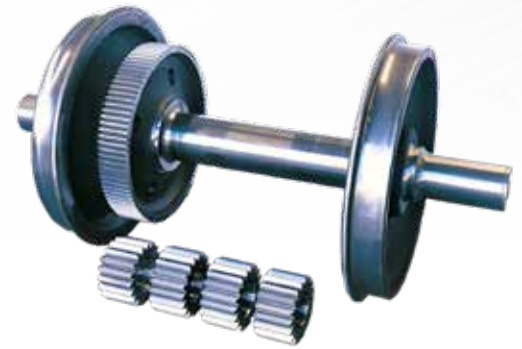
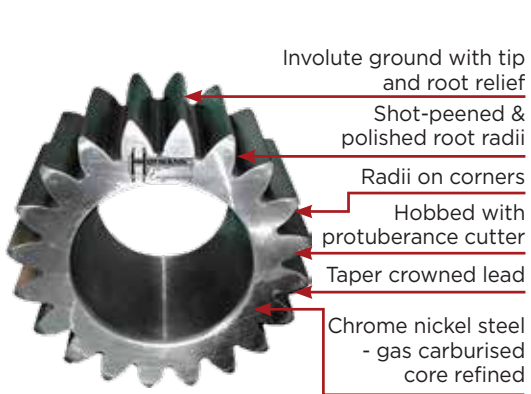


RAIL - PARTS & SERVICES

- TRACTION GEARING
- BOGIE MANUFACTURE & UPGRADE
- WHEEL & AXLE COMPONENTS
- INSPECTION & FAILURE ANALYSIS
- COMPONENT REFURBISHMENT



Australian made by the experts achieving the highest axle loads in the world.



SPIRAL BEVEL GEARS

- Case carburised to 60 ± 2 HRC and precision cut to DIN 3 (AGMA 14).
- Capacity to manufacture spiral bevel gearing up to $\varnothing 2m$.

BULL GEARS

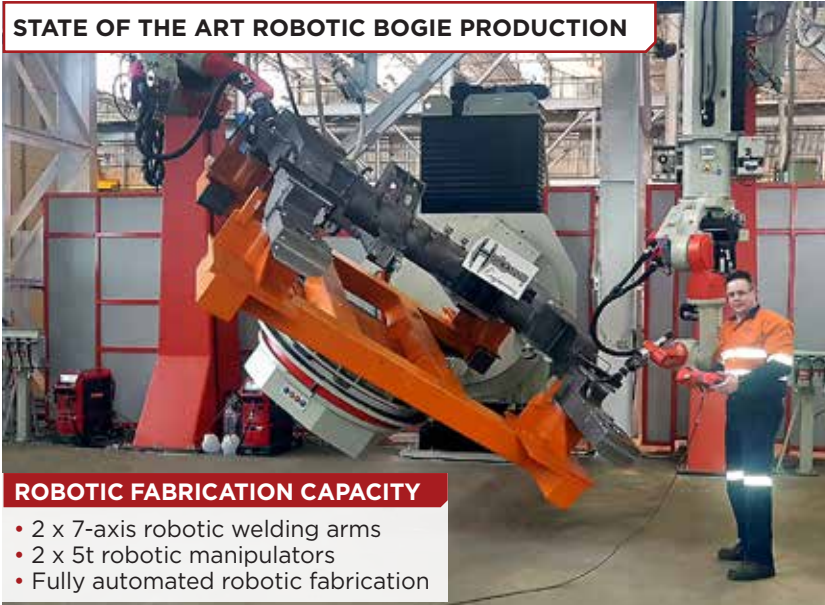
- Case carburised, shot-peened, ground and/or skived
- Tooth by tooth full contour induction hardened and ground
- Profile regrinding of old worn bull gears to better than DIN 5 (AGMA 12) accuracy (gears can remain on axle).



PINIONS

Case carburised and accurately ground including taper crowning. A shot-peened full root radius on pinions provides a substantial increase in strength.

STATE OF THE ART ROBOTIC BOGIE PRODUCTION



ROBOTIC FABRICATION CAPACITY

- 2 x 7-axis robotic welding arms
- 2 x 5t robotic manipulators
- Fully automated robotic fabrication



BOGIE MACHINING

Bogie frames are precision machined on CNC heavy machining centres.

BOGIE FABRICATION

CERTIFIED TO ISO3834 & EN15085

Bogie frames can be completely fabricated using both certified welders and robotic welding. Full stress relieving is also available.



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MANUFACTURE & ASSEMBLY OF WHEELS & AXLES



MACHINING WHEELS

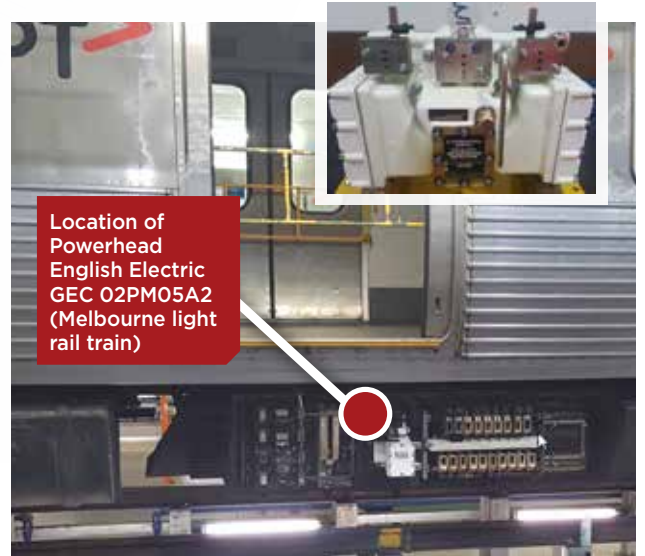
Forged wheels are finish machined on 5-axis CNC machining centres.

MACHINING AXLES

Axles are manufactured to AAR Standards or higher. Sourcing of forged material, NDT testing and finish machining are tightly monitored.

COMENG POWERHEAD OVERHAUL

Hofmann Engineering have developed an overhaul process for the Comeng Powerhead that provides superior performance than the OEM product.



Location of Powerhead English Electric GEC 02PM05A2 (Melbourne light rail train)

PRODUCT IMPROVED FORGED COMPONENTS

Hofmann forged rail componentry is product improved to permit higher axle loads and extend operational life.



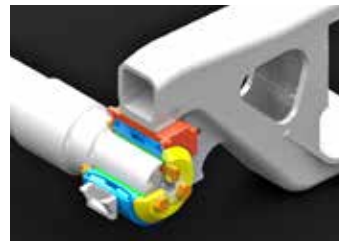
MACHINING LOCOMOTIVE ENGINE BLOCKS

Engine blocks are completely precision machined on floor borers. In situ line boring service with portable line boring machine is also available.



PORTABLE COORDINATE MEASUREMENT

Portable Coordinate Measuring Machines (PCMM) & laser trackers are used to measure manufactured components both in the workshop and on-site.



BOGIE UPGRADES

Examples: K Class bogie upgrade to suit Short G Class bearings. G Class bogie upgrade to suit heavy haulage bearings. Benefits: increased bearing life; increased axle load capacity.



METALLURGY

Complete metallurgical lab for:

- Quality control of heat treatment processes
- Metallurgical failure analysis
- Our specialty is failure analysis of gearing to AGMA and DIN standards.

HOFMANN'S RAIL TRACK RECORD:

BOGIE MANUFACTURE

- 882 off Melbourne High Capacity Metropolitan Train (HCMT) bogies are built in Bendigo.
- 330 off B Class Yarra Tram Bogies are built in Bendigo (165 Motor Bogies, 165 Trailer Bogies).

AXLE & WHEEL MANUFACTURE

- 1,764 off HCMT axles and 3,528 off HCMT wheels are manufactured in Cheltenham.
- Bochumer Verein Verkehrstechnik (BVV Germany) provides the design and the forgings.
- Hofmann Cheltenham has been audited and approved by BVV.

- Precision machining within 10 micrometers accuracy required for the wheels.

CAST PARTS

- Hofmann are manufacturing 18,000 cast parts for the HCMT.
- The castings are sourced by Hofmann directly from CRRG approved vendors.

FORGED HEAVY HAULAGE DRAW GEAR

- Hundreds of Hofmann Engineering's product improved forged F-type knuckles have

- successfully been manufactured and put into service.
- Other forged draw gear is in development and testing.

HOFMANN RAIL KEY FEATURES

- One stop shop for rail manufacturing.
- Hofmann Bendigo currently has the most advanced bogie production line in Australia.
- Hofmann can assure sustainability of investments through the variety of its product range and the strong position in the defence sector.

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