

COOL

THE REAL-TIME SOLIDIFICATION MODEL

Fine-tune your continuous caster!



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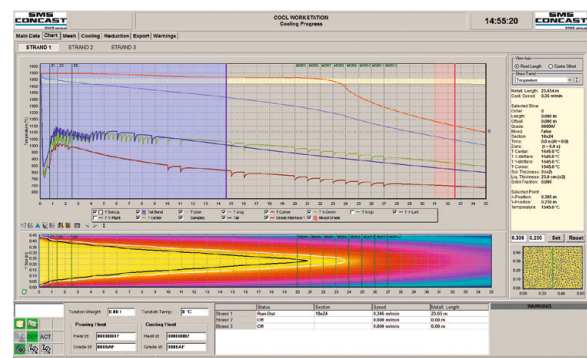
SMS Concast's has proven it on many plants around the world: the real-time solidification simulator, COOL, enables you to control and fine tune your caster with an accurate, detailed temperature profile of the strand as it solidifies, online, and now, also offline. Combining SMS Concast's vast metallurgical and process automation know-how, COOL lets you optimize caster inputs for maximum product quality and process stability.

Application

SMS Concast's COOL simulation software models the temperature profile of the hot steel strand in real time. This dynamic simulation allows operators to fine-tune variable process inputs like casting speed, the temperature and flow rate of mold water, spray rates, etc. from a computer workstation, online and on the fly.

SMS Concast's COOL solidification simulator supports:

- Optimized spray cooling and dynamic mechanical soft reduction
- Automatic adjustment to process fluctuations, for example, in tundish superheat or casting speeds, to keep the caster aligned with targeted values
- Easy integration into any plant automation set-up
- COOL Offline software for developing new metallurgical processes, say, to introduce a new steel grade (See table)



COOL screen presents a detailed strand temperature profile

Ease of Use and Maintenance

- Easy to use after a brief on-site training session
- Clear, understandable user interface
- Metallurgical consulting available on request

For best results

Combined with COOL we recommend SMS Concast automation for spray cooling and MSR, as well as our mechanical MSR modules. And COOL Offline software can supplement online COOL or serve as a standalone metallurgical development tool. Please contact us for further information.

YOUR ADVANTAGES

- **Consistent steel quality and process reproducibility** thanks to a tightly defined solidification model
- **Less cracking from internal reheating** thanks to real-time spray cooling adjustments
- **Improved center segregation and porosity** thanks to optimized dynamic MSR control
- **A powerful metallurgical tool** to develop your steel grade portfolio

TECHNICAL DATA

Calculation time	5 seconds for a full simulation
Caster design inputs	<ul style="list-style-type: none">– Nozzle layout– Roll arrangement– Cooling tunnels
Real time field data	<ul style="list-style-type: none">– Steel chemistry– Superheat– Casting speed– Mold cooling– Secondary cooling

COOL Offline

Advanced strand casting simulations for:

- Optimizing parameters during process changes like start and end of cast, ladle changes, dilution grade change, flying tundish, etc.
- Analyzing processes with time-dependent transitions. Users can storyboard a process and review the outcome like a movie.

Steady-state solidification simulations for:

- Optimizing process parameters like casting speed, spray cooling, etc.
- Introducing new steel grades

Options: COOL Offline is available as standalone software or as supplement to online COOL