

RECOMMENDED CUTTING CONDITIONS

	Work Material	Hardness	Grade	Breaker	Cutting Dia. (mm)	Number of Teeth	Cutting Speed (m/min)	Feed per Tooth (mm/tooth)	Width of Cut (mm)	Pick Feed (mm)
P	Carbon Steel Alloy Steel	≤180HB	VP15TF	FT	φ40	3	250 (200–300)	–0.6	–1.5	–6
					φ32	3	200 (150–220)	–0.55	–1.2	–5
					φ25	2	200 (150–220)	–0.55	–1.0	–5
	Hardening Tool Steel for Cold Work Dies	≤300HB	VP15TF	FT	φ40	3	250 (200–300)	–0.55	–1.5	–5
					φ32	3	180 (150–200)	–0.5	–1.2	–3
					φ25	2	180 (150–200)	–0.5	–1.0	–3
	Alloy Tool Steel	≤300HB	VP15TF	FT	φ40	3	200 (100–300)	–0.55	–1.5	–5
					φ32	3	150 (80–200)	–0.5	–1.2	–3
					φ25	2	150 (80–200)	–0.5	–1.0	–3
K	Cast Iron	Tensile Strength ≤350MPa	VP15TF	FT	φ40	3	250 (200–300)	–0.6	–1.5	–6
					φ32	3	200 (150–220)	–0.55	–1.2	–5
					φ25	2	200 (150–220)	–0.55	–1.0	–5
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP15TF	FT	φ40	3	250 (200–300)	–0.6	–1.5	–6
					φ32	3	200 (150–220)	–0.55	–1.2	–5
					φ25	2	200 (150–220)	–0.55	–1.0	–5

● Revolution (min⁻¹)=(1000×Cutting Speed)÷(3.14×Cutting diameter)

● Table Feed (mm/min)=Feed per Tooth×Number of Teeth×Cutter Revolution

(Note 1) The above cutting conditions are general guide lines. Adjustments maybe necessary depending on machine rigidity, workpiece geometry and clamping.

(Note 2) A carbide shank extension is recommended to prevent vibrations.

Application of Breakers

Cutting Conditions	Light Cutting	General Cutting	Interrupted Cutting
Breaker	JM	FT (First recommended)	ST

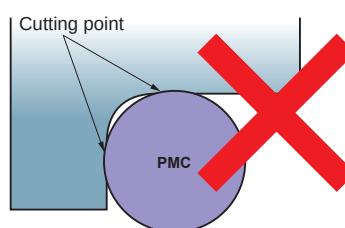
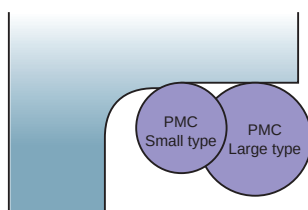
Application of Insert Grades

Cutting Conditions	Light Cutting	General Cutting	Interrupted Cutting
Grade	FH7020	VP15TF (First recommended)	VP30RT

NOTES ON MACHINING METHODS

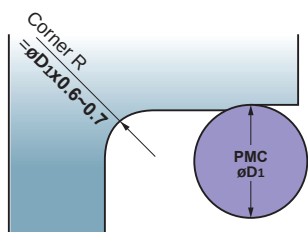
How to choose an appropriate diameter tool.

Machine plain surfaces with a larger tool and corner radii with smaller diameter cutters.



Relation of the cutter diameter and corner R size of work piece

A guide for the smallest possible workpiece radius that can be machined is from 0.6–0.7 x diameter of the tool.



Tool diameter D1(mm)	Corner R (mm)
φ25	R≥17.5
φ32	R≥22
φ40	R≥24

★Adjust cutting conditions according to the set up.

★Smaller workpiece corner radii (only >0.5 x cutter φ) may be possible by reducing the width of cut, speed and pick feed.