

AccuPort 432® Carbide Inserts | Metric (mm)

Speeds and Feeds		Hardness (BHN)	Grade	Speed (SFM)			Feed Rate (IPR) by Tube Size and T-A® Insert Series					
				TiN	TiAlN	AM200®	Tube No. 4 - 5	Tube No. 6 - 8	Tube No. 10	Tube No. 12 - 16	Tube No. 20 - 24	Tube No. 32
ISO	Material					T-A Series Y - Z	T-A Series 0	T-A Series 1	T-A Series 2	T-A Series 3	T-A Series 4	
P	Free Machining Steel 1118, 1215, 12L14, etc.	100 - 150	K35, P40	98	128	146	0.020	0.30	0.38	0.46	0.53	0.58
		150 - 200	K35, P40	85	110	126	0.18	0.28	0.36	0.41	0.48	0.58
		200 - 250	K35, P40	79	104	119	0.15	0.25	0.33	0.38	0.43	0.58
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 125	K35, P40	91	119	137	0.20 ❖	0.25	0.33	0.43	0.48	0.58
		125 - 175	K35, P40	79	104	119	0.18 ❖	0.25	0.33	0.41	0.46	0.58
		175 - 225	K35, P40	73	94	108	0.15 ❖	0.23	0.30	0.38	0.43	0.53
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 - 175	K35, P40	79	104	119	0.18	0.25	0.33	0.41	0.46	0.58
		175 - 225	K35, P40	73	94	108	0.15	0.23	0.30	0.38	0.43	0.53
		225 - 275	K35, P40	64	82	94	0.15	0.23	0.30	0.38	0.43	0.53
	Alloy Steel 4140, 5140, 8640, etc.	125 - 175	K35, P40	76	99	114	0.18	0.25	0.33	0.41	0.46	0.48
		175 - 225	K35, P40	70	91	105	0.15	0.23	0.30	0.38	0.43	0.48
		225 - 275	K35, P40	64	82	94	0.15	0.23	0.30	0.38	0.43	0.48
		275 - 325	K35, P40	61	76	87	0.13	0.20	0.28	0.36	0.41	0.43
		325 - 375	K35, P40	52	67	78	0.10	0.18	0.25	0.33	0.38	0.43
	High Strength Alloy 4340, 4330V, 300M, etc.	225 - 300	K35, P40	49	61	73	0.15 ❖	0.23	0.25	0.30	0.38	0.43
		300 - 350	K35, P40	43	55	62	0.13 ❖	0.20	0.23	0.28	0.36	0.43
		350 - 400	K35, P40	37	49	56	0.10 ❖	0.18	0.20	0.25	0.30	0.38
	Structural Steel A36, A285, A516, etc.	100 - 150	K35, P40	73	94	108	0.20 ❖	0.28	0.36	0.41	0.46	0.53
		150 - 250	K35, P40	61	76	87	0.15 ❖	0.25	0.30	0.36	0.41	0.48
		250 - 350	K35, P40	55	70	81	0.13 ❖	0.23	0.28	0.30	0.36	0.43
Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	150 - 200	K35, P40	49	67	78	0.10 ❖	0.18	0.23	0.28	0.33	0.38	
	200 - 250	K35, P40	37	52	59	0.10 ❖	0.18	0.23	0.28	0.33	0.38	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 220	K20	24	32	36	0.10 ❖	0.18	0.23	0.28	0.33	0.38
		220 - 310	K20	18	26	29	0.10 ❖	0.15	0.20	0.25	0.30	0.30
M	Stainless Steel 400 Series 416, 420, 303, etc.	185 - 275	K20	49	64	73	0.18 ❖	0.23	0.30	0.36	0.41	0.41
		275 - 350	K20	37	49	46	0.15 ❖	0.20	0.28	0.30	0.36	0.36
K	Nodular, Grey, Ductile Cast Iron	120 - 150	K20, K10	98	140	152	0.20	0.30	0.38	0.48	0.58	0.69
		150 - 200	K20, K10	82	122	146	0.18	0.28	0.33	0.43	0.53	0.64
		200 - 220	K20, K10	73	110	131	0.15	0.23	0.30	0.38	0.46	0.53
		220 - 260	K20, K10	64	94	113	0.13	0.20	0.28	0.33	0.38	0.43
		260 - 320	K20, K10	55	82	102	0.13	0.18	0.25	0.28	0.33	0.36
N	Aluminum	30	K20	366	457	-	0.25	0.38	0.46	0.51	0.56	0.64
		180	K20	244	305	-	0.23	0.33	0.41	0.46	0.51	0.64

Formulas

1. RPM = (318.47 • M/min) / DIA where: RPM = revolutions per minute (rev/min) M/min = speed (M/min) DIA = finish diameter of drill (mm)	2. M/min = RPM • 0.003 • DIA where: M/min = speed (M/min) RPM = revolutions per minute (rev/min) DIA = diameter of drill (mm)	3. IPM = RPM • mm/rev where: IPM = feed rate RPM = revolutions per minute (rev/min) mm/rev = feed rate (mm/rev)
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The table and equations on this page are found in the *Machinery's Handbook*. Permission to simplify and print the equations is granted by the Editor of the *Machinery's Handbook*.

IMPORTANT: The speeds and feeds listed above are a general starting point for all applications. Refer to the Coolant Recommendation charts for coolant requirements to run at the recommended speeds and feeds. Factory technical assistance is also available through our Application Engineering Team. Due to potential chip formation issues, contact our Application Engineering Team for assistance machining materials marked with a ❖.

Coolant Recommendations		Pressure / Flow Rate	Tube No. 4 - 5	Tube No. 6 - 8	Tube No. 10	Tube No. 12 - 16	Tube No. 20 - 24
			T-A Series Y - Z	T-A Series 0	T-A Series 1	T-A Series 2	T-A Series 3
ISO	Material						
P	Free Machining Steel 1118, 1215, 12L14, etc.	BAR	20	16	17	15	12
		LPM	12.2	16.3	25.3	41.5	71.9
	Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	BAR	11.4	13.3	20.6	36.5	62
		LPM	17	10	10	10	8
	Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	BAR	17	9	10	8	7
		LPM	11.1	12.3	19.3	30	55.8
	Alloy Steel 4140, 5140, 8640, etc.	BAR	10.4	9.1	12.6	18.8	33.6
		LPM	16	9	8	7	5
	High Strength Alloy 4340, 4330V, 300M, etc.	BAR	15	5	5	3	3
		LPM	10.4	9.1	13.6	19.7	36.5
Structural Steel A36, A285, A516, etc.	BAR	16	9	8	7	5	
	LPM	10.8	12	17.5	27.8	47.1	
Tool Steel H-13, H-21, A-4, 0-2, S-3, etc.	BAR	15	5	5	3	3	
	LPM	10.4	9.1	13.6	19.7	36.5	
S	High Temp Alloy Hastelloy B, Inconel 600, etc.	BAR	17	11.4	12.4	11	9
		LPM	11.1	13.5	21.9	35.4	62
M	Stainless Steel 400 Series 416, 420, 303, etc.	BAR	22.7	16.5	17.9	17.2	13.1
		LPM	13	16.3	26.3	44.2	75
K	Nodular, Grey, Ductile Cast Iron	BAR	15.5	7.2	6.2	6.2	5.5
		LPM	10.7	10.8	15.4	26.5	48.7
N	Aluminum	BAR	24.1	22	21.7	19.6	13.8
		LPM	13.4	18.8	29	47.2	77

IMPORTANT: The coolant pressure and flow rate recommendations above represent a good approximation to obtain optimum tool life and chip evacuation at Allied's recommended speeds and feeds. If lower coolant capabilities exist in a drilling application, the AccuPort 432 Port Contour Cutter will still function at reduced penetration rates. Contact our Application Engineering Department for a more specific recommendation of coolant requirements and/or speeds and feeds.