CNC Programming for ORBITOOLÔ deburring tool:

PRECAUTIONS: NEVER SPIN TOOL WITH HEAD OUTSIDE OF HOLE
DO NOT SPIN TOOL IN EXCESS OF 10,000 RPM
OBSERVE ALL RELEVANT SAFETY PRECAUTIONS

Note: All dimensions given herein are in inches

1. Rapid moves are OK provided adequate clearances are verified in advance. Single blocking is always good practice.

2. Move the tool in rapid approach mode to hole centerline to within .100 of start of hole.

3. Move the tool into the hole in rapid mode along hole centerline to within .05 of start of intersection.

4. Move the tool in rapid mode to the preload position against wall of bore. Preload position is the amount the tool centerline is offset from the hole centerline and can be calculated as follows: $(D-d)/2 -.002=$ amount to offset where D is the hole diameter, d is ORBITOOL shaft dia [*] and .002 is optional clearance.

5. Spin tool and part CW (viewed from spindle towards part). On mills use helical interpolation, similar to hole/thread milling. Refer to *User Guide* for discussion of feeds & speeds and troubleshooting.

6. Advance ORBITOOL into hole until the entire head of the tool* is completely past the line of intersection of the bores.

7. **CAUTION**: In blind holes make certain the tool does not crash into far wall of intersecting bore.

8. Stop tool and part rotation.

9. Move the tool in rapid mode to hole centerline.

10. Retract the tool in rapid mode. For multiple passes, i.e. when generating a radius, retract to position described in step 3. For single pass, i.e. burr removal, retract completely out of hole to home or tool index position.

11. Coolant use is optional. High-pressure coolant should be avoided as coolant stream may "lift" tool and impair cutting. In normal operation there is negligible heat generation at the tool. A "hot" tool is indicative of overworking and may lead to premature failure of the tool.

Programming Suggestions:

1. Keep original part program intact. Create subroutine to deburr cross-drilled features.
2. If possible, program a subroutine with variables for: feed rate(s), rapid moves, spindle rpm (lathes), tool rpm, tool preload offset, etc.
3. Deburr **after** part is completely machined.
4. Ensure that chips are not packed into bores before deburring. Include optional stops for chip removal as necessary.

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[*] Refer to specification drawings for nominal tool dimensions.