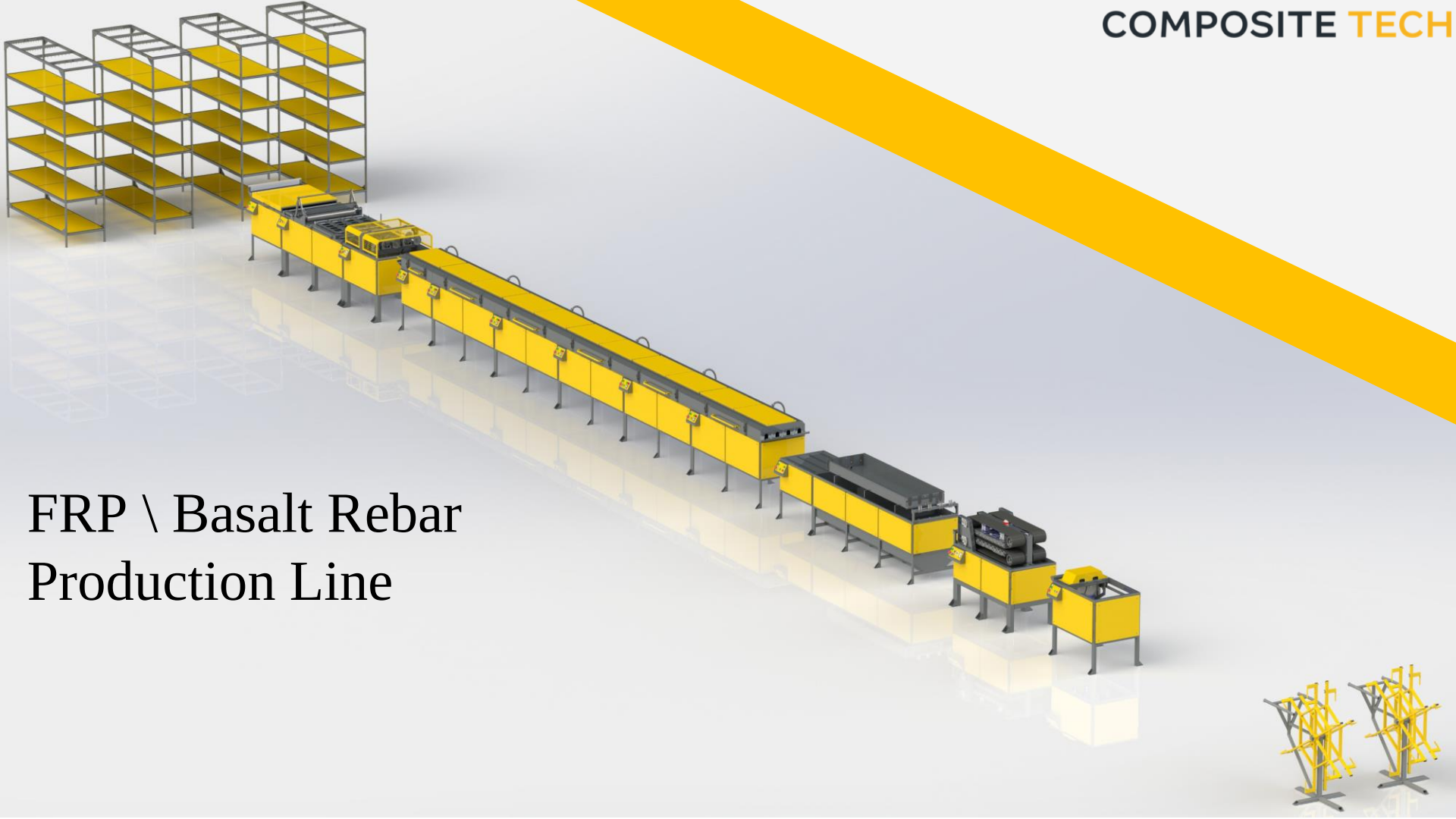


FRP \ Basalt Rebar Production Line



Introduction

Composite Tech is a leading innovator in the field of fiber-reinforced polymer (FRP) rebar. The company is dedicated to providing high-quality, sustainable, and cost-effective rebar solutions for a wide range of construction applications.

FRP rebar is a durable and corrosion-resistant alternative to traditional steel rebar, making it an ideal choice for infrastructure projects, marine construction, and other demanding environments. Composite Tech's commitment to research and development ensures that its products are at the forefront of FRP rebar technology.

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OUR CONTACTS

About Us

Composite Tech is globally known for taking construction materials and production lines to the next level. We re-imagine existing and commonly used steel rebar and production methods in favor of reinforcement, cost and production effectiveness, quality and transportation benefits.



About Us

It is this that led us to creating fiberglass and basalt rebar manufacturing lines and for the past 10 years we have been perfecting this technology to the level of a turn-key solution.

Today, we supply our fiberglass/basalt rebar, mesh and bent elements production lines globally and make the world of construction new age, more secure and immune to affects of time and weather.



FRP Rebar Machines: An Overview

Our **FRP Rebar production lines** are a cutting-edge pieces of equipment designed for the efficient and precise production of high-quality fiber-reinforced polymer (FRP) rebar.

These machines leverages an automated pultrusion process, enabling the continuous production of FRP rebar with **consistent quality and precision**.

With its advanced features and robust design, our FRP Rebar Machines empower manufacturers to meet the growing demand for sustainable and **high-performance reinforcement solutions**.

We manufacture 2 types of **FRP Rebar** production lines:



CT2

2 bars
simultaneous
output

CT4

4 bars
simultaneous
output

COMPOSITE TECH



Impregnation and rib winder module



Pulling device



Cutting device

FRP REBAR production line CT2

Recommended rebar production speeds

Nominal diameter, mm	Number of bars	Broaching speed, up to (m/min)	Productivity, up to (m/min)
4	2	5	10
6	2	4,5	9
8	2	4	8
10	2	3,5	7
12	2	3	6
14	2	2,5	5
16	1	2	2
18	1	1,5	1,5
20	1	1	1

The given production speeds are indicative and depend on the polymerization characteristics of the resins used and the environmental parameters.



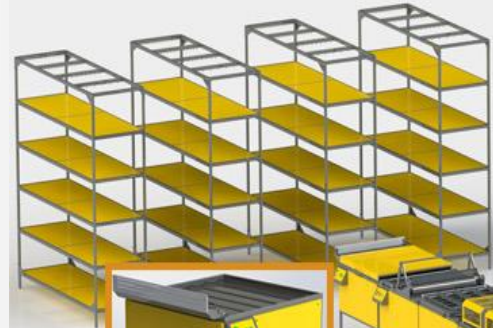
Curing oven with fan



Water cooling module



COMPOSITE TECH



FRP REBAR production line CT4

Recommended production speeds

Nominal diameter, mm	Number of bars	Broaching speed, up to (m/min)	Productivity, up to (m/min)
4	4	8	32
6	4	7	28
8	4	6	24
10	4	5	20
12	3	4	12
14	3	3,5	10,5
16	2	3	6
18	2	2,5	5
20	1	2	2



CT2 Productivity

Nominal diameter, mm	Number of bars	Broaching speed, up to (m/min)	Productivity, up to (m/min)
4	2	5	10
6	2	4,5	9
8	2	4	8
10	2	3,5	7
12	2	3	6
14	2	2,5	5
16	1	2	2
18	1	1,5	1,5
20	1	1	1

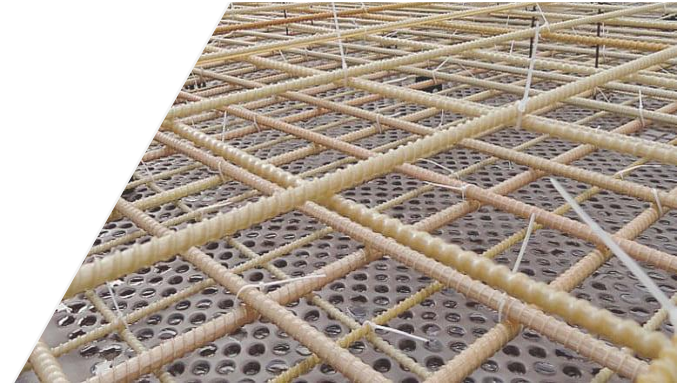
CT4 Productivity

Nominal diameter, mm	Number of bars	Broaching speed, up to (m/min)	Productivity, up to (m/min)
4	4	8	32
6	4	7	28
8	4	6	24
10	4	5	20
12	3	4	12
14	3	3,5	10,5
16	2	3	6
18	2	2,5	5
20	1	2	2

About Product

Technology development moves at a **never-ending pace** and it does not exclude construction materials. Composite-Tech FRP rebar is a result of a continuous development partnership with **world renowned building** institutes and serves as a benchmark of construction excellence.

We pride ourselves in achieving unmatched Rebar characteristics that boast **incomparable quality** and outperform conventional steel rebar in every possible dimension.



Benefits

1

CORROSION RESISTANT

FRP rebar is made from non-metallic materials, making it impervious to corrosion caused by moisture, chemicals, and harsh environments. This **significantly increases the lifespan of concrete structures**, eliminating the need for frequent maintenance and replacement.

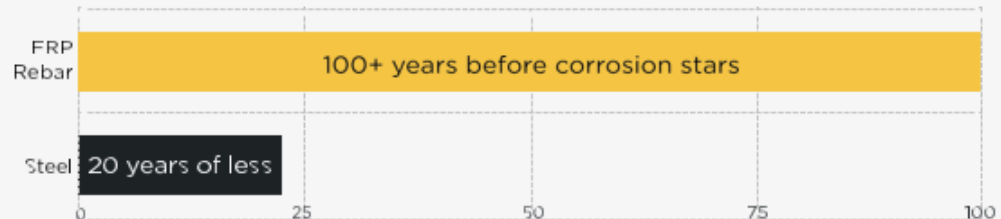
This is important when you build concrete structures in coastal areas near seas, oceans, lakes and rivers. **FRP is not affected by corrosion** and this means that concrete won't crack as rebar will not expand like steel.

2

ZERO DECAY

FRP rebar **eliminates cracks in the concrete blocks** and consequent breaking of structure. Therefore, we extend life expectancy of the blocks and eliminate the need for refurbishment.

Our tests show that concrete structures will remain **intact for over 80 years** without critical cracks and deformation of the structures that contain FRP rebar.



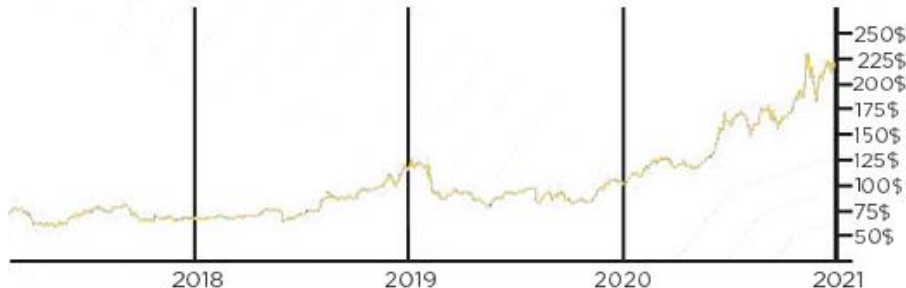
Benefits

3

HIGH PRICE

Steel has doubled in price since mid 2020, whilst the general market suffers from constant fluctuations. This makes it hard to forecast your steel rebar production prices.

Opposingly, FRP Rebar raw materials have historically been decreasing in price and maintain a stable price behavior.



4

STRENGTH / TEMPERATURE RESISTANT

The end product of our production lines withstands -70 to +150 degrees Celsius range of temperatures and is 5 times stronger than its steel counterpart.

FRP rebar boasts significantly higher tensile strength compared to traditional steel rebar. This translates to exceptional durability, allowing structures to withstand heavy loads and stresses.



Benefits

5

TRANSPORT DELIVERY



1 STEEL REBAR

=

5 FRP REBAR

FRP rebar is significantly **lighter than steel rebar**, which is one of its key advantages in construction, particularly in terms of ease of handling, transportation, and reducing the overall weight burden on structures.

The weight difference between FRP and steel rebar primarily comes from their material density.

- Steel rebar has a density of around $7,850 \text{ kg/m}^3$ (490 lb/ft^3).
- FRP rebar (typically glass fiber-based) has a density of around $1,900$ to $2,100 \text{ kg/m}^3$ (118 to 131 lb/ft^3), depending on the fiber type (glass, carbon, or basalt) and resin used.

Weight Difference by Volume:

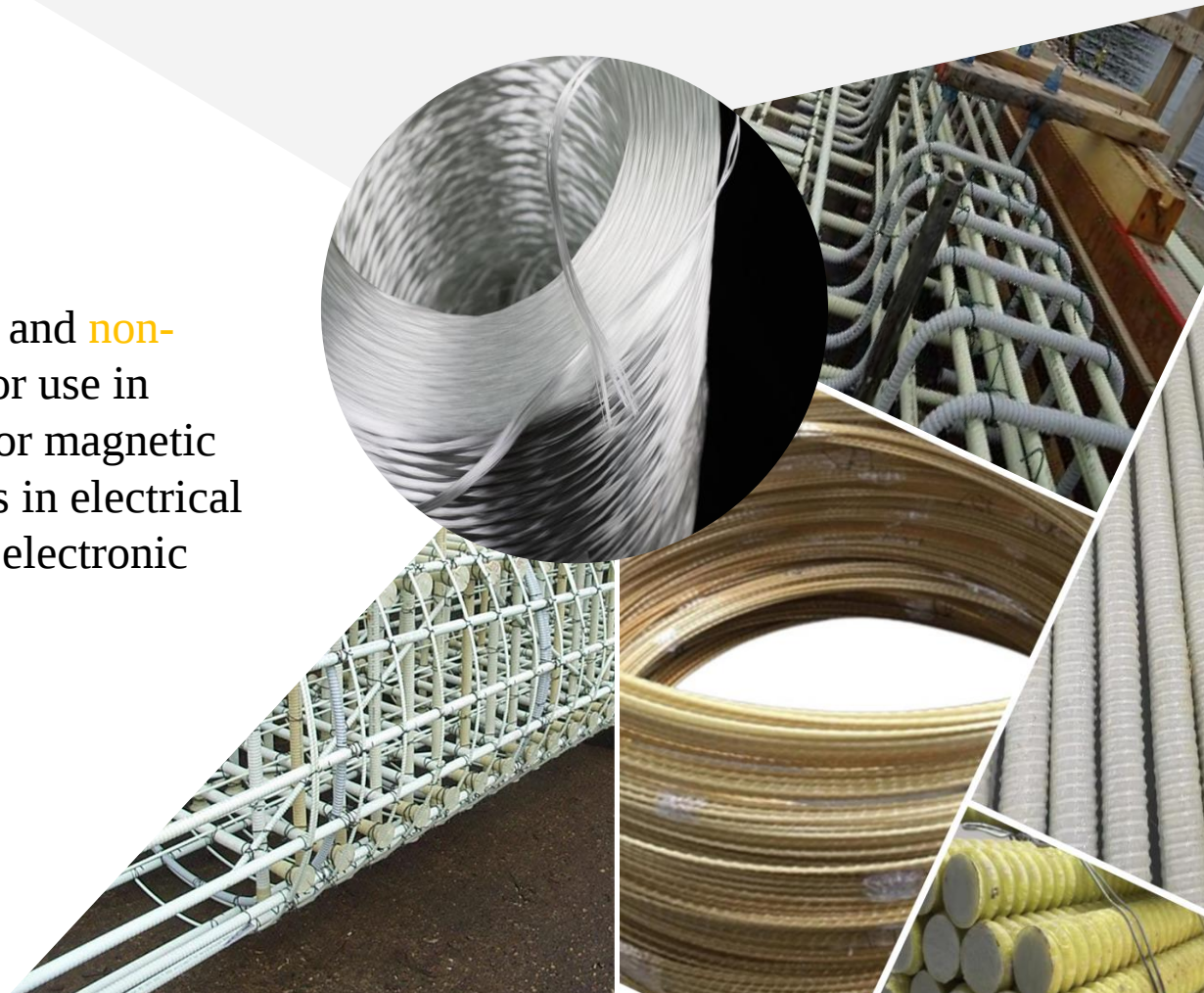
- FRP rebar is about 5 times lighter than steel rebar for the same volume.

Benefits

6

NON
CONDUCTIVE

FRP rebar is **non-conductive** and **non-magnetic**, making it ideal for use in environments where electrical or magnetic interference is a concern, such as in electrical installations or near sensitive electronic equipment.



Application

Composite-Tech FRP Rebar offers unmatched benefits in following construction applications:

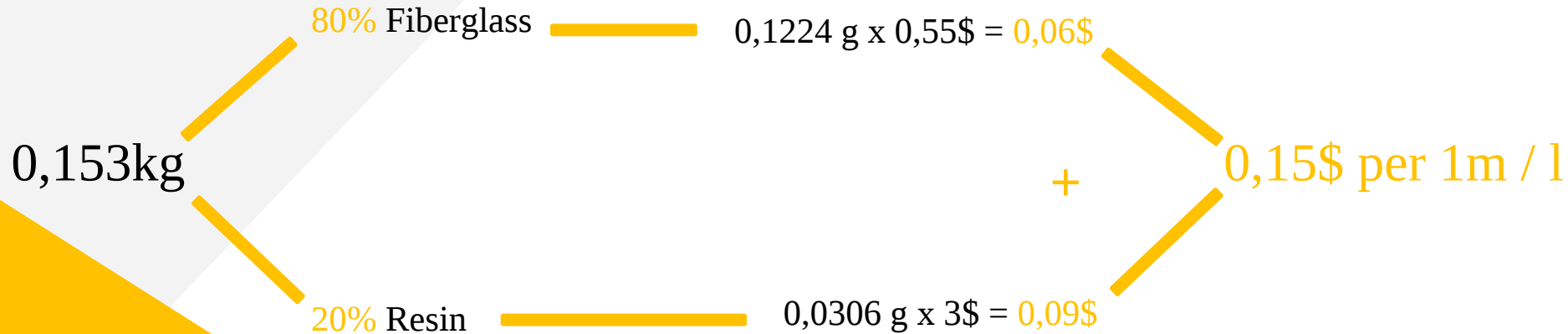
- ▲ All types of foundations
- ▲ Construction in sea water or in close proximity to it
- ▲ Concrete exposed to deicing salts (Roads, tunnels, bridges, etc.)
- ▲ Weight sensitive structure
- ▲ Heat/cold sensitive environments (basements, patio decks, heated floors, etc.)
- ▲ Low electric conductivity mediums



End Product Cost Calculations

FRP Rebar Ø 10 mm is taken as an example

The weight of 1 meter of Ø 10 mm = 0,134 kg ~ 134 g



Price:

Fiberglass – 0,55\$ / kg

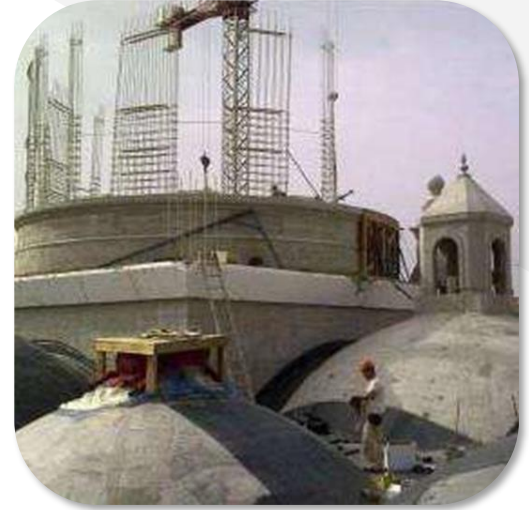
Resin – 3\$ / kg



Metro Rail System,
Ghent, Belgium, 2010



Maui Sea Wall,
Hawaii, 2018



Cathedral de la Laguna in
Tenerife Canary Islands, 2013

Raw Materials

Our **FRP/Basalt Rebar** is manufactured by using the Composite-Tech proprietary mix of the following **raw materials** that can be accessed globally:

- 10%** Polyester or Epoxy Resin
- 10%** Mix additives (applied to resin)
- 80%** Fiberglass or Basalt Fiber



General Specs CT2

CT2 Machine can produce up to 2 bars at the same time

CT2 has the following characteristics:

Length-Width-Height: **20.3m -1.7m -2.5m**

Installation - **10 days** (executed by Composite Tech)

End Product - **FRP or Basalt Rebar**

Rebar diameter range: **2-20 mm**

Output per **8 hours** – **3360 m (Ø10mm)**

Operators required - **2**

Weight – **up to 3 tones**

Voltage - **380V, 50Hz**

Power Consumption – **15kW**

1000m of Ø10mm = **134 kg**

Raw materials – **Polyester or Epoxy Resin and Fiberglass or Basalt Roving**



General Specs CT4

CT4 has the following characteristics:

CT4 Machine can produce up to 4 bars at the same time



Length-Width-Height: **31.5m -5.2m -2.5m**

Installation - **10 days** (executed by Composite Tech)

End Product - **FRP or Basalt Rebar**

Rebar diameter range: **2-20 mm**

Output per **8 hours** – **9600 m (Ø10mm)**

Operators required - **2**

Weight – **up to 3 tones**

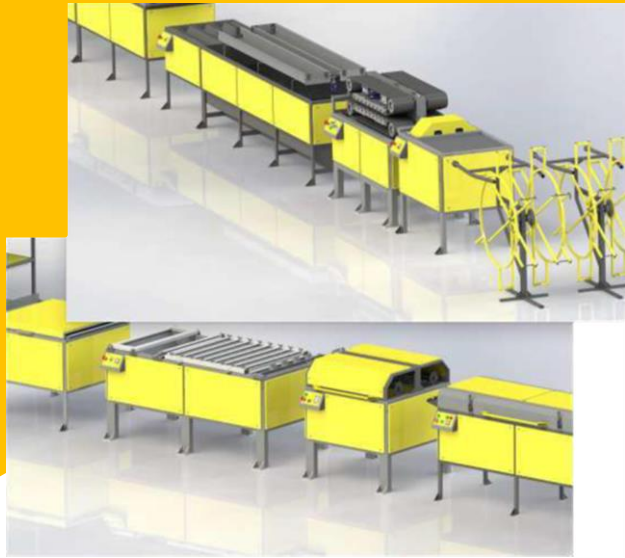
Voltage - **380V, 50Hz**

Power Consumption – **20kW**

1000m of Ø10mm = **134 kg**

Raw materials – **Polyester or Epoxy Resin and Fiberglass or Basalt Roving**

Installation and Assembly



**START YOUR PRODUCTION IN
JUST 2 MONTHS!**

CT2 and CT4 production line are designed to be turn-key once assembly is finished, which typically takes **10 working days** and we always send our representative to help with the installation process.

Our installation pack includes:

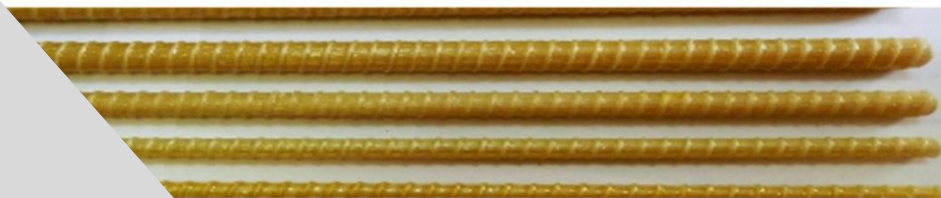
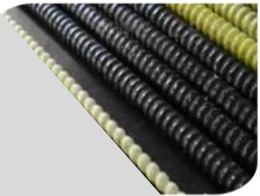
- Assembly on customer's location
- Post assembly checklist
- Operation manual
- Online support and additional guidance (if required)

Steel VS FRP

Specification	FRP Rebar	Steel Rebar
<i>Material</i>	Fiber glass, polyester resin	Steel
<i>Stretch resist. time</i>	1200 MPa	360 MPa
<i>Elastic modulus</i>	55000 MPa	200000 MPa
<i>Relative lengthening</i>	2,2%	25%
<i>Density</i>	1,9 t/m3	7 t/m3
<i>Corrosion resistance</i>	Stainless material of the first group of chemical resistance	Corroded with rust products
<i>Thermal conductivity</i>	Non-conductive	Heat conductive

Steel VS FRP

Specification	FRP Rebar	Steel Rebar
<i>Electrical conductivity</i>	Non-conductive	Electric conductive
<i>Produced diameters</i>	3-40	6-80
<i>Length</i>	Any length	6-12 m
<i>Durability</i>	Not less than 100 years	By building code



Steel VS FRP

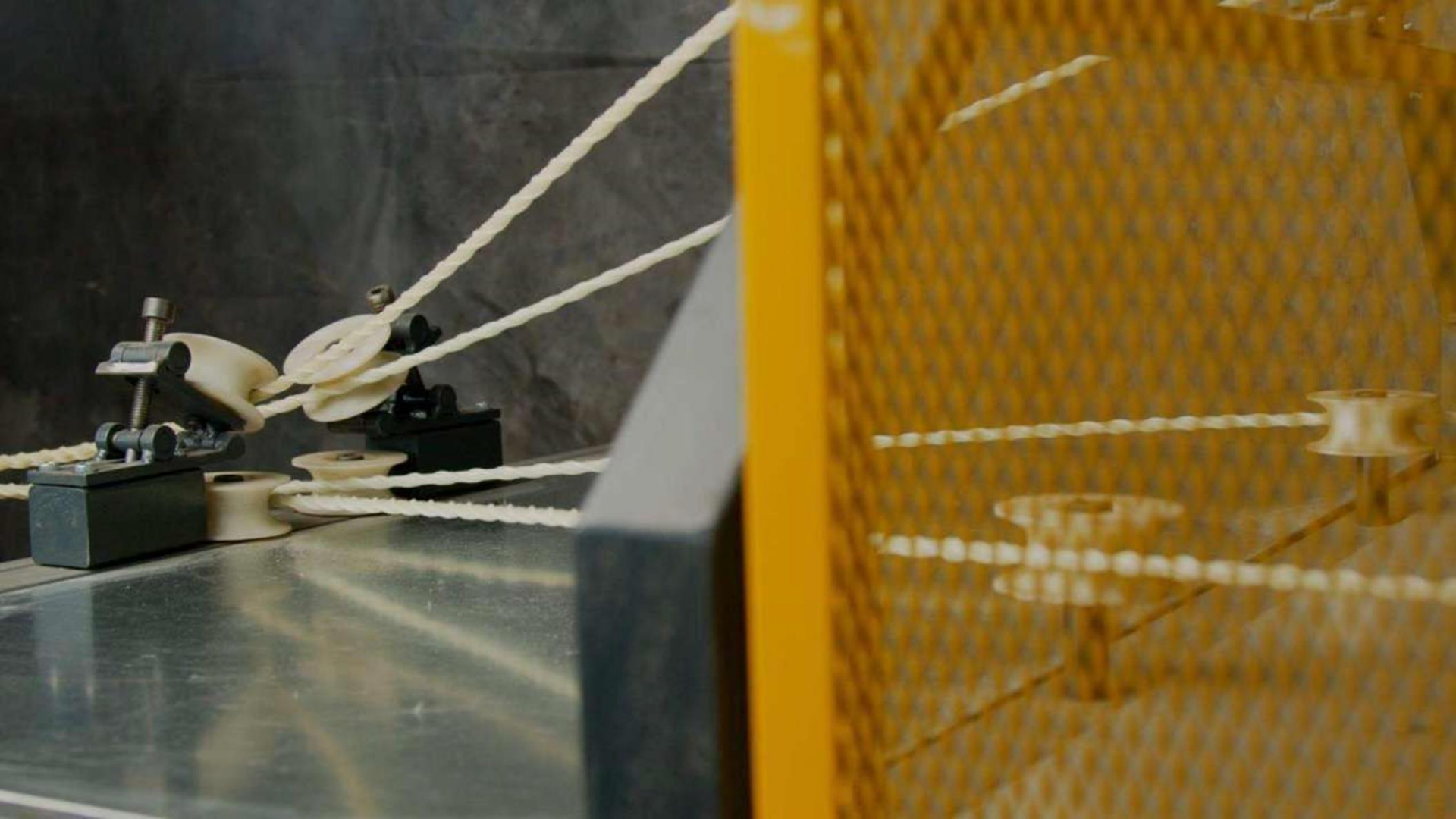
Steel diameter	Breaking load	FRP Rebar	Breaking load
3ø		2	5 865 N
4ø		3	9 436 N
6ø	10 045 N	4	12 456 N
7ø		5	15 072 N
8ø	17 857 N	6	23 550 N
10ø	28 653 N	7	33 912 N
12ø	41 282 N	8	46 158 N
14ø	92 839 N	10	76 302 N

Steel Rebar	Weight, kg/m	FRP Rebar	Weight, kg/m
8 mm	0.395	6 mm	0.060
10 mm	0.617	8 mm	0.100
12 mm	0.890	10 mm	0.153
16 mm	1.580	12 mm	0.220
18 mm	2.000	14 mm	0.300
22 mm	2.430	16 mm	0.392
25 mm	3.860	18 mm	0.496
28 mm	4.840	20 mm	0.612

Reference Standards for Design

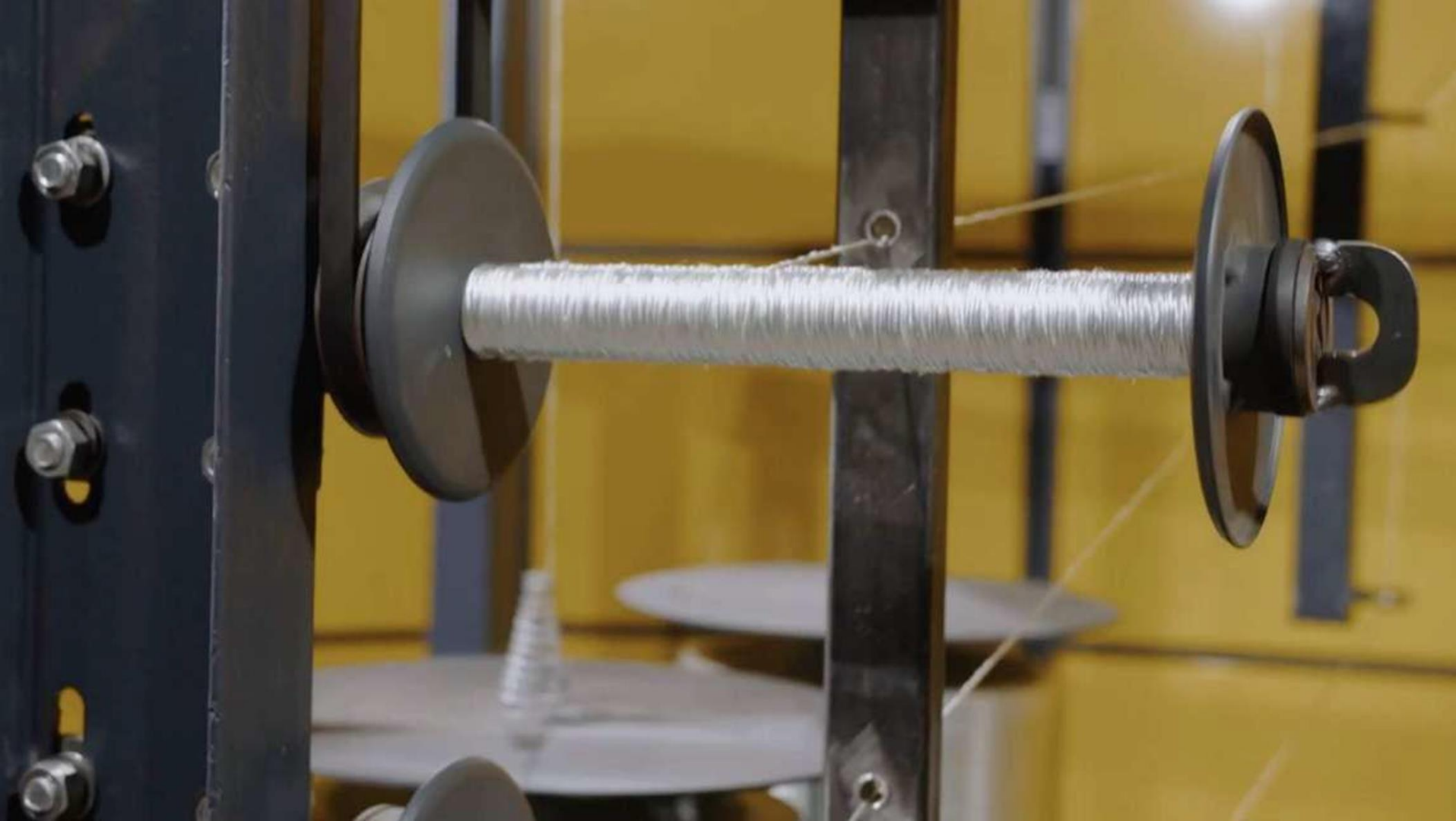
- International : ISO FDIS 10406-1:2015
- ASTM D7957/D7957M-17
- United States:
 - ACI 440.1 R-15
 - ACI 440.3 R-12
 - ACI 440.6-08
 - ACI 440.7-R-10
 - AASHTO LRFD GFRP 2018 2nd Edition
- UKRAINE: DSTU N B V.2.6-185-2012
- Canada:
 - CAN/CSA – S806-10
 - CAN/CSA – S6S06
 - CAN/CSA – S807-10
 - Design Manuals # 3,4,5
- Italy: CNR-DT 203-2006
- Russia:
 - GOST 31938 – 2020
 - GOST 32486 – 2015
 - GOST 32487 – 2015
- INDIA: IRC 137-2022





















Our Contacts

Email: info@composite-tech.com

Tel: **+37360400669** (WhatsApp)

+37361010889

+4367764403208

Website: composite-tech.com

**Talk to us and start your production
in a matter of 2 months!**

COMPOSITE TECH



SCAN QR-CODE AND
VISIT OUR SITE