

RECOMMENDED CUTTING CONDITIONS

Work Material	Drill Diameter	Conditions Hardness	$\phi 14.0 - \phi 15.4$		$\phi 15.5 - \phi 18.4$		$\phi 18.5 - \phi 21.4$	
			Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P	Mild Steel	$\leq 180\text{HB}$	70 (60—90)	0.20 (0.15—0.25)	80 (60—100)	0.25 (0.20—0.30)	90 (70—110)	0.25 (0.20—0.30)
	Carbon Steel Alloy Steel	180—280HB	70 (60—90)	0.20 (0.15—0.25)	80 (60—100)	0.25 (0.20—0.30)	80 (60—100)	0.25 (0.20—0.30)
		280—350HB	60 (50—80)	0.15 (0.12—0.18)	70 (50—90)	0.20 (0.15—0.25)	70 (50—90)	0.20 (0.15—0.25)
M	Stainless Steel	$\leq 200\text{HB}$	50 (40—60)	0.15 (0.12—0.18)	50 (40—60)	0.15 (0.12—0.18)	60 (50—70)	0.20 (0.15—0.22)
K	Cast Iron	Tensile Strength $\leq 350\text{MPa}$	70 (50—90)	0.20 (0.15—0.25)	100 (60—120)	0.25 (0.20—0.30)	120 (60—140)	0.25 (0.20—0.30)
	Ductile Cast Iron	Tensile Strength $\leq 450\text{MPa}$	70 (50—90)	0.20 (0.15—0.25)	80 (60—90)	0.25 (0.20—0.30)	80 (60—90)	0.25 (0.20—0.30)

Work Material	Drill Diameter	Conditions Hardness	$\phi 21.5 - \phi 24.4$		$\phi 24.5 - \phi 27.4$		$\phi 27.5 - \phi 30.4$	
			Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Speed (m/min)	Feed (mm/rev)
P	Mild Steel	$\leq 180\text{HB}$	100 (80—120)	0.30 (0.25—0.35)	110 (80—120)	0.30 (0.25—0.35)	110 (80—120)	0.30 (0.25—0.35)
	Carbon Steel Alloy Steel	180—280HB	90 (70—110)	0.30 (0.25—0.35)	100 (80—120)	0.30 (0.25—0.35)	100 (80—120)	0.30 (0.25—0.35)
		280—350HB	80 (60—100)	0.25 (0.20—0.30)	90 (70—110)	0.25 (0.20—0.30)	90 (70—110)	0.25 (0.20—0.30)
M	Stainless Steel	$\leq 200\text{HB}$	60 (50—70)	0.20 (0.15—0.22)	70 (60—80)	0.25 (0.20—0.28)	70 (60—80)	0.25 (0.20—0.28)
K	Cast Iron	Tensile Strength $\leq 350\text{MPa}$	130 (80—150)	0.35 (0.25—0.40)	140 (90—160)	0.35 (0.25—0.40)	140 (90—160)	0.40 (0.30—0.45)
	Ductile Cast Iron	Tensile Strength $\leq 450\text{MPa}$	90 (60—100)	0.30 (0.25—0.35)	100 (80—110)	0.30 (0.25—0.35)	100 (80—110)	0.30 (0.25—0.35)

(Note 1) H type honing is recommended when machining mild steel and stainless steel.

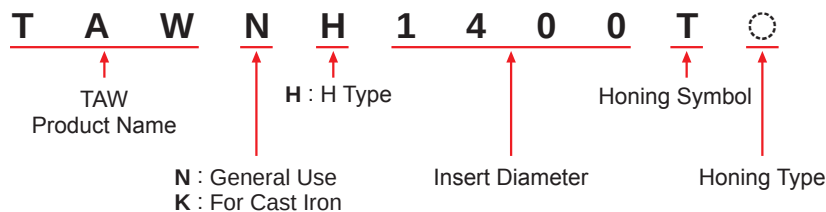
(Note 2) Recommended for use only with a rigid machine and set up. Use the internal coolant system when machining stainless steel.

(MQL and mist machining should not be used.)

HONE WIDTH

If an insert with honing other than standard is needed, please order using the symbols below.

(Insert Order Number)



(Honing Standard)

Honing Type	Hone Width (mm)
F	0
G	0.02—0.05
H	0.05—0.10
-(Standard)	0.10—0.15
K	0.15—0.20
S	0.20—0.25
M	0.25—0.30

Tighten the clamp screw according to the torque below.

Drill Dia.	Torque
$\phi 14 - \phi 15$	2.0N•m
$\phi 16 - \phi 18$	2.0N•m
$\phi 19 - \phi 21$	3.5N•m
$\phi 22 - \phi 24$	5.5N•m
$\phi 25 - \phi 27$	8.5N•m
$\phi 28 - \phi 30$	12.0N•m