

# Cobalt HSS & HSS End Mills - Speed & Feed Recommendations

## Applications in Various Materials

MATERIAL	HEAT-RESISTANT COBALT BASE ALLOYS, HIGH TENSILE STEELS (50-55 C)		HEAT-RESISTANT AUSTENITIC ALLOYS, HIGH TENSILE STEELS (46-50 C)		HEAT-RESISTANT NICKEL BASE ALLOYS, HIGH STRENGTH STAINLESS STEELS, HIGH STRENGTH TITANIUM ALLOYS		HIGH STRENGTH STAINLESS STEELS, HIGH TENSILE STEELS (40-60 C) MEDIUM STRENGTH TITANIUM ALLOYS		HEAT RESISTANT FERRITIC BASE ALLOYS MEDIUM STRENGTH STAINLESS STEELS UNALLOYED TITANIUM TOOL STEELS (30-40 C)		MACHINE STEEL, HARD BRASS AND BRONZE, ELECTROLYTIC COPPER MILD STEEL FORGINGS (20-30 C)		CAST IRON, MILD STEEL, HALF-HARD BRASS AND BRONZE		BRASS, BRONZE, ALLOYED ALUMINUM, ABRASIVE PLASTICS		ALUMINUM, PLASTICS, WOOD		
	SPEED	FEED	SPEED	FEED	SPEED	FEED	SPEED	FEED	SPEED	FEED	SPEED	FEED	SPEED	FEED	SPEED	FEED	SPEED	FEED	
	DIA. OF END MILLS	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH	CHIP LOAD PER TOOTH
1/16	-	-	-	-	-	-	1222-2444	.0002-.0005	2444-3667	.0002-.0005	3667-4888	.0002-.0005	4888-6111	.0002-.0005	6111-12222	.0002-.0005	12222	UP	.0002-.0005
3/32	-	-	-	-	611-815	.0002-.0005	815-1629	.0002-.0005	1629-2750	.0002-.0005	2750-3259	.0002-.0005	3259-4073	.0002-.0005	4073-8146	.0002-.0005	8146	UP	.0002-.0005
1/8	-	-	-	-	456-611	.0002-.0005	611-1222	.0002-.0005	1222-1833	.0002-.0005	1833-2440	.0002-.001	2440-3056	.0002-.001	3056-6112	.0002-.001	6112	UP	.0002-.001
3/16	-	-	204-306	.0002-.0005	306-407	.0002-.0005	407-815	.0002-.0005	815-1222	.0002-.0005	1222-1625	.0002-.001	1625-2037	.0002-.001	2037-4074	.0002-.001	4074-12222	.0002-.001	
1/4	76-153	.0002-.001	153-230	.0002-.001	229-306	.0002-.001	306-611	.0002-.001	611-917	.0002-.001	917-1222	.0005-.002	1222-1528	.0005-.002	1528-3056	.0005-.002	3056-9168	.0005-.002	
5/16	61-122	.0002-.001	122-183	.0002-.001	183-244	.0002-.001	244-489	.0002-.001	489-733	.0002-.001	733-978	.0005-.002	978-1222	.0005-.002	1222-2444	.0005-.002	2444-7332	.0005-.002	
3/8	51-102	.0002-.001	102-153	.0002-.001	153-203	.0002-.001	203-407	.0005-.002	406-611	.0005-.002	611-815	.001-.003	815-1019	.001-.003	1019-2038	.0005-.003	2038-6114	.0005-.002	
7/16	44-88	.0005-.001	88-132	.0005-.001	131-175	.0005-.002	175-349	.0005-.002	349-524	.0005-.002	524-698	.001-.003	698-873	.001-.003	873-1746	.0005-.003	1746-5238	.0005-.002	
1/2	38-76	.0005-.001	76-115	.0005-.001	115-153	.0005-.002	153-306	.0005-.003	306-458	.001-.003	458-611	.001-.003	611-764	.001-.003	764-1528	.0005-.003	1528-4584	.0005-.002	
9/16	34-68	.0005-.002	68-104	.0005-.002	104-136	.0005-.002	136-272	.0005-.003	272-412	.001-.003	412-543	.001-.004	543-678	.001-.004	678-1356	.0005-.004	1356-4071	.0005-.003	
5/8	31-61	.0005-.002	61-92	.0005-.002	92-122	.0005-.002	122-244	.001-.004	244-367	.001-.004	367-489	.001-.004	489-611	.001-.004	611-1222	.0005-.004	1222-3666	.0005-.003	
11/16	28-56	.0005-.002	56-84	.0005-.002	84-111	.0005-.002	111-222	.001-.004	222-337	.001-.004	337-444	.001-.004	444-555	.001-.004	555-1110	.0005-.004	1110-3330	.0005-.003	
3/4	26-51	.0005-.002	51-76	.0005-.002	76-102	.001-.004	102-203	.001-.004	203-306	.001-.004	306-407	.001-.004	407-509	.002-.006	509-1018	.001-.006	1018-3054	.001-.004	
13/16	24-47	.001-.003	47-71	.001-.003	71-94	.001-.004	94-189	.001-.004	189-284	.001-.004	284-379	.002-.006	379-469	.002-.006	469-938	.001-.006	938-2814	.001-.004	
7/8	22-44	.001-.003	44-65	.001-.003	65-87	.001-.004	87-175	.001-.004	175-262	.002-.006	262-349	.002-.006	349-436	.002-.006	436-872	.001-.006	872-2616	.001-.004	
15/16	20-40	.001-.003	40-62	.001-.003	62-81	.001-.004	81-163	.001-.004	163-246	.002-.006	246-326	.002-.006	326-407	.002-.006	407-814	.001-.006	814-2442	.001-.004	
1	19-38	.001-.003	38-58	.001-.003	58-76	.001-.004	76-153	.002-.006	153-229	.002-.006	229-306	.002-.006	306-382	.002-.006	382-764	.002	764-2292	.002	UP
1 1/8	34	.0015-.004	34-51	.0015-.004	51-68	.0015-.005	68-136	.002-.006	136-204	.002-.006	204-272	.002-.006	272-340	.003	340-680	.002	680-2040	.002	UP
1 1/4	31	.0015-.004	31-46	.0015-.004	46-61	.0015-.005	61-122	.002-.006	122-183	.002-.006	183-244	.003	244-306	.003	306-612	.002	612-1836	.002	UP
1 3/8	28	.0015-.004	28-42	.0015-.004	42-55	.0015-.005	55-111	.002-.006	111-167	.003	167-222	.003	222-278	.003	278-556	.002	556-1668	.002	UP
1 1/2	26	.0015-.004	26-38	.0015-.004	38-51	.002	51-102	.003	102-153	.003	153-204	.003	204-255	.003	255-510	.003	510-1530	.002	UP
1 5/8	24	.002	35	.002	35-47	.002	47-94	.003	94-141	.003	141-188	.003	188-235	.003	235-470	.003	470-1410	.002	UP
1 3/4	22	.002	32	.002	32-43	.002	43-87	.003	87-131	.003	131-175	.003	175-218	.003	218-436	.003	436-1308	.002	UP
1 7/8	20	.002	30	.002	30-40	.003	40-81	.003	81-122	.003	122-163	.003	163-204	.003	204-408	.003	408-1224	.003	UP
2	19	.002	29	.003	29-38	.003	38-76	.003	76-115	.003	115-153	.003	153-191	.003	191-382	.003	382-1146	.003	UP
2 1/8	18	.003	28	.003	36	.003	36-72	.003	72-108	.003	108-144	.003	144-179	.003	179-358	.003	358-1074	.003	UP
2 1/4	17	.003	26	.003	34	.003	34-68	.003	68-102	.003	103-136	.003	136-170	.003	170-340	.003	340-1020	.003	UP
2 3/8	16	.003	25	.003	32	.003	32-64	.003	64-97	.003	97-128	.003	128-161	.003	161-322	.003	322-966	.003	UP
2 1/2	15	.003	23	.003	30	.003	30-61	.003	61-92	.003	92-122	.003	122-153	.003	153-306	.003	306-918	.003	UP
2 5/8	15	.003	22	.003	29	.003	29-58	.003	58-88	.003	88-116	.003	116-145	.003	145-290	.003	290-870	.003	UP
2 3/4	14	.003	21	.003	28	.003	28-56	.003	56-83	.003	83-111	.003	111-139	.003	139-278	.003	278-834	.003	UP
2 7/8	14	.003	20	.003	27	.003	27-53	.003	53-80	.003	80-106	.003	106-132	.003	132-264	.003	264-792	.003	UP
3	13	.003	19	.003	26	.003	26-51	.003	51-76	.003	76-102	.003	102-127	.003	127-154	.003	154-254	.003	UP

# GENERAL PURPOSE COBALT & HSS END MILLS

## 4 FLUTE • CENTER CUTTING METRIC/INCH END MILL



HSSCo  
M42



Bright  
TiCN

+0.015  
-0.000

Square



HRC  
<48



### SERIES: CCP

DIA	SHK	LOC	OAL	LENGTH	MAT	TOOL	BRIGHT EDP	TICN EDP
3mm	3/8	3/8	2-5/16	std	M42	CCP-12M3	11740	41740
3.5mm	3/8	7/16	2-5/16	std	M42	CCP-12M3.5	11741	41741
4mm	3/8	7/16	2-5/16	std	M42	CCP-12M4	11742	41742
4.5mm	3/8	7/16	2-5/16	std	M42	CCP-12M4.5	11743	41743
5mm	3/8	9/16	2-1/2	std	M42	CCP-12M5	11744	41744
5.5mm	3/8	5/8	2-1/2	std	M42	CCP-12M5.5	11745	41745
6mm	3/8	5/8	2-1/2	std	M42	CCP-12M6	11746	41746
6.5mm	3/8	11/16	2-1/2	std	M42	CCP-12M6.5	11747	41747
7mm	3/8	11/16	2-1/2	std	M42	CCP-12M7	11748	41748
7.5mm	3/8	3/4	2-1/2	std	M42	CCP-12M7.5	11749	41749
8mm	3/8	3/4	2-1/2	std	M42	CCP-12M8	11750	41750
8.5mm	3/8	3/4	2-1/2	std	M42	CCP-12M8.5	11751	41751
9mm	3/8	3/4	2-1/2	std	M42	CCP-12M9	11752	41752
9.5mm	3/8	3/4	2-1/2	std	M42	CCP-12M9.5	11753	41753
10mm	3/8	1	2-11/16	std	M42	CCP-12M10	11754	41754
10.5mm	3/8	1	2-11/16	std	M42	CCP-12M10.5	11755	41755
11mm	3/8	1	2-11/16	std	M42	CCP-12M11	11756	41756
11.5mm	3/8	1	2-11/16	std	M42	CCP-12M11.5	11757	41757
12mm	3/8	1	2-11/16	std	M42	CCP-12M12	11758	41758
12.5mm	1/2	1-1/4	3-1/4	std	M42	CCP-16M12.5	11759	41759
13mm	1/2	1-3/8	3-3/8	std	M42	CCP-16M13	11760	41760
13.5mm	1/2	1-3/8	3-3/8	std	M42	CCP-16M13.5	11761	41761
14mm	1/2	1-3/8	3-3/8	std	M42	CCP-16M14	11762	41762
14.5mm	1/2	1-3/8	3-3/8	std	M42	CCP-16M14.5	11763	41763
15mm	1/2	1-3/8	3-3/8	std	M42	CCP-16M15	11764	41764
16mm	5/8	1-5/8	3-3/4	std	M42	CCP-20M16	11766	41766
17mm	5/8	1-5/8	3-3/4	std	M42	CCP-20M17	11768	41768
18mm	5/8	1-5/8	3-3/4	std	M42	CCP-20M18	11770	41770
19mm	3/4	1-5/8	3-7/8	std	M42	CCP-24M19	11772	41772
20mm	3/4	1-7/8	4-1/8	std	M42	CCP-24M20	11774	41774
21mm	3/4	1-7/8	4-1/8	std	M42	CCP-24M21	11776	41776
22mm	3/4	1-7/8	4-1/8	std	M42	CCP-24M22	11778	41778
23mm	7/8	1-7/8	4-1/8	std	M42	CCP-28M23	11780	41780
24mm	1	2	4-1/2	std	M42	CCP-32M24	11782	41782
25mm	1	2	4-1/2	std	M42	CCP-32M25	11784	41784
28mm	1	2	4-1/2	std	M42	CCP-32M28	11786	41786
32mm	1	2	4-1/2	std	M42	CCP-32M32	11788	41788
35mm	1	2	4-1/2	std	M42	CCP-32M35	11790	41790
36mm	1	2	4-1/2	std	M42	CCP-32M36	11792	41792
40mm	1-1/4	2	4-1/2	std	M42	CCP-40M40	11794	41794
45mm	1-1/4	2	4-1/2	std	M42	CCP-40M45	11796	41796
50mm	1-1/4	2	4-1/2	std	M42	CCP-40M50	11798	41798