

Препоръчителни режими на обработка /
Recommended Cutting Data

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Серия/Series

D312

D512



Група Материали Material Group		Скорост на рязане Cutting Speed Vc m/min.	Скорост на подаване на оборот / fn mm/rev.					
			Диаметър на свредло / Drill Diameter (mm)					
			3 - 5 mm	5 - 8 mm	8 - 12 mm	12 - 16 mm	16 - 20 mm	
Стомана и Лята стомана Steel and Cast Steel	Ниско легирана и Лята стомани до 600 N/mm ² Low-alloy steel and cast steel up to 600 N/mm ²	S137 - S142 C22 - G538	75 - 180	0.09 - .13	0.16 - 0.23	0.2 - 0.29	0.26 - 0.37	0.28 - 0.41
	Стомана и Лята стомана до 600 N/mm ² Steel and cast steel up to 600 N/mm ²	S150 - S160 C35 - G552	65 - 155	0.09 - 0.13	0.16 - 0.23	0.2 - 0.29	0.26 - 0.37	0.28 - 0.41
	Стомана и Лята стомана 700 - 1000 N/mm ² Steel and cast steel 700 - 1000 N/mm ²	S170 - C45 G562	55 - 135	0.06 - 0.14	0.11 - 0.25	0.14 - 0.31	0.17 - 0.39	0.19 - 0.44
	Стомана и Лята стомана 1000 - 1300 N/mm ² Steel and cast steel 1000 - 1300 N/mm ²	90MnCrV8 100Cr6	45 - 80	0.05 - 0.09	0.09 - 0.16	0.12 - 0.2	0.15 - 0.25	0.16 - 0.27
	Стомана и Лята стомана 1300 - 1600 N/mm ² Steel and cast steel 1300 - 1600 N/mm ²	X210Cr12 34CrAlNi7	45 - 80	0.05 - 0.09	0.09 - 0.16	0.12 - 0.2	0.15 - 0.25	0.16 - 0.27
	Закалена стомана Steel hardened	45 - 55 HRC	25 - 40	0.025 - 0.036	0.04 - 0.06	0.05 - 0.07	0.065 - 0.095	0.075 - 0.11
	Закалена стомана Steel hardened	55 - 65HRC	20 - 30	0.015 - 0.025	0.02 - 0.04	0.03 - 0.05	0.045 - 0.075	0.055 - 0.09
	Феритна Неръждаема стомана Stainless steel ferritic		45 - 105	0.070 - 0.12	0.13 - 0.22	0.16 - 0.27	0.2 - .34	0.22 - 0.38
	Аустенитна Неръждаема стомана, сулфатирана Stainless steel austenitic, sulphured		45 - 85	0.035 - 0.075	0.09 - 0.16	0.12 - 0.21	0.15 - 0.25	0.18 - 0.3
	Закалена Неръждаема стомана Stainless steel hardened		35 - 55	0.045 - 0.080	0.075 - 0.13	0.11 - 0.18	0.13 - 0.22	0.15 - 0.25
Никелови и Кобалтови сплави Ni and Co alloys	До 900 N/mm ² up to 900 N/mm ²		25 - 40	0.030 - 0.045	0.055 - 0.080	0.75 - 0.11	0.090 - 0.13	0.11 - 0.16
	Между 900 - 1200 N/mm ² between 900 - 1200 N/mm ²		15 - 25	0.025 - 0.035	0.040 - 0.060	0.05 - 0.070	0.065 - 0.095	0.075 - 0.11
	Повече от 1200 N/mm ² above 1200 N/mm ²		10 - 15	0.020 - 0.030	0.040 - 0.055	0.045 - 0.065	0.060 - 0.080	0.070 - 0.095
Сив и Нодуларен Чугун Grey and Nodular Cast Iron	До 200 HB up to 200 HB	GG20, GGG40, GTS45	85 - 105	0.15 - 0.25	0.20 - 0.35	0.25 - 0.45	0.30 - 0.50	0.35 - 0.55
	До 250 HB up to 250 HB	GG30, GGG60, GTW40	75 - 90	0.15 - 0.26	0.20 - 0.36	0.25 - 0.46	0.30 - 0.51	0.35 - 0.56
	Повече от 250 HB above 250 HB	GG40, GGG70, GTS70	65 - 80	0.12 - 0.20	0.15 - 0.25	0.20 - 0.35	0.25 - 0.40	0.30 - 0.45
Ковък Чугун Malleable cast iron	Между 350 - 450 HB between 350 - 450 HB		40 - 70	0.06 - 0.10	0.08 - 0.12	0.10 - 0.14	0.12 - 0.16	0.14 - 0.18
Алуминий Aluminium	Алуминий < 10% Si Aluminium < 10% Si		100 - 400	0.10 - 0.25	0.15 - 0.35	0.25 - 0.45	0.30 - 0.50	0.35 - 0.55
	Алуминий > 10% Si Aluminium > 10% Si		90 - 300	0.10 - 0.26	0.15 - 0.36	0.25 - 0.46	0.30 - 0.51	0.35 - 0.56
Титаний Titanium	WASPALLOY	NiCr20Co14MoTi	15 - 35	0.02 - 0.07	0.04 - 0.10	0.06 - 0.12	0.08 - 0.15	0.08 - 0.18
	INCONEL	NiCr20Co18MoNb						
	NIMONIC	NiCr20Co18Ti						
	RENE 41	NiCr20Co11TiAl						

Сравнителна таблица за твърдост HV=HB=HRC

Якост на опън R _m [N/mm ²]	Твърдост на Викерс HV 10	Твърдост на Бринел HB	Твърдост на Рокуел HRC
240	75	71	
255	80	76	
270	85	81	
285	90	86	
305	95	90	
320	100	95	
335	105	100	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	157	
545	170	162	
560	175	166	
575	180	171	
595	185	176	
610	190	181	
625	195	185	
640	200	190	
660	205	195	
675	210	199	
690	215	204	
705	220	209	
720	225	214	
740	230	219	
755	235	223	
770	240	228	
785	245	233	
800	250	238	22
820	255	242	23
835	260	247	24
860	268	255	25
870	272	258	26

Якост на опън R _m [N/mm ²]	Твърдост на Викерс HV 10	Твърдост на Бринел HB	Твърдост на Рокуел HRC
920	287	273	28
940	293	278	29
970	302	287	30
995	310	295	31
1020	317	301	32
1050	327	311	33
1080	336	319	34
1110	345	328	35
1140	355	337	36
1170	364	346	37
1200	373	354	38
1230	382	363	39
1260	392	372	40
1300	403	383	41
1330	413	393	42
1360	423	402	43
1400	434	413	44
1440	446	424	45
1480	458	435	46
1530	473	449	47
1570	484	460	48
1620	497	472	49
1680	514	488	50
1730	527	501	51
1790	544	517	52
1845	560	532	53
1910	578	549	54
1980	596	567	55
2050	615	584	56
2140	639	607	57
	655	622	58
	675		59
	698		60
	720		61
	745		62
	773		63
	800		64
	829		65
	864		66
	900		67

Cutting Speed

Feed Rate For Drills

$$V_c = \frac{\pi \times d_1 \times n}{1000}$$

$$V_f = n \times f_n$$

$$n = \frac{1000 \times V_c}{\pi \times d_1}$$

Скорост на рязане	V_c	Cutting speed (m / min)
Диаметър на инструмента	d_1	End Mill diameter (mm)
Обороти на инструмента	n	Revolution (rpm)
Скорост на подаване	V_f	Feed speed (mm / min)
Скорост на подаване на оборот	f_n	Feed rate per revolution (mm / r)