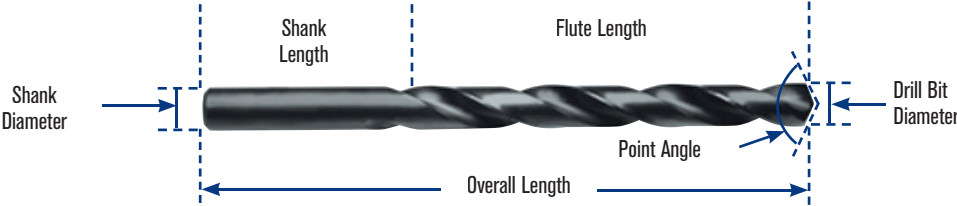


Engineered for Controlled Precision and Speed



- 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	TURBOMAX®	Heavy-Duty	Titanium Nitride (TiN) Coated	Cobalt	General Purpose
		(135°)	(TURBOMAX)	(135°)	(135°)	(135°)	(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

29-piece Metal Index Drill Bit Sets

Automatic Indexing

- For easy bit access and identification

Removable Cartridges

- Allows for easy transport to worksite

Rubber Over-Molded Case

- Protects case if dropped



3018003

3 Easy Steps to Open Case and Remove a Cartridge



Slide Latch



Open Case



Remove Cartridge

Description	Type	Contents	Point	Finish	Item #
29-Piece Set	Cobalt M42 HSS Fractional	1/16" - 1/2" by 64ths	135°	Cobalt	3018002B
29-Piece Set*	Cobalt M35 HSS Fractional	1/16" - 1/2" by 64ths	135°	Cobalt	3018002
29-Piece Set*	TiN HSS Fractional	1/16" - 1/2" by 64ths	135°	TiN Coated	3018003
29-Piece Set*	Heavy-Duty HSS Fractional	1/16" - 1/2" by 64ths	135°	Black Oxide	3018004
29-Piece Set*	Black & Gold HSS Fractional	1/16" - 1/2" by 64ths	135°	Black & Gold Oxide	3018005
29-Piece Set*	TURBOMAX HSS Fractional	1/16" - 1/2" by 64ths	TURBOMAX	Black & Gold Oxide	3018006B
29-Piece Set*	TURBOMAX Titanium Fractional	1/16" - 1/2" by 64ths	TURBOMAX	TiN Coated	3018011
29-Piece Set*	29-Piece Set Empty Case	-	-	-	3018006MT

*Note: 3/8" Reduced Shank

29-piece Metal Index Drill Bit Set



73138

21-piece Metal Index Drill Bit Set



73149

13-piece Metal Index Drill Bit Set



73136

Description	Type	Contents	Point	Finish	Item #
Straight Shank Sets					
13-Piece Set	Gen. Purp. HSS Fractional	1/16" - 1/4" by 64ths	118°	Bright	60136
15-Piece Set	Gen. Purp. HSS Fractional	1/16" - 1/2" by 32nds	118°	Bright	60137
21-Piece Set	Gen. Purp. HSS Fractional	1/16" - 3/8" by 64ths	118°	Bright	60221
29-Piece Set	Gen. Purp. HSS Fractional	1/16" - 1/2" by 64ths	118°	Bright	60138
60-Piece Set	Gen. Purp. HSS Wire Gauge	#1 - #60	118°	Bright	80181
20-Piece Set	Gen. Purp. HSS Wire Gauge	#61 - #80	118°	Bright	80183
15-Piece Set	Heavy Duty HSS Fractional	1/16" - 1/2" by 32nds	135°	Black Oxide	63537
15-Piece Set	Cobalt HSS Fractional	1/16" - 1/2" by 32nds	135°	Cobalt	63137
21-Piece Set	Cobalt HSS Fractional	1/16" - 3/8" by 64ths	135°	Cobalt	63221
15-Piece Set	TiN HSS Fractional	1/16" - 1/2" by 32nds	135°	TiN Coated	63737
13-Piece Set	TURBOMAX HSS Fractional	1/16" - 1/4" by 64ths	TURBOMAX	Black & Gold Oxide	73136
15-Piece Set	TURBOMAX HSS Fractional	1/16" - 1/2" by 32nds	TURBOMAX	Black & Gold Oxide	73137
29-Piece Set	TURBOMAX HSS Fractional	1/16" - 1/2" by 64ths	TURBOMAX	Black & Gold Oxide	73138
21-Piece Set	TURBOMAX HSS Fractional	1/16" - 3/8" by 64ths	TURBOMAX	Black & Gold Oxide	73149
Reduced Shank Sets					
15-Piece Set	Gen. Purp. HSS Fractional 3/8"	1/16" - 1/2" by 32nds	118°	Bright	60147
29-Piece Set	Gen. Purp. HSS Fractional 3/8"	1/16" - 1/2" by 64ths	118°	Bright	60148
8-Piece Set	Silver & Deming (S&D) HSS Fractional 1/2"	9/16" - 1" by 32nds	118°	Black Oxide & Bright	90108
1/4" Hex Shank Sets					
5-Piece Set	Heavy Duty HSS Fractional	3/32", 7/64", 1/8", 6/64", & 5/32"	135°	Black Oxide	4935642