

Round Insert Cutter for Difficult-to-cut Materials

Recommended Cutting Conditions

Dry Cutting

(inch)

	Work Material	Hardness	Grade	vc (SFM)	fz (IPT)
M	Austenitic Stainless Steel	≤200HB	MC7020	720 (560—885)	.008 (.004—.014)
			MP7130	655 (490—820)	.008 (.004—.014)
	Austenitic Stainless Steel	>200HB	MC7020	620 (460—785)	.008 (.004—.014)
			MP7130	560 (395—720)	.008 (.004—.014)
	Duplex Stainless Steel	≤280HB	MC7020	590 (425—755)	.008 (.004—.014)
			MP7130	525 (360—690)	.008 (.004—.014)
	Ferritic and Martensitic Stainless Steel	≤200MPa	MC7020	785 (620—950)	.008 (.004—.014)
			MP7130	655 (490—820)	.008 (.004—.014)
	Ferritic and Martensitic Stainless Steel	>200HB	MC7020	785 (620—950)	.008 (.004—.014)
			MP7130	655 (490—820)	.008 (.004—.014)
	Hardened Stainless Steel	<450HB	MC7020	560 (395—720)	.008 (.004—.014)
			MP7130	490 (330—655)	.008 (.004—.014)

Wet Cutting

(inch)

	Work Material	Hardness	Grade	vc (SFM)	fz (IPT)
M	Austenitic Stainless Steel	≤200HB	MC7020	490 (330—655)	.008 (.004—.014)
			MP7130	425 (260—590)	.008 (.004—.014)
	Austenitic Stainless Steel	>200HB	MC7020	395 (230—560)	.008 (.004—.014)
			MP7130	330 (260—490)	.008 (.004—.014)
	Duplex Stainless Steel	≤280HB	MC7020	395 (230—560)	.008 (.004—.014)
			MP7130	330 (260—490)	.008 (.004—.014)
	Ferritic and Martensitic Stainless Steel	≤200MPa	MC7020	560 (395—720)	.008 (.004—.014)
			MP7130	425 (260—590)	.008 (.004—.014)
	Ferritic and Martensitic Stainless Steel	>200HB	MC7020	560 (395—720)	.008 (.004—.014)
			MP7130	425 (260—590)	.008 (.004—.014)
S	Hardened Stainless Steel	<450HB	MC7020	360 (195—525)	.008 (.004—.014)
			MP7130	295 (165—460)	.008 (.004—.014)
	Titanium Alloy	—	MP9130	150 (100—180)	.004 (.002—.006)
	Heat Resistant Alloy	—	MP9130	115 (50—150)	.004 (.002—.006)

Notes:

- * Actual cutting conditions are estimated to avoid chatter vibration with high rigidity of a machine or work material. Make appropriate adjustments when chatter and/or insert chipping occurs during cutting. Use with lowered conditions when there is a big overhang and/or when pocket-cutting.
- * Feed rate for recommended cutting conditions table above based when axial depth of cut is ap=.098" with ARP5, and when depth of cut is ap=.118" with ARP6.
- * Due to the chip thinning effect when the axial depth of cut fluctuates, feed rate compensation table below shows (correction values "F") to help calculate correct feed.
- * Example: Feed recommended for ARP5, 304 Stainless steel, MP7130, ap=.039" is .008IPTx1.5(correction values "F")=.012IPT.
- * For slotting, use 70% of the recommended feed rate listed above. For ramping, helical cutting, and plunging, use 50% of the recommended feed rate listed above.
- * Internal coolant is recommended in titanium alloy and heat resistant alloy machining.

Feed rate compensation table, (correction values "F") based on axial depth of cut "ap" fluctuation.

Holder	ap = .020"	ap = .039"	ap = .059"	ap = .079"	ap = .098"	ap = .118"	ap = .138"	ap = .157"	ap = .197"	ap = .236"
ARP5	2.3	1.5	1.2	1.1	1.0	.9	.8	.8	.8	—
ARP6	2.5	1.7	1.3	1.1	1.0	1.0	.9	.9	.8	.8

- * Tool body durability may weaken, when the amount of axial cutting exceeds ARP5=.197" and ARP6=.236".