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Very high colour-mix precision for today's quality requirements

The Würschum company this year presented more innovations in connection with the manufacture of high-quality colour-mix concrete products, such as multicoloured facing pavers, large slabs, large precast elements and high-grade wetcast products. According to the manufacturer, dosage accuracies of +/- 1 g are now possible, as well as the buffering of up to 6 colour batches for the fast and optimum supply of several mixers with interim concrete containers. These innovative devices were presented to trade visitors at this year's bauma in Munich.

In the concrete sector the trend is more and more towards high-quality concrete products; colour shadings and surface finishes are increasingly encountered. These products also place higher demands on the production plants. In the colour sector this primarily means very high dosage precision. In particular with light pastel shades, it must be possible to manufacture the individual shades reproducibly.

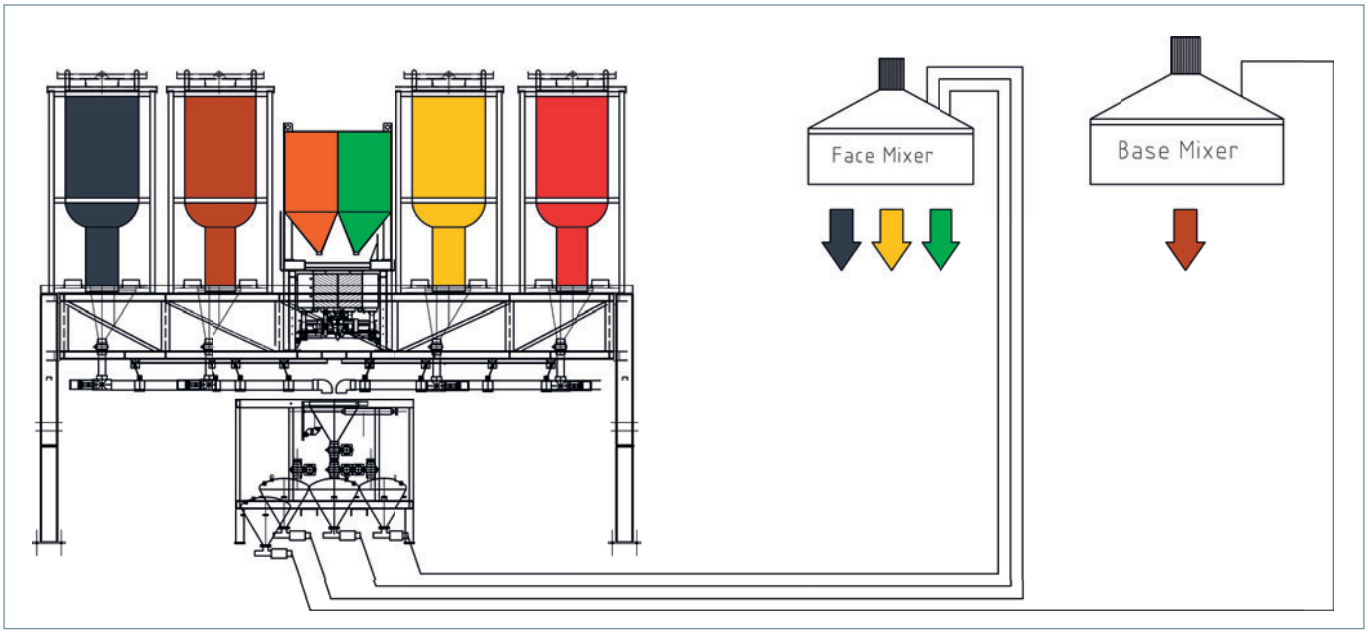
The newly developed Mini-Com 10-4 granulate dosing system (fig. 1) is very well suited to this purpose. It allows very precise colour combinations to be manufactured for colour-mix products.

The general trend in facing concretes is towards increasingly small facing concrete mixers. As a result, the total quantities are also becoming increasingly small. A few hundred grams in total are no longer a rarity. If a mixing ratio of 95% to 5% is demanded for these small quantities, e.g. 600g yellow colour and 30 g black colour, the partial amounts of the smaller components soon become as small as 20-40 g. The minimum possible dosing accuracies of +/- 1 g are very helpful here if a reliable and reproducible colour mix is still to be achieved.

The Mini-Com 10 can be filled from paper sacks directly into the device, or via a segmented swap container, which can then be filled from big bags in another location in the plant (fig. 2). In the full version the Mini-Com 10-4 has four different colour components, from which a large number of mixing colours can then be manufactured. There are also versions with one or two colour components.

Mini-Com 10-4 for accuracies of +/- 1 g

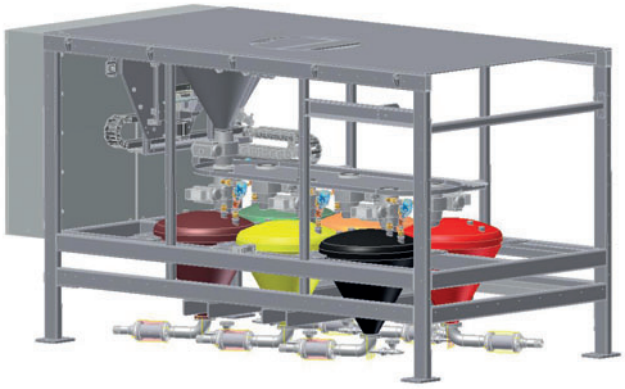
Mini-Com 10-4 with swap container



Layout diagram: Com 70-4 for eight colours, 4 x big bags and 4 x small quantities

The further processing of the weighed colour batch can take place either directly in free-fall into the mixer, onto a belt or into a lifting bucket. Appropriate emptying aids are available for this. If a Würschum Com granulate system exists, there is also a possibility to place the Mini-Com in one of the previous colour positions and then to dose the batch into the larger quantities of the granulate device (fig. 3). In the case of a retrofit the controller can be executed as a stand-alone unit, or it can also be integrated into the existing mixing plant if the customer so wishes.

Com 70-6 with six pressure pods



Com 70-6 with six pressure pods

A further optimisation shown at the bauma was the Com 70-6 granulate device (fig. 4), which enables the buffering of up to six colour batches of any kind. The desired colour batches are weighed by a mobile scale from all the available big bags, of which there are usually six. The accuracy here is +/-10 g and the smallest total quantity is 100 g. The Mini-Com mentioned above can be used for higher accuracies and smaller total quantities. The weighed colour batch is then transported via the pressure pod programmed according to the mixer allocation. The scale is then lowered in order to create a dust-free connection. After the emptying of the colour batch, the scale is raised again and drives back to the central weighing position (fig. 5).

This system is very flexible and fast, since it decouples the dosing of the colour batch from the request by the mixer. Several mixers can also be supplied without waiting times and delays occurring. As long as the mixers are processing the colour mix, the respective batches are weighed again and fed to the pressure pod. The demands on the colour dosing system are increased in particular by the trend that has been emerging for some years towards buffer containers under the mixers for the coloured concrete batches, which are then removed by belts or similar devices.

Even if these buffer containers for the concrete batches are precisely monitored, e.g. by weighing, the interim containers available in the Com 70-6 are still extremely helpful in structuring the entire colour system more clearly. Colour pressure pods can then be assigned to the corresponding mixers for each production situation to enable a simple and comprehensible supply, especially in the case of malfunctions and interruptions. The layout diagram (fig. 6) shows a variant with three mixers.

In summary it should be added that the advantages of the Com 70-6 also apply to powder pigments. The system is called Flex 70-6 and also operates with six pressure pods which, however, are optimised for the processing of powder. The Flex system can also be operated with granulates, so that it can be used really flexibly. With these developments and optimisations in colour dosing, the demanding manufacturer of concrete products can be provided with dosing systems that cover these very high requirements. ■

FURTHER INFORMATION

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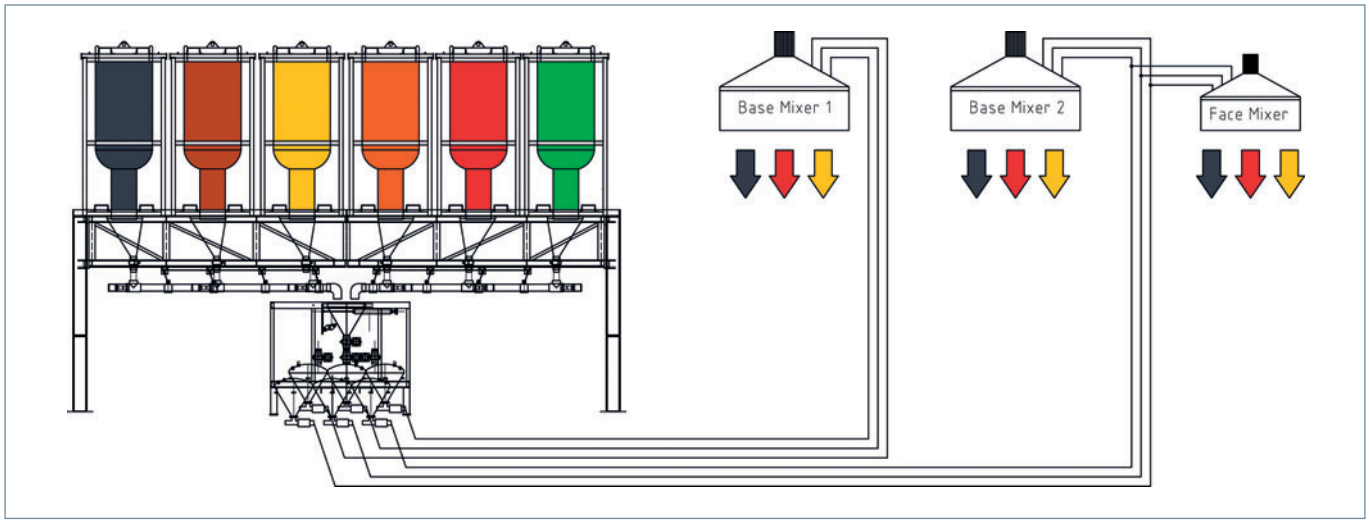

Layout diagram: Com 70-6 for six colours in three mixers, each with three concrete reservoirs.