Chip Load

The chip load is a measurement of the thickness of material removed by each cutting edge during a cut. This is a valuable piece of information which can then be used to calculate new set-ups.

Calculations are as follows: Chip Load = Feed Rate (inches per minute) / (RPM x number of flutes)

Example: Chip Load = 500 inches per minute / (15,000 RPM x 2 flutes) Chip Load = .017”

Chip loads are based on material thickness of average size for cutting edge length of tool. These recommendations do not apply to thicker materials or tools with long cutting edge lengths. These chiploads are only a recommended starting point and may not accommodate all circumstances. Therefore, tooling damage may still occur and use of this chart does not warranty against tool breakage.

We would strongly encourage you to consult us directly on new tool applications. Our staff would be more than happy to discuss any technical questions by phone or email.

Chip Load Chart

TOOL DIAMETER	HARD WOOD	SOFTWOOD/ PLYWOOD	MDF/PARTICLE BOARD	HIGH PRESSURE LAMINATE	PHENOLIC/ PAPERSTONE
1/8”	.003”-.005”	.004”-.006”	.004”-.007”	.003”-.005”	
1/4”	.009”-.011”	.009”-.013”	.013”-.016”	.009”-.012”	.004”-.006”
3/8”	.015”-.018”	.017”-.020”	.020”-.023”	.015”-.018”	.006”-.008”
1/2” & up	.019”-.021”	.021”-.023”	.025”-.027”	.023”-.025”	.010”-.012”

TOOL DIAMETER	HARD PLASTIC	SOFT PLASTIC	SOLID SURFACE	ACRYLIC	ALUMINUM
1/8”	.002”-.004”	.003”-.006”	.002”-.004”	.003”-.005”	.003”-.004”
1/4”	.006”-.009”	.007”-.010”	.006”-.009”	.008”-.010”	.005”-.007”
3/8”	.008”-.010”	.010”-.012”	.008”-.010”	.010”-.012”	.006”-.008”
1/2” & up	.010”-.012”	.012”-.016”	.010”-.012”	.012”-.015”	.008”-.010”

Other Valuable Formulas:

Feed Rate = RPM x number of flutes x chip load
RPM = Feed Rate / (number of flutes x chipload)
Metric Conversion: Divide inches per minute by 39.374
(ex. 300 inches per minute divided by 39.374 = 7.62 meters per minute)

RPM Selection

The general operating RPM for tooling contained in this catalog is between 10,000 and 20,000 revolutions per minute. Usually the higher the RPM, the better surface finish becomes. However, the higher the RPM, the more friction is generated between the tool and the work piece. This friction is what creates the mechanical wear on the cutting edge. Your goal is to select the lowest RPM possible for each application.