

# Tehničke informacije

## Preporučeni uvjeti rezanja

### Tokarenje

Brzina rezanja			Vc (m/min.)															
ISO	VDI	PODGRUPA	YG1010		YG1001		YG3010		YG3015		YG3115		YG3020		YG3030		YG801	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Nelegirani čelik	-	-	220	480	230	450	200	430	180	500	160	380	130	350	120	200
	6~9	Niskolegirani čelik	-	-	220	420	180	380	150	350	170	450	140	320	130	280	70	200
	10~11	Visokolegirani čelik	-	-	-	-	60	200	90	180	60	300	60	130	70	110	-	-
M	12~13	Feritni i mertenistički čelik	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	14	Austenitni čelik	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K	15~16	Sivi ljev	300	450	250	420	120	300	-	-	-	-	-	-	-	-	-	
	17~18	Nodularni ljev	120	350	120	300	120	280	-	-	-	-	-	-	-	-	-	
N	21~30	Obojeni metali	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
S	31~37	Superlegure i titan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H	38~41	Tvrđi materijali	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

### Tokarenje

Brzina rezanja			Vc (m/min.)															
ISO	VDI	PODGRUPA	YG2025		YG211		YG213		YG214		YG401		YT100		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Nelegirani čelik	-	-	-	-	-	-	-	-	-	-	150	480	-	-	-	-
	6~9	Niskolegirani čelik	-	-	-	-	-	-	-	-	-	-	160	480	-	-	-	-
	10~11	Visokolegirani čelik	-	-	-	-	-	-	-	-	-	-	70	180	-	-	-	-
M	12~13	Feritni i mertenistički čelik	170	220	170	270	120	180	100	150	-	-	150	280	-	-	-	-
	14	Austenitni čelik	150	200	150	230	40	160	100	150	-	-	130	260	-	-	-	-
K	15~16	Sivi ljev	-	-	-	-	-	-	-	-	-	-	130	450	-	-	-	-
	17~18	Nodularni ljev	-	-	-	-	-	-	-	-	-	-	100	400	-	-	-	-
N	21~30	Obojeni metali	-	-	-	-	-	-	-	-	-	-	-	250	1200	250	800	
S	31~37	Superlegure i titan	-	-	30	100	30	70	30	50	30	90	-	-	-	-	-	-
H	38~41	Tvrđi materijali	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

### Odreživanje i tokarenje utora

Brzina rezanja			Vc (m/min.)			
ISO	VDI	PODGRUPA	YG602G (YG602)		YG603	
			Min	Max	Min	Max
P	1~5	Nelegirani čelik	120	180	-	-
	6~9	Niskolegirani čelik	100	140	-	-
	10~11	Visokolegirani čelik	80	110	-	-
M	12~13	Feritni i mertenistički čelik	70	160	50	90
	14	Austenitni čelik	55	140	40	80
K	15~16	Sivi ljev	110	185	-	-
	17~18	Nodularni ljev	110	140	-	-
N	21~30	Obojeni metali	250	440	-	-
S	31~37	Superlegure i titan	25	45	-	-
H	38~41	Tvrđi materijali	25	50	-	-

# Tehničke informacije

## Preporučeni uvjeti rezanja

### Nanotokarenje

YG812 GRADE			Brzina rezanja		Pomak po revoluciji (Fn)	
ISO	VDI	PODGRUPA	Vc (m/min.)		Fn (mm/rev.)	
			Min	Max	Min	Max
P	1-5	Nelegirani čelik	170	200	0.015	0.025
	6-9	Niskolegirani čelik	95	160	0.015	0.025
	10-11	Visokolegirani čelik	85	95	0.015	0.025
M	12-13	Feritni i mertenistički čelik	105	140	0.015	0.025
	14	Austenitni čelik	95	130	0.015	0.025
K	15-16	Sivi lijev	140	190	0.015	0.025
	17-18	Nodularni lijev	140	190	0.015	0.025
N	21-30	Obojeni metali	-	-	-	-
S	31-37	Superlegure i titan	10	75	0.015	0.025
H	38-41	Tvrđi materijali	-	-	-	-

### Glodanje

Brzina rezanja																						
ISO	VDI	PODGRUPA	YG012		YG712		YG713		YG622		YG612		YG602		YG613		YG501(G)		YG5020		YG50	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1-5	Nelegirani čelik	180	280	170	300	200	300	140	400	180	280	180	270	100	210	-	-	-	-	-	-
	6-9	Niskolegirani čelik	150	250	180	250	170	270	120	320	150	250	150	240	70	180	-	-	-	-	-	-
	10-11	Visokolegirani čelik	80	150	100	140	85	145	70	170	70	140	70	130	40	90	-	-	-	-	-	-
M	12-13	Feritni i mertenistički čelik			-	-	-	-	-	-	120	200	120	180	70	180	-	-	-	-	-	-
	14	Austenitni čelik			-	-	-	-	-	-	130	250	30	230	70	200	-	-	-	-	-	-
K	15-16	Sivi lijev			-	-	-	-	120	270			120	250	-	-	160	300	200	350	-	-
	17-18	Nodularni lijev			-	-	-	-	130	240			120	220	-	-	130	210	150	300	-	-
N	21-30	Obojeni metali			-	-	-	-	-	-			-	-	-	-	-	-	-	-	300	800
S	31-37	Superlegure i titan			-	-	-	-	-	-	25	45	5	45	-	-	-	-	-	-	-	-
H	38-41	Tvrđi materijali	70	120	-	-	-	-	40	100					-	-			-	-	-	-

### Bušenje

Brzina rezanja			Vc (m/min.)					
ISO	VDI	PODGRUPA	YG602		YG713		YG613	
			Min	Max	Min	Max	Min	Max
P	1-5	Nelegirani čelik	180	380	200	300	100	210
	6-9	Niskolegirani čelik	120	300	170	270	70	180
	10-11	Visokolegirani čelik	70	150	85	145	40	90
M	12-13	Feritni i mertenistički čelik	120	200	-	-	70	180
	14	Austenitni čelik	130	250	-	-	70	200
K	15-16	Sivi lijev	120	250	-	-	-	-
	17-18	Nodularni lijev	130	220	-	-	-	-
H	38-41	Tvrđi materijali	-	-	-	-	-	-

## Preporučeni uvjeti rezanja

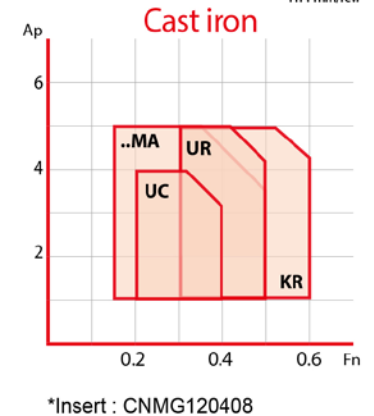
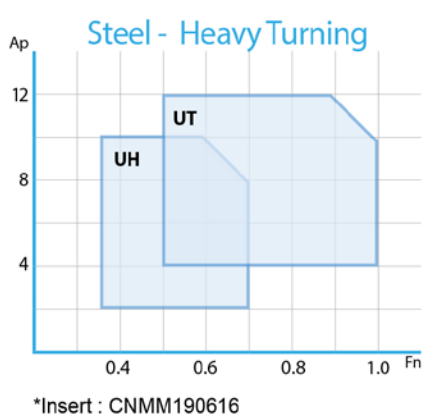
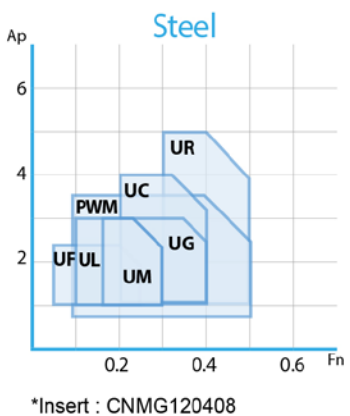
ISO	VDI 3323	Materijal	Sastav / Struktura / Toplinska obrada	HB	HRc	Primjeri	
P	1	Nelegirani čelik	About 0.15% C	Annealed	125	S15C, C15, 1015	
	2		About 0.45% C	Annealed	190	13	S45C, C45, 1045
	3		About 0.45% C	Quenched & Tempered	250	25	
	4		About 0.75% C	Annealed	270	28	SK5, Ck75, 1080
	5		About 0.75% C	Quenched & Tempered	300	32	
	6	Niskolegirani čelik		Annealed	180	10	
	7			Quenched & Tempered	275	29	SCM440, 42CrMo4, 410
	8			Quenched & Tempered	300	32	
	9			Quenched & Tempered	350	38	
	10	Visokolegirani čelik		Annealed	200	15	SKD, D2
	11			Quenched & Tempered	325	35	SKH, SUH, M42
M	12	Nehrđajući čelik	Ferritic / Martensitic	Annealed	200	15	SUS 420, X40Cr13, 420
	13		Martensitic	Quenched & Tempered	240	23	
	14		Austenitic		180	10	SUS 316, 316, X5CrNiMo 17 12 2
K	15	Sivi ljev	Pearlitic / Ferritic		180	10	FC, GG, EN-GJL-250
	16		Pearlitic (Martensitic)		260	26	
	17	Nodularni ljev	Ferritic		160	3	FCD, GGG, EN-GJS-500-7
	18		Pearlitic		250	25	
	19	Kovko lijevano željezo	Ferritic		130		FCMW, FCMP, GTS, GJMB350-10
	20		Pearlitic		230	21	
N	21	Kovana aluminijska legura	Not Curable		60		SAE 1000, AlMg 1, 3.3315
	22		Curable	Hardened	100		SAE 7050, AlCuMg 1, 3.1325
	23	Lijevana aluminijska legura	≤ 12% Si, Not Curable		75		ADC12, G-AlSi12, 3.2581
	24		≤ 12% Si, Curable	Hardened	90		C4BS, G-AlSi10Mg, 3.2381
	25		> 12% Si, Not Curable		130		
	26		Cutting Alloys, PB>1%		110		CuZn36Pb 3, 2.0375
	27	Bakar i bakrene legure Bronca / Mesing	CuZn, CuSnZn (Brass )		90		CuZn 15, 2.0240
	28		CuSn, lead-free copper and electrolytic copper		100		G-CuZn40Fe, 2.0590
	29	Nemetali	Duroplastic, Fiber Reinforced Plastic				CFRP
	30		Rubber, Wood, etc.				
S	31	Legure otporne na visoke temperature	Fe Based	Annealed	200	15	X12 NiCrSi 36-16, 1.4864
	32			Aged	280	30	
	33			Annealed	250	25	Inconel 718, NiCr20TiAl, 2.4631
	34		Ni or Co Based	Aged	350	38	NiCu30Al, 2.4375
	35			Cast	320	34	G-X120Mn12, 1.3401
	36	Titanium	Pure Titanium		400 Rm		
	37		Alpha + Beta Alloys	Hardened	1050Rm		TiAl6V4, 3.7165
H	38	Otvrdnuti čelik		Hardened	550	55	SK3
	39			Hardened	630	60	
	40	Hladno lijevano željezo		Cast	400	42	
	41	Otvrdnuto lijevano željezo		Hardened	550	55	

# Lomači strugotine – Negativni

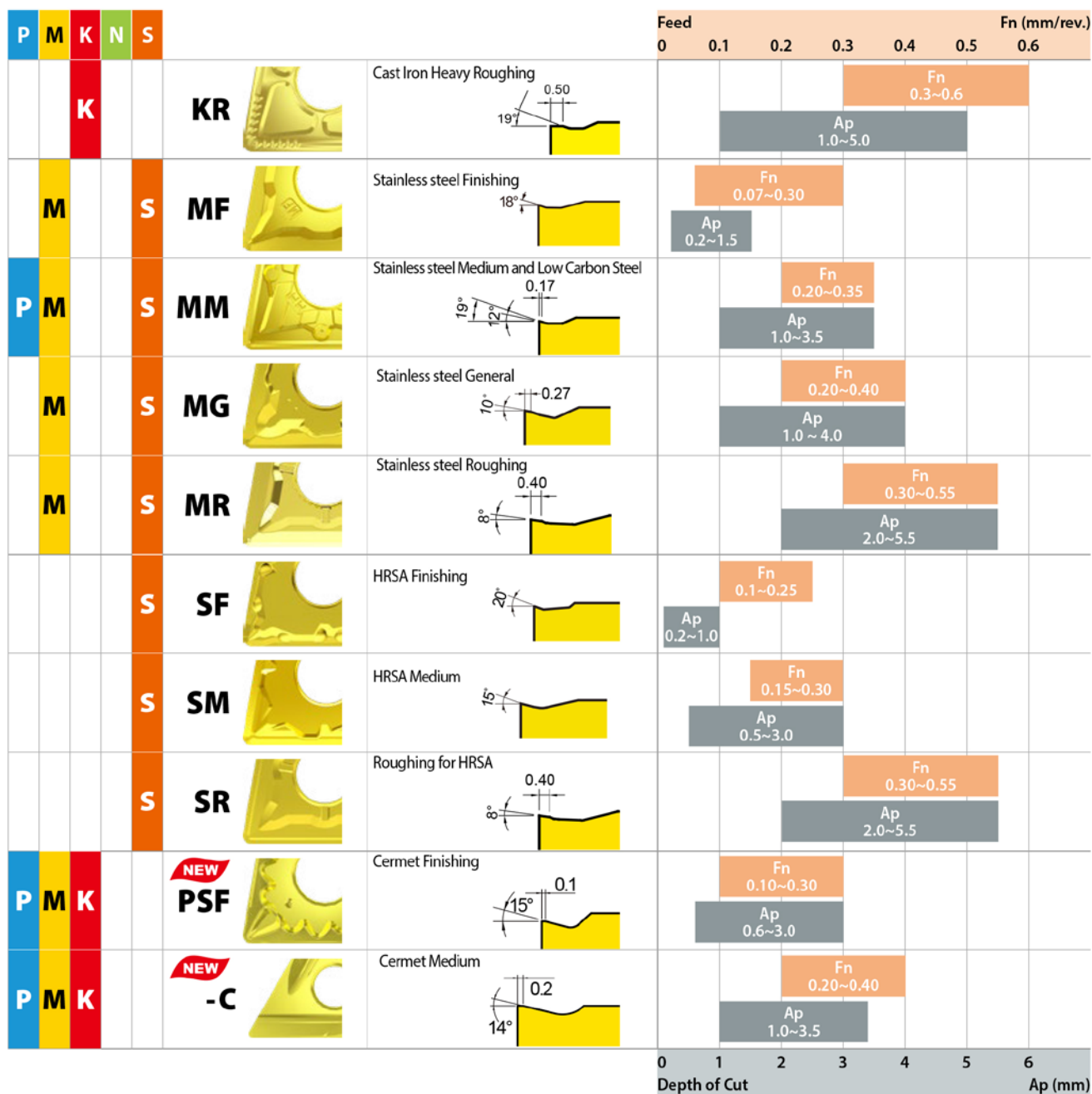
P	M	K	N	S		Feed	Fn (mm/rev.)					
							0	0.1	0.2	0.3	0.4	0.5
P					UF	Finishing	 Fn: 0.05~0.25 Ap: 1.0~2.5					
P					UL	Semi Finishing and sticky materials	 Fn: 0.1~0.3 Ap: 1.0~3.0					
P					UM	Medium & Unstable conditions	 Fn: 0.15~0.3 Ap: 1.0~3.0					
P					UG	First Choice for Medium (Stable conditions)	 Fn: 0.2~0.4 Ap: 1.0~3.0					
P					<b>NEW</b> PWM	Wiper-Medium	 Fn: 0.1~0.5 Ap: 0.8~3.5					
P					<b>NEW</b> UH	Low cutting force	 Fn: 0.35~0.7 Ap: 2.0~9.0 →					
P					<b>NEW</b> UT	Heavy roughing	 Fn: 0.5~1.0 → Ap: 4.0~12.0 →					
P		K			UC	Medium Roughing and First choice for Cast iron	 Fn: 0.2~0.4 Ap: 1.0~4.0					
P		K			UR	Roughing and Heavy interrupted cut	 Fn: 0.3~0.5 Ap: 1.0~5.0					
		K			..MA	Cast iron Heavy Roughing	 Fn: 0.15~0.50 Ap: 1.0~5.0					

0 1 2 3 4 5 6  
Depth of Cut Ap (mm)

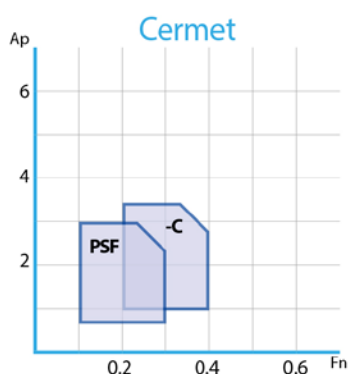
Ap : mm  
Fn : mm/rev.



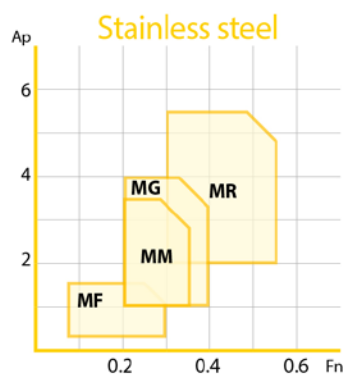
# Lomači strugotine – Negativni



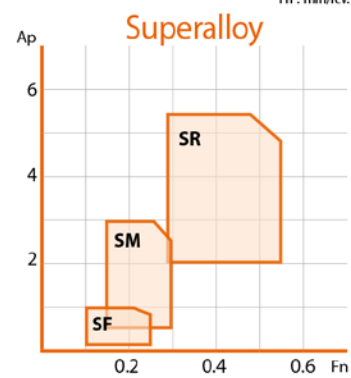
Ap : mm  
Fn : mm/rev.



\*Insert : CNMG120408 / TNGG160408



\*Insert : CNMG120408



\*Insert : CNMG120408

# Pregled proizvoda

## Lomači strugotine – Pozitivni

P M K N S					Feed F <sub>n</sub> (mm/rev.)								
					0 0.1 0.2 0.3 0.4 0.5 0.6								
			N	AL	Aluminum application		F <sub>n</sub> 0.02~0.30		A <sub>p</sub> 0.1~5.0				
P	M			UF	Finishing application		F <sub>n</sub> 0.05~0.25		A <sub>p</sub> 0.5~2.0				
P		K		UG	Medium application		F <sub>n</sub> 0.15~0.30		A <sub>p</sub> 0.5~2.5				
	M			<b>NEW</b> MF	Stainless steel Finishing		F <sub>n</sub> 0.06~0.25		A <sub>p</sub> 0.1~2.0				
	M			<b>NEW</b> MM	Stainless steel Medium		F <sub>n</sub> 0.08~0.25		A <sub>p</sub> 0.25~3.0				
	M			<b>NEW</b> SF	HRSA Finishing		F <sub>n</sub> 0.03~0.20		A <sub>p</sub> 0.1~2.5				
P	M	K		<b>NEW</b> PF	Cermet Finishing		F <sub>n</sub> 0.06~0.25		A <sub>p</sub> 0.1~2.0				
P	M	K		<b>NEW</b> PM	Cermet Medium		F <sub>n</sub> 0.08~0.25		A <sub>p</sub> 0.25~3.0				
					0 1 2 3 4 5 6								
					Depth of Cut A <sub>p</sub> (mm)								

