



BTU-TECH GMAX NEXT GENERATION MULTIAXIAL MACHINE

DESCRIPTION & FEATURES

For decades, multiaxial reinforcement manufacturers have been forced to choose between basic entry-level multiaxial machines with limited flexibility and premium platforms requiring significantly higher investment.

BTU-GMAX was developed to eliminate this compromise. The machine delivers fully programmable 0°-to-180° weft angle capability, advanced automation functions and Industry 4.0 connectivity while maintaining investment levels comparable to conventional entry-level multiaxial lines.

Developed entirely by BTU-TECH, BTU-GMAX combines modern motion control technology and intelligent automation to provide a highly flexible and future-ready production platform for glass fiber and other technical reinforcement fabrics.



Fully Programmable 0°-to-180° Weft Angles

Produce a wide range of multiaxial fabric architectures without mechanical limitations. New production angles can be selected directly from the operator interface without lengthy mechanical adjustments.

Real-Time Weft Curve Calculation

The motion controller calculates weft paths directly in real time. No external computer software, CAM table generation or machine reboot is required.

Instant Production Changeovers

New production parameters are automatically applied within seconds, dramatically reducing setup times and increasing machine availability.



FEATURES

Trigger-Belt Driven Carrier System

Unlike traditional rack-driven systems, BTU-GMAX utilizes a heavy-duty trigger-belt architecture that reduces wear, minimizes noise, improves positional accuracy, prevents jump-offs at high speed and simplifies maintenance.

Electronic Collision Prevention

Software-controlled carrier positioning continuously monitors safe operating limits and prevents carrier collisions automatically.



Smart Safety Architecture

Integrated laser safety barriers dynamically monitor operator positioning and safely manage machine movements.

Industry 4.0 Connectivity

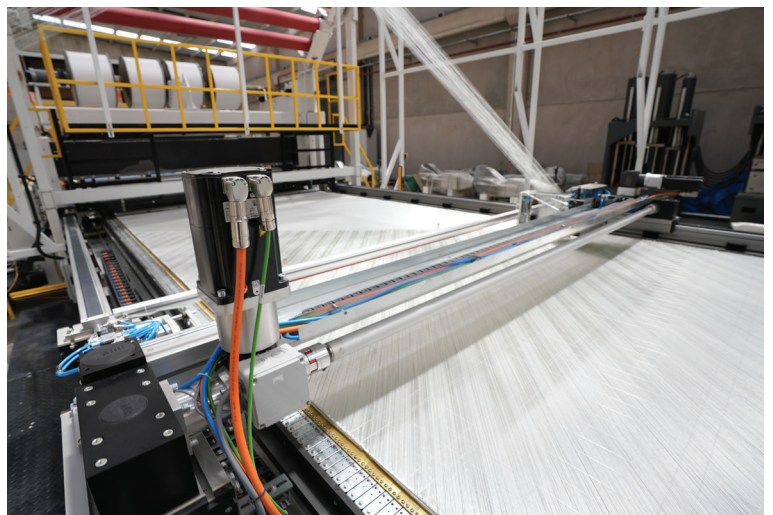
Production data, machine parameters and operational information can be transferred via industrial communication protocols for ERP and factory network integration.

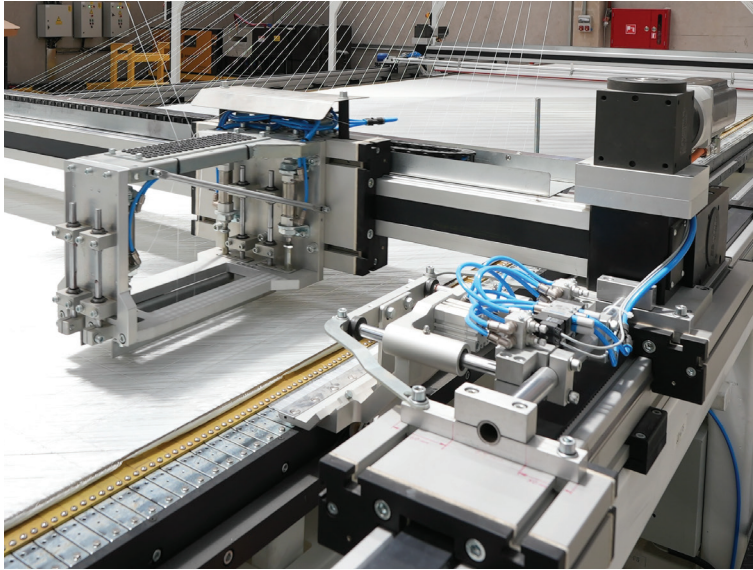
Universal Power Compatibility

380–480 VAC, 110–240 VAC and 50–60 Hz universal compatibility enables straightforward deployment worldwide.

CE Certified Design

Complete electrical and hardware architecture designed according to international CE compliance requirements.





PC-Free Industrial Automation

All machine calculations are executed directly on the industrial motion controller, eliminating the complexity and maintenance requirements of Windows-based control systems.

Less Than 10 Seconds Cold Start

The machine boots, initializes and self-calibrates in less than 10 seconds after power-up.

Virtual Master Motion Architecture

Advanced synchronization technology provides stable machine operation and precise coordination of all machine axes.

Dynamic Brake Synchronization

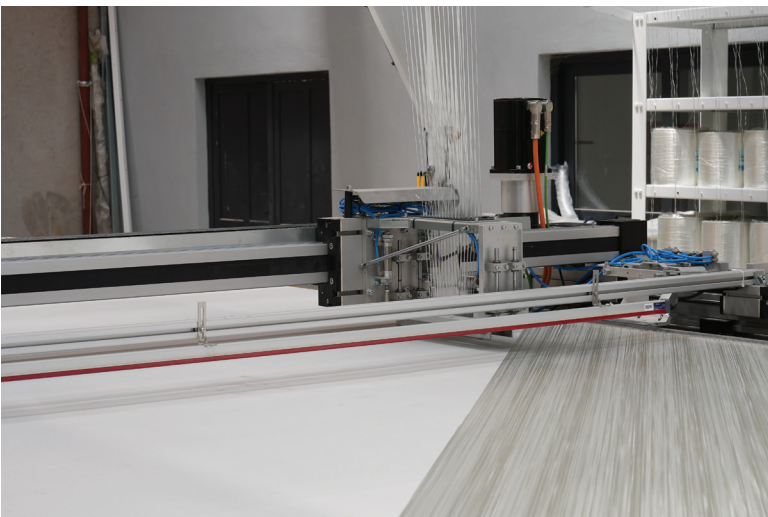
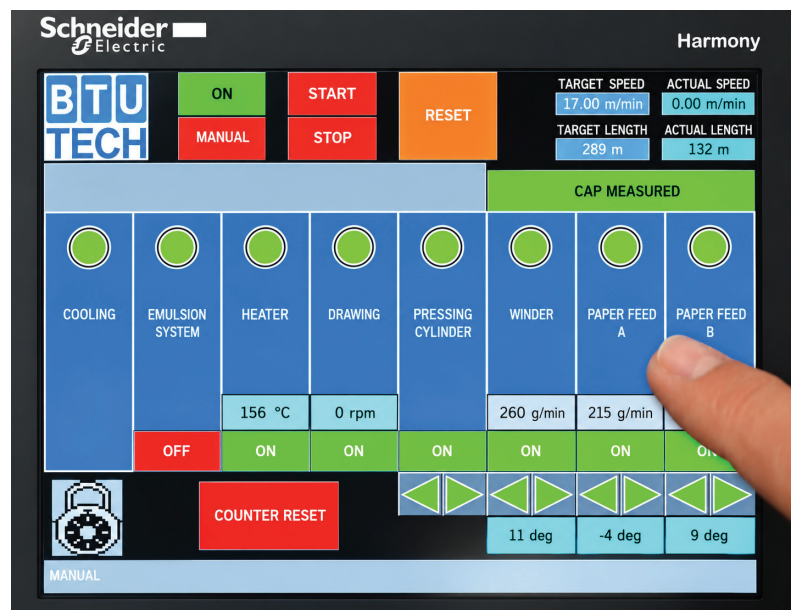
Current, voltage, acceleration and velocity profiles are continuously optimized to reduce mechanical stress and extend machine lifetime.

Motion Profile Optimization

Integrated high-torque braking systems prevent unwanted movement during emergency stops and power failures.

Full EBC Yarn Break Prevention

Software and hardware solution for full EBC yarn break during power loss or emergency stop.



OPTIONAL ADD-ONS

- Glass Fiber Roving Chopper
- All-in-One Winder
- Hook Pin Break Detection System
- Online Cutting systems

BTU-GMAX 100" MULTIAXIAL MACHINE SPECIFICATIONS	
MAIN MACHINE	
Machine Gauge	E10 (E5 1 in/1out)
Working Width	101 inches
Crank Movement	14.89 mm or 17 mm
Production Speed	Max. 1400 rpm
Needle / Closure Needle / Guide Bars	E10 / E10 / 2 sets
Knock Over Bar	Accommodate full conveyor type - E10 knock over sinker
S.T. Bar / S.T. Sinker	101 inches / E5 (25.4 mm) - For 0° Threading
Holding Down Sinker	E10 (25.4 mm) - Long Short Needles
Pattern Discs	4 x Ø330 mm, 16 courses, 3 tempi
Oil Circulation	380–480 VAC and 50–60 Hz compatible, IEC4 or IEC5 motors
Servo Motors, Drives, Encoder, Cables	SCHNEIDER
BEAMS & 0° S.T. SYSTEM	
Beam Size Accommodation	Accommodates Ø40-inch beams
Beam Shafts	2 x Ø152 mm, with sectional beams clamping system
Selvedge Yarn Bobbin Holder	1 at each shaft-end area; 4 total
0° S.T. System	2 systems, 4 rollers, Ø184.5 mm, vulcanized
0° Yarn-Guiding System	Guidance before and after delivery rollers. Thread guide deflection tube directly in front of the 0° thread bar.
WEFT INSERTION SYSTEM	
Module Length	6 modules
Weft Insertion Systems	3 weft insertion systems; portal adjustments: S1 ±45°, S2 90°, S3 ±45°; X-axis belt drive
Weft Carriages	Maximum band width 10 inches
Shogging System	L-pins, horizontal needles shogging
Weft Insertion System Program	Freely programmable for weft angles from –45° to +45°. For 90° and –45° angles
Hand Terminal	Manual single axis control of the weft insertion systems and the synchronization of additional adjustments.
Pneumatic System	All FESTO parts
Transport Chain	3 rows of chain + Circular Brushes
Weft Hooks	E11
Weft Carriage Reed	15 pcs weft carriage inserts per weft carriage: 1 x E8, E9, E10, E10.5, E11, E11.5, E12, E12.5, E13, E13.5, E14, E15, E16, E17, E18
Electrostatic Eliminator	3 sets
FABRIC TAKE-UP SYSTEM	
Three-Roller System	Three-Roller System
ELECTRICAL, PROGRAM & SOFTWARE	
Control System & Software	BTU-TECH GMAX Software, SCHNEIDER motion controller, HMI, PLC, drives, power supply
Control Cabinet	With air-conditioning. At 1200 rpm speed current consumption approximately 26A at 480 VAC 60 Hz.
DETECTION SYSTEMS	
Knitting Yarn Laser Stop	2 laser-stop sets
Cutter Non-Cut Limit Switch	Included
Safety Light Barriers	Platform area, installed on the modules area, Cutting & Take-up area
OTHERS	
Cutting Device	Tidland Type III
Waste Edge Suction Accessories	Support, lever, nozzle, vacuum tubing, etc.
Vacuum Device	Pneumatically actuated flap
CE Certificate	Included



WHY BTU-GMAX?

- Premium production flexibility without premium investment
- Instant angle changes and faster setup times
- Reduced maintenance requirements
- Quiet and reliable operation
- Industry 4.0 ready architecture
- Future-proof automation platform
- Fully developed and supported by BTU-TECH

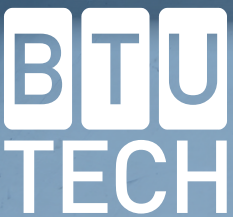
ABOUT BTU

BTU-TECH was founded in 2020 as a start-up company for engineering, design and manufacturing of machines and technologies for variety of industries, such as textile and composites.

As the main shareholder and CEO of the company, Burçin Pak received investment for the company. In addition to his 20+ years in microelectronics, communication and machinery which includes many patents and awards for the developed technologies, together with its investors, the company has a total of 60 years of experience, covering industries such as heavy duty machinery & transport equipments, robotics, microelectronics, IOT, industrial textiles.

The company has a talented core team for analysis, engineering, design, quick prototyping and serial production. The inhouse capabilities and skills are 3D modelling, FEA, programming and industrial automation.

Based in Istanbul, Turkey, BTU-TECH is aiming to serve customers globally bot by direct contact and via technical partners.



www.btu-tech.com

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