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girth gears  
mill drive systems  
conveyor drive systems

**The mining industry driven by David Brown**

stacker reclaimer drives  
shovel and dragline transmissions  
pinions  
winch / winder drives  
agitator drives  
pump drives  
barring drives  
service and repair



**Product catalogue**



**24hr Gearbox Emergency helpline**  
T +44 (0) 1484 465666

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Moventas approved service and repair centre

The information contained in this catalogue has been obtained through sources deemed reliable but cannot be guaranteed as to its accuracy. Any information of special interest should be obtained through independent verification and consulted with a David Brown representative.

In the interest of continuous development, David Brown reserves the right to alter designs and specifications without prior notice.

David Brown is certified to ISO9001:2008. Your David Brown representative should be consulted prior to product selection and use. 3X terms and conditions apply. Contact your local David Brown representative for details and to check eligibility.

# The mining industry driven by David Brown



David Brown offers an extensive product range to serve the mining industry, including universal standard units and specialist custom engineered gears. We can meet your needs whether that's for one gear, gearbox or drive system or thousands. David Brown is committed to being the best in the industry.

## Geared for mining excellence

- Local engineering support in the same time zone, ensuring quick turn-around
- High quality, cost effective solutions
- In-house testing capabilities
- Global network of service centres, supported by strategically placed mining manufacturing facilities
- Service and repair for all David Brown and third party gearboxes and other associated mining products

## Custom engineering capabilities

- Extensive range of geared solutions for all steps of the process, from mine to port
- Gear manufacturing and service facilities supported by a global supply chain
- Full service solutions including: engineering, design, manufacturing, service and sales
- State of the art design tools, manufacturing equipment and quality processes

Applying our expertise across the entire mining process



### Extraction

At the front end of the mining process David Brown has field proven products and experience where it counts.

#### Products

- Dredger drives
- Shovel and dragline components
- Hoist and winder components



### Bulk materials handling

The market-leading CX series is a dedicated range of conveyor drives engineered specifically for the mining industry. From individual gearboxes through to full turnkey packages, David Brown has the products and experience to give you a reliable solution for all your bulk materials handling requirements.

#### Products

- Conveyor drives
- Stacker / reclaimer drives



### Grinding

With references all over the world, David Brown can address all your gearing needs for grinding and milling applications. David Brown can supply individual components as well as fully integrated mechanical drive systems for ball, rod, roller, AG and SAG mills.

#### Products

- Girth gears
- Horizontal mill drives
- Barring drives
- Pinions
- Vertical mill drives



### Processing

David Brown's longstanding history and experience delivers the products and service support you need for all your minerals processing applications.

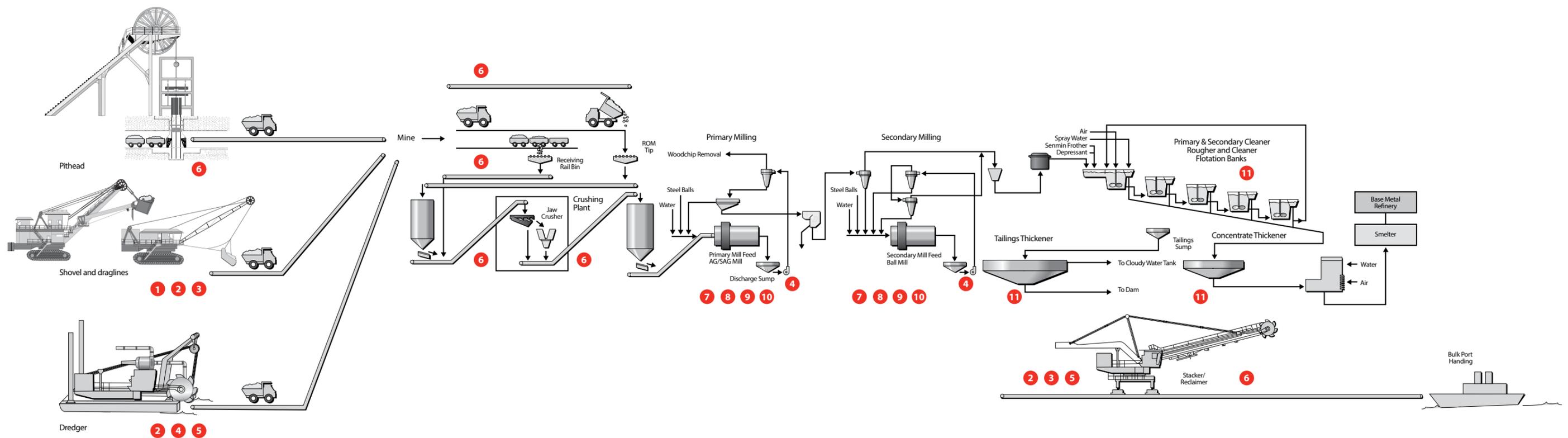
#### Products

- Mixer and agitator drives
- Pump drives

# The mining process

No-one understands the demands of the mining process better than David Brown. We see the big picture and understand that any process is only as strong as its weakest link.

David Brown is geared to deal with any challenge, at every stage of the process, anywhere in the world. Our diverse experience of mining, honed over decades of meeting complex engineering challenges in some of the world's harshest operating conditions, ensures the absolute safety and reliability you need.



- 1 Shovel and dragline transmissions and components
- 2 Hoist drives
- 3 Slew drives
- 4 Pump drives
- 5 Bucket wheel drives
- 6 Conveyor drives
- 7 Mill drives
- 8 Barring drives
- 9 Pinions
- 10 Girth gears
- 11 Agitator / mixer drives

## Proven engineering expertise

David Brown has a dedicated global team of design and application engineers, experienced in providing tailored solutions for all power transmission applications in the mining industry.

All designs are optimised using state of the art design tools and crafted using the latest manufacturing equipment.

### Housings, couplings and shafts

- Designed to be thermally efficient
- Using the latest software design tools for FEA analysis and 3D modelling

### Gear design

- David Brown designs to AS/AGMA, JIS, DIN or ISO standards
- Designed to achieve optimal gear load conditions
- Using the latest software design tools for power transmission (vibration and noise analysis)

## Assembly and load testing

All gearboxes and associated mining products follow strict quality control guidelines and review before being shipped to our customers worldwide.

Our full load testing capabilities include the measurement of temperature, vibration and noise and provision for supply of full inspection and documentation packs.

David Brown offers no-load spin testing and full scale load testing of stand alone gear units or complete drive assemblies depending on customer requirements.

Global test facilities to 3MW.

## State of the art manufacturing capabilities

David Brown has global engineering and manufacturing facilities equipped with the latest gear manufacturing equipment and machine tools.

- David Brown is fully accredited to ISO 9001
- Worldwide facilities manufacturing:
  - Girth gears to 14.4m diameter and up to 105,000kg in weight
  - Pinions tailored to suit your requirements
  - Annulus / internal ring gears up to 12m diameter
  - Induction hardening of external or internal gears to 4.5m diameter
  - Case carburising to 3m diameter and 4.5m length

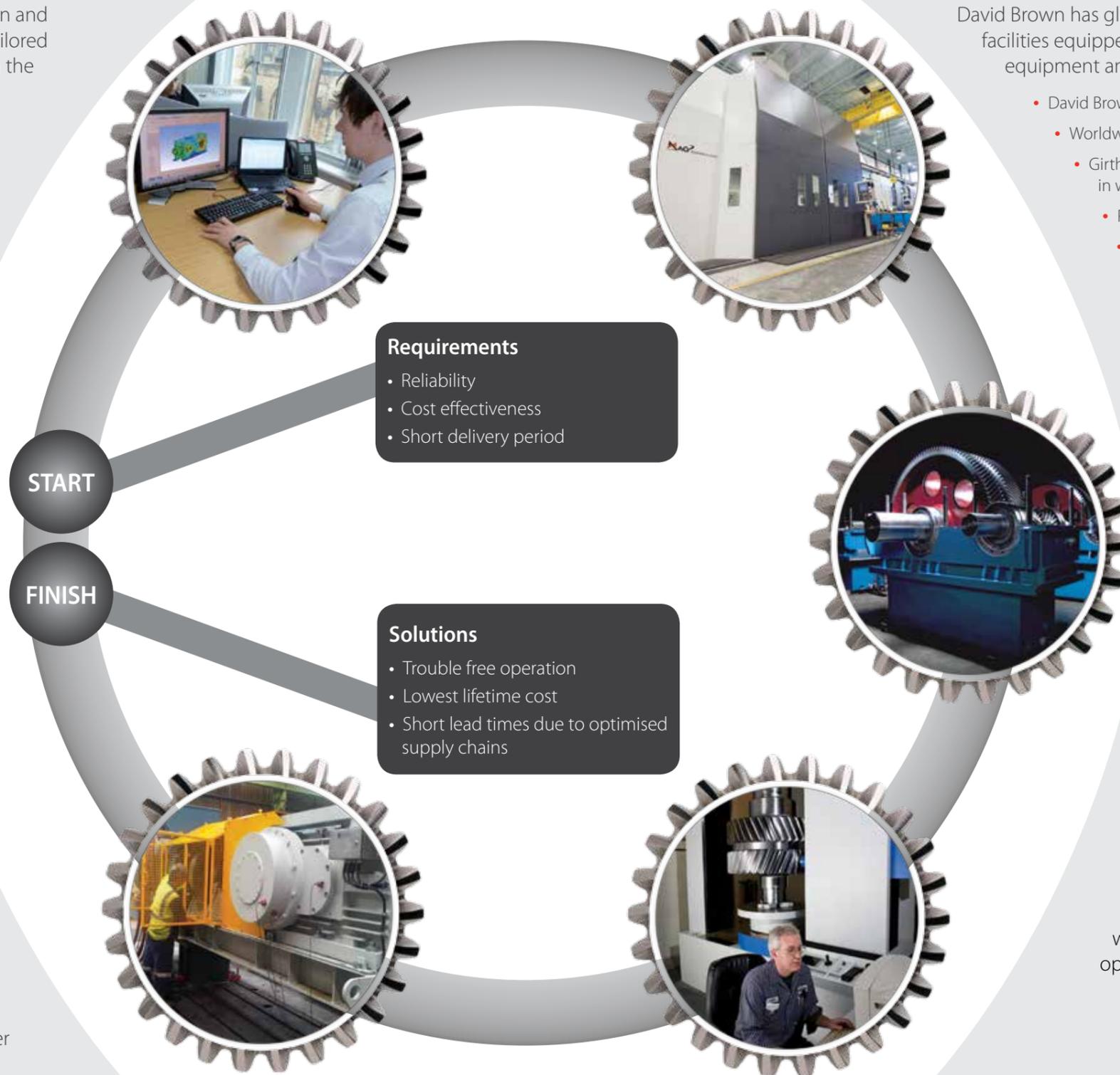
## Quality control

Equipped with the latest gear inspection equipment available.

Modern manufacturing and service facilities showcase our abilities.

David Brown utilises the latest onboard and stand alone gear measurement technology.

Inspection equipment is integrated with manufacturing processes to ensure optimum quality at minimum lead time.



With proven expertise and global capabilities,  
David Brown gives you peace of mind  
throughout the whole process



## Engineering and manufacturing capabilities

David Brown has a dedicated global team of mining design and application engineers to provide round the clock support. David Brown mining products are designed using state of the art software for gears, shafts and housings, for complete assurance.

We have skilled engineers ready to address your product needs and we can design from scratch or service and upgrade an existing product. Whether you wish to change the ratio or replace an entire gearbox, David Brown is your ultimate gearbox partner. We can evaluate your current gearbox and deliver replacements which offer higher ratings to maximise your process.

Our team of skilled professionals provide expert assistance and can work from detailed engineered drawings or from sample pieces. If required, original engineered specifications and drawings can be designed and developed.

David Brown is your complete mining gearbox provider however complex your requirements are.

## Quality and testing

David Brown utilises some of the industry's most sophisticated gear inspection machines. This ensures David Brown products are of the highest quality and robustness.

Our fully automatic CNC controlled gear measuring machines are designed for larger work piece diameters up to 3m (14m using on board measuring equipment).

These measuring machines are suitable for testing spur and helical gears as well as hobs, shaper cutters, worm gears and bevel gears. The machines are also critical to establish the exact tooth profile of the sample part and to ensure manufacturing processes are constantly checked against design intent.

David Brown offers full scale load testing of gear systems if requested by customers.

No-load spin testing and full scale load testing of stand alone gear units or complete HV drive assemblies is also available.



# Complete mining product range

David Brown supplies mining industry customers with the most innovative and cost effective engineered gear systems. Our products are renowned worldwide for their reliability in assurance critical applications, where failure means lost production and profits. Every David Brown product is engineered around you.



## Conveyor drive systems

The CX range of gearboxes has been field tested over many years operating in some of the harshest environments.



## Stacker/reclaimer drives

David Brown has a long history of manufacturing and servicing geared drives for stackers and reclaimers.

- Long travel drives
- Conveyor drives
- Bucket wheel drives



## Mill drive systems

The MDX range of mill drives is specifically designed for mill applications across a range of minerals processing applications.



## Pinions

David Brown can manufacture both integral and non-integral mill pinions, for SAG and ball mill applications and rotary kilns.



## Girth gears

Girth gears are used to drive horizontal grinding mills globally. Our girth gear products have a large global installed base with applications in the copper, gold, iron ore, cement, diamond, coal and platinum industries.



## Shovel & dragline components

David Brown can service existing or supply upgraded replacement gearboxes, pinions and rack components for shovels and draglines.



## Barring drives

These drives are traditionally a multiple reduction unit. Barring drives can be supplied as part of a package or separately as per customer requirements.



## Dredger drives

Dredger drives can be designed and supplied to suit your requirements. David Brown is committed to providing class-leading products to the global mining industry.



## Winder drives

Mine hoists and associated equipment are available in many types and sizes. David Brown can custom design to your exact specifications.



## Slew drives

David Brown has been manufacturing slew drives for a number of years. We have an enviable reputation for reliability and craftsmanship.



## Pump drives

David Brown has supplied pump drives for centrifugal and positive displacement pumps.



## Agitator drives

Mineral processing plants require special heavy duty drives. David Brown supplies application specific solutions to accommodate the high loadings encountered in vertical agitator applications.

# Conveyor drive systems



The CX series draws on David Brown's proven history in delivering highly reliable, customised gearboxes for high powered conveyors in mining and other industrial applications. The CX series offers exceptional field proven levels of performance, versatility and life expectancy - ideal for the demanding requirements of modern conveyor systems.

## Key features

- Available in right angle and parallel shaft options
- Industry leading thermal performance ensures safe operation without external cooling systems
- Flippable design with removable feet for left or right handing
- Rugged case design with horizontal split for easy maintenance
- All CX gear geometry delivers optimum tooth contacts under varying load conditions for superior torque capabilities and low noise
- Optimal mechanical strength, thermal capacity and extended bearing lives
- High gear efficiencies reduce generated heat losses to a minimum to give industry leading thermal ratings and performance
- Lubrication achieved over a wide range of temperatures, enabling CX to operate efficiently in any environment
- Bearing lives matched with conveyor duties to deliver in excess of 60,000 hours bearing life
- Proven 'Taconite' sealing ensures long life in even the most arduous environments
- Option to fit an integral holdback - conventional and load sharing configurations are available
- Hollow shaft options available on smaller CX models

## Product range

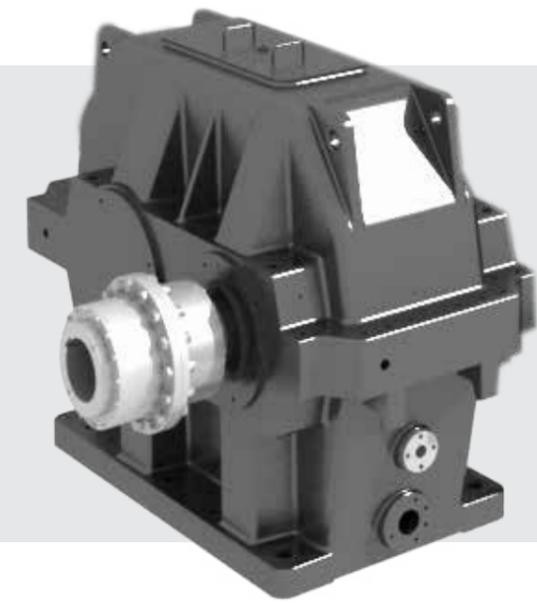
CX series characteristics	
Housing material	Grey iron or high strength ductile iron
Housing construction	Horizontal split case
Operating temperature range	-10 °c to 50 °c +
Nominal rated sump temperature	90°C / 194°F (Can be rated at our customers' preferred temperature)
Power capacity	55kW to 3000kW
Input speed range	To suit 4, 6 and 8 pole motors (including variable speed) at 50Hz and 60Hz supply
Ratio range	8.4/1 to 47.1/1
Output shaft options	Solid, double extended and hollow shaft versions with keyed and keyless options
Integral holdback	Standard and load sharing versions

Unit size	Typical motor power *
210	55kW
240	90kW
275	132kW
300	160kW
336	250kW
365	315kW
400	400kW
440	500kW
480	710kW
525	800kW
560	1120kW
620	1250kW
675	1600kW
720	1800kW
800	2000kW

\* Typical selection using right angled triple reduction version at 1450rpm motor speed, 70rpm approximate output speed sizes up to 525, 60rpm sizes 560 and above. Mechanical service factor 1.5, thermal service factor 1 and bearing lives >60,000 hours. Note these are typical selections; please contact David Brown with your full application details for actual selection.



# Mill drive systems



The David Brown MDX range includes all elements of a mill drive system and can be supplied as a full system or as separate key components. These units provide exceptional levels of performance and life expectancy to meet your exact specification.

David Brown offers a range of mill drive optimised solutions for primary and secondary grinding applications such as AG, SAG and ball mills. Lower speed options are available for kilns and dryer applications. These drive systems are renowned to offer cost effective and reliable solutions and can be combined with 3X - our three year extended warranty package for complete peace of mind.

### Key features

- Our readily adaptable range of mill drive gearboxes covers all applications up to 10MW per drive
- Single, double and triple reduction gearboxes available depending on required ratio and motor speed
- Mill drive gears are designed to complement the girth gear and pinion to reduce the cost of the entire system
- Specially optimised ratios are available on request for replacement units, or designed as part of a MDX mill drive system
- Dry sump technology is used to improve efficiency - no dipstick or oil level sight glass is required
- Mill drive gear case manufactured from high quality cast iron for its excellent damping properties. This results in minimal noise emissions and dynamic deflections

Centre distances	Centre distances from 200mm to 1070mm
Ratios	Standard ratio range 4:1 to 7.5:1, with higher ratios up to 125:1 for kiln applications available on request
Minimum bearing life	Our standard range is designed for bearing lives of a minimum 52,000 hours. Higher bearing lives are available on request
Power	Powers up to 10MW per drive
Input speed	Suitable for 4, 6, 8 pole motor speeds at 50hz and 60hz

David Brown's long standing experience across global industries has seen the company supply mill drives worldwide. Below is a snapshot from our reference list:

Power [kW]	Nominal ratio	Product	Application
178	72	TPS108	Kiln / Cement
530	74.6	TPS136	Kiln / Lime
1250	5.6	36crs unit	Ball / Gold
1800	6.09	DPS108 unit	Ball / Platinum
2500	3.3	836crs unit	Ball / Uranium
3000	7.442	925crs unit	Ball / Ferrochrome
3250	5.7	DPS136 unit	Ball / Ferrochrome
3500	7.9	Drop in unit	SAG / Gold
3500	5.6	DPS126 unit	SAG / Platinum
3500	5.95	SPS160 unit	SAG / Gold
3850	5.125	800crs unit	SAG / Gold
4200	6.4	54crs unit	SAG / Copper
4500	6.07	DPS145 unit	SAG / Gold
5000	5.647	SPS170 unit	SAG / Gold
5100	6.6	SPS107 unit	SAG / Nickel
6400	5.86	DPS155 unit	SAG / Gold
6500	6.03	SPS170 unit	SAG / Iron Ore



# Pinions

David Brown is committed to giving you the most from your geared products, that's why all our mill pinions are manufactured double-ended for reversible and extended operating life.

## Key features

- Mill pinions designed and manufactured up to AGMA grade 12 accuracy (DIN/ISO grade 5) and up to 50 module
- Integral pinions up to 4 metres long
- Gear face widths up to 1.2 metres
- Profile and lead optimisation using latest design software and gear manufacturing equipment
- Mill pinions can be manufactured integral with the shaft or as bored pinions with separate shafts
- Available either case carburised or through hardened



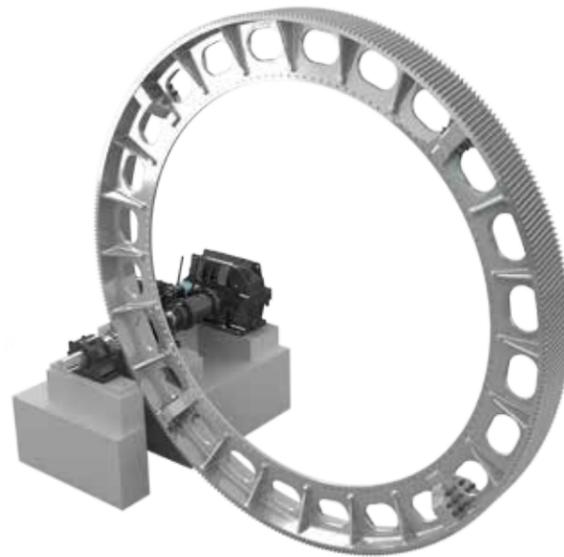
# Girth gears

David Brown delivers both cast and fabricated girth gears for AG, SAG, ball mill, kiln and dryer applications. When reliable operation is key, look no further than David Brown. Our extensive experience in cast and fabricated gearing ensures that when you need maximum process availability David Brown is your first choice.

David Brown has in-house manufacturing capabilities in a number of strategic locations for gears up to 14m diameter and over 100 tonnes in weight, as well as a supply chain to support manufacture in cast or fabricated steel, or SG iron. We can meet all your girth gear requirements, whether it's part of a complete mill drive system or an individual component.

## Key features

- Experience in the design and manufacture of girth gears for a range of applications in all industries:
  - Mills
  - Kilns
  - Dryers
  - Coolers
  - Scrubbers
- Girth gears manufactured to:
  - Ratings up to 10MW per pinion
  - Diameters up to 14m
  - Weight up to 105 tonnes
  - Pitch up to 50 module
  - 2, 4, 6, 8 segments
- Manufactured from cast steel, ductile iron or fabricated steel to a hardness levels of 180 - 340BHN
- Flange or tangent plate mounting
- T and Y section gears



David Brown's proven quality management processes cover cast steel, cast SG iron and forged and fabricated girth gear segments. All designs are optimised to take advantage of the benefits and mitigate the risks of each material option.

## Girth gear manufacturing capability

Once the raw material has been chosen, the manufacturing process requires large capacity, accurate machining of gear blanks before gear cutting as well as careful control of the machining allowances. Skilled management of the stress relieving process is of utmost importance in the production of an accurate and stable final gear. David Brown can deliver these critical operations using its in-house facilities and expert teams.

With a proven track record of delivering girth gears to the highest quality and international standards, David Brown is your local girth gear expert. Here are just a few of our global references:

Gear OD [mm]	Mass [kg]	Power [kW]	Material	Country	Application
5000	27000	1200	Fabricated steel	Chile	Rod / Gold
5500	18000	1500	Fabricated steel	Namibia	Rod / Uranium
7100	40000	3000	Fabricated steel	South Africa	Ball / Gold
7209	31416	2500	Cast steel	Malawi	Ball / Uranium
8456	57127	6500	Cast steel	Zimbabwe	SAG / Platinum
8500	47000	2500	Fabricated steel	South Africa	SAG / Platinum
8974	41724	2880	Ductile iron	South Africa	Ball / Titanium
9135	76851	6800	Cast steel	Armenia	SAG / Copper
9568	38796	2800	Cast steel	Siberia	Scrubber / Diamonds
10267	92370	2 x 2400	Cast steel	Brazil	Kiln / Nickel
11410	74420	6500	Cast steel	USA	Ball / Iron
11576	43210	2611	Ductile iron	Canada	Ball / Iron
12142	92000	6000	Ductile iron	Australia	Ball / Iron



# Shovel and dragline transmissions

David Brown offers an extensive range of products and components for shovels, draglines and other surface mining equipment. We offer custom engineering and design as a comprehensive solution to solve technical disruptions and deliver increased availability, longer life and ease of maintenance.

## Key features

- Replacement components engineered to optimise and extend product reliability
- Options for preventative maintenance contracts and scheduled servicing
- Service, repair and upgrade of existing equipment, gearboxes and components
- Options for service exchange or drop in replacement units

## All makes and models serviced

- Crowd gearboxes, shafts, pinions and racks
- Propel planetary drives and gearboxes
- Hoist planetary drives, gearboxes and rope drums
- Swing planetary drives, gearboxes, shafts and pinions
- Dragline gearboxes and rope drums



### Minimising downtime and increasing reliability

- David Brown shovel transmissions are available as complete assemblies or individual replacement components
- All designs are 100% interchangeable with original designs
- Complete OEM independence
- All gears are designed and manufactured to major international standards including AGMA
- Case carburising of external gears for complete reliability



### Lifetime support with complete peace of mind

- Rapid support and manufacture to keep downtime to a minimum
- Local expertise supported by global processes
- Extensive network of manufacturing and service centres right across the globe

David Brown is heavily focused on installed product improvement and our objective is to understand shovel transmission issues and engineer them out - whatever the make or model.

## New shovel transmission and components

We can design and manufacture any geared shovel component or transmission that you require. More than 150 years of gearing expertise enables us to design a tailored solution to exceed your requirements.

## Shovel transmission and component repairs

Our dedicated service engineers will conduct shovel and dragline transmission repairs at your local David Brown service centre to keep downtime to its lowest level.

- Repairs for all makes and models of shovel transmission
- Products are repaired within rapid time scales
- Dedicated and experienced service and repair technicians to engineer out product failures and extend shovel component life



# Stacker reclaimer



These enormous machines are crucial in the management of bulk materials in ports, mines and processing plants, therefore it is vital to use high integrity components.

### Complete conveyor systems

We can design and manufacture drives for all kinds of conveyor systems to suit your specifications, using our CX range of dedicated conveyor drives:

- Optimal thermal ratings without external cooling
- Exceptional bearing lives

### Auxiliary drive

David Brown can engineer, manufacture and service:

- Bogie drives
- Long travel drives
- Slew drives

### Bucket wheel drive systems

Bucket wheel excavators have been used in mining as long as most can remember. David Brown can supply reliable drive systems for bucket wheel elevators as well as components for conveyor belts, spreaders, crushing stations, mine materials and waste.

- Components built to last
- Engineered for heavy usage
- Reliability and performance second to none
- Manufactured to customers' specifications and service requirements
- Bevel/planetary and bevel helical designs

Flexible design to meet your specific needs and requirements

# Rapid global support delivered locally

David Brown understands that fast response is key to any business needing urgent gearbox service and repair. Our global network of manufacturing and service facilities ensure we can provide the support you need wherever you are, whenever you need us. We work to ensure that you are supported by teams who know your gear system inside-out and understand your business and operating environment.

### Our gearbox services include:

- Onsite services
- Gearbox inspection
- Repair and overhaul
- Upgrades
- Drop in replacements
- Asset management and strategic spares programmes
- Diagnostic and performance testing

For complete assurance, we offer 3X - a three year warranty package for all gearboxes serviced, repaired or upgraded by David Brown. Our 3X warranty package is available for any mining industry gearbox - even those not originally manufactured by David Brown.

### Key features

- Available at all David Brown manufacturing and service facilities globally
- Maximum process availability for assurance critical gear systems
- Gives you and your business complete peace of mind
- Planned and structured maintenance regime

3X terms and conditions apply. For eligibility contact your local David Brown office.



David Brown has more than 150 years experience in engineering gear systems for the world's industrial applications. With global references in all mining applications, we are well equipped to be your local gearbox service and repair partner.

Our global service centres repair and refurbish all gearbox types including those not originally manufactured by David Brown. As a mining gear specialist, with existing facilities operating closely to our customers, we're completely focused on building and maintaining long term relationships with all our key channel stakeholders.



### Site services

- Global fast response, with the best and dedicated engineers
- In situ inspections
- Full asset management services



### Spares

David Brown can offer spares for all David Brown products as well as manufacture required parts for any other gearbox.



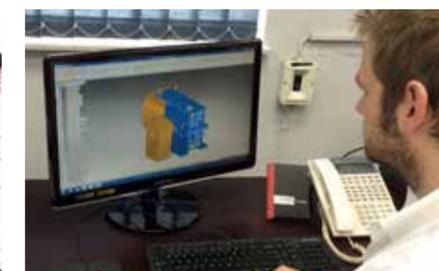
### Repairs

David Brown can offer repairs on or offsite for all makes and models of gearboxes and associated products



### Advice

- Giving our customers sound technical advice with speedy repairs and upgrades
- Offering the best solution to fix your problem
- Maximum operational availability



### Quotations

- Competitive prices at your specified lead time
- Honest and professional service



### Project management

- Professional service, repair and redelivery of your gearbox
- Proactive to work around you
- Fully supported teams, backed by a global network and expertise

David Brown understands that fast response is key to any customer requiring service and repair. Our dedicated service centre engineers ensure your gear system, whatever the make or model, is up and running in the fastest possible time, optimising performance and minimising downtime.



We can service, repair and upgrade any gearbox model in any mining application. If you are experiencing problems with your gearbox, or it's just not working as well as you need it to, give your local David Brown team a call today.

