

# ZALECANE PARAMETRY SKRAWANIA

## ■ PŁYTKA WIELOOSTRZOWA O UJEMNEJ GEOMETRII (NEGATYWNA)

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przyrost	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Stal konstrukcyjna (St37-2, Ck10)	≤180HB	●	F	1	FY	VP25N	285–450	0.09–0.23	0.20–0.80
		●	F	2	FY	NX2525	270–385	0.09–0.23	0.20–0.80
		●	F	3	FS	NX2525	270–385	0.09–0.23	0.20–0.70
		●	L	1	SY	VP25N	260–410	0.16–0.33	0.50–1.20
		●	L	2	SY	NX2525	245–350	0.16–0.33	0.50–1.20
		●	F	1	FY	MP3025	275–425	0.09–0.23	0.20–0.80
		●	F	2	FY	NX3035	260–370	0.09–0.23	0.20–0.80
		●	F	3	FS	NX2525	270–385	0.09–0.23	0.20–0.70
		●	L	1	SY	MP3025	255–385	0.16–0.33	0.50–1.20
		●	L	2	SY	NX3035	240–340	0.16–0.33	0.50–1.20
		✚	F	1	FY	UE6020	285–465	0.09–0.23	0.20–0.80
		✚	L	1	SY	UE6020	260–425	0.16–0.33	0.50–1.20
Stal węglowa • Stal stopowa (Ck45, 42CrMo4)	180   280HB	●	F	1	FP	NX2525	210–300	0.08–0.25	0.10–1.00
		●	F	2	FH	AP25N	220–345	0.08–0.20	0.20–1.00
		●	F	3	FH	NX2525	210–300	0.08–0.20	0.20–1.00
		●	F	4	R/L-F	MP3025	215–330	0.05–0.15	0.10–0.50
		●	F	5	PK	NX2525	200–285	0.10–0.30	0.20–1.00
		●	L	1	LP	MC6115	250–480	0.10–0.40	0.30–2.00
		●	L	2	LP	MC6125	275–425	0.10–0.40	0.30–2.00
		●	L	3	LP	MC6015	210–360	0.10–0.40	0.30–2.00
		●	L	4	LP	UE6105	225–410	0.10–0.40	0.30–2.00
		●	L	5	SH	MC6115	250–480	0.10–0.40	0.30–2.00
		●	L	6	SH	MC6125	275–425	0.10–0.40	0.30–2.00
		●	L	7	SH	UE6105	225–410	0.10–0.40	0.30–2.00
		●	L	8	LP	MP3025	195–300	0.10–0.40	0.30–2.00
		●	L	9	SH	AP25N	200–315	0.10–0.40	0.30–2.00
		●	L	10	SH	NX2525	190–275	0.10–0.40	0.30–2.00
		●	L	11	SA	MC6115	250–480	0.10–0.40	0.30–2.00
		●	L	12	SA	MC6125	275–425	0.10–0.40	0.30–2.00
		●	L	13	SA	UE6105	225–410	0.10–0.40	0.30–2.00
		●	L	14	SA	NX2525	190–275	0.10–0.40	0.30–2.00
		●	L	15	SW	MC6115	250–480	0.10–0.50	0.30–2.50
		●	L	16	SW	MC6125	275–425	0.10–0.50	0.30–2.50
		●	L	17	SW	UE6105	225–410	0.10–0.50	0.30–2.50
		●	L	18	SW	MP3025	195–300	0.10–0.50	0.30–2.50
		●	L	19	SW	NX2525	190–275	0.10–0.50	0.30–2.50
		●	L	20	R/L-K	MP3025	195–300	0.08–0.20	0.30–1.20
		●	M	1	MP	MC6115	230–440	0.16–0.50	0.30–4.00
		●	M	2	MP	MC6125	250–390	0.16–0.50	0.30–4.00
		●	M	3	MP	MC6015	195–330	0.16–0.50	0.30–4.00
		●	M	4	MP	UE6105	205–375	0.16–0.50	0.30–4.00
		●	M	5	MP	MP3025	180–275	0.16–0.50	0.30–4.00
		●	M	6	MA	MC6115	230–440	0.20–0.50	0.30–4.00
		●	M	7	MA	MC6125	250–390	0.20–0.50	0.30–4.00
●	M	8	MA	UE6105	205–375	0.20–0.50	0.30–4.00		
●	M	9	MH	UE6105	205–375	0.20–0.55	1.00–4.00		
●	M	10	Std	MC6115	230–440	0.25–0.60	1.50–5.00		
●	M	11	Std	MC6125	250–390	0.25–0.60	1.50–5.00		

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBK : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
P Stal węglowa • Stal stopowa (Ck45, 42CrMo4)	180   280HB	●	M	12	Std	UE6105	205–375	0.25–0.60	1.50–5.00
		●	M	13	Std	MP3025	180–275	0.25–0.60	1.50–5.00
		●	M	14	Std	NX2525	175–250	0.25–0.60	1.50–5.00
		●	M	15	Std	UTi20T	90–130	0.25–0.60	1.50–5.00
		●	M	16	MW	MC6115	230–440	0.20–0.60	0.90–4.00
		●	M	17	MW	MC6125	250–390	0.20–0.60	0.90–4.00
		●	M	18	MW	UE6105	205–375	0.20–0.60	0.90–4.00
		●	M	19	R/L	MP3025	180–275	0.15–0.32	0.40–2.00
		●	R	1	RP	MC6115	215–415	0.25–0.60	1.50–6.00
		●	R	2	RP	MC6125	235–370	0.25–0.60	1.50–6.00
		●	R	3	RP	MC6015	185–310	0.25–0.60	1.50–6.00
		●	R	4	RP	UE6105	190–355	0.25–0.60	1.50–6.00
		●	R	5	GH	MC6115	215–415	0.25–0.60	1.50–6.00
		●	R	6	GH	MC6125	235–370	0.25–0.60	1.50–6.00
		●	R	7	GH	UE6105	190–355	0.25–0.60	1.50–6.00
		●	H	1	HX	MC6025	165–265	0.50–1.26	3.00–11.00
		●	H	2	HX	UE6110	165–280	0.50–1.26	3.00–11.00
		●	H	3	HV	MC6025	135–220	0.70–1.30	4.00–12.00
		●	H	4	HV	UE6110	135–230	0.70–1.30	4.00–12.00
		●	H	5	HZ	MC6025	165–265	0.40–1.20	2.00–10.00
		●	H	6	HZ	UE6110	165–280	0.40–1.20	2.00–10.00
		●	H	7	HL	MC6025	165–265	0.40–1.00	1.50–8.00
		●	H	8	HL	UE6110	165–280	0.40–1.00	1.50–8.00
		●	H	9	HM	MC6025	165–265	0.50–1.10	2.00–10.00
		●	H	10	HM	UE6110	165–280	0.50–1.10	2.00–10.00
		●	F	1	FP	MP3025	215–330	0.08–0.25	0.10–1.00
		●	F	2	FH	MP3025	215–330	0.08–0.20	0.20–1.00
		●	F	3	FH	NX3035	200–285	0.08–0.20	0.20–1.00
		●	F	4	FH	UE6110	230–395	0.08–0.20	0.20–1.00
		●	L	1	LP	MC6115	250–480	0.10–0.40	0.30–2.00
		●	L	2	LP	MC6125	275–425	0.10–0.40	0.30–2.00
		●	L	3	LP	MC6015	210–360	0.10–0.40	0.30–2.00
		●	L	4	SH	MC6115	250–480	0.10–0.40	0.30–2.00
		●	L	5	SH	MC6125	275–425	0.10–0.40	0.30–2.00
		●	L	6	SH	MC6015	210–360	0.10–0.40	0.30–2.00
		●	L	7	SA	MC6115	250–480	0.10–0.40	0.30–2.00
		●	L	8	SA	MC6125	275–425	0.10–0.40	0.30–2.00
		●	L	9	SA	MC6015	210–360	0.10–0.40	0.30–2.00
		●	L	10	LP	UE6110	210–360	0.10–0.40	0.30–2.00
		●	L	11	SH	UE6110	210–360	0.10–0.40	0.30–2.00
●	L	12	SA	UE6110	210–360	0.10–0.40	0.30–2.00		
●	L	13	LP	MP3025	195–300	0.10–0.40	0.30–2.00		
●	L	14	SH	NX3035	185–260	0.10–0.40	0.30–2.00		
●	L	15	SA	NX3035	185–260	0.10–0.40	0.30–2.00		
●	L	16	SW	MC6115	250–480	0.10–0.50	0.30–2.50		
●	L	17	SW	MC6125	275–425	0.10–0.50	0.30–2.50		
●	L	18	SW	MC6015	210–360	0.10–0.50	0.30–2.50		
●	L	19	SW	UE6110	210–360	0.10–0.50	0.30–2.50		

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Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
P Stal węglowa • Stal stopowa (Ck45, 42CrMo4)	180   280HB	●	L	20	SW	NX3035	185–260	0.10–0.50	0.30–2.50
		●	M	1	MP	MC6125	250–390	0.16–0.50	0.30–4.00
		●	M	2	MP	MC6115	230–440	0.16–0.50	0.30–4.00
		●	M	3	MP	MC6015	195–330	0.16–0.50	0.30–4.00
		●	M	4	MA	MC6125	250–390	0.20–0.50	0.30–4.00
		●	M	5	MA	MC6115	230–440	0.20–0.50	0.30–4.00
		●	M	6	MA	MC6015	195–330	0.20–0.50	0.30–4.00
		●	M	7	MH	MC6125	250–390	0.20–0.55	1.00–4.00
		●	M	8	MH	MC6115	230–440	0.20–0.55	1.00–4.00
		●	M	9	MH	MC6015	195–330	0.20–0.55	1.00–4.00
		●	M	10	Std	MC6125	250–390	0.25–0.60	1.50–5.00
		●	M	11	Std	MC6115	230–440	0.25–0.60	1.50–5.00
		●	M	12	Std	MC6015	195–330	0.25–0.60	1.50–5.00
		●	M	13	MP	UE6110	195–330	0.16–0.50	0.30–4.00
		●	M	14	MA	UE6110	195–330	0.20–0.50	0.30–4.00
		●	M	15	MA	NX3035	170–240	0.20–0.50	0.30–4.00
		●	M	16	MH	UE6110	195–330	0.20–0.55	1.00–4.00
		●	M	17	Std	UE6110	195–330	0.25–0.60	1.50–5.00
		●	M	18	Std	NX3035	170–240	0.25–0.60	1.50–5.00
		●	M	19	MW	MC6125	250–390	0.20–0.60	0.90–4.00
		●	M	20	MW	MC6115	230–440	0.20–0.60	0.90–4.00
		●	M	21	MW	MC6015	195–330	0.20–0.60	0.90–4.00
		●	M	22	MW	UE6110	195–330	0.20–0.60	0.90–4.00
		●	R	1	RP	MC6125	235–370	0.25–0.60	1.50–6.00
		●	R	2	RP	MC6115	215–415	0.25–0.60	1.50–6.00
		●	R	3	RP	MC6015	185–310	0.25–0.60	1.50–6.00
		●	R	4	RP	UE6110	185–310	0.25–0.60	1.50–6.00
		●	R	5	GH	MC6125	235–370	0.25–0.60	1.50–6.00
		●	R	6	GH	MC6115	215–415	0.25–0.60	1.50–6.00
		●	R	7	GH	UE6110	185–310	0.25–0.60	1.50–6.00
		●	H	1	HX	MC6025	165–265	0.50–1.26	3.00–11.00
		●	H	2	HV	MC6025	135–220	0.70–1.30	4.00–12.00
		●	H	3	HZ	MC6025	165–265	0.40–1.20	2.00–10.00
		●	H	4	HL	MC6025	165–265	0.40–1.00	1.50–8.00
		●	H	5	HM	MC6025	165–265	0.50–1.10	2.00–10.00
		●	H	6	HR	MC6025	135–220	0.70–1.30	3.00–12.00
		●	H	7	HZ	UE6110	165–280	0.40–1.20	2.00–10.00
		✚	F	1	FP	MC6025	230–375	0.08–0.25	0.10–1.00
		✚	F	2	FP	MC6015	230–395	0.08–0.25	0.10–1.00
		✚	F	3	FH	UE6110	230–395	0.08–0.20	0.20–1.00
		✚	L	1	LP	MC6125	275–425	0.10–0.40	0.30–2.00
		✚	L	2	LP	MC6025	210–345	0.10–0.40	0.30–2.00
		✚	L	3	LP	MC6035	185–260	0.10–0.40	0.30–2.00
		✚	L	4	SH	MC6125	275–425	0.10–0.40	0.30–2.00
✚	L	5	SH	MC6025	210–345	0.10–0.40	0.30–2.00		
✚	L	6	SA	MC6125	275–425	0.10–0.40	0.30–2.00		
✚	L	7	SA	MC6025	210–345	0.10–0.40	0.30–2.00		
✚	L	8	SA	UE6020	200–330	0.10–0.40	0.30–2.00		

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBKİ : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
P Stal węglowa • Stal stopowa (Ck45, 42CrMo4)	180   280HB	✚	M	1	MP	MC6125	250–390	0.16–0.50	0.30–4.00
		✚	M	2	MP	MC6025	195–315	0.16–0.50	0.30–4.00
		✚	M	3	MP	MC6035	170–240	0.16–0.50	0.30–4.00
		✚	M	4	MA	MC6125	250–390	0.20–0.50	0.30–4.00
		✚	M	5	MA	MC6025	195–315	0.20–0.50	0.30–4.00
		✚	M	6	MA	MC6035	170–240	0.20–0.50	0.30–4.00
		✚	M	7	MH	MC6125	250–390	0.20–0.55	1.00–4.00
		✚	M	8	MH	MC6025	195–315	0.20–0.55	1.00–4.00
		✚	M	9	MH	MC6035	170–240	0.20–0.55	1.00–4.00
		✚	M	10	Std	MC6125	250–390	0.25–0.60	1.50–5.00
		✚	M	11	Std	MC6025	195–315	0.25–0.60	1.50–5.00
		✚	M	12	Std	MC6035	170–240	0.25–0.60	1.50–5.00
		✚	M	13	MW	MC6125	250–390	0.20–0.60	0.90–4.00
		✚	M	14	MW	MC6025	195–315	0.20–0.60	0.90–4.00
		✚	R	1	RP	MC6125	235–370	0.25–0.60	1.50–6.00
		✚	R	2	RP	MC6025	185–295	0.25–0.60	1.50–6.00
		✚	R	3	RP	MC6035	160–225	0.25–0.60	1.50–6.00
		✚	R	4	GH	MC6125	235–370	0.25–0.60	1.50–6.00
		✚	H	1	HX	MC6035	140–200	0.50–1.26	3.00–11.00
		✚	H	2	HX	UH6400	140–195	0.50–1.26	3.00–11.00
		✚	H	3	HV	MC6035	115–165	0.70–1.30	4.00–12.00
		✚	H	4	HV	UH6400	115–160	0.70–1.30	4.00–12.00
		✚	H	5	HZ	MC6035	140–200	0.40–1.20	2.00–10.00
		✚	H	6	HZ	UH6400	140–195	0.40–1.20	2.00–10.00
		✚	H	7	HL	MC6035	140–200	0.40–1.00	1.50–8.00
		✚	H	8	HM	MC6035	140–200	0.50–1.10	2.00–10.00
✚	H	9	HR	MC6035	115–165	0.70–1.30	3.00–12.00		

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Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Austenityczna stal nierdzewna (X5CrNi189, X5CrNiMo1810)	≤200HB	●	L	1	LM	MC7015	180–285	0.10–0.30	0.30–2.00
		●	L	2	SH	US735	95–185	0.10–0.40	0.30–2.00
		●	L	3	SH	NX2525	65–135	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7015	165–260	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7015	165–260	0.16–0.50	0.50–4.00
		●	R	1	RM	MC7015	155–245	0.25–0.55	1.50–6.00
		●	H	1	HL	US735	75–140	0.40–1.00	1.50–8.00
		●	H	2	HL	US735	75–140	0.40–1.00	1.50–8.00
		●	L	1	LM	MC7025	165–220	0.10–0.30	0.30–2.00
		●	L	2	SH	US735	95–185	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7025	150–200	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7025	150–200	0.16–0.50	0.50–4.00
		●	M	3	MA	MC7025	150–200	0.20–0.50	0.30–4.00
		●	M	4	MS	US735	90–170	0.16–0.50	0.50–4.00
		●	M	5	MA	US735	90–170	0.20–0.50	0.30–4.00
		●	R	1	RM	MC7025	140–190	0.25–0.55	1.50–6.00
		●	R	2	GH	US735	85–160	0.25–0.60	1.50–6.00
		●	H	1	HL	US735	75–140	0.40–1.00	1.50–8.00
		●	H	2	HM	US735	75–140	0.50–1.10	2.00–10.00
		✚	L	1	LM	MP7035	95–155	0.10–0.30	0.30–2.00
		✚	L	2	SH	US735	95–185	0.10–0.40	0.30–2.00
		✚	M	1	MM	MP7035	90–145	0.15–0.45	0.70–5.00
		✚	M	2	GM	MP7035	90–145	0.16–0.50	0.50–4.00
		✚	M	3	MA	MP7035	90–145	0.20–0.50	0.30–4.00
		✚	M	4	MS	US735	90–170	0.16–0.50	0.50–4.00
		✚	M	5	MS	VP15TF	80–135	0.16–0.50	0.50–4.00
		✚	M	6	MS	UP20M	100–150	0.16–0.50	0.50–4.00
		✚	M	7	MS	UTi20T	80–115	0.16–0.50	0.50–4.00
		✚	M	8	MA	VP15TF	80–135	0.20–0.50	0.30–4.00
		✚	M	9	Std	VP15TF	80–135	0.25–0.60	1.50–5.00
		✚	R	1	RM	MP7035	85–135	0.25–0.55	1.50–6.00
		✚	R	2	GH	US735	85–160	0.25–0.60	1.50–6.00
✚	H	1	HL	US735	75–140	0.40–1.00	1.50–8.00		
✚	H	2	HM	US735	75–140	0.50–1.10	2.00–10.00		
Austenityczna stal nierdzewna (X2CrNiN1810, X2CrNiMoN1813)	>200HB	●	L	1	LM	MC7015	150–240	0.10–0.30	0.30–2.00
		●	L	2	SH	US735	80–155	0.10–0.40	0.30–2.00
		●	L	3	SH	NX2525	55–115	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7015	135–215	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7015	135–215	0.16–0.50	0.50–4.00
		●	R	1	RM	MC7015	130–205	0.25–0.55	1.50–6.00
		●	H	1	HL	US735	60–120	0.40–1.00	1.50–8.00
		●	H	2	HM	US735	60–120	0.50–1.10	2.00–10.00
		●	L	1	LM	MC7025	135–180	0.10–0.30	0.30–2.00
		●	L	2	SH	US735	80–155	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7025	125–165	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7025	125–165	0.16–0.50	0.50–4.00
		●	M	3	MA	MC7025	125–165	0.20–0.50	0.30–4.00
		●	M	4	MS	US735	75–140	0.16–0.50	0.50–4.00

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBKII : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Austenityczna stal nierdzewna (X2CrNiN1810, X2CrNiMoN1813)	>200HB	☉	M	5	MA	US735	75–140	0.20–0.50	0.30–4.00
		☉	R	1	RM	MC7025	115–155	0.25–0.55	1.50–6.00
		☉	R	2	GH	US735	70–135	0.25–0.60	1.50–6.00
		☉	H	1	HL	US735	60–120	0.40–1.00	1.50–8.00
		☉	H	2	HM	US735	60–120	0.50–1.10	2.00–10.00
		☼	L	1	LM	MP7035	80–130	0.10–0.30	0.30–2.00
		☼	L	2	SH	US735	80–155	0.10–0.40	0.30–2.00
		☼	M	1	MM	MP7035	75–120	0.15–0.45	0.70–5.00
		☼	M	2	GM	MP7035	75–120	0.16–0.50	0.50–4.00
		☼	M	3	MA	MP7035	75–120	0.20–0.50	0.30–4.00
		☼	M	4	MS	US735	75–140	0.16–0.50	0.50–4.00
		☼	M	5	MS	VP15TF	65–110	0.16–0.50	0.50–4.00
		☼	M	6	MS	UP20M	80–125	0.16–0.50	0.50–4.00
		☼	M	7	MS	UTi20T	65–95	0.16–0.50	0.50–4.00
		☼	M	8	MA	VP15TF	65–110	0.20–0.50	0.30–4.00
		☼	M	9	Std	VP15TF	65–110	0.25–0.60	1.50–5.00
		☼	R	1	RM	MP7035	70–115	0.25–0.55	1.50–6.00
		☼	R	2	GH	US735	70–135	0.25–0.60	1.50–6.00
☼	H	1	HL	US735	60–120	0.40–1.00	1.50–8.00		
☼	H	2	HM	US735	60–120	0.50–1.10	2.00–10.00		
Stal nierdzewna Duplex (X3CrNiCu1894)	≤280HB	●	L	1	LM	MC7015	120–190	0.10–0.30	0.30–2.00
		●	L	2	SH	US735	65–125	0.10–0.40	0.30–2.00
		●	L	3	SH	NX2525	40–90	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7015	110–175	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7015	110–175	0.16–0.50	0.50–4.00
		●	R	1	RM	MC7015	105–165	0.25–0.55	1.50–6.00
		●	H	1	HL	US735	50–95	0.40–1.00	1.50–8.00
		●	H	2	HM	US735	50–95	0.50–1.10	2.00–10.00
		☉	L	1	LM	MC7025	110–145	0.10–0.30	0.30–2.00
		☉	L	2	SH	US735	65–125	0.10–0.40	0.30–2.00
		☉	M	1	MM	MC7025	100–135	0.15–0.45	0.70–5.00
		☉	M	2	GM	MC7025	100–135	0.16–0.50	0.50–4.00
		☉	M	3	MA	MC7025	100–135	0.20–0.50	0.30–4.00
		☉	M	4	MS	US735	60–115	0.16–0.50	0.50–4.00
		☉	M	5	MA	US735	60–115	0.20–0.50	0.30–4.00
		☉	R	1	RM	MC7025	95–125	0.25–0.55	1.50–6.00
		☉	R	2	GH	US735	55–105	0.25–0.60	1.50–6.00
		☉	H	1	HL	US735	50–95	0.40–1.00	1.50–8.00
		☉	H	2	HM	US735	50–95	0.50–1.10	2.00–10.00
		☼	L	1	LM	MP7035	65–105	0.10–0.30	0.30–2.00
		☼	L	2	SH	US735	65–125	0.10–0.40	0.30–2.00
		☼	M	1	MM	MP7035	60–95	0.15–0.45	0.70–5.00
		☼	M	2	GM	MP7035	60–95	0.16–0.50	0.50–4.00
		☼	M	3	MA	MP7035	60–95	0.20–0.50	0.30–4.00
		☼	M	4	MS	US735	60–115	0.16–0.50	0.50–4.00
		☼	M	5	MS	VP15TF	50–90	0.16–0.50	0.50–4.00
		☼	M	6	MS	UP20M	65–100	0.16–0.50	0.50–4.00
		☼	M	7	MS	UTi20T	50–75	0.16–0.50	0.50–4.00

# ZALECANE PARAMETRY SKRAWANIA

## ■ PŁYTKA WIELOOSTRZOWA O UJEMNEJ GEOMETRII (NEGATYWNA)

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Stal nierdzewna Duplex (X3CrNiCu1894)	≤280HB	✚	M	8	MA	VP15TF	50–90	0.20–0.50	0.30–4.00
		✚	M	9	Std	VP15TF	50–90	0.25–0.60	1.50–5.00
		✚	R	1	RM	MP7035	55–90	0.25–0.55	1.50–6.00
		✚	R	2	GH	US735	55–105	0.25–0.60	1.50–6.00
		✚	H	1	HL	US735	50–95	0.40–1.00	1.50–8.00
		✚	H	2	HM	US735	50–95	0.50–1.10	2.00–10.00
Stale nierdzewne ferrytyczne i martenzytyczne (X10Cr13, X8Cr17)	≤200HB	●	L	1	LM	MC7015	180–285	0.10–0.30	0.30–2.00
		●	L	2	SH	US735	95–185	0.10–0.40	0.30–2.00
		●	L	3	SH	NX2525	65–135	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7015	165–260	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7015	165–260	0.16–0.50	0.50–4.00
		●	R	1	RM	MC7015	155–245	0.25–0.55	1.50–6.00
		●	H	1	HL	US735	75–140	0.40–1.00	1.50–8.00
		●	H	2	HM	US735	75–140	0.50–1.10	2.00–10.00
		●	L	1	LM	MC7025	165–220	0.10–0.30	0.30–2.00
		●	L	2	SH	US735	95–185	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7025	150–200	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7025	150–200	0.16–0.50	0.50–4.00
		●	M	3	MA	MC7025	150–200	0.20–0.50	0.30–4.00
		●	M	4	MA	US735	90–170	0.20–0.50	0.30–4.00
		●	M	5	MS	US735	90–170	0.16–0.50	0.50–4.00
		●	R	1	RM	MC7025	140–190	0.25–0.55	1.50–6.00
		●	R	2	GH	US735	85–160	0.25–0.60	1.50–6.00
		●	H	1	HL	US735	75–140	0.40–1.00	1.50–8.00
		●	H	2	HM	US735	75–140	0.50–1.10	2.00–10.00
		✚	L	1	LM	MP7035	95–155	0.10–0.30	0.30–2.00
		✚	L	2	SH	US735	95–185	0.10–0.40	0.30–2.00
		✚	M	1	MM	MP7035	90–145	0.15–0.45	0.70–5.00
		✚	M	2	GM	MP7035	90–145	0.16–0.50	0.50–4.00
		✚	M	3	MA	MP7035	90–145	0.20–0.50	0.30–4.00
		✚	M	4	MS	US735	90–170	0.16–0.50	0.50–4.00
		✚	M	5	MS	VP15TF	80–135	0.16–0.50	0.50–4.00
		✚	M	6	MS	UP20M	100–150	0.16–0.50	0.50–4.00
		✚	M	7	MS	UTi20T	80–115	0.16–0.50	0.50–4.00
		✚	M	8	MA	VP15TF	80–135	0.20–0.50	0.30–4.00
		✚	M	9	Std	VP15TF	80–135	0.25–0.60	1.50–5.00
✚	R	1	RM	MP7035	85–135	0.25–0.55	1.50–6.00		
✚	R	2	GH	US735	85–160	0.25–0.60	1.50–6.00		
✚	H	1	HL	US735	75–140	0.40–1.00	1.50–8.00		
✚	H	2	HM	US735	75–140	0.50–1.10	2.00–10.00		
Stale nierdzewne ferrytyczne i martenzytyczne (X17CrNi162, X30Cr13)	>200HB	●	L	1	LM	MC7015	150–240	0.10–0.30	0.30–2.00
		●	L	2	SH	US735	80–155	0.10–0.40	0.30–2.00
		●	L	3	SH	NX2525	55–115	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7015	135–215	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7015	135–215	0.16–0.50	0.50–4.00
		●	R	1	RM	MC7015	130–205	0.25–0.55	1.50–6.00
		●	H	1	HL	US735	60–120	0.40–1.00	1.50–8.00
		●	H	2	HM	US735	60–120	0.50–1.10	2.00–10.00

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBKII : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Stale nierdzewne ferrytyczne i martenzytyczne (X17CrNi162, X30Cr13)	>200HB	☉	L	1	LM	MC7025	135–180	0.10–0.30	0.30–2.00
		☉	L	2	SH	US735	80–155	0.10–0.40	0.30–2.00
		☉	M	1	MM	MC7025	125–165	0.15–0.45	0.70–5.00
		☉	M	2	MA	MC7025	125–165	0.20–0.50	0.30–4.00
		☉	M	3	MA	US735	75–140	0.20–0.50	0.30–4.00
		☉	M	4	MS	US735	75–140	0.16–0.50	0.50–4.00
		☉	R	1	RM	MC7025	115–155	0.25–0.55	1.50–6.00
		☉	R	2	GH	US735	70–135	0.25–0.60	1.50–6.00
		☉	H	1	HL	US735	60–120	0.40–1.00	1.50–8.00
		☉	H	2	HM	US735	60–120	0.50–1.10	2.00–10.00
		☼	L	1	LM	MP7035	80–130	0.10–0.30	0.30–2.00
		☼	L	2	SH	US735	80–155	0.10–0.40	0.30–2.00
		☼	M	1	MM	MP7035	75–120	0.15–0.45	0.70–5.00
		☼	M	2	GM	MP7035	75–120	0.16–0.50	0.50–4.00
		☼	M	3	MA	MP7035	75–120	0.20–0.50	0.30–4.00
		☼	M	4	MS	US735	75–140	0.16–0.50	0.50–4.00
		☼	M	5	MS	VP15TF	65–110	0.16–0.50	0.50–4.00
		☼	M	6	MS	UP20M	80–125	0.16–0.50	0.50–4.00
		☼	M	7	MS	UTi20T	65–95	0.16–0.50	0.50–4.00
		☼	M	8	MA	VP15TF	65–110	0.20–0.50	0.30–4.00
☼	M	9	Std	VP15TF	65–110	0.25–0.60	1.50–5.00		
☼	R	1	RM	MP7035	70–115	0.25–0.55	1.50–6.00		
☼	R	2	GH	US735	70–135	0.25–0.60	1.50–6.00		
☼	H	1	HL	US735	60–120	0.40–1.00	1.50–8.00		
☼	H	2	HM	US735	60–120	0.50–1.10	2.00–10.00		
Stale nierdzewne hartowane (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB	●	L	1	LM	MC7015	95–130	0.10–0.30	0.30–2.00
		●	L	2	LS(M)	MP9005	125–175	0.10–0.25	0.20–0.80
		●	L	3	SH	US735	55–100	0.10–0.40	0.30–2.00
		●	L	4	SH	NX2525	35–75	0.10–0.40	0.30–2.00
		●	M	1	MM	MC7015	90–120	0.15–0.45	0.70–5.00
		●	M	2	GM	MC7015	90–120	0.16–0.50	0.50–4.00
		●	M	3	MS	MP9005	115–160	0.15–0.30	0.50–3.00
		●	R	1	RM	MC7015	85–110	0.25–0.55	1.50–6.00
		●	H	1	HL	US735	40–80	0.40–1.00	1.50–8.00
		●	H	2	HM	US735	40–80	0.50–1.10	2.00–10.00
		☉	L	1	LM	MC7025	85–110	0.10–0.30	0.30–2.00
		☉	L	2	SH	US735	55–100	0.10–0.40	0.30–2.00
		☉	L	3	LS(M)	MP9015	120–165	0.10–0.25	0.20–0.80
		☉	M	1	MM	MC7025	80–100	0.15–0.45	0.70–5.00
		☉	M	2	GM	MC7025	80–100	0.16–0.50	0.50–4.00
		☉	M	3	MA	MC7025	80–100	0.10–0.30	0.50–3.00
		☉	M	4	MS	US735	50–95	0.15–0.30	0.50–3.00
		☉	M	5	MA	US735	50–95	0.10–0.30	0.50–3.00
		☉	M	6	MS	MP9015	110–150	0.15–0.30	0.50–3.00
		☉	R	1	RM	MC7025	75–95	0.25–0.55	1.50–6.00
☉	R	2	GH	US735	45–90	0.25–0.60	1.50–6.00		
☉	R	3	RS	MP9015	100–140	0.20–0.35	1.00–4.00		
☉	H	1	HL	US735	40–80	0.40–1.00	1.50–8.00		

M



## ZALECANE PARAMETRY SKRAWANIA

### ■ PŁYTKA WIELOOSTRZOWA O UJEMNEJ GEOMETRII (NEGATYWNA)

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Priorityet	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
M Stale nierdzewne hartowane (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB	●	H	2	HM	US735	40–80	0.50–1.10	2.00–10.00
		✚	L	1	LM	MP7035	55–85	0.10–0.30	0.30–2.00
		✚	L	2	SH	US735	55–100	0.10–0.40	0.30–2.00
		✚	L	3	LS(M)	MP9025	80–95	0.10–0.25	0.20–0.80
		✚	M	1	MM	MP7035	50–80	0.15–0.45	0.70–5.00
		✚	M	2	GM	MP7035	50–80	0.16–0.50	0.50–4.00
		✚	M	3	MA	MP7035	50–80	0.10–0.30	0.50–3.00
		✚	M	4	MS	US735	50–95	0.15–0.30	0.50–3.00
		✚	M	5	MS	VP15TF	45–75	0.15–0.30	0.50–3.00
		✚	M	6	MS	UP20M	55–85	0.15–0.30	0.50–3.00
		✚	M	7	MS	UTi20T	45–65	0.15–0.30	0.50–3.00
		✚	M	8	MA	VP15TF	45–75	0.10–0.30	0.50–3.00
		✚	M	9	Std	VP15TF	45–75	0.25–0.60	1.50–5.00
		✚	M	10	MS	MP9025	75–90	0.15–0.30	0.50–3.00
		✚	R	1	RM	MP7035	45–75	0.25–0.55	1.50–6.00
		✚	R	2	GH	US735	45–90	0.25–0.60	1.50–6.00
		✚	R	3	RS	MP9025	70–85	0.20–0.35	1.00–4.00
		✚	H	1	HL	US735	40–80	0.40–1.00	1.50–8.00
✚	H	2	HM	US735	40–80	0.50–1.10	2.00–10.00		

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBK : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Wytrzymałość na rozciąganie	Rodzaj obróbki		Proryteł	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)		
Żeliwo szare (GG30)	≤350MPa	●	L	1	LK	MC5005	230–365	0.10–0.40	0.30–2.00		
		●	L	2	MA	MC5005	210–335	0.20–0.50	0.30–4.00		
		●	M	1	MK	MC5005	210–335	0.20–0.55	1.00–4.00		
		●	M	2	GK	MC5005	210–335	0.25–0.60	1.50–5.00		
		●	M	3	Std	NX2525	155–210	0.25–0.60	1.50–5.00		
		●	M	4	MW	MC5005	210–335	0.20–0.60	0.90–4.00		
		●	R	1	RK	MC5005	195–315	0.25–0.60	1.50–6.00		
		●	R	2	Flat	MC5005	195–315	0.20–0.60	2.50–6.00		
		●	R	3	Flat	HTi10	95–140	0.20–0.60	2.50–6.00		
		●	H	1	Flat	MC5005	195–315	0.20–0.60	2.50–6.00		
		●	L	1	LK	MC5015	205–335	0.10–0.40	0.30–2.00		
		●	L	2	MA	MC5015	190–305	0.20–0.50	0.30–4.00		
		●	L	3	SW	MC5015	205–335	0.10–0.50	0.30–2.50		
		●	M	1	MK	MC5015	190–305	0.20–0.55	1.00–4.00		
		●	M	2	GK	MC5015	190–305	0.25–0.60	1.50–5.00		
		●	M	3	Std	HTi10	105–150	0.25–0.60	1.50–5.00		
		●	M	4	MW	MC5015	190–305	0.20–0.60	0.90–4.00		
		●	R	1	RK	MC5015	180–285	0.25–0.60	1.50–6.00		
		●	R	2	Flat	MC5015	180–285	0.20–0.60	2.50–6.00		
		●	H	1	Flat	MC5015	180–285	0.20–0.60	2.50–6.00		
		⊕	L	1	LK	MC5015	205–335	0.10–0.40	0.30–2.00		
		⊕	L	2	MA	MC5015	190–305	0.20–0.50	0.30–4.00		
		⊕	M	1	MK	MC5015	190–305	0.20–0.55	1.00–4.00		
		⊕	M	2	GK	MC5015	190–305	0.25–0.60	1.50–5.00		
		⊕	M	3	Std	UTi20T	85–120	0.25–0.60	1.50–5.00		
		⊕	R	1	RK	MC5015	180–285	0.25–0.60	1.50–6.00		
		⊕	R	2	Flat	MC5015	180–285	0.20–0.60	2.50–6.00		
		⊕	R	3	Flat	UTi20T	80–110	0.20–0.60	2.50–6.00		
		⊕	H	1	Flat	MC5015	180–285	0.20–0.60	2.50–6.00		
		Żeliwo sferoidalne (GGG) (GGG40)	≤450MPa	●	L	1	LK	MC5005	215–350	0.10–0.40	0.30–2.00
				●	L	2	MA	MC5005	195–315	0.20–0.50	0.30–4.00
				●	M	1	MK	MC5005	195–315	0.20–0.55	1.00–4.00
●	M			2	GK	MC5005	195–315	0.25–0.60	1.50–5.00		
●	M			3	Std	NX2525	145–195	0.25–0.60	1.50–5.00		
●	R			1	RK	MC5005	185–300	0.25–0.60	1.50–6.00		
●	R			2	Flat	MC5005	185–300	0.20–0.60	2.50–6.00		
●	R			3	Flat	HTi10	90–135	0.20–0.60	2.50–6.00		
●	H			1	Flat	MC5005	185–300	0.20–0.60	2.50–6.00		
●	L			1	LK	MC5015	195–315	0.10–0.40	0.30–2.00		
●	L			2	MA	MC5015	180–285	0.20–0.50	0.30–4.00		
●	L			3	SW	MC5015	195–315	0.10–0.50	0.30–2.50		
●	M			1	MK	MC5015	180–285	0.20–0.55	1.00–4.00		
●	M			2	GK	MC5015	180–285	0.25–0.60	1.50–5.00		
●	M			3	Std	HTi10	95–140	0.25–0.60	1.50–5.00		
●	R			1	RK	MC5015	170–275	0.25–0.60	1.50–6.00		
●	R			2	Flat	MC5015	170–275	0.20–0.60	2.50–6.00		
●	H			1	Flat	MC5015	170–275	0.20–0.60	2.50–6.00		
⊕	L			1	LK	MC5015	195–315	0.10–0.40	0.30–2.00		

K

## ZALECANE PARAMETRY SKRAWANIA

### ■ PŁYTKA WIELOOSTRZOWA O UJEMNEJ GEOMETRII (NEGATYWNA)

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Wytrzymałość na rozciąganie	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Żeliwo sferoidalne (GGG) (GGG40)	≤450MPa	✚	L	2	MA	MC5015	180–285	0.20–0.50	0.30–4.00
		✚	M	1	MK	MC5015	180–285	0.20–0.55	1.00–4.00
		✚	M	2	GK	MC5015	180–285	0.25–0.60	1.50–5.00
		✚	M	3	Std	UTi20T	80–110	0.25–0.60	1.50–5.00
		✚	R	1	RK	MC5015	170–275	0.25–0.60	1.50–6.00
		✚	R	2	Flat	MC5015	170–275	0.20–0.60	2.50–6.00
		✚	R	3	Flat	UTi20T	75–105	0.20–0.60	2.50–6.00
		✚	H	1	Flat	MC5015	170–275	0.20–0.60	2.50–6.00
K Żeliwo sferoidalne (GGG) (GGG70)	≤800MPa	●	L	1	LK	MC5005	195–310	0.10–0.40	0.30–2.00
		●	L	2	MA	MC5005	175–280	0.20–0.50	0.30–4.00
		●	M	1	MK	MC5005	175–280	0.20–0.55	1.00–4.00
		●	M	2	GK	MC5005	175–280	0.25–0.60	1.50–5.00
		●	M	3	Std	NX2525	130–175	0.25–0.60	1.50–5.00
		●	R	1	RK	MC5005	165–270	0.25–0.60	1.50–6.00
		●	R	2	Flat	MC5005	165–270	0.20–0.60	2.50–6.00
		●	R	3	Flat	HTi10	80–120	0.20–0.60	2.50–6.00
		●	H	1	Flat	MC5005	165–270	0.20–0.60	2.50–6.00
		●	L	1	LK	MC5015	175–285	0.10–0.40	0.30–2.00
		●	L	2	MA	MC5015	160–255	0.20–0.50	0.30–4.00
		●	L	3	SW	MC5015	175–285	0.10–0.50	0.30–2.50
		●	M	1	MK	MC5015	160–255	0.20–0.55	1.00–4.00
		●	M	2	GK	MC5015	160–255	0.25–0.60	1.50–5.00
		●	M	3	Std	HTi10	85–125	0.25–0.60	1.50–5.00
		●	R	1	RK	MC5015	150–245	0.25–0.60	1.50–6.00
		●	R	2	Flat	MC5015	150–245	0.20–0.60	2.50–6.00
		●	H	1	Flat	MC5015	150–245	0.20–0.60	2.50–6.00
		✚	L	1	LK	MC5015	175–285	0.10–0.40	0.30–2.00
		✚	L	2	MA	MC5015	160–255	0.20–0.50	0.30–4.00
		✚	M	1	MK	MC5015	160–255	0.20–0.55	1.00–4.00
		✚	M	2	GK	MC5015	160–255	0.25–0.60	1.50–5.00
		✚	M	3	Std	UTi20T	70–100	0.25–0.60	1.50–5.00
		✚	R	1	RK	MC5015	150–245	0.25–0.60	1.50–6.00
		✚	R	2	Flat	MC5015	150–245	0.20–0.60	2.50–6.00
		✚	R	3	Flat	UTi20T	65–95	0.20–0.60	2.50–6.00
		✚	H	1	Flat	MC5015	150–245	0.20–0.60	2.50–6.00

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBK : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki		Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)
Stop tytanu (Ti-6Al-4V)	—	●	F	1	LS(M)	MT9015	40–85	0.10–0.25	0.20–0.80
		●	F	2	FJ	RT9010	45–95	0.07–0.20	0.10–1.00
		●	L	1	LS(M)	MT9015	40–85	0.10–0.25	0.20–0.80
		●	L	2	MJ(M)	RT9010	40–85	0.07–0.25	0.40–1.50
		●	M	1	MS	MT9015	40–80	0.15–0.30	0.50–3.00
		●	M	2	MS	RT9010	40–80	0.15–0.30	0.50–3.00
		●	R	1	RS	MT9015	35–75	0.20–0.35	1.00–4.00
		●	R	2	GJ	RT9010	35–75	0.16–0.35	1.00–3.00
		●	F	1	LS(M)	MT9015	40–85	0.10–0.25	0.20–0.80
		●	F	2	FJ	RT9010	45–95	0.07–0.20	0.10–1.00
		●	L	1	LS(M)	MT9015	40–85	0.10–0.25	0.20–0.80
		●	L	2	MJ(M)	RT9010	40–85	0.07–0.25	0.40–1.50
		●	L	3	MJ(G)	RT9010	40–85	0.07–0.25	0.40–1.50
		●	M	1	MS	MT9015	40–80	0.15–0.30	0.50–3.00
		●	M	2	MS	RT9010	40–80	0.15–0.30	0.50–3.00
		●	R	1	RS	MT9015	35–75	0.20–0.35	1.00–4.00
		●	R	2	GJ	RT9010	35–75	0.16–0.35	1.00–3.00
		⊕	F	1	LS(M)	MT9015	40–85	0.10–0.25	0.20–0.80
		⊕	F	2	FJ	RT9010	45–95	0.07–0.20	0.10–1.00
		⊕	L	1	LS(M)	MT9015	40–85	0.10–0.25	0.20–0.80
		⊕	L	2	MJ(M)	RT9010	40–85	0.07–0.25	0.40–1.50
		⊕	L	3	MJ(G)	RT9010	40–85	0.07–0.25	0.40–1.50
		⊕	M	1	MS	MT9015	40–80	0.15–0.30	0.50–3.00
		⊕	R	1	RS	MT9015	35–75	0.20–0.35	1.00–4.00
⊕	R	2	GJ	RT9010	35–75	0.16–0.35	1.00–3.00		
Stop żaroodporny (Inconel718)	—	●	F	1	LS(M)	MP9005	30–110	0.10–0.25	0.20–0.80
		●	F	2	FJ	VP10RT	30–60	0.07–0.20	0.10–1.00
		●	L	1	LS(M)	MP9005	30–110	0.10–0.25	0.20–0.80
		●	L	2	MJ(M)	MP9005	30–110	0.07–0.25	0.40–1.50
		●	L	3	MJ(M)	VP05RT	30–65	0.07–0.25	0.40–1.50
		●	L	4	MJ(M)	US905	55–110	0.07–0.25	0.40–1.50
		●	L	5	MJ(G)	VP10RT	25–55	0.07–0.25	0.40–1.50
		●	M	1	MS	MP9005	30–100	0.15–0.30	0.50–3.00
		●	M	2	MS	VP05RT	30–60	0.15–0.30	0.50–3.00
		●	M	3	MS	US905	50–100	0.15–0.30	0.50–3.00
		●	R	1	RS	MP9015	20–75	0.20–0.35	1.00–4.00
		●	R	2	GJ	VP10RT	20–45	0.16–0.35	1.00–3.00
		●	R	3	GJ	US905	45–95	0.16–0.35	1.00–3.00
		●	F	1	LS(M)	MP9015	25–85	0.10–0.25	0.20–0.80
		●	F	2	FJ	VP10RT	30–60	0.07–0.20	0.10–1.00
		●	L	1	LS(M)	MP9015	25–85	0.10–0.25	0.20–0.80
		●	L	2	MJ(M)	MP9015	25–80	0.07–0.25	0.40–1.50
		●	L	3	MJ(M)	VP10RT	25–55	0.07–0.25	0.40–1.50
		●	M	1	MS	MP9015	25–80	0.15–0.30	0.50–3.00
		●	M	2	MA	MP9015	25–80	0.10–0.30	0.50–3.00
		●	M	3	MS	VP10RT	25–50	0.15–0.30	0.50–3.00
		●	R	1	RS	MP9015	20–75	0.20–0.35	1.00–4.00
		●	R	2	GJ	VP10RT	20–45	0.16–0.35	1.00–3.00

## ZALECANE PARAMETRY SKRAWANIA

### ■ PŁYTKA WIELOOSTRZOWA O UJEMNEJ GEOMETRII (NEGATYWNA)

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Priorytet	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
S Stop żaroodporny (Inconel718)	—	✚	F	1	LS(M)	MP9025	20–30	0.10–0.25	0.20–0.80
		✚	F	2	FJ	VP15TF	20–40	0.07–0.20	0.10–1.00
		✚	L	1	LS(M)	MP9025	20–30	0.10–0.25	0.20–0.80
		✚	L	2	MJ(G)	VP15TF	20–35	0.07–0.25	0.40–1.50
		✚	M	1	MS	MP9025	20–30	0.15–0.30	0.50–3.00
		✚	M	2	MA	MP9025	20–30	0.10–0.30	0.50–3.00
		✚	M	3	MS	VP15TF	20–35	0.15–0.30	0.50–3.00
		✚	R	1	RS	MP9025	15–25	0.20–0.35	1.00–4.00
		✚	R	2	GJ	VP15TF	15–30	0.16–0.35	1.00–3.00

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBK : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

■ PŁYTKI POZYTYWNE 7°

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Stal konstrukcyjna (St37-2, Ck10)	≤180HB	●	F	1	FP	NX2525	225–320	0.04–0.20	0.20–0.90
		●	F	2	FV	NX2525	225–320	0.04–0.20	0.20–0.90
		●	F	3	R/L-F	MP3025	230–355	0.05–0.12	0.10–0.50
		●	L	1	LP	NX2525	225–320	0.06–0.25	0.20–1.00
		●	L	2	Std	UE6110	210–355	0.08–0.30	0.30–2.00
		●	L	3	MV	MP3025	190–295	0.08–0.30	0.30–2.00
		●	L	4	Std	MP3025	190–295	0.08–0.30	0.30–2.00
		●	M	1	MP	NX2525	185–270	0.08–0.30	0.30–2.00
		●	F	1	FP	MC6015	250–425	0.04–0.20	0.20–0.90
		●	F	2	FP	UE6110	250–425	0.04–0.20	0.20–0.90
		●	F	3	FP	MP3025	230–355	0.04–0.20	0.20–0.90
		●	F	4	FV	MP3025	230–355	0.04–0.20	0.20–0.90
		●	F	5	FV	NX3035	220–310	0.04–0.20	0.20–0.90
		●	L	1	LP	MC6015	250–425	0.06–0.25	0.20–1.00
		●	L	2	LP	UE6110	250–425	0.06–0.25	0.20–1.00
		●	L	3	LP	MP3025	230–355	0.06–0.25	0.20–1.00
		●	L	4	Std	UE6110	210–355	0.08–0.30	0.30–2.00
		●	L	5	SW	MC6015	250–425	0.06–0.24	0.20–1.50
		●	L	6	SW	MP3025	230–355	0.06–0.24	0.20–1.50
		●	M	1	MP	MC6015	210–355	0.08–0.30	0.30–2.00
		●	M	2	MP	UE6110	210–355	0.08–0.30	0.30–2.00
		●	M	3	MP	MP3025	190–295	0.08–0.30	0.30–2.00
		●	M	4	MW	MC6015	210–355	0.10–0.35	0.80–2.50
		●	F	1	FP	MC6025	250–405	0.04–0.20	0.20–0.90
		●	L	1	LP	MC6025	250–405	0.06–0.25	0.20–1.00
		●	L	2	SV	MC6025	250–405	0.06–0.25	0.20–1.00
		●	L	3	SW	MC6025	250–405	0.06–0.24	0.20–1.50
		●	M	1	MP	MC6025	210–340	0.08–0.30	0.30–2.00
		●	M	2	MW	MC6025	210–340	0.10–0.35	0.80–2.50
		Stal węglowa • Stal stopowa (Ck45, 42CrMo4)	180   280HB	●	F	1	FP	NX2525	165–240
●	F			2	FV	NX2525	165–240	0.04–0.20	0.20–0.90
●	F			3	R/L-F	MP3025	170–260	0.05–0.12	0.10–0.50
●	L			1	LP	NX2525	165–240	0.06–0.25	0.20–1.00
●	L			2	Std	UE6110	155–260	0.08–0.30	0.30–2.00
●	L			3	MV	MP3025	140–220	0.08–0.30	0.30–2.00
●	L			4	Std	MP3025	140–220	0.08–0.30	0.30–2.00
●	L			5	SV	MP3025	170–260	0.06–0.25	0.20–1.00
●	L			6	SW	MP3025	170–260	0.06–0.24	0.20–1.50
●	M			1	MP	NX2525	140–200	0.08–0.30	0.30–2.00
●	M			2	MW	MP3025	140–220	0.10–0.35	0.80–2.50
●	F			1	FP	MC6015	185–315	0.04–0.20	0.20–0.90
●	F			2	FP	UE6110	185–315	0.04–0.20	0.20–0.90
●	F			3	FP	MP3025	170–260	0.04–0.20	0.20–0.90
●	F			4	FV	MP3025	170–260	0.04–0.20	0.20–0.90
●	F			5	FV	NX3035	160–230	0.04–0.20	0.20–0.90
●	L			1	LP	MC6015	185–315	0.06–0.25	0.20–1.00

P

## ZALECANE PARAMETRY SKRAWANIA

### ■ PŁYTKI POZYTYWNE 7°

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Priorytet	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
P Stal węglowa • Stal stopowa (Ck45, 42CrMo4)	180   280HB	●	L	2	LP	UE6110	185–315	0.06–0.25	0.20–1.00
		●	L	3	LP	MP3025	170–260	0.06–0.25	0.20–1.00
		●	L	4	Std	UE6110	155–260	0.08–0.30	0.30–2.00
		●	L	5	SW	MC6015	185–315	0.06–0.24	0.20–1.50
		●	L	6	SW	MP3025	170–260	0.06–0.24	0.20–1.50
		●	M	1	MP	MC6015	155–260	0.08–0.30	0.30–2.00
		●	M	2	MP	UE6110	155–260	0.08–0.30	0.30–2.00
		●	M	3	MP	MP3025	140–220	0.08–0.30	0.30–2.00
		●	M	4	MW	MC6015	155–260	0.10–0.35	0.80–2.50
		✚	F	1	FP	MC6025	185–300	0.04–0.20	0.20–0.90
		✚	L	1	LP	MC6025	185–300	0.06–0.25	0.20–1.00
		✚	L	2	SV	MC6025	185–300	0.06–0.25	0.20–1.00
		✚	L	3	SW	MC6025	185–300	0.06–0.24	0.20–1.50
		✚	M	1	MP	MC6025	155–250	0.08–0.30	0.30–2.00
		✚	M	2	MW	MC6025	155–250	0.10–0.35	0.80–2.50
		Stal węglowa • Stal stopowa (40CrNiMoA)	280   350HB	●	M	1	MP	NX2525	95–140
●	M			1	MP	MC6015	110–185	0.08–0.30	0.30–2.00
●	M			2	MP	UE6110	110–185	0.08–0.30	0.30–2.00
●	M			3	MP	MP3025	100–155	0.08–0.30	0.30–2.00
✚	M			1	MP	MC6025	110–175	0.08–0.30	0.30–2.00

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBKII : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki		Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)
Austenityczna stal nierdzewna (X5CrNi189, X5CrNiMo1810)	≤200HB	●	F	1	FM	VP15TF	75–125	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	140–190	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	120–160	0.08–0.30	0.30–2.00
		●	F	1	FM	VP15TF	75–125	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	140–190	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	120–160	0.08–0.30	0.30–2.00
		⊕	F	1	FM	VP15TF	75–125	0.04–0.20	0.20–0.90
		⊕	F	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		⊕	L	1	LM	MP7035	85–135	0.06–0.25	0.20–1.00
		⊕	L	2	LM	VP15TF	75–125	0.06–0.25	0.20–1.00
		⊕	L	3	Std	US735	70–135	0.08–0.30	0.30–2.00
		⊕	M	1	MM	MP7035	70–115	0.08–0.30	0.30–2.00
⊕	M	2	MM	VP15TF	60–105	0.08–0.30	0.30–2.00		
Austenityczna stal nierdzewna (X2CrNiN1810, X2CrNiMoN1813)	>200HB	●	F	1	FM	VP15TF	60–105	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	120–160	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	100–130	0.08–0.30	0.30–2.00
		●	F	1	FM	VP15TF	60–105	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	120–160	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	100–130	0.08–0.30	0.30–2.00
		⊕	F	1	FM	VP15TF	60–105	0.04–0.20	0.20–0.90
		⊕	F	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		⊕	L	1	LM	MP7035	70–115	0.06–0.25	0.20–1.00
		⊕	L	2	LM	VP15TF	60–105	0.06–0.25	0.20–1.00
		⊕	L	3	Std	US735	60–110	0.08–0.30	0.30–2.00
		⊕	M	1	MM	MP7035	60–95	0.08–0.30	0.30–2.00
⊕	M	2	MM	VP15TF	50–90	0.08–0.30	0.30–2.00		
Stal nierdzewna Duplex (X3CrNiCu1894)	≤280HB	●	F	1	FM	VP15TF	50–85	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	45–90	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	95–130	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	45–90	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	80–105	0.08–0.30	0.30–2.00
		●	F	1	FM	VP15TF	50–85	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	45–90	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	95–130	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	45–90	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	80–105	0.08–0.30	0.30–2.00
		⊕	F	1	FM	VP15TF	50–85	0.04–0.20	0.20–0.90
		⊕	F	2	Std	US735	45–90	0.08–0.30	0.30–2.00
		⊕	L	1	LM	MP7035	55–90	0.06–0.25	0.20–1.00
		⊕	L	2	LM	VP15TF	50–85	0.06–0.25	0.20–1.00

M



# ZALECANE PARAMETRY SKRAWANIA

## ■ PŁYTKI POZYTYWNE 7°

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Stal nierdzewna Duplex (X3CrNiCu1894)	≤280HB	✚	L	3	Std	US735	45–90	0.08–0.30	0.30–2.00
		✚	M	1	MM	MP7035	45–75	0.08–0.30	0.30–2.00
		✚	M	2	MM	VP15TF	40–70	0.08–0.30	0.30–2.00
Stale nierdzewne ferrytyczne i martenzytyczne (X10Cr13, X8Cr17)	≤200HB	●	F	1	FM	VP15TF	75–125	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	140–190	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	120–160	0.08–0.30	0.30–2.00
		●	F	1	FM	VP15TF	75–125	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	140–190	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	120–160	0.08–0.30	0.30–2.00
		✚	F	1	FM	VP15TF	75–125	0.04–0.20	0.20–0.90
		✚	F	2	Std	US735	70–135	0.08–0.30	0.30–2.00
		✚	L	1	LM	MP7035	85–135	0.06–0.25	0.20–1.00
		✚	L	2	LM	VP15TF	75–125	0.06–0.25	0.20–1.00
		✚	L	3	Std	US735	70–135	0.08–0.30	0.30–2.00
		✚	M	1	MM	MP7035	70–115	0.08–0.30	0.30–2.00
✚	M	2	MM	VP15TF	60–105	0.08–0.30	0.30–2.00		
Stale nierdzewne ferrytyczne i martenzytyczne (X17CrNi162, X30Cr13)	>200HB	●	F	1	FM	VP15TF	60–105	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	120–160	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	100–130	0.08–0.30	0.30–2.00
		●	F	1	FM	VP15TF	60–105	0.04–0.20	0.20–0.90
		●	F	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		●	L	1	LM	MC7025	120–160	0.06–0.25	0.20–1.00
		●	L	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		●	M	1	MM	MC7025	100–130	0.08–0.30	0.30–2.00
		✚	F	1	FM	VP15TF	60–105	0.04–0.20	0.20–0.90
		✚	F	2	Std	US735	60–110	0.08–0.30	0.30–2.00
		✚	L	1	LM	MP7035	70–115	0.06–0.25	0.20–1.00
		✚	L	2	LM	VP15TF	60–105	0.06–0.25	0.20–1.00
		✚	L	3	Std	US735	60–110	0.08–0.30	0.30–2.00
		✚	M	1	MM	MP7035	60–95	0.08–0.30	0.30–2.00
✚	M	2	MM	VP15TF	50–90	0.08–0.30	0.30–2.00		
Stale nierdzewne hartowane (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB	●	F	1	FM	VP15TF	40–70	0.04–0.20	0.20–0.90
		●	F	2	FS	MP9005	110–150	0.04–0.12	0.20–1.40
		●	F	3	Std	US735	40–75	0.08–0.25	0.30–2.00
		●	L	1	LM	MC7025	75–95	0.06–0.20	0.20–1.00
		●	L	2	LS(G)	MP9015	105–140	0.04–0.15	0.30–3.00
		●	L	3	LS(M)	MP9015	105–140	0.06–0.20	0.20–1.00
		●	L	4	Std	US735	40–75	0.08–0.25	0.30–2.00
		●	M	1	MM	MC7025	60–80	0.08–0.25	0.30–2.00
		●	M	2	MS	MP9015	85–120	0.08–0.25	0.30–2.00
		●	M	3	RCMT-Std	MP9015	85–120	0.25–0.45	1.50–3.00
		●	F	1	FM	VP15TF	40–70	0.04–0.20	0.20–0.90

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBK : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Priorityet	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
M Stale nierdzewne hartowane (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB	●	F	2	FS	MP9015	105–140	0.04–0.12	0.20–1.40
		●	F	3	Std	US735	40–75	0.08–0.25	0.30–2.00
		●	L	1	LM	MC7025	75–95	0.06–0.20	0.20–1.00
		●	L	2	LS(G)	MP9015	105–140	0.04–0.15	0.30–3.00
		●	L	3	LS(M)	MP9015	105–140	0.06–0.20	0.20–1.00
		●	L	4	Std	US735	40–75	0.08–0.25	0.30–2.00
		●	M	1	MM	MC7025	60–80	0.08–0.25	0.30–2.00
		●	M	2	MS	MP9015	85–120	0.08–0.25	0.30–2.00
		●	M	3	RCMT-Std	MP9015	85–120	0.25–0.45	1.50–3.00
		⊕	F	1	FM	VP15TF	40–70	0.04–0.20	0.20–0.90
		⊕	F	2	Std	US735	40–75	0.08–0.25	0.30–2.00
		⊕	L	1	LM	MP7035	45–75	0.06–0.20	0.20–1.00
		⊕	L	2	LS(M)	MP9025	70–85	0.06–0.20	0.20–1.00
		⊕	L	3	LM	VP15TF	40–70	0.06–0.20	0.20–1.00
		⊕	L	4	Std	US735	40–75	0.08–0.25	0.30–2.00
		⊕	M	1	MM	MP7035	40–60	0.08–0.25	0.30–2.00
		⊕	M	2	MS	MP9025	60–70	0.08–0.25	0.30–2.00
		⊕	M	3	MM	VP15TF	35–60	0.08–0.25	0.30–2.00
		⊕	M	4	RCMT-Std	MP9025	60–70	0.25–0.45	1.50–3.00

# ZALECANE PARAMETRY SKRAWANIA

## ■ PŁYTKI POZYTYWNE 7°

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Wytrzymałość na rozciąganie	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Żeliwo szare (GG30)	≤350MPa	●	F	1	MK	MC5005	165–265	0.08–0.30	0.30–2.00
		●	L	1	MK	MC5005	165–265	0.08–0.30	0.30–2.00
		●	M	1	Flat	MC5005	165–265	0.08–0.30	0.30–2.00
		●	F	1	MK	MC5015	150–240	0.08–0.30	0.30–2.00
		●	L	1	MK	MC5015	150–240	0.08–0.30	0.30–2.00
		●	M	1	Flat	MC5015	150–240	0.08–0.30	0.30–2.00
		⊕	F	1	MK	MC5015	150–240	0.08–0.30	0.30–2.00
		⊕	L	1	MK	MC5015	150–240	0.08–0.30	0.30–2.00
		⊕	M	1	Flat	MC5015	150–240	0.08–0.30	0.30–2.00
K Żeliwo sferoidalne (GGG) (GGG40)	≤450MPa	●	F	1	MK	MC5005	155–250	0.08–0.30	0.30–2.00
		●	L	1	MK	MC5005	155–250	0.08–0.30	0.30–2.00
		●	M	1	Flat	MC5005	155–250	0.08–0.30	0.30–2.00
		●	F	1	MK	MC5015	140–230	0.08–0.30	0.30–2.00
		●	L	1	MK	MC5015	140–230	0.08–0.30	0.30–2.00
		●	M	1	Flat	MC5015	140–230	0.08–0.30	0.30–2.00
		⊕	F	1	MK	MC5015	140–230	0.08–0.30	0.30–2.00
		⊕	L	1	MK	MC5015	140–230	0.08–0.30	0.30–2.00
		⊕	M	1	Flat	MC5015	140–230	0.08–0.30	0.30–2.00
Żeliwo sferoidalne (GGG) (GGG70)	≤800MPa	●	F	1	MK	MC5005	140–225	0.08–0.30	0.30–2.00
		●	L	1	MK	MC5005	140–225	0.08–0.30	0.30–2.00
		●	M	1	Flat	MC5005	140–225	0.08–0.30	0.30–2.00
		●	F	1	MK	MC5015	125–205	0.08–0.30	0.30–2.00
		●	L	1	MK	MC5015	125–205	0.08–0.30	0.30–2.00
		●	M	1	Flat	MC5015	125–205	0.08–0.30	0.30–2.00
		⊕	F	1	MK	MC5015	125–205	0.08–0.30	0.30–2.00
		⊕	L	1	MK	MC5015	125–205	0.08–0.30	0.30–2.00
		⊕	M	1	Flat	MC5015	125–205	0.08–0.30	0.30–2.00

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ⊕ : Obróbka niestabilna

RODZAJ OBRÓBK : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Priorytet	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
N	Si<5%	●	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00
		●	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00
		⊕	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00
	5%≤Si≤10%	●	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00
		●	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00
		⊕	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00
	Si>10%	●	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00
		●	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00
		⊕	F	1	AZ	HTi10	300–700	0.10–0.40	0.20–3.00

# ZALECANE PARAMETRY SKRAWANIA

## ■ PŁYTKI POZYTYWNE 7°

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Priorytet	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Stop tytanu (Ti-6Al-4V)	—	●	F	1	FS-P	MT9005	40–80	0.04–0.12	0.20–1.40
		●	F	2	FJ	RT9010	35–75	0.04–0.12	0.20–1.40
		●	L	1	LS-P	MT9005	40–80	0.04–0.15	0.30–3.00
		●	L	2	LS(M)	MT9005	40–80	0.06–0.20	0.20–1.00
		●	M	1	MS	MT9005	35–65	0.08–0.25	0.30–2.00
		●	M	2	RCMT-Std	MT9005	35–65	0.25–0.45	1.50–3.00
		●	F	1	FS-P	MT9005	40–80	0.04–0.12	0.20–1.40
		●	F	2	FJ	RT9010	35–75	0.04–0.12	0.20–1.40
		●	L	1	LS-P	MT9005	40–80	0.04–0.15	0.30–3.00
		●	L	2	LS(M)	MT9005	40–80	0.06–0.20	0.20–1.00
		●	M	1	MS	MT9005	35–65	0.08–0.25	0.30–2.00
		●	M	2	RCMT-Std	MT9005	35–65	0.25–0.45	1.50–3.00
		⚡	F	1	FS-P	MT9005	40–80	0.04–0.12	0.20–1.40
		⚡	F	2	FJ	RT9010	35–75	0.04–0.12	0.20–1.40
		⚡	L	1	LS-P	MT9005	40–80	0.04–0.15	0.30–3.00
		⚡	L	2	LS(M)	MT9005	40–80	0.06–0.20	0.20–1.00
		⚡	M	1	MS	MT9005	35–65	0.08–0.25	0.30–2.00
		⚡	M	2	RCMT-Std	MT9015	30–60	0.25–0.45	1.50–3.00
Stop żaroodporny (Inconel718)	—	●	F	1	FS	MP9005	25–95	0.04–0.12	0.20–1.40
		●	F	2	FJ	VP10RT	20–45	0.04–0.12	0.20–1.40
		●	L	1	LS(G)	MP9005	25–95	0.04–0.15	0.30–3.00
		●	L	2	LS(M)	MP9005	25–95	0.06–0.20	0.20–1.00
		●	M	1	MS	MP9005	20–80	0.08–0.25	0.30–2.00
		●	M	2	RCMT-Std	MP9005	20–80	0.25–0.45	1.50–3.00
		●	F	1	FS	MP9015	20–75	0.04–0.12	0.20–1.40
		●	F	2	FJ	VP10RT	20–45	0.04–0.12	0.20–1.40
		●	L	1	LS(G)	MP9015	20–75	0.04–0.15	0.30–3.00
		●	L	2	LS(M)	MP9015	20–75	0.06–0.20	0.20–1.00
		●	M	1	MS	MP9015	20–60	0.08–0.25	0.30–2.00
		●	M	2	RCMT-Std	MP9015	20–60	0.25–0.45	1.50–3.00
		⚡	F	1	FJ	VP10RT	20–45	0.04–0.12	0.20–1.40
		⚡	L	1	LS(M)	MP9025	15–25	0.06–0.20	0.20–1.00
		⚡	M	1	MS	MP9025	15–20	0.08–0.25	0.30–2.00
		⚡	M	2	RCMT-Std	MP9025	15–20	0.25–0.45	1.50–3.00

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ⚡ : Obróbka niestabilna

RODZAJ OBRÓBK : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka

■ PŁYTKI POZYTYWNE 11°

Materiał przedmiotu obrabianego	Twardość	Rodzaj obróbki	Przytyt	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Stal konstrukcyjna (St37-2, Ck10)	≤180HB	●	F	1	R-R/L	NX2525	225–320	0.05–0.12	0.20–0.60
		●	L	1	R-Std	NX2525	185–270	0.08–0.30	0.30–2.00
		●	M	1	R-Std	NX2525	185–270	0.08–0.30	0.30–2.00
		●	F	1	R-R/L	NX2525	225–320	0.05–0.12	0.20–0.60
		●	L	1	R-Std	UE6110	210–355	0.08–0.30	0.30–2.00
		●	L	2	R-Std	MP3025	190–295	0.08–0.30	0.30–2.00
		●	L	3	R-Std	NX3035	180–255	0.08–0.30	0.30–2.00
		●	M	1	R-Std	UE6110	210–355	0.08–0.30	0.30–2.00
		●	M	2	R-Std	MP3025	190–295	0.08–0.30	0.30–2.00
		●	M	3	R-Std	NX3035	180–255	0.08–0.30	0.30–2.00
		⊕	F	1	R-R/L	UTi20T	115–165	0.05–0.12	0.20–0.60
		⊕	L	1	N-Flat	UP20M	105–160	0.08–0.30	0.30–2.00
		⊕	M	1	N-Flat	UP20M	105–160	0.08–0.30	0.30–2.00
		Stal węglowa • Stal stopowa (Ck45, 42CrMo4)	180   280HB	●	F	1	R-R/L	NX2525	165–240
●	L			1	R-Std	NX2525	140–200	0.08–0.30	0.30–2.00
●	M			1	R-Std	NX2525	140–200	0.08–0.30	0.30–2.00
●	F			1	R-R/L	NX2525	165–240	0.05–0.12	0.20–0.60
●	L			1	R-Std	UE6110	155–260	0.08–0.30	0.30–2.00
●	L			2	R-Std	MP3025	140–220	0.08–0.30	0.30–2.00
●	L			3	R-Std	NX3035	135–190	0.08–0.30	0.30–2.00
●	M			1	R-Std	UE6110	155–260	0.08–0.30	0.30–2.00
●	M			2	R-Std	MP3025	140–220	0.08–0.30	0.30–2.00
●	M			3	R-Std	NX3035	135–190	0.08–0.30	0.30–2.00
⊕	F			1	R-R/L	UTi20T	85–120	0.05–0.12	0.20–0.60
⊕	L			1	N-Flat	UP20M	80–120	0.08–0.30	0.30–2.00
⊕	M			1	N-Flat	UP20M	80–120	0.08–0.30	0.30–2.00

# ZALECANE PARAMETRY SKRAWANIA

## ■ PŁYTKI POZYTYWNE 11°

Typ łamacza : Std : Standardowa Flat : Płytką płaską (bez łamacza wióra)

Materiał przedmiotu obrabianego	Wytrzymałość na rozciąganie	Rodzaj obróbki	Przyrost	Typ łamacza	Gatunek	Prędkość skrawania (m/min)	Posuw (mm/obr.)	Głębokość skrawania (mm)	
Żeliwo szare (GG30)	≤350MPa	●	F	1	R-R/L	NX2525	145–200	0.05–0.12	0.20–0.60
		●	L	1	N-Flat	MC5005	165–265	0.08–0.30	0.30–2.00
		●	L	2	N-Flat	NX2525	120–165	0.08–0.30	0.30–2.00
		●	L	3	R-Std	NX2525	120–165	0.08–0.30	0.30–2.00
		●	M	1	N-Flat	MC5005	165–265	0.08–0.30	0.30–2.00
		●	M	2	N-Flat	NX2525	120–165	0.08–0.30	0.30–2.00
		●	M	3	R-Std	NX2525	120–165	0.08–0.30	0.30–2.00
		●	F	1	R-R/L	NX2525	145–200	0.05–0.12	0.20–0.60
		●	F	2	R-R/L	HTi10	100–140	0.05–0.12	0.20–0.60
		●	L	1	N-Flat	MC5015	150–240	0.08–0.30	0.30–2.00
		●	L	2	N-Flat	UE6110	125–200	0.08–0.30	0.30–2.00
		●	M	1	N-Flat	MC5015	150–240	0.08–0.30	0.30–2.00
		●	M	2	N-Flat	UE6110	125–200	0.08–0.30	0.30–2.00
		✚	F	1	R-R/L	UTi20T	80–115	0.05–0.12	0.20–0.60
		✚	L	1	N-Flat	VP15TF	115–160	0.08–0.30	0.30–2.00
		✚	M	1	N-Flat	VP15TF	115–160	0.08–0.30	0.30–2.00
K Żeliwo sferoidalne (GGG) (GGG40)	≤450MPa	●	F	1	R-R/L	NX2525	140–190	0.05–0.12	0.20–0.60
		●	L	1	N-Flat	MC5005	155–250	0.08–0.30	0.30–2.00
		●	L	2	N-Flat	NX2525	115–155	0.08–0.30	0.30–2.00
		●	L	3	R-Std	NX2525	115–155	0.08–0.30	0.30–2.00
		●	M	1	N-Flat	MC5005	155–250	0.08–0.30	0.30–2.00
		●	M	2	N-Flat	NX2525	115–155	0.08–0.30	0.30–2.00
		●	M	3	R-Std	NX2525	115–155	0.08–0.30	0.30–2.00
		●	F	1	R-R/L	NX2525	140–190	0.05–0.12	0.20–0.60
		●	F	2	R-R/L	HTi10	95–135	0.05–0.12	0.20–0.60
		●	L	1	N-Flat	MC5015	140–230	0.08–0.30	0.30–2.00
		●	L	2	N-Flat	UE6110	120–190	0.08–0.30	0.30–2.00
		●	M	1	N-Flat	MC5015	140–230	0.08–0.30	0.30–2.00
		●	M	2	N-Flat	UE6110	120–190	0.08–0.30	0.30–2.00
		✚	F	1	R-R/L	UTi20T	75–105	0.05–0.12	0.20–0.60
		✚	L	1	N-Flat	VP15TF	110–150	0.08–0.30	0.30–2.00
		✚	M	1	N-Flat	VP15TF	110–150	0.08–0.30	0.30–2.00
Żeliwo sferoidalne (GGG) (GGG70)	≤800MPa	●	F	1	R-R/L	NX2525	125–170	0.05–0.12	0.20–0.60
		●	L	1	N-Flat	MC5005	140–225	0.08–0.30	0.30–2.00
		●	L	2	N-Flat	NX2525	105–140	0.08–0.30	0.30–2.00
		●	L	3	R-Std	NX2525	105–140	0.08–0.30	0.30–2.00
		●	M	1	N-Flat	MC5005	140–225	0.08–0.30	0.30–2.00
		●	M	2	N-Flat	NX2525	105–140	0.08–0.30	0.30–2.00
		●	M	3	R-Std	NX2525	105–140	0.08–0.30	0.30–2.00
		●	F	1	R-R/L	NX2525	125–170	0.05–0.12	0.20–0.60
		●	F	2	R-R/L	HTi10	85–120	0.05–0.12	0.20–0.60
		●	L	1	N-Flat	MC5015	125–205	0.08–0.30	0.30–2.00
		●	L	2	N-Flat	UE6110	105–170	0.08–0.30	0.30–2.00
		●	M	1	N-Flat	MC5015	125–205	0.08–0.30	0.30–2.00
		●	M	2	N-Flat	UE6110	105–170	0.08–0.30	0.30–2.00
		✚	F	1	R-R/L	UTi20T	65–95	0.05–0.12	0.20–0.60
		✚	L	1	N-Flat	VP15TF	95–135	0.08–0.30	0.30–2.00
		✚	M	1	N-Flat	VP15TF	95–135	0.08–0.30	0.30–2.00

PARAMETRY SKRAWANIA : ● : Obróbka stabilna ● : Obróbka ogólna ✚ : Obróbka niestabilna

RODZAJ OBRÓBKII : F : Obróbka wykańczająca L : Obróbka lekka M : Obróbka średnia R : Obróbka zgrubna H : Obróbka ciężka