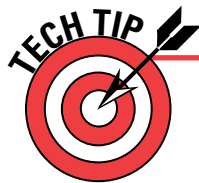


**Style HD-4C • HSS, Double End, 4-Flute, Center Cutting (continued)**  
 formerly style 582

Cutting Diameter	Decimal Equiv.	Metric Equiv.	Shank Diameter		Length of Cut		Overall Length		No. of Flutes	Bright	Order Number	
			in	mm	in	mm	in	mm			TiN	TiCN
3/4	.7500	19.05	.750	19.05	1.625	41.28	5.625	142.88	4	C41223	C33091	C33132
25/32	.7812	19.84	.875	22.23	1.875	47.63	6.125	155.58	4	C33053	C33092	–
13/16	.8125	20.64	.875	22.23	1.875	47.63	6.125	155.58	4	C33054	C33093	C33134
27/32	.8438	21.43	.875	22.23	1.875	47.63	6.125	155.58	4	C33055	C33094	C33135
7/8	.8750	22.23	.875	22.23	1.875	47.63	6.125	155.58	4	C41227	C33095	C33136
29/32	.9062	23.02	1.000	25.40	1.875	47.63	6.375	161.93	4	C33056	C33096	C33137
15/16	.9375	23.81	1.000	25.40	1.875	47.63	6.375	161.93	4	C33057	C33097	–
31/32	.9688	24.61	1.000	25.40	1.875	47.63	6.375	161.93	4	C33058	C33098	–
1	1.0000	25.40	1.000	25.40	1.875	47.63	6.375	161.93	4	C41231	C33099	C33140



**End Mill Finishes and Their Applications**

- Cleveland's cutting tools with TiN or TiCN coatings provide exceptional performance benefits. Coatings are matched with designs which are intended for aggressive material removal with significant increases in tool life and machining rates.
  - Coatings reduce heat and abrasion to increase tool life.
  - The increased lubricity of the coating surface reduces material adhesion and built-up edge, enabling even higher feed rates.
  - Coatings reduce the amount of torque required for machining to allow more efficient use of equipment.
  - Increase machining speeds to achieve optimum performance when using Cleveland coatings.
- Straw finish
  - bronze color
  - for general machining
  - operate at conventional cobalt speeds and heavier feed rates.
- TiN (titanium nitride) coating
  - gold color
  - intended for aggressive machining
  - increase machining speed 25% to 30% versus bright speeds
- TiCN (titanium carbonitride) coating
  - blue-gray color
  - for very aggressive machining of stainless steels and non-ferrous materials
  - extremely hard, wear resistant
  - increase machining speeds 35% to 50% versus bright speeds
- TiAlN (titanium aluminum nitride) coating
  - violet/blue-gray color
  - for aggressive machining of stainless steels, high alloy carbon steels, nickel-based high-temperature alloys, and titanium alloys
  - increase machining speeds 75% to 100% versus bright speeds.

# Single End Finishers

## Style HGC-4C • Cobalt, Single End, Multi-Flute, Center Cutting

formerly styles 556, 557, 558

### FEATURES

**ANSI SIZES** **M42 COBALT SUBSTRATE**

**GENERAL PURPOSE** **BRIGHT**

**4+ FLUTE CC** **TiN**

**30°** **TiCN**

### APPLICATIONS

**TITANIUM ALLOYS**  High red hardness for high heat conditions.

**NICKEL ALLOYS**

**COBALT ALLOYS**

**STAINLESS STEEL**  Heavy cross-section for high rigidity.



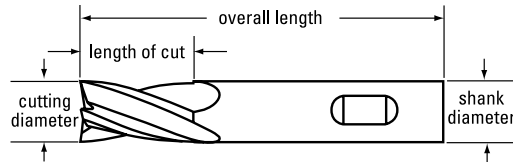
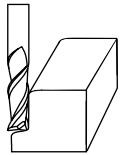
Style HGC-4C Bright



Style HGC-4C TiN-coated



Style HGC-4C TiCN-coated



Cutting Diameter	Decimal Equiv.	Metric Equiv.	Shank Diameter		Length of Cut		Overall Length		No. of Flutes	Order Number		
			in	mm	in	mm	in	mm		Bright	TiN	TiCN
1/8	.1250	3.18	.375	9.53	.375	9.53	2.313	58.74	4	C42684	C32574	C32610
5/32	.1562	3.97	.375	9.53	.500	12.70	2.375	60.33	4	C32556	C32575	C32611
11/64	.1719	4.37	.375	9.53	.500	12.70	2.375	60.33	4	C32557	C32576	C32612
3/16	.1875	4.76	.375	9.53	.500	12.70	2.375	60.33	4	C42686	C32577	C32613
13/64	.2031	5.16	.375	9.53	.625	15.88	2.438	61.91	4	C32558	C32578	C32614
7/32	.2188	5.56	.375	9.53	.625	15.88	2.438	61.91	4	C32559	C32579	C32615
15/64	.2344	5.95	.375	9.53	.625	15.88	2.438	61.91	4	C32560	C32580	C32616
1/4	.2500	6.35	.375	9.53	.625	15.88	2.438	61.91	4	C42689	C32581	C32617
1/4	.2500	6.35	.375	9.53	1.250	31.75	3.063	77.79	4	C32646	C32655	C32673
1/4	.2500	6.35	.375	9.53	1.750	44.45	3.563	90.49	4	C32691	C32700	C32718
17/64	.2656	6.75	.375	9.53	.750	19.05	2.500	63.50	4	C32561	C32582	C32618
9/32	.2812	7.14	.375	9.53	.750	19.05	2.500	63.50	4	C32562	C32583	C32619
9/32	.2812	7.14	.375	9.53	1.375	34.93	3.125	79.38	4	C32647	C32656	C32674
9/32	.2812	7.14	.375	9.53	2.000	50.80	3.250	82.55	4	C32692	C32701	C32719
19/64	.2969	7.54	.375	9.53	.750	19.05	2.500	63.50	4	C32563	C32584	C32620
5/16	.3125	7.94	.375	9.53	.750	19.05	2.500	63.50	4	C42691	C32585	C32621
5/16	.3125	7.94	.375	9.53	1.375	34.93	3.125	79.38	4	C32648	C32657	C32675
5/16	.3125	7.94	.375	9.53	2.000	50.80	3.250	82.55	4	C32693	C32702	C32720
21/64	.3281	8.33	.375	9.53	.750	19.05	2.500	63.50	4	C32564	C32586	C32622
11/32	.3438	8.73	.375	9.53	.750	19.05	2.500	63.50	4	C32565	C32587	C32623
11/32	.3438	8.73	.375	9.53	1.500	38.10	3.250	82.55	4	C32649	C32658	C32676
11/32	.3438	8.73	.375	9.53	2.500	63.50	4.250	107.95	4	C32694	C32703	C32721
23/64	.3594	9.13	.375	9.53	.750	19.05	2.500	63.50	4	C32566	C32588	C32624
3/8	.3750	9.53	.375	9.53	.750	19.05	2.500	63.50	4	C42694	C32589	C32625
3/8	.3750	9.53	.375	9.53	1.500	38.10	3.250	82.55	4	C42857	C32659	C32677
3/8	.3750	9.53	.375	9.53	2.500	63.50	4.250	107.95	4	C42913	C32704	C32722
25/64	.3906	9.92	.375	9.53	1.000	25.40	2.688	68.26	4	C32567	C32590	C32626
13/32	.4062	10.32	.375	9.53	1.000	25.40	2.688	68.26	4	C32568	C32591	C32627
13/32	.4062	10.32	.375	9.53	1.750	44.45	3.250	82.55	4	C32650	C32660	C32678
13/32	.4062	10.32	.375	9.53	2.750	69.85	4.500	114.30	4	C32695	C32705	C32723
27/64	.4219	10.72	.375	9.53	1.000	25.40	2.688	68.26	4	C32569	C32592	C32628

continued on next page

