MACHINE ACCEPTANCE PARAMETERS

Machine acceptance will be split into three (3) primary tests outlined below that must be completed at Machine Manufacturers facility as well as at Oregon Tech's campus in Scappoose, Oregon (OMIC R&D).

- OMIC R&D will supply the necessary materials, cutters, and holders to complete this test.
- OMIC R&D will attend a buy-off within the US. For any machines being tested outside the US, the Machine Manufacturer or Proposer may be responsible for conducting a virtual buyoff with appropriate screen captures, pictures taken with a microscope, and all measured data.
- Machine Manufacturer or Proposer is responsible for all programming.

1. The Roughing Cut Parameters:

A. The cut is expected to run for 30 to 45 minutes.
B. Linear profiling passes in the X and Y orientation
   i. For a horizontal machine: Along with side cuts, top of block and bottom of block will have to observed.
C. The cut will be entered at 50% of below feedrate.
D. Will use through tool high pressure coolant.
E. The cut is anticipated to draw ~15 HP, and ~430 ft-lb of Torque.
F. The total cutting force should be about 3400 lbs.
   i. Oregon Tech would like to observe the performance of the Axis drives.

G. Oregon Tech will be observing the following:

i. Controller for Power draw, and Axis drive draw.
ii. Chip formation
iii. Chip Evacuation
iv. Any vibration issues or unusual sounds.
v. Surface finish on block.
vi. Cutter wear
vii. Dimensional accuracy of the block being machined.
viii. Level of performance consistency between block sides, top and bottom.

	MILLING CALCULATOR					
		ENGLISH			METRIC	
D	CUTTER DIAMETER	3	(in)		76.2	(mm)
z_c	EFFECTIVE TEETH	5	(Edges)		5	(Edges)
β	HELIX ANGLE	34	(Deg)		34	(Deg)
G_L	GAGE LENGTH	10.0	(in)		254	(mm)
	HOLDER TAPER	HSK100	NA		HSK100	NA
	WORKPIECE MATERIAL	TITANIUM 6Al4V	NA		TITANIUM 6Al4V	NA
v_c	SURFACE SPEED	140	(ft/min)		43	(m/min)
n	REVOLUTIONS PER MINUTE	178	(rev/min)		178	(rev/min)
a_p	AXIAL DEPTH OF CUT	4.000	(in)		101.600	(mm)
a_e	RADIAL WIDTH OF CUT	1.000	(in)		25.400	(mm)
f_z	ADVANCE PER TOOTH	0.0050	(in)		0.1270	(mm)
CTM	CHIP THINNING MULTIPLIER	1.1	NA		1.1	NA
	Use CTM	NO	NA		NO	NA
v_f	FEEDRATE	4.5	(in/min)		113.2	(mm/min)
Q	MATERIAL REMOVAL RATE	17.8	(in^3/min)		292.1	(cm^3/min)

2. The High Velocity Cut Parameters:

A. The cut is expected to run for 20 to 30 minutes.
B. Linear profiling passes in the X and Y orientation

i. For a horizontal machine: Along with side cuts, top of block and bottom of block will have to observed.

C. The cut will be entered at 100% feedrate.
D. Will use flood coolant.
E. The cut is anticipated to draw ~4 HP, and ~25 ft-lb of Torque.
F. The total cutting force should be about 570 lbs.
   i. We would like to observe the performance of the Axis drives.
G. Oregon Tech will be observing the following:
   i. Controller for Power draw, and Axis drive draw.
   ii. Chip formation
   iii. Chip Evacuation
   iv. Any vibration issues or unusual sounds.
   v. Surface finish on block
   vi. Cutter wear
   vii. Dimensional accuracy of the block being machined.
   viii. Level of performance consistency between block sides, top and bottom.

	MILLING CALCULATOR					
		ENGLISH			METRIC	
D	CUTTER DIAMETER	1	(in)		25.4	(mm)
z_c	EFFECTIVE TEETH	5	(Edges)		5	(Edges)
β	HELIX ANGLE	32	(Deg)		32	(Deg)
G_L	GAGE LENGTH	10.0	(in)		254	(mm)
	HOLDER TAPER	HSK100	NA		HSK100	NA
	WORKPIECE MATERIAL	TITANIUM 6Al4V	NA		TITANIUM 6Al4V	NA
v_c	SURFACE SPEED	225	(ft/min)		69	(m/min)
n	REVOLUTIONS PER MINUTE	859	(rev/min)		859	(rev/min)
a_p	AXIAL DEPTH OF CUT	2.000	(in)		50.800	(mm)
a_e	RADIAL WIDTH OF CUT	0.070	(in)		1.778	(mm)
f_z	ADVANCE PER TOOTH	0.0040	(in)		0.1016	(mm)
CTM	CHIP THINNING MULTIPLIER	2.0	NA		2.0	NA
	Use CTM	YES	NA		YES	NA
v_f	FEEDRATE	33.7	(in/min)		855.6	(mm/min)
Q	MATERIAL REMOVAL RATE	4.7	(in^3/min)		77.3	(cm^3/min)

3. Positional Tolerancing Cuts:
A. This will be the classical circle, diamond, cone test
B. Use Manufacturer standard circle, diamond, cone or similar buy-off artifact to inspect positional tolerancing.