PARKOLIN CORPORATION

"The fastest route for your spares

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Roll Manufacturing

Optimizing performance with innovative overlay technology

Roll Material Customization: The solution that meets the demand for optimal roll performance.

Developments in continuous casting have been dominated by the demands for high quality and reduced costs. Improving component reliability and properly maintaining the shape of the cast product are critical to meet these demands.

Our unique roll overlay technology and service expertise, provides our customers with modified roll designs and base material enhancements that combat the extreme operational mill environments. By analyzing roll erosion, corrosion, wear and thermal fatigue, we define and detail the variations of overlay materials and chemistry and tailor our surface engineering, process controls and technologies to accommodate all types of continuous casting machines.

The Overlay Advantage—

The primary benefit of a roll overlay is to minimize the operational effect on the roll while increasing lifetime and reliability. This has a direct bearing on the primary function of the rolls; to maintain the shape and form of the cast product. In addition, other advantages to roll overlays are:

- **Salvages the roll base material, which can yield a 25-50% cost savings compared to new roll options**
- **Allows for alterations to the base material composition and the ability to make surface design changes, which can minimize or even eliminate many of the operational effects on the roll**
- **A decrease in the long term spend due to an increase in skim machining campaigns**
- **Eliminates the long yield time for special forged materials and alloys**

We've established a decisive competitive advantage in the area of roll manufacturing and reconditioning. We invite you to work with us in applying our innovative strength to optimizing your continuous casting production.

MOLD FOOT ROLLS:

- Highest thermal stress
- Innovative grooved and non-grooved rolls are utilized
- Use of modified stainless and high nickel grade base materials and roll surface profiles, minimizes the effects of corrosion and thermal fatigue

BENDER AND ZONE ROLLS:

- Extreme thermal stress, fatigue and corrosion
- Innovative grooved and non-grooved roll designs are utilized
- Overlays provide optimal high temperature ductility and hardness retention
- Corrosion resistant material grades, such as high nickel and chrome-moly materials are recommended

BOW SEGMENT ROLLS:

- High thermal and mechanical stresses
- Internal and external cooling
- Customized base materials with optimal tensile strength reduce thermal fatigue and provide exceptional weldability
- Overlays provide ductility with resistance to corrosion, wear & abrasion
- Overlays are customized for different bow regions and can increase bow segment life by up to 400%

DRIVE ROLLS:

- Extreme mechanical stress due to heavy force
- High tensile strength materials are recommended
- Customized overlay can yield a 75% reduction in wear
- Premature segment extraction from extreme drive roll wear can be reduced by 75%

STRAIGHTENER ROLLS:

- Large diameter rolls that experience high mechanical stress
- Overlays targeting corrosion, impact and wear provide excellent ductility and high impact strength
- Optimized roll designs decrease roller deflection up to 7mm

HORIZONTAL ROLLS:

- Large diameter rolls with long in-service lifetimes
- Experience the lowest thermal stress but are affected by intense abrasive wear and erosion
- High strength and ductile base materials are utilized
- Optimized overlay with wear resistant alloys has achieved 4.8 million cast tons

RUN-OUT ROLLS:

- Subject to constant impact
- Exhibit extensive gouging, pitting and wear
- Inexpensive build-up materials allow the repair of deep cracks and gouges
- Customized overlay results in greater impact and wear resistance