

Product Range

Mechatronic & Motion Systems



MECHATRONIC &
MOTION SYSTEMS





Mechatronic & Motion Systems



Motion Control & Human Machine Interface

ANG Series
iBMD Series
BMS Series
BMI Series

Frequency inverters

Active Cube Series
Agile Series
S2U Series
S2U IP66 Series

Regenerative Units

AEC Series

Precision Planetary Gearboxes

| | |
|-------------------------|-----------------------|
| Performance line | Effective line |
| TQ Series | TQFE Series |
| TQK Series | TQFEK Series |
| TQF Series | SL Series |
| TR Series | LC Series |
| MP Series | LCK Series |
| | MPE Series |
| | MPEK Series |
| | KR Series |

Industrial gearmotors

A Series
C Series
F Series
VF/W Series
300 Series

Permanent Magnet Synchronous & Synchronous Reluctance Motors

BMD Series
BCR Series
BSR Series



CO-ENGINEERING
DEVELOPMENT



PROJECT
COMMISSIONING



SERVICES



DIGITAL
TOOLS

The highest level of precision, efficiency and energy optimization.

With almost 20 years of experience in creating dedicated motion control systems, Bonfiglioli has gained a solid reputation as one-stop shop for mechatronic applications in industrial automation.

Bonfiglioli engineering specialists work side by side with customers to develop tailored and forward-thinking integrated solutions, covering the entire motion drive train according to an Industry 4.0 approach.

Thanks to the extensive know-how and the long-term collaboration with key customers, our two centers of excellence, located in Italy and Germany, develop breakthrough mechatronic innovations, including low backlash planetary gearboxes, servomotors, open and closed loop inverters, servo inverters and regenerative inverters.

This, combined with a comprehensive range of Professional Services, enables us to respond to customers' requests with targeted solutions aimed at achieving:

- High efficiency
- High productivity
- Agility
- Easy-to-use drive solutions
- Always up-to-date data for diagnostic, maintenance and predictive analytics
- Low operating costs

Bonfiglioli also provides solutions for:



DISCRETE MANUFACTURING
& PROCESS INDUSTRIES



ELECTROMOBILITY



MOBILE



WIND

www.bonfiglioli.com

Mechatronic solutions for all industrial applications

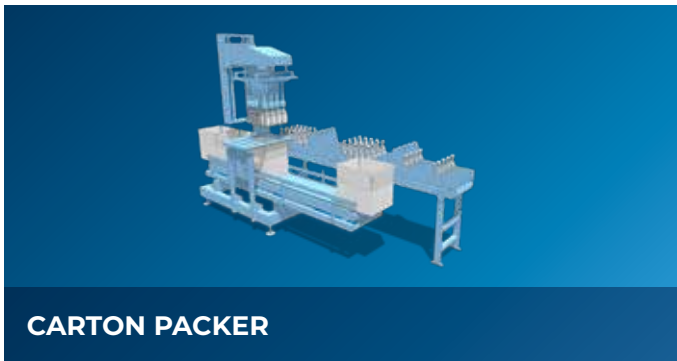
Our engineering specialists work side by side with customers to create the best possible solution, whether the request is to optimize an existing machine or to develop a new one. Our relationship with customers is based on an active partnership with fast decision-making processes to develop individually-tailored offers.

Our full-range offering provides the necessary products for the development of vertically integrated solutions in a variety of applications, such as material handling, automated storage, textile and packaging. Our team of experts assists customers in designing cost effective and energy efficient machines, aligning performance to meet the specific requirements.



A complete integrated solution

- Precision Planetary Gearboxes
- Industrial Gearboxes
- PM Synchronous Motors
- Synchronous Reluctance Motors
- Asynchronous motors
- Servo Inverters
- Frequency Inverters
- Energy Regenerative Inverters
- Motion Control
- Industry 4.0 solutions





Our services

▪ APPLICATION / ENGINEERING

Assessment and Orientation
Engineering and Planning
Retrofit and Modernization

▪ INSTALLATION / START-UP

On-site assistance
Start-up assistance
Commissioning

▪ AFTER SALES

Maintenance
Pre- and post-sale customer service
Training

Industry sector expertise



MATERIAL HANDLING



HOIST & CRANES



FOOD & BEVERAGE



AUTOMATED WAREHOUSE



PACKAGING



TEXTILES



MATERIAL WORKING

Bonfiglioli Digital Tools



EPLAN

Enhance your electrical design

Intense competition is putting pressure on machine builders and system integrators to deliver machines with higher throughput and reduced operating cost in shorter timeframes, leading to a significant increase in the **complexity of the machine design** process.



DOCUMENTS

DE
EN
ES

MULTILINGUE
SUPPORT



COMMERCIAL
DATA



LOGIC
DATA



2D/3D
DATA



PRODUCTION
DATA

System design challenge

Bonfiglioli and EPLAN work together to provide efficient engineering solutions, aimed at reducing the gap between the initial concept and its development, programming and commissioning.

- **Better quality of documentation:** the EPLAN Data Portal provides users with up-to-date device data from numerous component manufacturers, saving time for manual data collection and minimizing the risks of faulty data.
- **Shorter system design times:** by including macro-information, function templates, production data and drawings, EPLAN allows users to drag and drop Bonfiglioli drawing templates into their own electrical drawings, reducing the time needed for cabinet planning.

Bonfiglioli products available on EPLAN data portal



Active Next
Generation Series



Active Cube
Series



Agile Series



SERVOSOFT

Develop optimized solutions

Bonfiglioli and SERVOSOFT® work together to support customers in sizing complete **multi-axis servo systems**, including motors, gearboxes and servodrives with **15 mechanisms** and up to **50 axes** in a shared bus or standalone configuration.



With Bonfiglioli offering available on SERVOSOFT, customers are able to select, size and design their customized and high performance applications. In addition, Bonfiglioli engineering team - thanks to its in-depth knowledge of the products - uses the high level servosizing tool SERVOSOFT® to provide a top level customer support service by developing **optimized, energy-efficient and tailored** engineering solutions to meet individual needs.

Benefits

- High level of optimization
- Unique supplier and tailored-made solutions
- Energy-saving solutions
- Tuning of the project in real conditions and further optimization
- Powerful servosizing tool for both customers and Bonfiglioli team

Motion Control & Human Machine Interface



Motion control servo drive



ANG Series

Active Next Generation (ANG) is a motion control application inverter that can be used in servo applications and as frequency inverter. The ANG Series offers a wide power range from 0.25 kW to 400 kW (with parallel connection of drives up to 1200 kW). It can control asynchronous and synchronous motors in open and closed loop operations. Field bus communication and encoder evaluation is always on board, making the Active Next Generation Series the perfect drive for motion control applications in closed loop control like packaging, textile machines, food & beverage, warehouse and material handling. For integration in functional safety environments, ANG offers STO functionality according to SIL 3 and PL e.

Power supply & Power range

- ANG210: 0.25 - 9.2 kW / single or three-phase 200 - 240V / 50 - 60 Hz ($\pm 10\%$)
- ANG410: 0.25 - 400 kW / three-phase 360 - 480V / 50 - 60 Hz ($\pm 10\%$)
Parallel connection up to 1200 kW
- ANG510: 160 - 400 kW / three-phase 525V / 50 - 60 Hz ($\pm 10\%$)
Parallel connection up to 1200 kW
- ANG610: 160 - 400 kW / three-phase 690V / 50 - 60 Hz ($\pm 10\%$)
Parallel connection up to 1200 kW

Motor control

(open loop or optional closed loop):

- Asynchronous AC motors
- Permanent magnet synchronous (brushless) motors

Mounting options

- Cabinet mounting for all sizes
- Optional feed-through mounting
- Optional DIN rail mounting frame size 1
- Optional ColdPlate (sizes 1 to 5)
- Optional liquid cooling (sizes 5 to 8)

Overload capacity

- up to 150% for 60 seconds
- up to 200% for 1 second

Key features

- Different variants include field bus connection 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 with CiA 402)
- Cubic interpolation
- Integrated VPLC
- Master/slave function with electronic gear
- Power failure control
- 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

Variants

Variants automation interface:

- EM-AUT-01: EtherCAT® and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-04: EtherCAT®
- EM-AUT-11: PROFINET and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-21: Ethernet/IP and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)
- EM-AUT-31: Varan and Encoder evaluation (TTL, HTL, Resolver, Hiperface, EnDat 2.1)

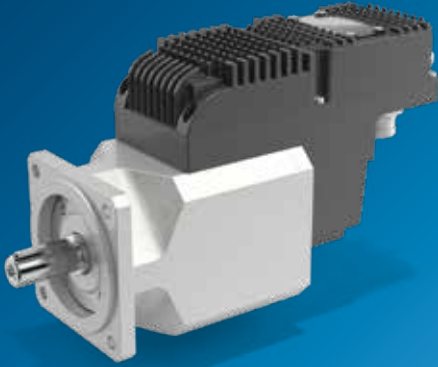
Options

- Optional keypad for diagnosis and parameter setup
- Optional PC interface
- Optional accessories like brake resistor, mains chokes, mains filters

Enclosure

- IP20 (EN 60529)

Motion control servo motor with integrated drive



iBMD Series

iBMD can be controlled by a master or in standalone mode. It reduces both cable and electrical cabinet costs. Total unit size is reduced by more than 35% compared to a classic servo drive solution.

DC voltage

- 560 V

Absolute encoders

- Single and multi turn

Communication interface

- CANopen, EtherCAT

Configurable I/Os on board

- ST-IEC61131 programming
- STO function
- Driver Codesys available

DC power supply

- 20 A, 40 A

Degree of protection

- IP65 (EN 60529)

Power supply

- 400 Vac system voltage / 560 Vdc DC link voltage

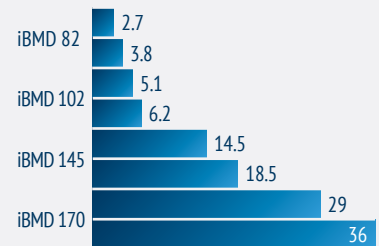
Software features

- Positioning function via field bus (motion control compatible with CiA 402)
- Internal PLC programming option for standalone machines
- Interpolated mode
- Gearing functionality
- Electronic cam functionality in combination with motion controllers
- Internal drive and motor protection

Hardware features

- IP65 design
- KTY temperature evaluation
- Absolute Hiperface encoder
- Optional holding brake
- DC power supply

Torque (Nm)



Motion servo gearmotor



BMS Series

The BMS Series offers revolutionary space-saving machine design, a wider range of options and superior performance due to the synergy between permanent magnets, synchronous motors and precision planetary gearbox technologies. The excellent compactness, high torsional stiffness and low moment of inertia ensure a great operating performance in all applications that demand highly precise positioning, accuracy and efficiency. In addition, the BMS series provides a new and unique compact unit selection method, with optimized catalog combinations, to ensure the maximum output in terms of performance, compactness and drive optimization.

Rated speed

- 60 up to 875 rpm

Technical features

- 5 gearbox sizes: 060, 070, 090, 130, 160
- 3 overspeed variants: Base, Medium and High
- 6 motor frames and 14 motor sizes

Backlash

- 1 stage: less than 3 arcmin
- 2 stages: less than 5 arcmin

Operation

- Continuous duty
- Cyclic operation

Lubrication

- Life lubricated
- Optionally food grade oil

Feedback

- 2-pole resolver 8kHz & 10 kHz
- Optical single & multi turn EnDat encoder
- Optical single & multi-turn Hiperface encoder
- Capacitive single & multi-turn Hiperface encoder

Temperature sensor

- PTC
- KTY 84-130
- PT1000

Brake options

- Holding brake (optional)
- 24 Vdc

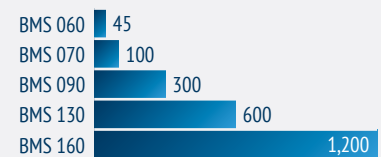
Degree of protection

- IP65

Key features

- Compact design
- High precision and dynamics
- Matching application demands and geared motor operating area, with a smaller servopackage
- Very flexible options

Maximum acceleration torque (Nm)



General Purpose HMI



BMI Series Human Machine Interface

The BMI Series offers a complete cost effective automation solution that can be fully customized to suit customers' needs. Combined with one of Bonfiglioli drives system, the BMI Series is a powerful solution dedicated to a wide range of applications.

Key features

- 7 and 10" display
- Front panel IP 65
- Cost-effective solution
- ABS plastic chassis
- 65.536 colors
- High resolution up to 1024 X 600
- Ethernet and RS232/485 standard

Frequency inverters



High Performance Frequency Inverter



Active Cube Series

Active Cube (ACU) is the high performance frequency inverter with a wide power range from 0.25 kW to 400 kW (with parallel drive connection up to 1200 kW). It can control asynchronous, synchronous and synchronous reluctance motors in open and closed loop operations. Several optional modules for communication and expansions for I/O control and encoder evaluation make the premium frequency inverter ideal for a wide range of high performance applications, such as warehouse and material handling, automatic storage systems, textile machines, packaging, food & beverage, motion control and hoists and cranes applications. For integration in functional safety environments, ACU offers STO functionality according to SIL 3 and PL e.

Power supply & Power range

- ACU210: 0.25 - 9.2 kW / single or three-phase 200 - 240V / 50 - 60 Hz ($\pm 10\%$)
- ACU410: 0.25 - 400 kW / three-phase 360 - 480V / 50 - 60 Hz ($\pm 10\%$)
Parallel connection up to 1200 kW
- ACU510: 160 - 400 kW / three-phase 525V / 50 - 60 Hz ($\pm 10\%$)
Parallel connection up to 1200 kW
- ACU610: 160 - 400 kW / three-phase 690V / 50 - 60 Hz ($\pm 10\%$)
Parallel connection up to 1200 kW

Motor control

(open loop or optional closed loop):

- Asynchronous AC motors
- Synchronous Reluctance motors
- Permanent magnet synchronous (brushless) motors

Mounting options

- Cabinet mounting for all sizes
- Optional feed-through mounting
- Optional DIN rail mounting frame size 1
- Optional ColdPlate (sizes 1 to 5)
- Optional liquid cooling (sizes 5 to 8)

Overload capacity

- up to 150% for 60 seconds
- up to 200% for 1 second

Key features

- Optionally expanding series 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 with CiA 402)
- Integrated VPLC
- Master/slave function with electronic gear
- Power failure control
- 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

Options

- Different field bus options, such as CANopen, PROFIBUS, Modbus, EtherCAT, PROFINET, Varan
- Optional I/O extensions for additional digital and analogue inputs & outputs
- Optional keypad for diagnostics and parameter setup
- Optional PC interface
- Optional accessories like brake resistor, mains chokes, mains filters

Enclosure

- IP20 (EN 60529)

Standard Frequency Inverter



Agile Series

The Agile (AGL) Series is a flexible compromise for standard applications, such as warehouse and material handling (for example glass, wood, marble), textile machines, food & beverage, packaging, ceramic and hoists applications. The Agile Frequency Inverter Series has three mechanical sizes for power ranges between 0.12 and 11 kW, with open loop control for asynchronous and synchronous motors. For integration into functional safety environments, AGL offers STO functionality according to SIL 2 and PL d.

Power supply & Power range

- AGL202: 0.12 - 3 kW / single-phase 200 V... 240 V / 50 - 60 Hz ($\pm 10\%$)
- 0.25 - 7.5 kW / three-phase 200 V ... 240 V / 50 - 60 Hz ($\pm 10\%$)
- AGL402: 0.25 - 11 kW / three-phase 320 V... 530 V / 50 - 60 Hz ($\pm 10\%$)

Motor control

(open loop):

- Asynchronous AC motors
- Permanent magnet synchronous (brushless) motors

Mounting options

- Cabinet mounting for all sizes
- Optional feed-through mounting
- Optional DIN rail mounting frame size 1
- Optional ColdPlate

Overload capacity

- up to 150% for 60 seconds
- up to 200% for 1 second

Key features

- Optionally expanding series for field bus communication
- Sensorless control of synchronous and asynchronous motors
- Modbus and Systembus onboard
- DC link connection
- Integrated brake chopper
- Power failure control
- Programmable PI controller
- Integrated VPLC
- Master/slave function with electronic gear
- Integrated safe torque off STO (SIL 2 / PL d) function
- Energy saving function
- Intelligent current limits
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnostics and setup via integrated keypad and integrated service interface for PC connection

Options

- Different field bus options, such as CANopen, PROFIBUS, Modbus
- Optional accessories like brake resistor, mains chokes, mains filters
- Optional PC connection set

Enclosure

- IP20 (EN 60529)

Basic Frequency Inverter



S2U Series

Our S2U frequency inverters are designed for simple handling applications and are quickly integrated into your machines. The S2U frequency inverter is available in two mechanical sizes ranging from 0.20 kW to 2.2 kW for 230 V single phase operations. S2U is already preset for corresponding open loop controlled asynchronous motors. You can also adjust the basic behavior of the drive with a set of 30 parameters. S2U is our solution for compact and economic applications, such as pumps, fans and material handling including packaging and textile machines.

Power supply & Power range

- S2U230S: 0.2 - 2.2 kW / single-phase 200 - 240V (+10%-15%) / 50 or 60 Hz

Motor control

(open loop):

- Asynchronous AC motors

Mounting options

- Cabinet mounting for all sizes
- Optional DIN rail mounting frame size 1 & 2

Overload capacity

- up to 150% for 60 seconds

Key features

- Sensorless control of asynchronous motors
- Modbus onboard
- Reference speed via analogue inputs or integrated potentiometer
- Small amount of parameters for simple setup or optional advanced and more flexible parameter setup
- Power failure control
- Output frequency 0...650 Hz
- Diagnostics and setup via integrated keypad and integrated service interface for PC connection

Options

- Optional accessories, such as mains chokes, mains filters
- Optional PC connection set

Enclosure

- IP20 (EN 60529)

Basic Frequency Inverter IP66



S2U IP66 Series

The S2U IP66 frequency inverter series is available in three mechanical sizes, ranging from 0.40 kW to 18.5 kW. S2U is already preset for corresponding open loop controlled asynchronous motors. S2U IP66 is our compact, robust and economic solution for applications operating in harsh environments, such as pumps, fans and conveyor belts. S2U IP66 frequency inverter, with a simple change of the advanced parameter settings, is also suitable for packaging, textile, material processing, woodworking and food & beverage applications. The heat sink function is specifically designed for extreme environmental conditions such as dust, humidity, and cleaning chemicals.

Power supply & Power range

- S2U230T-..(F) IP66: 0.4 - 2.2 kW / single-phase 200 - 240V (+10%-15%) / 50 or 60 Hz
- S2U400T-..F IP66: 0.75 - 18.5 kW / three-phase 380 - 480V (+10%-15%) / 50 or 60 Hz

Motor control

(open loop):

- Asynchronous AC motors

Mounting options

- Cabinet or field mounting for all sizes

Overload capacity

- up to 150% for 60 seconds

Key features

- Solution for harsh environments
- Sensorless control of asynchronous motors
- Integrated brake chopper
- Fire override mode selectable via parameter setup
- Reference speed via analogue inputs or integrated potentiometer
- Modbus onboard
- Small amount of parameters for simple setup or optional advanced and more flexible parameter setup
- Integrated PLC function with Ladder programming
- Output frequency 0...599 Hz
- Diagnostics and setup via integrated keypad and integrated service interface for PC connection

Options

- Optional accessories, such as brake resistor, mains chokes, mains filters
- Optional PC connection set

Enclosure

- IP66 (EN 60529)

Regenerative Units



Regenerative drive



AEC Series

Decades of experience in electronic industrial drives and renewable energy have enabled Bonfiglioli to offer an effective solution for recovering braking energy. This solution comes as the new Active Regenerative System inverters (AEC). In a large number of electrically controlled industrial applications, inertia in moving mechanisms can drive electric motors acting as brakes. They convert kinetic energy into electrical energy. In regenerative processes, this energy is returned to the grid.

Power range

- 9.7 ... 173.2 kVA
3-phase 320V ... 440V
45Hz ... 66Hz

Overload capacity

- 150% for 1 min

Enclosure

- IP20 (EN 60529)

Main hardware features

- DC link connection
- Adjustable input and regenerative power control
- Short-circuit and earth-fault resistance
- Configurable control terminals

Bus communication

- RS232, RS485, Profibus-DP, CANopen

Operating panel

- Removable KP500 keypad

PC software

- VPlus for Windows operating systems

Software features

- Adjustable displacement factor (sinusoidal)
- Harmonic distortion factor <3% (sinusoidal)
- Adjustable DC link voltage (sinusoidal)
- Power factor ~0.9 (square wave)
- Automatic network synchronization
- Operation independent of phase sequence
- Performance and load characteristics curve

Hardware features

- Integrated dynamic braking module
- DC link connection
- Plug-in and programmable control terminals
- 6 digital inputs, 1 multifunction input
- 1 digital output, 1 multifunction output, 1 relay output (changeover contact)

Key features

- Input and regenerative power with sinusoidal current
- Regenerative power with square-wave current

Precision Planetary Gearboxes

(P) Performance line

(E) Effective line



Precision planetary inline gearboxes

(P)



TQ Series

The TQ precision planetary gearbox features a higher positioning. Whether torque, robustness or precision are a requirement, this top class product scores in every category. TQ is particularly suited for the highly demanding requirements of servo systems, such as fast dynamics and frequent reverse motion, precise position and motion control, high numbers of start/stops, and high compactness level. This gearbox's technical design allows high axial and radial loads on the output shaft and very quiet operation. The main sectors the new TQ serves are: industrial automation systems, robotics, machine tools, packaging machines, or other applications requiring high performance servo drive systems.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 16 ... 100

Degree of protection

- IP65

Backlash

- 1 stage: less than 2 arcmin
- 2 stages: less than 3 arcmin

Max radial force

- 1,850 ... 15,000 N

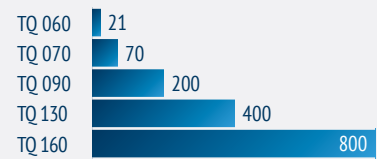
Input speed

- Up to 6,000 min⁻¹

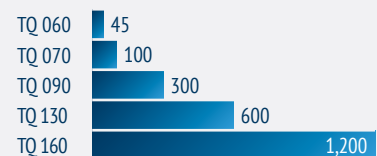
Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Quiet operation
- Universal design allows any mounting orientation

Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary right angle gearboxes

(P)



TQK Series

The TQK precision planetary gearbox features a higher positioning. Whether torque, robustness or precision are a requirement, this top class product scores in every category and represents the solution for the issues of space often posed by increasing machine compactness. TQK is particularly suited for the highly demanding requirements of servo systems, such as fast dynamic response, frequent reverse motion, precise position and motion control, high number of starts/stops, and high compactness level. This gearbox's technical design also allows high axial and radial loads on the output shaft and very quiet operation.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 16 ... 100

Degree of protection

- IP65

Backlash

- 2 stages: less than 4 arcmin
- 3 stages: less than 6 arcmin

Max radial force

- 1,850 ... 15,000 N

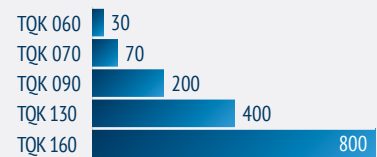
Input speed

- Up to 6,000 min⁻¹

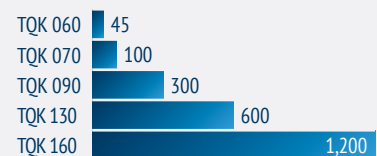
Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Quiet operation
- Universal design allows any mounting orientation

Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary inline gearboxes

(P)



TQF Series

This planetary gearbox is particularly well-suited to high positioning accuracy, dynamics and compact solutions for motion control, automation, and robotics. Highest torsional stiffness, reduced backlash, highest tilting moment, highest overload and compactness are the main characteristics of this excellent product. Typical applications for TQF reducers include: precision rotary axis drives, traveling gantries & columns and material handling axis drives.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 16 ... 100

Degree of protection

- IP65

Backlash

- 1 stage: less than 3 arcmin
- 2 stages: less than 5 arcmin

Max radial force

- 2,400 ... 29,000 N

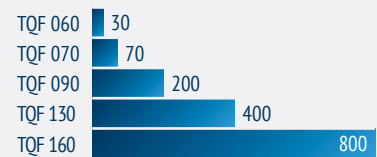
Input speed

- Up to 6,000 min⁻¹

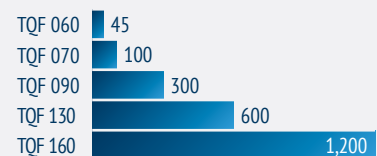
Key features

- High torsional stiffness
- High tilting moment
- Reduced backlash
- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Quiet operation
- Universal design allows any mounting orientation

Nominal torque (Nm)

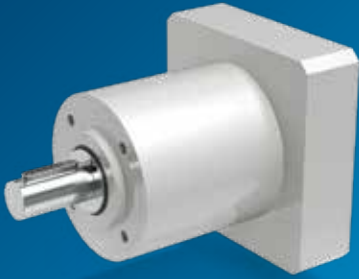


Acceleration torque (Nm)



Precision planetary in-line & right angle gearboxes

(P)



TR Series

TR precision planetary gearboxes are the benchmark for optimal performance and top reliability. Very low backlash, smooth operation, easy motor assembly and numerous product configurations as standard options are some of the many outstanding features of the TR precision planetary gearbox series. This versatile series has multiple configurations available: free input shaft, right angle in input, right angle in output.

Gear ratios

- 3 ... 1000

Degree of protection

- IP65

Backlash

- 1 stage: less than 3 arcmin
- 2 stages: less than 3 arcmin
- 3 stages: less than 3 arcmin
- 4 stages: less than 5 arcmin

Max radial force

- 500 ... 14,000 N

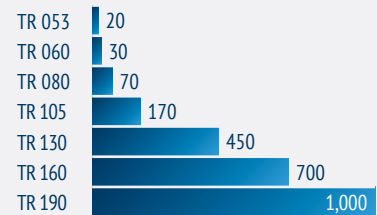
Input speed

- Up to 6,000 min⁻¹

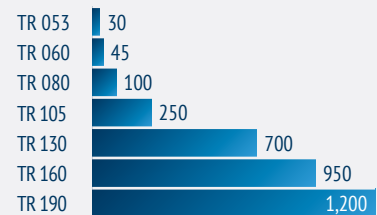
Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Option for food grade oil
- Quiet operation

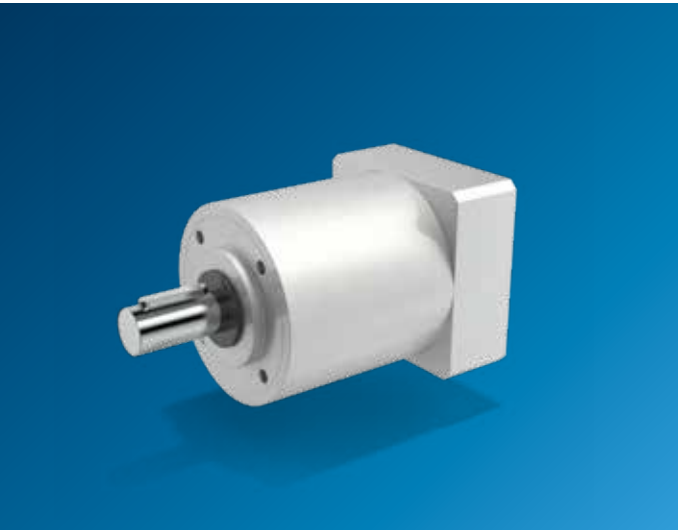
Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary in-line & right angle gearboxes



MP Series

MP precision planetary gearboxes are the benchmark for optimal performance and top reliability. Reduced backlash, smooth operation, easy motor assembly and numerous product configurations as standard options are some of the many outstanding features of the MP planetary precision gearbox series. This versatile series has multiple configurations available: free input shaft, right angle in input, right angle in output.

Gear ratios

- 3 ... 1000

Degree of protection

- IP65

Backlash

- 1 stage: less than 10 arcmin
- 2 stages: less than 10 arcmin
- 3 stages: less than 12 arcmin
- 4 stages: less than 12 arcmin

Input speed

- Up to 6,000 min⁻¹

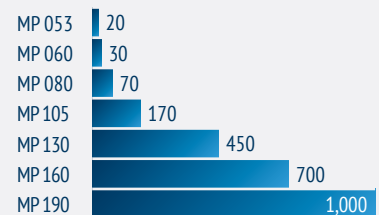
Maximum radial force

- 200 - 14000 N

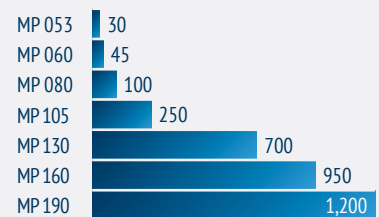
Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Quiet operation
- Universal design allows any mounting orientation

Nominal torque (Nm)

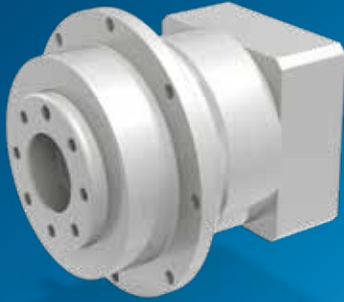


Acceleration torque (Nm)



Precision planetary inline gearboxes

(E)



TQFE Series

The TQFE series combines exceptional compactness with a standardized flange interface, ensuring a quick and easy mounting suitable for a wide variety of applications.

With TQFE it is possible to have high levels of performance and precision at an optimum value-price ratio.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 9 ... 100

Degree of protection

- IP54

Backlash

- 1 stage: less than 5 arcmin
- 2 stages: less than 7 arcmin

Max radial force

- 550 ... 2,500 N

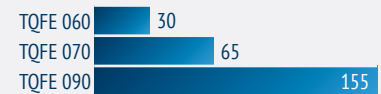
Input speed

- Up to 6,000 min⁻¹

Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Easy and quick installation
- Standardized flange for great compatibility

Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary right angle gearboxes

(E)



TQFEK Series

The TQFEK series offers optimized performance and features at an optimum value-price ratio.

Exceptionally compact and standardized flange interface combined with optimal positioning accuracy make it suitable for a wide range of industrial applications.

Its right angle-design allows more compact layouts for space-saving.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 9 ... 100

Degree of protection

- IP54

Backlash

- 1 stage: less than 7 arcmin
- 2 stages: less than 9 arcmin

Max radial force

- 550 ... 2,500 N

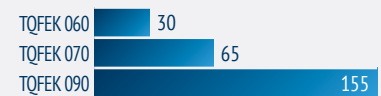
Input speed

- Up to 6,000 min⁻¹

Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Easy and quick installation
- Standardized flange for great compatibility
- Compact design for space-saving

Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary inline gearboxes

(E)



SL Series

The SL precision planetary gearbox for pulley drives has no rivals when it comes to compactness, efficiency and optimization for timed belt pulley drive systems. The enhanced performance option ensures important downsizing in many applications where a higher transmissible output torque was virtually impossible. Transmissible torque is now improved by up to 40%.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 9 ... 100

Degree of protection

- IP65

Backlash

- 1 stage: less than 6 arcmin
- 2 stages: less than 8 arcmin

Max radial force

- 6,000 ... 15,000 N

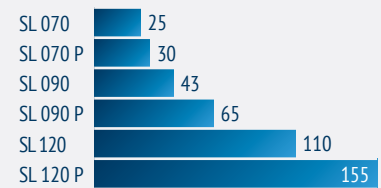
Input speed

- Up to 6,000 min⁻¹

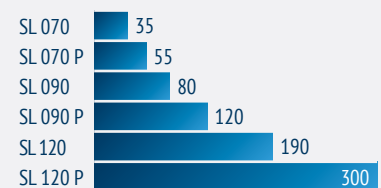
Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Universal design that allows any mounting orientation

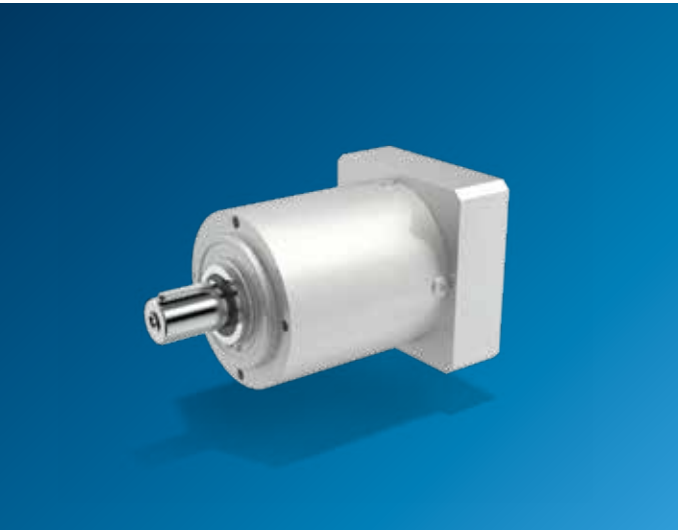
Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary inline gearboxes



LC Series

LC precision planetary gearboxes represent a flexible solution and valuable alternative with optimal performance and reliability levels. The enhanced performance option ensures important downsizing in many applications where a higher transmissible output torque was virtually impossible. Transmissible torque is now improved by up to 40%.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 16 ... 100

Degree of protection

- IP65

Backlash

- 1 stage: less than 6 arcmin
- 2 stages: less than 8 arcmin

Max radial force

- 500 ... 6,000 N

Input speed

- Up to 6,000 min⁻¹

Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Universal design that allows any mounting orientation

Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary right angle gearboxes

(E)



LCK Series

LCK precision planetary right angle gearboxes represent a flexible solution and valuable alternative with optimal performance and reliability levels. Right-angle layout is the solution to space issues often posed by increasingly compact machines. The enhanced performance option ensures important downsizing in many applications where a higher transmissible output torque was virtually impossible. Transmissible torque is now improved by up to 40%.

Gear ratios

- 2 stage: 6 ... 20
- 3 stages: 24 ... 100

Degree of protection

- IP65

Backlash

- 2 stages: less than 6 arcmin
- 3 stages: less than 8 arcmin

Max radial force

- 500 ... 6,000 N

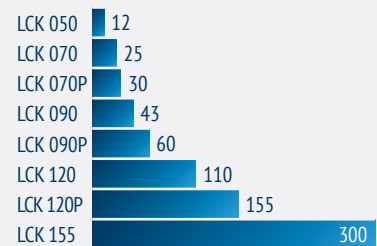
Input speed

- Up to 5,000 min⁻¹

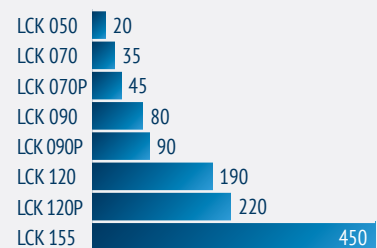
Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Optionally food grade oil
- Universal design that allows any mounting orientation

Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary inline gearboxes



MPE Series

The MPE series offers cost-effective solutions for applications that require medium levels of positioning accuracy. It offers high flexibility in terms of sizes, ratios and mounting configurations for a variety of applications requirements. The output design in line with market standards ensures great compatibility for easy retrofits and a high level of freedom in projects development.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 9 ... 100

Degree of protection

- IP54

Backlash

- 1 stage: less than 5 arcmin
- 2 stages: less than 7 arcmin

Max radial force

- 220 ... 2,000 N

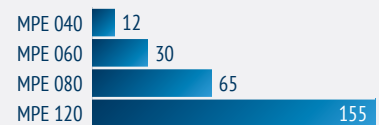
Input speed

- Up to 6,000 min⁻¹

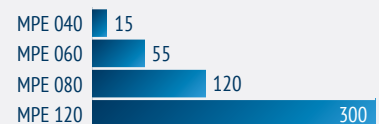
Key features

- High compatibility for easy retrofits
- Suitable for a variety of applications thanks to great flexibility

Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary right angle gearboxes

(E)



MPEK Series

The MPEK Series offers medium levels of performance and position accuracy at a competitive value-price ratio. The output design in line with market standards ensures great compatibility for easy retrofits and a high level of freedom in projects development. Its right angle-design allows more compact layouts for space-saving.

Gear ratios

- 1 stage: 3 ... 10
- 2 stages: 9 ... 100

Degree of protection

- IP54

Backlash

- 1 stage: less than 7 arcmin
- 2 stages: less than 9 arcmin

Max radial force

- 220 ... 2,000 N

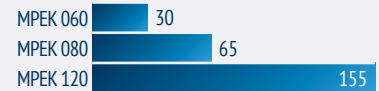
Input speed

- Up to 6,000 min⁻¹

Key features

- High compatibility for easy retrofits
- Suitable for a variety of applications thanks to great flexibility
- Compact design for space-saving

Nominal torque (Nm)



Acceleration torque (Nm)



Precision planetary right angle gearboxes



KR Series

This flexible, cost-effective series represents an alternative for applications that demand compactness and medium precision at a very competitive price. This series is very versatile and offers multiple configurations: solid/hollow shaft; single/double shaft extension; shrink disk version; flange option, etc.

Gear ratios

- 1 stage: ratio 1; 2; 5

Degree of protection

- IP65

Standard backlash

- 1 stage: less than 8 arcmin

Max radial force

- 500 ... 5,500 N

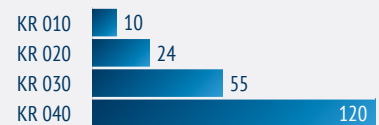
Input speed

- Up to 5,000 min⁻¹

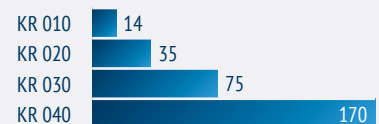
Key features

- Designed for continuous duty & cyclic operation
- Life lubricated
- Option for food grade oil
- Quiet operation

Nominal torque (Nm)



Acceleration torque (Nm)



Industrial Gearmotors





For over 60 years, we've been supporting our customers with solutions that perfectly match any industrial applications requirement. Bonfiglioli industrial gearmotors combine high efficiency, reliability, low maintenance costs and the widest torque range available on the market.

HELICAL BEVEL
GEARMOTORS & GEAR UNITS

A Series

Torque range

- 100 ... 14,000 Nm

Gear ratios

- 4.9 ... 1,715

Mechanical rating

- 0.22 ... 150 kW

IN-LINE GEARMOTORS
& GEAR UNITS

C Series

Torque range

- 45 ... 12,000 Nm

Gear ratios

- 2.6 ... 1,481

Mechanical rating

- 0.09 ... 213 kW

HELICAL PARALLEL-SHAFT
GEARMOTORS & GEAR UNITS

F Series

Torque range

- 140 ... 14,000 Nm

Gear ratios

- 6.4 ... 2,099

Mechanical rating

- 0.09 ... 123 kW

UNIVERSAL WORM
GEARMOTORS & GEAR UNITS

VF/W Series

Torque range

- 13 ... 7,100 Nm

Gear ratios

- 7 - 300 ... 2,300

Mechanical rating

- 0.04 ... 75 kW

INDUSTRIAL PLANETARY
GEARMOTORS & GEAR UNITS

300M Series

Torque range

- 1,250 ... 1,286,000 Nm

Gear ratios

- 3.4 ... 2,916

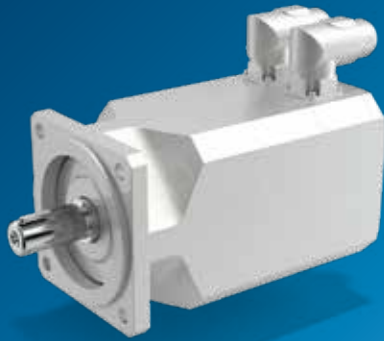
Mechanical rating

- up to 1,050 kW

**Permanent Magnet
Synchronous
& Synchronous
Reluctance Motors**



Synchronous servomotor



BMD Series

BMD servomotors are permanent magnet synchronous motors with highly compact dimensions and low inertia. They meet the most stringent demands for precision, dynamics and speed settings thanks to their high-quality neodymium iron boron rare-earth magnets and our excellent design. The motors are equipped with the latest encoder technology and are optimized for operation with frequency inverters and precision planetary gearboxes, offering an excellent synergy. More modularity is given by the many available options.

Power supply

- 230, 400 Vac

Rated speed

- 1600, 3000, 4500, 5500, 6000 rpm

Feedback

- 2-pole resolver 8kHz & 10 kHz
- Optical absolute single & multi turn EnDat encoder
- Optical single & multi-turn Hiperface encoder
- Capacitive absolute single and multi-turn Hiperface encoder

Temperature sensor

- PTC
- KTY 84-130
- PT1000

Degree of protection

- IP65
- IP67 (optional)

Inertia

- 0. 2 ... 47 (kgm² x 10⁻⁴)

Holding brake (optional)

- 24 Vdc

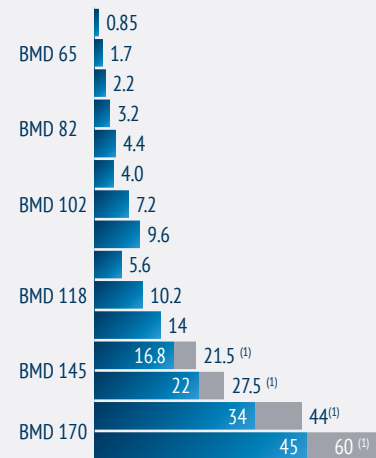
Additional flywheel (optional)

- 0. 5 ... 70 (Kgm² x 10⁻⁴)

Forced ventilation (optional)

- 24 Vdc
- 230 Vac

Torque (Nm)



(1) Motor with forced ventilation option

Synchronous servomotor



BCR Series

BCR high-performance servomotors are designed to satisfy the needs of continuous and transient high torque applications. A wide torque range and above-average instantaneous overload ratings make BCR servomotors robust enough for even the most demanding drive applications. Equipped with IP65 push-pull connectors (IP67 connectors are optional), in conformity with EMC requirements, and with a PTC temperature probe with reinforced insulation, these motors guarantee secure electrical connection under all ambient operating conditions.

Power supply

- 230, 400 Vac

Rated speed

- 2000, 3000, 4500 rpm (depending on selected torque)

Sizes

- 7 flange sizes

Feedback

- Resolver (default)
- Optional Hiperface encoder (single- or multi-turn)

Temperature sensor

- PTC included

Degree of protection

- IP65
- IP67 (optional)

Inertia

- 0.06 ...190 ($\text{kgm}^2 \times 10^{-4}$)

DC brake (optional)

- 24 Vdc

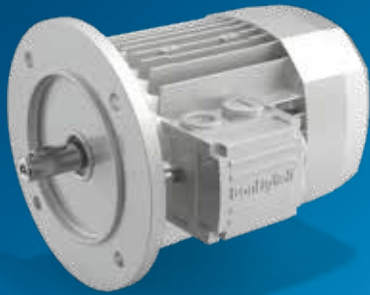
Key features

- High torque range
- Small inertia
- Resolver onboard by default

Torque (Nm)

| | |
|-----------|-------|
| BCR2 0020 | 0.2 |
| BCR2 0040 | 0.4 |
| BCR2 0060 | 0.6 |
| BCR2 0080 | 0.8 |
| BCR3 0065 | 0.65 |
| BCR3 0130 | 1.3 |
| BCR3 0250 | 2.5 |
| BCR4 0100 | 1.0 |
| BCR4 0260 | 2.6 |
| BCR4 0530 | 5.3 |
| BCR4 0750 | 7.5 |
| BCR5 0660 | 6.6 |
| BCR5 1050 | 10.5 |
| BCR5 1350 | 13.5 |
| BCR5 1700 | 17.0 |
| BCR5 2200 | 22.0 |
| BCR6 1350 | 13.5 |
| BCR6 1900 | 19.0 |
| BCR6 2200 | 22.0 |
| BCR6 2900 | 29.0 |
| BCR7 2700 | 27.0 |
| BCR7 3200 | 32.0 |
| BCR7 4000 | 40.0 |
| BCR8 0400 | 40.0 |
| BCR8 0680 | 68.0 |
| BCR8 0930 | 93.0 |
| BCR8 1150 | 115.0 |

Synchronous reluctance motors



BSR Series

The synchronous reluctance motor guarantees a sustainable energy-saving solution that decreases the overall environmental impact, thanks to the absence of magnets and increased efficiency. Reduced operating costs allow a fast return on investment. This product benefits from the proven simplicity and reliability of induction motors and the higher efficiency of synchronous motors.

Sizes

- High efficiency package
71C ... 132 MB
- High output package
71C ... 132 MA

Rated motor power

- High efficiency package
0.37 ... 9.2 kW
- High output package
0.55 ... 18.5 kW

Power supply

- 400 Vac

Degree of protection

- Standard IP55
- IP56 (optional)

Motor mounting

- B3; B5; B14

Thermal protection

- Silicon sensor KTY 84-130
- Thermistor PTC 150
- Platinum sensor PT1000

Main options

- Anti-condensate heaters
- Power supply 1~230V
- Double extended shaft
- External mechanical protection
- Rotor balancing grade B

Forced ventilation

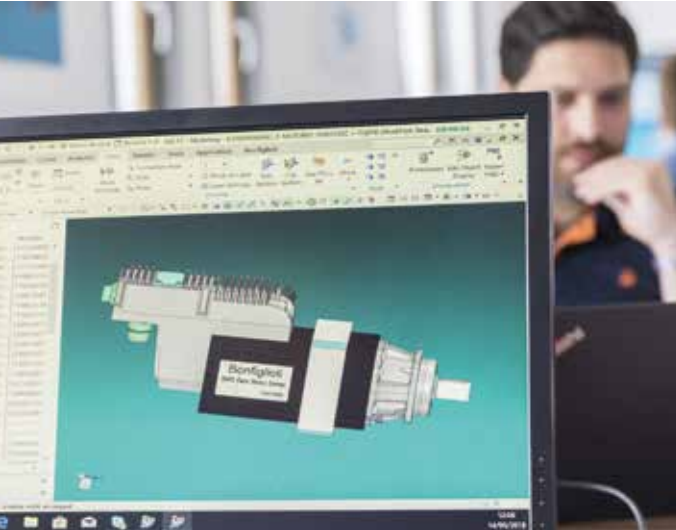
- Power supply 1 ~ 230 V (for sizes 71 to 100)
- Power supply 3 ~ 400 V (for sizes 112 to 132)

Key benefits

- Highly accurate sensorless control technology
- Compact, economical & eco-friendly
- High dynamic response
- Energy savings
- High reliability
- High performance solution

Both Bonfiglioli packages are IES2 according to the International Efficiency of Systems (IES) classification for the drive-motor combination (IEC 61800-9-2).

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 identifies the customer's requirements. We perform a detailed analysis based on our specific know-how in the various fields of application.

Using dedicated simulation tools, we can select the right products to shorten the development time.

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



The test centers at Bonfiglioli

Bonfiglioli's test laboratories support the various phases of the product life cycle, including development, certification and the production of solutions developed and manufactured in our plants around 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 the product 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 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



With a broad and extensive presence in 22 countries and 5 continents, Bonfiglioli is one of the international market leaders. Our organization makes the most of geographic proximity to offer complete solutions combining efficiency and competence.



3700
EMPLOYEES



20
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 20 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.



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Australia

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Tel. +84 650 3577411



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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Bologna (Italy)
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