

Grades, Speeds & Feeds

Grades

RS20	RS21	RS23	RS27
An uncoated K20/K30 extra-fine grain carbide giving outstanding performance in thread milling applications	A TiAlN coated extra-fine grain carbide grade giving a hardness of 3,300 HV and a maximum working temperature of 900°C	A TiCN coated extra-fine grain carbide grade giving a hardness of 3,000 HV and a maximum working temperature of 400°C	A TiN coated extra-fine grain carbide grade giving a hardness of 2,300 HV and a maximum working temperature of 600°C

Cutting Speeds & Feeds

Material Designation		Hardness (HB)	Tensile Strength Rm (N/mm ²)	Cutting speed Vc (m/min)		Feed rate fz (mm/tooth)									
				RS20	RS21 RS23 RS27	Nominal shank diameter									
						Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20	Ø 25	
Steels	Free-cutting steels	<200	<700	110	150	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Structural steels	<200	<700	110	150	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Carbon steels	<300	<1000	80	110	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Alloy steels <850 N/mm ²	<250	<850	90	130	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Alloy steels hard/temp >850 to <1150 N/mm ²	>250	>850	70	100	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	High tensile alloy steels	>250	>850	35	50	0.005	0.011	0.014	0.016	0.02	0.025	0.025	0.03	0.035	
Stainless Steels	Free machining stainless steels	<250	<850	65	90	0.005	0.011	0.014	0.016	0.02	0.025	0.025	0.03	0.035	
	Austenitic stainless steels	<250	<850	40	60	0.005	0.011	0.014	0.016	0.02	0.025	0.025	0.03	0.035	
	Ferritic & Martensitic <850 N/mm ²	<250	<850	40	60	0.005	0.011	0.014	0.016	0.02	0.025	0.025	0.03	0.035	
	Ferritic & Martensitic >850 to <1150 N/mm ²	>250	>850	35	50	0.005	0.011	0.014	0.016	0.02	0.025	0.025	0.03	0.035	
Cast Iron	Cast Iron	<250	<850	110	150	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Spheroidal graphite & malleable cast iron	<250	<850	85	120	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
Titanium	Pure Titanium	<250	<850	100	140	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Titanium alloys	>250	>850	35	50	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
Nickel	Nickel alloys <850 N/mm ²	<250	<850	30	40	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Nickel alloys >850 to <1150 N/mm ²	>250	>850	20	30	0.005	0.011	0.014	0.016	0.02	0.025	0.025	0.03	0.035	
Copper	Pure copper	<120	<400	280	400	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Short chip brass, phosphor bronze, gun metal	<200	<700	280	400	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
	Long chip brass	<200	<700	280	400	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
Aluminium Magnesium	Al/Mg unalloyed	<100	<350	350	500	0.015	0.02	0.026	0.031	0.04	0.05	0.05	0.06	0.08	
	Al alloyed Si <1.5%	<150	<500	350	500	0.015	0.02	0.026	0.031	0.04	0.05	0.05	0.06	0.08	
	Al alloyed Si >1.5% to <10%	<120	<400	350	500	0.015	0.02	0.026	0.031	0.04	0.05	0.05	0.06	0.08	
	Al alloyed Si >10%, Mg alloys	<120	<400	240	340	0.01	0.018	0.023	0.025	0.03	0.04	0.04	0.045	0.05	
Plastics	Thermoplastics	-	-	230	330	0.015	0.02	0.026	0.031	0.04	0.05	0.05	0.06	0.08	
	Duroplastics	-	-	110	160	0.015	0.02	0.026	0.031	0.04	0.05	0.05	0.06	0.08	
	Glass reinforced plastics	-	-	70	100	0.015	0.02	0.026	0.031	0.04	0.05	0.05	0.06	0.08	

The above data is intended as a guide only. Cutting speeds are recommended starting points, and can be adjusted by ±10%. Values will need to be adjusted to take into account machine condition, clamping, tool extension, coolant, etc. Sample programmes can be supplied to suit your individual requirements.