

Tool Function Q+A

➔ Answers to questions:

1. The spindle must be at Z-axis home position (G28 Z..)
The XY position must be in a clear area
The Z-axis reference point confirmation light must be on
The attached confirmation light must be ON
2. Industry standard for Automatic Tool Change is a miscellaneous function M06
3. Providing that 'normal' tool are used, which means no oversize tools, yes 25 tools can be used by the program, providing one tool is always present in the spindle
4. One type in a FIXED tool memory, where the tool returns to the same tool pocket (pot) it came from

Another type is a RANDOM tool memory, where all tools are pre-registered during setup, and each tool used replaces the tool that follows it (does not return to the same pocket or pot)
5. In the block N27, the next tool T04 is called to the waiting position in the magazine (tool waiting)
In the block N28, the actual tool change takes place - tool in the spindle is replaced by tool T04
In the block N29, the next tool T05 is called to the waiting position in the magazine (tool waiting)
6. ATC is an abbreviation for **Automatic Tool Changer** or **Automatic Tool Change**, depending on the context
7. On a CNC lathe, the tool designation is in pairs - therefore, T0313 will send a signal to the CNC unit to index the turret to station 03, apply geometry offset 03 and the wear offset 13
8. The terms 'dummy tool' or 'virtual tool' or 'empty spindle tool' have the same meaning - it is a non-existent tool, that has been registered in the tool list, for the sole purpose to guarantee an empty spindle, when called with M06. Although any tool number can be assigned to a 'dummy tool', the most common tool numbers are T00, T99, and T999. Some controls may not accept T00
9. An oversize tool diameter can be used, providing both adjacent magazine pockets are registered as 'empty'
10. GEOMETRY offset is a registry area of the control system, where the measured tool dimensions are stored
11. WEAR offset is a registry area of the control system, where the deviations from GEOMETRY offset are stored
12. Items **A** and **B** are identical, regardless of the order in the block - they mean **'get tool 8 to the waiting position, then make the actual tool change'**. Item **C** does the same, but in two blocks. Item **D** will make the tool change first, so the currently waiting tool will go into the spindle, **then** tool 8 will be the tool waiting for next tool change