

HOLCIM DIGITAL CONCRETE SERVICES

ENABLING THE FUTURE OF CONSTRUCTION



GLOBAL LEADER IN INNOVATIVE AND
SUSTAINABLE BUILDING SOLUTIONS



SMART SERVICES TO UNLOCK YOUR PROJECT'S POTENTIAL

Digitalization is rapidly becoming a critical success factor in construction. By providing accurate information at the right time, digital technologies enable effective decision making to improve a project's performance while mitigating risks. With Holcim's suite of digital concrete services, concrete structures can be built faster, more cost-effectively and with the highest level of quality and sustainability.

COMPLEX CHALLENGES

The construction industry is facing increasingly complex challenges: from cost pressures, to evolving customer expectations, to stricter requirements on safety and sustainability. The expansion of cities requires taller buildings to address population demands, and infrastructure networks for utilities, road and rail to link our increasingly interconnected world. With its unmatched versatility, cost-effectiveness, durability and sustainability, concrete remains the material best positioned to meet these challenges.

CONSTRUCTION GOES DIGITAL

Digital technologies provide users on construction projects the ability to:

- Simulate processes and predict performance for more efficient planning
- Streamline schedules and mitigate risks proactively
- Monitor progress with real-time data
- Take timely, data-driven decisions
- Evaluate project performance with accurate actual data, allowing for improvement on future projects.

HOLCIM'S ANSWER:

Holcim pairs digital advancements in construction with the industry's leading concrete expertise: Holcim digital concrete services enables tailor-made solutions to build better, smarter and greener concrete structures.

SMARTER, GREENER, BETTER



Faster decision making and construction time



Increased quality of concrete applications



Mitigated and controlled risks



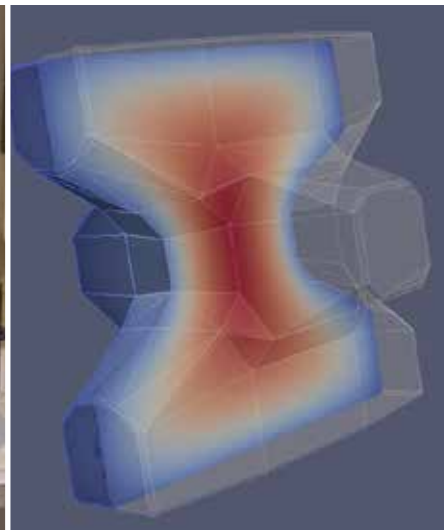
Optimized resource utilization



Reduced costs and idle time



Enhanced durability of structures



SMARTCast

BY HOLCIM

Real-time, digital monitoring of concrete strength and temperature for optimal onsite control.



BENEFITS

- **Save time:** Faster formwork removal, element loading and better planning with accurate, real-time early strength data
- **Reduce costs:** More efficient deployment of onsite resources and shorter construction schedules
- **Reduce emissions:** Concrete mix designs optimized for lower environmental impact
- **Reduce risk:** Confidence in the structural integrity of your concrete elements and real-time alerts to ensure proper curing and control of temperature differentials

APPLICATIONS

- High and mid-rise buildings
- Infrastructure
- Pre-stressed and post-tensioned elements
- Mass concrete elements
- Precast concrete elements

SCOPE OF SERVICE

- Determining concrete maturity curves
- Optimization of concrete mix designs
- Seamless sensor supply included with your concrete order
- Expert support for sensor installation
- Real-time data access from anywhere

SMARTFlow

BY HOLCIM

BENEFITS

- **Improve efficiency:** Optimized pump selection for highest pumping efficiency
- **Reduce costs:** Less wear and tear on pumps and pumplines and real-size pumping trials no longer necessary
- **Reduce delays:** Less potential of delays and cost overruns due to pumping challenges
- **Minimize risks:** Assurance of pump and concrete mix designs' fitness for the project

APPLICATIONS

- High and mid-rise buildings with long vertical pumping distances
- Rail and tunnelling with long horizontal pumping distances
- Projects requiring complex pumping configurations

SCOPE OF SERVICE

- Assessment of concrete tribology with dedicated instrumentation
- Simulation of pump and concrete fit with various mix designs and pumping configurations
- Actionable recommendation of the the best concrete and pump for your project

Digital modelling for optimal concrete pump and mix-design selection for long distance horizontal and vertical pumping.



SMARTTherm

BY HOLCIM

Thermal simulation to digitally predict temperature development in mass concrete elements for reliable curing without defects.



BENEFITS

- **Reduce costs:** No waste for real size mock-ups to test temperature in mass concrete elements
- **Reduce risks:** Precise predictions of temperature evolution to prevent thermal defects
- **Optimize mix designs:** Use the most suitable mix to achieve the temperature requirements

SCOPE OF SERVICE

- Characterization of the thermal fingerprint of each concrete mix
- Digital simulation of temperature development in mass elements
- Optimization of concrete mix design to meet temperature specifications and requirements
- Summary of results in an easy-to-read, comprehensive report

APPLICATIONS

- Mass structural elements, such as bridge beams, pile caps and bases
- Rafts foundations, windmill foundations and bored piles
- Dams

HOLCIM DIGITAL CONCRETE SERVICES FOR YOUR CONSTRUCTION PROJECTS

With the digital concrete services, Holcim supports you from concept to completion of your construction endeavors. Our solutions improve the construction process from the design of your concrete applications, to the off-site manufacturing of any concrete components, to the usage of concrete on the construction site. Our services benefit from Holcim's expert knowledge from the most extensive network of concrete operations in the world, as well as the largest concrete research laboratory in the industry. We will help you complete your projects on time, cost-effectively, sustainably and to a high standard of quality.

LET US SUPPORT YOUR CONSTRUCTION PROJECT DIGITALLY!



	SMARTCast by Holcim	SMARTFlow by Holcim	SMARTerm by Holcim
① Foundations	<p>■ Monitor temperatures in real time, to be alert to heat of hydration issues</p>		<p>■ Simulate temperature for mass pours, ensure compliance with temperature specs</p>
② High rise columns, slabs and structural walls	<p>■ Monitor strength development in real time, accelerate construction</p>	<p>■ Choose the right pumping equipment and concrete mix design for the job</p>	
③ Large spans	<p>■ Monitor your casts in real time, to ensure quality, durability, accelerate construction and control your post-tensioning</p>	<p>■ Choose the right pumping equipment and concrete mix for pumping over long, horizontal distances</p>	
④ Pre-cast concrete manufacturing	<p>■ Accelerate your production process with real-time information</p>		<p>■ Simulate temperature for mass pours, ensure compliance with temperature specs</p>

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LET'S TALK ABOUT YOUR IDEAS

<https://www.holcim.com/what-we-do/our-building-solutions/digital-services-rmx>

Further information available at



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