

Solutions for Mining Industry

Mining



MARKETS &
APPLICATIONS





Mining Industry



Crushing, Grinding & Material Handling

Page 4 to 9



Slurry Processing

Page 10 to 15



Earth-Moving Processes

Page 16 to 21

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.

Bonfiglioli also provides solutions for:



EARTH-MOVING MACHINES



MARINE & OFFSHORE



WATER TREATMENT

www.bonfiglioli.com

Products for all types of mining equipment:

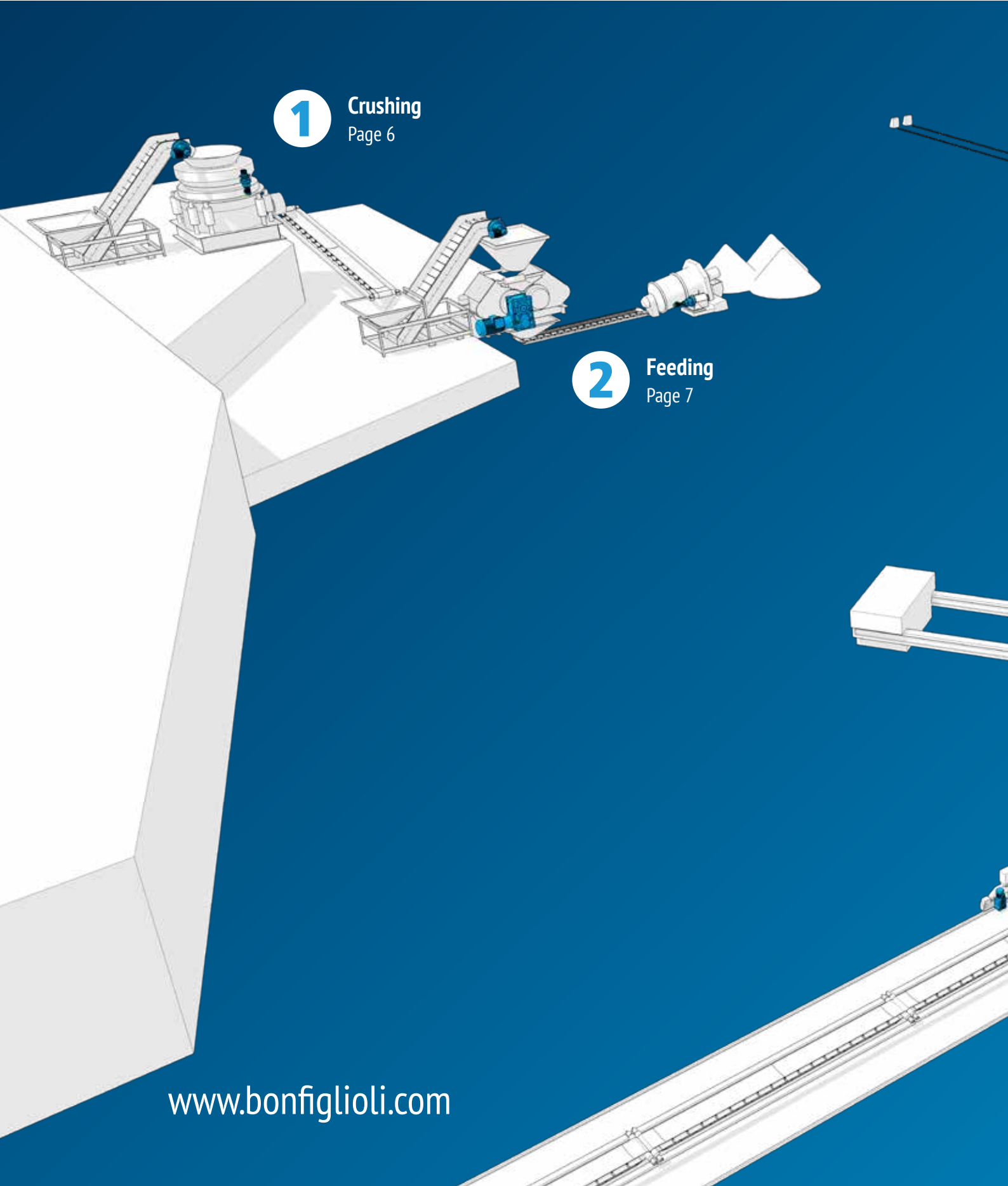
- Hydraulic shovel excavators
- Electric or hybrid rope shovel excavators
- Bucket wheel excavators
- Dump trucks with diesel-electric driveline
- Crushers and screeners
- Mining stackers
- Belt wagons
- Conveyors - Systems & belt drives
- Conveyors - Systems & mobile transfer drives
- Blast hole drills
- Surface miners
- Underground mining equipment



Crushing, Grinding & Material Handling

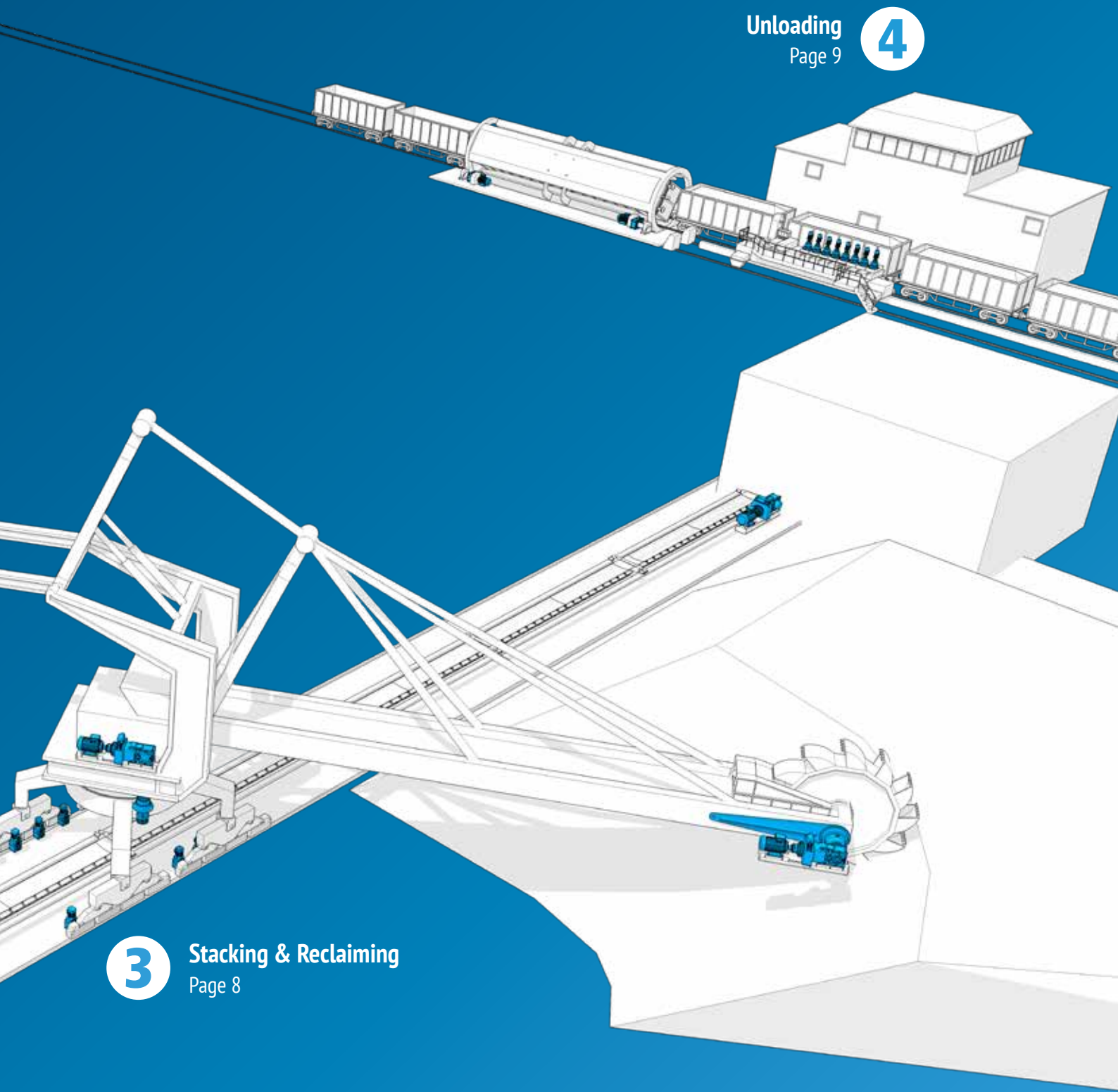
1 **Crushing**
Page 6

2 **Feeding**
Page 7



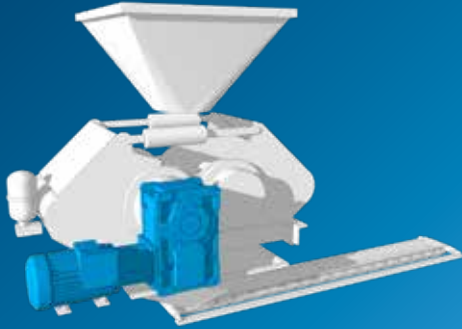


Unloading **4**
Page 9



3 Stacking & Reclaiming
Page 8

Crushing, Grinding & Material Handling



Crushing

Crushing & 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

Benefits

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

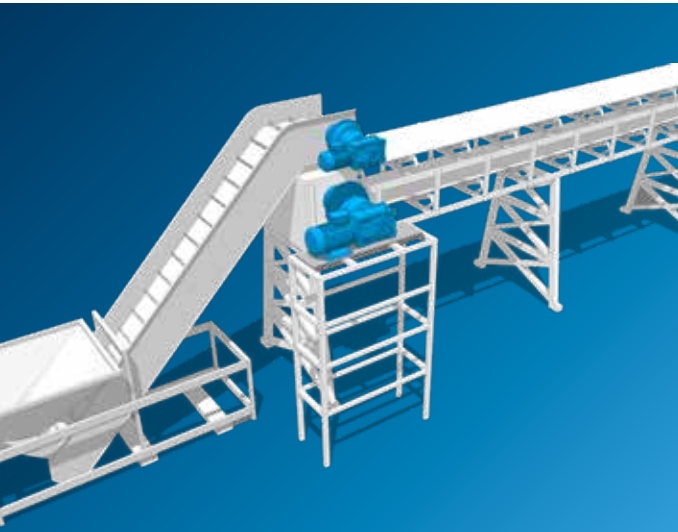
Features

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



Standard gearboxes and geared motors features for mining applications:

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.



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

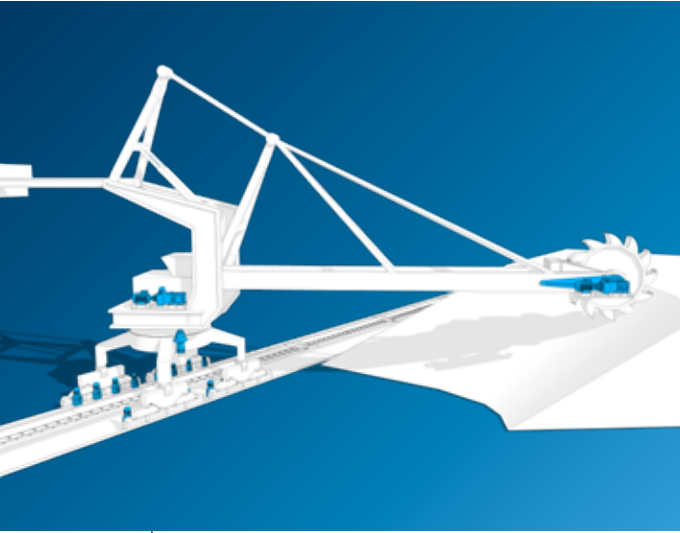
- High power density
- Water cooling provides increased life-time application
- Cost-effective solution

Features

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



Crushing, Grinding & Material Handling



Stacking & reclaiming Stacker / 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.

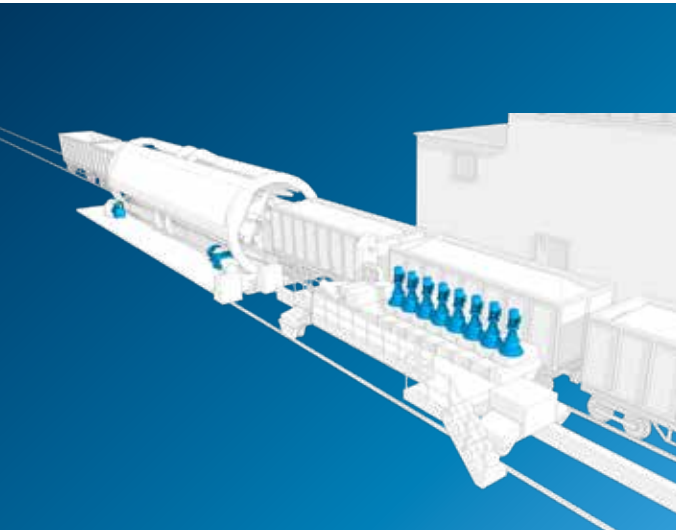
Features

- 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:

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.



Unloading Car dumper solutions

4

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 tripler:

Wagon trippers 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

Features

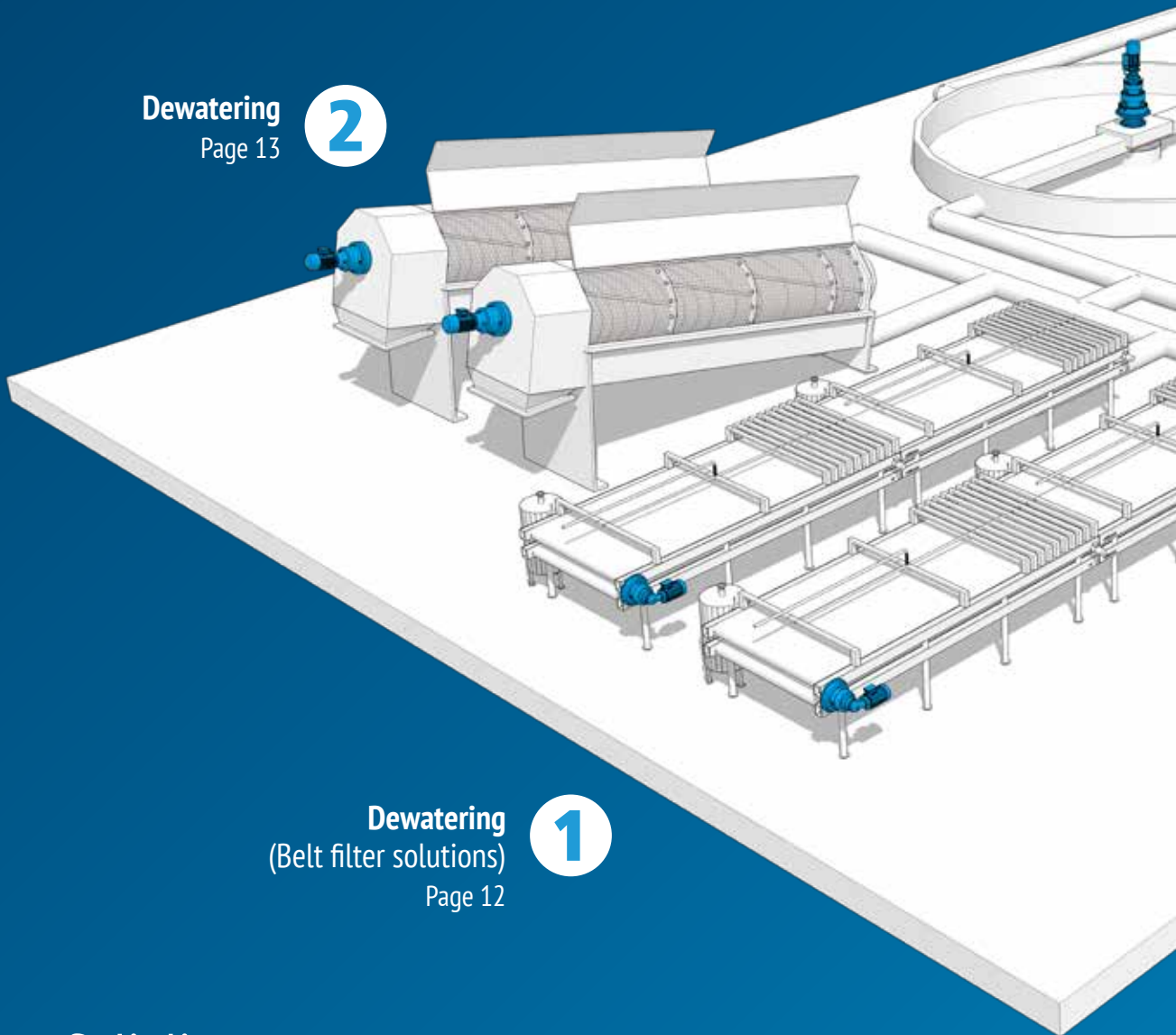
- Energy saving functions
- Motor temperature monitoring
- Ready for liquid cooling option



Slurry Processing

Dewatering
Page 13

2

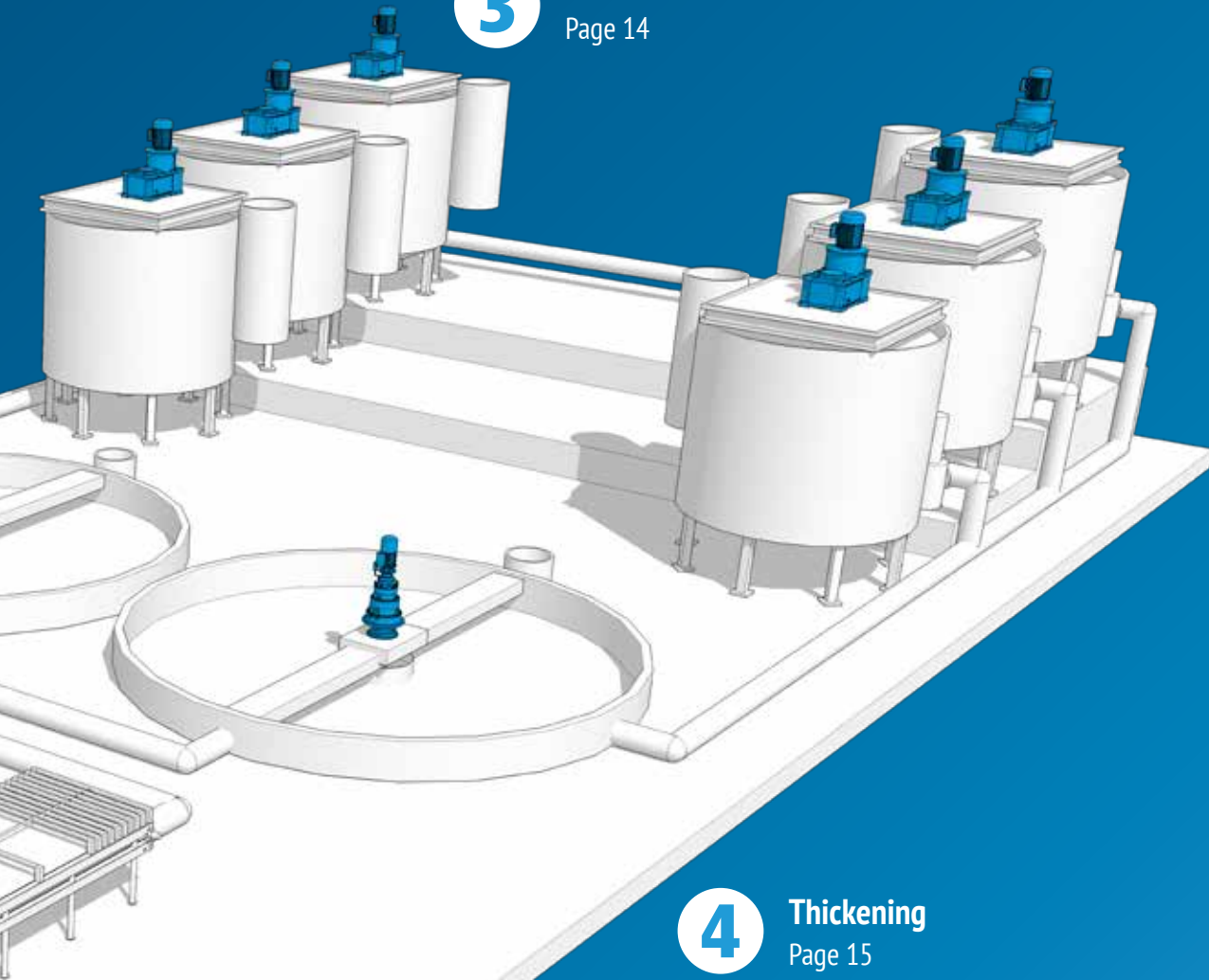


Dewatering
(Belt filter solutions)
Page 12

1

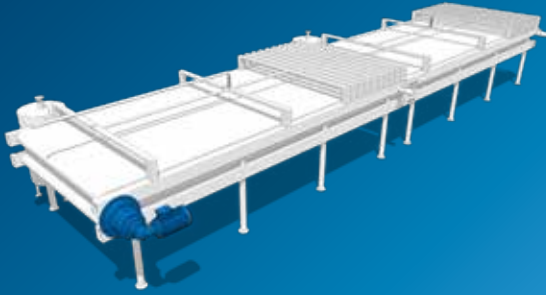


3 Flotation
Page 14



4 Thickening
Page 15

Slurry Processing



1

Dewatering Belt filter solutions

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:

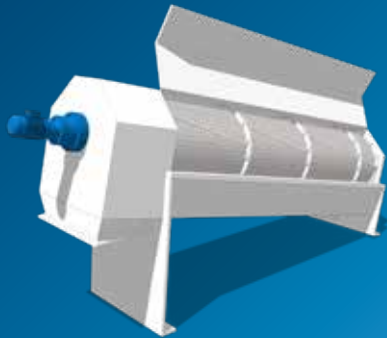
Taconite seals, C4 or C5 surface protection according to ISO 12944-2, oil heaters, greasers and sensors, heavy duty oil breather, IP56 degree of protection, thermal protective devices (thermistors and thermostats), anti-condensate heaters, tropicalized windings.



2

Dewatering Spiral classifier solutions

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:

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.

Slurry Processing



3

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

Benefits

- 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

Features

- 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:

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.

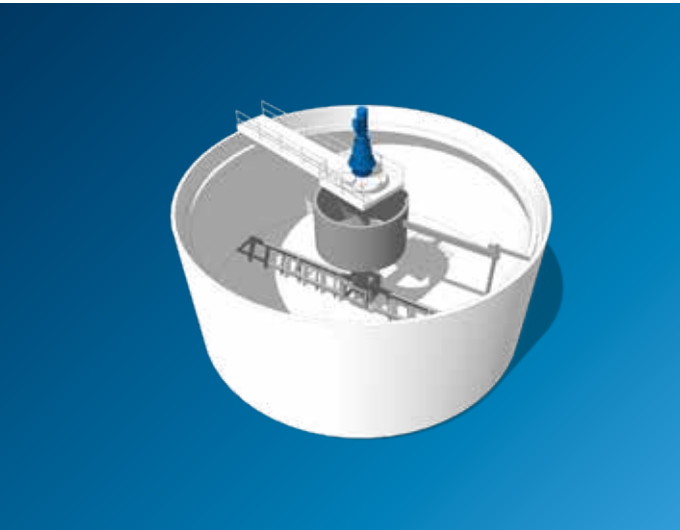


4

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

Benefits

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

Features

- Increased bearing load capability
- Integrated load cell
- Modular design
- Shock load up to 2,000,000 Nm
- 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

Features

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

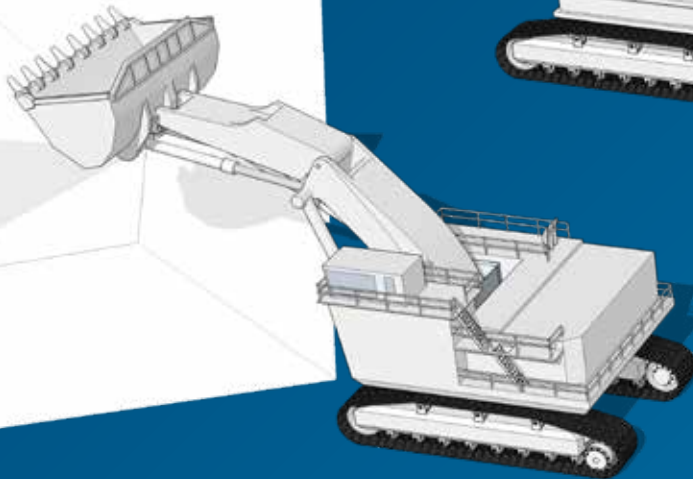
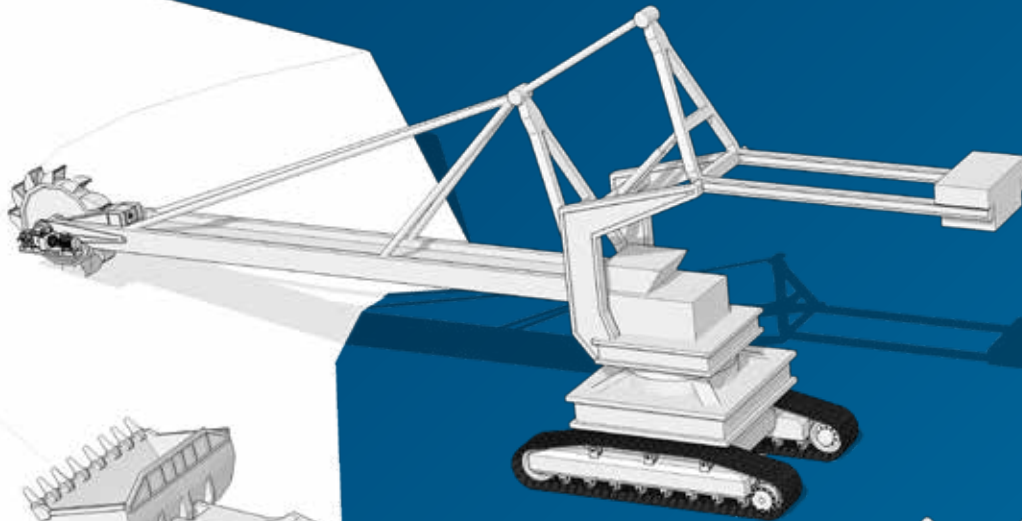


Earth-Moving Machines

Bucket wheel excavators

Page 20

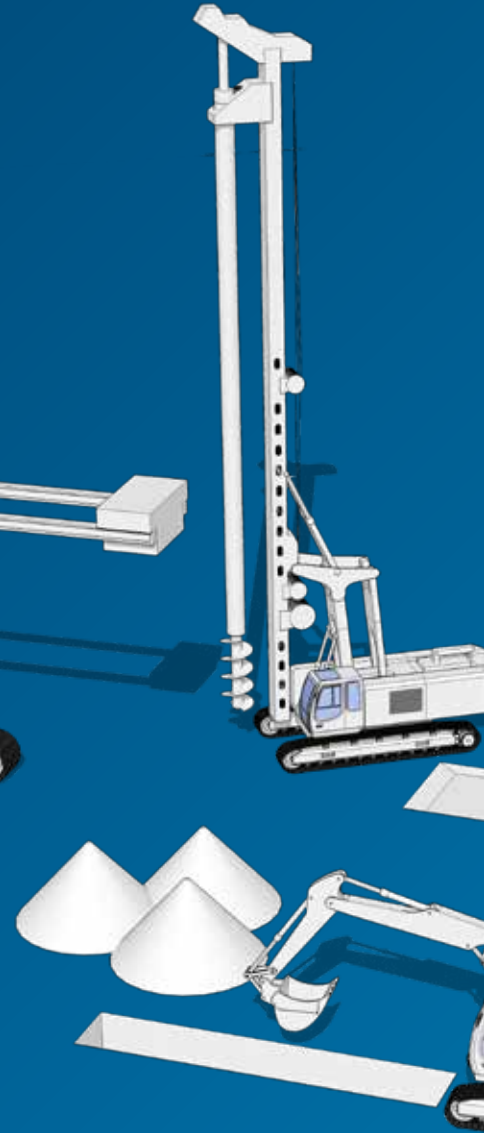
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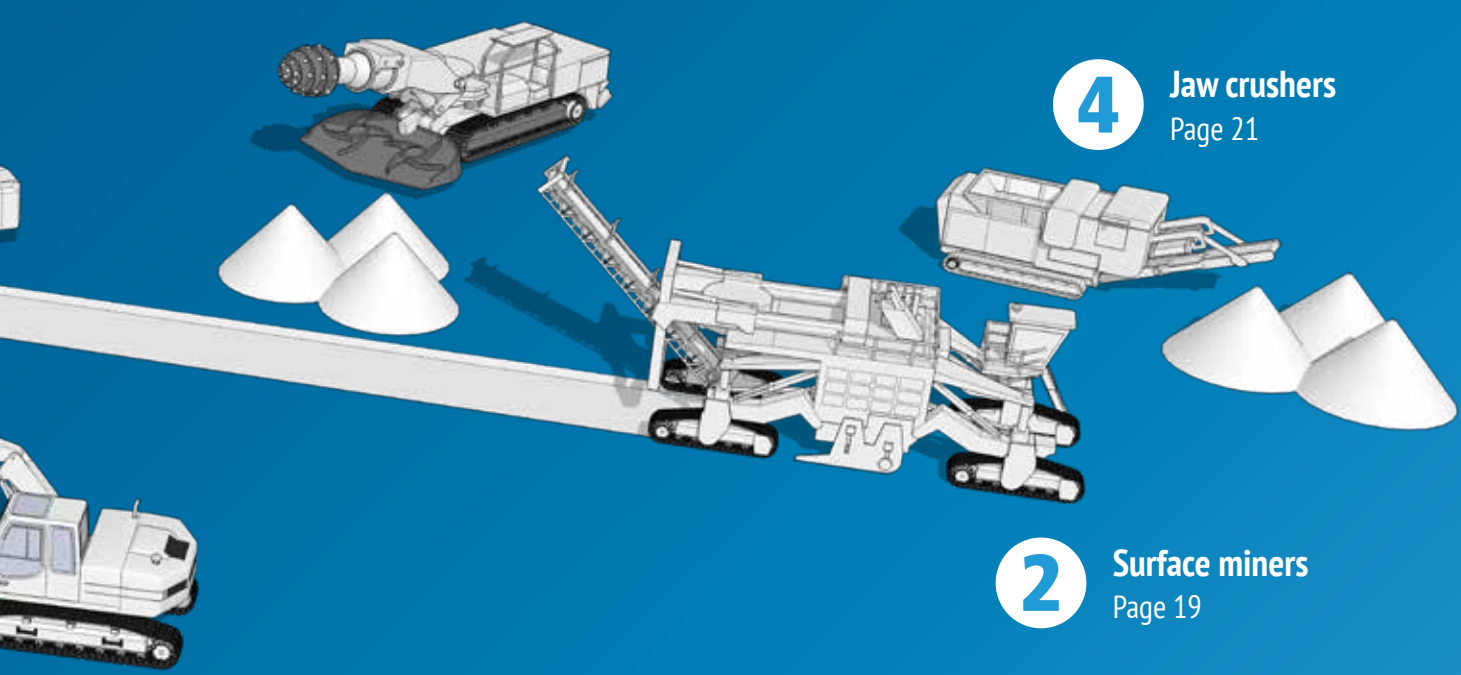


Large excavators

Page 18

1

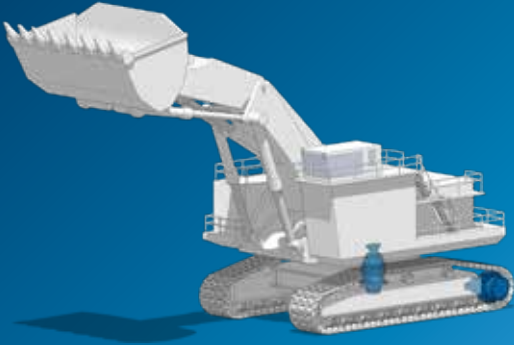




4 Jaw crushers
Page 21

2 Surface miners
Page 19

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 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

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-brake
- High availability by highest teeth and production quality

S Series

Output torque

- 5.5 ... 130 kNm

Gear ratios

- 23 ... 67

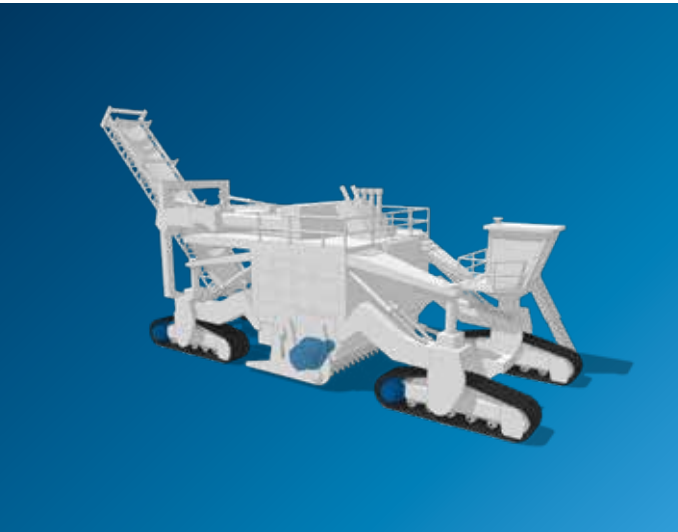
Benefits

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

Features

- 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 customer-specific 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

Features

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



Earth-Moving Machines



3

Bucket wheel excavators

Up to 240,000 m³/d

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 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, 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





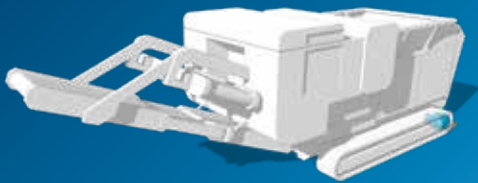
4

Jaw crushers

From 30 to 80 tons

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.

Features

- 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.



3700
EMPLOYEES



22
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 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.



Bonfiglioli Worldwide Locations

Australia

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

Brazil

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

China

www.bonfiglioli.cn
Bonfiglioli Drives (Shanghai) Co., Ltd.
#68, Hui-Lian Road, QingPu District,
201707 Shanghai
Tel. +86 21 6700 2000

France

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

Germany

www.bonfiglioli.de
Bonfiglioli Deutschland GmbH
Sperberweg 12 - 41468 Neuss
Tel. +49 0 2131 2988 0

Bonfiglioli Vectron

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

O&K Antriebstechnik

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

India

www.bonfiglioli.in
Bonfiglioli Transmissions Pvt. Ltd.
Plot No. AC7-AC11, SIDCO Industrial Estate,
Thirumudivakkam - 600 044 Chennai
Tel. +91 44 2478 1035

Industrial

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

Italy

www.bonfiglioli.it

Headquarters

Bonfiglioli Riduttori S.p.A.
Via Giovanni XXIII, 7/A - 40012 Lippo di Calderara di Reno
Tel. +39 051 647 3111

Mobile, Wind

Via Enrico Mattei, 12 Z.I. Villa Selva - 47100 Forlì
Tel. +39 0543 789111

Industrial

Via Bazzane, 33/A - 40012 Calderara di Reno
Tel. +39 051 6473111
Via Trinità, 1 - 41058 Vignola
Tel. +39 059 768511
Via Sandro Pertini lotto 7b - 20080 Carpiano
Tel. +39 02 985081

Bonfiglioli Mechatronic Research

Via F. Zeni 8 - 38068 Rovereto
Tel. +39 0464 443435/36

New Zealand

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

Singapore

www.bonfiglioli.com
24 Pioneer Crescent #02-08
West Park Bizcentral - Singapore, 628557
Tel. +65 6268 9869

Slovakia

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

South Africa

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

Spain

www.tecnotrans.bonfiglioli.com
Tecnotrans Bonfiglioli S.A.
Pol. Ind. Zona Franca, Sector C, Calle F, nº 6
08040 Barcelona
Tel. +34 93 447 84 00

Turkey

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

United Kingdom

www.bonfiglioli.co.uk
Industrial
Unit 7, Colemeadow Road
North Moons Moat - Redditch, Worcestershire B98 9PB
Tel. +44 1527 65022

Mobile, Wind

3 - 7 Grosvenor Grange, Woolston
Warrington - Cheshire WA1 4SF
Tel. +44 1925 852667

USA

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

Vietnam

www.bonfiglioli.vn
Lot C-9D-CN My Phuoc Industrial Park 3
Ben Cat - Binh Duong Province
Tel. +84 650 3577411



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HEADQUARTERS

Bonfiglioli Riduttori S.p.A.
Via Giovanni XXIII, 7/A
40012 Lippo di Calderara di Reno
Bologna (Italy)
tel: +39 051 647 3111
fax: +39 051 647 3126
bonfiglioli@bonfiglioli.com
www.bonfiglioli.com

