

Cutting Data

for TA90 / TX90 Milling Cutters

ANSI ISO 513	Cutting Data for TA90 / TX90 Milling Cutters				COATED						CERMET			UNCOATED											
	Cutter	Max ap	Carbide Insert		TN7525 TN6525		TN7535 TN6540		TN450		TTI25			TTM											
														feed per tooth *(inch)											
P	TA90	.33	AONT-10T308		.006	.008	.010	.006	.009	.011	.006	.009	.011	.003	.005	.006	.006	.008	.010						
	TXD90	.33	222.79.600		.003	.006	.008	.003	.006	.008	.003	.007	.009	.002	.004	.006	.003	.006	.009						
	TXP90	.55	222.79.400 / 500		.003	.006	.009	.003	.006	.009	.003	.007	.010	.003	.005	.006	.003	.006	.009						
Work Material		Condition	Hardness HB	Mat. Gr.	vc *(sfm)																				
Carbon steel, Unalloyed steel, cast steel and free cutting steel	< 0.25% C	annealed	125	1	1080	820	685	915	705	605	620	540	505	1145	885	750	555	490	455						
	≥ 0.25% C	annealed	190	2	820	635	555	620	490	425	455	375	360	950	720	605	390	325	295						
	< 0.55% C	heat-treated	250	3	685	520	475	520	390	360	375	325	295	785	590	490	325	260	225						
	≥ 0.55% C	annealed	220	4	705	555	475	540	425	360	390	360	325	885	655	555	360	275	260						
		heat-treated	300	5	605	425	375	455	325	275	325	275	260	-	-	-	275	225	195						
Low alloy steel and cast steel	annealed	200	6	785	605	490	605	455	375	455	375	360	950	705	605	390	325	295							
	heat-treated	275	7	605	475	390	455	360	295	360	295	275	-	-	-	295	260	225							
	heat-treated	300	8	520	390	340	390	295	260	295	260	225	-	-	-	260	195	180							
	heat-treated	350	9	475	340	295	360	260	225	260	180	210	-	-	-	225	160	130							
High alloy steel, cast steel & tool steel	annealed	200	10	605	475	425	455	360	325	390	340	295	915	670	555	360	275	260							
	heat-treated	325	11	390	310	260	295	225	195	260	180	210	-	-	-	225	160	130							
400 series stainless	FE / MA	200	12	770	570	490	590	440	375	425	375	340	885	655	555	375	295	275							
	MA	240	13.1	670	475	390	505	360	295	360	295	275	750	590	505	325	260	225							
	MA / PH	330	13.2	325	225	195	260	180	145	180	145	130	375	295	260	160	130	110							
														COATED						CERMET			UNCOATED		
														TN7525 TN6525		TN7535 TN6540		TN450		TTI25			TTM		
														feed per tooth *(inch)											
M	TA90	.33	AONT-10T308		.006	.008	.010	.006	.009	.011	.006	.009	.011	.003	.005	.006	.006	.008	.010						
	TXD90	.33	222.79.600		.003	.006	.008	.003	.006	.008	.003	.007	.009	.002	.004	.006	.003	.006	.009						
	TXP90	.55	222.79.400 / 500		.003	.006	.009	.003	.006	.009	.003	.007	.010	.003	.005	.006	.003	.006	.009						
	Work Material		Condition	Hardness HB	Mat. Gr.	vc *(sfm)																			
	300 Series	AU	180	14.1	785	655	520	720	590	520	655	555	520	850	720	590	390	260	225						
Stainless	DU	230	14.2	620	520	440	590	490	440	520	455	440	720	590	490	295	195	180							
Duplex	S-AU	200	14.3	455	390	325	425	360	325	390	340	325	555	455	360	210	160	130							
Stainless	AU-PH	330	14.4	390	325	260	360	295	260	325	275	260	425	360	295	195	130	110							
														COATED				UNCOATED		CERMET					
														TN2510		TN5515 TN6510 TN6520		THM		TTI-25					
														feed per tooth *(inch)											
K	TA90	.33	AONT-10T308		-	-	-	.005	.007	.012	.005	.010	.012	.002	.003	.005									
	TXD90	.33	222.79.600		-	-	-	.003	.005	.007	.003	.005	.007	.002	.003	.005									
	TXP90	.55	222.79.400 / 500		.004	.006	.008	.005	.010	.014	.005	.010	.012	.003	.006	.009									
	Work Material		Condition	Hardness HB	Mat. Gr.	vc *(sfm)																			
	Grey cast iron	ferrit./pearl.	180	15	1245	915	785	965	705	605	440	325	275	-	-	-									
pearlitic		260	16	950	720	620	735	555	475	325	260	225	-	-	-										
Nodular cast iron	ferritic	160	17	1045	785	655	820	605	490	390	295	245	820	620	490										
	pearlitic	250	18	785	455	325	605	360	260	275	195	130	620	360	260										
Malleable cast iron	ferritic	130	19	1080	655	520	835	490	390	390	245	160	-	-	--										
	pearlitic	230	20	820	520	390	635	410	295	310	195	130	-	-	-										

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ANSI ISO 513	Cutting Data for TA90 / TX90 Milling Cutters				COATED						UNCOATED						
	Cutter	Max ap	Carbide Insert		TN6501			TN6502			THM-U			THM			
N					feed per tooth *(inch)												
	TA90	.33	AONT-10T308		-	-	-	-	-	-	-	-	-	-	.005	.010	.014
	TXD90	.33	222.79.600		-	-	-	-	-	-	-	-	-	-	.003	.005	.007
	TXP90	.55	222.79.400 / 500 / 552		.004	.008	.012	.005	.010	.014	.004	.009	.012	.004	.009	.012	
N	Work Material	Condition	Hardness HB	Mat. Gr.	vc *(sfm)												
	Wrought	Non AG	60	21	6560	3935	3280	5245	3115	2620	6560	3935	3280	2785	2000	1670	
		AG	100	22	3280	1965	1640	2620	1640	1310	3280	1965	1640	1390	1000	835	
	Cast aluminum alloys	Non Ag	75	23	6560	3935	3280	5245	3115	2620	6560	3935	3280	2785	2000	1670	
		Si ≤ 12% AG	90	24	3605	2130	1640	2950	1800	1475	3605	2130	1640	2230	1640	1390	
		Si ≥ 12%	130	25	2620	1640	1310	2130	1310	980	2620	1640	1310	1390	900	685	
	Copper & Copper alloys	Pb > 1%	110	26	-	-	-	-	-	-	-	-	-	1210	820	655	
			90	27	-	-	-	-	-	-	-	-	-	1115	685	555	
100			28	-	-	-	-	-	-	-	-	-	835	505	390		
S	Cutter	Max ap	Carbide Insert		COATED						UNCOATED						
					TN5515 TN6510 TN6520			THM									
					feed per tooth *(inch)												
	TA90	.33	AONT-10T308		.003	.004	.005	.003	.004	.005							
	TXD90	.33	222.79.600		-	.002	.004	-	.002	.004							
	TXP90	.55	222.79.400 / 500		.003	.005	.006	.003	.005	.006							
	Work Material	Condition	Hardness HB	Mat. Gr.	vc *(sfm)												
	High Temp	G	200	31	130	95	75	95	75	55							
	Alloy FE	AG	280	32	100	75	65	75	55	45							
	High Temp	G	250	33	80	55	45	55	45	35							
Alloy	AG	350	34	65	45	35	45	35	30								
Ni / Co	GO	320	35	-	-	-	-	-	-								
Titanium alloys			36	-	-	-	225	145	110								
TiAL6V4	AG		37	-	-	-	180	110	95								

The cutting data given is valid for slot milling with full width of cut $a_e = 100\%$ of the cutter diameter.

For peripheral and shoulder milling with the TX90 end mill, the figures in the table should be converted using the following correction factors:

Ratio $a_e : d_1$	fz factor	SFPM factor
2%	3.5	1.6
5%	3	1.5
10%	2	1.4
20%	1.5	1.3
≥ 40%	1	1.1