

CHAPTER 9

TOOLS AND TOOL HOLDERS

9.1 TOOL HOLDERS

9.1.1 General Description

All cutting tools are adapted to the machine spindle with tool holders that have common features as shown in Figure 9-1.

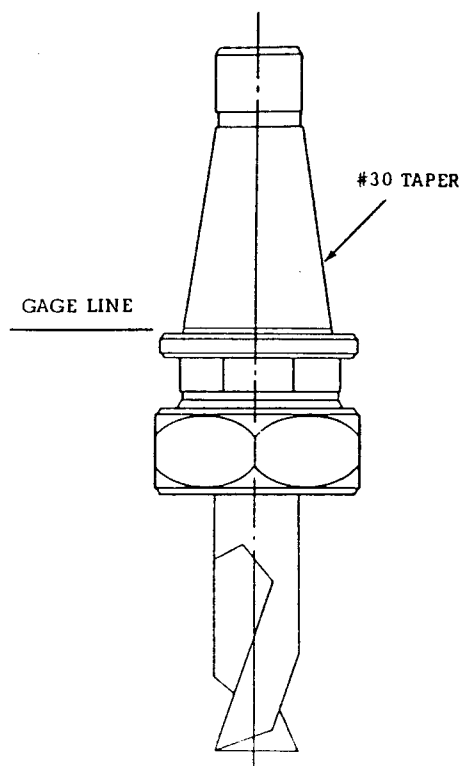


Figure 9-1: Tool and Tool Holder

9.2 TOOL SETTING

When a cutting tool is placed into its tool holder, the cutting edge or tip is located at an imprecise distance from the gage line of the tool holder. Subsequently programmed Z axis motions with that tool are equally inaccurate. Two versatile methods for controlling Z axis depth are available with the R2E3 Series I, both of which are simple and accurate. The following section on Tool Length Offset explains those two methods. Two approaches concerning the tool holder are explained below.

1. Setting tools at random: If a series of cutting tools are selected for a job, the tools can be assembled in their holders according to length. It is recommended that after assembling the tools in holders, they are lined up on a table and checked carefully to make certain they are arranged according to length. This will help the operator calculate tool length offsets, adjust the knee properly, and minimize quill travel and cycle time.
2. Preset tools: The F115 form should be completed using all of the columns available. The information for this calculation on tool holders is in the Tooling Manual (M122) and in catalog data for the cutting tool itself.

It is possible that under certain conditions a greater degree of precision is required in the presetting of tools for the following reasons.

1. When the depth of the cut must be a certain minimum.
2. When the possibility of interference between a portion of the tool holder and the workpiece or the tool holder and its clamp is evident.
3. When the need to standardize tool and tool holder length combinations is required.

CHANGE	DATE	TOOL IDENTIFICATION				END MILL										
DURABLE TOOLING			PART NO.				I D NO				PERISHABLE TOOLING					
HOLDER	TYPE	SIZE														
											NOTES					
											MANUFACTURER					
		TOOL CODING				TOOL SETTING DRAWING				PURCHASE ORDER NO						
										DRAWN BY				DATE		

Figure 9-2: Tool Setting Drawing