

CUTTING DATA - TR360 COPY MILLING

CUTTING DATA FOR ROUND INSERT MILLING CUTTERS				Coated			Cermet			Uncoated										
ISO 513	MILLING CUTTER / MATERIAL			TN7525			TN25M			TN7535/TN450			TTI-25			TTM				
P	Cutter	Max. a_p	Carbide Insert	Feed f_z inches per tooth ¹⁾																
	TR360 ¹⁾	.157 / .197	RD..-0802MOT / RD..-1003MOT	.003	.006	.008	---	---	---	.003	.006	.008	.003	.005	.006	.003	.006	.008		
		.236	RD..-1204MOT-X	.004	.009	.012	.004	.009	.012	.004	.009	.012	.004	.007	.009	.004	.009	.012		
		.315	RCMT-1606MOT-X / RD..-1605MOT-X	.005	.010	.014	.005	.010	.014	.005	.010	.014	.005	.009	.011	.005	.010	.014		
	Work Material	Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM															
	Carbon steel,	< 0.25% C	annealed	125	1	1333	1056	910	1170	910	780	813	699	650	1463	1121	975	715	634	585
	Unalloyed steel,	≥ 0.25% C	annealed	190	2	1056	813	699	813	618	536	585	488	455	1235	910	780	520	423	390
	cast steel and free cutting steel	< 0.55% C	heat-treated	250	3	894	683	601	683	520	455	488	423	390	1008	764	650	423	325	293
		≥ 0.55% C	annealed	220	4	910	699	601	699	536	455	520	455	423	1138	845	715	455	358	325
	Low alloy steel and cast steel		heat-treated	300	5	764	553	---	585	423	---	423	358	---	---	---	---	358	293	---
annealed			200	6	1024	764	634	780	585	488	585	488	455	1235	910	780	520	423	390	
heat-treated			275	7	764	601	520	585	455	390	455	390	358	---	---	---	390	325	293	
heat-treated			300	8	683	520	---	520	390	---	390	325	---	---	---	---	---	325	260	---
High alloy steel, cast steel & tool steel		heat-treated	350	9	601	423	---	455	325	---	325	228	---	---	---	---	293	195	---	
		annealed	200	10	764	618	553	585	471	423	520	439	390	1170	861	715	455	358	325	
heat-treated	325	11	520	390	---	390	293	---	325	228	---	---	---	---	---	293	195	---		

CUTTING DATA FOR ROUND INSERT MILLING CUTTERS				Coated			Uncoated												
ISO 513	MILLING CUTTER / MATERIAL			TN5515			THM												
M	Cutter	Max. a_p	Carbide Insert	Feed f_z as inches per tooth ¹⁾															
	TR360 ¹⁾	.157 / .197	RD..-0802MOT / RD..-1003MOT	.003	.006	.007	---	---	---	.003	.006	.007	.003	.005	.006	.003	.006	.007	
		.236	RD..-1204MOT-X	.004	.008	.011	.004	.008	.011	.004	.008	.011	.004	.007	.009	.004	.008	.011	
		.315	RCMT-1606MOT-X / RD..-1605MOT-X	.005	.009	.013	.005	.009	.013	.005	.009	.013	.005	.008	.010	.005	.010	.013	
	Work Material	Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM														
	400 series Stainless & cast steel	ferrit./mart.	200	12	975	910	634	748	569	488	553	488	455	1138	845	715	488	390	358
		martensitic	240	13	845	618	520	650	471	390	455	390	358	975	748	650	423	325	293
	300 series Stainless & cast steel	austenitic	180	14	423	260	---	325	195	---	228	130	---	---	---	---	195	130	---

¹⁾ The feeds per tooth f_z are valid for face milling with width of cut $a_e \geq 40\%$ of the cutter diameter and max. depth of cut a_p . For smaller widths and depths of cut, the figures in the tables should be converted using correction factors tables below. (d = diameter of insert, d_1 = cutter diameter).

The axial feed in plunge milling should be reduced by approx. 40%.

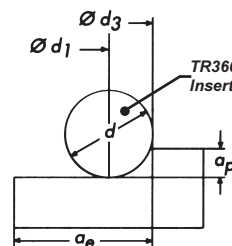
CUTTING DATA FOR ROUND INSERT MILLING CUTTERS				Coated			Uncoated													
ISO 513	MILLING CUTTER / MATERIAL			TN5515			THM													
K	Cutter	Max. a_p	Carbide Insert	Feed f_z inches per tooth ¹⁾																
	TR360 ¹⁾	.157 / .197	RD..-0802MOT / RD..-1003MOT	.003	.006	.008	.003	.006	.008	---	---	---	---	---	---	---	---	---	---	---
		.236	RD..-1204MOT-X	.004	.009	.012	.004	.009	.012	.004	.009	.012	.004	.009	.012	.004	.009	.012	.004	.009
		.315	RCMT-1606MOT-X / RD..-1605MOT-X	.005	.010	.014	.005	.010	.014	.005	.010	.014	.005	.010	.014	.005	.010	.014	.005	.010
	Work Material	Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM															
	Grey cast iron	ferrit./pearl.	180	15	1235	910	764	520	390	325	---	---	---	---	---	---	---	---	---	---
		pearlitic	260	16	943	699	601	390	293	260	---	---	---	---	---	---	---	---	---	---
	Nodular cast iron	ferritic	160	17	1056	764	634	455	341	293	---	---	---	---	---	---	---	---	---	---
		pearlitic	250	18	764	471	---	325	228	---	---	---	---	---	---	---	---	---	---	---
	Malleable cast iron	ferritic	130	19	1056	634	---	455	293	---	---	---	---	---	---	---	---	---	---	---
pearlitic		230	20	945	520	---	358	228	---	---	---	---	---	---	---	---	---	---	---	

Depth of cut a_p	$a_e : d_1$			
	5%	10%	20%	≥40%
5% of d	9	6.3	4.3	3.2
10% of d	6.3	4.3	3.2	2.2
20% of d	4.3	3.2	2.2	1.6
40% of d	3.2	2.2	1.6	1.1

f_z factor	SFPM factor
9	1.6
6.3	1.5
4.3	1.4
3.2	1.3
2.2	1.2
1.6	1.1
1.1	1

CUTTING DATA FOR ROUND INSERT MILLING CUTTERS				Coated			Uncoated													
ISO 513	MILLING CUTTER / MATERIAL			TN5515			THM													
N	Cutter	Max. a_p	Carbide Insert	Feed f_z inches per tooth ¹⁾																
	TR360 ¹⁾	.157 / .197	RD..-0802MOT / RD..-1003MOT	---	---	---	.003	.006	.008	---	---	---	---	---	---	---	---	---	---	---
		.236	RD..-1204MOT-X	---	---	---	.004	.009	.012	.004	.009	.012	.004	.009	.012	.004	.009	.012	.004	.009
		.315	RCMT-1606MOT-X / RD..-1605MOT-X	---	---	---	.005	.010	.014	.005	.010	.014	.005	.010	.014	.005	.010	.014	.005	.010
	Work Material	Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM															
	Cast aluminium alloys	≤ 12% Si	75	23	---	---	---	3250	2340	1950	---	---	---	---	---	---	---	---	---	---
		age-hardened	90	24	---	---	---	2600	1918	1625	---	---	---	---	---	---	---	---	---	---
		> 12% Si heat resistant	130	25	---	---	---	1625	1056	813	---	---	---	---	---	---	---	---	---	---
	Copper & copper alloys	Red Brass, brass	90	27	---	---	---	1300	813	---	---	---	---	---	---	---	---	---	---	---
		Bronze	100	28	---	---	---	---	---	---	975	585	---	---	---	---	---	---	---	---

CUTTING DATA FOR ROUND INSERT MILLING CUTTERS				Coated			Uncoated													
ISO 513	MILLING CUTTER / MATERIAL			TN5515			THM													
S	Cutter	Max. a_p	Carbide Insert	Feed f_z inches per tooth ¹⁾																
	TR360 ¹⁾	.157 / .197	RD..-0802MOT / RD..-1003MOT	.003	.005	.006	.003	.005	.006	---	---	---	---	---	---	---	---	---	---	---
		.236	RD..-1204MOT-X	.004	.006	.007	.004	.006	.007	.004	.006	.007	.004	.006	.007	.004	.006	.007	.004	.006
		.315	RCMT-1606MOT-X / RD..-1605MOT-X	.005	.007	.009	.005	.007	.009	.005	.007	.009	.005	.007	.009	.005	.007	.009	.005	.007
	Work Material	Condition	Hardness HB	Mat. Gr.	Cutting Speeds in SFPM															
	High-temperature alloys	age-hardened	280	32	130	98	81	98	75	65	---	---	---	---	---	---	---	---	---	---
		annealed	250	33	104	78	65	78	62	52	---	---	---	---	---	---	---	---	---	---
	Ni- or Co- based	age-hardened	350	34	85	62	52	65	49	42	---	---	---	---	---	---	---	---	---	---
		annealed	310	37	---	---	---	228	150	114	---	---	---	---	---	---	---	---	---	---



Legend: a_e - width of cut $\text{Ø}d_1$ - effective cutter diameter d - insert diameter
 a_p - depth of cut $\text{Ø}d_3$ - nominal cutter diameter