WALTHER TROWAL!

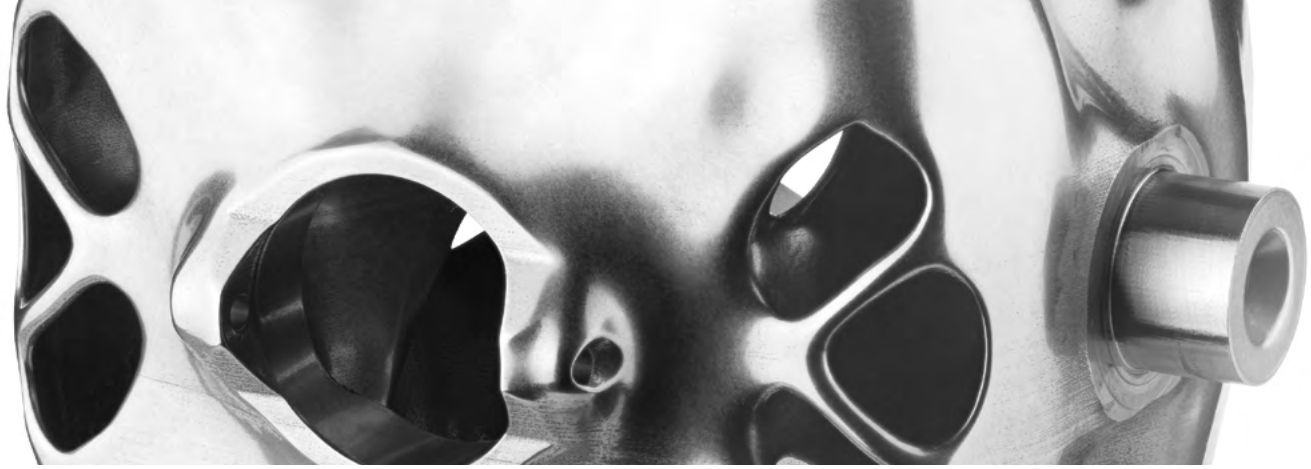
ADDITIVE MANUFACTURING AM

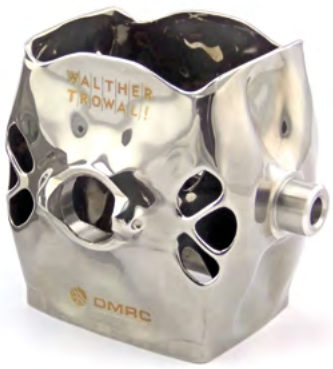
TROWAL AM POST PROCESS
Surface finishing of 3D printed components

Trowal has developed various processes and offers special machinery for finishing the surface of work pieces made by additive manufacturing / 3D printing.
For example, process development with components provided by the Direct Manufacturing Research Center DMRC at the university of Paderborn it was proven that even difficult-to-reach surface areas on 3D printed components can be finished to a high quality level by the Trowal finishing process.

Many renowned companies are using finishing solutions from Walther Trowal, even for titanium or cobalt-chrome alloys, which are very difficult to machine. Whether the requirement is pre-grinding, surface smoothing or polishing, the process consumables, i.e. grinding & polishing media and compounds, are specifically developed for these tasks by our company and manufactured in-house. The finishing technology produces not only excellent surface finishes but is also characterized by absolutely repeatable and uniform results.

Trowal equipment and processes are used in the aerospace, medical, automotive and precision engineering industries as well as the equipment building and construction industries. In our test centres in Germany, UK and North America we will gladly conduct free of charge process trials upon your sample components.





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DMRC
RESEARCH
INNOVATION
EDUCATION
DIRECT MANUFACTURING RESEARCH CENTER

Trowal finishing technology – Multivibrator – model AM 2

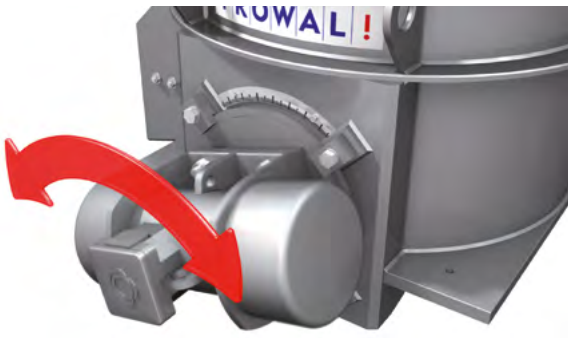
HIGHLY VERSATILE AND EFFICIENT

Machines in the AM model range are ideal for fine grinding and polishing of work pieces with intricate shapes and contours. Highly consistent, absolutely repeatable and uniform finishing results characterize this machine type. Perfect and precise finishes, even in work pieces with sharp corners, complex shapes, fragile ribs, as well as in difficult-to reach internal surface areas, can be achieved in gentle, fully automatic processes.
To optimize the finishing process, the control panel is equipped with a PLC controller that allows selection of processing programs for different types of work pieces.

AM 2 Multivibrator

AND THAT'S HOW IT WORKS

One or several unfinished work piece(s) are mounted onto a magnetic clamping device located at the bottom of the processing bowl. Once the work pieces are in place, the processing bowl is filled with grinding or polishing media, precisely adapted to the task at hand. The vibration caused by three vibratory motors, strategically placed on the outside of the processing bowl, induces the processing media to move in a spiral pattern. This movement causes the media to constantly rub against the work pieces and, thus, produces the desired grinding/polishing effect. The fact that the work pieces are firmly mounted to the magnetic clamping device, significantly increases the process intensity and, since there is no part-on-part contact, prevents any impingement or scratching of the components.



Adjustable vibratory motor

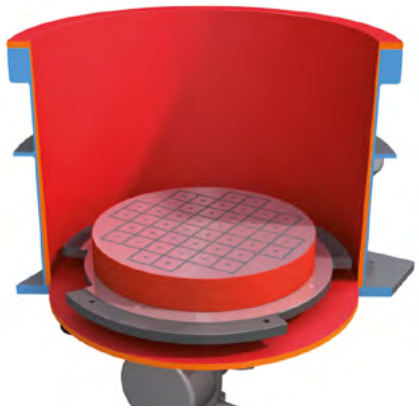
MEDIA AND COMPOUND

Optimum finishing results are achieved by the correct selection of the required consumables, i.e. media and compounds. These are selected and precisely adapted to your finishing requirements by the process engineers in our test center.

VIBRATORY MOTORS

The three vibratory motors mounted on the outside of the processing bowl can be adjusted to specific finishing requirements. This ensures that the desired finishes are achieved within short, cost-effective cycle times.

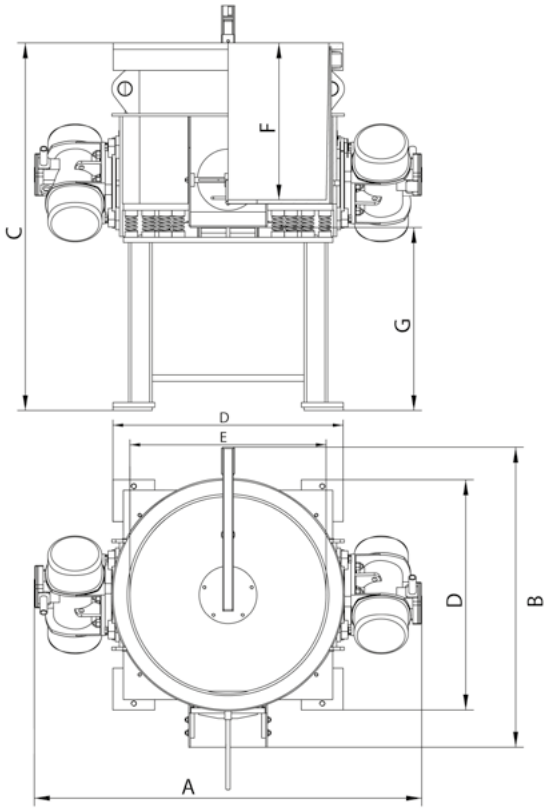
The vibratory motors



Electromagnetic work piece clamping system

WORK PIECE CLAMPING

With a magnetic plate, activated by an electro-magnetic clamping system, your work pieces can be quickly and easily secured to the bottom of the processing bowl.



AM 2 Multivibrator

	AM 2
Machine weight, empty (kg)	ca. 780
Power requirements (kVA)	5.0
Batch load – ceramic media (kg)	470
Batch load – plastic media (kg)	310
Max. usable volume (l)	260
Max. work piece dimensions*) (mm)	ca. 700
Max. motor speed**) (RPM)	3,000

Dimensions (in mm)

	AM 2
A	1,480
B	1,150
C	1,400
D	900
E	750
F	600
G (ca.)	700

*) Measured diagonally
**) Speed infinitely adjustable by frequency inverter

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