

Powder Coating Unit with Quick Colour Change System

Coating Individual Passenger Seats Efficiently

Increasingly, the seats in buses and trains have individual designs consisting of a variety of components, colours and materials. One seat manufacturer has invested in a modern powder coating system which allows it to coat small batches of its products efficiently. The new solution has significantly reduced colour change times and keeps powder wastage to a minimum.

I would like to bet that, after reading this article, you will take a very close look at your seat the next time you travel by train or bus. Because it is surprising how many components, colours and materials are used for seats on public transport. For more than 60 years, Franz Kiel GmbH has been producing public transport passenger seats in Nördlingen (Germany) and Nowy Tomyśl (Poland). The company's production process includes the latest powder coating technology, which enables it to meet all its customers' seating requirements, from high-speed trains in the USA to the railway system for the Winter Olympics in Sochi.

Every public transport company has its own corporate design. In some cases each train and bus has different fittings. Acting as a system planner, Kiel creates a complete interior concept, including the colour scheme, colour layout and seat design. The company is no longer by any means simply a seat manufacturer, but instead plays an active role in the entire vehicle planning process.

The variety of products is reflected in the range of parts processed by Kiel. Each year, 3500 new welded assemblies are added to its portfolio. This means that batch sizes are constantly shrinking and the variety of colours is grow-

ing, because of the increasing number of individual solutions. As a result, the company has had to rethink the powder coating processes at its plants in Poland and Germany.

New challenges for the coating system

The variety of colours and components is not the only challenge that Kiel's powder coating system faces. The coatings themselves must now be much tougher than they were in the past. This is because new types of cleaning machines are increasingly being used to clean the interior of the vehicles, which knock the dirt off the mountings and put much greater mechanical stresses on the seat frames. Therefore, the company's Polish site decided to switch to the new TecTalis pre-treatment system from Henkel. This was one of the factors which triggered the process of planning a new powder coating unit with a fast colour change system.

Because a new production building was being constructed in Poland, the powder coating unit could be planned from the ground up. Experience shows that this allows for greater freedom in designing and configuring the system. Kiel opted for Gema's MagicCompact EquiFlow system, because of Gema's very accurate analysis of the current situation, professional quotation and rapid planning. The sales and project managers from Kiel were impressed by every aspect of the overall concept. As it became clear during the course of the planning process that a change was also



A variety of components, colours and materials are used to manufacture seats for buses and trains.



The new system has led to huge reductions in colour change times, a cleaner working environment and minimal amounts of powder wastage.

needed at the company's headquarters in Nördlingen, the project was used as the basis for the introduction of a new unit in Germany.

The Nördlingen plant specialises in rail seats. Fire prevention standards in the rail sector are much higher than those in the bus industry, which results in an even wider range of materials being used. Another special feature of trains is their lightweight design, which means that aluminium and steel have to be coated together. This represents a particular challenge in the pre-treatment and powder coating phases, which Kiel's managing director, Gerhard Hellweg, sums up as follows:

"The colour changes in the old system with the steel booth were far too long for the constantly shrinking batch sizes and increasing numbers of colours. In addition, during the period of over an hour spent changing colours, a great deal of powder was wasted."

As a result, the team at Kiel began to investigate whether the concept in Poland could be transferred unchanged to Nördlingen.

Despite the fact that the space in the existing building was very restricted, Gema was able to reproduce the layout of the powder coating system almost identically. However, the main challenge was dismantling the old system and installing the new one without interrupting production for a long period. The timeframe for the assembly process was very tight. The old system was removed over the course of three

days. During the next four days, from Thursday to Sunday, the new unit was set up and production resumed on the following Monday. Just two weeks later, the plant returned to full capacity.

The result was that operations at Kiel were interrupted only for three working days. The coaters also adapted quickly to the new technology, because the powder coating manager was fully familiar with the new system and had studied it in detail in advance. Effective training courses held by Gema also contributed to the rapid changeover.

New solutions increase efficiency

In comparison with powder coating systems from the 1990s, the latest machines have a number of sophisticated features. For example, a wide variety of different programs can be stored, which allows any type of part to be coated in a fully reproducible way. Because of the extensive range of different components that Kiel processes, it makes full use of the storage capacity. Trains are often built at longer intervals or batches are delivered after a period of several months. Because of the comprehensive programming options, the quality standards of the parts are guaranteed to be identical.

One striking feature of the unit is the BigBag under the after-filter. Waste powder is transferred directly to the sack, which saves a significant amount of time that would otherwise be spent disposing of it. In addition, the working environment remains clean and no

powder pumps are needed. The new solution is highly functional in technical terms and has paid for itself in a very short time.

The new powder coating units in both Germany and Poland produce high-quality, reproducible results and the entire coating process is considerably more efficient and more flexible. The MagicCompact EquiFlow system with the OptiCenter powder management unit makes a significant contribution in this respect. The colour change times are now much shorter, the process is cleaner and powder wastage is kept to a minimum.

From Kiel's perspective, the new unit represents a major step forward for its production process and its coaters and allows the company to guarantee its customers the high levels of quality they are accustomed to. For Kiel it is no longer a problem that trains and buses are becoming increasingly brightly coloured. With its new modern coating lines, it is well-equipped to face future challenges. ■

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