INSTRUCTIONS:ORBITOOL® DEBURRING MACRO

The sample macro that follows these instructions is provided as an aid to users programming CNC mills for ORBITOOl deburring tools. The macro was written for FANUC controls. Modification of the macro may be necessary in order to run it in your particular CNC machine.

I. ENTER THE MACHINES MAXIMUM FEED RATE IPM INTO VARIABLE #106
II. IF YOUR MACHINE HAS A MAXIMUM FEED RATE OF 200 IPM THE LINE SHOULD READ #106=200

G65 P9160 K____S____Z____Q____H____V____

G65 P9160 is the macro call number to start the deburring operation. Input the following information on the G65 P9160 line.

a) **K** *REQUIRED*-SHANK DIAMETER OF THE DEBURR TOOL

b) **S** *REQUIRED* -SPINDLE SPEED (GENERALLY 2000-6000 RPM)

c) **Z** *REQUIRED* -INCREMENTAL DISTANCE THE TOOL WILL TRAVEL IN THE Z-AXIS FROM THE START POSITION OF THE TOOL. THIS VALUE MUST BE POSITIVE. THE Z VARIABLE IS THE DISTANCE FROM START DEPTH TO FINAL DEPTH PLUS THE LENGTH OF THE TOOL HEAD. NOMINAL VALUES ARE: .100 FOR 1/8, .161 FOR 1/4, AND .216 FOR 3/8 DIAMETER TOOL. CHECK ACTUAL TOOL.

d) **Q** *REQUIRED* -STEP DEPTH. THIS IS THE INCREMENTAL DISTANCE THE TOOL WILL TRAVEL IN THE Z-AXIS EACH CIRCULAR MOTION AROUND THE HOLE

e) **H** *REQUIRED* -HOLE DIAMETER

f) **V** *REQUIRED* -RPM OF INTERPOLATION. THIS VARIBLE REPRESENTS THE NUMBER OF TIMES PER MINUTE THE TOOL WILL TRAVEL AROUND THE HOLE (GENERALLY 20-100 RPM). FEED RATE WILL INCREASE WITH THIS NUMBER

EXAMPLE PROGRAM MH-40.
NOTE: PRIOR TO CALLING THE MACRO THE CUTTER IS SET AT THE CENTER OF THE HOLE, AT THE PROPER START DEPTH (APPROX. .05 AWAY FROM THE FRONT OF THE HOLE). AT THE END OF THE MACRO THE TOOL WILL BE AT THE FINAL DEPTH AT THE CENTER OF THE HOLE.

```
(.276 JW-DONE DEBURR TOOL)
T()
G90G0G54.1P1B0
G0X0Y0
G43Z.2H38
G0Z-.180
G65P9160K.094S6000Z.250Q.01H.3125V50
G0Z.2
    (ABSOLUTE VALUE OF THE FINAL DEPTH WILL BE Z-.430)
```

!!!!!!!!!!CAUTION!!!!!!!!!!
ALWAYS HAVE THE TOOL POSITIONED INSIDE THE HOLE BEFORE RUNNING THIS MACRO

```
%
O9160
(APM 5/10/2002)
(JW DONE DEBURRING MACRO)
(K=SHANK DIA #6)
(S=SPINDLE SPEED #19)
(Z=INCREMENTAL DEPTH #26)
(Q=STEP DEPTH #17)
(H=HOLE DIA #11)
(V=INTERPOLATION RPM #22)
IF[#6EQ#0]GO1000
IF[#19EQ#0]GO1001
IF[#26EQ#0]GO1002
IF[#17EQ#0]GO1003
IF[#11EQ#0]GO1004
IF[#22EQ#0]GO1005
IF[#26LE0]GO1006
#100=#4003
#101=[#11-#6]/2-.01
#102=ROUND[#26/#17]
#103=[[#101*2]*3.14159]*#22
#104=1
#105=#26/#102
#106=
IF[#103GT#106]THEN#103=#106
G91
G0X#101
S#19M3
G3Z-#105I-#101F#103
N1WHILE[#104 LE #102]DO1
#104=[#104+1.]
Z-#105I-#101
END1
M5
G0X-#101
G#100
#100=0
#101=0
#102=0
#103=0
#104=0
#105=0
#106=0
M99
N1000#3000=1(NO SHANK DIAMETER DEFINED)
N1001#3000=2(NO SPEED DEFINED)
N1002#3000=3(NO DEPTH DEFINED)
N1003#3000=4(NO STEP INCREMENT DEFINED)
N1004#3000=5(NO HOLE DIAMETER DEFINED)
N1005#3000=6(NO INTERPOLATION RPM DEFINED)
N1006#3000=7(NEGATIVE VALUE IN Z VARIABLE)
%
```