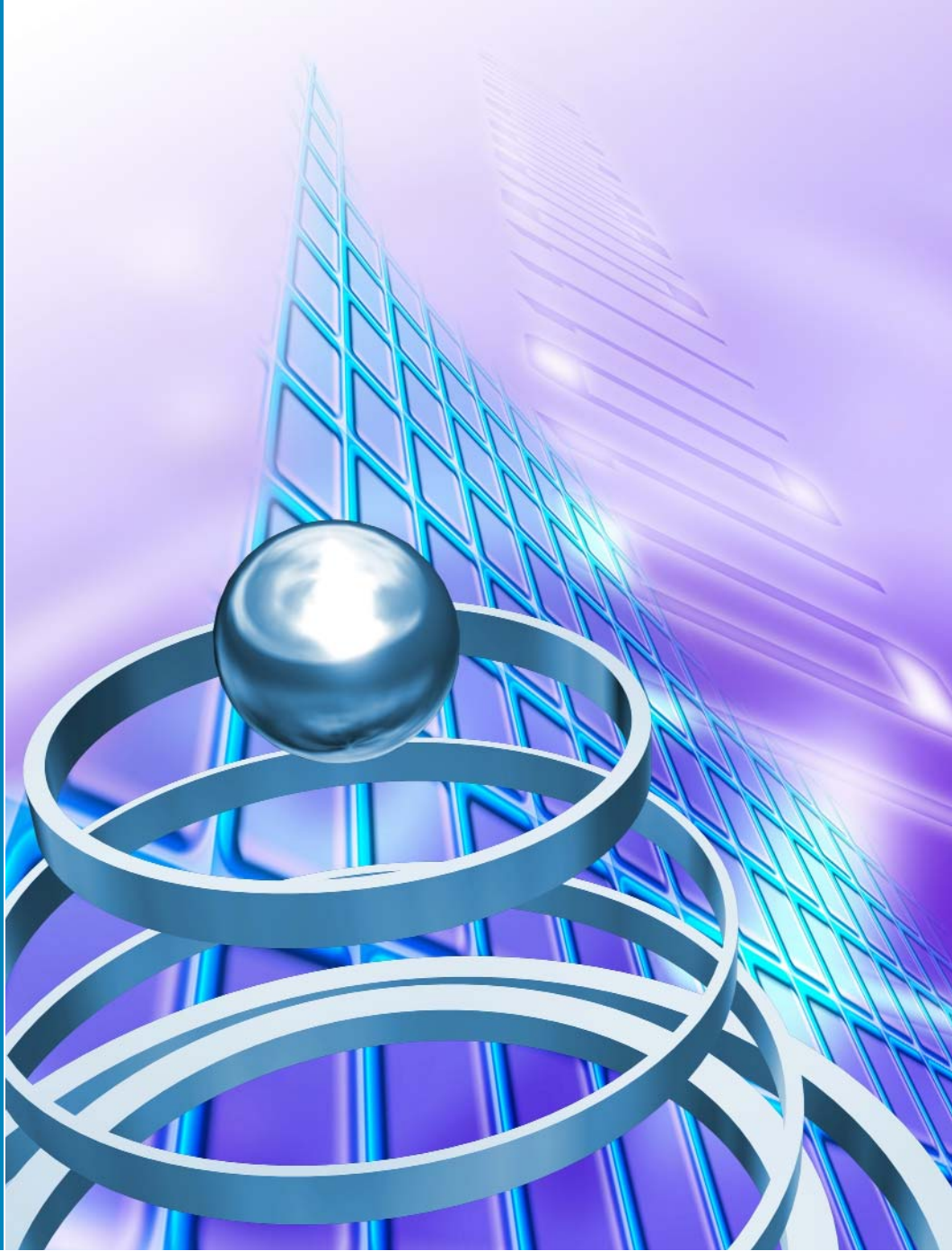


A COMMAND ALKON EXECUTIVE WHITE PAPER

Precision Water System for COMMANDbatch Delivers for Delmon Readymix



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Command Alkon was approached by Delmon Readymix to help them with a specific production requirement. Delmon needed to reduce the slump variability of concrete when delivered to help speed up the pumping process and improve their customer experience. Delmon also wanted to reduce the number of wasted loads based on job site rejections, rework, etc., which undermined profitability.

Jon Mottram, General Manager of Delmon Readymix, found that Command Alkon's Precision Water System (PWS) for COMMANDbatch was the key needed to improve plant operations. As part of a Spectrum upgrade to COMMANDbatch, Delmon installed a Precision Water System and Plant Watcher to improve the quality and consistency of the concrete delivered to their customers. The upgrade to COMMANDbatch and installation of the PWS system was easy. "Command Alkon was able to convert our data in their office before coming to site and the new batching computer was delivered with this data pre-loaded, thus with the data correct and the moisture probes installed in the bins before their engineer

arrived, only one day was required to convert the concrete plant," Mr. Mottram says.



Located in Salmabad, Bahrain, Delmon Readymix plants experience variations in the aggregate moisture that are unique to its location and climate. While the moisture of their marine sand usually delivers free water into the load, on many occasions the limestone aggregate is dry enough to absorb free water out of the mix just to achieve its saturated surface dry (SSD) condition. This wide variation in moisture had necessitated the creation of several compensatory processes at the batch plants the first of which was that the batch operator would manually adjust the water in the

mix design before the load if the aggregates were thought to be dry, and secondly, the truck would make a required trip to the slump stand for final adjustment.

Their Precision Water System is equipped with four Command Alkon moisture probes, providing moisture measurement for all aggregate up to 20mm (3/4"). As part of the commissioning process, the first benefit of the PWS to be realized was the ease of calibration of the moisture probes. Jon Mottram describes it this way by saying that, "The new system is very simple, all you have to do is hit the bake out button on the probe calibration screen, capture the material under the weigh bin, (have) the lab staff do a moisture test, then re-enter the figures into PWS at any time later and away you go! You need to repeat the bake outs to get the final calibration curve, but this builds up over time and gets better with the more calibrations done. It is very simple."

Once plant operations were restarted, the ability of the COMMANDbatch and the Precision Water System to deliver changes in real time became clear. This plant at Delmon requires two or more batches to make the full truck load. "With PWS you get changes in the aggregate moisture immediately adjusting the final water addition to the batch," Mottram notes. "No waiting for adjustment to be done on the second batch. This capability ensures every part of the load is produced correctly. We now have more accurate slumps at the plant with + 15mm (0.6") achieved repeatedly, requiring less use of the slump station. The batcher no longer adds water manually to correct the slump. PWS allows the absorption of the aggregates to be

taken into account when batching the concrete, thus, when using very dry material which will absorb moisture, the system automatically adds water to the mix which gives the correct slump of the concrete and the correct yield. We are achieving a tighter envelope on slumps at the job; the customer gets better consistency between loads, we get happier customers with fewer complaints ensuring our company keeps an edge over the competition.”

One unexpected benefit of the Precision Water System has been the ability to rely on the system to alert the producer to other aspects of the material quality process. For example, Delmon has discovered that material issues (dust content, grading changes) are flagged up much earlier than in the past. If the grading of materials goes out of specification the water demand changes and the batcher has then to trim the total water requirement. This problem is more easily spotted as an issue now and action can be taken much earlier.

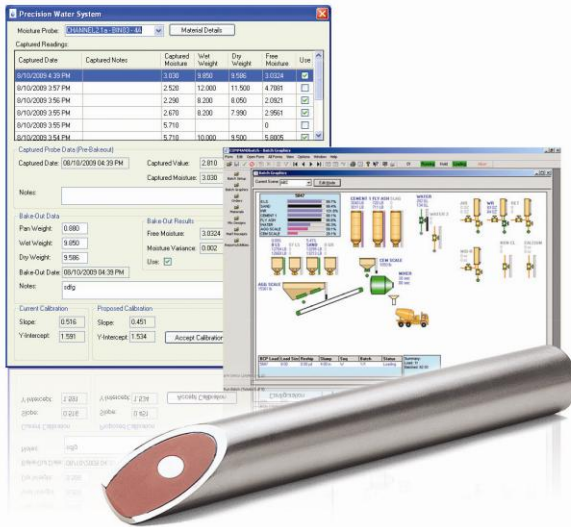
Looking back on the COMMANDbatch/Precision Water System implementation at Delmon Readymix, Jon Mottram warns that to achieve success there are certain key factors to consider before purchase. First, the initial cost of Precision Water System may hinder purchase decisions for plants with low volume, but any high output plant should be a candidate; all five Delmon plants with Precision Water System run at very high production levels. Referring specifically to the Salmabad plant, Mottram says that the savings returned by the COMMANDbatch, Precision Water System, and Plant Watcher will pay for the upgrade in about five months. “Training and personnel are key factors, as is the enforcement of consistent and repeatable processes across the entire organization. Achievement of any quality control initiative will not work unless all departments buy into the concept (Production, Technical, and Sales). All areas of the business have to fully understand what the benefits of the system are and how to use it properly,” Mottram adds.



The final proof is in the concrete. After COMMANDbatch was installed with the Precision Water System the company reported a drop in the strength standard deviation from 5.5 mpa (797 psi) to 4.5 mpa (652 psi) for their mixes in the past two months. In conjunction with the operational bottlenecks identified by Plant Watcher, the company has been able to reduce the amount of cement used while producing extremely consistent concrete.

About Delmon Readymix

Delmon Readymix established in 1973 is Bahrain’s leading readymix concrete company having an excellent reputation in the market built upon product quality and friendly, with efficient service. As the first Readymix Company established in Bahrain (in 1973), Delmon has played a major part in the construction of modern Bahrain with well over 8 million cubic metres of quality concrete produced to date.



The Precision Water System is a fully integrated water management system which provides a new set of tools that simplify and automate the management of moisture compensation with the ability to calibrate and simultaneously measure up to 12 probes up to 1" coarse aggregates. Plant Watcher for COMMANDbatch provides continuous monitoring of production operations, providing real time alerts of production issues while providing detailed post production reports that can be used to improve operations and cut costs.

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