

X-Pact® Level Control

Smoothest mold level in all process situations





The challenge

The continuous casting process has developed to a high technological level. Only a few parameters remain to allow an increase of plant availability, production capacity as well as an improvement of product quality.

One of these parameters is the mold level.

Fluctuations of the mold level have negative effects to the quality of the product and the production as well. The fluctuations can lead to quality downgrades of the product, decrease yield or even increase the breakout risk.

A constant mold level is decisive for the quality of the generated product. Therefore the mold level control has to achieve highest standards to be able to reach this stability of the mold level. This means that it has to react to a wide range of various process situations.

Simple handling and low maintenance intensity are further challenges that the mold leveling control must meet.

The SMS group solution

The SMS Group offers a complete solution from a single source: a concept that is tuned between mechanical design, automation and metallurgy.

Due to the close cooperation with leading steel plants, the mold level control system of the SMS group is a pioneer for this product on the market: the components used guarantee constant casting conditions and therefore the highest productivity and quality.

All selected components ensure easy maintenance and can be exchanged easily.

Key features

- <1mm level fluctuation
- Suppresses effects by roll eccentricity & bulging
- Counteracts standing waves
- Increases level stability at speed changes
- Minimizes breakout risks
- Extends casting time by automatic rod cleaning
- Assures best surface quality

Modernization

The X-Pact® Level Control can be integrated into any existing plant with lowest efforts.

Functions

Wave eraser	Erasing standing mold waves with intelligent filter techniques reduces oscillation on the mold level and avoids cast aborts.
Dynamic rod	Mathematical model for fast mold stabilization at casting speed changes avoids overflow hazards. An additional algorithm for “standing wave” detection is integrated as well.
Power stabilizer	Smart analysis algorithms minimizes mold level variance caused by bulging
Controller adaption	Avoids mold level escalation by temporary adaption of controller parameters.
Steel adaption	Optimal grade based parameter adaption.
Smooth takeover	Smooth transition from manual to automatic mode by smart ramping of the reference value to the required setpoint.
Width adaption	Best controller adaption for different mold widths to increase the stability of the mold level during width changes.
SEN protector	Mold level variation using sinus and/or triangle functions for long SEN reliability.
E/T-Stopper	Automatic overflow protection by an emergency and/or temporary close of the rod.
Auto start	Steel grade, width and thickness dependent automatic mold filling and generation of “Start of strand drives”. A pendant panel allows to increase/decrease the rod position slightly manually.
Rod cleaner	Automatic removal of clogging by knocking the rod.
Rod vibrator	Prevents arising of clogging and adhesion by vibrating the rod. Stroke and frequency can be set.
Statistical analyzer	Statistical analysis for the evaluation of the control accuracy.

Free choice of actuators and controlling procedure

The X-Pact® Level Control works with any kind of hydraulically or electromechanically driven stopper rod or slide gate.

Electro-Mechanical Stopper-Rod Drive designed by SMS

- High dynamic drive and best position accuracy
- Compact design by axial alignment
- Precise mechanical guidance
- Easy removable lightweight motor
- Attachable hand lever

Measurement system

The X-Pact® Level Control works with any kind of mold level measuring devices (radiometric and/or electromagnetic)

Operate observe and analyze

All important signals and operation modes are shown user-friendly
– on an assigned HMI.



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