

TORMACH MILLS	1100MX	770MX	1100M	770M	PCNC 440
<b>TRAVELS</b>					
X-Axis	18" [457 mm]	14" [356 mm]	18" [457 mm]	14" [356 mm]	10" [254 mm]
Y-Axis	11" [279 mm]	7.5" [191 mm]	11" [279 mm]	7.5" [191 mm]	6.25" [159 mm]
Z-Axis	16.25" [413 mm]	13.25" [337 mm]	16.25" [413 mm]	13.25" [337 mm]	10" [254 mm]
<b>SPINDLE</b>					
Spindle Power	2 hp (1.5 kW)	1.5 hp (1.12 kW)	2 hp (1.5 kW)	1.5 hp (1.12 kW)	0.75 hp (0.56 kW)
Maximum Speed	10,000 rpm		7,500 rpm	10,000 rpm	
Transmission	Poly-V Belt				
Spindle Taper	BT30		R8		
Thread Machining	Rigid Tapping, Tension/Compression, Thread Mill		Tension/Compression, Auto-Reversing, Thread Mill		Thread Mill
<b>MAXIMUM FEED RATE</b>					
X- and Y-Axis	300 IPM (7.6 m/min)		110 IPM (2.8 m/min)	135 IPM (3.4 m/min)	
Z-Axis	230 IPM (5.8 m/min)	250 IPM (6.3 m/min)	90 IPM (2.2 m/min)	110 IPM (2.8 m/min)	
Axis Motor	Servo Driven		Stepper Driven		
<b>POWER</b>					
Power Required	Single-Phase 230 Vac, 50/60 Hz, Dedicated 20A breaker	Single-Phase 115 Vac, 50/60 Hz, Dedicated 15A breaker	Single-Phase 230 Vac, 50/60 Hz, Dedicated 20A breaker	Single-Phase 115 Vac, 50/60 Hz, Dedicated 15A breaker	
<b>MACHINE SPECIFICATIONS</b>					
Table Size	34" x 9.5" (864 x 241 mm)	26" x 8" (660 x 203 mm)	34" x 9.5" (864 x 241 mm)	26" x 8" (660 x 203 mm)	18" x 6.3" (457 x 160 mm)
Table Slot Size (three slots)	5/8" (16 mm)				3/8" (9.5 mm)
Spindle Nose to Table Maximum Clearance	17.25" [438 mm]	13.75" [349 mm]	18" [457 mm]	14.25" [362 mm]	12" [305 mm]
Spindle Centerline to Machine Column	11" [279 mm]	8.6" [218 mm]	11" [279 mm]	8.6" [218 mm]	6.5" [165 mm]
Machine Size	69" x 56" (1.8 m x 1.4 m)	56" x 49" (1.4 m x 1.2 m)	69" x 56" (1.8 m x 1.4 m)	56" x 49" (1.4 m x 1.2 m)	42" x 32" (1.1 m x 0.8 m)
Overall System Height	96" [2.4 m]	88" [2.2 m]	96" [2.4 m]	88" [2.2 m]	72" [1.8 m]
Typical System Weight	1580 lb [726 kg]	908 lb [431 kg]	1580 lb [726 kg]	908 lb [431 kg]	600 lb [272 kg]

## WHAT'S THE DIFFERENCE BETWEEN M & MX MILLS?

For most owners, machine selection boils down to working envelope, budget, and throughput.

### SPEED

#### RAPID SPEEDS

**1100MX and 770MX boast 300 inches per minute (IPM) rapid speeds, while PCNC and M machines boast rapid speeds of 110-135 (IPM).**

#### CYCLE TIMES

Generally speaking, the **MX machines have 20% faster cycle times** (varies based on tool path and part geometry).

### M? MX? WHAT ABOUT PCNC?

Where does the PCNC 440 fit in? Think of it like a little sibling to the 770M/1100M. It has the same size spindle taper and it runs on stepper motors.

### MOTION CONTROL

#### STEPPER DRIVE MOTORS

Stepper motors have no positional feedback loop. When the controller tells an axis to move, it's assumed the motor in fact moves that much.

**The only time you are in real danger of losing position with a stepper motor in our machines is if you crash or stall your machine.**

#### SERVO DRIVE MOTORS

Servo motors provide positional feedback. When the controller calls for an axis to move, then the motor sends positional feedback, verifying it's where it should be. **This allows for crash detection, much higher rapid speeds and more accurate homing.**

### SPINDLE

#### BT30

**MX machines have a BT30 spindle**, which is an industry-standard tapered tool holder with a 45 degree pull stud and drive dogs. This combination allows for a **more rigid connection** between the spindle and the tool and **reducing the risk of tool pull out.**

In addition, this is an encoded spindle, giving the controller awareness of position, **allowing for rigid tapping.**

#### TTS

**PCNC and M machines have an R8 collet in the spindle**, compatible with Tormach's patented TTS tool holders.