

# Solutions for Textile Industry

Textile



MARKETS &  
APPLICATIONS







# Textile



## Preparation Process

Page 4 to 9



## Spinning & Yarn Finishing

Page 10 to 17



## Fabric production

Page 18 to 21

## The widest range of solutions for Textile processing and machinery

Thanks to the extensive know-how and the long-term collaboration with key customers, Bonfiglioli engineering specialists work side by side with customers to develop tailored and forward-thinking integrated solutions for the textile industry, covering the entire motion drive train including the Industry 4.0 approach.

Our drive system portfolio has the suitable features to respond to the demanding environment typical of the textile sector, characterized by air polluted by fibers, high ambient temperatures and management of occasionally mains failures.

This, combined with a comprehensive range of Professional Services, enables us to respond to customers' requests with targeted solutions aimed at minimizing the Total Cost of Ownership of plants through dramatic reduction of maintenance efforts, energy consumption, and process downtimes.

Bonfiglioli also provides solutions for:



FOOD & BEVERAGE PROCESSING



LOGISTICS & INDUSTRIAL CRANES



PACKAGING PROCESSES



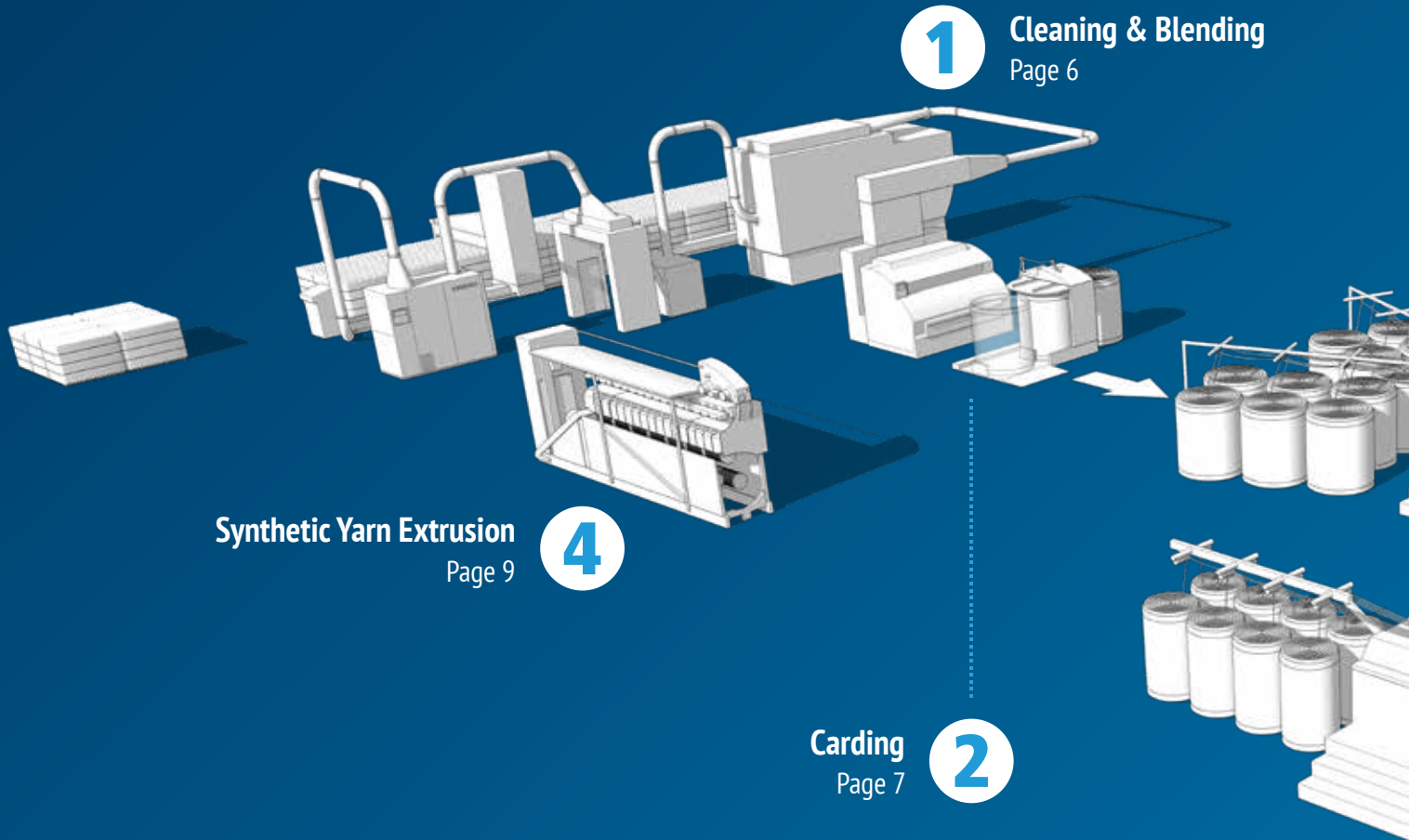
WAREHOUSE & MATERIAL HANDLING

[www.bonfiglioli.com](http://www.bonfiglioli.com)

### Products for all types of textile applications:

- Bale opening
- Cleaning & Blending
- Carding
- Pre drawing
- Lapping
- Combing
- Synthetic Yarn extrusion
- Roving
- Ring spinning
- Air-jet spinning
- Rotor spinning
- Winding
- Doubling & Twisting
- Dyeing
- Direct warper/Beaming machine
- Weaving
- Warp knitting
- Cutting machine

# Preparation Process



**1**

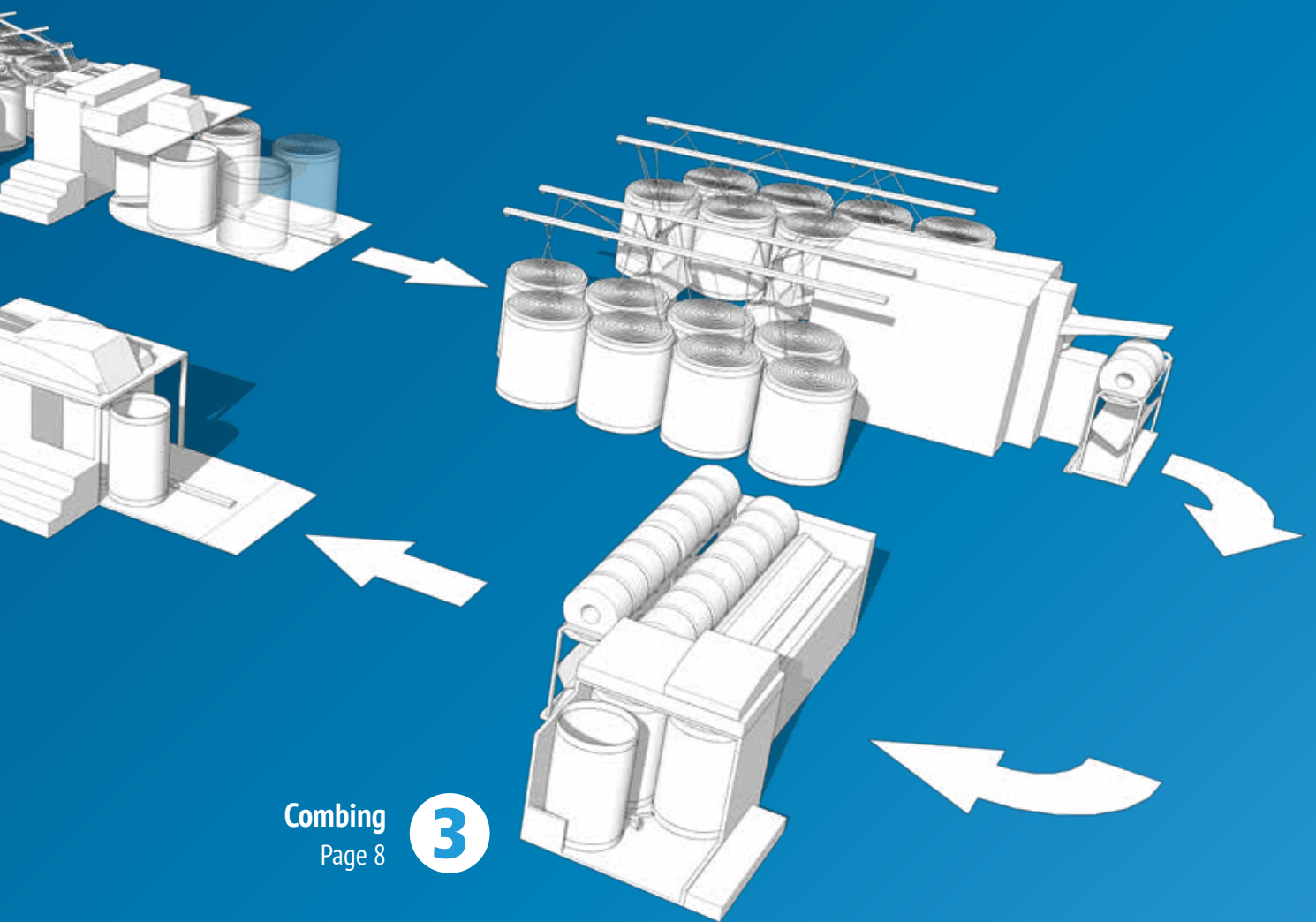
**Cleaning & Blending**  
Page 6

**4**

**Synthetic Yarn Extrusion**  
Page 9

**2**

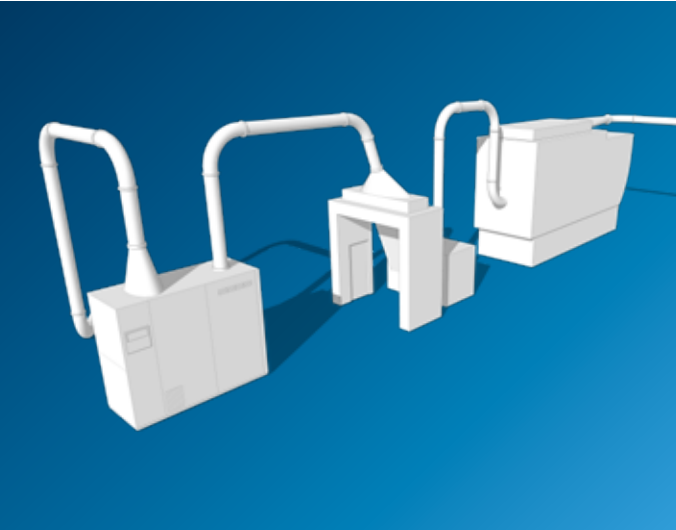
**Carding**  
Page 7



Combing  
Page 8

3

# Preparation Process



## Cleaning & Blending

1

Bonfiglioli product range presents the suitable features to operate in the harsh environment conditions, such as high dust and humidity, typical of the preparation phase. The offered motor and frequency inverter combinations ensure an optimized cleaning and blending process with an effective removal of impurities and dust while minimizing material waste and a homogeneous intermingling of fibers.

### BSR Series Synchronous Reluctance Motors

#### Benefits

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

#### Features

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder



### BX Series Asynchronous IE3 Motors

#### Benefits

- Reliability and robustness
- Different options like encoder and mechanical brake

#### Features

- IE3 Efficiency class
- Power range: 0.75 to 22 kW
- Nominal speed range: 0 to 1500 rpm as 4 pole motor



### Active Cube and Agile Series Smart inverters

#### Benefits

- Adaptability to the environment with Standard, Feedthrough or ColdPlate mounting
- Controlled process speed for the quality of the production material
- Enabling high efficiency for the inverter, motor and gearbox combination

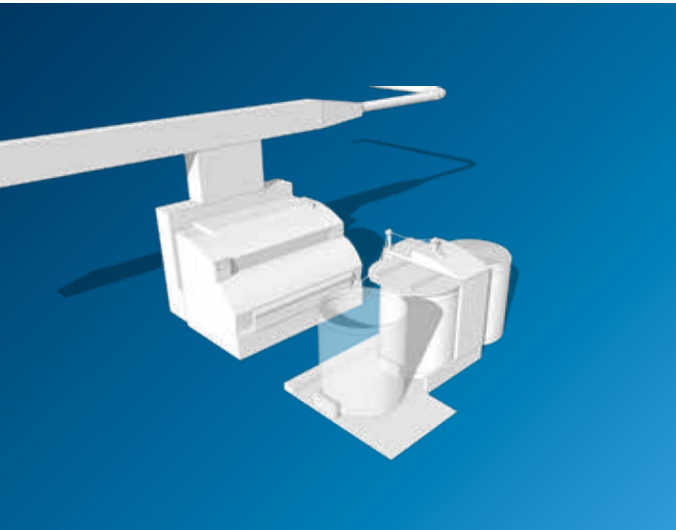
#### Features

- Wide power range from 0.25 to 400 kW
- Coated PCBs (as standard or option)
- Closed loop or open loop control
- Adjustable torque limitation
- Optional Fieldbus connectivity

#### Optional Encoder evaluation in Active Cube Series







## Carding

2

Bonfiglioli provides complete solutions for carding machines with features designed to respond to the demanding environmental conditions typical of the textile sector, such as humidity, dust, and dirt.

In particular, the Agile and Active Cube inverters are specifically designed to operate in harsh environments and ensure the necessary level of control for a highly effective constant speed carding process and controlled fiber transport, allowing for excellent use of raw materials and a consequent high sliver quality.

### BSR Series Synchronous Reluctance Motors

**Benefits**

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

**Features**

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder



### BX Series Asynchronous IE3 Motors

**Benefits**

- Reliability and robustness
- Different options like encoder and mechanical brake

**Features**

- IE3 Efficiency class
- Power range: 0.75 to 22 kW
- Nominal speed range: 0 to 1500 rpm as 4 pole motor



### Active Cube and Agile Series Smart inverters

**Benefits**

- Adaptability to the environment with Standard, Feedthrough or ColdPlate mounting
- Controlled process speed for the quality of the production material
- Enabling high efficiency for the inverter, motor and gearbox combination

**Features**

- Wide power range from 0.25 to 400 kW
- Coated PCBs (as standard or option)
- Closed loop or open loop control
- Adjustable torque limitation
- Optional Fieldbus connectivity

**Optional Encoder evaluation in Active Cube Series**

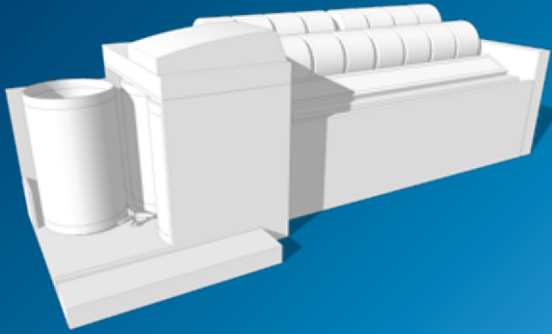


# Preparation Process

## Combing

3

The combing machine represents a crucial step in the process to obtain high quality yarns. Bonfiglioli offers high-performance IP65 asynchronous motors in combination with Active Cube or Agile frequency inverters, which ensure optimally coordinated combing movements for a smooth, controlled fiber treatment to achieve effective parallelization of fibers, straightening of curls, and removal of neps and residual impurities.



### BSR Series Synchronous Reluctance Motors

#### Benefits

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

#### Features

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder



### BX Series Asynchronous IE3 Motors

#### Benefits

- Reliability and robustness
- Different options like encoder and mechanical brake

#### Features

- IE3 Efficiency class
- Power range: 0.75 to 22 kW
- Nominal speed range: 0 to 1500 rpm as 4 pole motor



### Active Cube and Agile Series Smart inverters

#### Benefits

- Adaptability to the environment with Standard, Feedthrough or ColdPlate mounting
- Controlled process speed for the quality of the production material
- Enabling high efficiency for the inverter, motor and gearbox combination

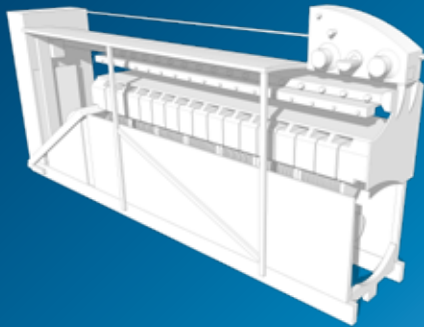
#### Features

- Wide power range from 0.25 to 400 kW
- Coated PCBs (as standard or option)
- Closed loop or open loop control
- Adjustable torque limitation
- Optional Fieldbus connectivity

#### Optional Encoder evaluation in Active Cube Series







## Synthetic Yarn Extrusion

4

The Bonfiglioli drive portfolio suitable for this application includes IP65 asynchronous motors, synchronous motors with high protection class IP65 and IP67, and synchronous reluctance motors up to IE4 Super Premium efficiency class for optimal performance and energy saving. The Active Cube and Agile inverter series have features such as high overload capability for starting, precise speed control, and robust strength that make them well suited for the demanding environment typical of the textile sector, which is characterized by humidity, dust, and dirt. Both of these series are designed for use in high temperature environments and equipped with dedicated cooling concepts and coated printed circuit boards.

### A Series

Helical bevel gearbox with

### BMD Series

Permanent magnet servo motor

#### Benefits

- High efficient solution
- Robust
- Compact
- Unique supplier for gearbox, motor and inverter

#### Features

- Motor efficiency up to IE4
- Sensorless control available
- Wide range of feedback devices
- Modular design
- Optimized servo package
- Parking brake
- UL certification
- Flying wheel



### BSR Series

Synchronous Reluctance Motors

#### Benefits

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

#### Features

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder



### Active Cube and Agile Series

Smart inverters

#### Benefits

- Adaptability to the environment with Standard, Feedthrough or ColdPlate mounting
- Controlled process with torque or speed control for the quality of the production material
- Reliable ramp up and ramp down process to ensure continuous material properties
- High efficiency as inverter, motor and gearbox combination

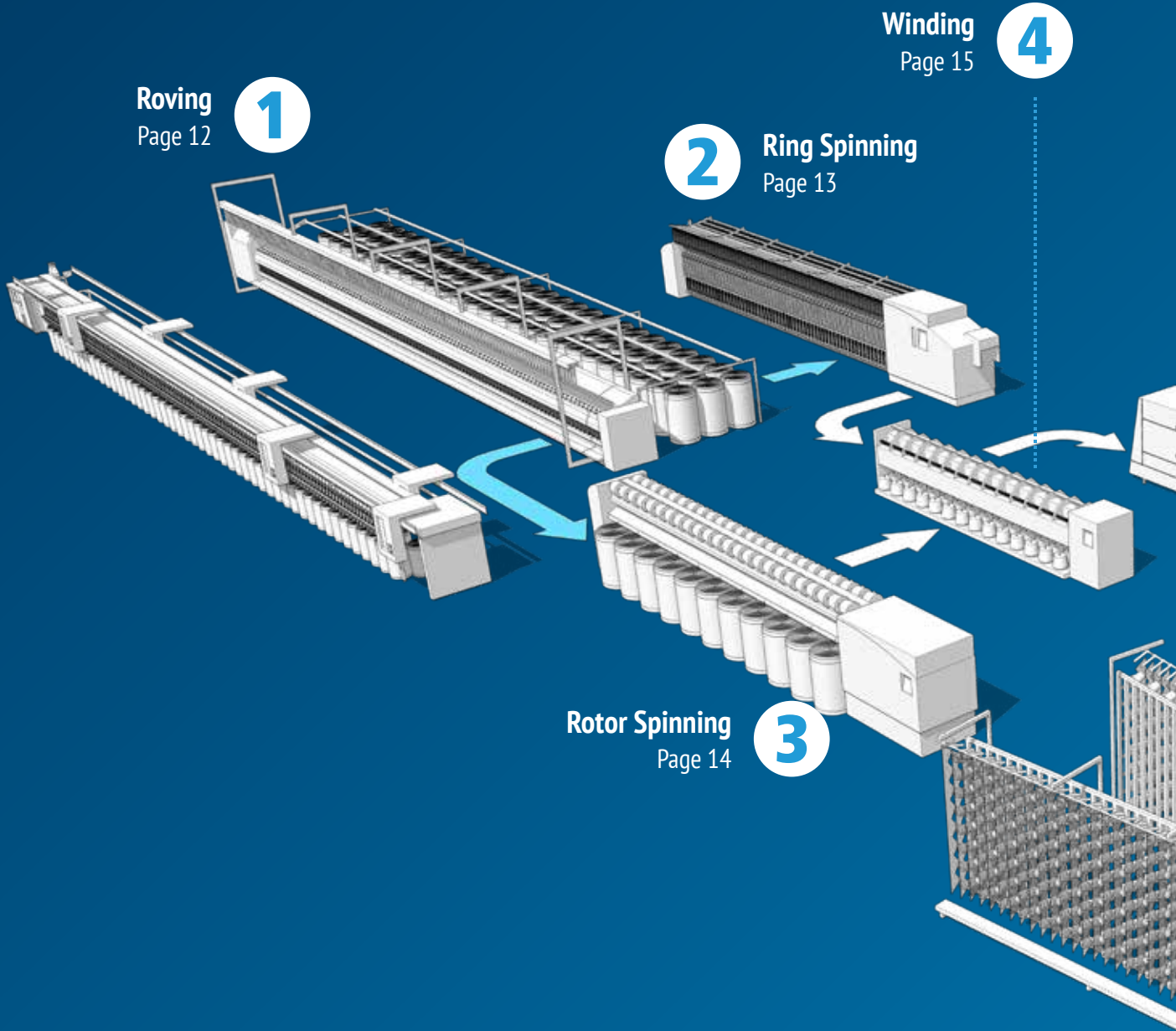
#### Features

- Wide power range from 0.25 to 400 kW
- DC link connection between frequency inverters
- Coated PCBs (as standard or option)
- Adjustable torque limitation
- Tension control with PI controller
- Fieldbus connectivity

#### Optional Encoder evaluation in Active Cube Series

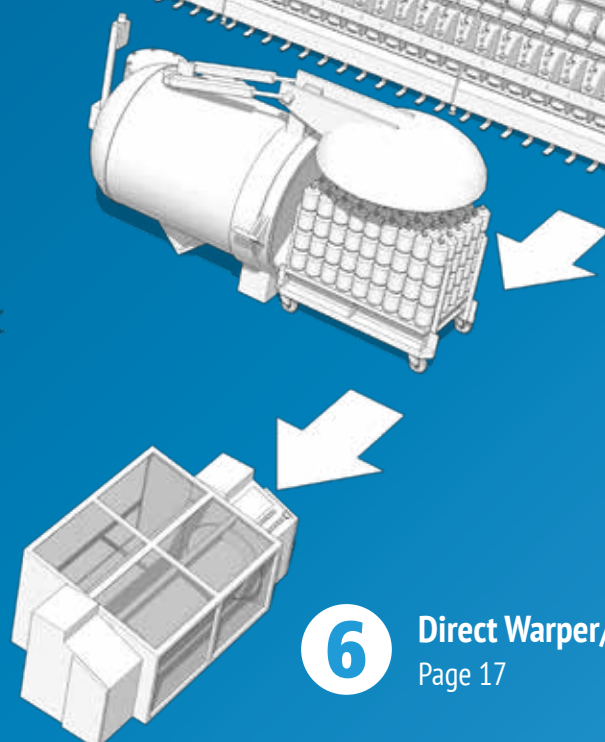


# Spinning & Yarn Finishing



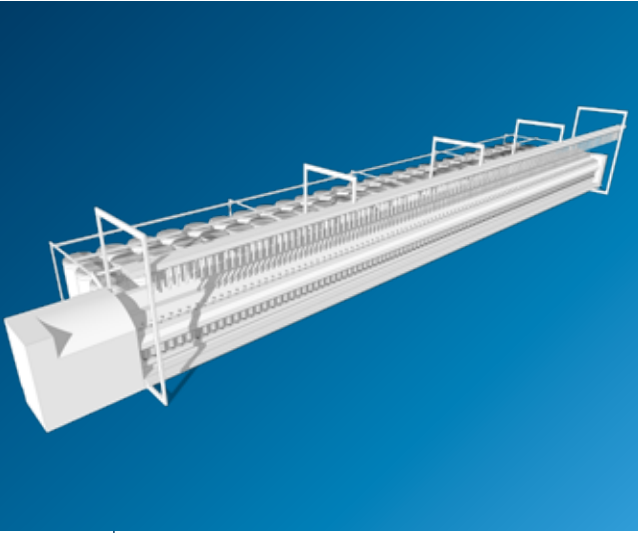


**5** Doubling & Twisting  
Page 16



**6** Direct Warper/Beaming  
Page 17

# Spinning & Yarn Finishing



## Roving

1

Our wide range of gearmotors offers numerous options for gear ratios and optimal usage of machine space. In addition, Bonfiglioli class IP65 asynchronous motors in combination with the Active Cube series provide the right solution to cope with the environmental conditions typical of textile processing such as humidity, dust, or dirt. These frequency inverters are designed for use in high temperature environments and equipped with dedicated cooling concepts and coated printed circuit boards. In addition, they include a specific function for power failure management to minimize the risk of yarn breakages in case of power failures.

### F Series

#### Shaft mounted gearbox and geared motor

##### Benefits

- Easy installation
- Quiet operation
- High torque capabilities

##### Features

- Keyed hollow shaft with two bore options per size, or hollow shaft with shrink disc fitting (metric and imperial dims)
- Backstop device
- Surface protection class C3, C4 and C5 (according to standard UNI EN ISO 12944-2)
- High and premium efficiency motors (IE2, IE3)
- Protection rating up to IP56
- Thermal protection (bi-metallic, PTC or KTY)
- Anti-condensation heaters and tropicalized windings



### BSR Series

#### Synchronous Reluctance Motors

##### Benefits

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

##### Features

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder



### Active Cube Series

#### Premium inverter

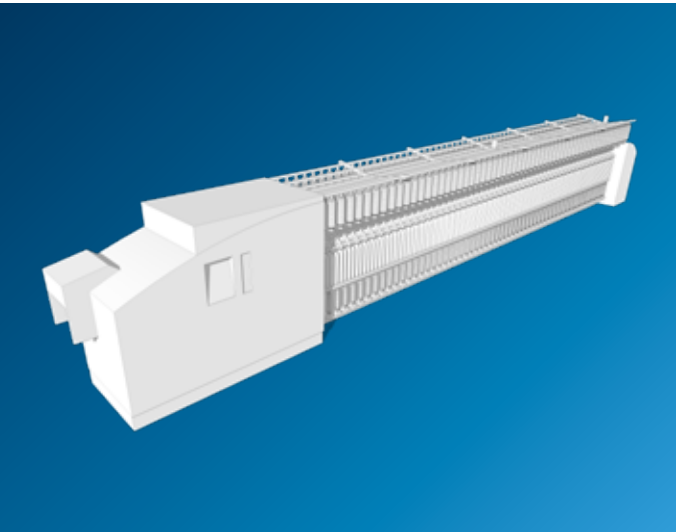
##### Benefits

- Modular inverter platform to adapt the inverter to the machine
- Reliable and precise Process control
- Smooth Start and Stop control
- Power failure management

##### Features

- Power range: 0.25 to 400 kW
- Torque control
- Option modules to include field bus communication and encoder evaluation
- Plug-in power terminals (up to 3kW)
- Plug-in and programmable control terminals
- DC link connection
- Integrated brake chopper
- Integrated VPLC
- Integrated safe torque off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz
- Diagnosis and setup via optional keypad or PC software
- Optional Encoder evaluation





## Ring Spinning

2

Bonfiglioli offers several different drive concepts for ring spinning applications: IP65 asynchronous motors, IP65 and IP67 synchronous motors and synchronous reluctance motors up to IE4 Super Premium efficiency class for the optimum performance and power requirements of your machine. Our dedicated inverter series are designed for the demanding environment typical of the textile sector and equipped with dedicated cooling concepts and coated printed circuit boards. In addition, they include a power failure management to minimize the risk of yarn breakages in case of power failures.

### A Series

Helical bevel gearbox with

### BMD Series

Permanent magnet servo motor

**Benefits**

- High efficient solution
- Robust
- Compact
- Unique supplier for gearbox, motor and inverter

**Features**

- Wide range of feedback devices
- Sensorless control available
- Modular design
- Optimized servo package

### C Series

Helical in-line gearbox and geared motor

**Benefits**

- Excellent torque density
- Ultra-compact design
- Very wide speed range

**Features**

- Extensive choice of bolt-on output flanges
- Special seals set for applications in harsh environments
- Surface protection class C3, C4 and C5 (according to standard UNI EN ISO 12944-2)
- High and premium efficiency motors (IE2, IE3)
- Motor shaft extension
- Tropicalized windings

### Active Cube Series

Premium inverter

**Benefits**

- Modular inverter platform to adapt the inverter to the machine
- Reliable and precise Process control
- Smooth Start and Stop control
- Power failure management

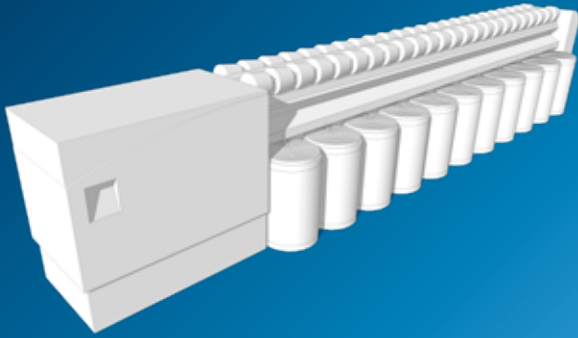
**Features**

- Power range: 0.25 to 400 kW
- Torque control
- Option modules to include field bus communication and encoder evaluation
- Plug-in power terminals (up to 3kW)
- Plug-in and programmable control terminals
- DC link connection
- Integrated brake chopper
- Integrated VPLC
- Integrated safe torque off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz
- Diagnosis and setup via optional keypad or PC software
- Optional Encoder evaluation





# Spinning & Yarn Finishing



## Rotor Spinning

3

The drive portfolio suitable for this application includes IP65 asynchronous motors, synchronous motors with high protection class IP65 and IP67, and synchronous reluctance motors up to IE4 Super Premium efficiency class for the optimum performance and power requirements of your machine. The dedicated frequency inverters are designed for use in high temperature environments and equipped with dedicated cooling concepts and coated printed circuit boards. Our experience with the piecing process when starting rotor spinning machines ensures reduction of standstill times and manual labor required for these machines during start up.

### A Series

Helical bevel gearbox with

### BMD Series

Permanent magnet servo motor

#### Benefits

- High efficient solution
- Robust
- Compact
- Unique supplier for gearbox, motor and inverter

#### Features

- Wide range of feedback devices
- Sensorless control available
- Modular design
- Optimized servo package

### BSR Series

Synchronous Reluctance Motors

#### Benefits

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

#### Features

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder

### Active Cube Series

Premium inverter

#### Benefits

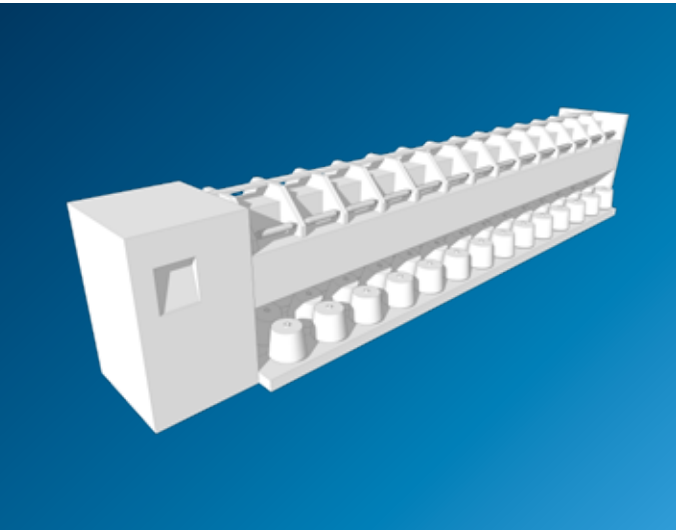
- Modular inverter platform to adapt the inverter to the machine
- Reliable and precise Process control
- Smooth Start and Stop control
- Power failure management

#### Features

- Power range: 0.25 to 400 kW
- Torque control
- Option modules to include field bus communication and encoder evaluation
- Plug-in power terminals (up to 3kW)
- Plug-in and programmable control terminals
- DC link connection
- Integrated brake chopper
- Integrated VPLC
- Integrated safe torque off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz
- Diagnosis and setup via optional keypad or PC software
- Optional Encoder evaluation







## Winding

4

Bonfiglioli offers IP 65 asynchronous motors and synchronous reluctance motors up to IE4 Super Premium efficiency class for optimal performance in energy saving, combined with the Active Cube and ANG inverter series with a robust design for the demanding environment typical of the textile sector, which is characterized by humidity, dust, and dirt. Both of these series are designed for use in high temperature environments and equipped with dedicated cooling concepts and coated printed circuit boards. In addition, they include a specific function for power failure management to minimize the risk of yarn breakages in case of power failures.

### A Series Helical bevel gearbox with BSR Series Synchronous Reluctance Motors

#### Benefits

- Reduced total cost of ownership (TCO)
- Compactness
- Reliability and robustness
- Modular design
- Unique supplier for gearboxes, motors and inverters

#### Features

- High energy efficiency of the drive system class up to IES2
- Motor efficiency up to IE4
- Effective torque and speed control (also at low speed) without encoder
- Optimized characterization for the whole package



### Active Cube Series Premium inverter

#### Benefits

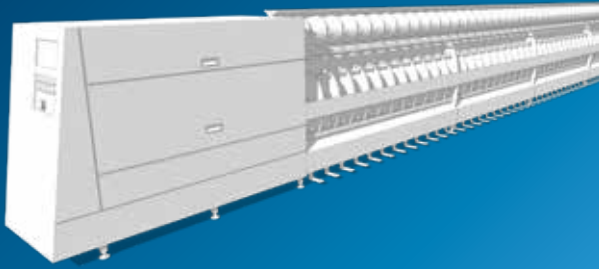
- Modular inverter platform to adapt the inverter to the machine
- Reliable and precise Process control
- Smooth Start and Stop control
- Power failure management

#### Features

- Power range: 0.25 to 400 kW
- Torque control
- Option modules to include field bus communication and encoder evaluation
- Plug-in power terminals (up to 3kW)
- Plug-in and programmable control terminals
- DC link connection
- Integrated brake chopper
- Integrated VPLC
- Integrated safe torque off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz
- Diagnosis and setup via optional keypad or PC software
- Optional Encoder evaluation



# Spinning & Yarn Finishing



## Doubling & Twisting

5

Bonfiglioli solutions for doubling and twisting applications perfectly match the results required of this production phase, such as an increase in the smoothness, evenness, uniformity and compactness of yarn, and better twist deposition. Bonfiglioli offers drive combinations including IP65 asynchronous motors and synchronous reluctance motors up to IE4 Super Premium efficiency class, controlled by dedicated inverters.

### A Series

Helical bevel gearbox with

### BMD Series

Permanent magnet servo motor

#### Benefits

- High efficient solution
- Robust
- Compact
- Unique supplier for gearbox, motor and inverter

#### Features

- Wide range of feedback devices
- Sensorless control available
- Modular design
- Optimized servo package



### BSR Series

Synchronous Reluctance Motors

#### Benefits

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

#### Features

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder



### Active Cube Series

Premium inverter

#### Benefits

- Modular inverter platform to adapt the inverter to the machine
- Reliable and precise Process control
- Smooth Start and Stop control
- Power failure management

#### Features

- Power range: 0.25 to 400 kW
- Torque control
- Option modules to include field bus communication and encoder evaluation
- Plug-in power terminals (up to 3kW)
- Plug-in and programmable control terminals
- DC link connection
- Integrated brake chopper
- Integrated VPLC
- Integrated safe torque off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz
- Diagnosis and setup via optional keypad or PC software
- Optional Encoder evaluation

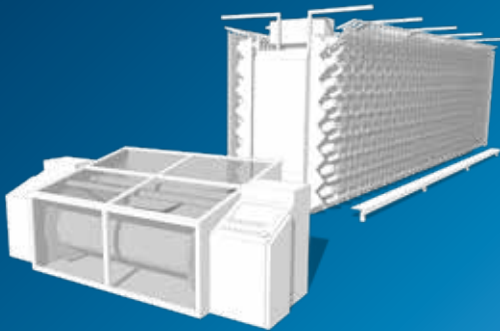




## Direct Warper/Beaming

6

Bonfiglioli offers asynchronous motors with optional high protection class IP65, in combination with the Agile or Active Cube series for the direct warping phase, which offer the right features for effective operation in the most crucial aspects of this phase. Thanks to the excellent control performance of speed and torque, Bonfiglioli solutions ensure a uniform and constant yarn tension during the process, minimizing the rate of breakage and allowing the yarn to completely retain its elastic properties and strength. In addition, the advanced control technology enables fast and uniform spreading of the yarn throughout the whole width of the warping.



### BSR Series Synchronous Reluctance Motors

**Benefits**

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

**Features**

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder

### BX Series Asynchronous IE3 Motors

**Benefits**

- Reliability and robustness
- Different options like encoder and mechanical brake

**Features**

- IE3 Efficiency class
- Power range: 0.75 to 22 kW
- Nominal speed range: 0 to 1500 rpm as 4 pole motor

### Active Cube and Agile Series Smart inverters

**Benefits**

- Adaptability to the environment with Standard, Feedthrough or ColdPlate mounting
- Controlled process speed for the quality of the production material
- Enabling high efficiency for the inverter, motor and gearbox combination

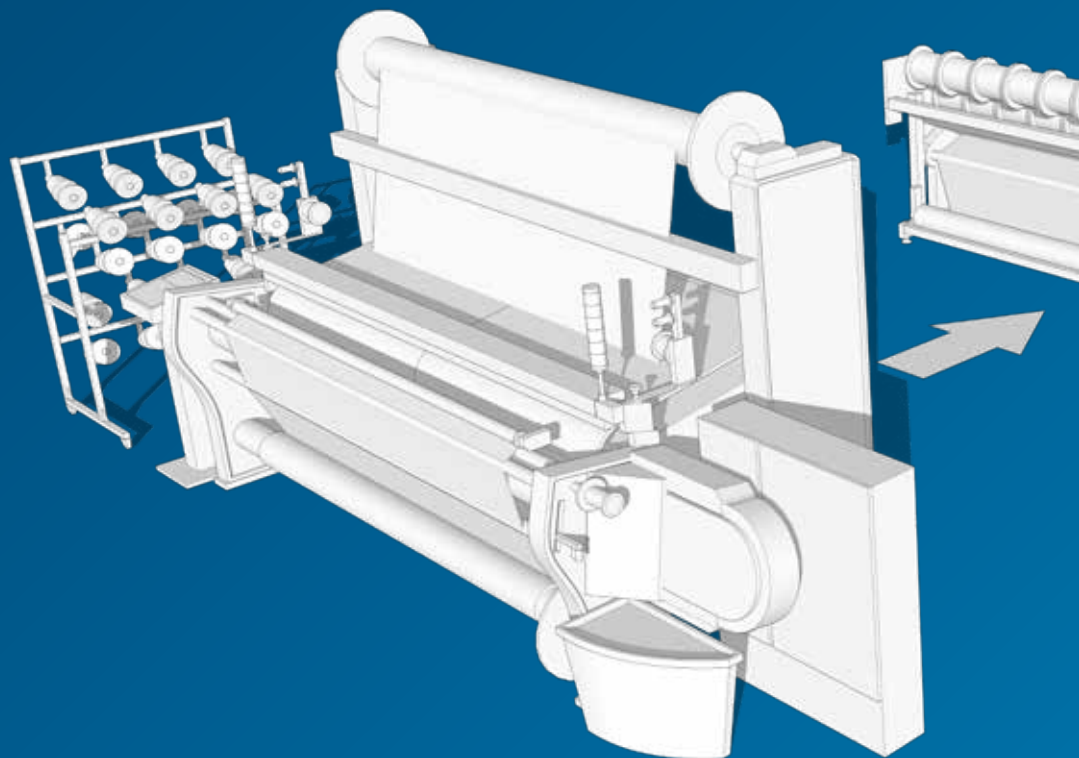
**Features**

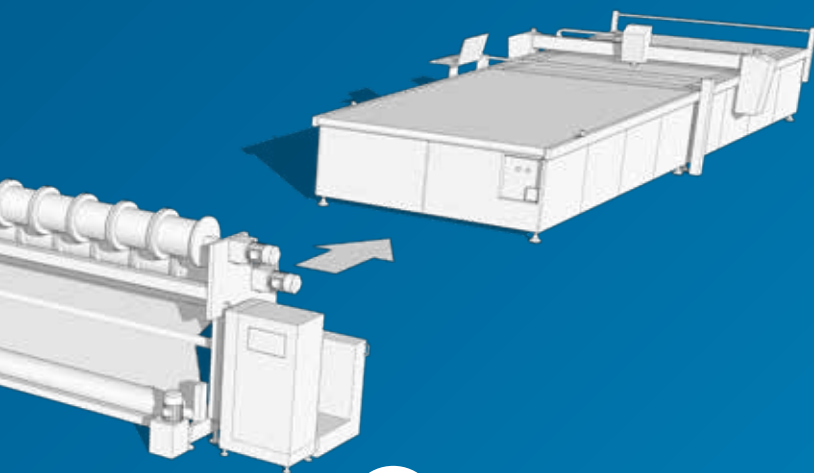
- Wide power range from 0.25 to 400 kW
- Coated PCBs (as standard or option)
- Closed loop or open loop control
- Adjustable torque limitation
- Optional Fieldbus connectivity

**Optional Encoder evaluation in Active Cube Series**



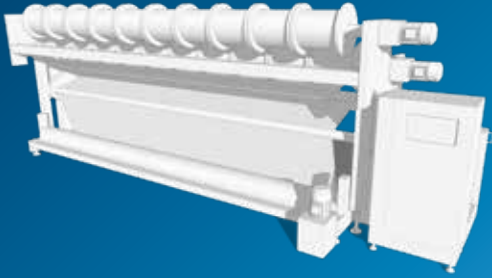
# Fabric production





**Warp Knitting**  
Page 20

# Fabric production



## Warp Knitting

1

Bonfiglioli offers different drive concepts for warp knitting machines: IP65 asynchronous motors, IP65 and IP67 synchronous motors and synchronous reluctance motors up to IE4 Super Premium efficiency class for the optimum performance and power requirements of your machine. Bonfiglioli inverter series offer excellent speed and position control for the main axis and beam axis. The dedicated design allows operation in the demanding environments typical of warp knitting machines. Both of these series are equipped with dedicated cooling concepts and coated printed circuit boards, which allow them to cope with high temperature environments.

### A Series

Helical bevel gearbox with

### BMD Series

Permanent magnet servo motor

#### Benefits

- High efficient solution
- Robust
- Compact
- Unique supplier for gearbox, motor and inverter

#### Features

- Wide range of feedback devices
- Sensorless control available
- Modular design
- Optimized servo package



### BSR Series

Synchronous Reluctance Motors

#### Benefits

- Reduced total cost of ownership (TCO)
- Retrofit solution thanks to IEC design
- Reliability and robustness

#### Features

- High energy efficiency of the drive system class up to IES2
- Motor efficiency class up to IE4
- Eco-friendly
- Two packages available: High Efficiency and High Output
- Power range: 0.37 to 18.5 kW
- Low rotor inertia
- Low heat dissipation
- High speed range: 0 to 4500 rpm (max)
- High torque at zero speed
- High Output motors have a reduced frame up to two sizes if compared with IM
- Optimized compatibility with Active Cube 410 drive series
- Effective torque and speed control (also at low speed) without encoder



### Active Cube and ANG Series

Premium inverter and Servo inverter

#### Benefits

- Adaptability to the environment with Standard, Feedthrough or ColdPlate mounting
- Controlled process speed for the quality of the production material
- Enabling high efficiency for the inverter, motor and gearbox combination

#### Features

- Wide power range from 0.25 to 400 kW
- Coated PCBs (as standard or option)
- Closed loop or open loop control
- Adjustable torque limitation
- Optional Fieldbus connectivity

#### Optional Encoder evaluation in Active Cube Series





# Specific functions for the textile sector

## Software engineering made easy

For different application purposes the Bonfiglioli frequency inverters offer fitting software functions:

- Speed Control and its extensions for machines with and without encoder feedback
  - Speed control
  - Torque control with jerkless switch over between speed control and torque control
  - Process control with a PI or PID controller
  - Winding control
  - Master/Slave operation via Systembus
  - Positioning control according to CiA 402 standard
- Signaling of abnormal behavior with warning and fault messages (via LED, digital outputs or Fieldbus)
- Machine depending setup of fault behavior and threshold levels for warnings and faults
- Error history and actual values history (average values & maximum values)

## Connectivity: open standards

Fieldbus connectivity like CANopen, EtherCAT, PROFINET, VARAN, PROFIBUS links the frequency inverter to the preferred PLC system.

The Ethernet based systems EtherCAT & PROFINET allow also simultaneous access for the diagnosis (and also parameter setup) via VPlus on the PC.

Field bus
CANopen
Profibus DP V1
RS-232
RS-485 Modbus
DeviceNet
EtherCAT
Profinet
Ethernet IP
Modbus/TCP
VABus/TCP



## Energy efficiency

For a responsible resource usage, energy efficiency is a major task today for every production machine to reduce the ecological impact and saving operation costs at the same time.

The following approaches help to increase the energy efficiency of the drives and therefore for the whole machine:

- Smart energy usage
- Converting energy with high efficiency
- Using kinetic energy during braking
- Reducing energy consumption through energy saving functions in the frequency inverter

The full Bonfiglioli axis (inverter + gearbox + motor) offers a complete package of highly dynamic drive systems for increasing production efficiency.

## Traversing Function

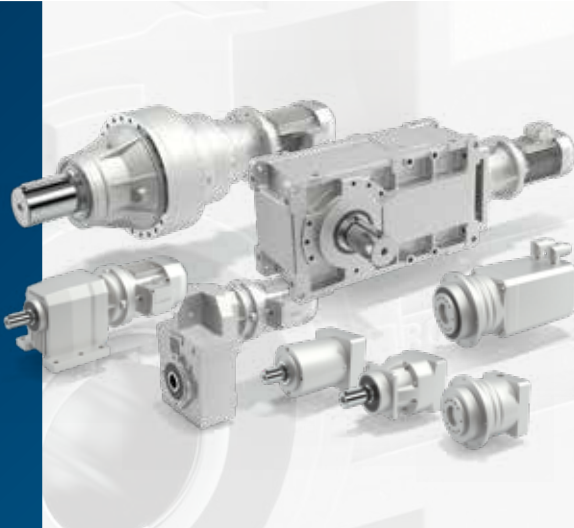
Traversing functions are important to ensure high material quality of the final product.

A typical setup involves a master/slave relation through a Systembus connection, where the traversing is adjusted automatically in both master and slave inverters to ensure the required yarn layout on the bobbin.

## Harsh environments

- DC-Bus & Mains failure: we ensure that the machine can react with power failure regulation and additional mains failure shut down.
- Products for use in high temperature environments: thanks to the cold plate and the feedthrough solutions, the heat losses are outside the cabinet, allowing space savings. Device variants without fans and without electrolyte capacitors improve the longevity of the inverters and their robustness to work in harsh environments (high temperature).
- Alternative cooling concepts for frequency and servo inverter
- Availability of coated printed circuit boards

# Complete solutions for Power Transmission & Automation



## Gearboxes & Geared motors

- **Heavy duty parallel/right angle shaft geared motors**  
**HDP/HDO Series**  
Torque range: 13 to 7,100 Nm  
Gear ratios: 7 to 10,000
- **Planetary geared motors** | **300 Series**  
Torque range: 1,250 to 1,287,000 Nm  
Gear ratios: 3.4 to 5,234

- **Worm geared motors** | **W/VF Series**  
Torque range: 13 to 7,100 Nm  
Gear ratios: 7 to 10,000
- **Helical geared motors** | **C Series**  
Torque range: 45 to 12,000 Nm  
Gear ratios: 2.6 to 1,481
- **Bevel-helical geared motors** | **A Series**  
Torque range: 100 to 14,000 Nm  
Gear ratios: 5.4 to 1,715
- **Shaft-mounted geared motors** | **F Series**  
Torque range: 140 to 14,000 Nm  
Gear ratios: 6.4 to 2,099

- **Precision planetary servo geared motors**  
**TQ, TQK, TQF, TR, MP, LC, LCK, SL, KR Series**  
Torque range: up to 1,000 Nm  
Gear ratios: up to 1,000  
Backlash: lower than 2 and 17 arcmin

## Motors

- **Asynchronous IEC Motor** | **BN, BE, BX Series**  
**Asynchronous Compact Motors** | **MN, ME, MX Series**  
A complete range of AC motors, meeting worldwide MEPS (e.g. IE3)  
Power range: 0.06 to 355 kW  
Poles: from 2 to 8 and multiple poles

IE3

- **Asynchronous motors** | **BN, BE, BX, M, ME, MX Series**  
A complete range of AC motors, meeting worldwide MEPS (e.g. IE3)  
Power range: 0.06 to 355 kW  
Poles: from 2 to 8 and multiple poles
- **Synchronous motors** | **BMD Series**  
Stall torque: 0.85 to 60 Nm  
Rated speed: from 1,600 to 6,000 min<sup>-1</sup>  
Power supply: 230, 400 VAC
- **Synchronous reluctance motor** | **BSR Series**  
Two different versions for different needs: High efficiency IE4 and high output  
Power range: 0.37 to 18.5 kW

IE3

IE3

- **Synchronous motors** | **BMD, BCR Series**  
Stall torque **BMD**: 0.85 to 60 Nm  
Stall torque **BCR**: 0.2 to 115 Nm  
Rated speed **BMD**: from 1,600 to 6,000 min<sup>-1</sup>  
Rated speed **BCR**: from 2,000 to 4,500 min<sup>-1</sup>  
Power supply: 230, 400 VAC
- **Synchronous motors with integrated drives** | **iBMD Series**  
Stall Torque: 2.7 to 36 Nm  
Rated speed: 3,000 min<sup>-1</sup>  
Power supply: 560 VDC

HEAVY DUTY

LIGHT DUTY

SERVO



## Inverters

- **Cabinet solution | Active Cube 8 IP 54**

**Power range:** 200 up to 1,200 kW  
**Voltage:** 400 V, 525V, 690V

- **Premium inverter | Active Cube Series**

**ACU210:** 0,25 - 9,2 kW / 1- or 3-phase | **ACU410\*:** 0,25 - 400 kW / 3-phase  
**ACU510\*:** 160 - 400 kW / 3-phase | **ACU610\*:** 160 - 400 kW / 3-phase

- **Premium inverter | Active Cube Series**

**ACU210:** 0,25 - 9,2 kW / 1- or 3-phase | **ACU410\*:** 0,25 - 400 kW / 3-phase  
**ACU510\*:** 160 - 400 kW / 3-phase | **ACU610\*:** 160 - 400 kW / 3-phase

- **Smart inverter | Agile Series**

**200V:** 1-phase 0.12 up to 3 kW / 3-phase 0.25 up to 7.5 kW  
**400V:** 0.25 up to 11 kW

- **Compact inverter | S2U Series**

**S2U230S--(F) IP66:** 0.2 - 2.2 kW / 1-phase

- **Servo inverter | ANG Series**

**ANG210:** 0.25 - 9.2 kW / 1- or 3-phase | **ANG410\*:** 0.25 - 400 kW / 3-phase  
**ANG510\*:** 160 - 400 kW / 3-phase | **ANG610\*:** 160 - 400 kW / 3-phase

- **Premium inverter | Active Cube Series**

**ACU210:** 0,25 - 9,2 kW / 1- or 3-phase | **ACU410\*:** 0,25 - 400 kW / 3-phase  
**ACU510\*:** 160 - 400 kW / 3-phase | **ACU610\*:** 160 - 400 kW / 3-phase

- **Smart inverter | Agile Series**

**202V:** 0.12 - 3 kW / 1-phase | 0.25 - 7.5 kW / 3-phase  
**402V:** 0.25 - 11 kW / 3-phase

\* up to 1200 kW with parallel connection



## HMI

- **Human Machine Interfaces | BMI Series**

3 Display sizes 3.5", 7", 10.1"  
 True flat front panel in IP65  
 High resolution 480x272 up to 1,024x600 pixels

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# Research & Development



Bonfiglioli's global research and development create breakthrough solutions that integrate the most advanced mechanical, electrical and hydraulic technologies. They meet the most demanding application requirements and support our customers' growth.

More than 200 employees around the world are involved in the group's research and development.



DESIGN YOUR  
SOLUTIONS



CO-  
ENGINEERING

## We support our customers' projects from beginning to end.

At Bonfiglioli, we believe that product development relies on passion, efficient processes, and the ability to understand our customers' needs accurately.

First, our team identify the customer's needs after in-depth analysis drawn from our specific application expertise.

Through dedicated calculation tools, we can simulate the transmission's capabilities and performance allowing reducing development time.

The alignment phase allows us then to adapt our proposal according to key factors of performance, installation and maintenance.



### The test centers at Bonfiglioli

Bonfiglioli's test laboratories develop, certify and perform production follow-up for the solutions designed and manufactured in our plants across the world.

Our specialists are true partners to the R&D, technical and quality departments. They help validate each Bonfiglioli product from the smallest critical component to the overall solution.

The test centers regularly conduct additional tests to ensure gearbox durability and confirm the specifications declared during the official approval stage.



# Quality, Health & Safety



Our team is wholly dedicated to continuous improvement in the quality, safety and environmental sphere, throughout the entire value chain, from the smallest supplier to the end client.

Bonfiglioli management systems are certified ISO 9001: 2015, ISO 14001: 2015 and OHSAS 18001: 2007, while our products are covered by 7 international certifications. Responsibility, excellence and continuous improvement are the basic elements that make us the favored partner of our clients and suppliers.



SYSTEM CERTIFICATION



PRODUCTS CERTIFICATION

## Quality

Bonfiglioli is committed to achieving the highest ethical and quality standards. These standards are documented in the Bonfiglioli Quality Management System.

Our products are intended to generate value for our customers. We are committed to designing, manufacturing and supplying effective products and services that set a benchmark for quality in the industry.

Based on defined procedures and instructions, the Bonfiglioli Quality Management System has been established not only to ensure the ongoing quality of our products and processes, but also to guarantee continuous improvement.

Bonfiglioli has also implemented a Quality Policy which sets customer focus as a primary goal. The Quality Policy is used to set and deploy goals and objectives at every level of the organization. The fulfilment of these objectives is measured on a regular basis with appropriate performance indicators.



## Health & Safety: Sustainability starts with safety

Prevention of accidents and incidents is a key element of our company's sustainable strategy and an integral part of each one of our business processes. The successful management of risks is essential for protecting our employees and assets and thereby contribute therefore strengthening.





# Global Presence



Bonfiglioli is a market force with a presence spanning 22 countries on 5 continents. Our organization makes the most of geographic proximity to offer complete solutions combining efficiency and competence.



3700  
EMPLOYEES



21  
BRANCHES



14  
PLANTS



550  
DISTRIBUTORS



80  
COUNTRIES

## We Are a Global Company

Thanks to an international network of sales branches and closely interconnecting production plants, we can guarantee the same high standards of Bonfiglioli quality anywhere at any given time. Aware that our direct presence in local markets is the key to long-lasting success, our family includes 21 sales branches, 14 production plants and more than 500 distributors around the world.

**Our organization is always close by, offering complete and efficient solutions and supporting our customers with dedicated services, such as co-engineering or after-sales assistance.**





# Bonfiglioli Worldwide Locations

## Australia

### **Bonfiglioli Transmission (Aust.) Pty Ltd**

2, Cox Place Glendenning NSW 2761  
Locked Bag 1000 Plumpton NSW 2761  
Tel. +61 2 8811 8000

## Brazil

### **Bonfiglioli Redutores do Brasil Ltda**

Travessa Cláudio Armando 171 - Bloco 3 - CEP 09861-730  
Bairro Assunção - São Bernardo do Campo - São Paulo  
Tel. +55 11 4344 2322

## China

### **Bonfiglioli Drives (Shanghai) Co. Ltd.**

#68, Hui-Lian Road, QingPu District,  
201707 Shanghai  
Tel. +86 21 6700 2000

## France

### **Bonfiglioli Transmission s.a.**

14 Rue Eugène Pottier  
Zone Industrielle de Moimont II - 95670 Marly la Ville  
Tel. +33 1 34474510

## Germany

### **Bonfiglioli Deutschland GmbH**

Sperberweg 12 - 41468 Neuss  
Tel. +49 0 2131 2988 0

### **Bonfiglioli Vectron GmbH**

Europark Fichtenhain B6 - 47807 Krefeld  
Tel. +49 0 2151 8396 0

### **O&K Antriebstechnik GmbH**

Ruhrallee 8-12 - 45525 Hattingen  
Tel. +49 0 2324 2050 1

## India

### **Bonfiglioli Transmission Pvt Ltd**

Plot No. AC7-AC11, SIDCO Industrial Estate,  
Thirumudivakkam - 600 044 Chennai  
Tel. +91 44 2478 1035

### **Industrial**

Survey No. 528, Porambakkam High Road,  
Mannur Village, Sriperambudur Taluk - 602 105 Chennai  
Tel. +91 44 6710 3800  
Plot No. A-95, Phase IV, MIDC Chakan, Village Nighoje  
Pune, Maharashtra - 410 501

## Italy

### **Bonfiglioli Riduttori S.p.A.**

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#### **Mobile, Wind**

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#### **Industrial**

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Tel. +39 02 985081

### **Bonfiglioli Mechatronic Research S.p.A**

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Tel. +39 0464 443435/36

## New Zealand

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Tel. +64 09 634 6441

## Singapore

### **Bonfiglioli South East Asia Pte Ltd**

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8@ Tadehub 21, Singapore 609964  
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Považská Bystrica, 01701 Slovakia  
Tel. +421 42 430 75 64

## South Africa

### **Bonfiglioli South Africa Pty Ltd**

55 Galaxy Avenue, Linbro Business Park - Sandton  
Tel. +27 11 608 2030

## Spain

### **Tecnotrans Bonfiglioli s.a**

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08040 Barcelona  
Tel. +34 93 447 84 00

## Turkey

### **Bonfiglioli Turkey Jsc**

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Atatürk Organize Sanayi Bölgesi, 35620 Çiğli - Izmir  
Tel. +90 0 232 328 22 77

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### **Bonfiglioli UK Ltd.**

1 Calver Quay, Winwick  
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## USA

### **Bonfiglioli USA Inc.**

3541 Hargrave Drive  
Hebron, Kentucky 41048  
Tel. +1 859 334 3333

## Vietnam

### **Bonfiglioli Vietnam Ltd**

Lot C-9D-CN My Phuoc Industrial Park 3  
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We have a relentless commitment to excellence, innovation and sustainability. Our team creates, distributes and services world-class power transmission and drive solutions to keep the world in motion.

#### **HEADQUARTERS**

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