Recommended Cutting Conditions

DRZ type Recommended Cutting Conditions (Coolant)

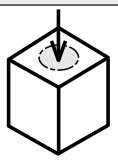
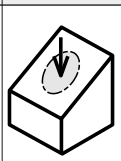
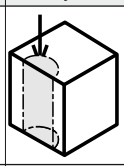
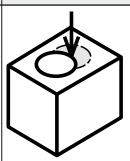
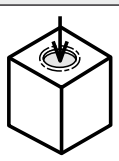
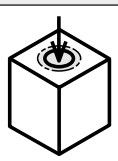
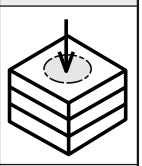
Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)							Cutting Diameter øD (mm)	Holder Type (Cutting Depth)			
	PVD Coated Carbide						Carbide		2D	3D	4D	5D
	PR660	PR830	PR915	PR1025	PR930	PR905	KW10		f (mm/rev)			
	Standard SP SU	Standard SP	Standard	Standard SP SU	Standard SP	Standard	Standard SP					
Low Carbon Steel	☆ 120~220	☆ 120~240	☆ 120~240	★ 120~220	☆ 120~220	-	-	ø13~ø15.5	0.06~0.10	0.06~0.10	0.04~0.08	–
								ø16~ø26.5	0.08~0.15	0.08~0.15	0.06~0.12	–
								ø27~ø50	0.08~0.18	0.08~0.15	0.06~0.12	0.05~0.09
								ø50~	0.08~0.18	0.08~0.15	0.06~0.12	–
Carbon Steel	☆ 100~160	☆ 120~180	☆ 120~180	★ 100~160	☆ 100~160	-	-	ø13~ø15.5	0.06~0.10	0.06~0.10	0.04~0.08	–
								ø16~ø26.5	0.08~0.15	0.08~0.15	0.06~0.12	–
								ø27~ø50	0.08~0.18	0.08~0.15	0.06~0.12	0.05~0.09
								ø50~	0.08~0.18	0.08~0.15	0.06~0.12	–
Alloy Steel	☆ 80~140	★ 100~160	☆ 100~160	☆ 80~140	☆ 80~140	-	-	ø13~ø15.5	0.06~0.10	0.06~0.10	0.04~0.08	–
								ø16~ø26.5	0.08~0.15	0.08~0.15	0.06~0.12	–
								ø27~ø50	0.08~0.18	0.08~0.15	0.06~0.12	0.05~0.09
								ø50~	0.08~0.18	0.08~0.15	0.06~0.12	–
Mold Steel	☆ 70~130	★ 80~150	☆ 80~150	☆ 70~130	☆ 70~130	-	-	ø13~ø15.5	0.04~0.08	0.04~0.08	0.03~0.07	–
								ø16~ø26.5	0.08~0 .12	0.06~0.10	0.06~0.08	–
								ø27~ø50	0.08~0.15	0.06~0.12	0.06~0.10	0.04~0.07
								ø50~	0.08~0.15	0.06~0.12	0.06~0.10	–
Stainless Steel	☆ 60~120	☆ 70~140	☆ 70~140	★ 60~120	☆ 60~120	-	-	ø13~ø15.5	0.04~0.08	0.04~0.08	0.03~0.06	–
								ø16~ø26.5	0.06~0.10	0.06~0.10	0.04~0.08	–
								ø27~ø50	0.06~0.10	0.06~0.12	0.04~0.10	0.04~0.07
								ø50~	0.06~0.12	0.06~0.12	0.04~0.10	–
Gray Cast Iron	-	-	-	-	-	★ 100~150	☆ 100~120	ø13~ø15.5	0.08~0.12	0.08~0.10	0.06~0.08	–
								ø16~ø26.5	0.10~0.18	0.10~0.15	0.08~0.12	–
								ø27~ø50	0.10~0.20	0.10~0.18	0.08~0.15	0.06~0.10
								ø50~	0.10~0.20	0.10~0.18	0.08~0.15	–
Nodular Cast Iron	-	-	-	-	-	★ 80~120	☆ 80~100	ø13~ø15.5	0.08~0.12	0.08~0.10	0.06~0.08	–
								ø16~ø26.5	0.10~0.18	0.10~0.15	0.08~0.12	–
								ø27~ø50	0.10~0.20	0.10~0.18	0.08~0.15	0.06~0.10
								ø50~	0.10~0.20	0.10~0.18	0.08~0.15	–
Non-ferrous Metals	-	-	-	-	-	-	★ 200~600	ø13~ø15.5	0.06~0.12	0.06~0.10	0.04~0.08	–
								ø16~ø26.5	0.08~0.18	0.08~0.15	0.06~0.15	–
								ø27~ø50	0.08~0.20	0.08~0.18	0.06~0.15	0.05~0.10
								ø50~	0.08~0.20	0.08~0.18	0.06~0.15	–
Titanium Alloy	-	-	-	-	-	-	★ 40~70	ø13~ø15.5	0.05~0.06	0.05~0.06	0.05~0.06	–
								ø16~ø26.5	0.05~0.07	0.05~0.07	0.05~0.07	–
								ø27~ø50	0.06~0.08	0.06~0.08	0.06~0.08	0.04~0.05
								ø50~	0.06~0.08	0.06~0.08	0.06~0.08	–

• Apply a sufficient amount of coolant.

★ : 1st. Recommendation ☆ : 2nd. Recommendation

Cutting Conditions by Application

(Workpiece Material: C50)

Applications		Flat Surface	Slanted Surface	Half Cylindrical	Hole Expansion	Concave Surface	Pre-drilled Surface	Stacked Plates
Workpiece Shape								
DRZ Type	Cutting speed (m/min)	120	120	120	120	120	120	Not Available
	Feeding (mm/rev)	0.1	0.05	0.05	0.05	Concave Part 0.05 Continuous Part 0.1	*0.05	Not Available
Coolant (Internal)		Yes	Yes	Yes	Yes	Yes	Yes	Not Available

* For ap, in case of cutting for prepared hole workpiece (Same as using likewise Boring Bar).

Drill type	2D~3D type	4D~5D type
ap	0.1×D or less	Not recommended

e.g.) In case of cutting using DRZ3090-10 (3×D type)
① For milling, prepared hole should be cut bigger than ø24 (ø30-0.1x30x2)
② For turning, ap should be set under ap = 3mm (0.1x30)

For ap in case of using outer coolant system

• In case of using outer coolant system, chip evacuation will be bad.
Therefore ap should be measured within 1.5times (1.5xD) of cutting diameter (øD).