

## Chart of cutting speeds; Form grooving Fix-Profil

Standard values for cutting speeds and feeds when form grooving with Fix-Profil															
Chart for steel and cast iron															
	Material abbreviation		Hardness BrinellHB	V=Cutting speeds m/min				S = Feed mm/U ending the machining			Cutting materials				
				H10	H.M	E310	A310 S320 A410	Optimal	Normal	Minimal	P20	E310	A310	A410	S320
Steel for automated machines DIN 1651	9 S 20	1.0711		80	130	100	170	0,05	0,04	0,02	○	✗	○	○	✗
	9 S Mn 28	1.0715		80	120	100	150	0,05	0,04	0,02	○	✗	○	○	✗
	9 S Mn Pb 28	1.0718		80	170	100	200	0,05	0,04	0,02	✗	○	✗		
	9 S Mn Pb 28 Te			100	170	130	200	0,05	0,04	0,02	✗	○	✗		
	9 S Mn 36	1.0736		90	160	110	190	0,05	0,04	0,02	○	✗	○	○	✗
	9 S Mn Pb 36	1.0737		90	160	110	200	0,05	0,04	0,02	✗	○	✗		
	10 S 20	1.0721		50	140	60	180	0,05	0,04	0,02	○	✗	○	○	✗
	10 S Pb 20	1.0722		80	140	100	180	0,04	0,03	0,02	✗	○	✗		
	35 S 20	1.0726		50	120	60	150	0,04	0,03	0,02	○	✗	○	○	✗
	45 S 20	1.0727		40	100	50	130	0,04	0,03	0,02	○	✗	○	○	✗
60 S 20	1.0728		35	100	50	130	0,04	0,03	0,02	○	✗	○	○	✗	
Construction steel DIN 1652 DIN 17.100	St 37	1.0120		45	130	60	170	0,04	0,03	0,02	○	✗	○	○	✗
	St 37	1.0120		45	130	60	170	0,04	0,03	0,02	○	✗	○	○	✗
	St 37-2	1.0161													
	St 42	1.0140		45	130	60	170	0,04	0,03	0,02	○	✗	○	○	✗
	St42-2	1.0181													
	St 50	1.0531		40	120	50	150	0,04	0,03	0,02	○	✗	○	○	✗
	St 50-2	1.0533													
	St 60-2	1.0543		40	120	50	150	0,035	0,025	0,02	○	✗	○	○	✗
St 70-2	1.0633		35	100	50	130	0,035	0,025	0,02	○	✗	○	○	✗	
Precious and quality insert steels; unalloyed DIN 17.210	C10	1.0301		40	130	50	170	0,04	0,03	0,02	○	✗	○	○	✗
	C k 10	1.1121													
	C15	1.0401		40	130	50	170	0,04	0,03	0,02	○	✗	○	○	✗
	C k 15	1.1141													
Precious and quality annealed steels; unalloyed DIN 1652 DIN 17.210	C 35	1.0501		40	120	50	150	0,04	0,03	0,02	○	✗	○	○	✗
	C k 35	1.1191													
	C 45	1.0503		40	120	50	150	0,04	0,03	0,02	○	✗	○	○	✗
	C k 45	1.1191													
	C 60	1.0601		40	100	50	130	0,035	0,025	0,02	○	✗	○	○	✗
	C k 60	1.1221													

✗ = Recommend cutting material    ○ = Application under special conditions

All data's and guideline values which differ strongly from the basic parameters; values which vary plus 35 % or below, can be considered as a normal rang. Please adjust these values according to the age and condition of the machine.

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				H10	H.M	E310	A310 S320 A410	Optimal	Normal	Minimal	P20	E310	A310	A410	S320
Rust-resistant steels, inox DIN 17.440	X 20 Cr 13	1.4021		30	100	40	130	0,03	0,025	0,015	X	○	○	X	
	X 40 Cr 13	1.4034		30	100	40	130	0,03	0,025	0,015	X	○	○	X	
	X 12 Cr Mo S 17	1.4104		30	100	40	130	0,03	0,025	0,015	X	○	X		
	X 8 Cr 17	1.4016		30	100	40	130	0,03	0,025	0,015	X	○	○	X	
	X 12 Cr Ni S 18 8	1.4305		40	110	50	140	0,03	0,025	0,015	X	○	X		
	X 5 Cr Ni Mo 1810	1.4401		30	90	40	120	0,03	0,025	0,015	X	○	X		
	X10 Cr Ni Mo Ti 1810	1.4571		20	60	25	80	0,03	0,025	0,015	X	○	X		
Roller bearing steel	100 Cr 6 (W3)	1.3505		40	100	50	130	0,025	0,02	0,015	X	○	○	X	
Cast iron (Grey cast iron) DIN 1691	GG - 10	0.6010		30	80	40	100	0,05	0,03	0,02	X		X		
	GG - 20	0.6020		25	80	30	100	0,05	0,03	0,02	X		X		
	GG - 30	0.6030		30	70	40	90	0,05	0,03	0,02	X		X		
	GG - 40	0.6040		30	70	40	90	0,05	0,03	0,02	X		X		
Cast iron DIN 1693	GGG - 40	0.7040		30	120	40	160	0,05	0,03	0,02	○	X	○	X	
	GGG - 50	0.7050		20	80	25	100	0,05	0,03	0,02	○	X	○	X	
	GGG - 60	0.7060													
	GGG - 70	0.7070		10	60	20	80	0,05	0,03	0,02	○	X	○	X	
	GGG - 80	0.7080													

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Chart for non cast iron metals															
	Material abbreviation		Hardness Brinell HB	V=Cutting speeds m/min				S = Feed mm/U ending the machining			Cutting materials				
				H10	H.M	E310	A310 S320 A410	Optimal	Normal	Minimal	P20	E310	A310	A410	S320
Aluminum, forgeable alloy, cast iron alloys DIN 1725	Al Mg Si Pb	3.0615		180	500			0,08	0,04	0,02	X	○			
	Al Cu Mg Pb	3.1645		200	500			0,08	0,04	0,02	X	○			
	Al Cu Bi Pb	3.1655		180	500			0,08	0,04	0,02	X	○			
	Al Mg 5	3.3555		200	700			0,08	0,04	0,02	X	○			
	G - Al Si 12	3.2581.01		90	200			0,08	0,04	0,02	X	○			
Fine zinc, cast iron alloys DIN 1743	G - Zn A14 Cu3	2.2143.01		80	350			0,08	0,04	0,02	X				
Copper-zinc-brass- alloys DIN 17.660	Cu Zn 40 Pb 3 (Ms 58)	2.0405		160	400			0,08	0,04	0,02	X				
	Cu Zn 36 (Ms 63)	2.0335		100	350			0,08	0,04	0,02	X				
	Cu Zn 36 Pb 3 (Ms 63Pb)	2.0375		160	400			0,08	0,04	0,02	X				
	Cu Zn 40 Mn Pb (So Ms 58 Pb)	2.0580		120	400			0,08	0,04	0,02	X				
Copper-alloys DIN 17.666	Cu SP	2.1498		80	350			0,08	0,04	0,02	X				
	Cu Te P (SF cu Te)	2.1546		80	350			0,08	0,04	0,02	X				
Cast iron-tin- bronze DIN 1705	G - Sn Bz 14	2.1056.01		80	350			0,05	0,03	0,02	X				
	G - Sn Bz 12	2.1052.01		80	350			0,05	0,03	0,02	X				
	G - Sn Bz 10	2.1050.01		70	350			0,05	0,03	0,02	X				

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# BühlerHartmetall

## Zerspanungswerkzeuge

[www.buehler-hartmetall.de](http://www.buehler-hartmetall.de)

Bühler Hartmetall GmbH • Heidenheimer Str. 68 • 73312 Geislingen • Tel. + 49(0)7331/96 50 - 0 • Fax + 49(0)7331/6 77 87