

## Girth Gears

### Cast & fabricated girth gears for all applications

David Brown Santasalo has almost three centuries of gear engineering expertise and a huge installed base of successfully operating girth gears worldwide. Usually fitted to the outside of horizontal mills, rotary mills and kilns, girth gears provide the system's primary rotational drive and as such need to be robust, efficient and built to last.

David Brown Santasalo delivers a full range of girth gears with cast, fabricated and multi-segment options available for the following applications:

**Mills • Kilns • Dryers • Coolers • Scrubbers**

#### Key benefits:

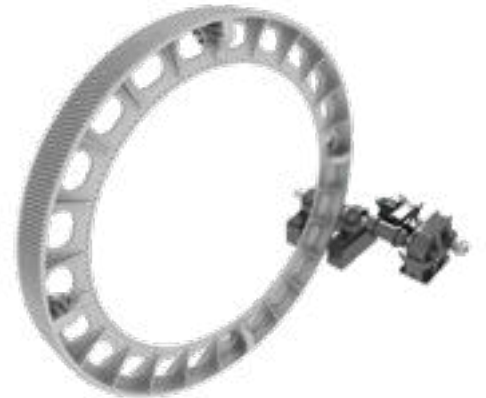
- Cast and fabricated gears rated up to 10MW per pinion
- Diameter up to 14m
- Weight up to 105 tonnes
- Pitch up to 50 module
- Options for 2, 4, 6 and 8 segment manufacture in cast and fabricated material
- Designed to the latest AGMA standards for complete assurance

#### Individual gears or a fully optimised system

Girth gears can be supplied individually, or as part of a fully optimised package which includes:

- Mill drive gearbox
- Girth gear
- Pinions
- Barring drive
- Auxiliary equipment including couplings, brakes, pedestal bearings and clutches

Whichever option you chose, rest assured that your girth gear will be designed to complement your whole system.





#### **T section gearing options**

T section gears are designed to optimise stiffness across the gear's facewidth. David Brown Santasalo T section gears are resilient to pinion misalignment, ensuring robust, reliable operation. David Brown Santasalo uses Finite Element Analysis (FEA) to deliver optimal gear performance.



#### **Y section gearing options**

Y section designs have been extensively used on rotating mills and kilns for many years and David Brown Santasalo has long standing experience in providing this type of girth gear. Y section gears offer optimal rim support and stiffness over the facewidth of the gear, ensuring the girth gear is as robust and reliable as our customers need it to be.

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#### **Material options: SG iron**

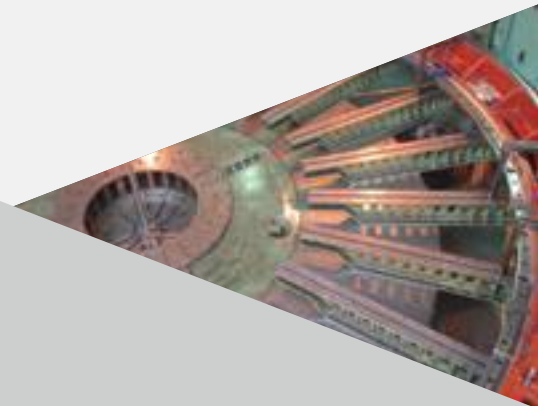
- Hardness ranges up to 320BHN
- Spheroidal Graphite Iron (SGI) gear castings deliver excellent material quality
- A lower stiffness rating improves load sharing across the face and between teeth, reducing pitting and ensuring a long lasting, reliable gear
- FEA techniques are used to model deflections under load to optimise and match the design to the material properties

#### **Material options: cast steel**

- Hardness ranges up to 320BHN
- Alloys designed to achieve the required mechanical properties and retain the ability for weld repairs in the field
- Castings can be liquid quenched during casting manufacture to achieve the desired mechanical properties with reduced risk of cracking
- Field proven procedures for managing the upgrading process to improve integrity

#### **Material options: fabricated steel**

- Proven alloys are used for gear rim construction, resulting in hardness values from 180 to 340BHN and high impact strengths - typically 35J, but can be as high as 90J
- Gear segment rims are hot forged using our unique hot forming process for greater material consistency and reduction of residual stresses
- FEA techniques are used to model stress patterns and ensure appropriate material choice for robust operation



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