

A highly cost effective and efficient investment

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When it came to improving the screening efficiency of NCC Roads A/S - Nyrand Grusgrav operation in Swebölle, Denmark, the task proved easy thanks Sandvik's WX7000 screening media. The anti-blinding polyurethane screening media has increased production capacity, with enhanced material separation, reduced final product fines by 100%, and improved operational lifetime proving to be a highly cost-effective investment.

NCC Roads A/S - Nyrand Grusgrav quarry in Swebölle, Denmark, plays a vital role for the company producing 2-5mm aggregate for use in manufacturing asphalt and concrete. Annual production of this accurately sized material is in the region of 70,000 tons per annum, at an ideal hourly rate of 100tph, with the quarry operating a 5 day 40 hour week.

Prior to screening, the aggregate goes through a traditional primary and secondary crushing process at a feed rate of 100tph. Initial screening removes the +10mm material which is recycled back into the crusher for further processing. The main feed material is then sent to a static double deck screening plant with a 5mm top deck and 2mm bottom deck. The final product is then sent to a washing plant. A further screening plant is also available to deal with any operational down time and when extra capacity is required.

Inefficient production

Although the plant has been able to satisfy demand, the screening process has not been without problems. The 'blinding' nature of the wire-mesh screening media has resulted in material being 'misplaced', thereby reducing the amount of material that becomes a saleable product, and leading to an overrun of fines.

Blinding, however, was not the main problem: the wire mesh screens had to be replaced 10 times each year due to breakages etc. This resulted in operational down time, with replacing the screening media being a time intensive process. What was more, this was making the entire plant cost-inefficient due to the costs involved in having to change the wire screening media. Many man hours were being used in this often dangerous undertaking, as well as the plant losing a great deal of production.

Tensioned anti-blinding screening media

Following discussions between NCC and Sandvik during a site survey in the spring of 2014, it was decided as one of the action points, to focus on the existing wire mesh on the bottom deck of the double deck screen. This was due to the problems that were being experienced with both media lifetime and blinding.

After collecting data from the existing process, as well as setting targets for production, Sandvik proposed a solution involving WX7000 anti-blinding screening media. In addition to this technical solution, Sandvik also proposed providing a technical supervisor and training for the operators at the site. NCC accepted the Sandvik solution and replaced its wire mesh with Sandvik WX7000 at the beginning of 2015. The new anti-blinding screening media has now been effectively working for nearly a year, without the need for manual cleaning or replacement.

The WX7000 solution is a tensioned soft polyurethane screening media with dam bars and punched holes designed primarily for fine screening in difficult conditions. Its design solves blinding problems providing excellent screening efficiency in the final stage of screening. The wear life of the media is up to 10 times longer (or more in many applications) when compared with traditional wire mesh, thereby significantly lowering operating costs.

Dam bars slow down undersize material, enabling oversize material to pass more quickly resulting in more accurate screening and a better end product. Furthermore, and due to its unique properties, this polyurethane tensioned anti-blinding screening media needs minimal service maintenance which benefits operational safety and improves cost-per-ton production.

A unique solution

A major difference, in comparison with other meshes or screen cloths, is that Sandvik's WX7000 anti-blinding screening media keeps the apertures open in difficult conditions due to its flexibility ensuring high end product quality during its long lifetime. This is accomplished as there are no blind areas, or joints, in the length of the screen to which undersize particles can move without being screened out.

A larger efficient screen area also improves accuracy and increases capacity with the WX7000 screen cloths being of an especially hard wearing polyurethane design. This ensures a long working life, and minimizes the number of operational stoppages for screen cloth replacement (vital, when a replacement has to be made, the process is fast and smooth).

Real benefits delivered

All of these features have ensured that the Svebölle operation is now a more productive, more cost efficient and safer work place. The main 2-5mm product is produced more efficiently, with fines in the final product being reduced from 6% - 3%. This improved product quality has made NCC's products more competitive, and ideal for concrete production, amongst other applications.

The hard wearing nature of the WX7000 polyurethane screens has resulted in safer handling and increased production capacity. This is due to the elimination of manual cleaning and screen media life time being extended by more than 10 times life time compared to the previous wire mesh. The resulting more efficient operation has reduced the cost of production providing NCC Svebölle management with greater peace of mind and confidence in their production capabilities.

Source: Sandvik