

CARBIDE THREAD MILLS

CUTTING DATA

THREAD MILLING

Material	Workpiece			Vc [m/min]		Feed fz [mm/tooth]			
	Group	Detail	Hardness Brinell HB	Helical Flute Deep Threading	Miniature	Helical	Deep Threading	Miniature	
P STEEL	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	80-250	60-120	0.03-0.15	0.03-0.23	0.03-0.12	
		Medium Carbon (C=0.25-0.55%)	150	80-230	60-120	0.03-0.1	0.03-0.15	0.03-0.12	
		High Carbon (C=0.55-0.85%)	170	80-200	60-90	0.03-0.08	0.03-0.12	0.03-0.12	
	Low Alloy Steel (Alloying Elements 5%)	Non Hardened	180	60-180	60-90	0.03-0.1	0.03-0.15	0.03-0.1	
		Hardened	275	60-170	50-80	0.03-0.07	0.03-0.11	0.03-0.07	
		Hardened	350	60-160	50-80	0.01-0.03	0.01-0.05	0.03	
	High Alloy Steel (Alloying Elements>5%)	Annealed	200	40-100	50-80	0.03-0.05	0.03-0.08	0.03-0.05	
		Hardened	325	30-80	50-80	0.01-0.03	0.01-0.05	0.03	
	Cast Steel	Low Alloy (Alloying Elements <5%)	200	80-250	70-90	0.03-0.1	0.03-0.15	0.03-0.1	
		High Alloy (Alloying Elements >5%)	225	60-170	60-80	0.01-0.03	0.01-0.05	0.03	
M STAINLESS STEEL	Stainless Steel Ferritic	Non Hardened	200	60-150	60-90	0.04-0.1	0.04-0.15	0.03-0.1	
		Hardened	330	60-120	50-80	0.01-0.05	0.01-0.08	0.03	
	Stainless Steel Austenitic	Austenitic	180	60-140	60-90	0.04-0.1	0.04-0.15	0.03-0.1	
		Super Austenitic	200	60-130	50-80	0.04-0.1	0.04-0.15	0.03-0.1	
	Stainless Steel Cast Ferritic	Non Hardened	200	60-160	60-90	0.04-0.1	0.04-0.15	0.03-0.1	
		Hardened	330	60-110	50-80	0.03-0.05	0.03-0.08	0.03	
	Stainless Steel Cast Austenitic	Austenitic	200	60-150	60-90	0.04-0.1	0.04-0.15	0.03-0.1	
		Hardened	330	60-100	50-80	0.03-0.05	0.03-0.08	0.03	
K CAST IRON	Malleable	Ferritic (Short Chips)	130	60-70	50-80	0.01-0.03	0.01-0.05	0.03	
	Cast Iron	Pearlitic (Long Chips)	230	60-150	60-90	0.03-0.05	0.03-0.08	0.05	
	Grey Cast Iron	Low Tensile Strength	180	70-160	70-100	0.025-0.1	0.05-0.15	0.04-0.1	
		High Tensile Strength	260	40-120	60-90	0.03-0.05	0.03-0.08	0.05	
	Nodular Sg Iron	Ferritic	160	40-110	70-100	0.05-0.1	0.05-0.15	0.04-0.1	
		Pearlitic	260	40-100	60-90	0.03-0.05	0.03-0.08	0.05	
N NON-FERROUS METALS	Aluminium Alloys Wrought	Non Aging	60	200-300	60-250	0.1-0.25	0.10-0.38	0.05-0.15	
		Aged	100	150-250	60-150	0.1-0.2	0.10-0.30	0.04-0.12	
	Aluminium Alloys	Cast	75	100-200	60-250	0.1-0.2	0.10-0.30	0.04-0.12	
		Cast & Aged	90	120-220	60-150	0.1-0.15	0.10-0.23	0.03-0.1	
	Aluminium Alloys	Cast Si 13-22%	130	200-300	250	0.1-0.2	0.10-0.30	0.05-0.1	
		Copper & Copper Alloys	Brass	90	200-300	60-250	0.1-0.25	0.10-0.38	0.04-0.12
			Bronze & Non Lead Copper	100	150-250	60-150	0.1-0.2	0.10-0.30	0.05-0.1
S HEAT RESISTANT MATERIAL	High Temperature Alloys	Annealed (Iron Based)	200	30-60	60	0.04-0.1	0.04-0.15	0.03-0.1	
		Aged (Iron Based)	280	20-50	50	0.01-0.03	0.01-0.05	0.03	
		Annealed (Nickel Or Cobalt Based)	250	15-35	20-40	0.01-0.03	0.01-0.05	0.03	
		Aged (Nickel Or Cobalt Based)	350	15-30	15-30	0.01-0.03	0.01-0.05	0.03	
	Titanium Alloys	Pure 99.5 Ti	400Rm	40-80	30-50	0.03-0.05	0.03-0.08	0.03-0.06	
		A+B Alloys	1050Rm	20-50	25-35	0.03-0.05	0.03-0.08	0.03-0.07	
H HARDENED	Extra Hard Steel	Hardened & Tempered	45-50HRc	15-45	30-45	0.005-0.01	0.005-0.02	0.01	
		Hardened & Tempered	51-55HRc	15-40	15-30	0.005-0.01	0.005-0.02	0.01	
		Hardened & Tempered	55-60HRc	40-60	-	0.005-0.025	-	-	
		Hardened & Tempered	60-63HRc	30-40	-	0.005-0.015	-	-	
		Hardened & Tempered	63-66HRc	30-40	-	0.005-0.015	-	-	

CARBIDE THREAD MILLS

CUTTING DATA

DRILL, CHAMFER & THREAD MILLING

Material	Workpiece			Cutting Speed Vc [m/min]	Drilling Feed [mm/rev]		Feed fz [mm/tooth]	
	Group	Detail	Hardness		Ø0-8	Ø8+	Ø0-8	Ø8+
K CAST IRON	Cast Iron	With Laminar Graphite	100-250 N/mm ²	80-160	0.10-0.25	0.20-0.40	0.04-0.07	0.05-0.12
			250-450 N/mm ²	80-160	0.10-0.25	0.20-0.40	0.04-0.07	0.05-0.12
		With Nodular Graphite	350-500 N/mm ²	80-160	0.10-0.25	0.15-0.25	0.04-0.07	0.05-0.12
			500-900 N/mm ²	80-160	0.10-0.25	0.15-0.25	0.04-0.07	0.05-0.12
		With Vermicular Graphite	300-400 N/mm ²	80-160	0.10-0.25	0.20-0.40	0.04-0.07	0.05-0.12
			400-500 N/mm ²	80-160	0.10-0.25	0.20-0.40	0.04-0.07	0.05-0.12
		Malleable	250-500 N/mm ²	80-160	-	-	0.04-0.07	0.05-0.12
			500-800 N/mm ²	80-160	-	-	0.04-0.07	0.05-0.12
N NON-FERROUS METALS	Aluminium	Aluminium Alloys	≤ 200 N/mm ²	150-250	0.08-0.15	0.15-0.25	0.04-0.08	0.07-0.15
			≤ 350 N/mm ²	150-250	0.08-0.15	0.15-0.25	0.04-0.08	0.07-0.15
			≤ 550 N/mm ²	150-250	0.08-0.15	0.15-0.25	0.04-0.08	0.07-0.15
			Si ≤ 7%	150-400	0.15-0.25	0.20-0.40	0.04-0.08	0.07-0.15
			7% < Si ≤ 12%	150-400	0.15-0.25	0.20-0.40	0.04-0.08	0.07-0.15
			12% < Si ≤ 17%	100-200	0.15-0.25	0.20-0.40	0.04-0.08	0.07-0.15
	Copper Alloys	Zinc (Brass, Long Chip)	≤ 550 N/mm ²	150-400	0.10-0.20	0.15-0.30	0.05-0.08	0.07-0.15
			≤ 550 N/mm ²	150-400	0.10-0.20	0.15-0.30	0.05-0.08	0.07-0.15
			≤ 400 N/mm ²	100-250	0.10-0.25	0.20-0.40	0.04-0.07	0.05-0.12
	Magnesium Alloys	Malleable Magnesium Alloys	≤ 500 N/mm ²	150-400	0.10-0.20	0.15-0.30	0.04-0.08	0.07-0.15
			≤ 500 N/mm ²	150-400	0.15-0.30	0.20-0.40	0.04-0.08	0.07-0.15
	Plastic Materials	Thermosetting Plastic (Short Chip)	-	100-400	0.15-0.30	0.20-0.40	0.05-0.10	0.08-0.20

RECOMMENDATION:

At tool entry, set the Feed fz[mm/tooth] to 70% lower than the threading Feed.

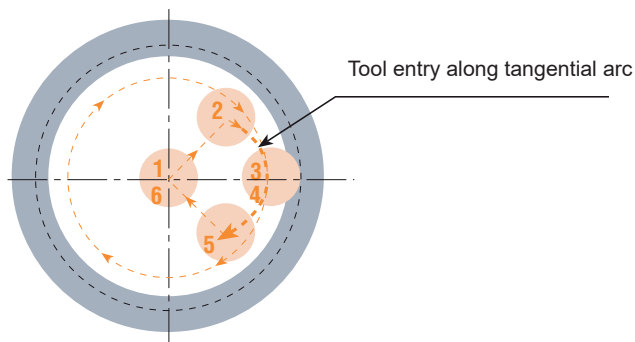
Example:

Threading Feed: 0.3[mm/tooth]

Tool entry Feed: 0.09[mm/tooth]

The feed rates listed are for straight line feeds and allowance should be made when interpolating as the outside edge of the cutter will be travelling faster than the centre.

The cutting speed values (Vc in m/min) are given only as an indication and should be adapted to the application conditions (material, cooling by lubricating oil, machine etc.).



VARGUS GENiUS | Tool Selector and CNC Program Generator



Vargus GENiUS Software Using the VARDEX Thread Milling system is easy. Vargus has developed a multi-lingual software for CNC programming.

All the operator has to do is enter the basic thread parameters and then follow the computer instructions, which lead the operator to the correct choice of tool for the job on hand. The software will then generate the helical interpolation for the CNC program.

It couldn't be simpler!