



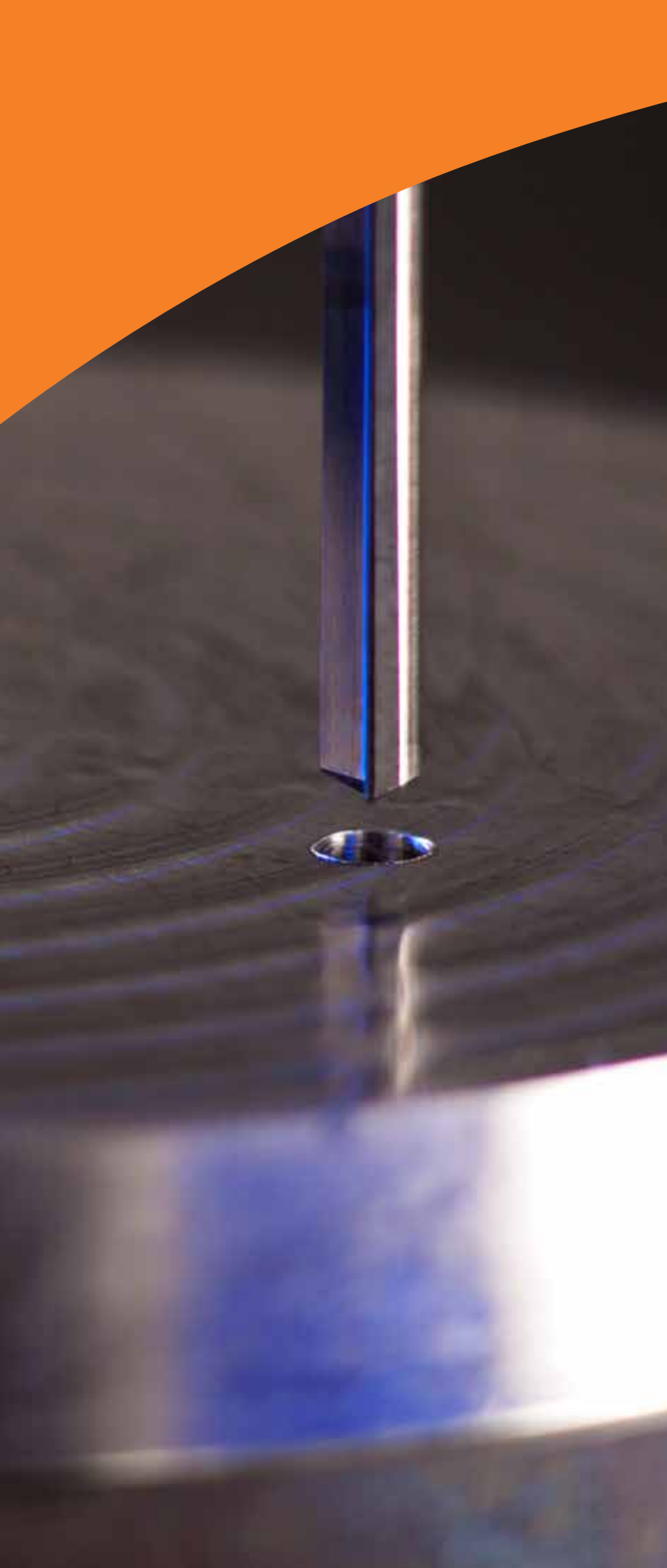
Power. Precision. Performance.

**PRODUCTIVITY  
IS THE  
HOLE IDEA.**

# DRILLS & REAMERS

**Turning hole technology  
into productivity.**





**Better productivity and a hole lot more.**

Whether you work in composites or stainless steels or anything in between, you can count on IMCO know-how to help get your parts per shift right where you want them. There's an IMCO self-centering drill and general-purpose reamer for virtually every need.



**Power. Precision. Performance.**

# CONTENTS:

## 4 Features: IMCO D Series Drills & R10 Reamers

IMCO makes drills and reamers with the same advanced technologies and hands-on knowledge that keep setting the productivity bar higher for every tool category.

### Twist Drills

#### 10 Solid Carbide Jobber/DIN Length Drills

Model D30 • 3-Flute • 150° Point For Low Carbon Steel, Alloy Steel, Cast Iron

#### 12 Solid Carbide Jobber-Length Drills/Sets

Model D20 • 2-Flute • 118° Point For Most General Purpose Drilling Applications

#### 16 Carbide-Tipped Jobber-Length Drills

Model DT20 • 2-Flute • 118° Point Carbide Tipped For General Purpose Applications

#### 18 Carbide-Tipped Taper-Length Drills

Model DT22 • 2-Flute • 118° Point Carbide Tipped For General Purpose Applications

#### 20 Solid Carbide Stub-Length Drills

Model D21 • 2-Flute • 118° Point • TiN For Most General Purpose Drilling Applications

#### 21 Carbide-Tipped Stub-Length Drills

Model DT21 • 2-Flute • 118° Point Carbide Tipped For General Purpose Applications

### Straight-Flute Drills

#### 22 Solid Carbide AccuHole Drills

Model D40 • 2-Flute • 140° Point For Accurate Holes in Hard Materials

#### 24 Carbide-Tipped Hard Metal Drills

Model DT40 • 2-Flute • 118° Point For Accurate Holes in Hard Materials

### Specialty Drills

#### 25 Solid Carbide Spade Drills

Model D10 Spade (Flat) Style • 2-Flute • 118° Point For Shallow Hole Drilling in Most Materials

#### 25 Solid Carbide Tap Drills/Sets

Model D11 Tap Removal Drill • 120° Point For Hard Metal Drilling and Tap Removal

#### 26 Solid Carbide Spotting and Centering Drills

Model D23 • 2-Flute • 90°/120° Points For Accurate Starting Holes in Most Materials

#### 27 Combined Drill/Countersink (Center Drill)

Model CD10 • Double End • 118° Drill Point • 60° Countersink

#### 28 Countersinks

Model CS10/CS30/CS60 • Single and Multi-Flute Styles • 60°/ 82°/ 90°

#### 30 Chamfer Tool

Model CT12 • Single End • 60°/ 90°/ 120° For Chamfering Edges of Hard Workpieces

### Reamers

#### 32 Straight-Flute Reamers

Model R10 • Chucking Style • Straight Flute For Most General Purpose Reaming Applications

#### 35 Made-to-Order Reamers

# DRILLS & REAMERS

## More than a hole. It's a hole technology.

Everything we put into our tools is maximized so you get the most out of them. IMCO makes drills and reamers with the same advanced technologies and hands-on knowledge that keep setting the productivity bar higher for every tool category.



D Series drill

Optimized geometries for maximum performance in most materials, from easily machined to hardened steels.

A variety of helical (twist) or straight flutes to do virtually any job.

An extensive range of drill diameters and lengths.

CNC manufactured by seasoned craftsmen to perform better and last longer.

4- and 6-flute designs for the spectrum of general-purpose reaming applications.

Stock designs in a wide array of diameters and lengths; made-to-order reamer orders welcome.

D Series drills have high-strength micrograin carbide core for longer life, more work per tool, regardless of high torsional stresses.

DT Series carbide-tipped drill ends are high-temperature brazed to hardened high-strength steel bodies for maximum performance and tool life.

D20, D11 drills available in convenient sets.



Reamer

# Tool Reference Chart

## MATERIALS

## TOOLS

		<b>N</b> Non-Ferrous	<b>K</b> Cast Iron	<b>P</b> Carbon & Tool Steels	<b>M</b> Stainless Steels	<b>H</b> Hardened Steel >48HRC	<b>S</b> Super Alloys
<b>D30</b> Solid Carbide Jobber/ DIN Lengths • 3-Flute drill • 150° Point			<b>XXX</b>	<b>XX</b>	<b>X</b>		<b>X</b>
<b>D20</b> Solid Carbide Jobber Length • 2-Flute • 118° Point		<b>XXX</b>	<b>X</b>	<b>XX</b>	<b>X</b>		
<b>DT20</b> Carbide Tipped Jobber Length • 2-Flute • 118° Point		<b>XXX</b>	<b>XX</b>	<b>X</b>		<b>X</b>	
<b>DT22</b> Carbide Tipped Taper Length • 2-Flute • 118° Point		<b>XXX</b>	<b>XX</b>	<b>X</b>		<b>X</b>	
<b>D21</b> Solid Carbide Stub Length • 2-Flute • 118° Point		<b>XXX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>X</b>	<b>X</b>
<b>DT21</b> Carbide Tipped Stub Length • 2-Flute • 118° Point		<b>XXX</b>	<b>XX</b>	<b>X</b>		<b>X</b>	
<b>D40</b> Solid Carbide Straight Flute • 2-Flute • 140° Point			<b>X</b>	<b>XX</b>	<b>X</b>	<b>XXX</b>	<b>XX</b>
<b>DT40</b> Carbide Tipped • 2-Flute • 118° Point			<b>X</b>	<b>X</b>		<b>XX</b>	<b>X</b>
<b>D10</b> Solid Carbide Spad (Flat) Style • 118° Point			<b>X</b>	<b>X</b>		<b>XX</b>	
<b>D23</b> Solid Carbide Spotting Drill • 2-Flute • 90° / 120° Points		<b>XX</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>		<b>XX</b>
<b>CD10</b> Solid Carbide Combined Drill and Countersink • Double End • 118° Point • 60° Countersink		<b>XX</b>	<b>X</b>	<b>XX</b>	<b>X</b>		<b>X</b>

KEY: **X** GOOD **XX** BETTER **XXX** BEST

# Solid Carbide Application Guide • Speed & Feed

ISO Class	Material	Drill Series Number	Speed (SFM)	Feed Rate (Inch Per Rev)						Speed (M/Min)	Feed Rate (MM per Rev)						
				< 1/16	>1/16 - 1/8	>1/8 - 1/4	>1/4 - 3/8	>3/8 - 1/2	>1/2 - 3/4		<1,5	>1,5 - 3,0	>3,0 - 6,0	>6,0 - 9,0	>9,0 - 12,0	>12,0 - 20,0	
N	Aluminum Alloys	D20	200-400	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	61-122	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048	
		D21	200-400	--	.002-.003	.003-.006	.006-.008	.008-.010	--	61-122	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
		D10	200-400	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	61-122	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
	Copper Alloys	D20	200-275	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	61-84	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048	
		D21	200-275	--	.002-.003	.003-.006	.006-.008	.008-.010	--	61-84	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
		D10	200-400	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	61-122	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
	Brass & Bronze	D20	200-275	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	61-84	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048	
		D21	200-275	--	.002-.003	.003-.006	.006-.008	.008-.010	--	61-84	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
		D10	200-400	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	61-122	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
	Composites, Plastics	D20	200-300	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	61-91	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048	
		D21	200-300	--	.002-.003	.003-.006	.006-.008	.008-.010	--	61-91	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
		D10	200-300	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	61-91	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
	Magnesium Alloys	D20	200-400	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	61-122	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048	
		D21	200-400	--	.002-.003	.003-.006	.006-.008	.008-.010	--	61-122	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
		D10	200-400	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	61-122	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
	K	Cast Iron - Gray	D30	300-400	.001-.0015	.0015-.003	.003-.006	.006-.009	.009-.012	.012-.017	91-122	.0254-.0381	.0381-.0762	.0762-.1524	.1524-.2286	.2286-.3048	.3048-.4318
			D40	200-275	.0006-.0012	.0012-.0024	.0016-.004	.004-.006	.006-.008	--	61-84	.0152-.0305	.0305-.0609	.0406-.1016	.1016-.1524	.1524-.2032	--
			D20	225-300	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	69-91	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048
D21			225-300	--	.002-.003	.003-.006	.006-.008	.008-.010	--	69-91	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
D10			225-300	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	69-91	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
Cast Iron - Ductile / Malleable		D30	200-275	.001-.0015	.0015-.003	.003-.006	.006-.009	.009-.012	.012-.017	61-84	.0254-.0381	.0381-.0762	.0762-.1524	.1524-.2286	.2286-.3048	.3048-.4318	
		D40	175-225	.0006-.0012	.0012-.0024	.0016-.004	.004-.006	.006-.008	--	53-69	.0152-.0305	.0305-.0609	.0406-.1016	.1016-.1524	.1524-.2032	--	
		D20	150-250	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	46-76	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048	
		D21	150-250	--	.002-.003	.003-.006	.006-.008	.008-.010	--	46-76	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
		D10	150-250	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	46-76	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
P	Low Carbon Steel <= 38 Rc 1018, 12L14, 8620	D30	250-400	.0005-.0012	.0012-.0025	.0025-.005	.005-.007	.007-.010	.010-.012	76-122	.0127-.0305	.0305-.0635	.0635-.1270	.1270-.1778	.1778-.2540	.2540-.3048	
		D20	100-175	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	30-53	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048	
		D21	100-175	--	.002-.003	.003-.006	.006-.008	.008-.010	--	30-53	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
		D40	100-175	.0003-.0005	.0005-.002	.002-.004	.004-.005	.005-.006	--	30-53	.0076-.0127	.0127-.0508	.0508-.1016	.1016-.1270	.1270-.1524	--	
		D10	100-175	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	30-53	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
	Medium Carbon Steels <=38 Rc 4140, 4340	D30	260-330	.0005-.0012	.0012-.0025	.0025-.005	.005-.007	.007-.010	.010-.012	79-100	.0127-.0305	.0305-.0635	.0635-.1270	.1270-.1778	.1778-.2540	.2540-.3048	
		D40	100-175	.0003-.0005	.0005-.002	.002-.004	.004-.005	.005-.006	--	30-53	.0076-.0127	.0127-.0508	.0508-.1016	.1016-.1270	.1270-.1524	--	
		D20	75-150	.0003-.001	.001-.0015	.0015-.003	.003-.004	.004-.006	.005-.006	23-46	.0076-.0254	.0254-.0381	.0381-.0762	.0762-.1016	.1016-.1524	.1270-.1524	
		D21	75-150	--	.001-.0015	.0015-.003	.003-.004	.004-.006	--	23-46	--	.0254-.0381	.0381-.0762	.0762-.1016	.1016-.1524	--	
		D10	100-175	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	30-53	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
	Martensitic Stainless Steel 416, 410, 440C	D20	80-180	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	.010-.012	24-53	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	.2540-.3048	
		D21	80-180	--	.002-.003	.003-.006	.006-.008	.008-.010	--	24-53	--	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
		D10	80-180	.0005-.002	.002-.003	.003-.006	.006-.008	.008-.010	--	24-53	.0127-.0508	.0508-.0762	.0762-.1524	.1524-.2032	.2032-.2540	--	
	H	Tool & Die Steels < 48 Rc	D30	200-300	.0004-.0007	.0007-.0015	.0015-.003	.003-.004	.004-.006	.006-.008	61-91	.0051-.0178	.0178-.0381	.0381-.0762	.0762-.1016	.1016-.1524	.1524-.2032
		A2, D2, H13, P20	D40	75-125	.0003-.0005	.0005-.002	.002-.004	.004-.005	.005-.006	--	23-37	.0076-.0127	.0127-.0508	.0508-.1016	.1016-.1270	.1270-.1524	--
Tool Steels > 48 Rc		D40	40-75	.0005-.0008	.0008-.001	.001-.0015	.0015-.002	.002-.003	--	12-23	.0076-.0203	.0203-.0254	.0254-.0381	.0381-.0508	.0508-.0762	--	
M	Austenitic Stainless Steels 303, 304, 316	D40	75-140	.0003-.0005	.0005-.001	.001-.002	.002-.003	.003-.004	--	23-42	.0076-.0127	.0127-.0254	.0254-.0508	.0508-.0762	.0762-.1016	--	
		D20	60-125	.0002-.0003	.0003-.0015	.0015-.003	.003-.0045	.0045-.006	.006-.009	18-37	.0051-.0076	.0076-.0381	.0381-.0762	.0762-.1143	.1143-.1524	.1524-.2286	
		D21	60-125	--	.0003-.0015	.0015-.003	.003-.0045	.0045-.006	--	18-37	--	.0076-.0381	.0381-.0762	.0762-.1143	.1143-.1524	--	
		D10	60-125	.0002-.0003	.0003-.0015	.0015-.003	.003-.0045	.0045-.006	--	18-37	.0051-.0076	.0076-.0381	.0381-.0762	.0762-.1143	.1143-.1524	--	
	Precipitation Hardening Stainless Steels	D40	50-100	.0005-.001	.001-.002	.002-.004	.004-.005	.005-.006	--	15-30	.0076-.0254	.0254-.0508	.0508-.1016	.1016-.1270	.1270-.1524	--	
S	17-4 PH, 15-5 PH, 13-8 PH	D30	100-165		.0007-.0015	.0015-.003	.003-.005	.005-.007	.007-.0010	30-50		.0178-.0381	.0381-.0762	.0762-.1270	.1270-.1778	.1778-.2540	
		D30	100-165	.0004-.0007	.0007-.0015	.0015-.003	.003-.005	.005-.007	.007-.0010	30-50		.0178-.0381	.0381-.0762	.0762-.1270	.1270-.1778	.1778-.2540	
	Titanium	D30	100-165	.0004-.0007	.0007-.0015	.0015-.003	.003-.005	.005-.007	.007-.0010	30-50		.0178-.0381	.0381-.0762	.0762-.1270	.1270-.1778	.1778-.2540	
		D40	50-100	.0005-.001	.001-.002	.002-.004	.004-.005	.005-.006	--	15-30	.0076-.0254	.0254-.0508	.0508-.1016	.1016-.1270	.1270-.1524	--	
	High Temp Alloys	D40	50-100	.0005-.001	.001-.002	.002-.004	.004-.005	.005-.006	--	15-30	.0076-.0254	.0254-.0508	.0508-.1016	.1016-.1270	.1270-.1524	--	
Halstallo, Waspalloy																	

## Carbide Tipped Application Guide • Speed & Feed

ISO Classification	Work Material	Speed (SFM)	Speed (SFM)					Speed (M/MIN)	Speed (M/MIN)					
			>1/16 - 1/8	>1/8 - 1/4	>1/4 - 3/8	>3/8 - 1/2	>1/2 - 3/4		>1,5 - 3,0	>3,0 - 6,0	>6,0 - 9,0	>9,0 - 12,0	>12,0 - 20,0	
<b>N</b>	Aluminum Alloys	DT20	150 - 350	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 107	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
		DT21	150 - 350	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 107	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
		DT22	150 - 350	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 107	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
	Copper Alloys	DT20	150 - 300	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 91	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
		DT21	150 - 300	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 91	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
		DT22	150 - 300	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 91	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
	Brass & Bronze	DT20	150 - 300	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 91	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
		DT21	150 - 300	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 91	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
	Composites, Plastics	DT20	100 - 200	--	.0015 - .003	.003 - .0045	.0045 - .006	.006 - .009	30 - 61	--	.0381 - .0762	.0762 - .1143	.1143 - .1524	.1524 - .2286
		DT21	100 - 200	--	.0015 - .003	.003 - .0045	.0045 - .006	.006 - .009	30 - 61	--	.0381 - .0762	.0762 - .1143	.1143 - .1524	.1524 - .2286
	Magnesium Alloys	DT20	150 - 350	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 107	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
		DT21	150 - 350	--	.002 - .004	.004 - .006	.006 - .008	.008 - .012	46 - 107	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
<b>K</b>	Cast Iron - Gray	DT20	150 - 300	--	.002 - .004	.004 - .006	.008 - .010	.008 - .012	46 - 91	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
		DT21	150 - 300	--	.002 - .004	.004 - .006	.008 - .010	.008 - .012	46 - 91	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
		DT22	150 - 300	--	.002 - .004	.004 - .006	.008 - .010	.008 - .012	46 - 91	--	.0508 - .1016	.1016 - .1524	.1524 - .2032	.2032 - .3048
	Cast Iron - Ductile / Malleable	DT20	150 - 250	--	.0018 - .0036	.0036 - .005	.005 - .0072	.0072 - .011	46 - 76	--	.0457 - .0914	.0914 - .1270	.1270 - .1828	.1828 - .2794
		DT21	150 - 250	--	.0018 - .0036	.0036 - .005	.005 - .0072	.0072 - .011	46 - 76	--	.0457 - .0914	.0914 - .1270	.1270 - .1828	.1828 - .2794
		DT22	150 - 250	--	.0018 - .0036	.0036 - .005	.005 - .0072	.0072 - .011	46 - 76	--	.0457 - .0914	.0914 - .1270	.1270 - .1828	.1828 - .2794
<b>H</b>	Tool & Die Steels < 48 Rc	DT40	60 - 125	.0004 - .0008	.0008 - .0016	.0016 - .0022	.0022 - .0036	.0036 - .0045	18 - 37	.0101 - .0203	.0203 - .0406	.0406 - .0558	.0558 - .0914	.0914 - .1143
	Tool Steels > 48 Rc	DT40	25 - 60	.0004 - .0008	.0008 - .0016	.0016 - .0022	.0022 - .0036	.0036 - .0045	8 - 18	.0101 - .0203	.0203 - .0406	.0406 - .0558	.0558 - .0914	.0914 - .1143
<b>S</b>	High Temp Alloys Hastalloy, Waspalloy	DT40	25 - 60	.0004 - .0008	.0008 - .0016	.0016 - .0022	.0022 - .0036	.0036 - .0045	8 - 18	.0101 - .0203	.0203 - .0406	.0406 - .0558	.0558 - .0914	.0914 - .1143

# TOOL TIP

## SOLID CARBIDE vs. CARBIDE TIPPED:

# Which is the Right Choice for You?

Solid carbide drills are often made to shorter specifications than their HSS and Co cousins. Solid carbide can also take more heat and deflects less in drilling operations. This combination of sturdier length, heat resistance and low deflection make solid carbide drills a great choice in most drilling applications.

Use carbide-tipped tools when drilling in deeper holes and when rigidity issues are a factor. Using carbide-tipped tools when large drill diameters are required can also reduce tool costs.



## MACHINING FORMULAS:

### Measuring performance.

The application charts in this brochure list speeds in terms of SFM and feeds in terms of IPR. But there are many ways to measure productivity. These are industry-standard formulas

Acronym	Means	Formula
<b>IPM</b>	Inches per minute	<b>IPM = IPR x RPM</b>
<b>IPR</b>	Inches (in feed) per revolution (of tool), all teeth combined	<b>IPR = IPT x number of teeth</b>
<b>IPT</b>	Inches (in feed) per tooth per revolution	
<b>RPM</b>	Revolutions per minute	<b>RPM = (SFM x 3.82) ÷ tool diameter</b>
<b>SFM</b>	Surface feet per minute	<b>SFM = RPM x .262 x tool diameter</b>

## PECK DEPTH:

### Peck drill like a pro.

Use this guide to set cutting depths for your next peck drill cycle:

Drill Type	Drill Dia.	Peck Depth
Straight fluted	All	25% of drill dia.
Spiral fluted	< ½ in.	50% of drill dia.
Spiral fluted	> ½ in.	25% of drill dia.



# PROFILE:

Application Support Team Leader

## Steve Avers

We talk a lot about getting results and providing solutions. And like everything else we talk about, we back it up with test results, facts and reactions from operators and shop owners like you.

Now, meet the guy who runs those tests in IMCO's on-site test lab – Steve Avers, Application Support Team Leader. When any customer – distributor, shop owner or operator – comes to us with a challenge, Steve draws on all IMCO's resources to find the solution. His role is answering your questions and helping customers determine the best tool choice and speeds and feeds for specific materials.

Sometimes Steve can provide answers on the spot, as when he recommended speeds and feeds for the Hardrocker Racing Team.



*Steve is a journeyman mold maker with CNC programmer and operator experience since 1993.*



*Steve checks the results of an experiment with a customer's tool to solve their chip evacuation problems.*

Other times it requires research in IMCO's onsite test lab. It's equipped to run most machining tasks, so IMCO can identify the solutions you need.

## Request a free tool test.

IMCO makes it easy to compare the tools you're using now with an IMCO tool designed to do the same job, only better..

**You can request a free test at 1-800-765-4626 or on our website at [imcousa.com](http://imcousa.com).**

Tests will be conducted at your site, with details determined on a case-by-case basis.



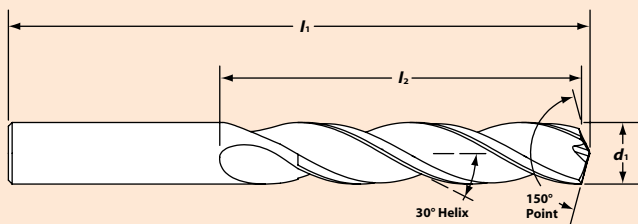
Get the productivity and profitability results you need. Call 1-800-765-4626 (419-661-6313 internationally) or email [savers@imcousa.com](mailto:savers@imcousa.com) to find out more.

# D30

## Solid Carbide Drills: Helical 3-Flutes



For superior hole roundness in cast irons, as well as carbon and tool steels, stainless steels, super alloys and titanium. Three flutes for higher cutting edge engagement, smaller chip load. Self-centering geometries for easy metal penetration, minimal deflection.



in  $d_1 +0.0 / -0.0005$

mm  $d_1 h7$

Maximum hole depth should not exceed 75% of the length of flute.

Note: Always use coolant and peck drilling to aid with chip evacuation.

### Model Code:

	Cutter Dia Inch $d_1$	Metric $d_1$	Decimal Equiv	Flute Length $l_2$	Overall Length $l_1$	Order Code
	3		.1181	16	46	40001
	3		.1181	31	57	44217
	3,1		.1220	18	49	40002
	3,1		.1220	31	57	44218
1/8			.1250	1-1/4	2-1/4	40003
	3,2		.1260	18	49	40004
	3,2		.1260	31	57	44219
	3,3		.1299	18	49	40006
	3,3		.1299	31	57	44221
	3,4		.1339	20	52	40007
	3,4		.1339	34	63	44222
#29			.1360	1-3/8	2-1/2	40008
	3,5		.1378	20	52	40009
	3,5		.1378	34	63	44223
9/64			.1406	1-3/8	2-1/2	40012
	3,6		.1417	20	52	40015
	3,6		.1417	34	63	44224
	3,7		.1457	20	52	40018
	3,7		.1457	34	63	44225
#25			.1495	1-3/8	2-1/2	40033
	3,8		.1496	22	55	40036
	3,8		.1496	34	63	44227
	3,9		.1535	22	55	40042
	3,9		.1535	34	63	44228
5/32			.1562	1-3/8	2-1/2	40048
	4		.1575	22	55	40054
	4		.1575	34	63	44229
#21			.1590	1-3/8	2-1/2	40057
#20			.1610	1-3/8	2-1/2	40060
	4,1		.1614	22	55	40063
	4,1		.1614	34	63	44230
	4,2		.1654	22	55	40066
	4,2		.1654	41	70	44231
#19			.1660	1-5/8	2-3/4	40072
11/64			.1719	1-5/8	2-3/4	40078
	4,4		.1732	24	58	40081
	4,4		.1732	41	70	44234
	4,5		.1772	24	58	40084
	4,5		.1772	41	70	44235
	4,6		.1811	24	58	40087
	4,6		.1811	41	70	44236
3/16			.1875	1-5/8	2-3/4	40090
	4,8		.1890	26	62	40093
	4,8		.1890	41	70	44239
	4,9		.1929	26	62	40099
	4,9		.1929	41	70	44240
	5		.1969	26	62	40102
	5		.1969	44	76	44241
	5,1		.2008	26	62	40105
	5,1		.2008	44	76	44242
13/64			.2031	1-3/4	3	40114
	5,2		.2047	26	62	40117
	5,2		.2047	44	76	44243
#3			.2130	1-3/4	3	40123
	5,5		.2165	28	66	40126

Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
	5,5	.2165	44	76	44247
7/32		.2188	1-3/4	3	40132
	5,6	.2205	28	66	40135
	5,6	.2205	44	76	44248
	5,8	.2283	28	66	40138
	5,8	.2283	44	76	44251
15/64		.2344	2	3-1/4	40141
	6	.2362	28	66	40144
	6	.2362	51	82	44253
	6,1	.2402	31	70	40147
	6,1	.2402	51	82	44254
	6,2	.2441	31	70	40150
	6,2	.2441	51	82	44255
1/4		.2500	2	3-1/4	40156
	6,4	.2520	31	70	40159
	6,4	.2520	51	82	44258
	6,5	.2559	31	70	40165
	6,5	.2559	51	82	44259
F		.2570	2	3-1/4	40167
	6,6	.2598	31	70	40168
	6,6	.2598	54	89	44260
17/64		.2656	2-1/8	3-1/2	40174
	6,8	.2677	34	74	40177
	6,8	.2677	54	89	44263
	6,9	.2717	34	74	40179
	6,9	.2717	54	89	44264
	7	.2756	34	74	40183
	7	.2756	54	89	44265
9/32		.2812	2-1/8	3-1/2	40186
	7,2	.2835	34	74	40189
	7,2	.2835	54	89	44267
	7,4	.2913	34	74	40195
	7,4	.2913	60	95	44270
	7,5	.2953	34	74	40197
	7,5	.2953	60	95	44271
19/64		.2969	2-3/8	3-3/4	40198
	7,6	.2992	37	79	40240
	7,6	.2992	60	95	44272
	7,8	.3071	37	79	40243
	7,8	.3071	60	95	44275
5/16		.3125	2-3/8	3-3/4	40246
	8	.3150	37	79	40249
	8	.3150	60	95	44277
	8,1	.3189	37	79	40252
	8,1	.3189	60	95	44278
	8,2	.3228	37	79	40255
	8,2	.3228	63	101	44279
21/64		.3281	2-1/2	4	40261
	8,4	.3307	37	79	40267
	8,4	.3307	63	101	44282
Q		.3320	2-1/2	4	40270
	8,5	.3346	37	79	40273
	8,5	.3346	63	101	44283
	8,6	.3386	40	84	40279
	8,6	.3386	63	101	44284

Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
11/32		.3438	2-1/2	4	40285
	8,8	.3465	40	84	40288
	8,8	.3465	63	101	44287
	9	.3543	40	84	40291
	9	.3543	70	108	44289
	9,1	.3583	40	84	40294
	9,1	.3583	70	108	44290
23/64		.3594	2-3/4	4-1/4	40297
	9,2	.3622	40	84	40300
	9,2	.3622	70	108	44291
	9,5	.3740	40	84	40306
	9,5	.3740	70	108	44295
3/8		.3750	2-3/4	4-1/4	40309
	9,6	.3780	43	89	40312
	9,6	.3780	70	108	44296
25/64		.3906	2-7/8	4-1/2	40324
	10	.3937	43	89	40327
	10	.3937	73	114	44301
	10,2	.4016	43	89	40333
	10,2	.4016	73	114	44303
13/32		.4062	2-7/8	4-1/2	40339
	10,4	.4094	43	89	40342
	10,4	.4094	73	114	44306
	10,5	.4134	43	89	40345
	10,5	.4134	73	114	44307
27/64		.4219	2-7/8	4-1/2	40354
	10,8	.4252	47	95	40357
	10,8	.4252	73	114	44311
	11	.4331	47	95	40360
	11	.4331	73	114	44313
7/16		.4375	2-7/8	4-1/2	40363
	11,5	.4528	47	95	40369
	11,5	.4528	76	120	44319
29/64		.4531	3	4-3/4	40372
	12	.4724	51	102	40378
	12	.4724	76	120	44325
	12,5	.4921	51	102	40381
	12,5	.4921	76	120	44331
1/2		.5000	3	4-3/4	40384
	13	.5118	51	102	40387
	13	.5118	82	127	44336
	13,5	.5315	54	107	40393
	13,5	.5315	82	127	44337
	14	.5512	54	107	40396
	14	.5512	82	127	44338
9/16		.5625	3-1/4	5	40399
	14,5	.5709	56	111	40402
	14,5	.5709	82	127	44339
	15	.5906	56	111	40405
	15	.5906	82	127	44340
	15,5	.6102	58	115	40408
	15,5	.6102	82	127	44341
5/8		.6250	3-1/4	5	40411
	16	.6299	58	115	40414
	16	.6299	82	127	44342

## SELF-CENTERING DRILLS:

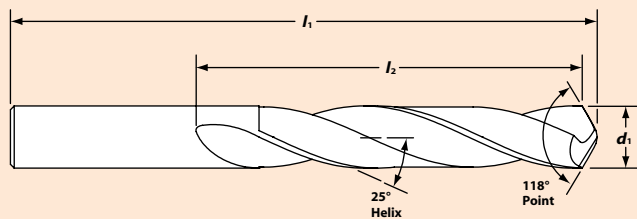
# Right On the Money

Using IMCO's self-centering drills can save both time and money. Self-centering drill points can eliminate the need to spot drill a starter hole – reducing the cycle time and the need for an additional tool. IMCO Series D20, D30 and D40 drills all have self-centering points.

## Solid Carbide Drills: Jobber-Length 2-Flutes



Excels in aluminum and non-ferrous materials. Stands up to high drilling temperatures and high torsional stresses. Optimized for abrasive and easily machined materials. High feed rates, good chip disposal in most applications.



in  $d_1 +0.0 / -0.0005$

mm  $d_1 h7$

Maximum hole depth should not exceed 75% of the length of flute.

Note: Always use coolant and peck drilling to aid with chip evacuation.

## Model Code: D20 Jobber Length

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
		1	.0394	19	38	40433
#60			.0400	3/4	1-1/2	40364
#59			.0410	3/4	1-1/2	40361
	1,05		.0413	19	38	40427
#58			.0420	3/4	1-1/2	40358
#57			.0430	3/4	1-1/2	40355
	1,1		.0433	19	38	40428
	1,15		.0453	19	38	40429
#56			.0465	3/4	1-1/2	40352
3/64			.0469	3/4	1-1/2	40016
	1,2		.0472	19	38	40430
	1,25		.0492	19	38	40432
	1,3		.0512	19	38	40435
#55			.0520	3/4	1-1/2	40349
	1,35		.0531	19	38	40436
#54			.0550	3/4	1-1/2	40346
	1,4		.0551	19	38	40437
	1,45		.0571	19	38	40438
	1,5		.0591	19	38	40442
#53			.0595	3/4	1-1/2	40343
	1,55		.0610	19	38	40439
1/16			.0625	3/4	1-1/2	40019
	1,6		.0630	19	38	40440
#52			.0635	3/4	1-1/2	40340
	1,65		.0650	19	38	40441
	1,7		.0669	19	38	40445
#51			.0670	3/4	1-1/2	40337
	1,75		.0689	19	38	40446
#50			.0700	7/8	1-3/4	40334
	1,8		.0709	22	44	40447
	1,85		.0728	22	44	40448
#49			.0730	7/8	1-3/4	40331
	1,9		.0748	22	44	40449
#48			.0760	7/8	1-3/4	40328
	1,95		.0768	22	44	40450
5/64			.0781	7/8	1-3/4	40022
#47			.0785	7/8	1-3/4	40325
	2		.0787	22	44	40451
	2,05		.0807	22	44	40455
#46			.0810	7/8	1-3/4	40322
#45			.0820	7/8	1-3/4	40319
	2,1		.0827	22	44	40456
	2,15		.0846	25	50	40457
#44			.0860	1	2	40316
	2,2		.0866	25	50	40458
	2,25		.0886	25	50	40459
#43			.0890	1	2	40313
	2,3		.0906	25	50	40462
	2,35		.0925	25	50	40463
#42			.0935	1	2	40310
3/32			.0938	1	2	40025
	2,4		.0945	25	50	40465
#41			.0960	1	2	40307
	2,45		.0965	25	50	40466
#40			.0980	1	2	40304
	2,5		.0984	25	50	40460

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
#39			.0995	1-1/4	2-1/4	40301
#38			.1015	1-1/4	2-1/4	40298
		2,6	.1024	31	57	40467
#37			.1040	1-1/4	2-1/4	40295
		2,7	.1063	31	57	40468
#36			.1065	1-1/4	2-1/4	40292
		2,75	.1083	31	57	40471
7/64			.1094	1-1/4	2-1/4	40028
#35			.1100	1-1/4	2-1/4	40289
		2,8	.1102	31	57	40475
#34			.1110	1-1/4	2-1/4	40286
#33			.1130	1-1/4	2-1/4	40283
		2,9	.1142	31	57	40476
#32			.1160	1-1/4	2-1/4	40280
		3	.1181	31	57	40469
#31			.1200	1-1/4	2-1/4	40277
		3,1	.1220	31	57	40477
1/8			.1250	1-1/4	2-1/4	40031
		3,2	.1260	31	57	40480
		3,25	.1280	31	57	40482
#30			.1285	1-1/4	2-1/4	40274
		3,3	.1299	31	57	40483
		3,4	.1339	34	63	40485
#29			.1360	1-3/8	2-1/2	40271
		3,5	.1378	34	63	40478
#28			.1405	1-3/8	2-1/2	40268
9/64			.1406	1-3/8	2-1/2	40034
		3,6	.1417	34	63	40486
#27			.1440	1-3/8	2-1/2	40265
		3,7	.1457	34	63	40489
#26			.1470	1-3/8	2-1/2	40262
		3,75	.1476	34	63	40490
#25			.1495	1-3/8	2-1/2	40259
		3,8	.1496	34	63	40491
#24			.1520	1-3/8	2-1/2	40256
		3,9	.1535	34	63	40492
#23			.1540	1-3/8	2-1/2	40253
5/32			.1562	1-3/8	2-1/2	40037
#22			.1570	1-3/8	2-1/2	40250
		4	.1575	34	63	40487
#21			.1590	1-3/8	2-1/2	40247
#20			.1610	1-3/8	2-1/2	40244
		4,1	.1614	34	63	40493
		4,2	.1654	41	70	40494
#19			.1660	1-5/8	2-3/4	40241
		4,25	.1673	41	70	40495
		4,3	.1693	41	70	40498
#18			.1695	1-5/8	2-3/4	40238
11/64			.1719	1-5/8	2-3/4	40040
#17			.1730	1-5/8	2-3/4	40235
		4,4	.1732	41	70	40499
#16			.1770	1-5/8	2-3/4	40232
		4,5	.1772	41	70	40496
#15			.1800	1-5/8	2-3/4	40229
		4,6	.1811	41	70	40500

continued on next page

**Model Code: D20** *continued*

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
#14			.1820	1-5/8	2-3/4	40226
	4,7		.1850	41	70	40501
#13			.1850	1-5/8	2-3/4	40223
	4,75		.1870	41	70	40502
3/16			.1875	1-5/8	2-3/4	40043
	4,8		.1890	41	70	40503
#12			.1890	1-5/8	2-3/4	40220
#11			.1910	1-5/8	2-3/4	40217
	4,9		.1929	41	70	40504
#10			.1935	1-5/8	2-3/4	40214
#9			.1960	1-3/4	3	40211
	5		.1969	44	76	40505
#8			.1990	1-3/4	3	40208
	5,1		.2008	44	76	40507
#7			.2010	1-3/4	3	40205
13/64			.2031	1-3/4	3	40046
#6			.2040	1-3/4	3	40202
	5,2		.2047	44	76	40508
#5			.2055	1-3/4	3	40199
	5,25		.2067	44	76	40509
	5,3		.2087	44	76	40510
#4			.2090	1-3/4	3	40196
	5,4		.2126	44	76	40512
#3			.2130	1-3/4	3	40193
	5,5		.2165	44	76	40514
7/32			.2188	1-3/4	3	40049
	5,6		.2205	44	76	40513
#2			.2210	1-3/4	3	40190
	5,7		.2244	44	76	40515
	5,75		.2264	44	76	40516
#1			.2280	1-3/4	3	40187
	5,8		.2283	44	76	40517
	5,9		.2323	51	82	40518
A			.2340	2	3-1/4	40109
15/64			.2344	2	3-1/4	40052
	6		.2362	51	82	40523
B			.2380	2	3-1/4	40112
	6,1		.2402	51	82	40519
C			.2420	2	3-1/4	40115
	6,2		.2441	51	82	40520
D			.2460	2	3-1/4	40118
	6,25		.2461	51	82	40522
	6,3		.2480	51	82	40525
1/4			.2500	2	3-1/4	40055
	6,4		.2520	51	82	91840
	6,5		.2559	51	82	40532
F			.2570	2	3-1/4	40124
	6,6		.2598	54	89	40526
G			.2610	2-1/8	3-1/2	40127
	6,7		.2638	54	89	40527
17/64			.2656	2-1/8	3-1/2	40058
	6,75		.2657	54	89	40528
H			.2660	2-1/8	3-1/2	40130

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
		6,8	.2677	54	89	40529
		6,9	.2717	54	89	40530
I			.2720	2-1/8	3-1/2	40133
	7		.2756	54	89	40541
J			.2770	2-1/8	3-1/2	40136
	7,1		.2795	54	89	40535
K			.2810	2-1/8	3-1/2	40139
9/32			.2812	2-1/8	3-1/2	40061
	7,2		.2835	54	89	40536
	7,25		.2854	54	89	40537
	7,3		.2874	54	89	40538
L			.2900	2-1/8	3-1/2	40142
	7,4		.2913	60	95	40539
M			.2950	2-3/8	3-3/4	40145
	7,5		.2953	60	95	40550
19/64			.2969	2-3/8	3-3/4	40064
	7,6		.2992	60	95	40540
N			.3020	2-3/8	3-3/4	40148
	7,7		.3031	60	95	40543
	7,75		.3051	60	95	40545
	7,8		.3071	60	95	40546
	7,9		.3110	60	95	40547
5/16			.3125	2-3/8	3-3/4	40067
	8		.3150	60	95	40559
O			.3160	2-3/8	3-3/4	40151
	8,1		.3189	60	95	40548
	8,2		.3228	60	95	40549
P			.3230	2-3/8	3-3/4	40154
	8,25		.3248	63	101	40555
	8,3		.3268	63	101	40556
21/64			.3281	2-1/2	4	40070
	8,4		.3307	63	101	40557
Q			.3320	2-1/2	4	40157
	8,5		.3346	63	101	40568
	8,6		.3386	63	101	40558
R			.3390	2-1/2	4	40160
	8,7		.3425	63	101	40565
11/32			.3438	2-1/2	4	40073
	8,75		.3445	63	101	40566
	8,8		.3465	63	101	40567
S			.3480	2-1/2	4	40163
	8,9		.3504	63	101	40570
	9		.3543	70	108	40577
T			.3580	2-3/4	4-1/4	40166
	9,1		.3583	70	108	40575
23/64			.3594	2-3/4	4-1/4	40076
	9,2		.3622	70	108	40576
	9,25		.3642	70	108	40579
	9,3		.3661	70	108	40580
U			.3680	2-3/4	4-1/4	40169
	9,4		.3701	70	108	40582
	9,5		.3740	70	108	40586
3/8			.3750	2-3/4	4-1/4	40079

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
V			.3770	2-3/4	4-1/4	40172
	9,6		.3780	70	108	40583
	9,7		.3819	70	108	40585
	9,75		.3839	70	108	40588
	9,8		.3858	70	108	40589
W			.3860	2-7/8	4-1/2	40175
	9,9		.3898	73	114	40590
25/64			.3906	2-7/8	4-1/2	40082
	10		.3937	73	114	40595
X			.3970	2-7/8	4-1/2	40178
	10,1		.3976	73	114	40591
	10,2		.4016	73	114	40592
	10,25		.4035	73	114	40593
Y			.4040	2-7/8	4-1/2	40181
	10,3		.4055	73	114	40594
13/32			.4062	2-7/8	4-1/2	40085
	10,4		.4094	73	114	40597
Z			.4130	2-7/8	4-1/2	40184
	10,5		.4134	73	114	40598
	10,6		.4173	73	114	40599
	10,7		.4213	73	114	40600
27/64			.4219	2-7/8	4-1/2	40088
	10,75		.4232	73	114	40601
	10,8		.4252	73	114	40602
	10,9		.4291	73	114	40603
	11		.4331	73	114	40604
	11,1		.4370	73	114	40606
7/16			.4375	2-7/8	4-1/2	40091
	11,2		.4409	76	120	40607
	11,25		.4429	76	120	40608
	11,3		.4449	76	120	40609
	11,4		.4488	76	120	40610
	11,5		.4528	76	120	40612
29/64			.4531	3	4-3/4	40094
	11,6		.4567	76	120	40615
	11,7		.4606	76	120	40616
	11,75		.4626	76	120	40617
	11,8		.4646	76	120	40618

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
		11,9	.4685	76	120	40619
15/32			.4688	3	4-3/4	40097
		12	.4724	76	120	40613
		12,1	.4764	76	120	40620
		12,2	.4803	76	120	40625
		12,25	.4823	76	120	40626
		12,3	.4843	76	120	40627
31/64			.4844	3	4-3/4	40100
		12,4	.4882	76	120	40628
		12,5	.4921	76	120	40629
		12,6	.4961	76	120	40630
		12,7	.5000	76	120	40632
1/2			.5000	3	4-3/4	40103
		13	.5118	82	127	40633
17/32			.5312	3-1/4	5	97346
		13,5	.5315	82	127	40635
		14	.5512	82	127	40636
9/16			.5625	3-1/4	5	40106
		14,5	.5709	82	127	40637
		15	.5906	82	127	40638
19/32			.5937	3-1/4	5	97943
		15,5	.6102	82	127	40639
5/8			.6250	3-1/4	5	40107
		16	.6299	82	127	40640
		16,5	.6496	89	140	40642
21/32			.6562	3-1/2	5-1/2	40787
		17	.6693	89	140	40643
11/16			.6875	3-1/2	5-1/2	40645
		17,5	.6890	89	140	40646
		18	.7087	89	140	40647
23/32			.7187	3-1/2	5-1/2	40788
		18,5	.7283	89	140	40648
		19	.7480	95	152	40649
3/4			.7500	3-3/4	6	40108
		19,5	.7677	95	152	40719
25/32			.7812	3-3/4	6	40725
		20	.7874	95	152	40786

## D20 Sets



Set Code	Set Contents	EDP Number
DS-1	13 pieces 1/16 to 1/4 by 64ths	41590
DS-2	29 pieces 1/16 to 1/2 by 64ths	41591

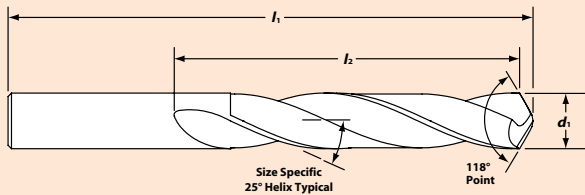
# DT20

## Carbide-Tipped: Jobber-Length 2-Flutes



Designed for production drilling of cast iron, non-ferrous metals, composites, plastics and other nonmetals.

- Hardened high-strength steel body.
- Carbide tips high-temperature brazed for economical tools and long life.
- Cam-relieved point with high-strength edge.



in  $d_1 \leq 1/4 +0.0/-0.0007 >1/4 +0.0/-0.0010$     mm  $d_1 \leq 6,35 +0.0/-0,018 >6,35 +0.0 /-0,025$

Maximum hole depth should not exceed 75% of the length of flute.

Note: Always use coolant and peck drilling to aid with chip evacuation.

## Model Code: DT20 Jobber Length

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
#32			.1160	1-5/8	2-3/4	40898
	3		.1181	41	70	41901
#31			.1200	1-5/8	2-3/4	40897
1/8			.1250	1-5/8	2-3/4	40801
#30			.1285	1-5/8	2-3/4	40896
#29			.1360	2	3-1/8	40895
	3,5		.1378	44	73	41906
#28			.1405	2	3-1/8	40894
9/64			.1406	2	3-1/8	40802
#27			.1440	2	3-1/8	40893
#26			.1470	2	3-1/8	40892
#25			.1495	2	3-1/8	40891
#24			.1520	2	3-1/8	40890
#23			.1540	2	3-1/8	40889
5/32			.1562	2	3-1/8	40803
#22			.1570	2	3-1/8	40888
	4		.1575	54	83	41911
#21			.1590	2	3-1/8	40887
#20			.1610	2-5/16	3-1/2	40886
#19			.1660	2-5/16	3-1/2	40885
#18			.1695	2-5/16	3-1/2	40884
11/64			.1719	2-5/16	3-1/2	40804
#17			.1730	2-5/16	3-1/2	40883
#16			.1770	2-5/16	3-1/2	40882
	4,5		.1772	56	86	41916
#15			.1800	2-5/16	3-1/2	40881
#14			.1820	2-5/16	3-1/2	40880
#13			.1850	2-5/16	3-1/2	40879
3/16			.1875	2-5/16	3-1/2	40805
#12			.1890	2-5/16	3-1/2	40878
#11			.1910	2-5/16	3-1/2	40877
#10			.1935	2-1/2	3-3/4	40876
#9			.1960	2-1/2	3-3/4	40875
	5		.1969	62	92	41919
#8			.1990	2-1/2	3-3/4	40874
#7			.2010	2-1/2	3-3/4	40873
13/64			.2031	2-1/2	3-3/4	40806
#6			.2040	2-1/2	3-3/4	40872
#5			.2055	2-1/2	3-3/4	40871
#4			.2090	2-1/2	3-3/4	40870
#3			.2130	2-1/2	3-3/4	40869
	5,5		.2165	64	95	41924
7/32			.2188	2-1/2	3-3/4	40807
#2			.2210	2-1/2	3-3/4	40868
#1			.2280	2-3/4	4	40867
A			.2340	2-3/4	4	40841
15/64			.2344	2-3/4	4	40808
	6		.2362	70	102	41929
B			.2380	2-3/4	4	40842
C			.2420	2-3/4	4	40843
D			.2460	2-3/4	4	40844
1/4			.2500	2-3/4	4	40809
	6,5		.2559	73	105	41934
F			.2570	2-15/16	4-1/4	40846
G			.2610	2-15/16	4-1/4	40847
17/64			.2656	2-15/16	4-1/4	40810



# TOOL TIP

Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
H		.2660	2-15/16	4-1/4	40848
I		.2720	2-15/16	4-1/4	40849
	7	.2756	73	105	41939
J		.2770	2-15/16	4-1/4	40850
K		.2810	2-15/16	4-1/4	40851
9/32		.2812	2-15/16	4-1/4	40811
L		.2900	3-3/16	4-1/2	40852
M		.2950	3-3/16	4-1/2	40853
	7,5	.2953	78	111	41944
19/64		.2969	3-3/16	4-1/2	40812
N		.3020	3-3/16	4-1/2	40854
5/16		.3125	3-3/16	4-1/2	40813
	8	.3150	81	114	41949
O		.3160	3-3/16	4-1/2	40855
P		.3230	3-7/16	4-3/4	40856
21/64		.3281	3-7/16	4-3/4	40814
Q		.3320	3-7/16	4-3/4	40857
	8,5	.3346	87	121	41954
R		.3390	3-7/16	4-3/4	40858
11/32		.3438	3-7/16	4-3/4	40815
S		.3480	3-5/8	5	40859
	9	.3543	89	124	41959
T		.3580	3-5/8	5	40860
23/64		.3594	3-5/8	5	40816
U		.3680	3-5/8	5	40861
	9,5	.3740	92	127	41964
3/8		.3750	3-5/8	5	40817
V		.3770	3-5/8	5	40862
W		.3860	3-7/8	5-1/4	40863
25/64		.3906	3-7/8	5-1/4	40818
	10	.3937	95	130	41969
X		.3970	3-7/8	5-1/4	40864
Y		.4040	3-7/8	5-1/4	40865
13/32		.4062	3-7/8	5-1/4	40819
Z		.4130	4-1/16	5-1/2	40866
	10,5	.4134	98	133	41974
27/64		.4219	4-1/16	5-1/2	40820
	11	.4331	103	140	41979
7/16		.4375	4-1/16	5-1/2	40821
	11,5	.4528	106	143	41984
29/64		.4531	4-5/16	5-3/4	40822
15/32		.4688	4-5/16	5-3/4	40823
	12	.4724	111	149	41989
31/64		.4844	4-1/2	6	40824
	12,5	.4921	114	152	41994
1/2		.5000	4-1/2	6	40825

## NEED SOMETHING DIFFERENT? We Can Do That!

When you can't find just the right tool as an off the shelf item, call your IMCO Rep. We can help by modifying an existing tool to provide the solution you need for better productivity and a hole lot more!

Common mods:

- Add a tang to a shank
- Change a drill point angle
- Add a chipbreaker to a drill point
- Change a reamer chamfer
- Add a drill point to an end mill
- Add a coating to a drill or reamer

IMCO also makes different types of custom drill/reamer (reamer) combinations and special dagger drills used in aerospace applications. Call IMCO today for a quote.



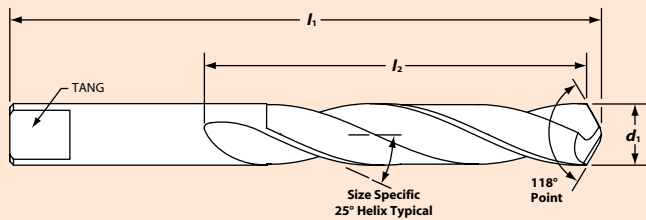
# DT22

## Carbide-Tipped: Taper-Length 2-Flutes



Designed with a longer flute length than jobber-length drills for drilling deeper holes faster. Best applications include production drilling in cast iron, non-ferrous metals, composites, plastics and other nonmetals.

- Hardened high-strength steel body.
- Carbide tips high-temperature brazed for economical tools and long life.
- Cam-relieved point with high-strength edge.
- Tanged shank allows faster deep drilling.



**in**  $d_1 \leq 1/4 +0.0/-0.0010 >1/4 +0.0/-0.0015$      **mm**  $d_1 \leq 6,35 +0.0/-0,0254 >6,35 +0.0/-0,0381$

Maximum hole depth should not exceed 75% of the length of flute.

Note: Always use coolant and peck drilling to aid with chip evacuation.

### Model Code: DT22 Tapper Length

Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length I2	Overall Length I1	Order Code
1/8		.1250	2-3/4	5-1/8	40910
9/64		.1406	3	5-3/8	40911
5/32		.1562	3	5-3/8	40912
11/64		.1719	3-3/8	5-3/4	40913
3/16		.1875	3-3/8	5-3/4	40914
	5	.1969	92	152	41240
13/64		.2031	3-5/8	6	40915
	5,5	.2165	92	152	41242
7/32		.2188	3-5/8	6	40916
15/64		.2344	3-3/4	6-1/8	40917
	6	.2362	95	156	41244
1/4		.2500	3-3/4	6-1/8	40918
	6,5	.2559	98	159	41246
17/64		.2656	3-7/8	6-1/4	40919
	7	.2756	98	159	41248
9/32		.2812	3-7/8	6-1/4	40920
	7,5	.2953	102	162	41250
19/64		.2969	4	6-3/8	40921
5/16		.3125	4	6-3/8	40922
	8	.3150	105	165	41252
21/64		.3281	4-1/8	6-1/2	40923
	8,5	.3346	105	165	41254
11/32		.3438	4-1/8	6-1/2	40924
	9	.3543	108	171	41256
23/64		.3594	4-1/4	6-3/4	40925
	9,5	.3740	108	181	41258
3/8		.3750	4-1/4	6-3/4	40926
25/64		.3906	4-3/8	7	40927
	10	.3937	111	178	41260
13/32		.4062	4-3/8	7	40928
	10,5	.4134	117	184	41262
27/64		.4219	4-5/8	7-1/4	40929
	11	.4331	117	184	41264
7/16		.4375	4-5/8	7-1/4	40930
	11,5	.4528	121	190	41266
29/64		.4531	4-3/4	7-1/2	40931
15/32		.4688	4-3/4	7-1/2	40932
	12	.4724	121	197	41268
31/64		.4844	4-3/4	7-3/4	40933
	12,5	.4921	121	197	41270
1/2		.5000	4-3/4	7-3/4	40934
	13	.5118	121	203	41272
33/64		.5156	4-3/4	8	40935
17/32		.5312	4-3/4	8	40936
	13,5	.5315	121	203	41274
35/64		.5469	4-7/8	8-1/4	40937
	14	.5512	124	210	41276
9/16		.5625	4-7/8	8-1/4	40938
	14,5	.5709	124	222	41278
37/64		.5781	4-7/8	8-3/4	40939
	15	.5906	124	222	41280
19/32		.5937	4-7/8	8-3/4	40940
39/64		.6094	4-7/8	8-3/4	40941
	15,5	.6102	124	222	41282

## Model Code: DT22 Jobber Length

Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
5/8		.6250	4-7/8	8-3/4	40942
	16	.6299	130	229	41284
41/64		.6406	5-1/8	9	40943
	16,5	.6496	130	229	41286
21/32		.6562	5-1/8	9	40944
	17	.6693	137	235	41288
43/64		.6719	5-3/8	9-1/4	40945
11/16		.6875	5-3/8	9-1/4	40946
	17,5	.6890	143	241	41290
45/64		.7031	5-5/8	9-1/2	40947
	18	.7087	143	241	41292
23/32		.7187	5-5/8	9-1/2	40948
	18,5	.7283	149	248	41294
47/64		.7344	5-7/8	9-3/4	40949
	19	.7480	149	248	41296
3/4		.7500	5-7/8	9-3/4	40950
13/16		.8125	6-1/8	10	40954
7/8		.8750	6-1/8	10	40958
15/16		.9375	6-1/8	10-3/4	40962
1		1.0000	6-3/8	11	40966

# TOOL TIP

## PROBLEM:

# Bird-Nesting

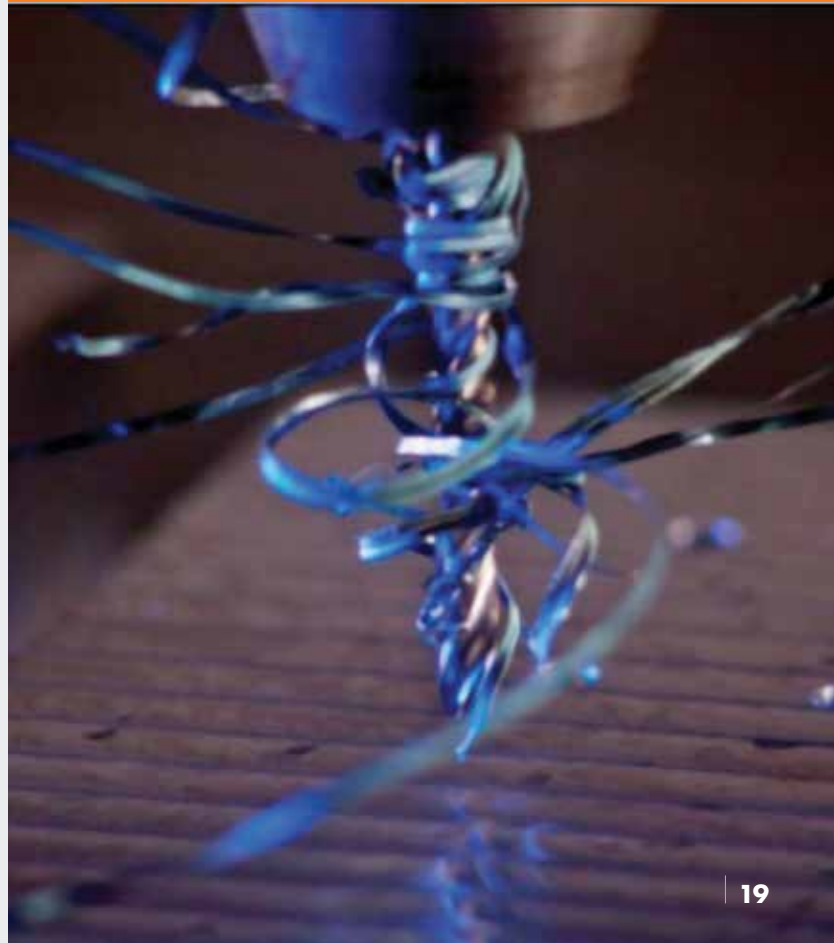
Chips wind around the tool and, especially in drilling, are tough to evacuate. So the tool keeps cutting the chips instead of the workpiece, damaging the cutting edge and shortening tool life.

**Cause:** Long chips

**Solution A:** Chipbreaker tools

A chipbreaker is notched to create shorter chips that are easier to evacuate with air or coolant.

**Solution B:** When drilling, increase the feed rate.

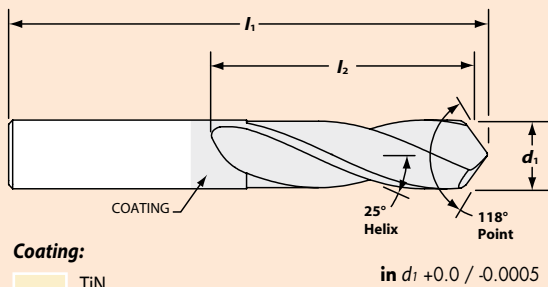


# D21

## Solid Carbide: Stub-Length 2-Flutes



For general-purpose drilling work in abrasive materials – aluminum, non-ferrous metals, carbon steels, tool steels, stainless steels and cast irons. TiN coating keeps tool running cooler, longer.



Maximum hole depth should not exceed 75% of the length of flute.

## Model Code: D21 Stub Length

Cutter Dia $d_1$	Decimal Equiv	Flute Length $l_2$	Overall Length $l_1$	Order Code
1/8	.1250	5/8	2	41408
9/64	.1406	5/8	2	41409
5/32	.1562	3/4	2-1/2	41410
11/64	.1719	3/4	2-1/2	41411
3/16	.1875	3/4	2-1/2	41412
13/64	.2031	3/4	2-1/2	41413
7/32	.2188	1	2-1/2	41414
15/64	.2344	1	2-1/2	41415
1/4	.2500	1	2-1/2	41416
17/64	.2656	1	2-1/2	41417
9/32	.2812	1	2-1/2	41418
19/64	.2969	1-1/4	2-3/4	41419
5/16	.3125	1-1/4	2-3/4	41420
21/64	.3281	1-1/4	2-3/4	41421
11/32	.3438	1-1/4	3	41422
23/64	.3594	1-1/4	3	41423
3/8	.3750	1-1/4	3	41424
25/64	.3906	1-1/4	3	41425
13/32	.4062	1-1/4	3	41426
27/64	.4219	1-1/4	3	41427
7/16	.4375	1-1/4	3	41428
29/64	.4531	1-1/4	3	41429
15/32	.4688	1-1/4	3	41430
31/64	.4844	1-1/4	3	41431
1/2	.5000	1-1/4	3	41432



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# DT21

## Carbide-Tipped: Stub-Length 2-Flutes



Best performance in aluminum and non-ferrous materials. Stub length provides extra rigidity for better stability and precision.

- Hardened high-strength steel body.
- Carbide tips high-temperature brazed for economical tools and long life.
- Cam-relieved point with high-strength edge.

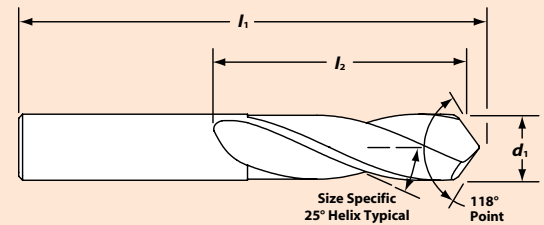
### Model Code: D21 Stub Length

Cutter Dia d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
1/8	.1250	7/8	1-7/8	41060
9/64	.1406	1	2-1/16	41061
5/32	.1562	1	2-1/16	41062
11/64	.1719	1-1/8	2-3/16	41063
3/16	.1875	1-1/8	2-3/16	41064
13/64	.2031	1-1/4	2-3/8	41065
7/32	.2188	1-1/4	2-3/8	41066
15/64	.2344	1-3/8	2-1/2	41067
1/4	.2500	1-3/8	2-1/2	41068
17/64	.2656	1-1/2	2-11/16	41069
9/32	.2812	1-1/2	2-11/16	41070
19/64	.2969	1-5/8	2-13/16	41071
5/16	.3125	1-5/8	2-13/16	41072
21/64	.3281	1-11/16	3	41073
11/32	.3438	1-11/16	3	41074
23/64	.3594	1-13/16	3-1/8	41075
3/8	.3750	1-13/16	3-1/8	41076
25/64	.3906	1-15/16	3-5/16	41077
13/32	.4062	1-15/16	3-5/16	41078
27/64	.4219	2-1/16	3-7/16	41079
7/16	.4375	2-1/16	3-7/16	41080
15/32	.4688	2-1/8	3-5/8	41082
1/2	.5000	2-1/4	3-3/4	41084

## TECH TALK

# Optimized Geometries for Maximum Performance

Choose from a wide range of point geometries and flute designs, available in an exhaustive variety of drill diameters and lengths, for drilling in almost any workpiece material. In many cases, the drill you need is in inventory – coating already applied – for same-day order fulfillment.



in  $d_1 +0.0 / -0.0005$

Maximum hole depth should not exceed 75% of the length of flute.

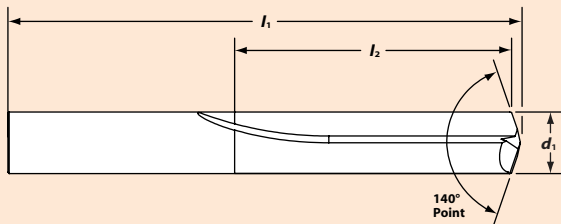
Note: Always use coolant and peck drilling to aid with chip evacuation.

# D40

## Solid Carbide Drills: AccuHole 2 Straight-Flutes



Great results in hardened steels, in addition to carbon and tool steels, super alloys and titanium. Extra web thickness for improved strength; thinned point optimized with high-strength edge.



in  $d_1$  +0.0 / -0.0005

mm  $d_1$  h7

Maximum hole depth should not exceed 75% of the length of flute.

Note: Always use coolant and peck drilling to aid with chip evacuation.

## Model Code: D40 Straight Flutes

	Cutter Dia Inch $d_1$	Metric $d_1$	Decimal Equiv	Flute Length $l_2$	Overall Length $l_1$	Order Code
		1	.0394	9	32	41600
#60			.0400	1/2	1-1/2	41865
#59			.0410	1/2	1-1/2	41864
#58			.0420	1/2	1-1/2	41863
#57			.0430	1/2	1-1/2	41862
	1,1		.0433	9	32	41601
#56			.0465	1/2	1-1/2	41861
<b>3/64</b>			.0469	1/2	1-1/2	41750
	1,2		.0472	9	32	41602
	1,25		.0492	9	32	41603
	1,3		.0512	9	32	41604
#55			.0520	1/2	1-5/8	41860
#54			.0550	1/2	1-5/8	41859
	1,4		.0551	9	32	41605
	1,5		.0591	9	32	41606
#53			.0595	1/2	1-5/8	41858
<b>1/16</b>			.0625	5/8	1-5/8	41751
	1,6		.0630	10	34	41607
#52			.0635	11/16	1-11/16	41857
	1,7		.0669	10	34	41608
#51			.0670	11/16	1-11/16	41856
	1,75		.0689	11	36	41609
#50			.0700	11/16	1-11/16	41855
	1,8		.0709	11	36	41610
#49			.0730	11/16	1-11/16	41854
	1,9		.0748	11	36	41611
<b>5/64</b>			.0781	11/16	1-11/16	41752
#47			.0785	3/4	1-3/4	41852
	2		.0787	12	38	41612
#46			.0810	3/4	1-3/4	41851
#45			.0820	3/4	1-3/4	41850
	2,1		.0827	12	38	41613
#44			.0860	3/4	1-3/4	41849
	2,2		.0866	13	40	41614
#43			.0890	3/4	1-3/4	41848
	2,3		.0906	13	40	41615
#42			.0935	3/4	1-3/4	41847
<b>3/32</b>			.0938	3/4	1-3/4	41753
	2,4		.0945	14	43	41616
#41			.0960	13/16	1-13/16	41846
#40			.0980	13/16	1-13/16	41845
	2,5		.0984	14	43	41617
#39			.0995	13/16	1-13/16	41844
#38			.1015	13/16	1-13/16	41843
	2,6		.1024	14	43	41618
#37			.1040	13/16	1-13/16	41842
	2,7		.1063	16	46	41619
#36			.1065	13/16	1-13/16	41841
<b>7/64</b>			.1094	13/16	1-13/16	41754
	2,8		.1102	16	46	41620
#34			.1110	7/8	1-7/8	41839
#33			.1130	7/8	1-7/8	41838
	2,9		.1142	16	46	41621
#32			.1160	7/8	1-7/8	41837

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
		3	.1181	16	46	41622
#31			.1200	7/8	1-7/8	41836
	3,1		.1220	18	49	41623
<b>1/8</b>			.1250	7/8	1-7/8	41755
	3,2		.1260	18	49	41624
#30			.1285	15/16	1-15/16	41835
	3,3		.1299	18	49	41625
	3,4		.1339	20	52	41626
#29			.1360	15/16	1-15/16	41834
	3,5		.1378	20	52	41627
<b>9/64</b>			.1406	15/16	1-15/16	41756
	3,6		.1417	20	52	41628
#27			.1440	1	2-1/16	41832
	3,7		.1457	20	52	41629
#26			.1470	1	2-1/16	41831
#25			.1495	1	2-1/16	41830
	3,8		.1496	22	55	41630
<b>5/32</b>			.1562	1	2-1/16	41757
	4		.1575	22	55	41631
#21			.1590	1-1/16	2-1/8	41826
#20			.1610	1-1/16	2-1/8	41825
	4,1		.1614	22	55	41682
	4,2		.1654	22	55	41633
	4,3		.1693	24	58	41634
<b>11/64</b>			.1719	1-1/16	2-1/8	41758
#16			.1770	1-1/8	2-3/16	41821
	4,5		.1772	24	58	41635
	4,6		.1811	24	58	41683
#14			.1820	1-1/8	2-3/16	41819
#13			.1850	1-1/8	2-3/16	41818
<b>3/16</b>			.1875	1-1/8	2-3/16	41759
	4,8		.1890	26	62	41637
#12			.1890	1-1/8	2-3/16	41817
#11			.1910	1-1/8	2-3/16	41816
#10			.1935	1-1/8	2-3/16	41815
#9			.1960	1-3/16	2-1/4	41814
	5		.1969	26	62	41638
	5,1		.2008	26	62	41639
#7			.2010	1-3/16	2-1/4	41812
<b>13/64</b>			.2031	1-3/16	2-1/4	41760
	5,2		.2047	26	62	41684
	5,3		.2087	26	62	41641
#4			.2090	1-1/4	2-3/8	41809
	5,4		.2126	26	62	41642
#3			.2130	1-1/4	2-3/8	41808
	5,5		.2165	28	66	41643
<b>7/32</b>			.2188	1-1/4	2-3/8	41761
	5,6		.2205	28	66	41644
	5,7		.2244	28	66	41645
#1			.2280	1-5/16	2-7/16	41806
	5,8		.2283	28	66	41646
	5,9		.2323	28	66	41647
<b>15/64</b>			.2344	1-5/16	2-7/16	41762
	6		.2362	28	66	41648

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
		6,1	.2402	31	70	41649
		6,2	.2441	31	70	41650
		6,3	.2480	31	70	41651
<b>1/4</b>			.2500	1-3/8	2-1/2	41763
		6,4	.2520	31	70	41652
		6,5	.2559	31	70	41653
F			.2570	1-7/16	2-5/8	41785
<b>17/64</b>			.2656	1-7/16	2-5/8	41764
		6,8	.2677	34	74	41654
		6,9	.2717	34	74	41655
I			.2720	1-1/2	2-11/16	41788
		7	.2756	34	74	41656
		7,1	.2795	34	74	41657
<b>9/32</b>			.2812	1-1/2	2-11/16	41765
		7,2	.2835	34	74	41658
		7,3	.2874	34	74	41659
		7,4	.2913	34	74	41660
		7,5	.2953	34	74	41661
<b>19/64</b>			.2969	1-9/16	2-3/4	41766
		7,8	.3071	37	79	41662
		7,9	.3110	37	79	41663
<b>5/16</b>			.3125	1-5/8	2-13/16	41767
		8	.3150	37	79	41664
		8,1	.3189	37	79	41665
		8,3	.3268	37	79	41666
<b>21/64</b>			.3281	1-11/16	2-15/16	41768
Q			.3320	1-11/16	3	41796
		8,5	.3346	37	79	41667
<b>11/32</b>			.3438	1-11/16	3	41769
		8,8	.3465	40	84	41668
		9	.3543	40	84	41669
<b>23/64</b>			.3594	1-3/4	3-1/16	41770
		9,3	.3661	40	84	41670
U			.3680	1-13/16	3-1/8	41800
		9,5	.3740	40	84	41685
<b>3/8</b>			.3750	1-13/16	3-1/8	41771
		9,7	.3819	43	89	41672
		9,9	.3898	43	89	41673
<b>25/64</b>			.3906	1-7/8	3-1/4	41772
		10	.3937	43	89	41674
		10,2	.4016	43	89	41675
<b>13/32</b>			.4062	1-15/16	3-5/16	41773
		10,5	.4134	43	89	41676
<b>27/64</b>			.4219	2	3-3/8	41774
		10,8	.4252	47	95	41677
		11	.4331	47	95	41678
<b>7/16</b>			.4375	2-1/16	3-7/16	41775
		11,5	.4528	47	95	41679
<b>15/32</b>			.4688	2-1/8	3-5/8	41777
		12	.4724	51	102	41680
		12,5	.4921	51	102	41681
<b>1/2</b>			.5000	2-1/4	3-3/4	41779

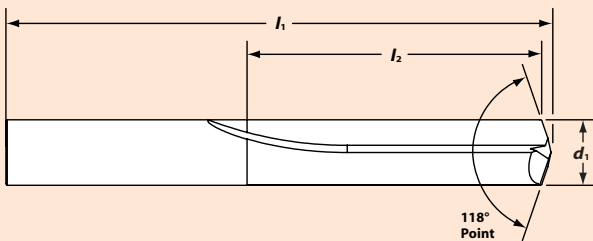
# DT40

## Carbide Tipped Drills: AccuHole 2 Straight-Flutes



Great results in hardened, treated or abrasive materials and stainless steels.

- Cam-relieved, thinned point with high-strength edge.
- Extra web thickness adds strength for longer life in hard metals.
- Hardened high-strength steel body.
- Carbide tips high-temperature brazed for economical drilling, long tool life.



in  $d_1 \leq 1/4 +0.0/-0.0010 >1/4 +0.0/-0.0015$

Maximum hole depth should not exceed 75% of the length of flute.

Note: Always use coolant and peck drilling to aid with chip evacuation.

### Model Code: DT40 Straight Flutes

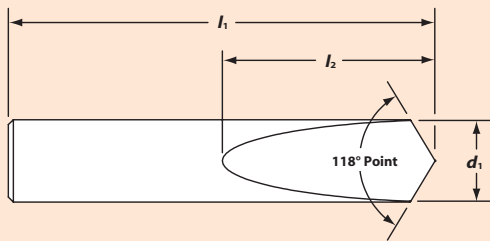
Cutter Inch $d_1$	Decimal Equiv	Flute Length $L_2$	Overall Length $L_1$	Order Code
3/16	.1875	1-1/2	3-1/2	41003
13/64	.2031	1-3/4	3-3/4	41004
7/32	.2188	1-3/4	3-3/4	41005
15/64	.2344	2	4	41006
1/4	.2500	2	4	41007
17/64	.2656	2-1/4	4-1/4	41008
9/32	.2812	2-1/4	4-1/4	41009
19/64	.2969	2-1/2	4-1/2	41010
5/16	.3125	2-1/2	4-1/2	41011
21/64	.3281	2-3/4	4-3/4	41012
11/32	.3438	2-3/4	4-3/4	41013
23/64	.3594	3	5	41014
3/8	.3750	3	5	41015
25/64	.3906	3	5-1/4	41016
13/32	.4062	3	5-1/4	41017
27/64	.4219	3	5-1/2	41018
7/16	.4375	3	5-1/2	41019
29/64	.4531	3-1/4	5-3/4	41020
15/32	.4688	3-1/4	5-3/4	41021
31/64	.4844	3-1/2	6	41022
1/2	.5000	3-1/2	6	41023
17/32	.5312	3-1/2	6	41025
9/16	.5625	3-1/2	6	41027
19/32	.5937	4	7	41029
5/8	.6250	4	7	41031
21/32	.6562	4-1/2	7-1/2	41033
11/16	.6875	4-1/2	7-1/2	41035
23/32	.7187	4-3/4	8	41037
3/4	.7500	4-3/4	8	41039
13/16	.8125	4-3/4	8	41041
7/8	.8750	4-3/4	8	41043
15/16	.9375	4-3/4	8	41045
1	1.0000	4-3/4	8	41047



# SPECIALTY DRILLS

## Solid Carbide: Spade 2-Flutes

The strongest drill style for producing shallow holes (to 2x the tool diameter). Doubles as a spotting drill. Clean performance in carbon and tool steels cast iron and 300 series stainless steels.



in  $d_1 +0.0 / -0.0005$

mm  $d_1 h_7$

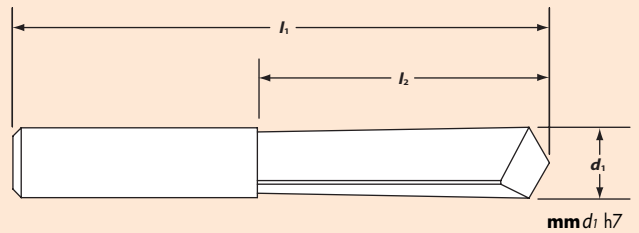
Maximum hole depth should not exceed 75% of the length of flute.

### Model Code: D10 Straight Flutes

Cutter Inch $d_1$	Decimal Equiv	Flute Length $I_2$	Overall Length $I_1$	Order Code
1/16	.0625	5/16	1-1/2	41554
3/32	.0938	3/8	1-1/2	41556
1/8	.1250	7/16	1-1/2	41558
5/32	.1562	15/32	2	41560
3/16	.1875	9/16	2	41562
7/32	.2188	19/32	2	41564
1/4	.2500	11/16	2	41566
5/16	.3125	7/8	2-1/2	41570
3/8	.3750	1	2-1/2	41574
1/2	.5000	1-1/8	2-1/2	41582

## Solid Carbide: Tap Drill

Excellent tool for removing broken taps. See method for best results below.



mm  $d_1 h_7$

### Model Code: D11 Straight Flutes

Cutter Inch $d_1$	Decimal Equiv	Flute Length $I_2$	Overall Length $I_1$	Order Code
2	.0787	10	38	36554
3	.1181	15	38	36555
4	.1575	20	50	36556
5	.1969	25	50	36557
6	.2362	30	63	36558

## D11 Set



Set Code	Set Contents	EDP Number
D-11	One each of: 2, 3, 4, 5, 6	36559

## Using hard metal drills for broken tap removal

**Step 1:** Select drill size

Use Drill Size	For Tap Range
2,0	3mm, 6BA-4BA
3,0	4mm, 5mm, 3BA, 2BA
4,0	6mm, 1BA, 0BA, 1/4, 5/16
5,0	8mm-10mm, 5/16-3/8
6,0	10mm-12mm, 3/8-1/2

**Step 2:**



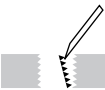
Firmly secure the workpiece. Center hard metal drill in broken tap.

**Step 3:**



Using a spindle speed of 1,500-3,500 RPM and no coolant or lubricant, machine the tap away. Apply constant pressure, releasing occasionally to clear the chips. Expect vibration as chips are freed from the hole side.

**Step 4:**



Using a sharp, hard pointed tool, pick away the remaining tap material.

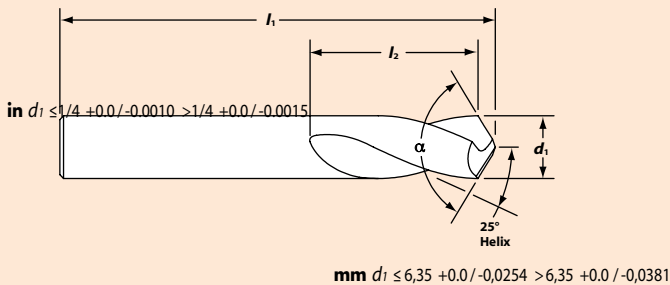
# D23

## Solid Carbide Drills: Spotting & Centering 2-Flutes



Specially designed to make every starting location true and accurate.

- Narrow chisel edge, small web for spot-on starting locations in secondary drilling operations.
- Available with 90° and 120° point angle.
- Can be used as a chamfering tool if the spot drill diameter is larger than the final hole size. (Spotting drills do not have land or body clearance and are not designed to drill past the depth of the point angle.)



### Model Code: D23 Jobber Length

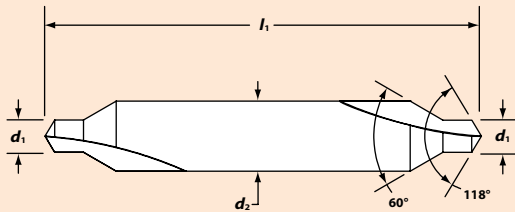
Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code =90°	Order Code =120°
	3	.1181	10	50	40680	40829
1/8		.1250	9/16	1-1/2	40201	40789
3/16		.1875	3/4	2	40204	40790
	5	.1969	19	63	40681	40830
	6	.2362	25	63	40682	40831
	6	.2362	25	152	40683	40832
1/4		.2500	1	2-1/2	40207	40791
1/4		.2500	1	6	40210	40792
5/16		.3125	1	2-1/2	40213	40793
5/16		.3125	1	6	40216	40794
	8	.3150	25	63	40684	40833
	8	.3150	25	152	40685	40834
3/8		.3750	1	2-1/2	40219	40795
3/8		.3750	1	6	40222	40796
	10	.3937	25	70	40686	40835
	10	.3937	25	152	40687	40836
	12	.4724	31	76	40688	40837
	12	.4724	31	152	40689	40838
1/2		.5000	1-1/2	3	40225	40797
1/2		.5000	1-1/2	6	40228	40798
5/8		.6250	1-1/2	6	40231	40799
	16	.6299	38	152	40690	40839
3/4		.7500	1-1/2	6	40234	40800
	20	.7874	38	152	40691	40840

# CD10

## CD10 Drill & Countersink



Excellent for centering holes in most materials. Use with a 60° countersink to make center holes. Double-ended tool available in metric or inches in many sizes, shank diameters.



in  $d_1 +0.003/0$   
 $d_2 +0/-0.0005$

mm  $d_1 +0,075/0$   
 $d_2 +0/-0,0127$

## Model Code: CD10 - Inch

Tool Code	Cutter Dia d1	Shank Dia d2	Overall Length l1	Order Code
No.0	1/32	1/8	1-1/2	36325
No.1	3/64	1/8	1-1/2	36326
No.1 x 4	3/64	1/8	4	97202
No.1 x 6	3/64	1/8	6	36336
No.2	5/64	3/16	1-7/8	36327
No.2 x 4	5/64	3/16	4	97203
No.2 x 6	5/64	3/16	6	36337
No.3	7/64	1/4	2	36328
No.3 x 4	7/64	1/4	4	97204
No.3 x 6	7/64	1/4	6	36338
No.4	1/8	5/16	2-1/2	36329
No.4 x 4	1/8	5/16	4	93680
No.4 x 6	1/8	5/16	6	36339
No.5	3/16	7/16	2-3/4	36330
No.5 x 6	3/16	7/16	6	36342
No.6	7/32	1/2	3	36331
No.6 x 6	7/32	1/2	6	36345
No.7	1/4	5/8	3	36332
No.8	5/16	3/4	3	36333

## Model Code: CD10 - Metric

Tool Code	Cutter Dia d1	Shank Dia d2	Overall Length l1	Order Code
125	1,25	3,15	38	36495
160	1,6	4	50	36496
200	2	5	50	36497
250	2,5	6,3	50	36498
315	3,15	8	50	36499
400	4	10	60	36500
500	5	12,5	75	36501
630	6,3	16	82	36502

# CS10/30/60

## Countersinks: CS10 Single-Flute / CS30 3-Flute / CS60 6-Flute



CS10  
Single Flute  
Countersink

CS30  
3-Flute  
Countersink

CS60  
6-Flute  
Countersink

The choice for general-purpose countersinking operations in most materials. Special design for chatter-free operation eliminates part tearing. Available with 60°, 82°, 90° included angles.

### Model Code: CS10 Single Flutes

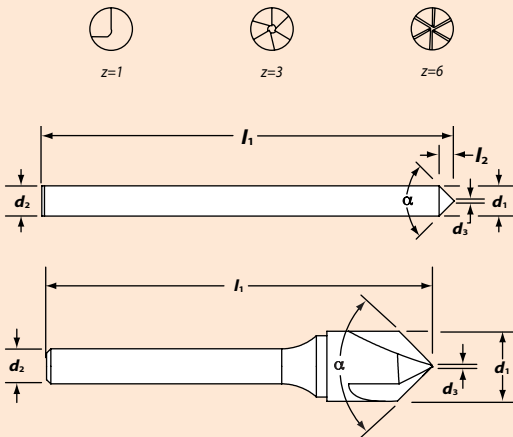
Body Dia d1	Shank Dia d1	Tip Dia I2	60° OAL I1	82°-90° OAL I1	Order Code =60°	Order Code =82°	Order Code =90°
1/8	1/8	To Point	1-1/2	1-1/2	36360	36361	36362
3/16	3/16	To Point	2	2	36363	36364	36365
1/4	1/4	To Point	2	2	36366	36367	36368
3/8	1/4	1/32	2-13/16	2-11/16	36372	36373	36374
1/2	1/4	1/32	2-7/8	2-3/4	36378	36379	36380
5/8	3/8	1/16	3	2-7/8	36384	36385	36386
3/4	1/2	1/16	3	2-7/8	36390	36391	36392
1	1/2	1/16	3-1/4	3	36396	36397	36398

### Model Code: CS30 3-Flute Countersinks

Body Dia d1	Shank Dia d1	Tip Dia I2	60° OAL I1	82°-90° OAL I1	Order Code =60°	Order Code =82°	Order Code =90°
1/8	1/8	To Point	1-1/2	1-1/2	36402	36403	36404
3/16	3/16	To Point	2	2	36417	36418	36419
1/4	1/4	To Point	2	2	36408	36409	36410
3/8	1/4	1/32	2-13/16	2-11/16	36414	36415	36416
1/2	1/4	1/32	2-7/8	2-3/4	36420	36421	36422
5/8	3/8	1/16	3	2-7/8	36426	36427	36428
3/4	1/2	1/16	3	2-7/8	36432	36433	36434
1	1/2	1/16	3-1/4	3	36438	36439	36440

### Model Code: CS60 6-Flute Countersinks

Body Dia d1	Shank Dia d1	Tip Dia I2	60° OAL I1	82°-90° OAL I1	Order Code =60°	Order Code =82°	Order Code =90°
1/8	1/8	To Point	1-1/2	1-1/2	36444	36445	36446
3/16	3/16	To Point	2	2	36489	36490	36491
1/4	1/4	To Point	2	2	36450	36451	36452
3/8	1/4	1/32	2-13/16	2-11/16	36456	36457	36458
1/2	1/4	1/32	2-7/8	2-3/4	36462	36463	36464
5/8	3/8	1/16	3	2-7/8	36468	36469	36470
3/4	1/2	1/16	3	2-7/8	36474	36475	36476
1	1/2	1/16	3-1/4	3	36480	36481	36482



in  $d_1 \pm .005$   $d_2 +0/-0.0005$   $d_3 \pm .010$   
 mm  $d_1 \pm 0,127$   $d_2 +0/-0,0127$   $d_3 \pm 0,25$

## Countersink Application Guide • Speed & Feed

ISO Class	Work Material	Material Hardness (HRC)	Material Examples	Number of Flutes	Speed (SFM)	Feed Rate (Inches/Tooth)	Speed (M/min)	Feed Rate (MM/Tooth)
<b>P</b>	Low -Carbon, Low - Alloyed Steels	< 38	1018, 1022, 12L14, 8620	1,3,5,6	75 - 175	.001 - .002	22 - 53	0.0254 - 0.0508
	Medium Carbon, High - Alloyed Steels	< 48	52100, 4140, 4340	3,5,6	60 - 125	.001 - .002	18 - 38	0.0254 - 0.0508
	Ferritic, Martensitic, PH Stainless Steels	< 48	416, 440C, 15-5, 17-4, 13-8	5,6,7	50 - 75	.001 - .002	15 - 22	0.0254 - 0.0508
<b>M</b>	Austenitic Stainless Steels	< 32	302, 304, 304L, 316	3,5,6	90 - 125	.001 - .002	27 - 38	0.0254 - 0.0508
<b>K</b>	Cast Irons	< 38	Gray, Malleable, Ductile	3,5,6	125 - 175	.001 - .002	38 - 53	0.0254 - 0.0508
<b>N</b>	Wrought and Cast Aluminums	--	2024, 6061, 7075, A360	1,3	325 - 400	.001 - .002	99 - 122	0.0254 - 0.0508
	Copper and Copper Alloys	--		1,3	150 - 225	.001 - .002	45 - 69	0.0254 - 0.0508
	Carbon and Graphite	--		3,5	150 - 225	.001 - .002	45 - 69	0.0254 - 0.0508
<b>S</b>	Heat Resistant Alloys	< 48	A-286, Haynes, Hastelloy, Inconel	6,7	25 - 40	.001 - .002	7 - 12	0.0254 - 0.0508
	Titanium Alloys	< 48	6Al4V	5,6,7	35 - 50	.001 - .002	10 - 15	0.0254 - 0.0508
<b>H</b>	Hardened Steels	< 48	H13, P20, A2, D2	5,6,7	35 - 50	.001 - .002	10 - 15	0.0254 - 0.0508
	Hardened Steels	48 - 62	A2, D2	6,7	25 - 40	.001 - .002	7 - 12	0.0254 - 0.0508

# PROGRAMMING TIP

Use the following formula to calculate the true programmable depth of cut to ensure proper countersink:

$$\text{Depth of cut} = \frac{(\text{Countersink body dia.} - \text{countersink tip dia.})}{2 (\text{tangent of the countersink angle})}$$

\*Note: Use the TPS (Taper Per Side) of the countersink angle.

### EXAMPLE:

Countersinking for a 1/4-20 flat head cap screw. This common sized screw calls for a .265 drilled hole diameter, a .531 major hole diameter, and an 82° countersink.

Using a 5/8" diameter countersink with an 82° included angle and a 1/16" tip diameter, you determine your programmed depth of cut as:

$$\text{DOC} = \frac{(.625 - .062)}{2 (\text{tsn } 41^\circ)}$$

$$\text{DOC} = \frac{.563}{1.74}$$

$$\text{DOC} = .323$$

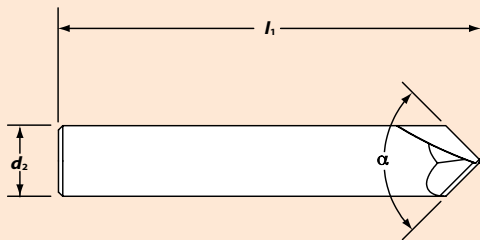


# CT12

## CT12 Chamfer Tool



Suitable for edge chamfering and all general-purpose chamfering applications. Special design eliminates part tearing. Available with 60°, 90°, 120° included angles.



in  $d_2$   $+0/-0.0005$

mm  $d_1$   $+0/-0,0127$

## Model Code: CT12 - Inch

Shank Dia $d_2$	Overall Length $l_1$	Included Angle	Order Code
1/8	1-1/2	90°	36303
3/16	2	90°	36304
1/4	2-1/2	60°	36300
		90°	36305
		120°	36309
3/8	2-1/2	60°	36301
		90°	36306
		120°	36310
1/2	3	60°	36302
		90°	36307
		120°	36311
3/4	4	90°	36308

## Model Code: CT12 - Metric

Shank Dia $d_2$	Overall Length $l_1$	Included Angle	Order Code
6	57	60°	36667
		90°	36320
		120°	36815
8	63	60°	36668
		90°	36321
		120°	36816
10	72	60°	36669
		90°	36322
		120°	36817
12	83	60°	36670
		90°	36323
		120°	36818

## PROGRAMMING TIP

Use the following formulas to determine the real depth of cut to generate an accurate chamfer size (adjusted for chamfer angle, tool diameter and drill point compensation.

60° included angle tool	Programmed point depth = (desired chamfer x .866) – adjustment
90° included angle tool	Programmed point depth = (desired chamfer x .500) – adjustment
120° included angle tool	Programmed point depth = (desired chamfer x .288) – adjustment

## CHAMFER TOOL ADJUSTMENTS

Find the tool's diameter and included angle to determine the proper adjustment number.

Tool Diameter	Included Angle		
	60°	90°	120°
1/4	.021	.012	.007
3/8	.024	.014	.008
1/2	.026	.015	.009
3/4	.031	.018	.010

# PROFILE:

## **Tool & Gage Associates, Inc.**

Milwaukee, Oregon

An aerospace customer needed specially sized, solid-carbide reamers to create critical, close-tolerance holes in high-value material for sophisticated aerospace parts. These were very large, special-purpose reamers made to demanding specifications. More than 42 configurations. Average turnaround time, art to part: four days.

The project's senior engineer asked IMCO representative Mark Smith, "Know any suppliers who can make that happen?" Smith knew IMCO could. So, he and Doug Ellis with Tool & Gage came to IMCO, worked out the production timeline, and the project was launched.



*Making custom-sized reamers like these with really fast turnaround has made IMCO a preferred supplier for valuable customers.*



*Doug Ellis with Tool & Gage Associates displays just a few of the custom reamers IMCO made for its aerospace customer.*

The first orders came late August; tools shipped eight days later. At times, the customer sent specs on Saturday, and IMCO shipped the tools on Monday. Each batch arrived next-day delivery at Ellis' home so he could hand-deliver them to the customer's crew.

***"The satisfaction level with the tools and the service was very high for every member of the team."***

*-Doug Ellis, Tool & Gage Associates Inc.*

The tools worked "from the start to the end," the customer reports. Satisfaction with IMCO tools and service remains very high. They are still ordering the special reamers and ordering other IMCO tools.

"IMCO was able to make the short time-flow commitment and they lived up to it," the senior engineer said. "Before this project, we probably had used very few IMCO products. That has changed for obvious reasons: they perform very well."

# R10

## Reamers: R10 Straight-Flute



Designed for great performance in all general-purpose reaming applications. Use 4-flute styles for diameters < .2544. For diameters > .2544, order 6-flute reamers.

### Model Code: R10 Straight Flute

	Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
		1	.0394	8	35	43600
#60			.0400	5/16	1-3/8	43436
#59			.0410	5/16	1-3/8	43435
#58			.0420	5/16	1-3/8	43434
#57			.0430	5/16	1-3/8	43433
#56			.0465	5/16	1-3/8	43432
3/64			.0469	5/16	1-3/8	43303
		1,2	.0472	8	35	43530
		1,25	.0492	10	38	43531
		1,3	.0512	10	38	43532
#55			.0520	3/8	1-1/2	43431
		1,35	.0531	10	38	43533
#54			.0550	3/8	1-1/2	43430
		1,4	.0551	10	38	43534
		1,45	.0571	10	38	43535
		1,5	.0591	10	38	43601
#53			.0595	3/8	1-1/2	43429
		1,55	.0610	10	38	43536
1/16			.0625	3/8	1-1/2	43304
		1,6	.0630	10	38	43537
#52			.0635	3/8	1-1/2	43428
		1,65	.0650	10	38	43538
		1,7	.0669	11	44	43539
#51			.0670	7/16	1-3/4	43427
		1,75	.0689	11	44	43540
#50			.0700	7/16	1-3/4	43426
		1,8	.0709	11	44	43541
		1,85	.0728	11	44	43542
#49			.0730	7/16	1-3/4	43425
		1,9	.0748	11	44	43543
#48			.0760	7/16	1-3/4	43424
		1,95	.0768	11	44	43544

### Reamer Application Guide • Speed & Feed

ISO Classification	Work Material	Speed (SFM)	Feed Per Revolution (IPR)				Speed (m/min)	Feed Per Revolution (mm/rev)				
			1/32-1/16	>1/16-1/8	>1/8-1/4	>1/4-3/8		>3/8-1/2	>1,5-3,0	>3,0-6,0	>6,0-9,0	>9,0-12,0
<b>N</b>	Aluminum Alloys	200-400	.002-.004	.004-.006	.006-.008	.008-.010	.010-.012	61-122	.051-.101	.101-.152	.152-.203	.203-.254
	Copper, Brass & Bronze	120-250	.001-.002	.002-.003	.003-.005	.005-.008	.008-.010	35-75	.025-.051	.051-.076	.076-.127	.127-.203
	Composites, Plastics	200-400	.002-.004	.004-.006	.006-.008	.008-.010	.010-.012	61-122	.051-.101	.101-.152	.152-.203	.203-.254
	Magnesium Alloys	200-400	.002-.004	.004-.006	.006-.008	.008-.010	.010-.012	61-122	.051-.101	.101-.152	.152-.203	.203-.254
<b>K</b>	Cast Iron - Gray	125-200	.001-.002	.002-.004	.004-.006	.006-.009	.009-.012	38-61	.025-.051	.051-.101	.101-.152	.152-.229
	Cast Iron - Ductile & Malleable	75-175	.001-.002	.002-.003	.003-.005	.005-.007	.009-.012	23-53	.025-.051	.051-.101	.101-.152	.152-.229
<b>P</b>	Low Carbon Steel ≤ 38 HRc 1018, 12L14, 8620	125-200	.001-.002	.002-.003	.003-.005	.005-.008	.008-.010	38-61	.025-.051	.051-.076	.076-.127	.127-.203
	Medium Carbon Steels ≤ 38 HRc 4140, 4340	100-175	.001-.002	.002-.003	.003-.005	.005-.008	.008-.010	30-53	.025-.051	.051-.076	.076-.127	.127-.203
	Tool & Die Steels ≤ 38 HRc A2, D2, H13, P20	60-100	.001-.002	.002-.003	.003-.005	.005-.008	.008-.010	18-30	.025-.051	.051-.076	.076-.127	.127-.203
	Tool & Die Steels 39 - 48 HRc A2, D2, H13, P20	40-75	.001-.002	.002-.003	.003-.004	.004-.006	.006-.008	12-23	.025-.051	.051-.076	.076-.101	.101-.152
<b>H</b>	Tool Steels 49 - 52 HRc A2, D2	30-65	.0005-.001	.001-.002	.002-.003	.003-.004	.004-.006	9-20	.013-.025	.025-.051	.051-.076	.076-.101
<b>M</b>	Easy to Machine Stainless Steel 416, 410, 302, 303	70-150	.001-.002	.002-.003	.003-.005	.005-.008	.008-.010	21-46	.025-.051	.051-.076	.076-.127	.127-.203
	Moderate Machining Stainless Steels 304, 316, Invar, Kovar	65-110	.001-.002	.002-.003	.003-.005	.005-.008	.008-.010	20-33	.025-.051	.051-.076	.076-.127	.127-.203
	Difficult to Machine Stainless Steels 316L, 17-4 PH, 15-5 PH, 13-8 PH	50-100	.0005-.001	.001-.002	.002-.003	.003-.004	.004-.006	15-30	.013-.025	.025-.051	.051-.076	.076-.101
<b>S</b>	Titanium	30-65	.001-.002	.002-.003	.003-.005	.005-.008	.008-.010	9-20	.025-.051	.051-.076	.076-.127	.127-.203
	High Temp Alloys, Inconel®, Stellite, Hastalloy, Waspaloy®	20-50	.0005-.001	.001-.002	.002-.004	.004-.006	.006-.008	6-15	.013-.025	.025-.051	.051-.101	.101-.152



Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
5/64		.0781	7/16	1-3/4	43305
#47		.0785	7/16	1-3/4	43423
	2	.0787	11	44	43602
	2,05	.0807	13	51	43545
#46		.0810	1/2	2	43422
#45		.0820	1/2	2	43421
	2,1	.0827	13	51	43546
	2,15	.0846	13	51	43547
#44		.0860	1/2	2	43420
	2,2	.0866	13	51	43548
	2,25	.0886	13	51	43549
#43		.0890	1/2	2	43419
	2,3	.0906	13	51	43550
	2,35	.0925	13	51	43551
#42		.0935	1/2	2	43418
3/32		.0938	1/2	2	43306
	2,4	.0945	13	51	43552
#41		.0960	5/8	2-1/4	43417
	2,45	.0965	16	57	43553
#40		.0980	5/8	2-1/4	43416
	2,5	.0984	16	57	43603
#39		.0995	5/8	2-1/4	43415
#38		.1015	5/8	2-1/4	43414
	2,6	.1024	16	57	43554
#37		.1040	5/8	2-1/4	43413
	2,7	.1063	16	57	43555
#36		.1065	5/8	2-1/4	43412
	2,75	.1083	16	57	43556
7/64		.1094	5/8	2-1/4	43307
#35		.1100	5/8	2-1/4	43411
	2,8	.1102	16	57	43557
#34		.1110	5/8	2-1/4	43410
#33		.1130	5/8	2-1/4	43409
	2,9	.1142	16	57	43558
#32		.1160	5/8	2-1/4	43408
	3	.1181	16	57	43604
#31		.1200	5/8	2-1/4	43407
	3,1	.1220	16	57	43559
.124		.1240	5/8	2-1/4	43625
.1245		.1245	5/8	2-1/4	43626
1/8		.1250	5/8	2-1/4	43308
.126		.1260	5/8	2-1/4	43627
	3,2	.1260	16	57	43560
	3,25	.1280	16	57	43561
#30		.1285	3/4	2-1/4	43406
	3,3	.1299	19	57	43562
	3,35	.1319	19	57	43563
	3,4	.1339	19	57	43564
	3,45	.1358	19	57	43565
#29		.1360	3/4	2-1/4	43405
	3,5	.1378	19	57	43605
	3,55	.1398	19	57	43566
#28		.1405	3/4	2-1/4	43404
9/64		.1406	3/4	2-1/4	43309
	3,6	.1417	19	57	43567
	3,65	.1437	19	57	43568

Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
#27		.1440	3/4	2-1/4	43403
	3,7	.1457	19	64	43569
#26		.1470	3/4	2-1/2	43402
	3,75	.1476	19	64	43570
#25		.1495	3/4	2-1/2	43401
	3,8	.1496	19	64	43571
#24		.1520	3/4	2-1/2	43400
	3,9	.1535	19	64	43572
#23		.1540	3/4	2-1/2	43399
	3,95	.1555	19	64	43573
5/32		.1562	3/4	2-1/2	43310
#22		.1570	3/4	2-1/2	43398
	4	.1575	19	64	43606
#21		.1590	3/4	2-1/2	43397
	4,05	.1594	19	64	43574
#20		.1610	7/8	2-3/4	43396
	4,1	.1614	22	70	43575
	4,15	.1634	22	70	43576
	4,2	.1654	22	70	43577
#19		.1660	7/8	2-3/4	43395
	4,25	.1673	22	70	43578
	4,3	.1693	22	70	43579
#18		.1695	7/8	2-3/4	43394
	4,35	.1713	22	70	43580
11/64		.1719	7/8	2-3/4	43311
#17		.1730	7/8	2-3/4	43393
	4,4	.1732	22	70	43581
	4,45	.1752	22	70	43582
#16		.1770	7/8	2-3/4	43392
	4,5	.1772	22	70	43607
	4,55	.1791	22	70	43583
#15		.1800	7/8	2-3/4	43391
	4,6	.1811	22	70	43584
#14		.1820	7/8	2-3/4	43390
	4,65	.1831	22	70	43585
	4,7	.1850	22	70	43586
#13		.1850	7/8	2-3/4	43389
	4,75	.1870	22	70	43587
.187		.1870	7/8	2-3/4	43628
3/16		.1875	7/8	2-3/4	43312
.1885		.1885	7/8	2-3/4	43629
	4,8	.1890	22	70	43588
#12		.1890	7/8	2-3/4	43388
	4,85	.1909	22	70	43589
#11		.1910	7/8	2-3/4	43387
	4,9	.1929	25	76	43590
#10		.1935	1	3	43386
	4,95	.1949	25	76	43591
#9		.1960	1	3	43385
	5	.1969	25	76	43608
	5,05	.1988	25	76	43592
#8		.1990	1	3	43384
	5,1	.2008	25	76	43593
#7		.2010	1	3	43383
	5,15	.2028	25	76	43594
13/64		.2031	1	3	43313

## Model Code: R10 Straight Flute

Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
#6		.2040	1	3	43382
	5,2	.2047	25	76	43595
#5		.2055	1	3	43381
	5,25	.2067	25	76	43596
	5,3	.2087	25	76	43597
#4		.2090	1	3	43380
	5,35	.2106	25	76	43598
	5,4	.2126	25	76	43599
#3		.2130	1	3	43379
	5,45	.2146	25	76	43635
	5,5	.2165	25	76	43609
	5,55	.2185	25	76	43636
7/32		.2188	1	3	43314
	5,6	.2205	25	76	43637
#2		.2210	1	3	43378
	5,65	.2224	25	76	43638
	5,7	.2244	25	76	43639
	5,75	.2264	25	76	43640
#1		.2280	1	3	43377
	5,8	.2283	25	76	43641
	5,85	.2303	25	76	43642
	5,9	.2323	25	76	43643
A		.2340	1	3	43351
	5,95	.2343	25	76	43644
15/64		.2344	1	3	43315
	6	.2362	25	76	43610
B		.2380	1	3	43352
	6,1	.2402	25	76	43645
C		.2420	1	3	43353
	6,2	.2441	25	76	43646
D		.2460	1	3	43354
	6,25	.2461	25	76	43647
	6,3	.2480	25	76	43648
.2495		.2495	1	3	43630
1/4		.2500	1	3	43316
.251		.2510	1	3	43631
	6,4	.2520	25	76	43649
	6,5	.2559	29	83	43611
F		.2570	1-1/8	3-1/4	43356
G		.2610	1-1/8	3-1/4	43357
17/64		.2656	1-1/8	3-1/4	43317
H		.2660	1-1/8	3-1/4	43358
I		.2720	1-1/8	3-1/4	43359
	7	.2756	29	83	43612

Cutter Dia Inch d1	Metric d1	Decimal Equiv	Flute Length l2	Overall Length l1	Order Code
J		.2770	1-1/8	3-1/4	43360
K		.2810	1-1/8	3-1/4	43361
9/32		.2812	1-1/8	3-1/4	43318
L		.2900	1-1/8	3-1/4	43362
M		.2950	1-1/8	3-1/4	43363
	7,5	.2953	29	83	43613
19/64		.2969	1-1/8	3-1/4	43319
N		.3020	1-1/8	3-1/4	43364
5/16		.3125	1-1/8	3-1/4	43320
.3135		.3135	1-1/8	3-1/4	43632
	8	.3150	29	83	43614
O		.3160	1-1/8	3-1/4	43365
P		.3230	1-1/4	3-1/2	43366
21/64		.3281	1-1/4	3-1/2	43321
Q		.3320	1-1/4	3-1/2	43367
	8,5	.3346	32	89	43615
R		.3390	1-1/4	3-1/2	43368
11/32		.3438	1-1/4	3-1/2	43322
S		.3480	1-1/4	3-1/2	43369
	9	.3543	32	89	43616
T		.3580	1-1/4	3-1/2	43370
23/64		.3594	1-1/4	3-1/2	43323
U		.3680	1-1/4	3-1/2	43371
	9,5	.3740	32	89	43617
3/8		.3750	1-1/4	3-1/2	43324
.376		.3760	1-1/4	3-1/2	43633
V		.3770	1-1/4	3-1/2	43372
W		.3860	1-1/2	4	43373
25/64		.3906	1-1/2	4	94013
	10	.3937	38	102	93323
X		.3970	1-1/2	4	43374
Y		.4040	1-1/2	4	43375
13/32		.4062	1-1/2	4	43326
Z		.4130	1-1/2	4	43376
	10,5	.4134	38	102	43619
27/64		.4219	1-1/2	4	20831
	11	.4331	38	102	43620
7/16		.4375	1-1/2	4	43328
	11,5	.4528	38	102	43621
29/64		.4531	1-1/2	4	20832
15/32		.4688	1-1/2	4	43330
	12	.4724	38	102	43622
31/64		.4844	1-1/2	4	20833
1/2		.5000	1-1/2	4	43332

# REAMERS

## R10 Made-to-Order Reamers



Tell us what you need. And get exactly what you want. For diameters < .2544, 4-flute styles work best. For larger diameters (> .2544), 6-flute designs are recommended.

### How to create an MTO Reamer Part Number

#### Step 1:

In the chart, find the size range for the reamer diameter you want in the far left column. Find the five digit EDP number to the right of your chosen diameter. For example, the EDP number for a .2530 diameter reamer would be 43766.

#### Step 2:

Standard tolerance for the R10 reamer will be supplied unless otherwise specified. Append the EDP number with a tolerance code from the chart below.

Code	Tolerance
T3	Standard (+0.0003/ -0.0)
T2	+0.0002/ -0.0
T1	+0.0001/ -0.0

#### Step 3:

Complete the EDP number by adding the exact size of the reamer you need in parentheses after the tolerance code. For example, the EDP number for six reamers with .2530 diameter and a tolerance of +0.0002 would be 43766.T2 (.2530).

## Model Code: R10 Straight Flute

Cutter Dia Min-Max Range d1	Length of Cut l2	Overall Length l1	Order Code	Cutter Dia Min-Max Range d1	Length of Cut l2	Overall Length l1	Order Code
.0300 - .0350	5/16	1-3/8	43751	0,76 - 0,89	8	35	43851
.0351 - .0410	5/16	1-3/8	43752	0,891 - 1,04	8	35	43852
.0411 - .0479	5/16	1-3/8	43753	1,041 - 1,22	8	35	43853
.0480 - .0650	3/8	1-1/2	43754	1,221 - 1,65	10	38	43854
.0651 - .0800	7/16	1-3/4	43755	1,651 - 2,03	11	44	43855
.0801 - .0950	1/2	2	43756	2,031 - 2,41	13	51	43856
.0951 - .1120	5/8	2-1/4	43757	2,411 - 2,84	16	57	43857
.1121 - .1284	5/8	2-1/4	43758	2,841 - 3,26	16	57	43858
.1285 - .1444	3/4	2-1/4	43759	3,261 - 3,67	19	57	43859
.1445 - .1594	3/4	2-1/2	43760	3,671 - 4,05	19	64	43860
.1595 - .1744	7/8	2-3/4	43761	4,051 - 4,43	22	70	43861
.1745 - .1914	7/8	2-3/4	43762	4,431 - 4,86	22	70	43862
.1915 - .2074	1	3	43763	4,861 - 5,27	25	76	43863
.2075 - .2234	1	3	43764	5,271 - 5,67	25	76	43864
.2235 - .2394	1	3	43765	5,671 - 6,08	25	76	43865
.2395 - .2544	1	3	43766	6,081 - 6,46	25	76	43866
.2545 - .2694	1-1/8	3-1/4	43767	6,461 - 6,84	29	83	43867
.2695 - .2844	1-1/8	3-1/4	43768	6,841 - 7,22	29	83	43868
.2845 - .3004	1-1/8	3-1/4	43769	7,221 - 7,63	29	83	43869
.3005 - .3164	1-1/8	3-1/4	43770	7,631 - 8,04	29	83	43870
.3165 - .3324	1-1/4	3-1/2	43771	8,041 - 8,44	32	89	43871
.3325 - .3484	1-1/4	3-1/2	43772	8,441 - 8,85	32	89	43872
.3485 - .3634	1-1/4	3-1/2	43773	8,851 - 9,23	32	89	43873
.3635 - .3794	1-1/4	3-1/2	43774	9,231 - 9,64	32	89	43874
.3795 - .3944	1-1/2	4	43775	9,641 - 10,02	38	102	43875
.3945 - .4104	1-1/2	4	43776	10,021 - 10,42	38	102	43876
.4105 - .4254	1-1/2	4	43777	10,421 - 10,81	38	102	43877
.4255 - .4414	1-1/2	4	43778	10,811 - 11,21	38	102	43878
.4415 - .4564	1-1/2	4	43779	11,211 - 11,59	38	102	43879
.4565 - .4724	1-1/2	4	43780	11,591 - 12,00	38	102	43880
.4725 - .4884	1-1/2	4	43781	12,001 - 12,21	38	102	43881
.4885 - .5054	1-1/2	4	43782	12,211 - 12,84	38	102	43882

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