Endmill [ND □□ Insert]

Recommended Cutting Conditions (MEA)

Workpiece Material	fz (mm/t)		Recommended Insert Grade (Vc: m/min)												Max. ap (mm)		
			Cermet			PVD Coated								Carbide				
	øD ø12~ø20	øD ø21~ø80	TN60	TN100M	TC60	PR630	PR730	PR830			PR660	PR905	PW30	KW10	Cutting Dia. (øD)	Slotting (ap)	Shouldering (ap×ae)
Stainless Steel	0.03~0.08	0.07~0.15		☆ 120~200		☆ 120~200	☆ 120~200				★ 100~200				~ø14	1	8×1
															ø16~ø28	3	8×3
															ø30~ø80	2	8×5
Carbon Steel	0.03~0.12	0.07~0.15		★ 120~200		☆ 120~200	★ 120~200				☆ 100~180				~ø14	1.5	8×2
															ø16~ø28	6	8×6
															ø30~ø80	3	8×10
Alloy Steel	0.03~0.12	0.07~0.15		★ 100~180		☆ 100~180	★ 100~180				☆ 80~150				~ø14	1.5	8×2
															ø16~ø28	5	8×5
															ø30~ø80	3	8×10
Metal Mold Steel	0.03~0.1	0.07~0.15		★ 100~180		☆ 80~150	★ 80~150				☆ 60~130				~ø14	1.5	8×2
															ø16~ø28	4	8×4
															ø30~ø80	3	8×10
Cast Iron	0.05~0.15	0.1~0.2										★ 100~200		☆ 80~150	~ø14	1.5	8×2
															ø16~ø28	6	8×6
															ø30~ø80	4	8×10
Non-ferrous Material	0.05~0.2	0.1~0.25												★ 100~300	~ø14	3	8×3
															ø16~ø28	6	8×10
															ø30~ø80	4	8×20

• Reduce the *ap* by 20-50% when machining with long overhang length or using long shank types.

★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions (MEB)

Workpiece Material	fz (mm/t)	Recommended Insert Grade (Vc: m/min)											Max. ap (mm)		
		Cermet			PVD Coated							Carbide			
		TN60	TN100M	TC60	PR630	PR730	PR830			PR660	PR905	PW30	KW10	Cutting Dia. (øD)	Slotting (ap)	Shouldering (ap×ae)
Stainless Steel	~0.2		☆ 120~200		☆ 120~200	☆ 120~200				★ 100~200				ø25	2	14×3
														ø32, ø40	3	14×5
														ø50~ø80	–	14×10
Carbon Steel	~0.25		★ 120~200		☆ 120~200	★ 120~200				☆ 100~180				ø25	5	14×7
														ø32, ø40	5	14×10
														ø50~ø80	–	14×20
Alloy Steel	~0.25		★ 100~180		☆ 100~180	★ 100~180				☆ 80~150				ø25	4	14×6
														ø32, ø40	5	14×8
														ø50~ø80	–	14×15
Metal Mold Steel	~0.2		★ 100~180		☆ 80~150	★ 80~150				☆ 60~130				ø25	4	14×6
														ø32, ø40	5	14×8
														ø50~ø80	–	14×15
Cast Iron	~0.25										★ 100~200		☆ 80~150	ø25	6	14×8
														ø32, ø40	5	14×12
														ø50~ø80	–	14×20
Non-ferrous Material	~0.2												★ 100~300	ø25	7	14×10
														ø32, ø40	5	14×15
														ø50~ø80	–	14×30

• Slotting with a tool over ø50 mm is not recommended.

★ : 1st Recommendation ☆ : 2nd Recommendation

Caution of installing Notched Insert

• Notched Inserts are necessary to be installed correct position. When it is installed wrongly, the tool cannot machine the workpiece and it may damage the toolholder body.

• Please be minded following tables when you install Inserts to toolholders. Indication is not marked near the Insert pocket for MEA / MEB. Please refer Table1 or Table2 and make correct combination. It is not available to install same Notched Insert (-N1, -N2 or -N3).

Table 1

Description	No. of Insert	NDK□ 09 type		
		Without notch	With notch N1	With notch N2
MEA 12-S10 12-S16 13-S12 14-S12	1	1	-	-
16-S12 (-...) 17-S16 18-S16 19-S16	2	-	1	1
20-S16 (-...) 21-S20 22-S20 24-S20 25-S20 (-...) 28-S25	3	-	2	1

Description	No. of Insert	NDK□ 09 type		
		Without notch	With notch N1	With notch N2
MEA 30-S25 32-S25 (-...)	4	-	2	2
32-S32-W-5T 40-S32	5	-	3	2
40-S32-110W-6T 50-S32	6	-	3	3
63-S32 80-S32	8	-	4	4
MEA 10-S10 (-...) 12-S12-W	1	1	-	-
16-S16 (-...) 20-S20-Z2	2	-	1	1
20-S20 (-...) 25-S25	3	-	2	1
25-S25-W-4T 32-S32	4	-	2	2
MEA 20-S20-130(W)	2	-	1	1
25-S25-140(W)	3	-	2	1
32-S25-160(W) 40-S32-200(W)	4	-	2	2

Table 2

Description	No. of Insert	NDK□ 15 type	
		Without notch	With notch N3
MEB 25-S20 (-...) 25-S25 (-...)	2	1	1
32-S25 (-...) 32-S32 (-...)	3	2	1
40-S32 (-...) 50-S32	4	2	2
63-S32	5	3	2
80-S32	6	3	3