

SGS Reference Information

ISO H6 SPECIFICATIONS					
DIAMETER	+	-	DIAMETER	+	-
$\geq 1/8 - 3/16$	0.00000	-0.00032	≤ 3	0,000	0,006
$> 3/16 - 7/16$	0.00000	-0.00035	$> 3 - 6$	0,000	0,008
$> 7/16 - 5/8$	0.00000	-0.00043	$> 6 - 10$	0,000	0,009
$> 5/8 - 1$	0.00000	-0.00051	$> 10 - 18$	0,000	0,011
$> 1 - 1-1/4$	0.00000	-0.00063	$> 18 - 25$	0,000	0,013

MACHINING FORMULAS	
INCH FORMULAS	METRIC FORMULAS
sfm = rpm x .262 x cutting diameter	m/min = (3.14 x cutting diameter x rpm) / 1000
rpm = sfm x 3.82 / cutting diameter	rpm = (1000 x m / min) / (3.14 x cutting diameter)
feed (inches per tooth) = ipm / (number of teeth x rpm)	feed (mm per tooth) = millimeters per minute / (number of teeth x rpm)
feed (inches / minute) = inches per tooth x number of teeth x rpm	feed (mm/minute) = feed per tooth x number of teeth x rpm
feed (inches / minute) = ipr x rpm	feed (mm/minute) = mmr x rpm
feed (inches / revolution) = ipm / rpm	feed (mm per revolution) = mmr / rpm
cuspl height* = (tool diameter / 2) - $\sqrt{(\text{tool diameter}^2 - \text{pitch}^2) / 4}$	cuspl height* = (tool diameter / 2) - $\sqrt{(\text{tool diameter}^2 - \text{pitch}^2) / 4}$
pitch = $\sqrt{4 \times (\text{cuspl height} \times \text{tool diameter}) - 4 \times (\text{cuspl height}^2)}$	pitch = $\sqrt{4 \times (\text{cuspl height} \times \text{tool diameter}) - 4 \times (\text{cuspl height}^2)}$
mrr – milling – (in ³ /min) = width of cut x depth of cut x ipm	mrr – milling – (cm ³ /min) = (width of cut x depth of cut x mm/min) / 1000
cutting time – drilling – (minutes) = length / ipm	cutting time – drilling – (minutes) = length / mm/min

sfm	surface feet per minute
rpm	revolutions per minute
ipm	feed rate in inches per minutes
ipr	inches per revolution
mmr	millimeters per revolution
mm/min	feed rate in millimeters per minute
mrr	material removal rate
*	on flat surface

GENERAL FORMULAS	
coolant pressure: 1 Bar = 14.5 Pounds per Square Inch (PSI)	
calculation of coolant pressure: Pounds Per Square Inch (PSI) = (Horsepower of Pump x 1.460) / Gallons per Minute (GPM)	
1 Liter = 0.254 Gallons	
inch = millimeters / 25.4	millimeters = inch x 25.4
inch tap drill sizes = major diameter – ((1.299 x % of thread) / threads per inch)	
metric tap drill sizes = major diameter – (1.082 x pitch x % of thread)	
inch thread forming drill size: maximum diameter = basic major diameter – (3/8 x number of threads per inch)	
inch thread forming drill size: minimum diameter = basic major diameter – (1/2 x number of threads per inch)	
metric thread forming drill size: maximum diameter = basic major diameter – (.375 x pitch)	
metric thread forming drill size: minimum diameter = basic major diameter – (.500 x pitch)	