

We engineer dreams





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Engineering Sustainability







WWW.BONFIGLIOLI.COM

RECYCLING

THE WIDEST RANGE OF SOLUTIONS FOR RECYCLING PROCESSING AND MACHINERY

Bonfiglioli conceives, designs and produces custom solutions for collection, downsizing and sorting of waste materials. Recycling is a key component of waste management to reduce pollution and landfill waste.

Our wide product portfolio includes planetary gearboxes, motors and frequency inverters designed according to our customers' specific requirements.

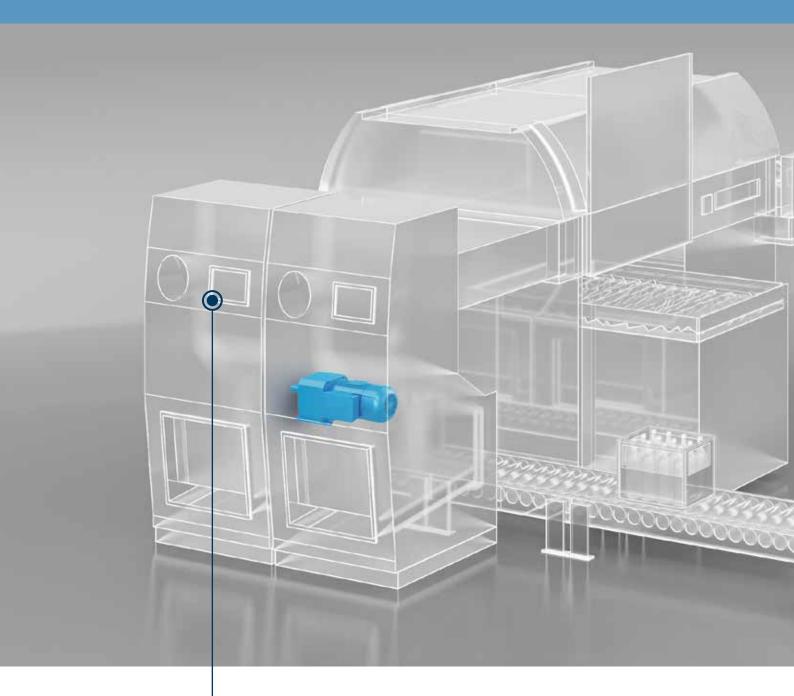
These solutions are developed with the highest level customization, which requires, right from the initial design phases, in-depth interaction between the customer and Bonfiglioli's team, to ensure that all the required specifications and variants are known, and obtain a product that perfectly meets expectations.

This is why our pre-sales and after-sales teams - spread strategically over all continents - play such a crucial role, and why ensuring complete support is at the heart of our global success.





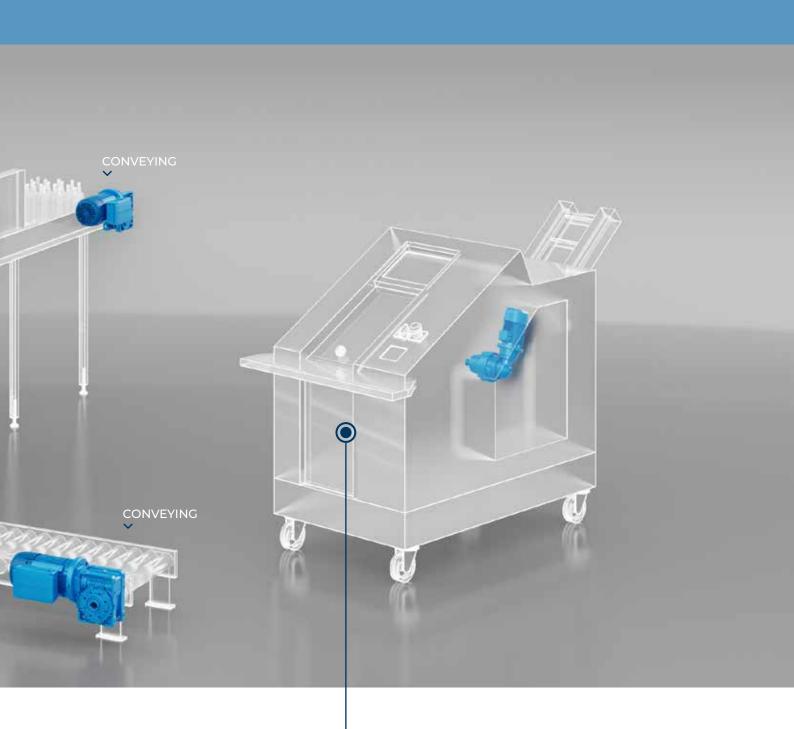
Solutions for RECYCLING



1 REVERSE VENDING MACHINE (SHREDDING OR COMPACTOR)



STAND ALONE RECYCLING MACHINE



2 STAND ALONE SHREDDERS



REVERSE VENDING MACHINE (SHREDDING OR COMPACTOR)

٦

High reliability and long operating life are the basic features that our products offer for standalone recycling machines.

And full integration with Bonfiglioli drives offers a complete package solution.



EVOX CP series

Helical in-line gearbox and geared motor

ENEFITS

- Compact gearmotor design
- High shock load resistance
- One-stop-shop for complete drive solutions
- Wash down capability



W series

Universal worm geared motor

- Quiet operation
- Compact gearmotor design
- Universal mounting



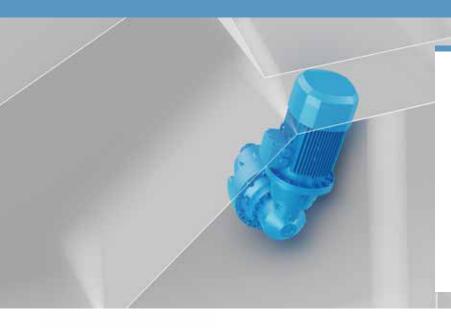
Agile series

Smart inverter

- $\cdot \; \text{Smooth start}$
- Feed roll control
- Low energy consumption

EATURES

- Surface protection
- Universal motor voltage (BXN/MXN)
- High and premium efficiency motors (IE2, IE3)
- Protection rating up to IP56
- Total quality inspection certificate
- Lightweight gearbox
- Universal motor voltage (BXN/MXN)
- High and premium efficiency motors (IE2, IE3)
- · Total quality inspection certificate
- Series optionally extendable for field bus communication
- Sensorless synchronous and asynchronous motor control
- · Modbus and Systembus onboard
- DC link connection
- Integrated brake chopper
- Power failure management
- · Programmable PI controller
- Integrated VPLC
- Electronic gear via analogue wire or Systembus
- Integrated Safe Torque Off STO (SIL 2 / PL d) function
- Energy saving function
- Smart current limits
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnosis and setup via integrated keypad and integrated service interface for PC connection



2

STAND ALONE SHREDDER

High reliability and long operating life are the basic features that our products offer for standalone recycling machines.

And full integration with Bonfiglioli drives offers a complete package solution.



300M series

Planetary gearbox and geared motor

ENEFITS

- High shock load resistance
- Compact design
- One-stop-shop for complete drive solutions
- Wash down capability



Agile series

Smart inverter

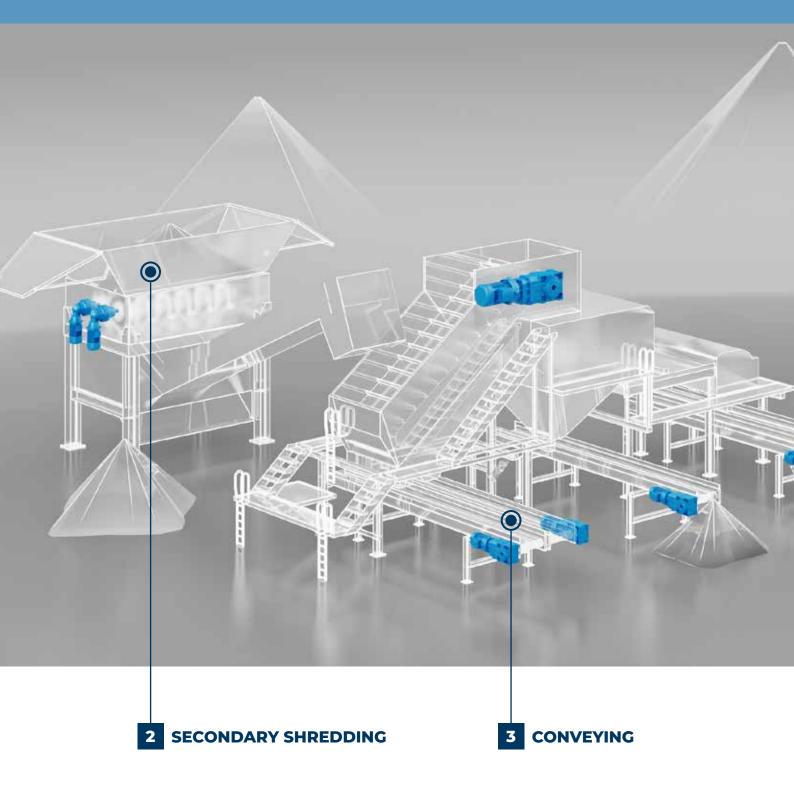
- Smooth start
- Feed roll control
- Low energy consumption

ATURES

- High and premium efficiency motors (IE2, IE3)
- Protection rating up to IP56
- Thermal protection (bi-metallic, PTC or KTY)
- · Anti-condensation heaters
- Total quality inspection certificate
- Series optionally extendable for field bus communication
- Sensorless synchronous and asynchronous motor control
- Modbus and Systembus onboard
- DC link connection
- Integrated brake chopper
- · Power failure management
- · Programmable PI controller
- Integrated VPLC
- Electronic gear via analogue wire or Systembus

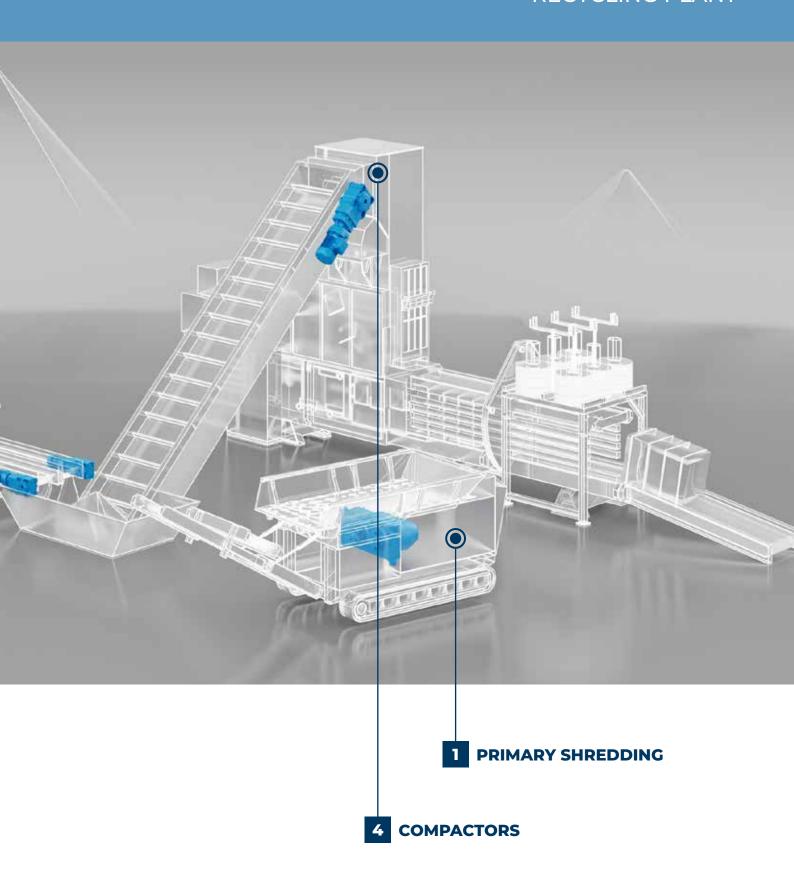
- Integrated Safe Torque Off STO (SIL 2 / PL d) function
- Energy saving function
- Smart current limits
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnosis and setup via integrated keypad and integrated service interface for PC connection

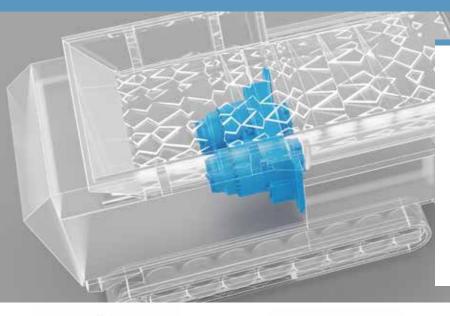
Solutions for RECYCLING





RECYCLING PLANT





PRIMARY SHREDDING

Totally integrated machine design and performance are the key features that our planetary products offer for primary shredding equipment. Bonfiglioli can boast a long experience with all OEM WW leaders. Its dedicated factory provides premium services worldwide.



R3 series

Double planetary gearbox

- Easy installation
- Quiet operation
- · High torque capabilities



Active Cube series

Premium inverter

- Synchronous and asynchronous motor control with or without encoder
- Electronic block detection
- · Maximum torque for the entire speed range
- Boost of cinematic energy by speed
- · 400kW single device with 180% overload
- · Air- and water-cooled
- · Cabinet solution available

- · Class C3, C4 and C5 surface protection (according to standard UNI EN ISO 12944-2)
- Peak torque from 80,000 to 129,000 Nm
- Gear ratios from 92 to 115
- · Shamrock output, output shaft: flanged output shaft
- Flanged axial piston hydraulic motors
- · Axial piston hydraulic motors
- Synchro drive

- · Series optionally extendable for field bus communication and encoder
- Plug-in power terminals (up to 3kW)
- Plug-in and programmable control terminals
- DC link connection
- · Integrated brake chopper
- Positioning function via field bus (motion control compatible to CiA DS402)

- Integrated VPLC
- Electronic gear in speed or position
- · Power failure management
- Integrated Safe Torque Off STO (SIL 3 / PL e) function
- · Output frequency 0...599 Hz, higher frequencies on request
- · Diagnosis and setup via optional keypad or PC software



2

SECONDARY SHREDDING

Planetary rating torque over 2 MioNm guarantees a complete range of shredding machine applications. Thanks to their high peak load capacity, our planetary gears are the best in class in terms of mechanical performances.

And full integration with Bonfiglioli drives offers a complete package solution.



300M series

Planetary gearbox and geared motor

ENEFITS

- High shock load resistance
- Compact design
- One-stop-shop for complete drive solutions
- Reliable and customized solution for extreme low temperature working conditions
- · Wash down capability



HDO series

Helical in-line gearbox and geared motor

- High torque capabilities
- High shock load resistance
- Superior mechanical performances



Active Cube series

Premium inverter

- Cabinet solution up to 1,200kW
- Reversing in case of block detection
- Reduction of starting current and energy provision

ATURES

- High and premium efficiency motors (IE2, IE3)
- Protection rating up to IP56
- Thermal protection (bi-metallic, PTC or KTY)
- · Anti-condensation heaters
- Total quality inspection certificate
- Surface protection
- Universal motor voltage (BXN/MXN)
- High and premium efficiency motors (IE2, IE3)
- Total quality inspection certificate
- Series optionally extendable for 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
- Positioning function via field bus (motion control compatible to CiA DS402)
- Integrated VPLC
- Electronic gear in speed or position
- · Power failure management
- Integrated Safe Torque Off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnosis and setup via optional keypad or PC software





CONVEYING

Thanks to the extensive selection of features and space efficiency, we can offer specific products based on the conveying systems.

High dynamic response and energy savings are fundamental features when you choose Bonfiglioli. Furthermore, the cost effective and extended service intervals reward a very low cost of ownership.

And full integration with Bonfiglioli drives offers a complete package solution.



A series

Helical bevel gearmotors

BENEFITS

- Compact
- Universal mounting
- Modular design
- · Wash down capability

EATURES

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



Active Cube series

Premium inverter

- Cabinet solution up to 1,200kW
- Reversing in case of block detection
- Reduction of starting current and energy provision
- Series optionally extendable for 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
- Positioning function via field bus (motion control compatible to CiA DS402)

- Integrated VPLC
- Electronic gear in speed or position control
- Power failure management
- Integrated Safe Torque Off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnosis and setup via optional keypad or PC software



4

COMPACTORS BALERS MACHINE

We offer versatile, robust and energy-efficient solutions that enhance compactor requirements. High dynamic response and energy savings are fundamental features when you choose Bonfiglioli. Furthermore, the cost effective and extended service intervals reward a very low cost of ownership.

And full integration with Bonfiglioli drives offers a complete package solution.



A series

Helical bevel gearmotors

- Compact
- Universal mounting
- · Modular design
- · Wash down capability
- Keyed hollow shaft (metric and inch series)
- High and premium efficiency motors (IE2, IE3)
- Wide range of feedback devices (incremental and absolute encoders)



Active Cube series

Premium inverter

- Cabinet solution up to 1,200kW
- Reversing in case of block detection
- Reduction of starting current and energy provision
- Series optionally extendable for 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
- Positioning function via field bus (motion control compatible to CiA DS402)

- Integrated VPLC
- Electronic gear in speed or position control
- Power failure management
- Integrated Safe Torque Off STO (SIL 3 / PL e) function
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnosis and setup via optional keypad or PC software

Solutions for RECYCLING



Bonfiglioli offers integrated electric powertrains for the electrification of compaction systems on commercial vehicles, in order to improve efficiency and reduce CO_2 emissions and noise levels. Environmental sustainability is guaranteed by the fact that the electrical system can be operated even when the vehicle's diesel engine is switched off, which makes the application particularly suitable for urban environments, in compliance with increasingly stringent environmental regulations regarding exhaust gas emissions and noise pollution. The electrification of large vehicles is not easy to implement, while the electrification of auxiliary devices is particularly useful and can reduce or eliminate downtime during work cycles.

The system's compact, modular nature ensures easier integration and maintenance.





EDS-D series

Electric Drive System

BENEFITS

- Compact
- · High power density & efficiency
- $\cdot \, \mathsf{Modular}$
- Easy installation

- · Reduced time-to-market
- Reduced EV knowledge and vehicle modifications
- ~80% less weight and volume compared to traditional internal combustion engines

ATURES

- Scalable power from 70kW to 120kW
- · Powertrain options:
- **EDS-D 70**: predisposition for pump connection for SAE A and SAE B, with SP Line ANSI B92.1 shaft
- EDS-D 90/120: predisposition for pump connection for SAE A, SAE B, SAE C, with shaft SP Line ANSI B92.1
- Permanent magnet synchronous motor technology

- System efficiency reaches 93%
- \cdot Telematics control board available as system option
- Adaptable to various applications adding the powertrain control unit
- Available with inverter in slave or master configuration with torque and speed control functions.

TECHNICAL DATA

			EDS-D	
		up to 70kW	90kW	120kW
Torque range	(Nm)	1,732	3,895	3,895
Speed transmission with gear ratio	i:	10.5	14.98	14.98
Motor max output speed	(rpm)	1,143	734	734

Solutions for RECYCLING



GEARBOXES & GEARED MOTORS

Heavy duty parallel/right angle shaft geared motors **HDP/HDO Series**

• **Torque range:** 5,190 to 210,000 Nm

• **Gear ratios:** 5.6 to 500

Planetary geared motors | 300 Series

• Torque range: 1,250 to 1,287,000 Nm

• **Gear ratios:** 3.4 ... 2,916

Worm geared motors | W/VF Series

• Torque range: 13 to 7,100 Nm

• **Gear ratios:** 5.6 to 500

Helical geared motors | C Series

• Torque range: 45 to 12,000 Nm

• **Gear ratios:** 5.6 to 500

Bevel-helical geared motors | A Series

• Torque range: 100 to 14,000 Nm

• **Gear ratios:** 5.6 to 500

Shaft-mounted geared motors | F Series

• **Torque range:** 140 to 14,000 Nm

• **Gear ratios:** 5.6 to 500

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 motors | **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

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

 \cdot Rated speed: from 1,600 to 6,000 min⁻¹

• Power supply: 230, 400 VAC

Synchronous reluctance motors | BSR Series

Two different versions for different needs: High

efficiency IE4 and high output • Power range: 0.37 to 18.5 kW



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⁻¹
 Rated speed BCR: from 2,000 to 4,500 min⁻¹

· Power supply: 230, 400 VAC

Synchronous motors with integrated drives | iBMD Series

• Stall torque: 2.7 to 36 Nm • Rated speed: 3,000 min⁻¹

• Power supply: 560 VDC



COMPLETE SOLUTIONS FOR POWER TRANSMISSION & AUTOMATION



INVERTERS

Cabinet solution | Active Cube 8 IP54

- 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*: 0.25 400 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*: 0.25 400 kW / 3-phase

Smart inverter | Agile Series

LIGHT

- **AGL202:** 0.12 3 kW / 1-phase | 0.25 7.5 kW / 3-phase
- · AGL402: 0.25 11 kW / 3-phase

Compact inverter | S2U Series

· S2U230S--..(F) IP66: 0.25 - 400 kW / 3-phase

HMI

Human Machine Interfaces | BMI Series

- 2 display sizes 7", 10.1"
- True flat front panel in IP65
- High resolution 480x272 up to 1,024x600 pixels

Human Machine Interfaces | BMI Series

- 2 display sizes 7", 10.1"
- True flat front panel in IP65
- High resolution 480x272 up to 1,024x600 pixels

Servo inverter | ANG Series

- ANG210: 0.25 9.2 kW / 1- or 3-phase
- · ANG410*: 0.25 400 kW / 3-phase
- · ACU510*: 160 400 kW / 3-phase
- · ANG610*: 0.25 400 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*: 0.25 400 kW / 3-phase

Smart inverter | Agile Series

- **AGL202:** 0.12 3 kW / 1-phase | 0.25 7.5 kW / 3-phase
- · AGL402: 0.25 11 kW / 3-phase

Human Machine Interfaces | BMI Series

- 2 display sizes 7", 10.1"
- True flat front panel in IP65
- High resolution 480x272 up to 1,024x600 pixels



^{*} up to 1200 kW with parallel connection

OUR PROJECTION INTO THE FUTURE

MORE THAN 250 EMPLOYEES AROUND THE WORLD ARE INVOLVED IN THE GROUP'S R&D ACTIVITIES.

DESIGN SIMULATION

Bonfiglioli has the most advanced **virtual simulation techniques** that allow to speed up the validation process, thus reducing time to market and providing customers with optimized and efficient solutions.

TEST LABORATORIES

In our R&D department we **research**, **develop**, **validate and certify** all the products and solutions which are engineered and manufactured in our plants across the world.



CO-ENGINEERING

At Bonfiglioli we work close to our customers to satisfy all their needs and requirements with a true tailormade solution.





OUR CONSTANT AMBITION

QUALITY, HEALTH, SAFETY, ENVIRONMENT & ENERGY

QUALITY: WE CARE ABOUT OUR CUSTOMERS

Our team is wholly dedicated to continuous improvement in the quality, safety, environmental and energy spheres throughout the entire value chain, from the smallest supplier to the end client. Bonfiglioli is committed to achieving the highest quality standards, and our products are intended to generate value for our customers while respecting both people and the environment. We design, manufacture and supply effective products and services that set a benchmark for quality in the industry.

Bonfiglioli management systems are certified ISO 9001: 2015, ISO 14001: 2015, ISO 45001: 2018 and ISO 50001:2018, 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.

HEALTH & SAFETY: SUSTAINABILITY STARTS WITH SAFETY

Prevention of accidents and incidents is a key element of our company's sustainability 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, thereby strengthening their contributions.

ENVIRONMENT & ENERGY: RESPECT THE PRESENT TO BUILD THE FUTURE

At Bonfiglioli, we believe that respect for the present and the adoption of environmental protection and energy efficiency policies are essential if we are to enjoy a better future.



OUR GLOBAL PRESENCE

Thanks to an international network of closely interconnected commercial and production sites, we can guarantee the same high standards of Bonfiglioli quality anywhere at any given time. We know that our direct presence in local markets is the key to long-lasting success, so our family includes 20 production sites, 26 commercial sites and more than 550 distributors around the world.

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

20PRODUCTION SITES

26
COMMERCIAL SITES



550
DISTRIBUTORS

~4.700
PEOPLE

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

Av. Osvaldo Fregonezi, 171, cjs 31 e 44 CEP 09851-015 - 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



Motion & Robotics #568, Longpan Road, Jiading District,



Bonfiglioli Trading (Shanghai) Co. Ltd.

Room 423, 4th Floor, #38, Yinglun Road, China (Shanghai) Pilot Free Trade Zone, Shanghai



Selcom Electronics (Shanghai) Co., Ltd

A7, No.5399, Waiqingsong Road, QingPu District, 201707 Shanghai

Tel. +86 21 6010 8100



A24, No.5399, Waigingsong Road, QingPu District, 201707 Shanghai

Tel. +86 21 6010 8100



FRANCE

Bonfiglioli Transmission S.A.S.

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.

Mobility & Wind Industries AC 7 - AC 11 Sidco Industrial Estate Thirumudivakkam Chennai - 600 044 Tel. +91 844 844 8649



Discrete Manufacturing &

Process Industries - Motion & Robotics Survey No. 528/1,

Perambakkam High Road Mannur Village, Sriperumbudur Taluk Chennai - 602 105 Tel. +91 844 844 8649



Discrete Manufacturing & Process Industries

Plot No.A-9/5, Phase IV MIDC Chakan, Village Nighoje Pune - 410 501 Tel. +91 844 844 8649



ITALY

Bonfiglioli Riduttori S.p.A.

Discrete Manufacturing & **Process Industries** Via Cav. Clementino Bonfiglioli, 1 40012 Calderara di Reno Tel. +39 051 6473111



Discrete Manufacturing & Process Industries

Via Sandro Pertini, lotto 7b 20080 Carpiano Tel. +39 02985081



Discrete Manufacturing & Process Industries

Via Saliceto, 15 - 40010 Bentivoglio



Mobility & Wind Industries

Via Enrico Mattei, 12 Z.I. Villa Selva 47122 Forlì

Tel. +39 0543 789111



Motion & Robotics

Via Unione, 49 - 38068 Rovereto Tel. +39 0464 443435/36



Selcom Group S.p.A.

Via Achille Grandi, 5 40013 Castel Maggiore (BO) Tel. +39 051 6387111



Via Marino Serenari, 18 40013 Castel Maggiore (BO) Tel. +39 051 6387111



Via Cadriano, 19 40057 Cadriano (BO) Tel. +39 051 6387111



NEW ZEALAND

Bonfiglioli Transmission (Aust.) Pty Ltd

88 Hastie Avenue, Mangere Bridge, 2022 Auckland PO Box 11795, Ellerslie Tel. +64 09 634 6441



SINGAPORE

Bonfiglioli South East Asia Pte Ltd

8 Boon Lay Way, #04-09, 8@ Tadehub 21, Singapore 609964 Tel. +65 6268 9869



SLOVAKIA

Bonfiglioli Slovakia s.r.o.

Robotnícka 2129 Považská Bystrica, 01701 Slovakia Tel. +421 42 430 75 64



SOUTH AFRICA

Bonfiglioli South Africa Pty Ltd.

55 Galaxy Avenue, Linbro Business Park, Sandton, Johannesburg 2090 South Africa Tel. +27 11 608 2030



SPAIN

Tecnotrans Bonfiglioli S.A

Avinguda del Ferrocarril, nº 14, Polígono Industrial Can Estapé 08755 Castellbisbal - Barcelona Tel. +34 93 447 84 00



TURKEY

Bonfiglioli Turkey Jsc

Atatürk Organize Sanayi Bölgesi, 10007 Sk. No. 30 Atatürk Organize Sanayi Bölgesi, 35620 Çiğli - Izmir Tel. +90 0 232 328 22 77



UNITED KINGDOM

Bonfiglioli UK Ltd.

Unit 1 Calver Quay, Calver Road, Winwick Warrington, Cheshire - WA2 8UD Tel. +44 1925 852667



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 Ben Cat - Binh Duong Province Tel. +84 650 3577411















We have a relentless commitment to excellence, innovation & sustainability. Our team creates, distributes and services world-class power transmission & drive solutions to keep the world in motion.

HEADQUARTERS

Bonfiglioli S.p.A Registered office: Via Cav. Clementino Bonfiglioli, 1 40012 Calderara di Reno - Bologna (Italy) Tel. +39 051 6473111

Head office: Via Isonzo, 65/67/69 40033 Casalecchio di Reno - Bologna (Italy)







