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Waveform Milling

ROMI

KENNAMETAL

**Waveform is a high speed machining technique that maintains a constant tool cutting load by ensuring the tool engagement into the material is consistent. The tool path moves in a smooth path to avoid sharp changes in direction which maintains the machine tool's velocity.**

Machine	Romi D-800 VMC
Table size	914 x 500mm
X/Y/Z Travel	800/530/580mm
Number of tools	30 ATC
Type	BT-40
Max Spindle	10,000rpm
Spindle motor	15 kW
Torque	94 N-m
Coolant	Dry
Control system	Fanuc 0I - MD
Material	EN8

vero Software
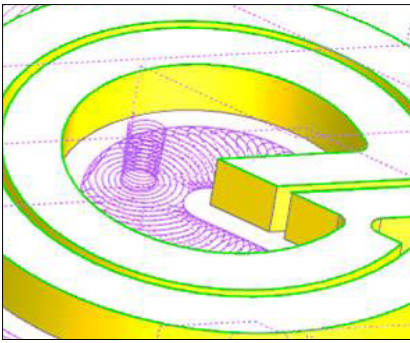
ROMI D-800 – Waveform Roughing Statistics

Waveform Roughing greatly improves standard roughing cycles by removing a constant volume of material.

Cutting along as much of the flute length as possible distributes wear evenly along the entire flute length, rather than just the tip, massively reducing tool vibration. The radial cut depth is also reduced to ensure a consistent cutting force, allowing cut material to escape from the flutes.

To maintain a constant chip load the cycle uses the philosophy that we machine from "Stock to part". This reduces the amount of intermittent cuts, particularly on external regions, which means the tool is engaged with the material for longer without lifting clear. Traditionally, cycles generally offset the component until they meet the stock. This can lead to the generation of sharp corners and discontinuous tool paths.

To maintain the tool engagement and the chip load the tool path is automatically adjusted to compensate. When cutting into a concave area tool engagement is increased. The cycle adjusts the step over between the passes to compensate and maintain the desired engagement. When cutting a convex area the opposite affect occurs. As the material falls away the tool path step over is increased to maintain the desired engagement.

To improve cycle efficiency, Waveform provides the ability to stay at depth whilst moving between milling areas or go up and over and stepping off the component.

Post Processor

Edgecam Post processor graphics reflect the kinematic structure of the machine tool giving the benefit of both the Linear & Rotary Axis being checked.

If the machine table is requested by the programme to move to an angle beyond its limit – Edgecam will warn the user and automatically provide an alternative solution.

This ensures that there is less machine downtime proving out programmes on the machine creating a more efficient process.

Datum handling on XY&Z Axis is automatically aligned allowing the user to focus on the task of programming.

Feature	Open Profile
Material	EN8
Tool Details	12mm Solid Carbide Endmill F4BS1200BWL38R050
Speed	7,000 RPM
Feed	1,750 mm/min
Ap	13mm
Ae	20%
MRR	54.6 cm³

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