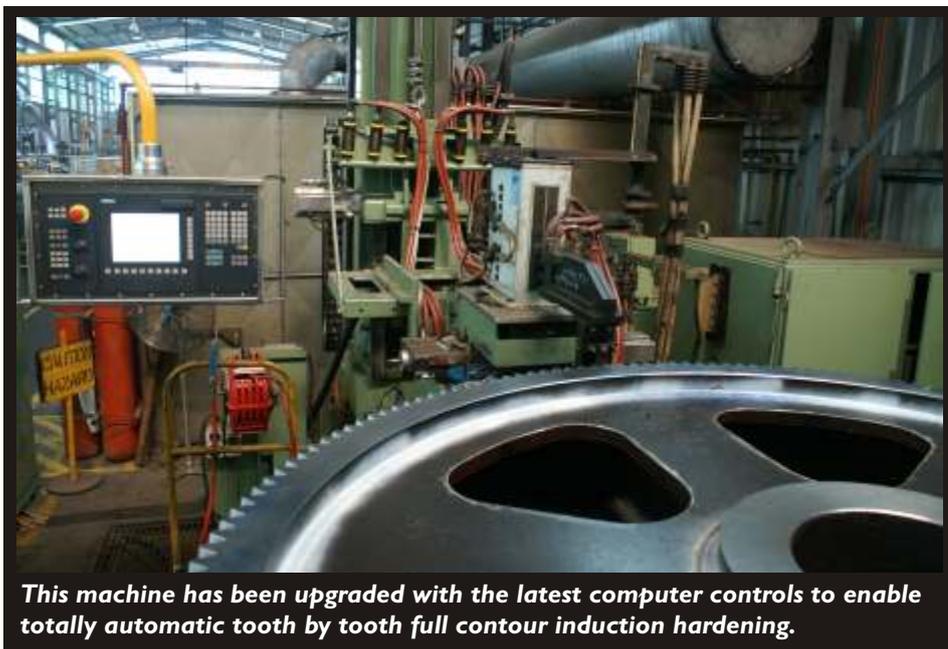




Manufacturing and refurbishing precision equipment

# Further improvement in Induction Hardened components



*This machine has been upgraded with the latest computer controls to enable totally automatic tooth by tooth full contour induction hardening.*

The recent upgrade of our EMA induction hardener to CNC (computer controlled) will significantly improve the consistency and accuracy of induction hardened components produced by Hofmann Engineering.

Believed to be Australia's first CNC controlled induction hardener of its type, the upgraded machine gives us the technology needed to perform heating, feed and quenching controls to a level not previously possible.

With the use of the latest Siemens fully programmable CNC controller there will be improvements in the full contour tooth by tooth induction hardened profile which we perform on the tooth area of our gears and pinions.

It will also result in improvements in the induction hardening of pins, sheaves and rope drums.

## A safety milestone: 400 days without any lost time injuries

Recently we achieved 400 No Lost Time Injury days, to mark this achievement the company celebrated with a meal during which all staff were given new jackets.

Our safety program, which is the overall responsibility of Paul Middleton, is based on three key areas of responsibility. The first group which covers accident, reporting, investigation and analysis is led by Mylles Bates.

The second group, which focuses on safe operating procedures, is under the leadership of Tony Sutton. As part of its program, the group's 2IC, Steve Turner,

will be training some 80 employees over the next two months in Job Hazard Analysis using the KIS safety system.

The third group is known as the Workplace Inspection Team. It is led by Paul Waters with Denis Sarich as his deputy. This group is implementing a new safety format which focuses on KPIs (Key Performance Indicators).

The overall focus is on continually raising the standards when it comes to safety by getting all our people to accept responsibility for the safety of their fellow workers.

## Federal award for Hofmann

Hofmann Engineering recently received a federal award for its Hoftech Project.

The AusIndustry award was granted to Hofmann in recognition of innovation in the development of the Hoftech project. This project involves developing one of the largest geared power transmission design and manufacturing facilities in the world.

Managing Director, Erich Hofmann, received the award on behalf of Hofmann Engineering from the Federal Minister for Industry, Tourism and Resources, the Hon Ian Macfarlane.



*Erich Hofmann (right), receiving the award on behalf of Hofmann Engineering from the Hon Ian Macfarlane.*

# Ensuring we meet your deadlines

In a move designed to ensure improved performance in meeting delivery deadlines, Hofmann Engineering is currently upgrading its Syteline manufacturing software.

The upgrade has become necessary because organic growth has led to a tripling of job operations over the past few years.

According to Tony Sutton, the main benefit will emerge from the new APS

(Advanced Planning & Scheduling) engine. APS runs a planning algorithm that optimises customer service in an un wasteful fashion by synchronising materials and plant capacity with a customer's due delivery date.

The upgraded system will also incorporate Labr Trak, a fully integrated online resource queuing and labour recording system which clearly points out to the operator the tasks to be

performed by each work centre at the start of the working day.

"Importantly, with all job operations relating to each project contained in one synchronised package, the new upgrade will give us the capacity to promise (CTP). We will know immediately when we can deliver instead of relying on a guesstimate," he said.

The cut-over took place recently, with all the major modules now in place.

Sched Order	Job	Job Suffix	Operation	WC	WC Volume	Item Volume	Cumulative Load	Batch	Sched Property 1	Sched Property 2	Use Fixed Schedule	Fixed Sched Hours	Pre
1 >>	68	0000	10 AS-500	AS-500	10,000	12,000	12,000	1 #120#	deep tining		<input checked="" type="checkbox"/>	5.00	21/08/2006
2	62	0001	80 AS-500	AS-500	10,000	2,000	2,000	2	carborsing		<input type="checkbox"/>		10/11/2006
3	60	0001	30 AS-500	AS-500	10,000	3,000	5,000	2	carborsing		<input type="checkbox"/>		20/11/2006
4	76	0001	60 AS-500	AS-500	10,000	2,000	7,000	2 @ 70#	carborsing		<input type="checkbox"/>		14/08/2004
5	65	0001	30 AS-500	AS-500	10,000	3,000	3,000	4 @ 30#	carborsing		<input type="checkbox"/>		20/11/2006
6	76	0000	18 AS-500	AS-500	10,000	8,000	8,000	3 @ 80#	hardening		<input type="checkbox"/>		15/08/2004
7	63	0000	10 AS-500	AS-500	10,000	5,000	5,000	5 @ 50#	nitride		<input checked="" type="checkbox"/>	5.00	21/08/2006
8	64	0000	10 AS-500	AS-500	10,000	7,000	7,000	6 @ 70#	annealing		<input type="checkbox"/>		21/08/2006

## Furnace Scheduling

Sort by Scheduling Heat Treatment process or sort by any field available on the form, add your own sort criteria to items, sort by double clicking column or move up and down manually, commit schedule, run scheduler, task completed.

# Induction hardening results in higher girth gear power rating

The installation of a new forged-fabricated steel girth gear to replace a cracked 12.2m diameter girth gear on a 36-foot diameter semi-autogenous grinding mill was recently completed at Kalgoorlie Consolidated Gold Mines (KCGM).

When it became apparent that the previous American-built cast steel gear, which dated from 1999, had developed early cracks Hofmann was commissioned to prepare an enhanced design that would allow transmission of higher kW power ratings and eliminate the possibility of cracking.

The proposed solution was to incorporate induction hardened teeth in a rim of forged alloy steel. The new gear has 425-450 Brinell hardness compared to the old gear at 325-350 Brinell hardness. The power transmitted will increase from 11,000 kW up to a potential 14,000 kW. New case carburised and surface ground pinions

were also supplied.

This is believed to be the first occasion in the world where such a massive gear has been induction hardened and then precision-cut to the highest international levels of quality (AGMA-Q10 or DIN-7 quality levels).

While many employees contributed to the successful delivery of this major project, the dedication of Russell Gould, Jamadagni (Jamu) Torvi, Darryl Allieux, Alan Thomas and many others in the production team is worthy of special



## Congratulations

Congratulations to all staff who celebrated anniversaries with Hofmann Engineering, especially to Leighton White, who chalked up 35 years with the company, Nick Smerilli, who completed 30 years of service and Roland Gonser, who achieved 20 years of service with the company.

The following are also to be congratulated. 15 years service: Peter Crawford, Marcello Springhetti, Darryl Allieux and Daniel Britten. 10 years service: Darren Laker, Ronald D'Vine, Chris Clarke and Arthur Sentonas.

# Now - a portable alignment and component measuring solution



**In a move that will drastically reduce the time spent on measuring complex components requiring re-engineering, Hofmann has acquired a fully portable co-ordinate measurement machine.**

No longer will it be necessary to undertake 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.

The new measuring system has been integrated with our gear measurement software. This means we will be able to measure gears of any size or description on site.

Its usage is, however, not restricted to the re-engineering of complex components. It can also be used on site by operators wanting to check alignments.

## Diameters of 3,000mm can be accommodated

Following the re-engineering of our Schiess machining centre, we have increased our turning, boring and milling capacity to accommodate diameters up to 3,000mm.

Incorporating the latest Siemens 840 D digital controls, the centre now features six independently programmable axes that can be moved simultaneously.

This allows the machine to work on extremely complex components such as propellers.

In a recent application, a dragline rail was precision machined utilising the precision movement of three axes simultaneously in order to generate the curved slew bearing roller path.



*The centre features six independently programmable axes that can be moved simultaneously.*

## Your Pump Parts resource

**Our Pump and Valve Department not only manufactures and supplies valves and spare parts but is also known for the reverse engineering and supply of pump parts that outperform the original components.**

Because of our strong design capability we can reverse engineer and improve on components used in a wide range of pumps.

Our experience with valve and pump replacement parts spans many years, with notable success in many areas, including alumina and other refineries worldwide



# Hofmann's Planetary Gear Components show their worth

The toughness of Hofmann induction hardened gear components was recently graphically demonstrated on a 1000kW planetary mill drive gearbox at Minara Resources' nickel mine near Kalgoorlie.

About a year ago Hofmann Engineering was called in by the mine because of gearbox failures.

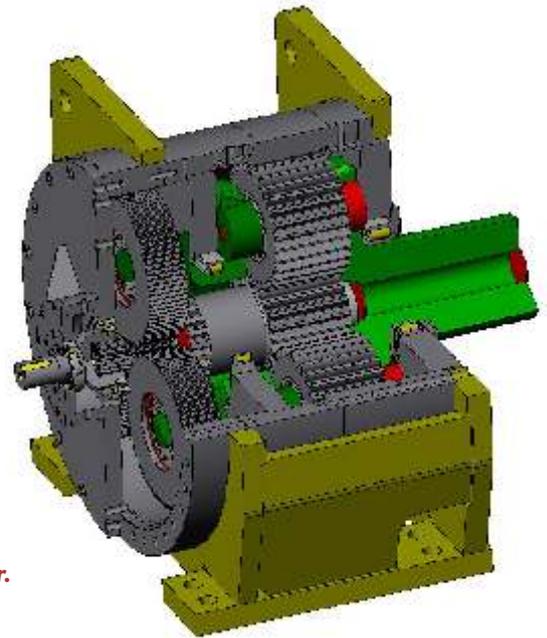
With the ring gears regarded as the weak link in the gearbox, Hofmann's replaced the internal quench and tempered ring gears with tooth by tooth full contour induction hardened ring gears. The remaining components had all but been destroyed and only this induction hardened ring gear survived.

Due to remaining gearing now being the weak link and the fact that the

gearbox did not have the capacity to increase the sizes of this gearing Hofmann Engineering has been commissioned to redesign the complete gearbox.



**Minimal damage to Hofmann Induction Hardened internal ring gear. Considering the rest of the case hardened gears and bearing were completely destroyed it is surprising that the induction hardened ring gear teeth are intact.**



**Schematic of the new design in solid works 3D**

## Forged fabricated gears under the spotlight in Chile

Erich Hofmann recently returned from Chile where he presented a paper at the MAPLA process plant maintenance conference in Santiago.

The technical paper, which examined Hofmann's new forged fabricated girth gears technology, was well received by delegates from the mining industry.

Hofmann is actively involved in Chile through its local agent, Adam Clarke. Adam is an Australian who has made his home in Chile. Hofmann recently manufactured gears for the Escondida Mine in Chile and supplies products to many overseas countries.



**Seen at MAPLA are (from left) Adam Clarke, Jenny Hofmann and Erich Hofmann.**

## Worsley improves feed filter plant efficiency

Hofmann Engineering is currently involved in a project designed to improve the efficiency of the coarse feed filter plant at the Worsley alumina refinery near Collie.

The project involves the modification of three filter troughs which were manufactured for Worsley by Hofmann some seven years ago. Each of the troughs was originally designed to accommodate three coarse feed disc filters in a single 6m x 3m x 3½m chamber.

In line with Worsley's current models, which are aimed at improving plant efficiency, Hofmann is required to split each of the existing troughs into three separate chambers, each with its own filter.

In addition it is modifying existing drive shafts and manufacturing new ones to fit the new filter segments. Hofmann is also undertaking air supply pipe work for the

operation of actuator valves on the new discharge pipe work system.

The new arrangement is designed to ensure that slurries remain in suspension instead of settling out, thus improving recovery and productivity.

The first of the modified troughs and ancillaries was recently delivered to Worsley on time. In order to avoid disruption to production the troughs are being modified progressively.



## NATA traceable calibration service

We are able to offer you a calibration and repair service for your measuring instruments using our NATA traceable equipment.

This certification service will enable you to ensure that you are maintaining quality practices in accordance with the requirements of ISO 9001.

It is important to realise that checks using test pieces, while useful, do not

equate to proper calibration, since these test pieces may themselves become imprecise. Therefore it is important to ensure that your test pieces are also calibrated regularly.

The service we offer can be conducted on a scheduled basis if required. It encompasses instruments and test pieces ranging from micrometers to dial test indicators.