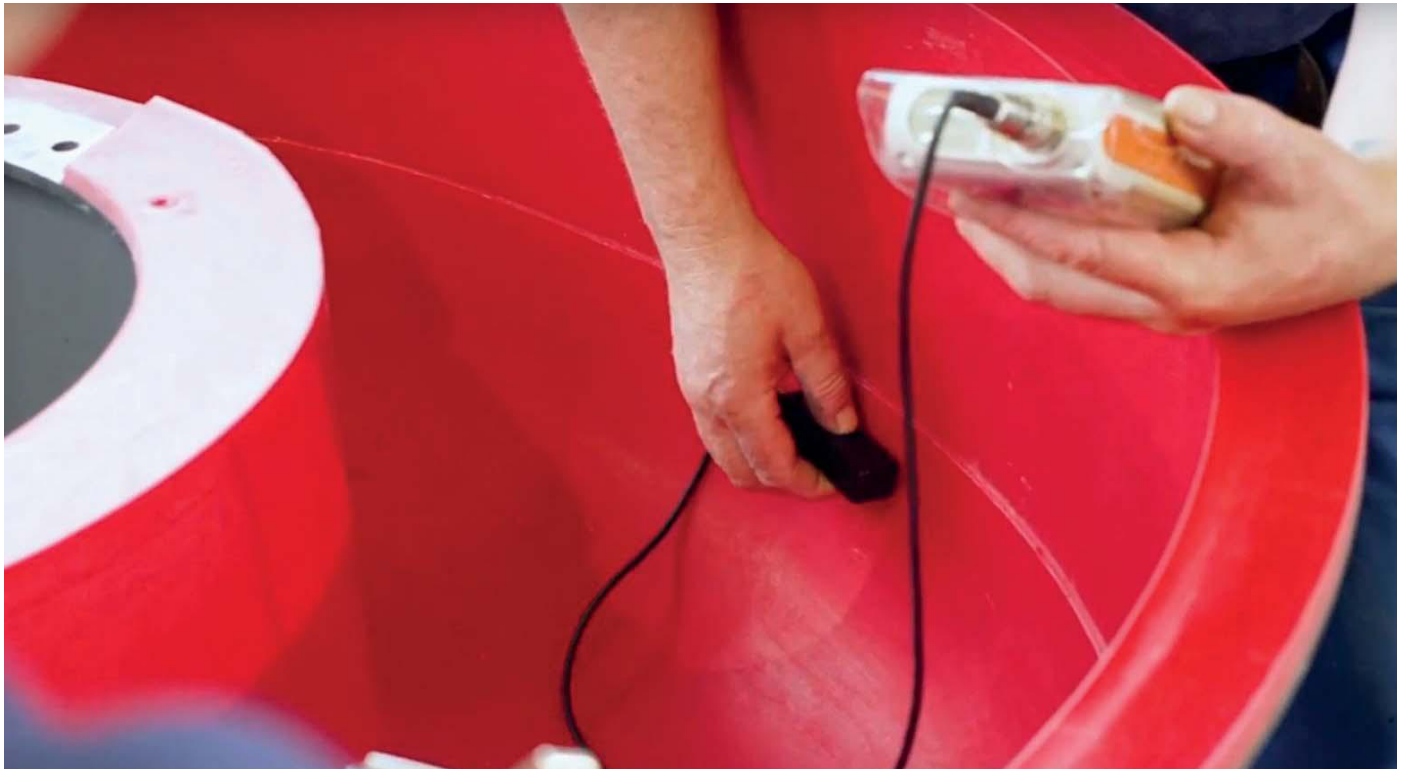




Walther Trowal: Sustainable Mass Finishing Operations

Georg Harnau

Walther Trowal GmbH & Co. KG - Haan, Germany ✉ g.harnau@walther-trowal.de



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Opening photo : The thickness of the new wear lining is measured and documented.

In September Walther Trowal commissioned a new facility for placing wear linings into new and used work bowls, which are essential components of the company's mass finishing machinery. With this significant step Walther Trowal practically doubled its capacity for overhauling the work bowls and, thus, guarantees fast turnaround times and high equipment availability for its customers. Central function of any mass finishing operation is the removal of a small amount

of material from the work pieces being processed. However, the downside of this process is that the inside of the work bowl, in which the mix of media and work pieces is moving, is also exposed to a certain amount of wear, especially in case of aggressive grinding operations (**Fig. 1**).

That's why, for many years, Walther Trowal has been offering a service for the complete refurbishment of worn work bowls. The service not only includes the placement of new wear linings into the work bowls but also a complete

inspection of all equipment components and, if necessary, repair welding of the steel fabrications as well as the replacement of worn items with original spare parts. This way the customers can be absolutely sure that after the refurbishment work their mass finishing system is running again as if it was brand new.

The new facility at the company location in Haan was equipped with additional curing ovens allowing the relining of more than 15 work bowls per week. With the installation of



Figure 1: During the mass finishing process the lining of the work bowl is subject to considerable wear.

a new digital manufacturing control system pass-through times could be significantly reduced resulting in much faster deliveries. Of course, the fact that all casting moulds for the various machine types and sizes are in stock and, therefore, immediately available, also helps expediting turnaround times. Klaus Peter Dose, service manager at Walther Trowal, explains that the refurbishment work is not limited to new wear linings: "If necessary, within the scope of our exchange program we also replace worn machine components. In regular intervals the work bowls are passing through a recycling phase and, therefore, do not have to be scrapped - a prime example for resource saving sustainability in our industry."

As good as new

Whenever Walther Trowal receives a work bowl for refurbishment, the job is not just limited to relines: actually, the customer receives a work bowl that is as good as new with not only a new wear lining but also new equipment components. Walther Trowal is the only supplier of mass finishing equipment who offers a system signaling the wear rate of a lining. Towards this goal the company is using a method that everybody knows from automobile tires: the lining contains polyurethane cones in a colour

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Figure 2: A relined work bowl prior to painting.

Figure 3: Refurbished work bowls in the final assembly stage.

that is significantly different from the colour of the surrounding lining material. Once these cones become visible, the user knows that a refurbishment will soon be required. And the diameter of the visible PU cone provides a good indication of the time frame, within which the bowl must be refurbished. This allows placing a purchase order for an exchange bowl and its on-site delivery without any interruption of the manufacturing operation.

Once a work bowl refurbished by Walther Trowal has been delivered to the customer, the respective mass finishing machine will be up and running again within one or two working days.

Each work bowl received at the Haan facility undergoes a comprehensive inspection that not only covers the wear lining but also the structural integrity of the steel fabrication, all built-in components and, upon customer request, also the drive mechanism (Fig. 2).

The refurbishment process starts with the thermal removal of the existing wear lining. Then the work bowl is shot blasted, checked for cracks in the steel fabrication and, if required, repair-welded. For the welding operation Walther Trowal has developed special systems that ensure that the work

bowl is not warped. This is extremely important: the vibratory motors mounted to the work bowl generate a high amount of torque that must be absorbed by the steel fabrication. For this reason, the motors must be carefully mounted. Even tiny surface irregularities of the mounting flanges, caused by the heat of the welding operation, can cause a catastrophic failure of the vibratory motor mount. Subsequently, the work bowl is relined. Walther Trowal is one of the few suppliers in the industry who is mixing the polyurethane components in-house and, therefore, can precisely control the wear characteristics of a specific lining with certain additives. Depending on the technical requirements of a given mass finishing process Walther Trowal can process different polyurethane types within a hardness range from 45 to 92 shore A. Of course, a sophisticated documentation system allows tracing every lining material used in any given work bowl.

When it comes to the selection of polyurethane types for work bowl relines, Walther Trowal has always chosen eco-friendly materials with a special focus on work place safety. Since 2012 - long

before it became a legal requirement - Walther Trowal has been using mercury-free polyurethane.

This means that customers taking advantage of the exchange bowl program, have received work bowls lined with mercury-free polyurethane already since 2012. Before a refurbished work bowl is dispatched to a customer, worn accessories and components are replaced or repaired (Fig. 3). In a last step the machine undergoes a rigorous test (ref. Opening photo) to ensure that it is running without any flaws. The overall result:

a refurbished product with the characteristics of a new work bowl. Christoph Cruse, general sales manager at Walther Trowal, considers himself personally responsible for the trouble-free function of the machines: "In the end all functions of the refurbished machine must be working, as if it was brand new. In addition, it must comply with all legal requirements. The refurbishment is not just limited to relines. When we find that a separation flap is worn, we will replace it. Naturally, we only use original spare parts. Since the exchange work bowls are no longer new, after the exchange we provide a 1-year warranty for the complete work bowl." ●