

SI Unit Conversion Table / Cutting Symbol

SI Derived Units Conversion Chart

(Bold lined units are the ones by SI Derived Unit.)

(Extracted from JIS Handbook "Steel")

● Force

N	kgf	dyn
1	$1.019\,72 \times 10^{-1}$	1×10^5
9.806 65	1	$9.806\,65 \times 10^5$
1×10^{-5}	$1.019\,72 \times 10^{-6}$	1

● Stress

1Pa=1N/m², 1MPa=1N/mm²

Pa or N/m ²	MPa or N/mm ²	kgf/mm ²	kgf/cm ²	kgf/m ²
1	1×10^{-6}	$1.019\,72 \times 10^{-7}$	$1.019\,72 \times 10^{-5}$	$1.019\,72 \times 10^{-1}$
1×10^6	1	$1.019\,72 \times 10^{-1}$	$1.019\,72 \times 10$	$1.019\,72 \times 10^5$
$9.806\,65 \times 10^6$	9.806 65	1	1×10^2	1×10^6
$9.806\,65 \times 10^4$	$9.806\,65 \times 10^{-2}$	1×10^{-2}	1	1×10^4
9.806 65	$9.806\,65 \times 10^{-6}$	1×10^{-6}	1×10^{-4}	1

● Pressure

1Pa=1N/m²

Pa	kPa	Mpa	bar	kgf/cm ²
1	1×10^{-3}	1×10^{-6}	1×10^{-5}	$1.019\,72 \times 10^{-5}$
1×10^3	1	1×10^{-3}	1×10^{-2}	$1.019\,72 \times 10^{-2}$
1×10^6	1×10^3	1	1×10	$1.019\,72 \times 10$
1×10^5	1×10^2	1×10^{-1}	1	1.019 72
$9.806\,65 \times 10^4$	$9.806\,65 \times 10$	$9.806\,65 \times 10^{-2}$	$9.806\,65 \times 10^{-1}$	1

Symbols of cutting conditions

● Cutting conditions below are indicated by the new symbols listed in 2nd column.

1) Turning

Cutting Condition	New symbol	(Previous symbol)	Unit
Cutting speed	Vc	V	m/min
Feed rate	f	f	mm/rev
Depth of cut	ap	d	mm
Edge width	W	W	mm
Workpiece diameter	Dm	D	mm
Power required at spindle	Pc	Pkw	kW
Specific cutting resistance	kc	Ks	MPa
Theoretical surface roughness	h	Rz	μm
Corner radius	re	R	mm
Revolution	n	N	min ⁻¹

Note: 're' is read as 'r epsilon'

3) Drilling

Cutting Condition	New symbol	(Previous symbol)	Unit
Cutting speed	Vc	V	m/min
Feed speed	Vf	F	mm/min
Feed rate	f	f	mm/rev
Drill diameter	Dc	D (Ds)	mm
Power required at spindle	Pc	Pkw	kW
Specific cutting resistance	kc	Ks	MPa
Depth of hole	H	d	mm
Revolution	n	N	min ⁻¹

2) Milling

Cutting Condition	New symbol	(Previous symbol)	Unit
Cutting speed	Vc	V	m/min
Feed speed	Vf	F	mm/min
Feed per tooth	fz	f	mm/t
Feed rate	f	f	mm/rev
Number of inserts	Z	Z	teeth
Depth of cut	ap	d	mm
Width of cut	ae	w	mm
Pick feed	Pf	Pf	mm
Power required at spindle	Pc	Pkw	kW
Specific cutting resistance	kc	Ks	MPa
Metal Removal Rate	Q	Q	cm ³ /min
Revolution	n	N	min ⁻¹

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