Cutting Data - TPC, TS45, TS45F & TTC90 Mills

CUTTING DATA FOR TPC, TS45, TS45F & TTC90

ISO 513	Material	TTC90 End Mills			TS45 End Mills			TSF45 Face Mills			
		MILLING	SFPM		MILLING	SFPM		MILLING	SFPM		
		Feed [1]	Coated	Uncoated	Feed [1]	Coated	Uncoated	Feed [1]	CVDCoated	PVD Coated	Uncoated
P	Steel, unalloyed low carbon	.004 - .012	325 - 731	260 - 585	.004 - .012	325 - 731	260 - 585	.004 - .020	400 - 1100	350 - 900	---
P	Steel, unalloyed or low-alloy	.004 - .012	284 - 650	228 - 520	.004 - .012	284 - 650	228 - 520	.003 - .013	300 - 900	300 - 700	---
P	Steel alloy and tool steels	.004 - .010	244 - 569	195 - 455	.004 - .012	244 - 569	195 - 455	.003 - .014	250 - 650	175 - 400	---
P	High tensile steels	.004 - .008	244 - 488	195 - 390	.004 - .010	244 - 488	195 - 390	.003 - .006	---	300 - 500	---
		MILLING	SFPM		MILLING	SFPM		MILLING	SFPM		
		Feed [1]	Coated	Uncoated	Feed [1]	Coated	Uncoated	Feed [1]	CVDCoated	PVD Coated	Uncoated
M	Corrosion-resistant steel	.004 - .008	203 - 569	163 - 455	.004 - .010	203 - 569	163 - 455	.003 - .012	250 - 650	200 - 600	---
M	Cast steel, medium strength	.004 - .008	244 - 488	195 - 390	.004 - .012	244 - 488	195 - 390	.003 - .009	300 - 600	250 - 550	---
		MILLING	SFPM		MILLING	SFPM		MILLING	SFPM		
		Feed [1]	Coated	Uncoated	Feed [1]	Coated	Uncoated	Feed [1]	CVDCoated	PVD Coated	Uncoated
K	Grey cast iron, medium hardness	.004 - .010	284 - 488	228 - 390	.004 - .016	284 - 488	228 - 390	.003 - .009	---	300 - 900	250 - 750
		MILLING	SFPM		MILLING	SFPM		MILLING	SFPM		
		Feed [1]	Coated	Uncoated	Feed [1]	Coated	Uncoated	Feed [1]	CVDCoated	PVD Coated	Uncoated
N	Brass	.004 - .010	406 - 731	325 - 585	.004 - .010	406 - 731	325 - 585	.004 - .015	---	---	700 - 2000
N	Mg-alloyed	.004 - .006	1219 - 3250	975 - 2600	.004 - .006	1219 - 3250	975 - 2600	.004 - .015	---	---	700 - 2000
N	Si-alloyed	.002 - .006	1016 - 2438	813 - 1950	.002 - .006	1016 - 2438	813 - 1950	.004 - .015	---	---	700 - 2000
N	Al-alloyed, hypo-eutectic	.004 - .008	1219 - 4063	975 - 3250	.004 - .008	1219 - 4063	975 - 3250	.003 - .012	---	---	700 - 1500
N	Al-alloyed, hyper-eutectic Si>12%	.004 - .008	1219 - 2031	975 - 1625	.004 - .008	1219 - 2031	975 - 1625	.003 - .012	---	---	700 - 1500

ISO 513	Material	TPC Plunge Mills					
		DRILLING	SFPM		MILLING	SFPM	
		Feed	Coated	Uncoated	Feed [1]	Coated	Uncoated
P	Steel, unalloyed low carbon	.003 - .008	299 - 673	260 - 585	.003 - .012	325 - 731	260 - 585
P	Steel, unalloyed or low-alloy	.003 - .008	262 - 598	228 - 520	.003 - .012	284 - 650	228 - 520
P	Steel alloy	.003 - .008	224 - 523	195 - 455	.003 - .012	244 - 569	195 - 455
P	High tensile steels	.003 - .008	224 - 448	195 - 390	.003 - .012	244 - 488	195 - 390
		DRILLING	SFPM		MILLING	SFPM	
		Feed	Coated	Uncoated	Feed [1]	Coated	Uncoated
M	Corrosion-resistant steel	.002 - .006	187 - 523	163 - 455	.003 - .010	203 - 569	163 - 455
M	Cast steel, medium strength	.002 - .006	224 - 448	195 - 390	.003 - .010	244 - 488	195 - 390
		DRILLING	SFPM		MILLING	SFPM	
		Feed	Coated	Uncoated	Feed [1]	Coated	Uncoated
K	Grey cast iron, medium hardness	.003 - .013	262 - 448	228 - 390	.003 - .015	284 - 488	228 - 390
		DRILLING	SFPM		MILLING	SFPM	
		Feed	Coated	Uncoated	Feed [1]	Coated	Uncoated
N	Brass	.003 - .008	374 - 673	325 - 585	.004 - .010	406 - 731	325 - 585
N	Mg-alloyed	.003 - .005	1121 - 2990	975 - 2600	.004 - .006	1219 - 3250	975 - 2600
N	Si-alloyed	.002 - .005	934 - 2243	813 - 1950	.002 - .006	1016 - 2438	813 - 1950
N	Al-alloyed, hypo-eutectic	.003 - .006	1121 - 3737	975 - 3250	.004 - .008	1219 - 4063	975 - 3250
N	Al-alloyed, hyper-eutectic Si>12%	.003 - .006	1121 - 1869	975 - 1625	.004 - .008	1219 - 2031	975 - 1625

[1] The feeds per tooth f_z are valid for a width of cut a_e $\geq$ 40% of the cutter diameter. In the case of smaller widths of cut, the feed f_z should be increased as per the following table:

Ratio $a_e : d_1$	f_z factor
5%	3
10%	2
20%	1.5
$\geq$ 40%	1

<u>*Legend*</u>:
a_e = width of cut
d_1 = cutter diameter
Feed = f_z in inches per tooth
SFPM = Cutting speeds in SFPM