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CALCULATING CHIP LOAD

ipt = inches per tooth
ipr = inches per revolution
rpm = revolutions per minute
ipm = inches per minute feedrate (F)
number of flutes = number of teeth/tooth (T)

feeds and speeds for these examples
4 flute cutter running at 3000 rpm and F12.0 ipm

Calculating Chipload
The 2 steps to calculate inch per tooth chipload:

IF YOU HAVE RPM AND FEEDRATE INFO --- ((F IPM / RPM) / T = IPT)
Step 1. ipm (inches per minute feedrate) divided by (/) rpm (revolutions per minute)
=ipr (inches per revolution)
Step 2. ipr (inches per revolution) divided by (/) T (number of teeth or flutes on cutter)
=ipt (inches per tooth)

example: ((12.0 / 3000) / 4 = .001 ipt chipload)
Step 1.
Feedrate 12.0 ipm / 3000 rpm
= .004 ipr
Step 2.
.004 ipr / 4 T
= .001 ipt chipload per tooth

IF YOU HAVE RPM AND CHIPLOAD INFO --- (RPM x IPR = F IPM)

Step 1.

ipt (inches per tooth chipload) times (x) T (number of teeth or flutes on cutter)
=ipr (inches per revolution)

Step 2.

ipr (inches per revolution) times (x) rpm (revolutions per minute)
=ipm (inches per minute feedrate)

example: (.001 x 4 x 3000 = 12.0 ipm feedrate)

Step 1.

.001 ipt chipload per tooth x 4 T
= .004 ipr

Step 2.

.004 ipr x 3000 rpm
= Feedrate 12.0 ipm

IF YOU HAVE FEEDRATE AND CHIPLOAD INFO --- (IPM / IPR = RPM)

Step 1.

ipt (inches per tooth chipload) times (x) T (number of teeth or flutes on cutter)
=ipr (inches per revolution)

Step 2.

ipm (inches per minute feedrate) divided by (/) ipr (inches per revolution)
= rpm (revolutions per minute)

example: (12.0 / (.001 x 4) = 3000 rpm)

Step 1.

Feedrate .001 ipt x 4 T
= .004 ipr

Step 2.

Feedrate 12.0 ipm / .004 ipr
= 3000 rpm
