

# CERTIFICATE OF INSPECTION

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**PCNC 440 MILL**

**SERIAL NUMBER:**

**DATE OF MANUFACTURE:**

## MACHINERY CERTIFICATION

Title	Seal or Signature	Date
Inspection Director		
Inspector		
Tormach QA Representative		

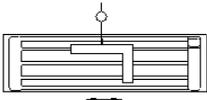
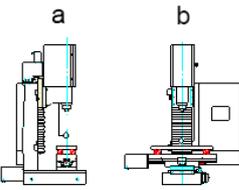
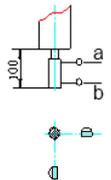
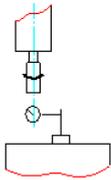
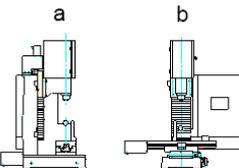
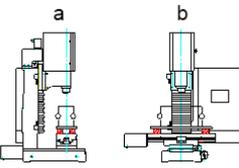
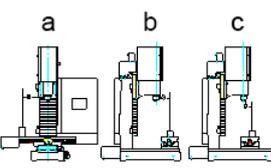
The above signatures certify this machine has passed all inspection requirements and is approved for delivery. See attached inspection documentation.

**MADE IN CHINA**

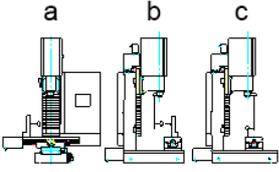
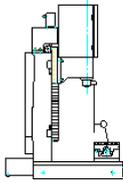
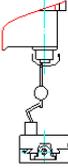
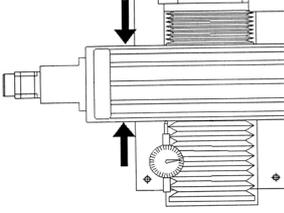
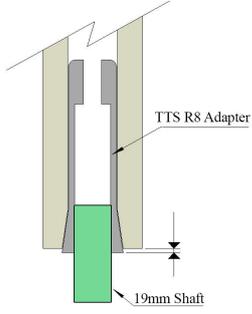
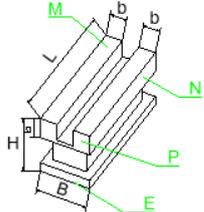


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## QA 1: PRECISION INSPECTION

No.	Inspection Item	Tolerance (mm)	Actual (mm)
G1	 <p>Perpendicularity of X-Y motion</p>	0.04/200	
G2	 <p>Parallelism of axis motion to the table surface  <b>a:</b> With respect to Y-axis  <b>b:</b> With respect to X-axis</p>	<b>a:</b> Within measure length of 100: 0.04/100 <b>b:</b> Within random measure length of 200: 0.03/200 Within the total travel length: ≤400 0.04 >400 0.06	
G3	 <p>Spindle radial runout  <b>a:</b> &lt;10 mm below spindle face  <b>b:</b> 100 mm below spindle face</p>	<b>a:</b> 0.02 <b>b:</b> 0.03	
G4	 <p>Spindle float within cartridge with respect to Z motion</p>	0.015	
G5	 <p>Perpendicularity of spindle head to table surface  <b>a:</b> With respect to Y-axis  <b>b:</b> With respect to X-axis</p>	<b>a:</b> 0.035/150 <b>b:</b> 0.035/150	
G6	 <p>Perpendicularity of centerline of spindle to table surface  <b>a:</b> With respect to Y-axis  <b>b:</b> With respect to X-axis</p>	<b>a:</b> 0.04/200 <b>b:</b> 0.04/200	
G7	 <p>Lost motion of linear axes  <b>a:</b> X-axis  <b>b:</b> Y-axis  <b>c:</b> Z-axis</p>	<b>a:</b> 0.03 <b>b:</b> 0.03 <b>c:</b> 0.04	

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No.	Inspection Item	Tolerance (mm)	Actual (mm)
G8	 <p>Axis repeatability</p>	0.02	
G10	 <p>Parallelism of center T-slot to X-motion (column side)</p>	At any measuring length of 200: 0.015/200	
G11	 <p>Flatness of spindle face</p>	0.02	
G12	 <p>Lateral displacement of work table to external load &lt; 300 N</p>	0.04	
G13	 <p>Projection of TTS R8 collet past spindle face when drawbar is tightened around 19.05 mm shaft</p>	0.8 minimum 1.4 maximum	
P1	 <p>Size of test piece (bulk piece) L x B x H L ≥ 1/3 longitudinal travel H ≥ L/3 B ≥ L/3 B ≥ 16 mm Material: HT150</p> <p>Milling accuracy:  <b>a:</b> Flatness of surface M  <b>b:</b> Parallelism of surface M to surface E  <b>c:</b> Perpendicularity of surface P to surface M, and surface N to surface P</p> <p>One machine is selected for each production batch (or each 20 machines produced, whichever is fewer). If the selected machine does not meet specification, then all machines in production batch must be completely inspected. If the selected machine does meet specification, all other machines in the production batch will be reported as not selected (NS).</p>	<b>a:</b> 0.04/150 <b>b:</b> 0.06 <b>c:</b> 0.06/50	

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## QA 2: FUNCTION/APPEARANCE

No.	Test Name	Description	Completed
T1	Spindle Speed	Validate minimum and maximum speeds.	
T6	Safety Decals	Safety decals installed.	
T7	Information Decals	Information decals installed.	
T9	Probe Input	Probe input operates correctly.	
T10	X Limits	X left and X right limit switches operate.	
T11	Y Limits	Y front and Y back limit switches operate.	
T12	Z Limits	Z up limit switch operates.	
T13	Belt Position Change	Belt position can be changed without binding or collision.	
T14	Smooth Operation	X, Y, Z, and spindle operate without unusual noise or vibration.	
T15	24-Hour Test	24-hour run test has been completed.	
T16	Gib Adjusting Screws	Position of adjusting screw.	
T17	T-Slot of Work Table	Width of T-slot.	
T18	Test resistance from prong L and N of the plug to the ground copper plate	If the test result is zero, the machine must be repaired.	
T19	Test vibration of the spindle at maximum speed	If the test fails, the spindle and pulley must be re-balanced.	
T20	Test for power drawbar plate clearance	If the test fails, the casting must be re-machined.	

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## QA 3: PACKING LIST

No.	Name	Quantity
1	Drawbar and Washer	1
2	Allen Wrench Set	1 for each
3	Double Open End Wrench	1
4	Phillips Screwdriver	2

These items are stored in the plastic toolbox, located on the right side of the shipping pallet.