

RECOMMENDED CUTTING CONDITIONS

CUTTING CONDITIONS FOR ROUGHING (ae=50% of Ø)

Work Material	Hardness	Grade	Cutting Speed (m/min)	Ø10–15mm		Ø20mm		Ø24–25mm		Ø30–42mm		Ø50–80mm		Ø100–160mm	
				ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)
P	Mild Steel	NX4545 F7030 VP15TF	(250–320)	–0.2	0.25	–0.5	0.45	–1.0	0.35	–1.0	0.40	–1.0	0.50	–1.5	0.60
			(240–300)	0.2–0.3	0.20	0.5–1.0	0.25	1.0–2.0	0.30	1.5–2.0	0.32	1.0–1.5	0.40	1.5–2.5	0.45
			(200–280)	0.3–0.5	0.12	1.0–1.5	0.15	2.0–2.5	0.20	2.0–3.0	0.25	1.5–3.0	0.35	2.5–5.0	0.35
	Carbon Steel Alloy Steel	NX4545 F7030 VP15TF	(220–300)	–0.2	0.20	–0.5	0.40	–1.0	0.30	–1.0	0.40	–1.0	0.50	–1.5	0.55
			(200–290)	0.2–0.3	0.15	0.5–1.0	0.20	1.0–1.5	0.25	1.5–2.0	0.30	1.0–1.5	0.38	1.5–2.5	0.40
			(160–250)	0.3–0.5	0.10	1.0–1.5	0.10	1.5–2.0	0.22	2.0–3.0	0.22	1.5–3.0	0.30	2.5–4.5	0.32
M	Stainless Steel	F7030 VP20M	(180–240)	–0.1	0.15	–0.5	0.20	–1.0	0.20	–1.0	0.25	–1.0	0.25	–1.5	0.30
			(160–200)	0.1–0.2	0.15	0.5–1.0	0.15	1.0–2.0	0.18	1.5–2.0	0.20	1.0–1.5	0.22	1.5–2.5	0.25
			(140–180)	0.2–0.25	0.10	1.0–1.5	0.12	2.0–2.5	0.14	2.0–3.0	0.15	1.5–3.0	0.18	2.5–5.0	0.20
K	Cast Iron	Tensile Strength ≤450MPa VP15TF VP20M VP10H	(200–250)	–0.1	0.15	–0.5	0.18	–1.0	0.20	–1.0	0.25	–1.0	0.30	–1.5	0.35
			(180–230)	0.1–0.2	0.10	0.5–1.0	0.10	1.0–1.5	0.15	1.5–2.0	0.18	1.0–1.5	0.25	1.5–2.5	0.22
			(160–200)	0.2–0.25	0.10	1.0–1.5	0.10	1.5–2.0	0.12	2.0–3.0	0.15	1.5–3.0	0.18	2.5–4.5	0.20
H	Hardened Steel	–52HRC –58HRC –60HRC VP15TF VP10H VP05HT	(140–200)	–0.1	0.12	–0.1	0.14	–0.1	0.15	–0.1	0.18	–0.1	0.18	–0.1	0.20
			(110–180)	0.1–0.15	0.10	0.1–0.20	0.12	0.1–0.30	0.12	0.1–0.30	0.14	0.1–0.30	0.14	0.1–0.30	0.15
			(100–170)	0.1–0.15	0.10	0.1–0.20	0.10	0.1–0.30	0.10	0.1–0.30	0.12	0.1–0.30	0.12	0.1–0.30	0.12

(Note 1) When using a full width of cut please reduce the cutting conditions by 20%.

(Note 2) When using a long overhang please reduce the feed rate by 20%.

CUTTING CONDITIONS FOR FINISHING (ae=20% of Ø)

Work Material	Hardness	Grade	Cutting Speed (m/min)	Ø10–15mm		Ø20mm		Ø24–25mm		Ø30–42mm		Ø50–80mm		Ø100–160mm	
				ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)	ap (mm)	fz (mm/rev)
P	Mild Steel	NX4545 F7030 VP15TF	(260–360)	–0.1	0.15	–0.15	0.20	–0.15	0.25	–0.15	0.30	–0.15	0.32	–0.3	0.35
			(240–320)	0.1–0.2	0.15	0.1–0.2	0.15	0.1–0.2	0.18	0.1–0.3	0.20	0.1–0.3	0.22	0.2–0.3	0.25
			(220–280)	0.2–0.24	0.10	0.1–0.30	0.15	0.1–0.30	0.18	0.1–0.30	0.20	0.2–0.30	0.20	0.3–0.40	0.20
	Carbon Steel Alloy Steel	NX4545 F7030 VP15TF	(250–350)	–0.1	0.12	–0.1	0.15	–0.1	0.18	–0.1	0.25	–0.1	0.28	–0.15	0.30
			(230–310)	0.1–0.15	0.12	0.1–0.30	0.15	0.1–0.30	0.15	0.1–0.30	0.20	0.1–0.3	0.22	0.15–0.3	0.25
			(210–270)	0.15–0.2	0.10	0.15–0.30	0.12	0.15–0.30	0.15	0.15–0.30	0.15	0.2–0.3	0.18	0.2–0.3	0.18
M	Stainless Steel	F7030 VP20M	(180–240)	–0.1	0.12	–0.1	0.18	–0.1	0.20	–0.1	0.22	–0.1	0.25	–0.15	0.30
			(160–200)	0.1–0.2	0.10	0.1–0.30	0.12	0.1–0.3	0.15	0.1–0.3	0.18	0.1–0.3	0.20	0.15–0.3	0.22
			(140–180)	0.2–0.25	0.10	0.2–0.30	0.10	0.2–0.3	0.12	0.2–0.3	0.12	0.2–0.3	0.15	0.2–0.3	0.18
K	Cast Iron	Tensile Strength ≤450MPa VP15TF VP20M VP10H	(200–300)	–0.1	0.15	–0.1	0.18	–0.1	0.20	–0.1	0.22	–0.1	0.25	–0.15	0.30
			(200–280)	0.1–0.2	0.10	0.1–0.30	0.10	0.1–0.3	0.15	0.1–0.3	0.15	0.1–0.3	0.20	0.15–0.3	0.22
			(180–240)	0.2–0.25	0.10	0.2–0.40	0.10	0.2–0.4	0.12	0.2–0.4	0.12	0.2–0.4	0.15	0.2–0.4	0.18
H	Hardened Steel	–52HRC –58HRC –60HRC VP15TF VP10H VP05HT	(150–200)	–0.1	0.15	–0.1	0.14	–0.1	0.15	–0.1	0.18	–0.1	0.18	–0.1	0.20
			(120–180)	0.1–0.15	0.10	0.1–0.20	0.12	0.1–0.30	0.12	0.1–0.30	0.14	0.1–0.30	0.14	0.1–0.30	0.15
			(100–180)	0.1–0.15	0.10	0.1–0.20	0.10	0.1–0.30	0.10	0.1–0.30	0.12	0.1–0.30	0.12	0.1–0.30	0.12

(Note 1) When using a full width of cut please reduce the cutting conditions by 20%.

(Note 2) When using a long overhang please reduce the feed rate by 20%.

INSERTS > J025, J026
 SPARE PARTS > M001
 TECHNICAL DATA > N001