

Solutions for Mining Industry

Mining



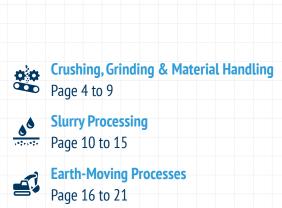




Mining Industry







The broadest range of solutions for the Mining Industry

Thanks to decades of experience in developing customized solutions for the most demanding mining applications around the world, Bonfiglioli is able to offer its customers a wide, complete and adapted range of solutions.

From crushing to slurry processes to earth moving applications, our team of experts is designing and creating integrated solutions that perfectly match the harsh and dusty environments typical of mining applications.

Bonfiglioli final drive, gearbox, geared motor or motion and control solutions are recognized on the market by worldwide leading players, with whom we've been working for decades. Today, our range of products is one of the broadest available in the world, with torque values from 13 Nm to 3,000,000 Nm.

Products for all types of mining equipment:

- Hydraulic shovel excavators
- Electric or hybrid rope shovel excavators
- Bucket wheel excavators
- Dump trucks with diesel-electric driveline
- Crushers and screeners
- Mining stackers

- Belt wagon:
- Conveyors Systems & belt drives
- Conveyors Systems & mobile transfer drives
- Blast hole drills
- Surface miners
- Underground mining equipment



Bonfiglioli also provides solutions for:



EARTH-MOVING MACHINES



MARINE & OFFSHORE



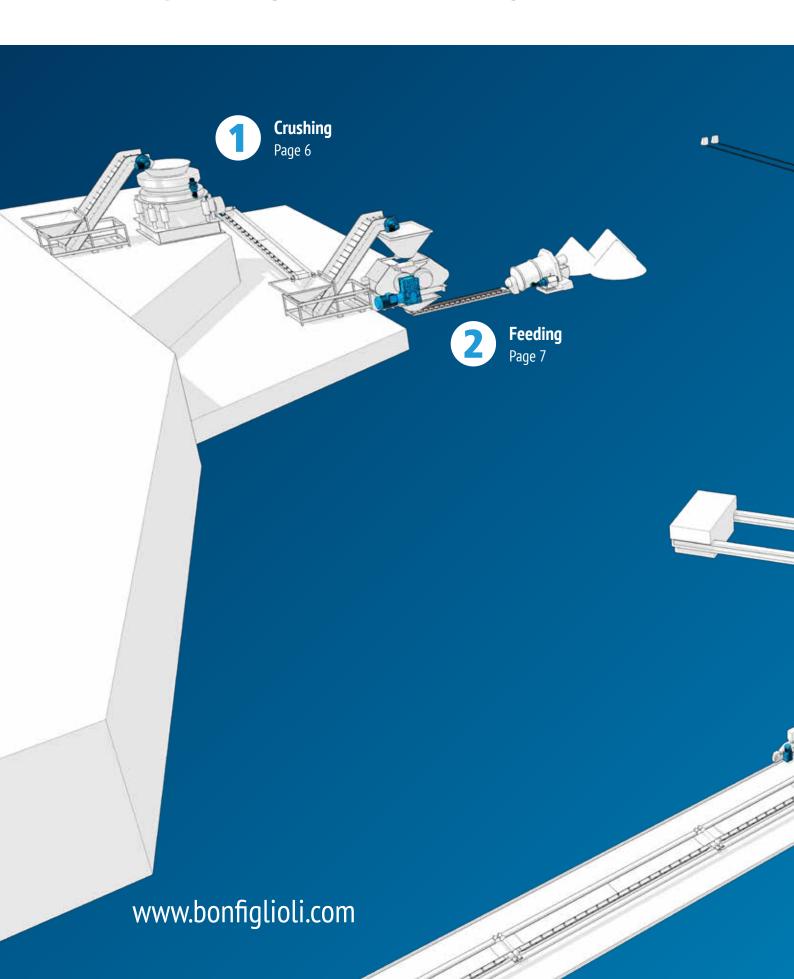
WATER TREATMENT

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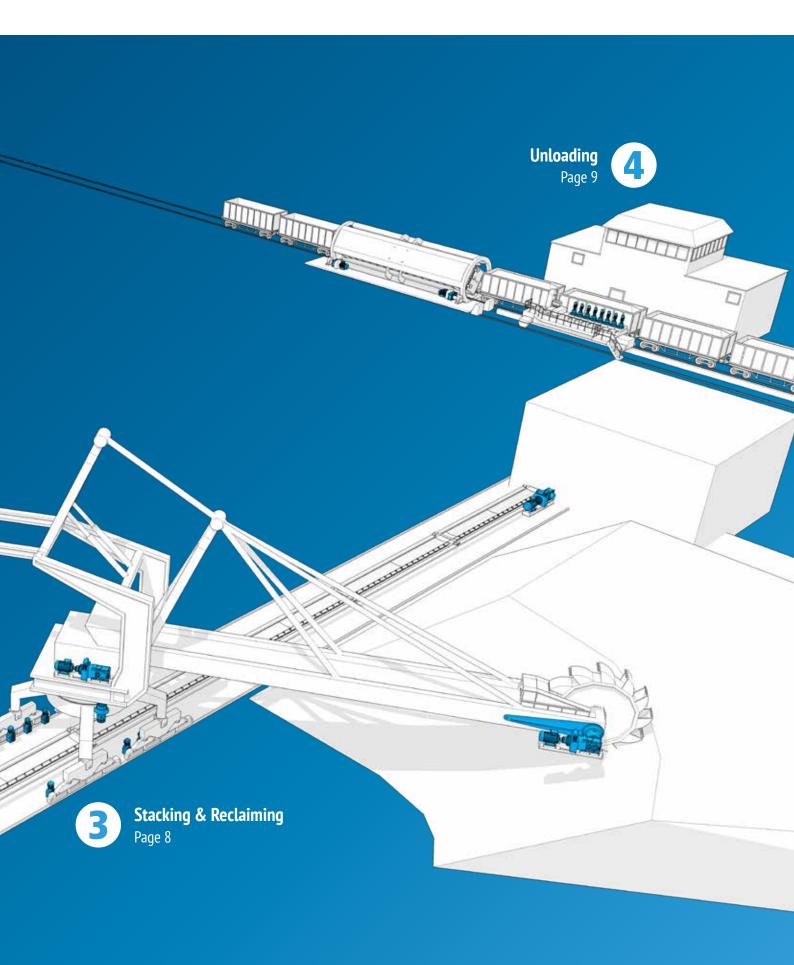




Crushing, Grinding & Material Handling







Crushing, Grinding & Material Handling



CrushingCrushing & grinding solutions

1

Crushing is a crucial process in the mineral industry, so reliability of the products for these applications must be extremely high to ensure process continuity. Bonfiglioli solutions for crushers are extremely robust and manufactured to the highest quality criteria. Our heavy-duty products for these applications can operate 24/7/365 and ensure maximum operational time. Furthermore, our solution can be customized with torque arms adapted to the machine design and completed with highly corrosion-resistant paints and seals for mining environments.

Main drive

HDO/HDP Series

Heavy duty gearbox and geared motor

Benefit

- Compact layout solution
- Easy gearbox installation (shaft mounting option)
- Highly transmissible power
- · Cooling-system free
- Wide range of temperature & working condition

Features

- 14 gearbox sizes
- Modular design
- Torque up to 210,000 Nm



Standard gearboxes and geared motors features for mining applications:





Feeding

Feeder & conveyor solutions

2

Bonfiglioli is an expert on issues related to these applications: the high breaking torque required at startup, the high load shocks caused by material drops and the dusty environments in mines are only a few of the challenges that our products can successfully overcome. We can provide complete solutions for feeders and conveyors with integrated base plates and torque arms which are protected against harsh environments with special seals and paints to simplify machine design for our customers.

Main drive

HDO Series

Heavy duty gearbox and geared motor (Bevel-Helical)

Benefits

- One-stop-shop for a complete drive solution
- E-motor alignment free solution & free base frame
- Reliable, free maintenance and integrated cooling system
- Extended lifetime & reliability
- Highly transmissible power

Features

- Extended bearing lifetime
- Torque range up to 210,000 Nm
- Strengthened E-motor input flange with integrated fan and coupling
- Wide range of options
- Integrated forced oil lubrication option
- Torque arm, coupling, brake, motor

Standard gearboxes and geared motors features for mining applications:

Taconite seals, C4 or C5 surface protection according to ISO 12944-2, oil heaters, greasers and sensors, heavy duty oil breather, IP56 degree of protection, thermal protective devices (thermistors and thermostats), anti-condensate heaters, tropicalized windings.

Inverters Active Cube Series

Premium Inverter

Benefits

- High power density
- Water cooling provides increased life-time application
- Cost-effective solution

- Energy saving functions
- Motor temperature monitoring
- Ready for liquid cooling option



Crushing, Grinding & Material Handling



Stacking & reclaimingStacker / reclaimer solutions

3

Multi-functional machines, such as stackers/reclaimers, store and gather material in large mining processes.

Bonfiglioli can provide solutions for all stacker/reclaimer drives. The products we supply are tailored to match the specific requirements of each machine drive: different brakes, forced lubrication, integrated base plates, cooling fans and oil expansion tanks are just a few examples of how we can meet our customers' needs. Finally, all the solutions can be further customized with a set of features specifically developed to resist the harsh mining environment.

Slew drive 300M Series

Planetary gearbox and geared motor

Benefits

- Hydraulic or electric motor input solution
- Integration with negative brake
- High overload capacity
- Torque control
- Easy installation

Features

- Reinforced bearing output shaft
- Eccentric mounting flange option for pinion /girth gear adjustment
- Shock load up to 2,000,000 Nm
- Encoder and integrated load cell
- · Base frame, coupling, brake, motor
- Oil expansion tank & oil level switch

Bucket wheel drive 3/H Series Gearbox and geared motor

Benefits

- One-stop shop for a complete drive solution
- Extended oil service interval
- Maintenance free cooling device solution
- High overload capacity
- Highly transmissible torque and power

Features

- Modular design
- Shock load up to 2,000,000 Nm
- Increased bearing load capability
- Wide range of options
- Integrated forced oil lubrication
- Torque arm, base frame, coupling, brake, motor

Track drive **FP Series**

Output torque

• 100 ... 1,100 kNm

Gear ratios

• 248 ... 825

Benefits

- Compact design
- High torque & load capacity
- Available with failsafe parking brake and for most cartridge type fixed or variable.

Features

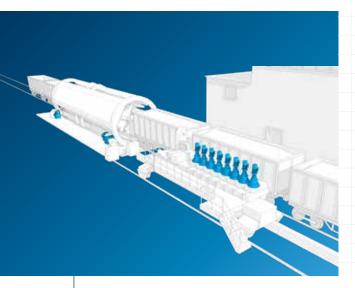
- Rotating housing
- Rugged design
- Mechanical lifetime seals
- 3-7 Planetary wheels per stage
- Notchless ground tooth root
- Different ratios
- Integrated disc-brake





Standard gearboxes and geared motors features for mining applications:





UnloadingCar dumper solutions



Unloading procedures in a mining plant are usually done by a train positioner coupled with a wagon tippler.

Bonfiglioli solutions for train positioners have customized gearmotors adapted to the machine design. Furthermore, the products we use in these applications feature special seals.

Wagon trippler:

Wagon tripplers rotate train cars together with the rail section beneath them to unload the material.

Train positioner drive **300M Series**

Planetary gearbox and geared motor

Benefits

- Highly transmissible torque and power
- Compact design
- Cooling-system free
- Integrated brake solution
- Wide range of temperature & working condition

Features

- New e-motor flange with integrated fan
- Increased bearing load capability
- Dedicated design for disk brake integration
- Nominal torque up to 1,300,000 Nm
- Modular design
- Oil expansion tank & oil level switch

Standard gearboxes and geared motors features for mining applications:

Taconite seals, C4 or C5 surface protection according to ISO 12944-2, oil heaters, greasers and sensors, heavy duty oil breather, IP56 degree of protection, thermal protective devices (thermistors and thermostats), anti-condensate heaters, tropicalized windings.

Inverters Active Cube Series Premium Inverter

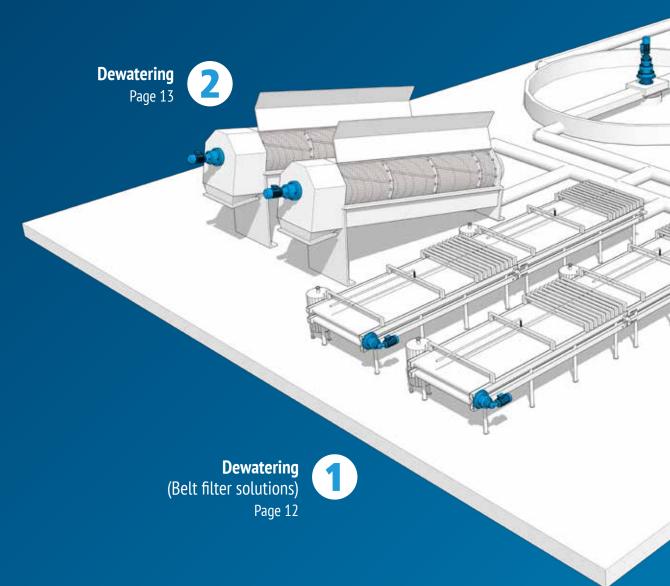
Benefits

- High power density
- Water cooling provides increased life-time application
- Cost-effective solution

- Energy saving functions
- Motor temperature monitoring
- Ready for liquid cooling option

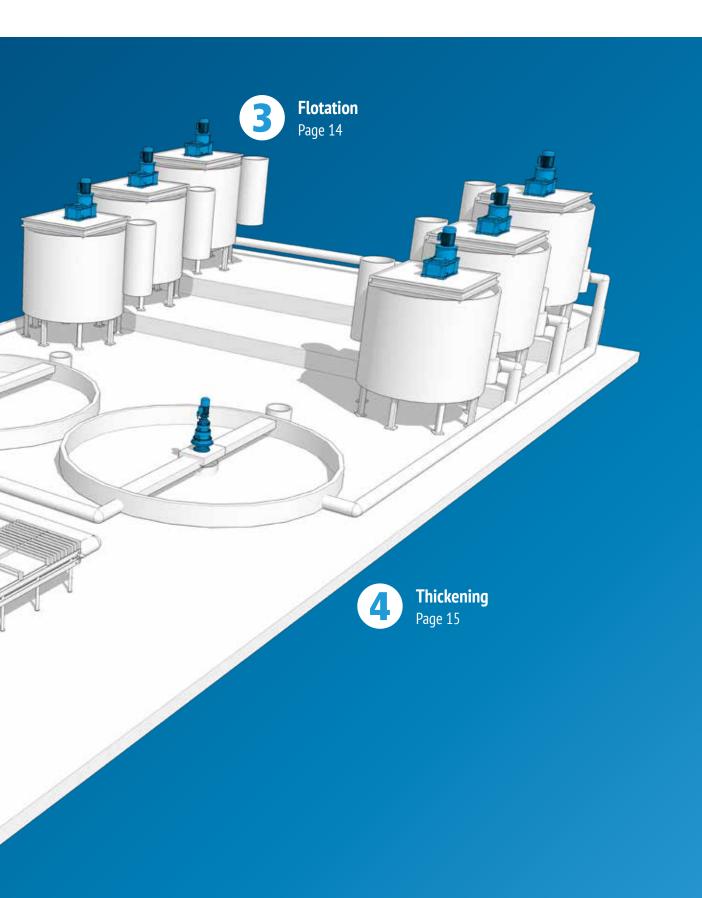


Slurry Processing

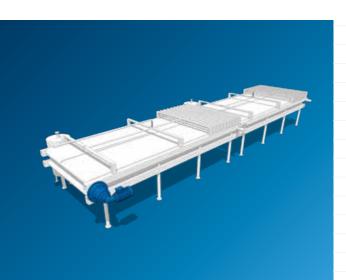


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Slurry Processing



DewateringBelt filter solutions

1

Focusing on solid/liquid separation, the belt filter presses the product with mechanical pressure to squeeze the water out of the sludge. Flexibility in layout and mounting positions as well as high resistance in harsh, dusty and ambient conditions are key features that our products can deliver.

Main drive

300M Series

Planetary gearbox and geared motor

Benefits

- One-stop-shop for a complete drive solution
- High flexibility in layout and mounting positions
- High resistance in harsh & dusty ambient conditions
- High torque density
- Wide range of working temperature working conditions

Features

- 20 gearbox sizes
- Nominal torque up to 1,300,000 Nm
- Modular design
- Increased bearing load capability
- Shaft gearbox mounting
- Torque arm



Standard gearboxes and geared motors features for mining applications:





DewateringSpiral classifier solutions

2

Spiral classifiers are designed to settle and dewater relatively coarse particles from high volume, low percent solid volume streams. Flexibility in layout and mounting positions as well as high resistance in harsh, dusty and ambient conditions are key features that our products can deliver.

Main drive

300M Series

Planetary gearbox and geared motor

Benefits

- One-stop-shop for a complete drive solution
- High flexibility in layout and mounting positions
- High resistance in harsh & dusty ambient conditions
- High torque density
- Wide range of working temperature working conditions

Features

- 20 gearbox sizes
- Nominal torque up to 1,300,000 Nm
- Modular design
- Increased bearing load capability
- Flange gearbox mounting



Standard gearboxes and geared motors features for mining applications:

Slurry Processing



Flotation

Flotation cell solutions

Flotation cells mainly consist of big tanks where an impeller keeps the water/material solution rotating at a high speed. For this application, Bonfiglioli provides helical bevel or parallel shaft gearmotors with more bearings. Output configurations are usually reinforced bearings to withstand by the machine impeller on the shaft. In some models, the machine requires injection of high-pressure air to maximize separation of the material from water.

Main drive

HDO/HDP Series

Heavy duty gearbox and geared motor

Benefit

- Air flow inlet and through hole prearrangement on output shaft
- Enhanced oil leak protection
- High radial & axial load capability on output shaft
- Extended lifetime & reliability
- Highly transmissible power

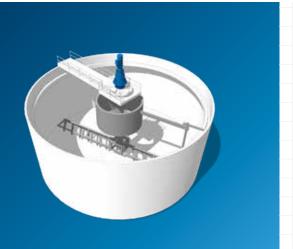
Fastures

- Reinforced bearing and extended span on output shaft
- Drywell
- Modular design
- Integrated forced oil lubrication
- Back stop device



Standard gearboxes and geared motors features for mining applications:





Thickening Thickener solutions

Separating the minerals from the water using gravity sedimentation means controlling the speed and at the same time facilitating the precise movements. For this application Bonfiglioli offers vertical linear planetary gearboxes with very high reduction ratios to obtain speeds of <1 rpm on the output shaft, with particular attention to possible torque overloads, depending on the solid material layer thickness moved by the rake.

Main drive

300M Series

Planetary gearbox and geared motor

- High shock load capability
- Extended lifetime & reliability
- Torque control

Features

- Increased bearing load capability
- Integrated load cell
- Shock load up to 2,000,000 Nm
- · Oil expansion tank & oil level switch

• Modular design

Benefits • High power density

Inverters

• Water cooling provides increased life-time application

Active Cube Series

Premium Inverter

Cost-effective solution

Features

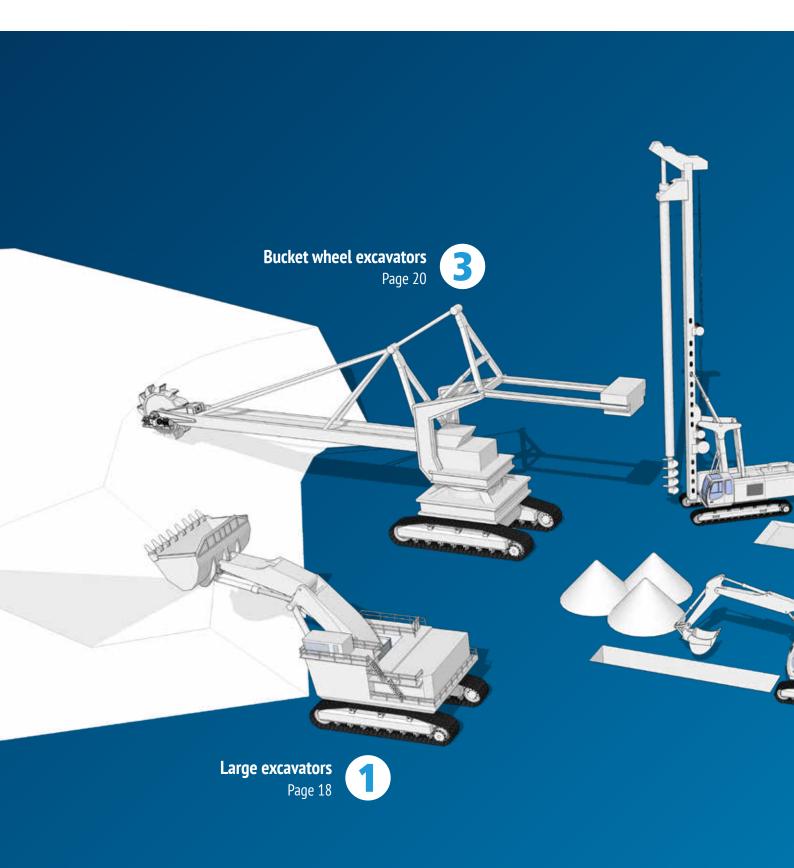
- · Energy saving functions
- Motor temperature monitoring
- Ready for liquid cooling option



Standard gearboxes and geared motors features for mining applications:

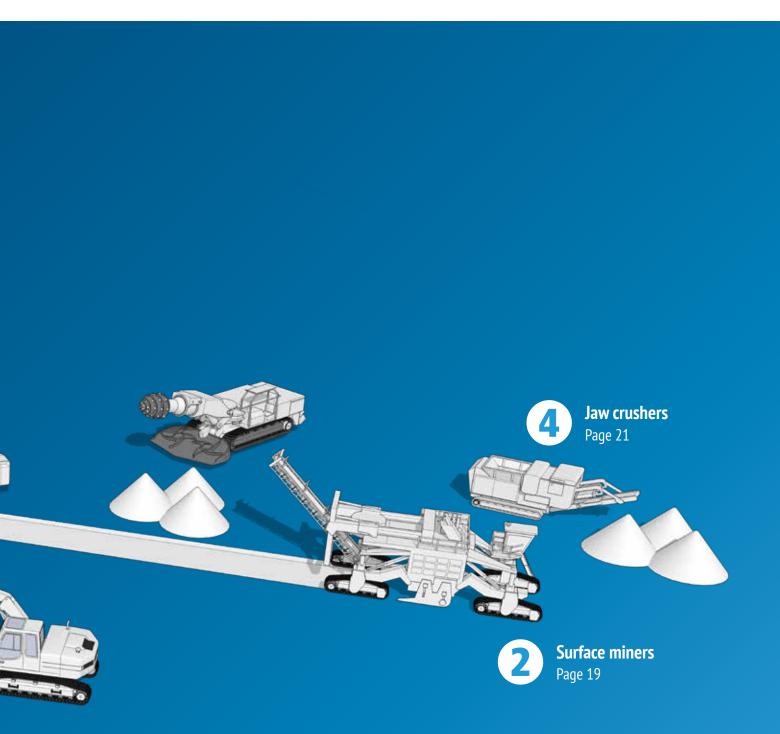


Earth-Moving Machines

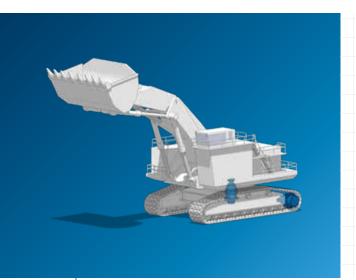


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Earth-Moving Machines



Large excavators From 150 to 1,400 tons

1

Track drives

Bonfiglioli solutions for large tracked excavators are compact yet deliver high performance. The wide variety of ratio combinations allows our solutions to offer the best possible efficiency.

Slew drives

Compactness and high performance are the two main features of Bonfiglioli solutions for large excavators' applications.

Track drives **700C Series**

Output torque

• 1 ... 625 kNm

Gear ratios

• 5.3 ... 492

Benefits

- · Power shift capability
- Compact solution
- High performance

Features

- Two gear shifting transmission
- Hydraulic controlled shifting
- Integrated parking & emergency brake
- Optional cooling flow to input stage and clutch unitWide variety of ratio
- Wide variety of ratio combinations

F Series

Output torque

• 620 ... 2,916 kNm

Gear ratios

• 249 ... 989

Benefits

- · Power shift capability
- Compact solution
- High performance

Features

- Two gear shifting transmission
- Hydraulic controlled shifting
- Integrated parking & emergency brakeOptional cooling flow to input
- stage and clutch unit

 Wide variety of ratio
- combinations

Slew drives 700T Series

Output torque

• 1 ... 80 kNm

Gear ratios

• 3.4 ... 2,000

Benefits

- Compact structure
- Suitable for various hydraulic motors
- High performance

Features

- Notchless ground tooth root
- Integrated disc-brakeHigh availability by highest
- teeth and production quality

S Series

Output torque

• 5.5 ... 130 kNm

Gear ratios

• 23 ... 67

Benefits

- Compact structure
- Suitable for various hydraulic motors
- High performance

Features Notchles

- Notchless ground tooth root
- Integrated disc-brake
- High availability by highest teeth and production quality













Surface miners From 30 to 200 tons

2

Travel drives

Bonfiglioli solutions for tracked surface miners are compact yet deliver high performance. The wide variety of ratio combinations allows our solutions to offer the best possible efficiency.

Cutter drives

Compactness and high performance are the two main features of Bonfiglioli cutter drives for surface miners. Tailored to the hardness of the material to be mined, these solutions are customized to satisfy customerspecific requirements.

Travel drives **700C Series**

Output torque

• 1 ... 625 kNm

Gear ratios

• 5.3 ... 492

Benefits

- · Power shift capability
- Compact solution
- High performance

Features

- Two gear shifting transmission
- Hydraulic controlled shifting
- Integrated parking & emergency brake
- Optional cooling flow to input stage and clutch unit
- Wide variety of ratio combinations

F Series

Output torque

• 620 ... 2,916 kNm

Gear ratios

• 249 ... 989

Benefits

- · Power shift capability
- Compact solution
- High performance

Features

- Two gear shifting transmission
- Hydraulic controlled shifting
- Integrated parking & emergency brake
- Optional cooling flow to input stage and clutch unit
- Wide variety of ratio combinations

Cutter drives **FA Series**

Max cutting torque

• 8.5 ... 32 kNm

Input power

• 80 ... 300 kW

Gear ratios

• 16 ... 26

Benefits

- Compact structure
- High performance
- High availability by highest teeth and production quality

- Notchless ground tooth root
- Different ratios
- Integrated disc-brake
- Suitable for various hydraulic motors







Earth-Moving Machines



Bucket wheel excavators Up to 240,000 m³/d

3

Track drives

Bonfiglioli solutions for bucket wheeled excavators are compact yet deliver high performance. The wide variety of ratio combinations allows our solutions to offer the best possible efficiency.

Track drives **700C Series**

Output torque

• 1 ... 625 kNm

Gear ratios

• 5.3 ... 492

Benefits

- · Power shift capability
- Compact solution
- High performance

Features

- Two gear shifting transmission
- Hydraulic controlled shifting
- Integrated parking & emergency brake
- Optional cooling flow to input stage and clutch unit
- Wide variety of ratio combinations

F Series

Output torque

• 620 ... 2,916 kNm

Gear ratios

• 249 ... 989

Benefits

- · Power shift capability
- Compact solution
- High performance

Features

- Two gear shifting transmission
- Hydraulic controlled shifting
- Integrated parking & emergency brake
- Optional cooling flow to input stage and clutch unit
 Wide variety of ratio
- Wide variety of ratio combinations

Slew drive 300M Series Planetary gearbox and geared motor

Benefits

- Hydraulic or electric motor input solution
- Integration with negative brake
- High overload capacity
- Torque control
- Easy installation

Features

- Reinforced bearing output shaft
- Eccentric mounting flange option for pinion /girth gear adjustment
 Shock load up to 2,000,000 Nm
- Encoder and integrated load cell
- Base frame, coupling, brake,
- base frame, coupling, brake, motor
 Oil expansion tank & oil level
- switch

Bucket wheel drive 3/H Series Gearbox and geared motor

Benefits

- One-stop shop for a complete drive solution
- Extended oil service interval
- Maintenance free cooling device solution
- High overload capacity
- Highly transmissible torque and power

Features Modular

- Modular design
- Shock load up to 2,000,000 Nm
- Increased bearing load capability
- Wide range of options
- Integrated forced oil lubrication
- Torque arm, base frame, coupling, brake, motor

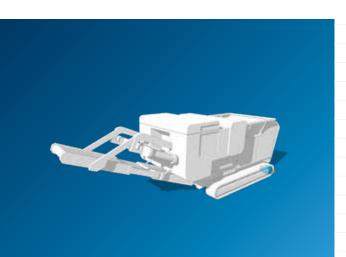












Jaw crushers From 30 to 80 tons

4

Track drives

Bonfiglioli solutions for tracked jaw crushers are compact yet deliver high performance. The wide variety of ratio combinations allows our solutions to offer the best possible efficiency.

Track drives **700C Series**

Output torque

• 1 ... 625 kNm

Gear ratios

• 5.3 ... 492

Benefits

- · Power shift capability
- Compact solution
- High performance

Features

- Two gear shifting transmission
- Hydraulic controlled shifting
- Integrated parking & emergency brake
- Optional cooling flow to input stage and clutch unit
- Wide variety of ratio combinations

F Series

Output torque

• 620 ... 2,916 kNm

Gear ratios

• 249 ... 989

Benefits

- · Power shift capability
- Compact solution
- High performance

Features

- Two gear shifting transmission
- Hydraulic controlled shifting
- Integrated parking & emergency brake
- Optional cooling flow to input stage and clutch unit
- Wide variety of ratio combinations

FP Series

Output torque

• 100 ... 1,100 kNm

Gear ratios

• 248 ... 825

Benefits

- Compact design
- High torque & load capacity
- Available with failsafe parking brake and for most cartridge type fixed or variable.

- Rotating housing
- Rugged design
- Mechanical lifetime seals
- 3-7 Planetary wheels per stage
- Notchless ground tooth root
- Different ratios
- Integrated disc-brake







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.











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 22 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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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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