

||||| **MULTIVIBRATOR MV** |||||

TROWAL SURFACE FINISHING TECHNOLOGY

Multivibrator – model range MV

HIGHLY VERSATILE AND EFFICIENT

The vibrators of the MV model range are the ideal machines for fine grinding and polishing of delicate work pieces with intricate shapes and contours. This vibratory machine excels in consistently producing highly homogeneous surface finishes on work pieces with complex geometries and, for example, very thin, fragile ribs. Even difficult to reach corners receive a perfect finish. MV machines can be fully automated and easily adjusted to the most sensitive and delicate finishing tasks.

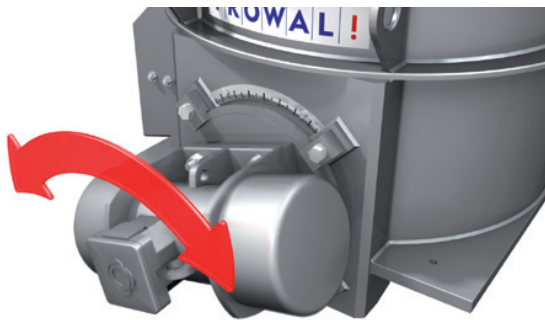
THAT'S HOW IT WORKS

The raw, unfinished work pieces are mounted onto a clamping device located at the bottom of the work bowl. Once the work pieces are in place the work bowl is filled with grinding or polishing media that is specially selected for the respective finishing job. Two, alternatively three, vibratory motors strategically placed on the outside of the work bowl induce the media to move in an intensive, but at the same time, gentle spiral pattern. This movement causes the media to constantly rub against the work pieces. The fact that the work pieces are mounted to a clamping device significantly increases the process intensity and prevents the work pieces from touching and damaging each other during the finishing process.



MEDIA AND COMPOUND

The best finishing results are achieved when machine, media and compound are perfectly matched. The process engineers in our demonstration lab ensure that the right media and compound(s) are selected to fully meet your surface finishing requirements.



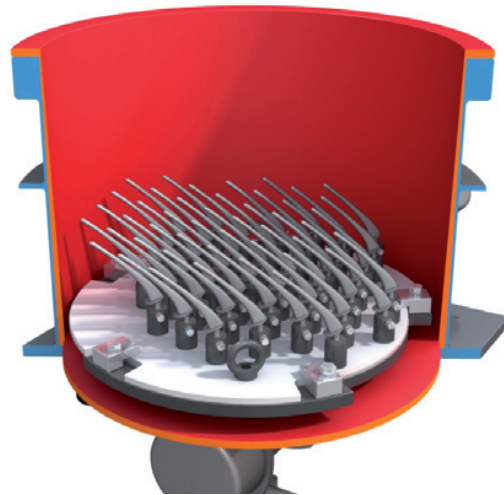
Position of vibratory motor is adjustable

VIBRATORY MOTORS

The two, respectively three, vibratory motors mounted on the outside of the work bowl can be adjusted to a wide range of process intensities. This flexibility ensures that optimal finishing results are achieved in surprisingly short, cost effective cycle times.



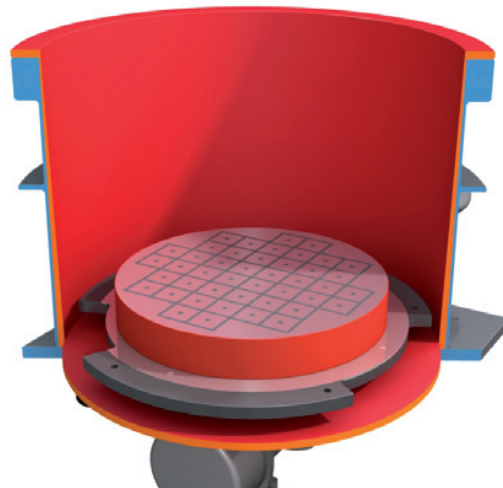
Machine equipped with 2, alternatively, 3 vibratory motors



Mechanical work piece clamping system (photo shows hip stem implants)

WORK PIECE CLAMPING

For easy work piece handling two different clamping systems are available. The purely mechanical clamping systems must be specially designed for the work pieces to be finished. With the electromagnetic clamping device the work pieces can be easily and quickly attached to the work bowl bottom.



Electromagnetic work piece clamping system



TYPICAL APPLICATIONS FOR MV VIBRATORS

- Cleaning and smoothing of the surface of forging dies
- Polishing of die-casting molds
- Deburring of the internal and external surface areas of complex work pieces
- Fine grinding, smoothing and polishing of orthopedic implants
- Surface smoothing of turbine blades
- Reconditioning of used tooling
- Surface grinding and polishing of automotive wheels
- ...and many more!



Complex aerospace component



Pre-ground and polished femur knee implant

THE MV ADVANTAGES

- Consistent and absolutely repeatable grinding and polishing results
- Excellent finishes on difficult to reach surface areas
- Homogeneous, perfectly isotropic surface finish
- The work pieces never get damaged during the process
- Even the most intricate work piece contours are maintained
- 24-hour operation, without any operator intervention, possible



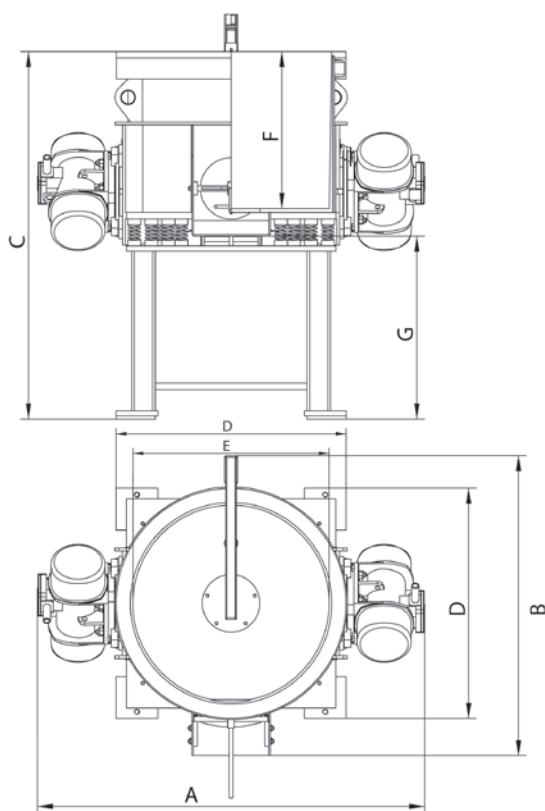
Cleaned and reconditioned forge tool



Finished compressor impeller

	MV 21	MV 25	MV 32
Machine weight, empty (kg)	ca. 475	ca. 780	ca. 1,420
Power requirements (kVA)	3.5	5.0	13.0
Batch load – ceramic media (kg)	230	470	950
Batch load – plastic media (kg)	150	310	630
Usable volume (l)	130	260	530
Max. work piece dimensions*) (mm)	ca. 570	ca. 700	ca. 950
Max motor speed**) (RPM)	3,000	3,000	3,000

Dimensions (in mm)

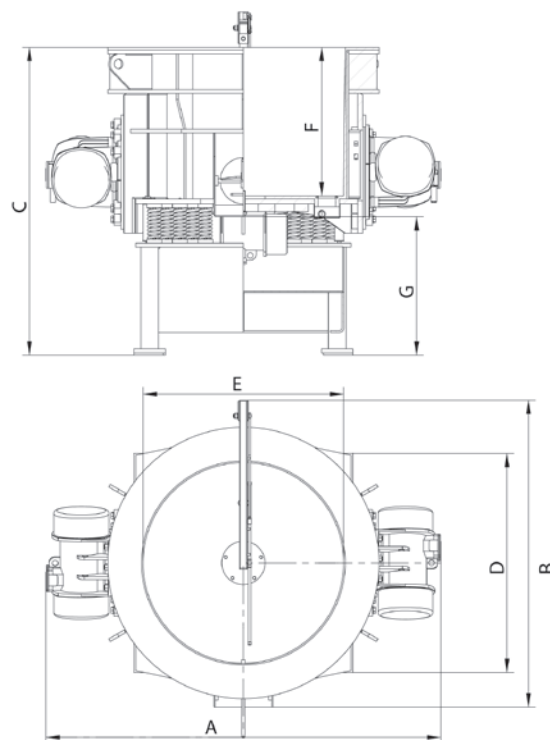


MV 21/25

	MV 21	MV 25	MV 32
A	1,250	1,480	1,910
B	1,040	1,150	1,560
C	1,118	1,400	1,560
D	850	900	1,145
E	616	750	1,000
F	470	600	750
G (ca.)	612	700	700

* Measured diagonally

** Speed infinitely adjustable by frequency inverter



MV 32

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