

ZENITH STEEL GROUP, CHANGZHOU, CHINA

10-STRAND BILLET CASTER
MODERNIZATION

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First Single Roll DynaGap (SRD) segments for long product casting machines

MAIN BENEFITS

- Improved internal quality
- Reduced center porosity
- Reduced center segregation
- Improved surface quality
- Increase of productivity up to 2 million tons per year

In January 2019 Primetals Technologies was awarded a contract from the Chinese steel producer ZENITH STEEL GROUP Co. Ltd. to modernize their 10-strand billet caster located in the steelmaking shop #3 at Changzhou.

Primetals Technologies also supplied a bloom caster for big round casting sections in 2011 and added the new casting section 280x320 mm in 2016.

Start-up of the modernized billet caster is scheduled for March 2020.

SOLUTION

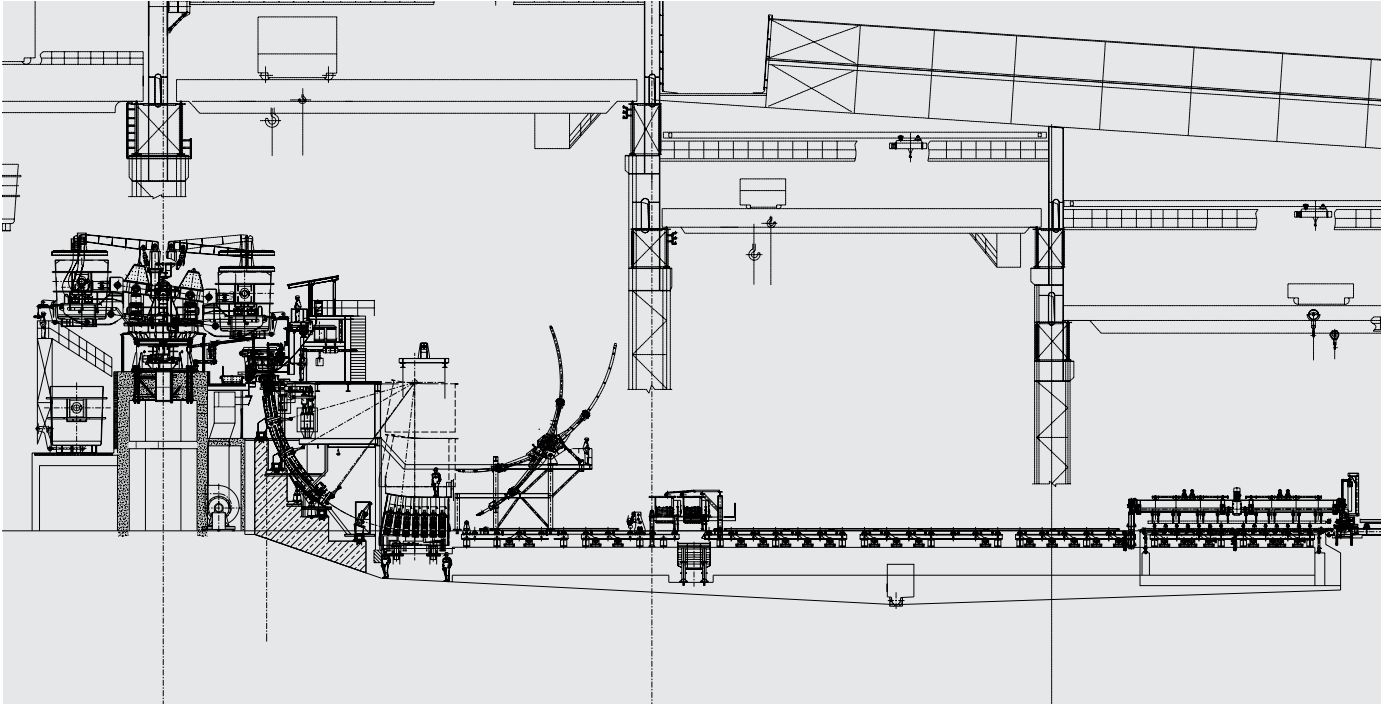
First SRD (Single Roll DynaGap) segments for long product casting machine worldwide with the possibility of soft and hard reduction of 20 mm and limited deviation of final casting section.

Modification to air-mist spray cooling and thus improved surface quality.

DynaPhase Online thermodynamic phase transformation model for calculation of material properties like thermal enthalpy, thermal conductivity, density and solid fraction.

Dynacs 3D secondary-cooling model capable of calculating the full 3D strand-temperature profile at any position along the strand for optimum adjustment of the secondary-cooling setpoints and the determination of the point of final strand solidification.

DynaGap Soft Reduction 3D fully automatic roll-gap control system allowing dynamic soft and hard reduction to minimize centerline segregation for improved internal strand quality.



Longitudinal section

SCOPE OF SUPPLY

- Roller blocks
- Spray headers
- Withdrawal and straightening units (WSU) with SRD segments
- New hardware for complete Level 1
- New soft and hard reduction models for billet casters, like:
DynaPhase
Dynacs 3D and
DynaGap Soft Reduction 3D

PLANT DATA

Heat size	138 t
Billet caster capacity	2.0 Mtpy
Machine radius	10 m
Metallurgical length	31 m
Billet sections	160 x 160 mm
Billet lengths	6 - 12 m
Max. casting speed	2.4 m/min
Steel grades	cold heading, gear steel, wire rod, hard steel wire tyre cord, free cutting

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A joint venture of Mitsubishi Heavy Industries and partners

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