

# GENERAL PURPOSE

Solid Carbide Combination Drill And Countersink



INTRO

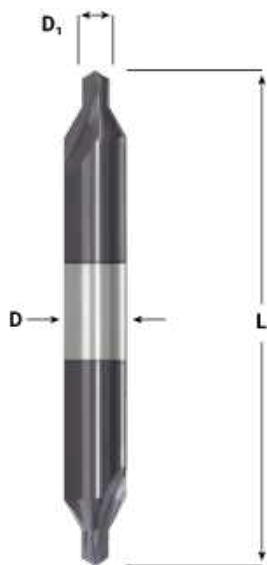
MILLING

SPECIALTY

HOLEMAKING

THREADING

INSERTS



FEATURES/DESCRIPTION	APPLICATION	FEATURES																																							
<b>Drill/Countersink</b> <ul style="list-style-type: none"> <li>Sub-micrograin carbide substrate for wear resistance</li> <li>Center drills</li> <li>Multipurpose tool: drill, chamfer, deburr and countersink</li> </ul>																																									
<table border="1"> <thead> <tr> <th colspan="3">STEEL</th> <th colspan="2">STAINLESS</th> <th colspan="2">CAST IRON</th> <th colspan="2">NON-FERROUS</th> <th colspan="2">HSSA</th> <th colspan="2">HARDENED STEEL</th> </tr> <tr> <th>P1</th> <th>P2</th> <th>P3</th> <th>M1</th> <th>M2</th> <th>K1</th> <th>K2</th> <th>N1</th> <th>N2</th> <th>S1</th> <th>S2</th> <th>H1</th> <th>H2</th> </tr> </thead> <tbody> <tr> <td>●</td> <td>●</td> <td>○</td> <td></td> <td></td> <td>●</td> <td>●</td> <td>○</td> <td>○</td> <td></td> <td></td> <td>○</td> <td></td> </tr> </tbody> </table>			STEEL			STAINLESS		CAST IRON		NON-FERROUS		HSSA		HARDENED STEEL		P1	P2	P3	M1	M2	K1	K2	N1	N2	S1	S2	H1	H2	●	●	○			●	●	○	○			○	
STEEL			STAINLESS		CAST IRON		NON-FERROUS		HSSA		HARDENED STEEL																														
P1	P2	P3	M1	M2	K1	K2	N1	N2	S1	S2	H1	H2																													
●	●	○			●	●	○	○			○																														

● Best ○ Good

**Series 300** 2FL | 60°, 82°, 90° | Combo

Pilot(D <sub>1</sub> ) Size	In	OAL(L)	Shank(D)	Incl. Angle	Bright	TiN	AlTiN
00	0.0265	1-1/2	1/8	60°	300-001001	300-001501	300-001001B
0	1/32	1-1/2	1/8		300-001002	300-001502	300-001002B
1	3/64	1-1/2	1/8		300-001003	300-001503	300-001003B
2	5/64	1-7/8	3/16		300-001004	300-001504	300-001004B
3	7/64	2	1/4		300-001005	300-001505	300-001005B
4	1/8	2-1/8	5/16		300-001006	300-001506	300-001006B
5	3/16	2-3/4	7/16		300-001007	300-001507	300-001007B
6	7/32	3	1/2		300-001008	300-001508	300-001008B
7	1/4	3-1/4	5/8		300-001009	300-001509	300-001009B
8	5/16	3-1/2	3/4	300-001010	300-001510	300-001010B	
00	0.0265	1-1/2	1/8	82°	300-002001	-	300-002001B
0	1/32	1-1/2	1/8		300-002002	-	300-002002B
1	3/64	1-1/2	1/8		300-002003	-	300-002003B
2	5/64	1-7/8	3/16		300-002004	-	300-002004B
3	7/64	2	1/4		300-002005	-	300-002005B
4	1/8	2-1/8	5/16		300-002006	-	300-002006B
5	3/16	2-3/4	7/16		300-002007	-	300-002007B
6	7/32	3	1/2		300-002008	-	300-002008B
7	1/4	3-1/4	5/8		300-002009	-	300-002009B
8	5/16	3-1/2	3/4	300-002010	-	300-002010B	
00	0.0265	1-1/2	1/8	90°	300-003001	-	300-003001B
0	1/32	1-1/2	1/8		300-003002	-	300-003002B
1	3/64	1-1/2	1/8		300-003003	-	300-003003B
2	5/64	1-7/8	3/16		300-003004	-	300-003004B
3	7/64	2	1/4		300-003005	-	300-003005B
4	1/8	2-1/8	5/16		300-003006	-	300-003006B
5	3/16	2-3/4	7/16		300-003007	-	300-003007B
6	7/32	3	1/2		300-003008	-	300-003008B
7	1/4	3-1/4	5/8		300-003009	-	300-003009B
8	5/16	3-1/2	3/4	300-003010	-	300-003010B	
1	3/64	4	1/8	60°	300-005001	300-005501	300-005001B
2	5/64	4	3/16		300-005002	300-005502	300-005002B
3	7/64	4	1/4		300-005003	300-005503	300-005003B
4	1/8	4	5/16		300-005004	300-005504	300-005004B
5	3/16	6	7/16		300-005005	300-005505	300-005005B
6	7/32	6	1/2		300-005006	300-005506	300-005006B
7	1/4	6	5/8		300-005007	300-005507	300-005007B
8	5/16	6	3/4		300-005008	300-005508	300-005008B
1	3/64	4	1/8	82°	300-006001	-	300-006001B
2	5/64	4	3/16		300-006002	-	300-006002B
3	7/64	4	1/4		300-006003	-	300-006003B
4	1/8	4	5/16		300-006004	-	300-006004B
5	3/16	6	7/16		300-006005	-	300-006005B
6	7/32	6	1/2		300-006006	-	300-006006B
7	1/4	6	5/8		300-006007	-	300-006007B
8	5/16	6	3/4		300-006008	-	300-006008B

\*bold numbers are EDPs for ordering

# GENERAL PURPOSE

Solid Carbide Combination Drill And Countersink



Series 300		2FL   60°, 82°, 90°   Combo					
Pilot(D <sub>1</sub> ) Size in	OAL(L)	Shank(D)	Incl. Angle	Bright	TiN	AlTiN	
1 3/64	4	1/8	90°	<b>300-007001</b>	-	<b>300-007001B</b>	
2 5/64	4	3/16		<b>300-007002</b>	-	<b>300-007002B</b>	
3 7/64	4	1/4		<b>300-007003</b>	-	<b>300-007003B</b>	
4 1/8	4	5/16		<b>300-007004</b>	-	<b>300-007004B</b>	
5 3/16	6	7/16		<b>300-007005</b>	-	<b>300-007005B</b>	
6 7/32	6	1/2		<b>300-007006</b>	-	<b>300-007006B</b>	
7 1/4	6	5/8		<b>300-007007</b>	-	<b>300-007007B</b>	
8 5/16	6	3/4		<b>300-007008</b>	-	<b>300-007008B</b>	

\*bold numbers are EDPs for ordering

INTRO

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INSERTS

## Popular Custom Holemaking Options

- Material-specific point geometry
- Longer flute lengths
- Internal coolant supply
- Proprietary GWS tool coatings

CUSTOM  
COMES  
STANDARD

**Series 4001**

Aperture | 4D | 2 FL | Solid

Material			Hardness	SFM	Inches Per Tooth (IPT)											
					Cutting Diameter											
					3/64	1/16	1/8	5/32	3/16	1/4	5/16	3/8	1/2	9/16	5/8	3/4
P	Steel	Free Machining & Low Carbon: 10XX, 11XX, 12XX, A36	≤ 28 Rc	SFM	405	400	390	380	370	360	350	340	320	300	275	265
				IPR	.001-.002	.002-.003	.003-.005	.004-.006	.005-.007	.0055-.0080	.006-.009	.007-.010	.008-.011	.009-.014	.010-.014	.011-.015
	Steel	Medium/High Carbon Steels, Alloy Steels: 13XX, 41XX, 43XX, 86XX	28-38 Rc	SFM	350	340	330	320	310	300	290	280	270	265	260	260
				IPR	.001-.002	.002-.003	.003-.005	.004-.006	.005-.007	.0055-.0080	.006-.009	.007-.010	.008-.011	.009-.014	.010-.014	.011-.015
	Die Steels	A2, H13, L6, P20, S7	28-44 Rc	SFM	210	200	200	190	190	185	185	180	180	175	175	170
				IPR	.0004-.0008	.0008-.0012	.0014-.0030	.0024-.0040	.003-.005	.0035-.0060	.006-.009	.007-.010	.008-.011	.009-.014	.010-.014	.011-.015
M	Stainless Steels	Easy to Machine, 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F	≤ 28 Rc	SFM	360	355	350	340	330	320	310	300	275	250	225	200
				IPR	.001-.002	.002-.003	.003-.005	.004-.006	.005-.007	.0055-.0080	.006-.009	.007-.010	.008-.011	.009-.014	.010-.014	.011-.015
	Stainless Steels	Moderately Difficult to Machine, Nitronic 50, Nitronic 60, 301, 303 304, 304L Incoloy 27-7Mo, 316 316L, 321, 347	≤ 28 Rc	SFM	150	145	140	135	130	125	120	115	110	105	100	95
				IPR	.001-.002	.002-.003	.003-.005	.004-.006	.005-.007	.0055-.0080	.006-.009	.007-.010	.008-.011	.009-.014	.010-.014	.011-.015
	Stainless Steels	Difficult to Machine, 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics	> 28 Rc	SFM	160	150	140	130	120	110	110	105	105	100	100	95
				IPR	.0004-.0012	.001-.002	.0020-.0033	.0024-.0035	.0030-.0043	.0031-.0050	.003-.006	.005-.009	.007-.009	.008-.010	.009-.011	.009-.013
S	Super Alloys	High Temp, Nimonics, Inconel, Monel, Hastelloy	≤ 42 Rc	SFM	100	90	85	80	75	70	65	60	55	50	45	40
				IPR	.0004-.0012	.001-.002	.0014-.0033	.0016-.0035	.002-.004	.0023-.0043	.003-.005	.004-.006	.005-.007	.005-.007	.006-.008	.006-.009
S	Super Alloys	Titanium: Ti 3Al-2.5V, Ti 6Al-4V Ti 10V-2Fe-3Al	≤ 42 Rc	SFM	150	140	130	125	120	115	110	105	100	100	90	90
				IPR	.0004-.0012	.001-.002	.003-.004	.004-.006	.005-.007	.0055-.0080	.006-.009	.007-.010	.008-.011	.008-.010	.010-.014	.011-.015
K	Cast Iron	Gray: SAE J431, ASTM A48	160-200 HB	SFM	500	490	480	470	460	430	410	400	390	370	360	350
				IPR	.001-.002	.002-.003	.003-.005	.004-.006	.005-.007	.0055-.0080	.006-.009	.007-.010	.008-.011	.009-.014	.010-.014	.011-.015
	Cast Iron	Ductile & Malleable, ASTM A536, ASTM 897, ASTM A47, ASTM A220	200-250 HB	SFM	300	290	280	270	260	250	240	230	220	210	200	190
				IPR	.001-.002	.002-.003	.003-.005	.004-.006	.005-.007	.0055-.0080	.006-.009	.007-.010	.008-.011	.009-.014	.010-.014	.011-.015

**Series 300, 400, 402**

2 FL | Spot Drill | Spade Drill | Combination Drill

Material				(IPR) Cutting Tool Diameter						
				1/32	1/16	1/8	1/4	3/8	1/2	
P	Steel	Free Machining & Low Carbon: 10XX, 11XX, 12XX, A36	≤ 28 Rc	175						
	Steel	Medium/High Carbon Steels, Alloy Steels: 13XX, 41XX, 43XX, 86XX	28-38 Rc	165						
	Die Steels	A2, H13, L6, P20, S7	28-44 Rc	150						
M	Stainless Steels	Easy to Machine, 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F	≤ 28 Rc	125						
	Stainless Steels	Moderately Difficult to Machine, Nitronic 50, 301, 303, 304, 304L, 316, 316L, 321, 347	≤ 28 Rc	60	0.0005	0.0010	0.0015	0.0030	0.0040	0.0050
S	Super Alloys	High Temp, Nimonics, Inconel, Monel, Hastelloy	≤ 42 Rc	40						
	Super Alloys	Titanium: Ti 3Al-2.5V, Ti 6Al-4V Ti 10V-2Fe-3Al	≤ 42 Rc	80						
H	Hardened Steels	-	35-45 Rc	50						
K	Cast Iron	Gray: SAE J431, ASTM A48	160-200 HB	275						
	Cast Iron	Ductile & Malleable, ASTM A536, ASTM 897, ASTM A47, ASTM A220	200-250 HB	175						

INTRO  
 MILLING  
 SPECIALTY  
 HOLEMAKING  
 THREADING  
 INSERTS