

A large, stylized yellow graphic on the left side of the page, resembling a lightning bolt or a jagged arrow pointing downwards and to the right. It has a black outline and a black shadow effect.

***TITANS***  
***of CNC***

**ACADEMY**

***TITAN BUILDING BLOCKS MILL***  
**REQUIREMENTS & MATERIALS**

[ACADEMY.TITANSOFCNC.COM](https://academy.titansofcnc.com)



# Academy Requirements & Materials

PART SERIES: **TITAN BUILDING BLOCKS Mill**

MACHINE TOOL: **3-Axis Mill**

---

## OVERVIEW:

Everything you need to start teaching the TITANS of CNC: Academy Digital Apprenticeship Program in your classroom, Small Group, or employee training.

## SOFTWARE:

- *Minimum*
  - [Autodesk Fusion 360](#)
- *Recommended*
  - [3DEXPERIENCE Solidworks for Makers](#)
  - [Mastercam Educational Multi-Axis Suite](#)

## TUTORIALS:

- *CAD*
  - [TITAN BUILDING BLOCKS Mill in Fusion 360](#)
  - [TITAN BUILDING BLOCKS Mill in Solidworks](#)
  - [TITAN BUILDING BLOCKS Mill in Mastercam](#)
- *CAM*
  - [TITAN BUILDING BLOCKS Mill in Fusion 360](#)
  - [TITAN BUILDING BLOCKS Mill in Mastercam](#)
- *CNC*
  - [CNC Mill Fundamentals](#)
  - [TITAN BUILDING BLOCKS Mill](#)

## RELATED FILES:

- Dimensioned Prints
- Operation and Setup Sheets
- First Article Inspection Reports

## MILL SPECIFICATIONS:

- 3-Axis Machining Center
- 1HP Spindle (*Minimum*)
- Spindle with Reverse/Forward direction (*Recommended*)

## MILL TOOLING:

- *Machine Setup*
  - Lubricant
  - Machinist Stone
  - 1-2-3 Block
  - 1/4" Precision-Machined Puck<sup>1</sup>
  - 1/2" Drive Torque Wrench
  - 2-4lb Dead Blow Hammer
  - Dial Indicator
  - Tool Probe or Haimer 3D Sensor<sup>2</sup>
- *Workholding*
  - VISE
  - Soft Jaw Blanks<sup>3</sup>
  - Parallels
  - End Stop

## TOOLING:

- Tool Holders
- [TITAN BUILDING BLOCKS MILL Tool Kit by Kennametal](#)
  - 3" Shell Mill with Inserts
  - 1/2" x 1 1/4" X 3" End Mill
  - 3/8" X 1" X 1" End Mill
  - 1/4" X 1" X 3" End Mill
  - 1/16" X 0.1875" X 3" End Mill
  - 1/2" X 1" X 3" Ball End Mill
  - 1/2" Solid Carbide Drill
  - 1/4" Solid Carbide Drill
  - 0.2283" Solid Carbide Drill
  - 0.1772" Solid Carbide Drill
  - 1/4-20 UNC Roll Tap
  - 10-32 UNC Roll Tap
  - 3/8" Chamfer Mill
  - 1/4" Chamfer Mill
  - 1/8" X 1" Key Cutter

---

<sup>1</sup> Necessary only if your machine has no tool probe.

<sup>2</sup> Necessary only if your machine has no machine probe.

<sup>3</sup> Recommend 4 sets of 1" wide blanks and 1 set of 1.5" wide blanks (TITAN-7M).

## COOLANT & FILTRATION SYSTEM:

- [Coolant 101 Tutorials](#)
- *Minimum*
  - Coolant
  - Coolant Filtration System
  - Flood or Mist Coolant
- *Recommended*
  - Mist Collector
  - Spray Cabin

## INSPECTION TOOLS:

- [Inspection 101 Tutorials](#)
- Caliper
- Micrometer
- Go/No-Go Threads
- Radii Gage

## STANDARDIZED MATERIAL:

- 4' of 1" X 2" 6061 Bar Stock per person



The TITANS of CNC: Academy Curriculum is the intellectual property of TITANS of CNC: Academy. We reserve the right to receive credit for all uses of CONTENT outside of the TITANS of CNC: Academy Site. TITANS of CNC: Academy Content licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.