



# ACE

technical reference

## Speeds and Feeds for High Speed Drills

The speeds and feeds shown apply to average working conditions and materials. They are recommended with due regard to conserving drills and avoiding excessive machine tool wear.

Under many conditions, these speeds and feeds may be considerably increased (increase in feed often helps break up chips), while under others they must be decreased. In order to secure the best results, both the speed and feed should be increased or decreased in proper proportion. The liberal use of cooling compound will increase the life of tools, always keep the drill sharp.

### Feeds

Diameter of Drill in Inches	Feed per Revolution in Inches
Under 1/8	.001 to .003
1/8 to 1/4	.002 to .006
1/4 to 1/2	.004 to .010
1/2 to 1	.007 to .015
1 and Over	.015 to .025

### USEFUL FORMULA:

#### Speeds and Feeds

R.P.M. = Revolutions per minute  
 F. = Feed rate in inches per revolution  
 D. = Diameter of drill in inches  
 S.F.P.M. = Surface or peripheral speed in feet/minute

#### Known:

D. & R.P.M.

#### To Find:

$$S.F.P.M. = \frac{R.P.M. \times D. \times 3.142}{12}$$

### Speeds

Material to be Drilled	Speed in Surface Feet Per Minute
Alloy Steel - 300 to 400 Brinell	20-30
Aluminum / Aluminum Alloys	200-300
Automotive Steel Forgings	40-50
Brass or Bronze	150-300
Hard Chilled Cast Iron	10-20
High-Nickel Steel or Monel	30-50
High-Tensile Bronze	70-150
High-Tensile Steel (Heat Treated):	
35 to 40 Rockwell C	30-40
40 to 45 Rockwell C	25-35
45 to 50 Rockwell C	15-25
50 to 55 Rockwell C	7-15
Magnesium / Magnesium Alloys	250-400
Malleable Iron	80-90
Medium Hard Cast Iron	50-100
Mild Machinery Steel (.2C to .3C)	80-110
Plastics	100-300
Slate, Stone, or Marble	15-25
Soft Cast Iron	75-125
Stainless Steel	50
Steel (.4C to .5C)	70-80
Tool Steel (1.2C)	50-60
Titanium Alloys:	
Ti-75A (Commercially Pure)	50-60
RS-120	40-60
Ti-150A	40-50
Ti-140A	30-40
RC-130B	30-40
MST-6A 1-4VA	20-35
MST-3A 1-5CR	10-20
Wood	300-400