

Manufacturing and refurbishing precision equipment

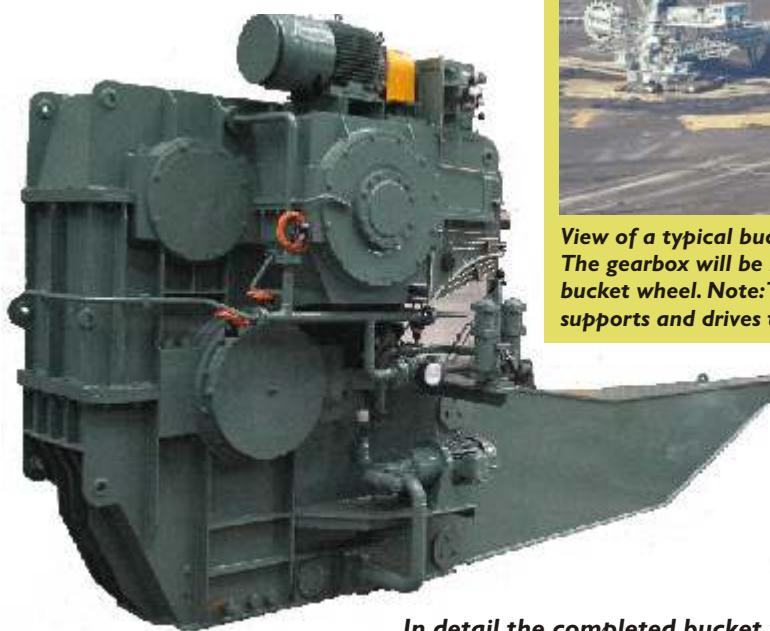
Bucket wheel gearboxes for Thyssen Krupp Germany

One of the world's most respected companies, Thyssen Krupp of Germany recently commissioned Hofmann Engineering to manufacture a complex torque splitting bucket wheel gearbox to its design.

The contract represented a considerable coup for Hofmann Engineering, since these gearboxes have traditionally been manufactured in Germany. It followed on the successful manufacture for Thyssen Krupp of forge fabricated bucket wheel slew gears with diameters up to 10.2m.

Hofmann Engineering has manufactured torque splitting gearboxes for a number of different applications over the years. The gearbox for Thyssen Krupp splits the torque through a large planetary drive assembly thus allowing two pinions to drive a fabricated and case hardened output gear.

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In detail the completed bucket wheel gearbox.



View of a typical bucket wheel reclaimer. The gearbox will be installed on the bucket wheel. Note: This gear box both supports and drives the bucket.

Portable co-ordinate measuring machine can now be used on site worldwide



In a world first, Hofmann Engineering now has gear software which allows for its co-ordinate measurement machine to measure gear geometry on site or even in the gearbox.

This means the machine can now be taken anywhere in the world, significantly improving on the speed and accuracy of measuring involute form, the helix angle and the pitch of the gear to AGMA Quality 9.

No longer will it be necessary to undertake on site the often difficult and time consuming process of measuring complex components by hand.

An important benefit of using the machine is improved precision. The new machine achieves accuracy within 20 microns. It fits into a suitcase and plugs into a portable computer which downloads the measurement data to our 3D design software. The software then produces the required manufacturing drawings.

A mill pinion in the middle of the Atacama Desert in Chile being accurately measured.

Technologically advanced gearing for Bucyrus

After a rigorous evaluation, Hofmann Engineering has been selected by Bucyrus International Inc to manufacture and supply technologically advanced gearing for its new 495 model rope shovels.

Among the products being manufactured by Hofmann Engineering are case carburised crowd gear shafts with 58-62HRC hardness. These are precision form ground on the company's Hofler two metre form gear grinder to AGMA 12 gear quality.

It has also produced forge fabricated, induction hardened crowd gears for Bucyrus International Inc. These gears, with a hardness of 54-56HRC have been manufactured and form ground to AGMA 12 quality.

Bucyrus dragline motor pinions being hard cut on Our CNC Maag Gear Planer.



A Bucyrus 495 shovel crowd gear undergoing tooth by tooth full contour induction hardening on our CNC controlled induction hardener.

Hofmann Engineering is one of few companies in the world selected by Bucyrus Pty Ltd to supply it with high quality induction hardened gears. The supply contract is for a period of two years with the intention to expand it to encompass more technologically advanced gear products in the future.

In addition, Hofmann Engineering is also manufacturing 'narrow gap dragline' hard cut input gear shafts for Bucyrus Australia in both Bucyrus and Marion designs to 60-62HRC hardness and AGMA 12 minimum quality.

Because they are case carburised and feature an extra face width, these gear shafts provide at least a 70% increase in durability and longevity when compared to standard through hardened gear shafts of similar quality.

Remaining at the forefront of technology and operating to an internationally recognised quality assurance system are the main reasons why Hofmann Engineering has succeeded in attracting orders from leading overseas OEMs such as Bucyrus International Inc.

Safety training a top priority

As part of an ongoing program 140 Hofmann Engineering employees have now undergone Job Hazard Analysis (JHA) training.

The aim of the continuous training program is to make staff members more alert to all possible hazards on a job and to provide them with the skills needed to write their own JHAs using the KIS System.

With new legislation this year, Hofmann Engineering is taking renewed steps to ensure that staff involved in dogging and forklift driving renew their qualifications.

Whereas in the past a dogging and forklift driving certificate was valid for life, the new legislation will make it necessary for the qualification to be renewed every five years.

In order to satisfy the new legislation's requirements, Hofmann Engineering has

increased the number of dogging and forklift driving courses presented each year. Also to encourage participation it will meet the cost of obtaining a ticket on behalf of employees.

On July 12 Hofmann Engineering achieved 250 days without a Lost Time Injury (LTI).

To celebrate the milestone a raffle was held and Damian O'Sullivan, David Reynolds, Tyson Butcher, Daniel Holbrook and Matthew Ellenbrook were drawn out of the hat for first aid kit prizes.

Our thanks go to all safety team leaders and members for their commitment over the past seven months - including Paul Waters for his work with the WPI Team, Steve Turner for his contribution to the SOP Team and Myles Bates, who has now stepped down as leader of the ARIA team and has been replaced by Brad Dorizzi.

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The 630kW gearbox is arguably the most complex manufactured at the company's Bassendean plant.

It has an overall reduction of 178:1 passing through a compact gearbox weighing just 22t including the torque arm.

The gearbox itself is in three pieces and is manufactured of a thinner gauge plate than usual.

Minimising its weight was critical because it is mounted with the bucket wheel mechanism at the end of the reclaimer's boom.

Of all the challenges presented by this project, the main one lay in the manufacture of the internal gearing which due to design, complexity and very tight specifications allowed for no margin of error.

Congratulations

Congratulations to all staff who celebrated anniversaries with Hofmann Engineering, especially to John Wells, who completed 30 years of service, Bernard Logan who has chalked up 25 years and David Howe, who achieved 20 years of service with the company.

The following are also to be congratulated. 15 years: Alan Thomas; James Carwardine; Nick Tolic. 10 years: Wayne Phillips; Robert Ward and Russell Gould.

Finding better ways to keep sustainable green energy flowing



One of the 1750kW gear boxes refurbished by Hofmann Engineering, and where it is located in the Wind Generator, above.

Hofmann Engineering has embarked on a project to improve the efficiency and reliability of wind turbine gearboxes.

Currently these gear boxes are subject to bearing failure which can result in severe internal damage.

As part of a planned 2-year program to refurbish twelve 1750kW gear boxes from a wind farm in South East Victoria, Hofmann Engineering will undertake an analysis of all failures and then

recommend and implement improvements.

Any such improvements will doubtless be welcomed by other wind farms operators who are experiencing similar problems associated with gear box failures.

This will establish Hofmann Engineering as a player in the wind turbine gearbox and slew bearing industry.

Valves for Brazil

Hofmann Engineering has secured a contract for the supply of 350 valves to Alcoa's Alumina Refinery in Brazil despite strong competition from a number of international suppliers.

The order follows on the recent selection of the company as a preferred supplier of Alcoa angle valves and pump parts required to sustain operations at all Alcoa's refineries worldwide.

In order to provide the parts that Alcoa needs when it needs them, Hofmann Engineering has considerably expanded its stockholding of valve and pump parts.

It first took the lead in cutting delivery lead times for these parts by taking the necessary steps to make them available off the shelf to Alcoa's WA based refineries.

This ex-stock parts capability is fully backed by Hofmann Engineering's considerable expertise in the design and manufacture of purpose-made valves and pump parts for specific applications.

The company has manufactured slurry angle valves and pump parts for the mining industry for more than 35 years. In recent times it has supplied thousands of slurry angle valves to Jamaica and Surinam.

3000th track pad for Hitachi comes off fully computerised production line

Hofmann Engineering is working closely with Hitachi to supply track pads for Hitachi excavators operating beyond Australia's borders.

Some 18 months after Hofmann Engineering started manufacturing track pads for Hitachi excavators in Australia, the 3000th track pad recently came off the production line.

In order to satisfy ongoing orders for these track pads Hofmann Engineering installed three CNC machining centres and a new variable frequency induction hardening machine.

This new fully computerised track pad manufacturing cell will substantially increase our capacity.



One of the machining centres installed to manufacture track pads for Hitachi with some of the Hofmann team who are involved with the manufacture of track pads.

New fabrication workshops We can now handle even bigger fabrication jobs



The back legs ready for transport.

The first big job to emerge from Hofmann Engineering's new expanded Fabrication Department, a set of 1370 rear A-frame back legs, was recently delivered to a coal mine in Queensland.

In tripling the size of its fabrication facility, Hofmann Engineering has enhanced its capabilities when it comes to the manufacture of bigger products.

The A-frame legs were fabricated and machined in the new Fabrication Bay 1, including furnace oven stress relieving after the welding was completed.

The 18m long back legs were delivered to site on time before the mine site's maintenance shutdown commenced.

Strong interest in fabricated mill heads

Hofmann Engineering has successfully completed the machining of four SG Iron integral mill heads on trunnions for a platinum mine in South Africa.

The 7m diameter mill heads, which each weigh 42t, were turned on Hofmann Engineering's large 8.7m vertical borer.

Drilling of the heads was completed on the same machine using a compound precision drilling attachment.

While Hofmann Engineering is widely recognised for its expertise in the machining of SG Iron mill heads, the company is now also experiencing considerable interest in its ability to supply fabricated mill heads with bolt-on cast trunnions.

This interest is the result of the long delays currently being experienced in obtaining SG Iron mill head castings.

Fabricated mill heads can be manufactured in far less time than conventional SG castings,

while at the same time being very competitively priced.

Hofmann Engineering calculates that the fabricated alternative could halve the delivery lead time currently being experienced with cast mill heads.

In addition to time savings, site repairs can be conducted far more easily because the low carbon steel fabrication is weldable. Hofmann Engineering's new floor borer, in conjunction with its 5000t vertical press and 8.7m vertical borer, make the manufacture of mill heads straight forward.



One of the mill heads in production

Giant sag mill gear for Chile

Work will soon start on the production of the largest diameter gear ever produced in Hofmann Engineering's Bassendean plant.

The order for the 13.3m diameter forged fabricated gear, which weighs 83t, was awarded to Hofmann Engineering in the face of strong competition from several international companies. It is to go into operation on a sag mill at a mine in South America.

Leighton White of Hofmann Engineering recently returned from Chile where he measured the existing cast steel gear on site, using the company's fully portable co-ordinate measurement machine. The measurements will be used to design the new forged fabricated T section gear.

This mine has recently replaced a number of its cast steel gears, which were subject to premature cracking, with forged steel fabricated gears.

Hofmann's current facilities allow for the production of gears with diameters up to 14m. However, with the commissioning of a new machine its capacity will increase to 15m.



The forged steel rim for the new gear being bent on a vertical roller press

Condolences

Our condolences to Darren, Daniel and Jake Waters on the sad passing of their wife and mother, Janine. Condolences too to Lynda Myles on the passing of her son, Graham Fawcett.