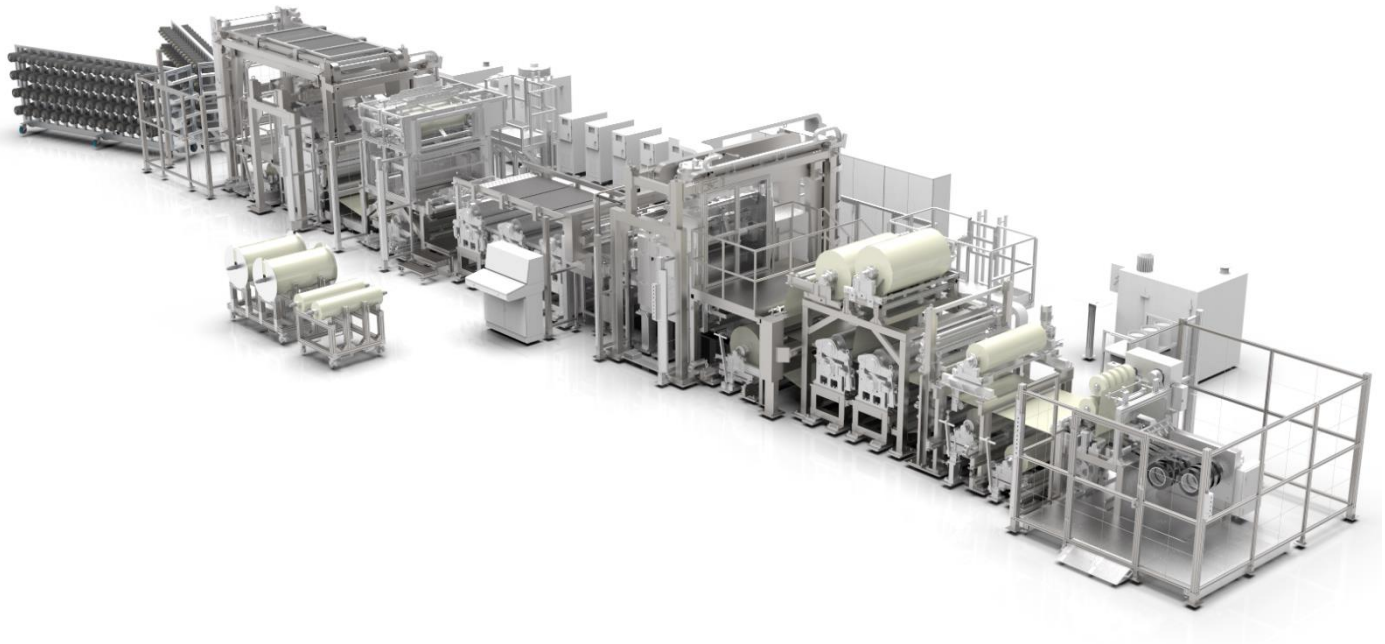
LAB MACHINES

PROCESS TESTING

R & D EXPERIENCE

Comec Innovative has gained significant **experience** in processing **different types of carbon fibers and resins**. We collaborate also with **resin manufacturers** and educational istitutions. From this experience, we created our **R&D laboratory** in order to test the performance of the **process and final product.**

Testing Service	Impregnation test
Machine	1 line Towpreg



NON-STOP PRODUCTION

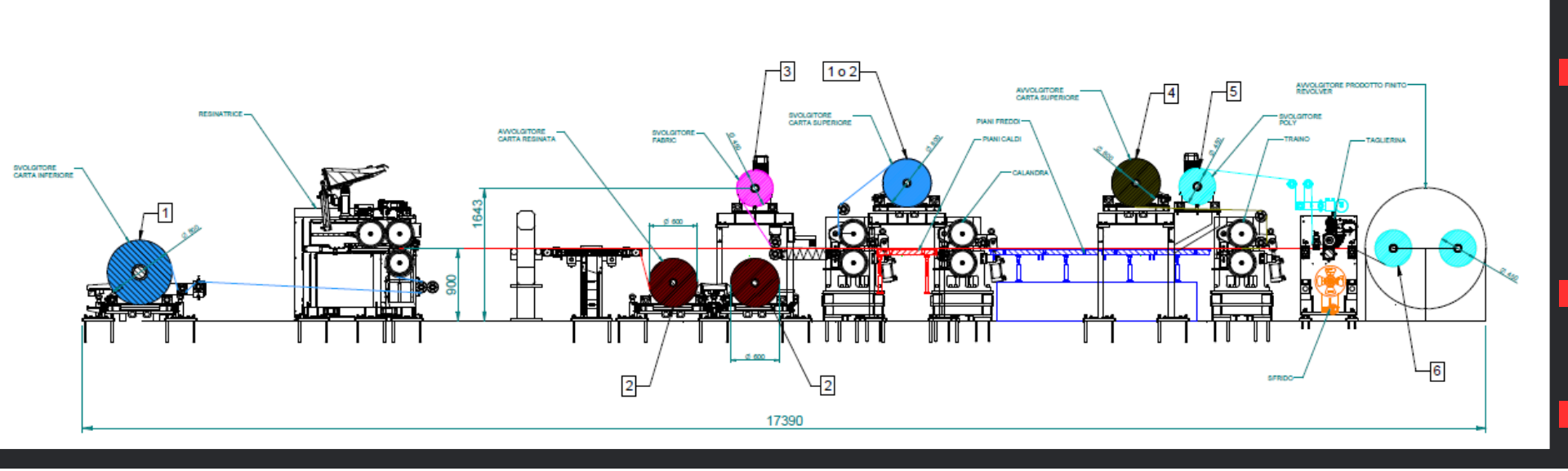
DIRECT-INDIRECT IMPREGNATION

NEURAL WEB APPLICATION

PRE PREG

Comec Prepreg machines can process **various types of fiber** to produce prepregs, using **hotmelt epoxy thermoset resins**. This machine can reach **25 m/min** line speed focusing on mass production. The machine shown in the picture has a **modular design** and impregnates **Fabric and UD Tape**.

Slit Tape Cutting Process	Integrated
Resin Film Process	Integrated
Resin Content Control	Beta Gauge
Neural Web System	Integrated



- VARIOUS FABRIC WEIGHTS
- POLY UNWINDER
- HOT / COLD PLANES

This machine can be used as an **impregnation line**, a **resin coating unit** or both.

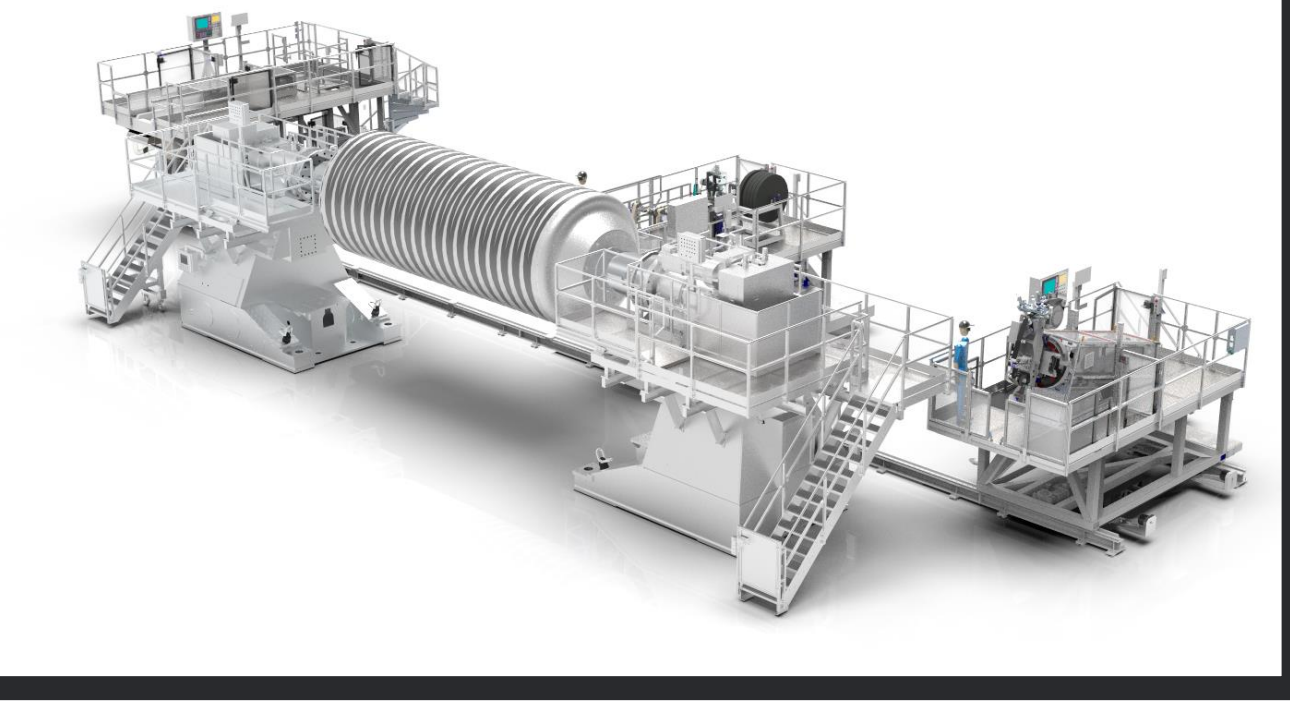
It is possible to store silicon paper impregnated bobins ready to be used in fabric impregnation process.

High grammature fabrics (more than **1600 g/sm**) can be processed.

Resin content grammature control is included right after the resin coating system (ultrasounds, radioactive source).

PRE PREG

Bobin Diameters	Up to 800 mm
Impregnation System	Calander / S-Wrap
Resin Coating System	Three Roll Coater
Fabric height	Up to 1350 mm

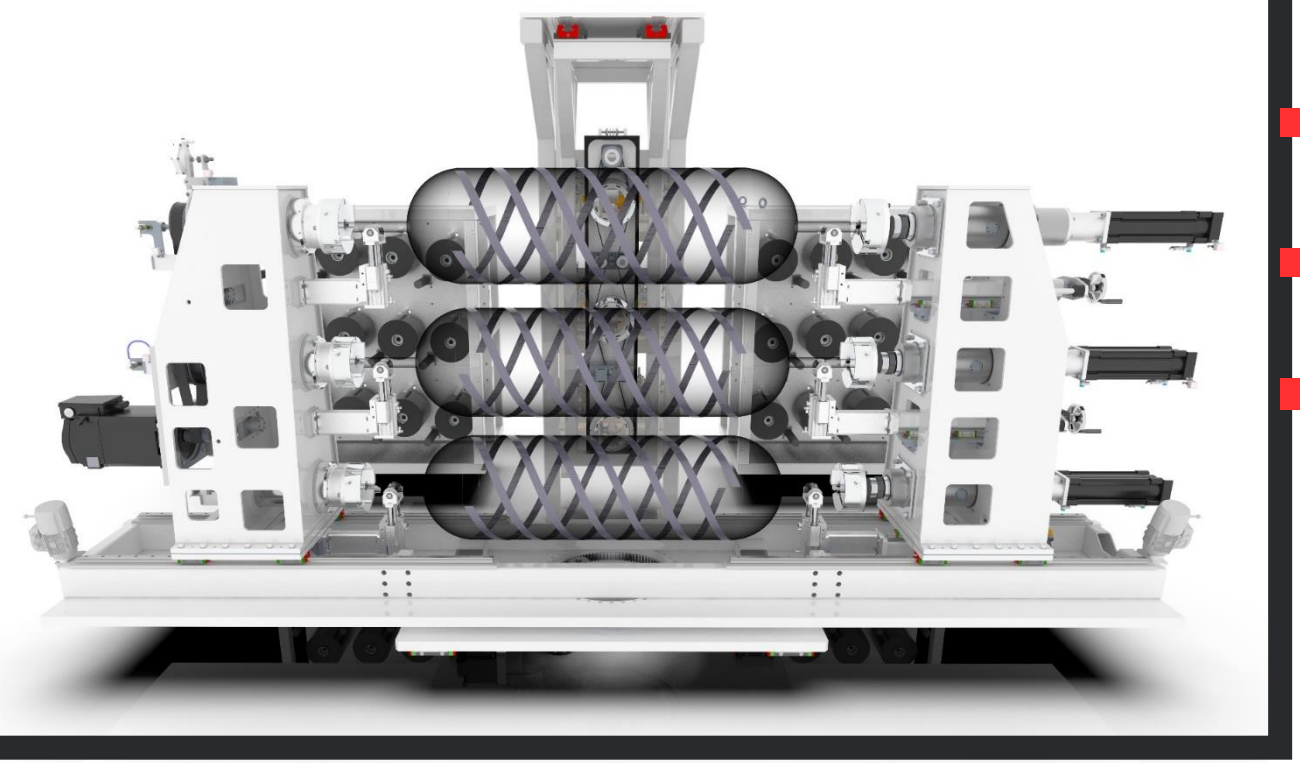


- COMPLEX SHAPES
- PERFECT REPEATABILITY
- CUSTOMIZABLE PRODUCT

FILAMENT WINDING

Comec has **great experience** in Filament Winding, manufacturing machines of big dimensions for **Aerospace applications**. Filament Winding process could be applied laying down composite materials on studied shapes, obtaining a **lightweight** final product with **high mechanical properties**. With the machine in the picture, the **outer engine case of space launchers** was made by Filament Winding process.

Mandrel Diameter	Up to 3 m
Mandrel Length	Up to 13 m
Impregnation Technology	Towpreg / Impregnation bath



COMPLEX SHAPES
MICROMETER PRECISION
HYDROGEN TANKS
MANUFACTURING PARTNERS

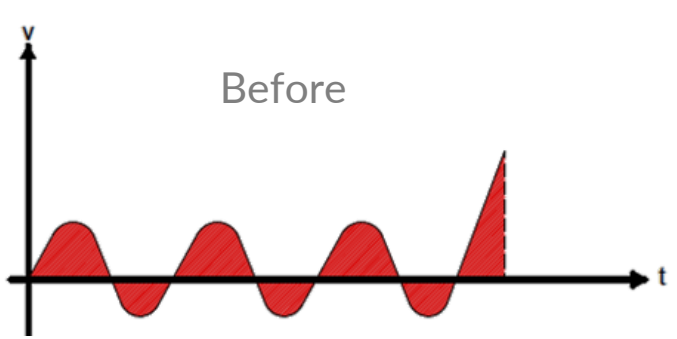
FILAMENT WINDING

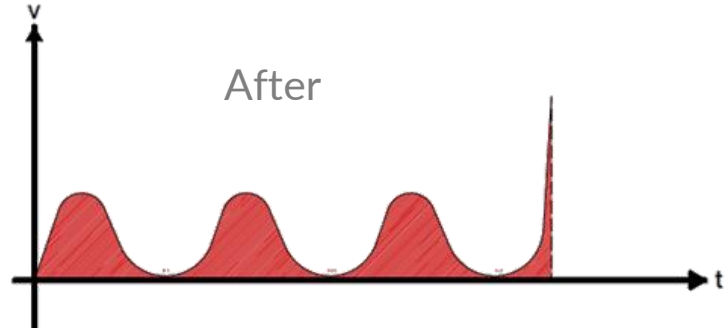
Our **Research and Development department** leads various innovative projects for **Hydrogen tanks type IV (up to 700 bar)** process manufacturing. We are working to improve several of Filament Winding critical aspects, such as the **removal of the negative speed in the dome zone.** We are also focusing on **safety and quality assurance** for hydrogen pressure vessels production.

Tank Volume	Up to 400 L
Tank Diameter	Up to 500 mm
Tank Length	Up to 2500 mm
Impregnation Technology	Towpreg winding

SMART TOW WINDING

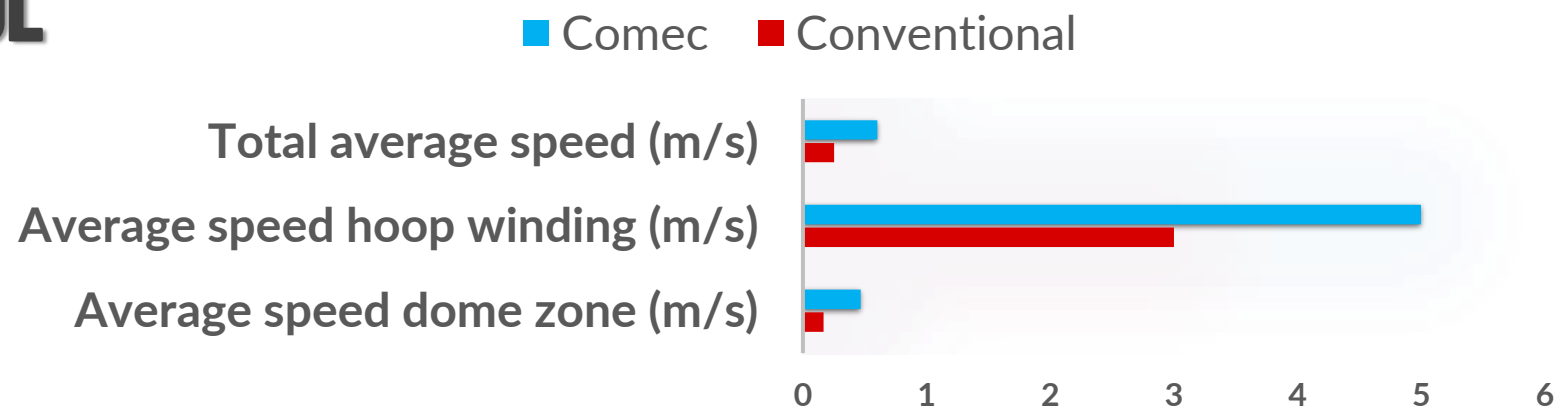
INCREASE OF THE TOTAL AVERAGE SPEED IN THE DOME ZONE





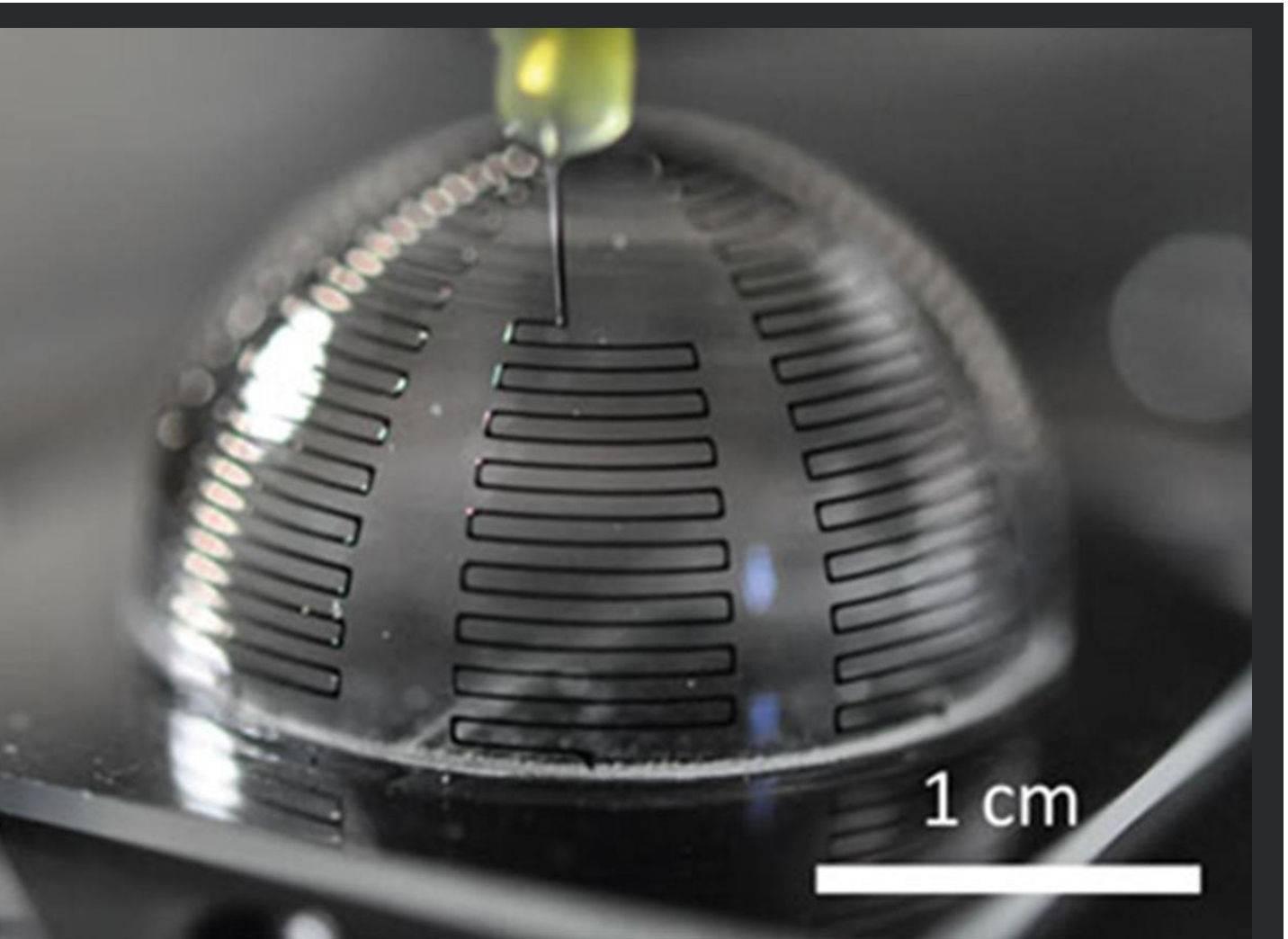
COSTANT TENSION CONTROL

Average winding speed	Up to 0,6 m/s
Average hoop winding speed	Up to 5 m/s



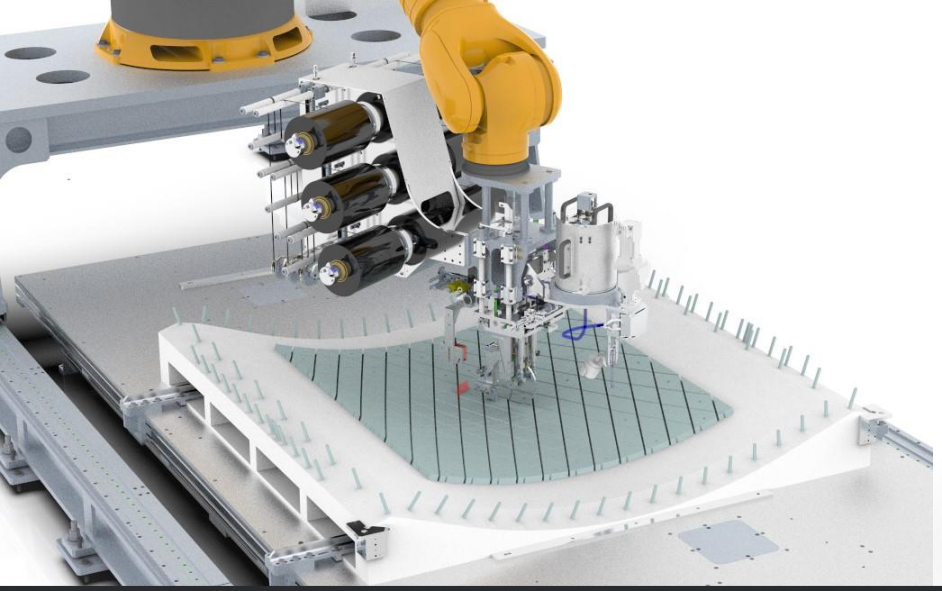
Ministry of Economic Development

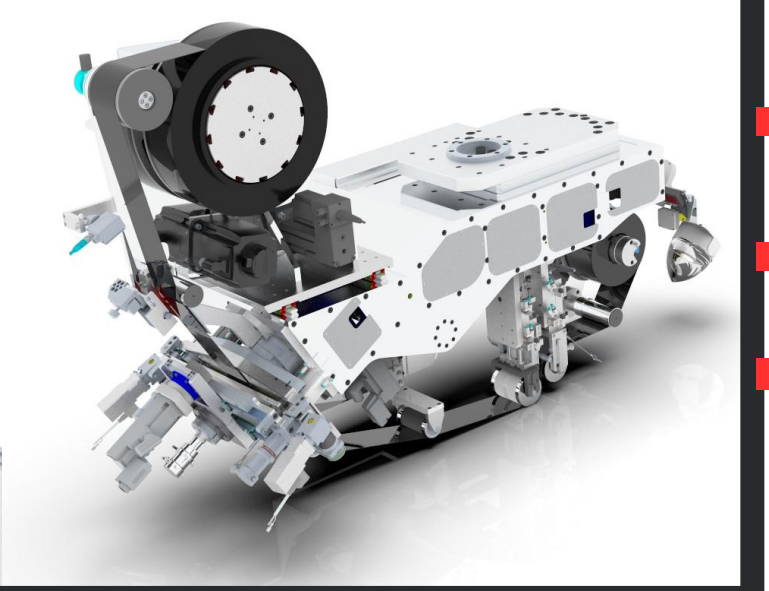
SEFIRO PROJECT



FUTURE RESULTS

- New **sensorized** towpreg winded pressure vessel
- Development of additive manufacturing **Aerosol Jet Printing technology**
- **Wide range of materials** (conductive, dielectric, biological, nanoparticles, etc.) deposition at micron-scale.
- **Damage prevention and safety** improved
- **Pressure, temperature and geometrical variations** of the vessel controlled





- AUTOMATED PROCESS
- REPEATABILITY
- CUSTOM MATERIAL LENGTH AND WIDTH

Comec Automated Tape Laying (ATL) and Automated Fiber Placement (AFP) equipment were designed for aerospace applications.

AFP machine impregnates dry carbon fiber tow by resin inside the caves of a mould, placing them on several layers, to obtain lightweight structure with high mechanical strength.

We can propose **dry / wet** configuration.

ATL deposition head deposits and cuts slit tapes on a cylindrical mandrel.

AFP & ATL

Material	UD Tape / Towpreg
Repeatability	Up to ± 0,01 mm
ATL Tape Width	Up to 150 mm
ATL Bobin Diameter	Up to 600 mm
ATL Cutting Angle	Up to 45°

THANK YOU

FOR YOUR ATTENTION