

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	Insert edge length Lmm			
						14	21	30	40
Steels	Free-cutting steels	<200	<700	130	175	0.15 - 0.20	0.30 - 0.40	0.40 - 0.60	0.50 - 0.80
	Structural steels	<200	<700	130	175				
	Carbon steels	<300	<1000	95	130	0.10 - 0.15	0.20 - 0.30	0.30 - 0.50	0.40 - 0.60
	Alloy steels <850 N/mm ²	<250	<850	105	150				
	Alloy steels hard/temp >850 to <1150 N/mm ²	>250	>850	140	120				
High tensile alloy steels	>250	>850	70	60					
Stainless Steels	Free machining stainless steels	<250	<850	75	110	0.08 - 0.12	0.15 - 0.25	0.20 - 0.40	0.30 - 0.50
	Austenitic stainless steels	<250	<850	50	70				
	Ferritic & Martensitic <850 N/mm ²	<250	<850	50	70				
	Ferritic & Martensitic >850 to <1150 N/mm ²	>250	>850	40	60				
Cast Iron	Cast Iron	<250	<850	130	175	0.15 - 0.20	0.30 - 0.40	0.40 - 0.60	0.50 - 0.80
	Spheroidal graphite & malleable cast iron	<250	<850	100	140				
Titanium	Pure Titanium	<250	<850	115	160	0.08 - 0.12	0.15 - 0.25	0.20 - 0.40	0.30 - 0.50
	Titanium alloys	>250	>850	40	60				
Nickel	Nickel alloys <850 N/mm ²	<250	<850	35	50	0.08 - 0.12	0.15 - 0.25	0.20 - 0.40	0.30 - 0.50
	Nickel alloys >850 to <1150N/mm ²	>250	>850	25	35				
Copper	Pure copper	<120	<400	325	460	0.10 - 0.15	0.20 - 0.30	0.30 - 0.50	0.40 - 0.60
	Short chip brass, phosphor bronze, gun metal	<200	<700	325	460				
	Long chip brass	<200	<700	325	460				
Aluminium Magnesium	Al/Mg unalloyed	<100	<350	405	500	0.15 - 0.20	0.30 - 0.40	0.40 - 0.60	0.50 - 0.80
	Al alloyed Si<1.5%	<150	<500	405	500				
	Al alloyed Si>1.5% to <10%	<120	<400	405	500				
	Al alloyed Si >10%, Mg alloys	<120	<400	275	400				
Plastics	Thermoplastics	-	-	265	330	0.15 - 0.20	0.30 - 0.40	0.40 - 0.60	0.50 - 0.80
	Duroplastics	-	-	130	185				
	Glass reinforced plastics	-	-	80	115				

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.