**Article for the trade press**

*Mechanical surface finishing integrated directly into the manufacturing flow*

Rotary solutions for castings and stampings save time, space and costs

New rotary finishing vibrators can be seamlessly integrated into interlinked manufacturing operations

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**Introduction**

**When it comes to surface finishing of die-castings and stampings, the optimized CB rotary vibrators from Walther Trowal combine the technical features of linear continuous flow systems with the advantages of rotary vibrators. The CB machines are ideal for processing of work pieces, which merely require a light deburring operation. For example, die-castings containing only small metal flashes or stampings demanding just a slight edge deburring. Since they allow feeding the work pieces individually into the machines in a continuous flow, the CB rotary vibrators can be very easily integrated into interlinked manufacturing operations.**

**Text**

# A pronounced trend: Shorter processing times for surface finishing

Compared to just a few years ago the on-going technical improvement of key production methods has resulted in significantly shorter cycle times for deburring and light edge radiusing: This trend is especially prevalent in the field of aluminum, zinc or magnesium die-casting but can also be observed with stampings, which have only light burs. Likewise, the slight rounding of sharp edges nowadays can be achieved in just a few minutes of “trowalizing”.

For example, based on improved production methods a renowned die-casting company was able to reduce the cycle times for de-flashing and surface homogenization of the raw die-castings to merely five to six minutes. Since the capacity of the existing linear continuous flow vibratory finishing systems was no longer needed, the company was looking for a more economical finishing solution.

In principle, rotary vibrators could have handled the job. However, since the work pieces had to be loaded into the machines in batches, it was not possible to integrate the rotary vibrators into the interlinked manufacturing operation existing at this die-casting company.

For this reason, in close cooperation with the customer, Walther Trowal implemented some technical changes that allowed processing the work pieces in continuous flow mode and, therefore, made it possible to integrate the rotary vibrators directly into the manufacturing flow. The result: A surface finishing operation that is perfectly adapted to the processes in the die-casting department requiring less space and emitting less noise.

From linear finishing equipment to rotary vibrators

For the “trowalizing” process the raw work pieces are fed into a work bowl containing abrasive processing media. Through the oscillating bowl movement, induced by vibration, the mix of media and work pieces is put in motion, causing the media to constantly rub against the work pieces. This causes a slight removal of material from the work piece surface.

New is that the work pieces are no longer loaded into the work bowl in complete batches but are continuously fed into the rotary vibrator in single piece flow. For example, in die-casting operations this allows linking a rotary vibrator directly to the die-casting machine and, thus finishing the raw castings immediately after they have been ejected from the die-casting machine.

Contrary to the rectangular work bowl in linear continuous flow systems, rotary vibrators have a spiral processing channel with a steady incline towards the machine discharge section. The movement of the work piece/media mix can be controlled by the RPM of the vibratory motor and the setting of the imbalance weights. This allows to precisely adjust the intensity and duration of the finishing process. Even though the processing channel has a continuous incline, the kinetic energy of the vibratory motor induces a spiral forward motion of the mix of media and work pieces towards the so-called separation zone. A welcome side effect of this unique vibratory equipment design is that the media exerts additional pressure on the castings resulting in a higher intensity and, therefore, faster processing times.

The discharge section is equipped with a screen that permits the separation of the media from the finished work pieces. While the work pieces are discharged from the machine, the abrasive media is falling through the separation screen back into the processing bowl. Ferromagnetic work pieces can be separated directly from the abrasive media with a so-called magnetic separator.

## Perfect integration into the production flow

Operating the rotary vibrator is extremely simple: All that needs to be done at the beginning of a shift is turn on the machine. It then runs continuously without the need for any other operator intervention. The switch from linear continuous flow machines to rotary CB vibrators has consistently improved and simplified the overall production flow. Now the shop floor personnel can focus on the casting process, because the surface finishing operation is running by itself and requires very little attention.

Since the CB rotary vibrators are equipped with a media undersize screen at the machine exit, the media operating mix is always optimal. As soon as individual media pieces wear below a defined size, the undersize screen automatically discharges them from the machine. This makes certain that the media mix in the processing bowl remains within a specified size range. Loose burs and dirt particles also fall through the undersize screen so that the media always stays clean. This also minimizes the required time for maintenance.

During the finishing cycle the work bowl is covered with a sound absorbing lid. This reduces the noise emission to a point where no additional noise protection equipment is needed.

For the first time it is now possible to integrate the rotary vibrators of the CB model range into interlinked manufacturing processes. To date this was only possible with linear continuous flow vibratory systems. Especially in case of manufacturing operations with a high degree of automation the CB rotary vibrators can be a significant factor for improving the overall productivity of the complete manufacturing line.

The surface finishing requirements will no doubt become more strict in the future. For this reason, the equipment must be adaptable for the challenges of the future. Whenever companies are faced with challenges that cannot be met with the existing configuration of equipment, media or compound, they can contact the experts at Walther Trowal. Jointly conducted processing trials in the test lab in Haan so far have always produced practical and economic solutions to these challenges.

# First testimonials from customers

Several customers have already made the switch from the linear continuous flow AV systems to CB rotary vibrators. With a fraction of the capital expenditures they achieve the same throughput as the much larger AV machines … and with surface finishing qualities that are alike or even better.

The experience from actual customer installations has shown that with a CB 400 optimal finishing results can be achieved with a cycle time of four minutes, whereas the cycle time in the much bigger CB 800 amounts to seven to eight minutes.

One user, who operates seven vibratory finishing systems from Walther Trowal, has confirmed that with a cycle time of five to six minutes all material flashes are consistently removed from his aluminum die-castings. At the moment he is in the process of replacing his linear continuous flow systems with CB rotary vibrators. This helps the company to reduce its capital expenditures and operating costs and, at the same time, saves space in the die-casting facility.

Christoph Cruse, sales director at Walther Trowal, identifies significant advantages for his customers: „Only four minutes for “trowalizing” of aluminum die-castings? Until recently this would have been considered as impossible. But our customers have refined their manufacturing methods to a point, where such short cycle times for de-flashing and light deburring are fully sufficient. Of course, we have adapted our rotary vibrators to this changed production environment. But we are also continuously improving our linear continuous flow AV machines. They still represent the best finishing solution, whenever longer processing times are required”.

When it comes to “trowalizing” of die-castings and stampings, Walther Trowal can now offer two processing alternatives to its customers: For work pieces with minor burs the CB rotary vibrators are the right choice. They can be easily integrated into interlinked manufacturing processes and, because of their compact design, require a minimum of space.

Whenever a high processing intensity and/or a higher throughput is needed, the linear continuous flow AV machines are still the optimum solution. They allow practically any processing time that may be required for more difficult applications.

**1,300 words including introduction**

Photos

**For downloading of photos in printable quality:**Please click here: [**Walther Trowal photos for the trade press**](https://www.vip-kommunikation.de/WaltherTrowal.html)

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| **Photo 1:** Die-castings embedded in the media mix  File name:  WT-BUVO-Pressefoto.jpg |  |
| **Photo 2:** The CB 5 rotary vibrator from Walther Trowal  File name: WT\_CB\_5.jpg |  |
| **Photo 3a:** A CB rotary vibrator equipped with a magnetic separator that removes ferromagnetic work pieces from the media mix and feeds them into a drier (visible on the right side of the photo).  File name:  WT\_18072017\_0001.jpg |  |
| **Photo 3b:** A CB rotary vibrator equipped with a magnetic separator that removes ferromagnetic work pieces from the media mix and feeds them into a drier (visible on the right side of the photo).  File name: WT\_18072017\_0002.jpg |  |
| **Photo 4:** The work pieces are transferred into the machine from the side with a conveyor belt.  File name:  WT\_18072017\_0007.jpg |  |
| **Photo 5:** Jointly conducted processing trials in the test lab in Haan so far have always produced practical and economic solutions.  File name:  WT1609160014.jpg |  |

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About Walther Trowal

Surface finishing technologies from the inventor of the “Trowalizing” process

Since 1931 Walther Trowal has been developing and producing systems for the refinement of surfaces. Initially focusing exclusively on mass finishing – the term “Trowalizing” derived from the company’s cable address “Trommel Walther –Walther Trowal has continuously expanded its product portfolio.

Over time the company has developed a broad range of machinery and systems for mass finishing, shot blasting and coating of mass produced small components.

With the invention of new systems like, for example, drag finishing and the development of special finishing methods for 3D printed components the company has proven its innovative capabilities again and again.

Walther Trowal develops and implements complete surface treatment solutions that can be seamlessly integrated into the linked production systems existing at the customers. This includes the entire process technology, perfectly adapted to the specific surface finishing requirements of the work pieces: Equipment and the respective consumables always complement each other in a perfect manner.

Each individual work piece and each manufacturing process must meet special technical requirements. That is why the experienced process engineers in our test lab, in close cooperation with the customers, develop the optimal process technology for the finishing task at hand. The result: Work piece surfaces that meet exactly the required specifications…with short processing times and a high degree of consistent, repeatable results.

Walther Trowal is one of the few manufacturers who develops and produces all machines and mass finishing consumables in-house… including ceramic and plastic grinding and polishing media as well as compounds.

The company’s equipment range also includes all kinds of peripheral equipment for handling the work pieces like lift and tip loaders, conveyor belts and roller conveyors, in addition, special driers for mass finishing applications and, last-but-not-least, systems for cleaning and recycling of the process water.

With its exchange program for wear items like work bowls, which are part of a continuous recycling program, Walther Trowal conserves valuable resources and, thus, makes a significant contribution towards sustainability in the field of industrial production. Quick technical support and the global repair and maintenance service ensure high uptimes for our equipment.

Walther Trowal serves customers in a wide range of different industries all over the world, for example, automotive, aerospace, medical engineering and wind power.

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