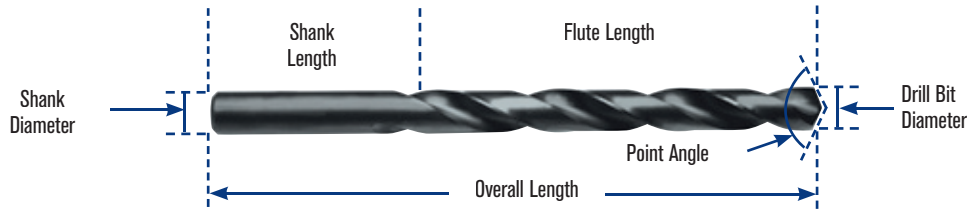


Engineered for Controlled Precision and Speed



Overall Length: The length from the point to the end of the drill bit

Point Angle: The angle of the cutting edges

Drill Diameter: The cutting diameter of the drill bit

Shank Length: The end of the drill bit that is secured by the drill

Flute Length: The length from the point to the end of the flutes

Tip Geometry

METAL DRILLING

118° Conventional Point

- General use
- Not self-centering
- Best for stationary drills
- Performs better in softer materials vs. hard metal

118° Point Angle

135° Split Point

- Self-centering (won't "walk")
- Best for portable drills
- Requires less force than 118°

135° Point Angle

TURBOMAX® Tip

- Self-centering (won't "walk")
- Precision-ground to stay sharp longer and drill faster
- Best for portable drills
- Requires less force than 118°

Drill Bit Selection

Material	Point Angle	Black & Gold (135°)	TURBOMAX® (TURBOMAX)	Heavy-Duty (135°)	Titanium Nitride (TiN) Coated (135°)	Cobalt (135°)	General Purpose (118°)
Wood/Drywall		●	●	●	●	●	●
Sheet Metal		●	●	●	●	●	●
Mild Steel		●	●	●	●	●	●
High Alloy Steels		●	●	●	●	●	●
Stainless Steel		●	●	●	●	●	●
Cast Iron		●	●	●	●	●	●
Aluminum, Brass & Copper		●	●	●	●	●	●
Plastic		●	●	●	●	●	●

Key: ● Recommended ● Acceptable ● Not Recommended

Cutting Speeds (by Working Material)

Speeds for High Speed Steel Drills	SFM*
Aluminum and its Alloys	200 - 300
Brass and Bronze (Ordinary)	150 - 300
Bronze (High Tensile)	70 - 150
Die Castings (Zinc Base)	300 - 400
Iron-Cast (Soft)	100 - 150
Cast (Medium hard)	70 - 100
Hard Chilled	30 - 40
Malleable	80 - 90
Magnesium and its Alloys	250 - 400
Monel Metal or High-Nickel Steel	30 - 50
Plastics or Similar Materials (Bakelite)	100 - 300
Steel - Mild (.2 carbon to .3 carbon)	80 - 110
Steel (.4 carbon to .5 carbon)	70 - 80
Tool (1.2 carbon)	50 - 60
Forgings	40 - 50
Alloy - 300 to 400 Brinell	20 - 30
High Tensile (Heat-Treated)	
35 to 40 Rockwell C	30 - 40
40 to 45 Rockwell C	25 - 35
45 to 50 Rockwell C	15 - 25
50 to 55 Rockwell C	7 - 15
Stainless Steel	
Free Machining Grades	30 - 80
Work Hardening Grades	15 - 50
Wood	300 - 400

*Surface Feet per Minute (SFM)

$$\text{RPM} = \frac{\text{SFM} \times 3.82}{\text{Drill Diameter}}$$

TURBOMAX® Titanium HSS Fractional Jobber Length Drill Bits (Series 3015)



3015012

- Titanium nitride (TiN) coating resists heat and friction, providing up to six times longer life than standard high speed steel bits.
- Self-centering, precision-ground TURBOMAX® feature-point tip eliminates "walking" on flat and curved surfaces, stays sharp longer, and drills faster than standard high speed steel bits.
- 3-flatted shank on 3/16" and above sizes for exceptional grip on chuck.

Sets:

Pro Set Cases: 3018008, 3018009, 3018010, 3018011

Speeds and Feeds for Deep-Hole Drilling

Holes that qualify as "deep-hole drilling" are three or more drill bit diameters deep. When drilling this deep, the speed and feed rate must be adjusted to reduce friction. Friction creates heat, and heat build-up in the drill bit can cause failure and breakage. Lubricants help dissipate heat from the tip of the drill bit, prolonging drill life, and should always be used when deep-hole drilling.

Another technique that should be used when deep-hole drilling is "pecking." Pecking is the process whereby the user drills a short distance, then backs the drill out of the hole before progressing. Pecking reduces the possibility of chips getting lodged in the flute, and allows for the reintroduction of lubricant into the hole.

Speed and Feed Reduction (Based on the hole depth)

Hole Depth to Dia. (times drill dia.)	Speed Reduction	Feed Reduction
3	10%	10%
4	20%	10%
5	30%	20%
6	35 - 40%	20%

Feed Per Drill Revolution

Drill Dia. Range	Light	Medium	Heavy
1/16" to 1/8"	.0005 - .0010	.0010 - .0020	.0020 - .0040
1/8" to 1/4"	.0010 - .0030	.0030 - .0050	.0040 - .0050
1/4" to 3/8"	.0030 - .0050	.0050 - .0070	.0060 - .0100
3/8" to 1/2"	.0040 - .0060	.0050 - .0080	.0080 - .0120
1/2" to 3/4"	.0050 - .0070	.0070 - .0100	.0090 - .0140
3/4" to 1"	.0070 - .0100	.0090 - .0140	.0140 - .0200

See pages 175-176 for Tap & Drill Selection Chart

Size	Decimal Equiv.	Flute Length	Overall Length	Carded Item #	Bulk Item #
1/16"	.0625	7/8"	1-7/8"	3015004*	—
5/64"	.0781	1"	2"	3015005*	—
3/32"	.0938	1-1/8"	2-1/4"	3015006*	—
7/64"	.1094	1-1/2"	2-5/8"	3015007*	—
1/8"	.1250	1-5/8"	2-3/4"	3015008	—
9/64"	.1406	1-3/4"	2-7/8"	3015009	—
5/32"	.1563	2"	3-1/8"	3015010	—
11/64"	.1719	2-1/8"	3-1/4"	3015011	—
3/16"	.1875	2-5/16"	3-1/2"	3015012	—
13/64"	.2031	2-7/16"	3-5/8"	3015013	—
7/32"	.2188	2-1/2"	3-3/4"	3015014	—
15/64"	.2344	2-5/8"	3-7/8"	3015015	—
1/4"	.2500	2-3/4"	4"	3015016	—
17/64"	.2656	2-7/8"	4-1/8"	3015017	—
9/32"	.2813	2-15/16"	4-1/4"	3015018	—
19/64"	.2969	3-1/16"	4-3/8"	3015019	—
5/16"	.3125	3-3/16"	4-1/2"	3015020	—
21/64"	.3281	3-5/16"	4-5/8"	3015021	—
11/32"	.3438	3-7/16"	4-3/4"	3015022	—
23/64"	.3594	3-1/2"	4-7/8"	3015023	—
3/8"	.3750	3-5/8"	5"	3015024	—
25/64"***	.3906	3-3/4"	5-1/8"	3015025	—
13/32"***	.4063	3-7/8"	5-1/4"	3015026	—
27/64"***	.4219	3-15/16"	5-3/8"	3015027	—
7/16"***	.4375	4-1/16"	5-1/2"	3015028	—
29/64"***	.4531	4-3/16"	5-5/8"	3015029	—
15/32"***	.4688	4-5/16"	5-3/4"	3015030	—
31/64"***	.4844	4-3/8"	5-7/8"	3015031	—
1/2"***	.5000	4-1/2"	6"	3015032	—

*Note: 2 bits per Card **Note: 3/8" reduced shank

Silver and Deming (S&D) HSS Fractional 1/2" Reduced Shank Drill Bits with 118° Point (Series 911/901)



91148

- 118° chisel point tip is perfect for general purpose applications.
- Engineered with premium high speed steel with black oxide coating for corrosion resistance.
- Ideal for heavy-duty metal drilling, automotive, body shop, and fabrication applications.
- 1/2" reduced shank with 3-flats grips securely.

Applications:

Heavy-duty metal drilling, automotive, body shop, metal fabrication

Sets:

8-Piece Set: 90108

Size	Decimal Equivalent.	Flute Length	Overall Length	Tubed Item #
33/64"	.5156	3"	6"	91133
17/32"	.5313	3"	6"	91134
35/64"	.5469	3"	6"	91135
9/16"	.5625	3"	6"	91136
37/64"	.5781	3"	6"	91137
19/32"	.5938	3"	6"	91138
39/64"	.6094	3"	6"	91139
5/8"	.6250	3"	6"	91140
41/64"	.6406	3"	6"	91141
21/32"	.6563	3"	6"	91142
43/64"	.6719	3"	6"	91143
11/16"	.6875	3"	6"	91144
45/64"	.7031	3"	6"	91145
23/32"	.7188	3"	6"	91146
47/64"	.7344	3"	6"	91147
3/4"	.7500	3"	6"	91148
49/64"	.7656	3"	6"	91149
25/32"	.7812	3"	6"	91150
51/64"	.7969	3"	6"	91151
13/16"	.8125	3"	6"	91152
53/64"	.8281	3"	6"	91153
27/32"	.8438	3"	6"	91154
55/64"	.8594	3"	6"	91155ZR
7/8"	.8750	3"	6"	91156
57/64"	.8906	3"	6"	91157
29/32"	.9062	3"	6"	91158
59/64"	.9219	3"	6"	91159
15/16"	.9375	3"	6"	91160
61/64"	.9531	3"	6"	91161
31/32"	.9688	3"	6"	91162
63/64"	.9844	3"	6"	91163
1"	1.000	3"	6"	91164
1-1/64"	1.0156	3"	6"	90165
1-1/32"	1.0313	3"	6"	90166
1-1/16"	1.0625	3"	6"	90168
1-3/32"	1.0938	3"	6"	90170
1-1/8"	1.1250	3"	6"	90172
1-5/32"	1.1563	3"	6"	90174
1-3/16"	1.1875	3"	6"	90176
1-1/4"	1.2500	3"	6"	90180
1-5/16"	1.3125	3"	6"	90184
1-3/8"	1.3750	3"	6"	90188
1-7/16"	1.4375	3"	6"	90192
1-1/2"	1.5000	3"	6"	90196