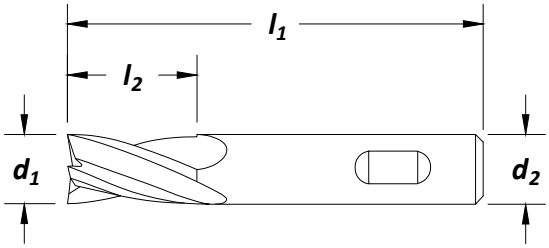
Style: HG-4C - Single End

ANSI SIZES | HSS | Multi Flute CC | Helix 30° | Square End

Surface Treatment: Bright | TiN | TiCN



Feature:
Heavy cross-section for high rigidity.

cutting diameter d_1	decimal equiv.	shank dia d_2 (in)	length of cut l_2 (in)	overall length l_1 (in)	no. of flutes	order number HG-4C Bright	TiN	TiCN
1/8	.1250	.375	.375	2.313	4	C41243	C41520	C33240
9/64	.1406	.375	.500	2.375	4	C33141	C33188	C33241
5/32	.1562	.375	.500	2.375	4	C33142	C33189	C33242
11/64	.1719	.375	.500	2.375	4	C33143	C33190	C33243
3/16	.1875	.375	.500	2.375	4	C41245	C41521	C33244
3/16	.1875	.375	1.250	3.063	4	C33371	C33384	C33406
3/16	.1875	.375	1.750	3.563	4	C33428	C33438	C33457
13/64	.2031	.375	.625	2.438	4	C33144	C33191	C33245
7/32	.2188	.375	.625	2.438	4	C33145	C33192	C33246
7/32	.2188	.375	1.250	3.063	4	C33372	C33385	C33407
7/32	.2188	.375	1.750	3.563	4	C33429	C33439	C33458
15/64	.2344	.375	.625	2.438	4	C33146	C33193	C33247
1/4	.2500	.375	.625	2.438	4	C41248	C41522	C33248
1/4	.2500	.375	1.250	3.063	4	C41326	C33386	C33408
1/4	.2500	.375	1.750	3.563	4	C41381	C33440	C33459
17/64	.2656	.375	.750	2.500	4	C33147	C33194	C33249
9/32	.2812	.375	.750	2.500	4	C33148	C33195	C33250
9/32	.2812	.375	1.375	3.125	4	C33373	C33387	C33409
9/32	.2812	.375	2.000	3.750	4	C33430	C33441	C33460
19/64	.2969	.375	.750	2.500	4	C33149	C33196	C33251
5/16	.3125	.375	.750	2.500	4	C41250	C41523	C33252
5/16	.3125	.375	1.375	3.125	4	C41328	C33388	C33410
5/16	.3125	.375	2.000	3.750	4	C41383	C33442	C33461
21/64	.3281	.375	.750	2.500	4	C33150	C33197	C33253
11/32	.3438	.375	.750	2.500	4	C33151	C33198	C33254
11/32	.3438	.375	1.500	3.250	4	C33374	C33389	C33411
11/32	.3438	.375	2.500	4.250	4	C33431	C33443	C33462
23/64	.3594	.375	.750	2.500	4	C33152	C33199	C33255
3/8	.3750	.375	.750	2.500	4	C41253	C41524	C33256
3/8	.3750	.375	1.500	3.250	4	C41331	C33390	C33412
3/8	.3750	.375	2.500	4.250	4	C41386	C33444	C33463
25/64	.3906	.375	1.000	2.688	4	C33153	C33200	C33257
13/32	.4062	.375	1.000	2.688	4	C33154	C33201	C33258
13/32	.4062	.375	2.750	4.500	4	C33432	C33445	C33464
13/32	.4062	.500	1.750	3.750	4	C33375	C33391	C33413

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Material Reference

	Steel (HRc)				Stainless Steel			Cast Iron (HRc)		Aluminum and Non-Ferrous	Hi-Temp Alloy		Hardened Steel (HRc)
	Low Carbon		Alloy		Austenitic	Martensitic	PH	Gray	Nodular		Ni, Co, Fe Based Super Alloy	Titanium	
Hardness	13-38	>38	16-38	> 38	300 Series	400 series		18-22	22-32				>45
TiN	✦		✦					✦					
TiCN	☆		☆					☆		✦			

☆ = Best Performance ✦ = Acceptable

Style: HG-4C - Single End (continued)

CLEVELAND

cutting diameter d_1	decimal equiv.	shank dia d_2 (in)	length of cut l_2 (in)	overall length l_1 (in)	no. of flutes	order number HG-4C Bright	HG-4C TiN	HG-4C TiCN
27/64	.4219	.375	1.000	2.688	4	C33155	C33202	C33259
7/16	.4375	.375	1.000	2.688	4	C41254	C33203	C33260
7/16	.4375	.375	2.750	4.500	4	C33433	C33446	C33465
7/16	.4375	.500	1.750	3.750	4	C33376	C33392	C33414
29/64	.4531	.500	1.250	3.250	4	C33157	C33204	C33261
15/32	.4688	.500	1.250	3.250	4	C33158	C33205	C33262
15/32	.4688	.500	2.000	4.000	4	C33377	C33393	C33415
15/32	.4688	.500	3.000	5.000	4	C33434	C33447	C33466
31/64	.4844	.500	1.250	3.250	4	C33159	C33206	C33263
1/2	.5000	.375	1.000	2.688	4	C33160	C33207	C33264
1/2	.5000	.500	1.250	3.250	4	C41257	C41525	C33265
1/2	.5000	.500	2.000	4.000	4	C41335	C33394	C33416
1/2	.5000	.500	3.000	5.000	4	C41390	C33448	C33467
17/32	.5312	.500	1.375	3.375	4	C33161	C33208	C33266
9/16	.5625	.500	1.375	3.375	4	C33162	C33209	C33267
19/32	.5938	.500	1.375	3.375	4	C33163	C33210	C33268
5/8	.6250	.500	1.375	3.375	4	C33164	C33211	C33269
5/8	.6250	.625	1.625	3.750	4	C41260	C41526	C33270
5/8	.6250	.625	2.500	4.625	4	C41338	C33395	C33417
5/8	.6250	.625	4.000	6.125	4	C41393	C33449	C33468
21/32	.6562	.625	1.625	3.750	4	C33165	C33212	C33271
11/16	.6875	.500	1.625	3.625	4	C33166	C33213	C33272
11/16	.6875	.625	1.625	3.750	4	C41262	C33214	C33273
23/32	.7188	.750	1.625	3.875	4	C33167	C33215	C33274
3/4	.7500	.500	.875	2.875	4	C75017	C75042	C75067
3/4	.7500	.500	1.625	3.625	4	C33168	C33216	C33275
3/4	.7500	.625	1.625	3.750	4	C33169	C33217	C33276
3/4	.7500	.750	1.625	3.875	4	C41264	C41527	C33277
3/4	.7500	.750	3.000	5.250	4	C41341	C33396	C33418
3/4	.7500	.750	4.000	6.250	4	C41396	C33450	C33469
25/32	.7812	.750	1.875	4.125	4	C33170	C33218	C33278
13/16	.8125	.625	1.875	4.000	4	C33171	C33219	C33279
13/16	.8125	.625	1.875	4.000	6	C75018	C75043	C75068
13/16	.8125	.750	1.875	4.125	4	C75019	C75044	C75069
7/8	.8750	.625	1.875	4.000	4	C33173	C33221	C33281
7/8	.8750	.625	1.875	4.000	6	C75020	C75045	C75070
7/8	.8750	.750	1.000	3.250	4	C75021	C75046	C75071
7/8	.8750	.750	1.875	4.125	4	C33174	C33222	C33282
7/8	.8750	.875	1.875	4.125	4	C41268	C33223	C33283
7/8	.8750	.875	3.500	5.750	4	C41345	C33397	C33419
7/8	.8750	.875	5.000	7.250	4	C41400	C33451	C33470
15/16	.9375	.750	1.875	4.125	4	C75022	C75047	C75072
15/16	.9375	.875	1.875	4.125	4	C33176	C33225	C33285
31/32	.9688	1.000	2.000	4.500	4	C33177	C33226	C33286
1	1.0000	.625	1.875	4.000	4	C33178	C33227	C33287
1	1.0000	.625	1.875	4.000	6	C75023	C75048	C75073
1	1.0000	.750	1.000	3.250	6	C75024	C75049	C75074
1	1.0000	.750	1.875	4.125	4	C33179	C33228	C33288
1	1.0000	.875	1.875	4.125	4	C33180	C33229	C33289
1	1.0000	1.000	2.000	4.500	4	C41272	C41528	C33290
1	1.0000	1.000	3.000	5.500	4	C75025	C75050	C75075
1	1.0000	1.000	4.000	6.500	4	C41349	C33398	C33420
1	1.0000	1.000	6.000	8.500	4	C41404	C33452	C33471
1-1/8	1.1250	.750	1.375	3.625	6	C75026	C75051	C75076
1-1/8	1.1250	.875	2.000	4.500	4	C33181	C33230	C33291

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Style: HG-4C - Single End (continued)

cutting diameter d_1	decimal equiv.	shank dia d_2 (in)	length of cut l_2 (in)	overall length l_1 (in)	no. of flutes	order number HG-4C Bright	TiN	TiCN
1-1/8	1.1250	1.000	2.000	4.500	4	C41275	C33231	C33292
1-1/8	1.1250	1.000	2.000	4.500	6	C75027	C75052	C75077
1-1/8	1.1250	1.000	4.000	6.500	4	C33378	C33399	C33421
1-1/8	1.1250	1.000	4.000	6.500	6	C75028	C75053	C75078
1-1/4	1.2500	.750	1.375	3.625	6	C75029	C75054	C75079
1-1/4	1.2500	.875	2.000	4.500	4	C33182	C33232	C33293
1 1/4	1.2500	.875	2.000	4.250	6	C75030	C75055	C75080
1-1/4	1.2500	1.000	2.000	4.500	4	C33183	C33233	C33294
1-1/4	1.2500	1.000	2.000	4.500	6	C75031	C75056	C75081
1-1/4	1.2500	1.000	4.000	6.500	4	C33379	C33400	C33422
1-1/4	1.2500	1.250	2.000	4.500	4	C41277	C33234	C33295
1-1/4	1.2500	1.250	2.000	4.500	6	C75032	C75057	C75082
1-1/4	1.1250	1.250	4.000	6.500	4	C41353	C33401	C33423
1-1/4	1.1250	1.250	4.000	6.500	6	C75033	C75058	C75083
1-1/4	1.2500	1.250	6.000	8.500	4	C41408	C33453	C33472
1-1/4	1.2500	1.250	6.000	8.500	6	C33435	C33454	C33473
1-3/8	1.3750	.750	1.375	3.625	6	C75034	C75059	C75084
1-3/8	1.3750	1.000	2.000	4.500	4	C33184	C33235	C33296
1-3/8	1.3750	1.000	2.000	4.500	6	C75035	C75060	C75085
1-1/2	1.5000	.750	1.375	3.625	6	C75036	C75061	C75086
1-1/2	1.5000	1.000	2.000	4.500	6	C33185	C33236	C33297
1-1/2	1.5000	1.000	4.000	6.500	4	C33380	C33402	C33424
1-1/2	1.5000	1.000	4.000	6.500	6	C75037	C75062	—
1-1/2	1.5000	1.250	2.000	4.500	4	C41283	C33237	C33298
1-1/2	1.5000	1.250	2.000	4.500	6	C75038	C75063	C75087
1-1/2	1.5000	1.250	4.000	6.500	4	C33381	C33403	C33425
1-1/2	1.5000	1.250	4.000	6.500	6	C75039	C75064	C75088
1-1/2	1.5000	1.250	8.000	10.500	4	C33436	C33455	C33474
1-1/2	1.5000	1.250	8.000	10.500	6	C33437	C33456	C33475
1-3/4	1.7500	.750	1.375	3.625	6	C75040	C75065	C75089
1-3/4	1.7500	1.250	2.000	4.500	6	C33186	C33238	C33299
1-3/4	1.7500	1.250	4.000	6.500	4	C33382	C33404	C33426
1-3/4	1.7500	1.250	4.000	6.500	6	C75041	C75066	C75090
2	2.0000	1.250	2.000	4.500	8	C33187	C33239	C33300

Tech Tip

Benefits of Multi Flute End Mills

- Generally, multi flute end mills give smoother finishes than 2 flute end mills.
- Increased number of flutes mean more cutting edges, providing more cutting action.

Material Reference

	Steel (HRc)				Stainless Steel			Cast Iron (HRc)		Aluminum and Non-Ferrous	Hi-Temp Alloy		Hardened Steel (HRc)
	Low Carbon		Alloy		Austenitic	Martensitic	PH	Gray	Nodular		Ni, Co, Fe Based Super Alloy	Titanium	
Hardness	13-38	>38	16-38	> 38	300 Series	400 series		18-22	22-32				>45
TiN	✦		✦					✦					
TiCN	☆		☆					☆		✦			

☆ = Best Performance ✦ = Acceptable