



TECHNOLOGIES

# Reduction technology



Crushing, Milling, Sizing and Recycling

[www.jnd.co.uk](http://www.jnd.co.uk)

# Technology you can trust...

*Jenkins of Retford (founded 1896) and Newell Dunford (founded 1892) are internationally recognised names in the field of process engineering. Operating today as JND Technologies Ltd. (incorporating Magco-Tollemache), thermal and size reduction solutions are provided to a diverse range of industry such as food processing, chemical, minerals, metals, gypsum, glass and recycling.*



JND Reduction Technology brings together the expertise in reducing materials to a controlled product size in Magco-Gundlach Crushers, JND Ball & Rod Mills and the technology of reducing the volume of solid waste material, in the Tollemache Shredder. The combined strength and knowledge in the fields of processing or the recycling of materials is combined

under one roof to offer total solutions to the most complex size reduction problems. As manufacturers and designers of size reduction machinery, JND's commitment is to employ the strictest inspection and quality checks incorporated in ISO 9001 Standards. These ensure that only the best quality products leave the factory.



TOLLEMACHE

# grinding mills

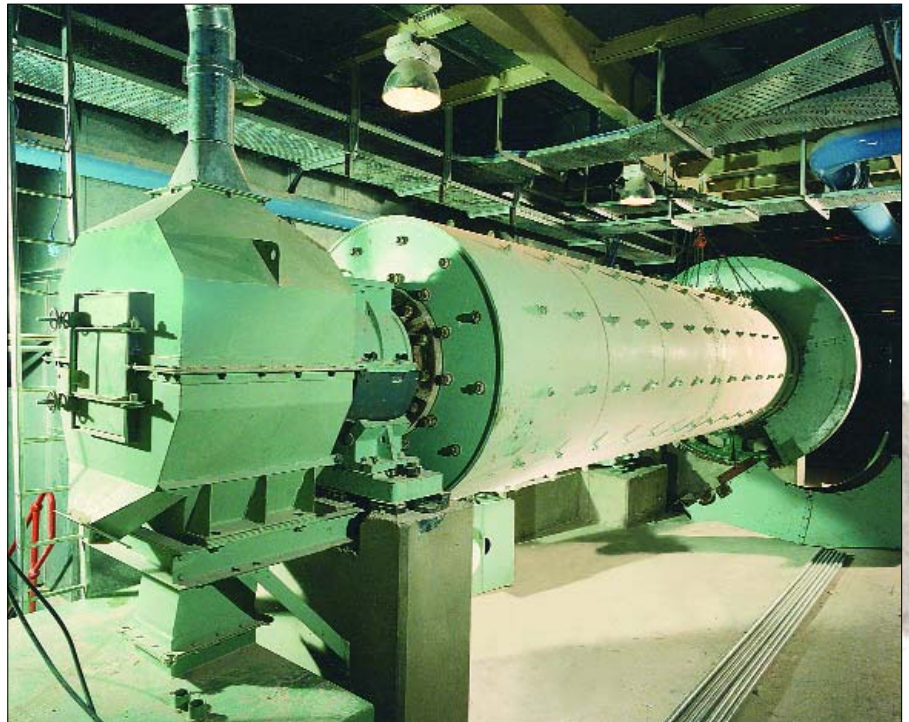


Ball Mill for Lime Plant installation

JND Ball and Rod Mills have been supplied to the gypsum, cement, mining, chemical, iron and steel industries. JND design equipment to suit the material grinding characteristics, to the required product size. From the smaller installations to the very large cement clinker mills we provide the optimum solution.

- Open/closed circuit operation for wet or dry milling applications.
- Rod Mills for coarse grinding, fitted with trunnion or peripheral discharge.
- Ball Mills for fine grinding fitted with trunnion or diaphragm discharge.
- Mills can be divided into compartments with separating grates for secondary grinding in wet and dry applications.

JND can completely refurbish and upgrade your existing mill. We provide a high standard of product support from routine maintenance and repair, to the replacement of shell liners, trunnion bearings and drive components and on site realignment.

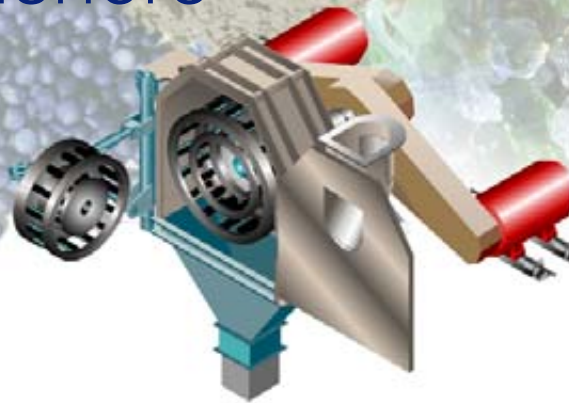


Ball Mill supplied to UK Gypsum Plant

## Selection of materials processed

Aluminium Dross	Gypsum
Aluminium Oxide	Iron Ore
Basic Slag	Lead Coke
Bauxite	Lead Shot
Burnt Dolomite	Limestone
Carbide & Ciltreat	Limestone Slag
Cassiterite	Magnetite
Cement Clinker	Manganese Ore
Cement Raw Meal	Plaster Stucco
Coal	Pyrites
Coke	Quartz Calcite
Coke Breeze	Sand
Fluorspar	Sandstone
Gold Bearing Ore	Silica Sand
Granitic Tin Ore	Tin Ore

# impact crushers



The Cage Paktor® is an accurately controlled impact crusher capable of size reduction to below 1.0mm, with minimum fines generation. Two factors affect impact crushing: The mass of the particle and the velocity at which the particle is struck. The Cage Paktor utilises multiple rows of striking plates to offer selective stages of impact crushing, selectively crushing the material. Already-to-size particles pass through the crusher without further reduction - minimising the generation of 'fines'. The power requirement is in direct proportion to the speed and work performed giving efficient power usage resulting in lower operating cost.

- More selective crushing reduces power requirements and operating costs.
- The patented striking plate design eliminates change of product size during the plate life. Adjustments for wear are unnecessary.
- The Cage Paktor's original shaft-within-a-shaft design offers a small footprint..
- The swing-away door provides immediate maintenance access. Typical downtime for cage change is less than 2 hours.
- The Cage Paktor's exclusive Air-Cannon option keeps sticky material from building up and clogging.



*Cage Paktor® application – coal, supplied to Puerto Rico*



*'...capable of size reduction to below 1.0mm, with minimum fines generation...'*

# roll crushers



Roll Crusher supplied to Glass Plant, Brasil

Meshing roll teeth

The Magco-Gundlach modular design makes a bold new move in crusher design. Single and two stage crushers are designed for high performance on hard to size materials, offering a product from below 3mm to 50mm and above. Modular components offer multiple combinations that allow Magco to provide a customised crusher with the option to upgrade or modify later if product size or production demands change.

*'...designed for high performance on hard to size materials, offering a product from below 3mm to 50mm and above...'*

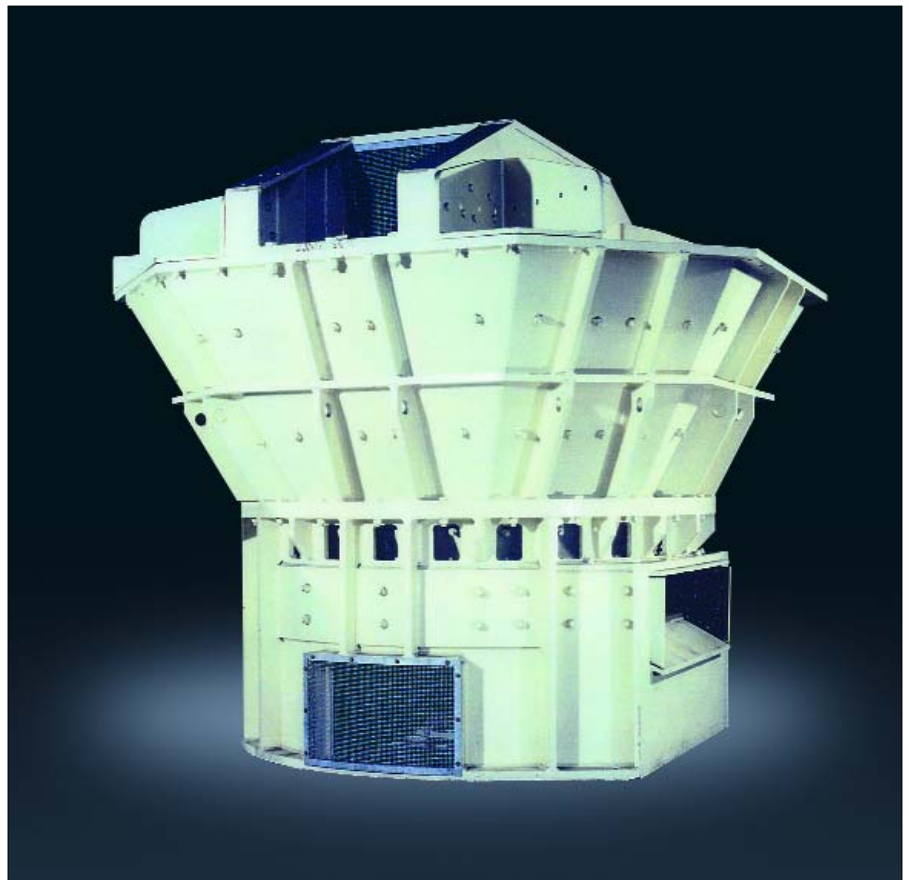
- Roll designs from 200 mm to 950 mm diameterl.
- Other rolls designs can be supplied for special applications

- Rolls supplied in alloy steel (with or without hardfacing) manganese, ni-hard, hi-chrome iron, chrome-molybdenum or stainless steel. .
- Patented NITROIL® Relief System protects the crusher in the event of tramp material entry and allows for adjustment whilst the crusher is running.
- Belt or flywheel drive options.
- Gearboxes keep rolls timed to make a cubical product.
- Heavy duty forgings and spherical roller bearings guarantee long months of trouble-free operation.
- Housings are designed to eliminate dust spillage and provide easy maintenance access.
- Coupling mounted rolls and patented roll segments are easily removed from the machine for minimal down-time.
- Supplied with nickel free crushing elements for use in glass plants.

# recycling

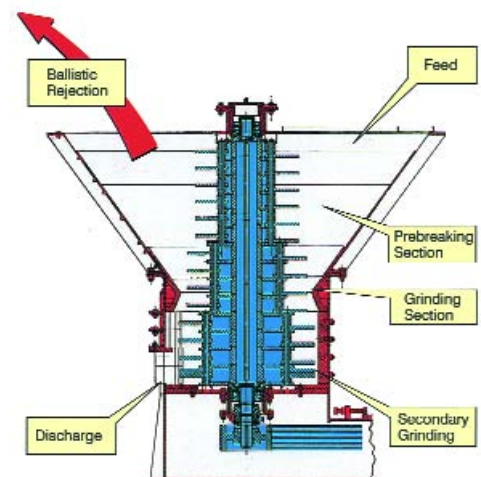
The Tollemache Shredder can be found in solid waste disposal installations worldwide. Over 200 process approximately 1,000,000 tonnes of domestic and commercial waste every year.

The Shredder is typically used for the size reduction of municipal solid waste, civic amenity, industrial waste and some soft minerals, prior to composting, recycling or disposal. New applications are growing. Recently a Tollemache unit was successfully used to cleanly remove wire from scrap wired glass, during a recycling operation. Rugged, reliable, efficient and versatile, the shredder works on a Vertical Shaft principle and has large feed openings enabling the waste to be directly fed with the minimum of pre-sorting. By grinding the waste in the body of the machine, it eliminates the need for an outlet grid, which is prone to blockages and creates costly operational interruptions. A Ballistic Separator automatically ejects heavy or resilient objects, which may damage the machine. This is accomplished through a reject hood on top of the shredder opposite the in-feed opening. No additional power or ancillary equipment is necessary for this important feature.



Model 72 Shredder - one of nine units supplied to Iran

- Energy efficient
- Minimal blockage
- Ballistic rejection
- Explosion release protection
- Dual rotation
- High capacity
- Adjustable particle size



# ancillary equipment

## Vibrating Screens

The Magco Inclined Vibrating Screen is designed for sizing applications at a typical inclination of 10°. Extremely robust in design, it is designed to work in the most arduous conditions at high intensities.

## Feeders

### *Electromagnetic Feeders*

Using electromagnetic powered exciter units, larger feeder applications use multiples of power units that are fitted in parallel across the feeder, or in tandem along the feeder body.

### *Mechanical Feeders*

Rugged feeders for tough applications the Magco heavy duty Mechanical Feeders utilise unbalanced shaft weights to provide the vibration motion. Medium and light duty mechanical feeders are also available using out of balance motors.



### *Electromagnetic Drive Units*

These are supplied where a robust, reliable, heavy duty drive unit is required to incorporate into clients own feeder designs. The drives are available in four sizes with a variety of controller styles to suit clients requirements.



## Scraper Chain Conveyors

The well established De-Brouwer® Chain Conveyor is designed to handle extremely difficult materials with varying characteristics such as stickiness, heat, abrasiveness and fine moist particles.



Where required, the conveyor can be readily adapted to act as a feeder to distribute material at a number of in-line discharge points at varying capacities. The conveyor can accommodate bends in the vertical plane and can be submerged under water for quenching hot material such as boiler ash and molten glass rejects.



## Plate Belt Conveyors

Plate Belt Conveyors are typically used for the extraction and handling of large pieces of material from bunkers, and for conveying material continually over long distances. Ideal for hot and abrasive materials, such as sinters and slags or other applications unsuitable for conveyor belts

# ...systems you can rely on



## testing

JND continue to remain at the forefront of processing technology by maintaining a vigorous research, development and test programme. JND has built up a vast experience and knowledge. JND designs are unique and customised to meet clients' individual requirements, which often means testing the characteristics of the specific materials to be processed.

This is carried out at the Langley Group Technikum in Hamburg, Germany, regarded as one of the most



comprehensive facilities of its kind. Trial and testing facilities ensure that every new application is fully evaluated. Application problems, engineering data, risk analysis and quality controls are all part of the programme undertaken.

## training & maintenance

JND technicians are available to help you install and get your equipment successfully into operation. We will train your staff on the operation and maintenance of your system. Service Engineers are available to inspect your system and offer suggestions on upgrades or new crusher roll configurations to improve your operations.

- Site survey and application engineering
- Design and manufacture of associated fabrication
- Installation & Commissioning
- Spare parts
- Servicing
- Troubleshooting and Repair
- Factory refurbishment

CALCINING  
CONVEYING  
COOLING  
CRUSHING  
DRYING  
FEEDING  
GASIFICATION  
GRINDING  
SCREENING  
RECYCLING



**TECHNOLOGIES**

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