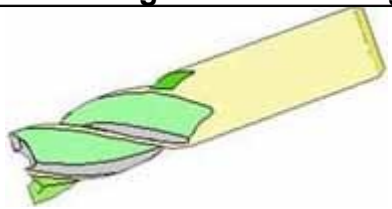
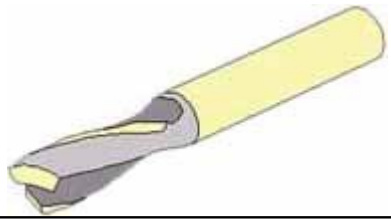
Basic cutting tools for milling.	
	**End Mills** Commonly used for facing, slotting and profile milling. Generally have 4 cutting edges / flutes, cutting edges on the end do not meet at the centre, end mills can not be used to plunge into the work material.
	**Slot Drills** For producing pockets without drilling a hole beforehand, this is because the end cutting edges are over lapping (with one cutting edge extending past centre).
Calculating Spindle Speed (RPM).	
$N = \frac{CS \times 1000}{\pi d}$	Spindle speed in revolutions per minute (R.P.M.) for the cutter can be calculated from the equation :- **N**= R.P.M. of the cutter **CS** = Linear Cutting Speed of the material in m/min. **d** = Diameter of cutter in mm
Calculating Feed Rate.	
Feed rate (F) is defined as the rate of travel of the work-piece in mm/min. But most tool suppliers recommend it as the movement per tooth of the cutter (f).	**F= f x u x N** **F**= table feed in mm/min **f** = movement per tooth of cutter in mm **u** = number of teeth of cutter **N** = R.P.M. of the cutter
Calculate	
Calculate the feed rate for cutting Steel - high alloy – annealed. Using a 10mm end mill and slot drill. (see data table).	

Cutting data for Carbide Tooling.

Material	Surface Speed (mm/m)	Feed /tooth (mm)
Aluminium low silicon (< 8%)	450-550	0,12-0,18
Aluminium, Aluminium-bronze high silicon (> 8%)	250-350	0,13-0,2
Bronze	300-330	0,13-0,2
Cast Iron, Malleable	120-220	0,08-0,15
Cast Iron Grey	180-360	0,1-0,4
Cast Iron Nodular (ductile)	180-260	0,1-0,2
Copper	370	0,18
Inconel	30	0,08
Stainless steel	500-800	0,05-0,15
Stainless steel- cast	150-250	0,08-0,15
Stainless steel-304	120	0,08
Stainless steel-316L	90	0,08-0,1
Steel, unalloyed	250-430	0,003-0,006
Steel, low alloy	180-360	0,08-0,15
Steel, low alloy hardened	120-220	0,05-0,15
Steel, high alloy annealed	120-220	0,076-0,15
Steel, high alloy hardened	76	0,05
Steel, cast low alloy	180-360	0,1-0,2
Steel, cast high alloy	120-220	0,08-0,15

What are the benefits to be gained from correct tool selection.