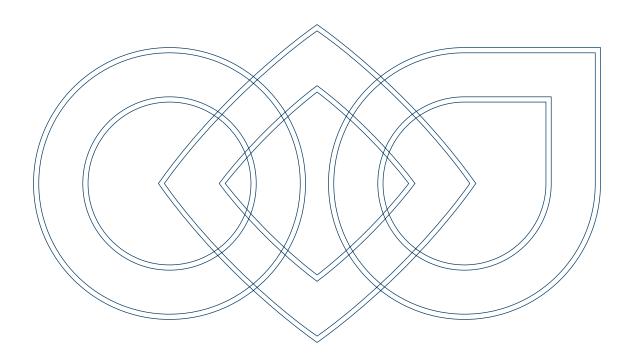


# Solutions for **Packaging**



SECTOR



# THE **MOST RELIABLE** SOLUTIONS FOR **PACKAGING PROCESSES**

The diversity of packaging types and packaging machines makes performance requirements differ widely. From high overload specifications to parallel control for multiple motors, from high breakaway torque to continuous low speed functioning, and from synchronization to controlled braking, Bonfiglioli has created dedicated solutions to meet the requirements of all machines.

Reducing dimensions, increasing flexibility, resisting extreme load conditions and facilitating integration are the basic features that are offered by Bonfiglioli's solutions.

Our solutions satisfy even the strictest performance specifications imposed by customers and guarantee the highest levels of efficiency and energy saving.

In terms of performance, Bonfiglioli guarantees high output, speed and efficiency from the production cycle.

# BONFIGLIOLI HAS COMPREHENSIVE EXPERIENCE TO SUPPORT MACHINERY DESIGN IN THE:



**Liquid filling process** 

Page 4 to 7



Solid packaging process

Page 8 to 11

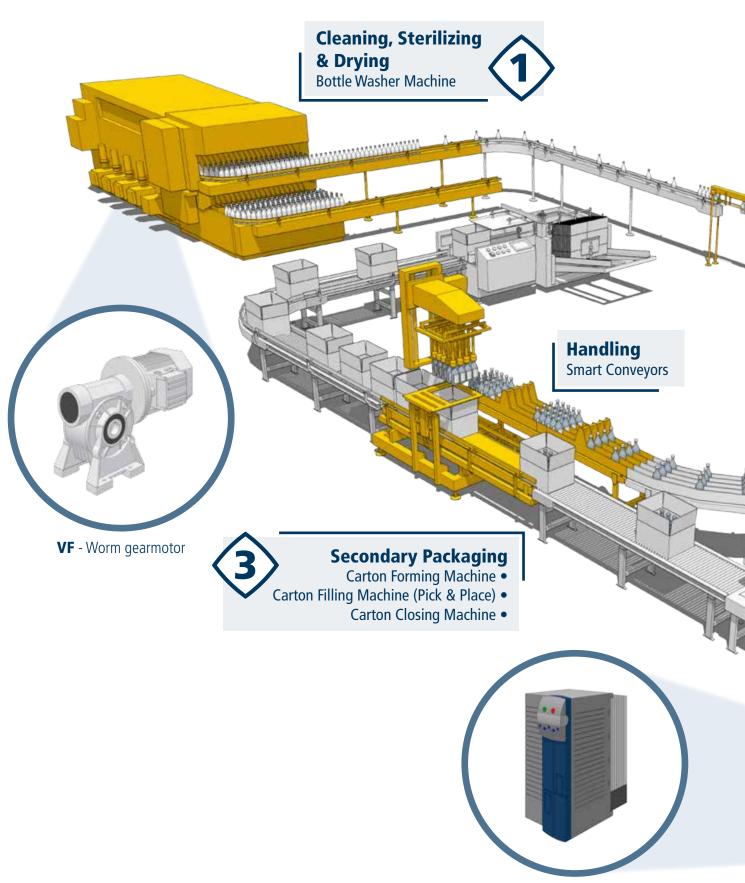


## THESE ARE ALL THE POSSIBLE TYPES OF PACKAGING EQUIPMENT

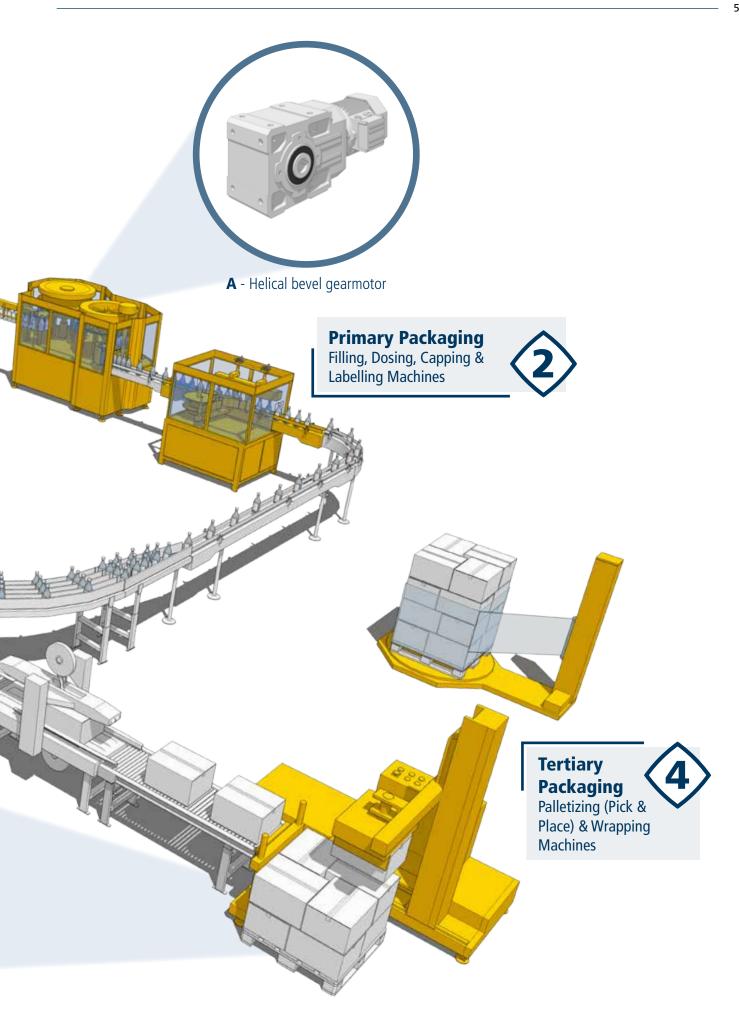
- Cleaning, Sterilizing & Drying machines
- Flow Pack machines
- Filling, Dosing, Capping machines
- Labelling machines
- Carton Forming machines

- Carton Filling machines
- Carton Closing machines
- Palletizing machines
- Wrapping machines
- Handling systems

# **LIQUID FILLING PROCESS**



**ANG** - Servo Inverter



# **LIQUID FILLING PROCESS**



# Cleaning, Sterilizing & Drying

Solutions for Bottle Washer Machine

**VF** - Worm gearmotor



#### **BENEFITS**

- · Cost effective
- · Uncompromising quality
- Specially designed for food & beverage industries

#### **FEATURES**

- Food grade UH1 synthetic lubricant
- High and premium efficiency motors (IE2, IE3)

# **A** - Helical bevel gearmotor



#### **BENEFITS**

- Compact
- Universal mounting
- Modular design

#### **FEATURES**

- Keyed hollow shaft (metric and inch series)
- High and premium efficiency motors (IE2, IE3)
- Wide range of feedback devices (incremental and absolute encoders)

# **Agile** - Smart sensorless frequency inverter

#### **BENEFITS**

• Low energy consumption

#### **FEATURES**

- Sensor-less vector control for asynchronous and synchronous motors
- Integrated torque off safety function
- Integrated Modbus
- Optional communication card (Profibus, CanOpen.....)
- Tropicalization option
- Main software features:
- Integrated PLC function with graphic development environment
- Torque limitation



# **Primary Packaging**

Solutions for Filling, Dosing, Capping & Labelling Machines

# **A** - Helical bevel gearmotor



#### **BENEFITS**

- Compact
- · Universal mounting
- Modular design

#### **FEATURES**

- Keyed hollow shaft (metric and inch series)
- High and premium efficiency motors (IE2, IE3)
- Wide range of feedback devices (incremental and absolute encoders)

# **TQ+iBMD** - Servo gearmotor with Integrated Drive

# ATT.

#### **BENEFITS**

- Decentralized solution
- High precision and dynamic
- Highly compact
- Integrated programmability (ST language)

- · Interpolated mode
- Positioning
- CAM profile
- Capture mode
- Codesys Driver



# **Secondary Packaging**

Solutions for Carton Filling Machine (Pick & Place)

# **TQ** - Precision planetary gearbox with BMD -Permanent magnet servo motor



#### **BENEFITS**

- High precision and dynamic
- Highly compact
- High stiffness
- Designed for continuous and intermittent duty

- Different feedback systems available
- Brake option
- Inertia flywheel
- Customized windings on request

# A - Helical bevel gearbox with **BMD** - Permanent magnet servo motor



#### **BENEFITS**

- Compact
- · Universal mounting
- Modular design

- Keyed hollow shaft (metric and inch series)
- Super premium efficiency motors
- Wide range of feedback devices
- Brake option
- · Inertia flywheel
- Customized windings on request

# **Active Cube** - Premium Inverter

### **BENEFITS**

- Interpolated operating mode
- Smooth start
- Torque control

#### **FEATURES**

- · Ethernet based drive
- Wide power range and parallel connection option to reach up to 1200 kW
- Integrated torque off safety function, external 24 Vdc control power supply
- Tropicalization option
- Integrated PLC function with graphic development environment



# **Tertiary Packaging**

Solutions for Palletizing (Pick & Place) & Wrapping Machines

# A - Helical bevel gearmotor



#### **BENEFITS**

- Compact
- Universal mounting
- Modular design

#### **FEATURES**

- Keyed hollow shaft (metric and inch series)
- High and premium efficiency motors (IE2, IE3)
- Wide range of feedback devices (incremental and absolute encoders)

#### **ANG** - Servo Inverter

### **BENEFITS**

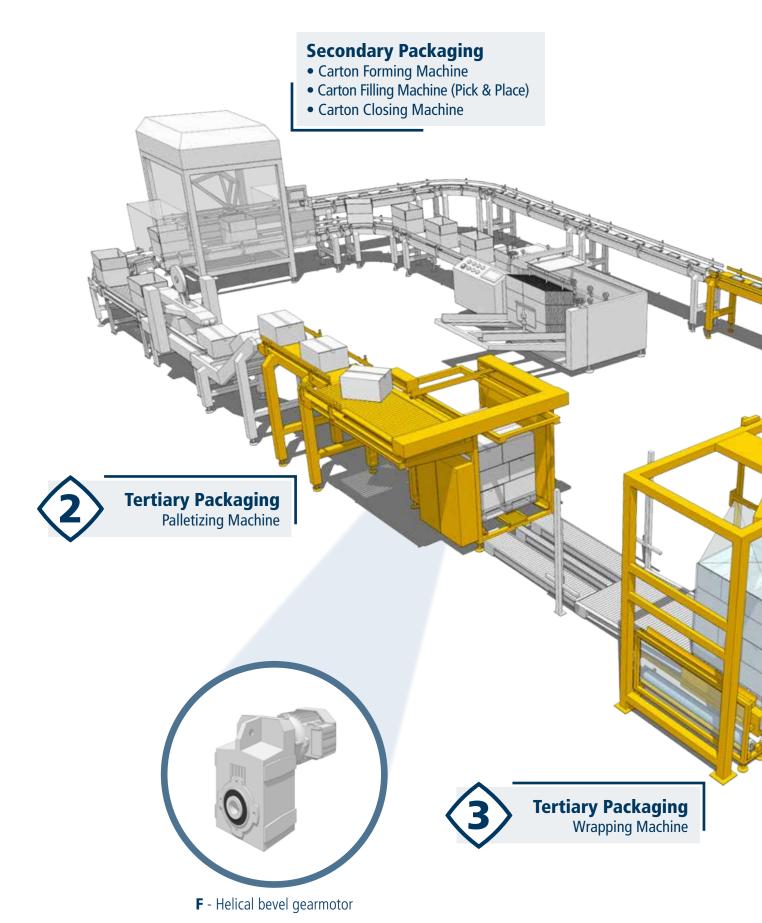
- · Interpolated mode
- Fast loops control
- 2 encoder inputs

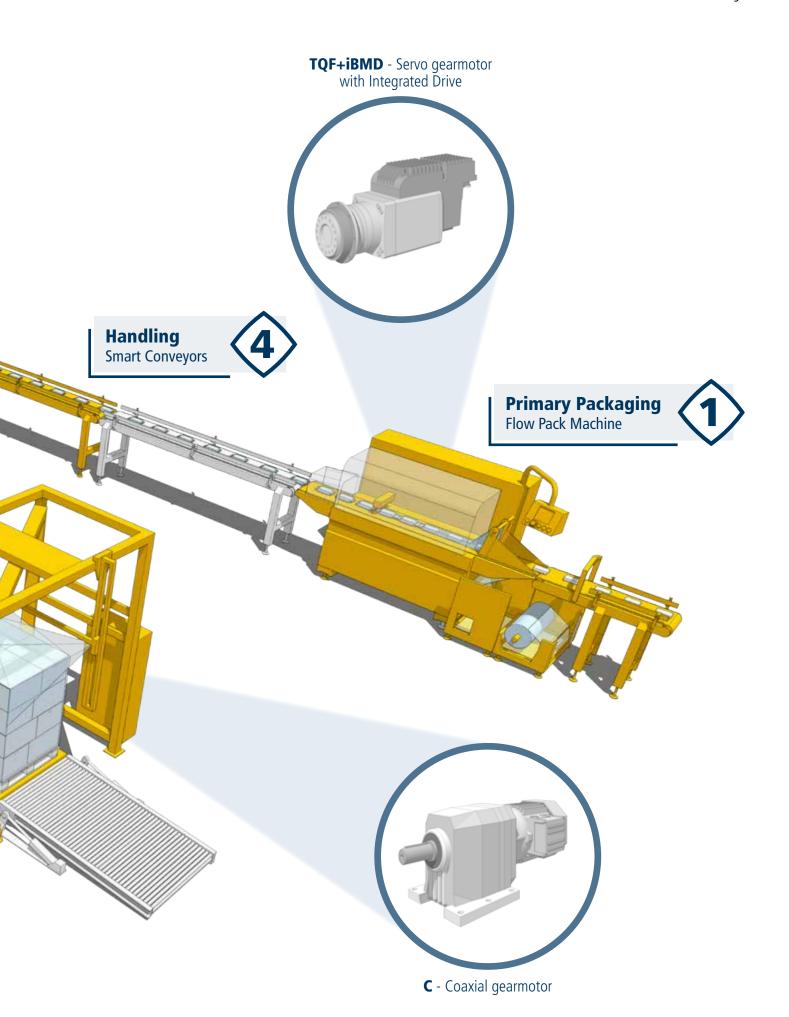
- EtherCAT, CAN open integrated
- Absolute encoders
- Resolver
- PCB coated





# **SOLID PACKAGING PROCESS**





# **SOLID PACKAGING PROCESS**



# **Primary Packaging**

Solutions for Flow Pack Machine

# • Infeed Conveyor-Smart Belt:

A - Helical bevel gearbox with **BMD** - Permanent magnet servo motor



#### **BENEFITS**

Compact design, Universal mounting, Modular design

- · Keyed hollow shaft (metric and inch series)
- Super premium efficiency motors
- Wide range of feedback devices

#### • Unwinder:

## A - Helical bevel gearmotor

Compact design, Universal mounting, Modular design

#### **FEATURES**

- Keyed hollow shaft (metric and inch series)
- High and premium efficiency motors (IE2, IE3)
- Wide range of feedback devices (incremental and absolute encoders)

# • Rotary Sealing Knives: TQF+iBMD - Servo gearmotor with Integrated Drive



Decentralized solution, High precision and dynamic, Highly compact

### **FEATURES**

- Interpolated mode
- Positioning
- · CAM profile
- Capture mode

# Active Cube and/or **Agile** - Smart Inverter

Loading system, Speed control or position mode with servomotor BMD, Manual or fully automatic feeding, "No production no bag" function

#### **FEATURES**

- EtherCAT
- Linear interpolation
- High efficiency
- · Robust and reliable solution
- Multi communication protocols
- · Sensorless vector control



# **Tertiary Packaging**

# Solutions for Palletizing Machine

# F - Helical bevel gearmotor

#### **BENEFITS**

- Easy installation
- Low noise
- · High torque capability

#### **FEATURES**

- Keyed Hollow Shaft Two Bore Options per Size, Keyless Shrink Disc Fitting (Metric series)
- Keyed Hollow Shaft (Inch series)
- · Back stops device
- High and premium efficiency motors (IE2, IE3)

# **Active Cube** - Premium Inverter

# **BENEFITS**

- Interpolated operating mode
- · Smooth start
- Torque control

- Ethernet based drive
- Wide power range and parallel connection option to reach up to 1200 kW
- Integrated torque off safety function, external 24 Vdc control power supply
- Tropicalization option
- · Integrated PLC function with graphic development environment







# **Tertiary Packaging**

# Solutions for Wrapping Machine

# **C** - Coaxial gearmotor

#### **BENEFITS**

- Top torque density
- Highly compact
- Wide speed choice

#### **FEATURES**

- Wide choice of output bolt-on-flanges
- Special seals set for severe environment applications
- Surface protection class C3, C4 and C5 (according to UNI EN ISO 12944-2 standard)



# **Handling**

# Solutions for Smart Conveyors

# A - Helical bevel gearbox with **BMD** - Permanent magnet servo motor



#### **BENEFITS**

- Compact
- Universal mounting
- Modular design

#### **FEATURES**

- Sensorless control
- Protection rating up to IP65 (motor), IP56 (gearbox)
- Surface protection class C3, C4 and C5 (according to UNI EN ISO 12944-2 standard)
- Super premium efficiency motors (IE4)
- Wide range of feedback devices (absolute encoders)

# **F** - Shaft mounted gearmotor

## BENEFITS

- Easy installation
- Low noise
- High torque capability

### FEATURES

- Keyed hollow shaft two bore options per size, keyless shrink disc fitting (metric series)
- Protection rating up to IP56
- Surface protection class C3, C4 and C5 (according to UNI EN ISO 12944-2 standard)
- High and premium efficiency motors (IE2, IE3)

# **Agile** - Smart sensorless frequency inverter

#### **BENEFITS**

- Smooth start
- Feed roll control
- Low energy consumption

#### **FEATURES**

- Sensor-less vector control for asynchronous and synchronous motors
- Integrated torque off safety function
- Integrated Modbus
- Optional communication card (Profibus, CanOpen.....)

# **Agile** - Smart sensorless frequency inverter

#### **BENEFITS**

- Smooth start
- Feed roll control
- Low energy consumption

- Sensor-less vector control for asynchronous and synchronous motors
- Integrated torque off safety function
- Integrated Modbus
- Optional communication card (Profibus, CanOpen.....)





# **COMPLETE SOLUTION FOR POWER TRANSMISSION** AND **AUTOMATION**



# **Gearboxes** and **Gearmotors**

# **Heavy Duty Parallel/Right angle shaft** gearmotors - HDP/HDO Series

**Torque range:** 5 000 to 210 000 Nm

Gear ratios: 7.1 to 500

# Planetary gearmotors - 300 Series

**Torque range:** 1 250 to 1 287 000 Nm

**Gear ratios:** 3.4 to 5 234

#### Worm gearmotors - W/VF Series

Torque range: 13 to 7 100 Nm Gear ratios: 7 to 10 000

### **Helical gearmotors - C Series**

Torque range: 45 to 12 000 Nm **Gear ratios:** 2.6 to 1 481

#### **Bevel-helical gearmotors - A Series**

Torque range: 100 to 14 000 Nm **Gear ratios:** 5.4 to 1 715

### **Shaft-mounted gearmotors - F Series**

Torque range: 140 to 14 000 Nm Gear ratios: 6.4 to 2 099

# **Motors**

# Asynchronous motors – BN, BE, BX, M, ME, MX **Series**

A complete range of AC motors, including IE2 and IE3 for the highest efficiency





Mechanical ratings (4 pole): 0.06 to 30 kW

Poles: from 2 to 4/8

### Asynchronous motors - BN, BE, BX, M, ME, MX Series

A complete range of AC motors, including IE2 and IE3 for the highest efficiency





Mechanical ratings (4 pole): 0.06 to 30 kW

Poles: from 2 to 4/8

#### **Synchronous motors - BMD Series**

Stall Torque: 0.2 to 115 Nm

Rated speed: from 1 600 to 6 000 min<sup>-1</sup>

Power supply: 230, 400 VAC

# Precision planetary servo gearmotors - 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 arcmin

# Synchronous motors - BMD, BCR Series

Stall Torque: 0.2 to 115 Nm

Rated speed: from 1 600 to 6 000 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 VAC





### **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**

**200V:** 0.25 up to 9.2 kW **400V:** 0.25 up to 400 kW



## HMI

#### **Human Machine Interfaces – BMI Series**

3 Display sizes -3.5", 7" and 10" True flat front panel in IP65

High resolution 480x272 up to 1024x600 pixels



**200V:** 0.25 up to 9.2 kW **400V:** 0.25 up to 400 kW

### **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**

**200V:** 0.2 – 2.2 kW

# **Human Machine Interfaces – BMI Series**

3 Display sizes -3.5", 7" and 10" True flat front panel in IP65

High resolution 480x272 up to 1024x600 pixels

#### **Servo inverter - ANG Series**

**200V:** 1 or 3 phase 0.25 up to 9.2 kW

**400V:** 0.25 up to 400 kW

#### **Premium inverter - Active Cube Series**

**200V:** 0.25 up to 9.2 kW **400V:** 0.25 up to 400 kW

### **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

### **Human Machine Interfaces – BMI Series**

3 Display sizes – 3.5", 7" and 10" True flat front panel in IP65

High resolution 480x272 up to 1024x600 pixels

# **Bonfiglioli worldwide presence**

Bonfiglioli is located in regions and countries around the world that enable us to provide faster sales and service to customers. **We are around the world, and around the corner.** 







SALES, CUSTOMER SERVICE, WARRANTY, TECH SUPPORT, SPARE PARTS

21 BRANCH OFFICES IN 15 COUNTRIES



WORLDWIDE DISTRIBUTION NETWORK



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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.









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