

Sp. Cutting Force vs.
Sp. cutting Power

Sp. f_c :
 $f_c = \frac{F_c}{a \cdot t_o}$

Sp. Power
 $u_t = \frac{[F_c \cdot V]}{[a \cdot t_o \cdot V]}$

dimensions:

$f_c = \frac{[force]}{[Area]}$

$u_t = \frac{[Power]}{[MRR]}$

(SI) = $\frac{N}{mm^2} = \frac{W \cdot s}{mm^3}$
= MPa

$1W = \frac{[N \cdot m/s]}{[s/mm^3]}$

$1 \frac{W \cdot s}{mm^3} = 1000 \frac{N}{mm^2}$

$[u_t] \equiv [K_c]$

Sp. cutting power

Sp. cutting force /
cutting resistance

Sp. cutting energy vs.
Sp. cutting power $1W \equiv$

$1 \frac{W \cdot s}{mm^3} = \frac{[J/s] [s]}{mm^3}$

$1 \frac{W \cdot s}{mm^3} = 1 \frac{J}{mm^3} = 1000 \frac{N}{mm^2}$

$[u_t] \quad [sp. energy] \quad [K_c]$