

FORGED STEEL FABRICATED GIRTH GEARS



Specialising in high strength forged steel fabricated girth gears up to 15 meters in diameter. This is the manufacturing process producing superior girth gears. The rim steel undergoes a unique manufacturing process to eliminate defects, such as porosities, often found in castings. The steel starts out as a cast ingot and is forged to a third of its original thickness. This ensures a much stronger and more uniform grain structure with no inclusions. The steel is then heated and quenched and tempered to form an extremely tough, tempered, martensitic state yielding high hardness with maximised toughness. Old, worn existing gears with unknown geometry can be easily replaced with a product improved gear. Shipping can be arranged to all continents of the world.

CASTING defects and imperfections cause cracking and tooth breakout.



Forged steel fabricated girth gears overcome cast steel cracking problems. Forged steel gives the highest crack and impact resistance.



HOFALLOY FORGED MATERIAL

Hofalloy 1 forged gear rim material conforms to:

1. AGMA 2001 Grade 2 specification.
2. Typical hardness range 320 - 360 BHN.
3. 3:1 Forging reduction.
4. Hofalloy forged steel gear rim material conforms to AGMA 6114 grade M2 specifications.



INSURANCE SPARE MATERIAL

Hofmann Engineering offers to keep forged Hofalloy plate in stock as an economic insurance measure for customers. One plate of Hofalloy can suit a variety of gears on-site:

1. **FORGED HOFALLOY** plate can be used as an insurance spare to cover many different girth gears.
2. Reduces manufacturing lead time.
3. Lowers insurance premiums.

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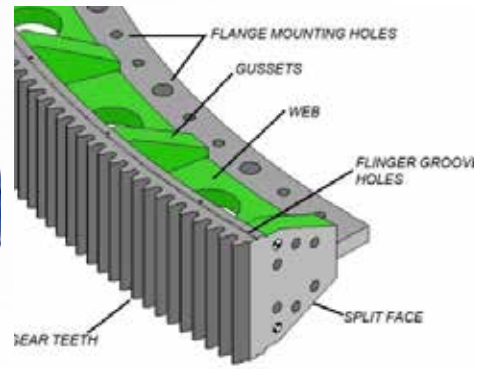
SITE AUDITS

- Evaluate girth gears and their conditions.
- Determine suitable forged steel rim plate – dimensions based on pitch, face width and gear diameter. Order forged rim plate based on site audit.
- Rim plate can be ordered to suit a variety of gears on-site.



SITE GEAR INSPECTIONS

- Full Dimensional inspections done on-site.
- Diameters, Lengths, Hole PCD.
- Full gear inspection including:
 - Pitch • Lead • Involute
- Hardness testing.
- Crack detection.
- Material chemical analysis.



DESIGN

- CAD design with 3D modelling to produce accurate manufacturing drawings.
- FEA analysis to optimise the weld sizing to keep stress levels to a minimum.
- Gear consulting.
- Gear design & rating calculating to DIN & AGMA standards.



FORGED STEEL

- Rim plate can be held in stock until required.
- One plate can be purchased to suit a variety of gears on individual or corporate sites.
- Once forged steel is in stock, manufacture lead time can be significantly reduced.



OXY CUTTING

- The forged steel is marked out & oxy-cut to width to suit the specific gear to be manufactured.
- Purchase of material in advance (no holding fee) allows the spread of costs over a period of time.



BENDING

- The individual lengths of plate are then rolled for the specific radius required for that gear.
- 6000 tonne roll pressing capacity.
- Unlimited length.
- 250mm thick x 3700mm wide.



FABRICATION

- Individual segments are fabricated to the strictest of welding and inspection procedures.
- NDT Inspection including 3rd party NATA ultrasonics.
- Full penetration submerged arc welds on critical joints.
- Stress relieved.



MACHINING

- Proof machined.
- Finished machined.
- Dimensionally inspected to internationally recognised standards.
- Full gear inspection including final mesh testing.



INSTALLATION & ALIGNMENTS

- Experienced team available to plan, manage and install girth gears, pinion assemblies, gearboxes and inching drives.
- Fully equipped with all tooling, for laser aligning, machining, fabrication and mill drive adjustments.

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