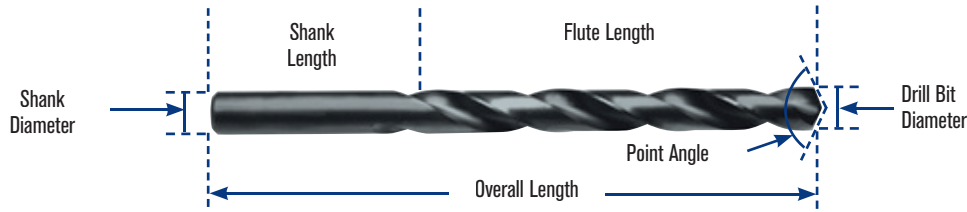


Engineered for Controlled Precision and Speed



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

Black & Gold HSS Fractional 3/8" Reduced Shank Jobber Length Drill Bits with 135° Split Point (Series 30191)



3019128B

- Standard Black & Gold bit with 3/8" reduced shank

Set:

Metal Index: 3018005

Black Oxide HSS Fractional Straight Shank Jobber Length Drill Bits with 135° Split Point (Series 675/635)



63524ZR

- 135° split-point tip starts drilling immediately and eliminates "walking."
- Manufactured with premium high speed steel with black oxide coating for corrosion resistance.
- Straight shank

Set:

Pro Set Cases: 314015

Black Oxide HSS Fractional 3/8" Reduced Shank Jobber Length Drill Bits with 135° Split Point (Series 678/634)



63432

- Standard Black Oxide bit with 3/8" reduced shank

Sets:

Pro Set Case: 314018

Metal Index: 3018004

Size	Decimal Equiv.	Flute Length	Overall Length	Carded Item #	Bulk Item #
25/64"	.3906	3-3/4"	5-1/8"	—	3019125B
13/32"	.4063	3-7/8"	5-1/4"	—	3019126B
27/64"	.4219	3-15/16"	5-3/8"	—	3019127B
7/16"	.4375	4-1/16"	5-1/2"	—	3019128B
29/64"	.4531	4-3/16"	5-5/8"	—	3019129B
15/32"	.4688	4-5/16"	5-3/4"	—	3019130B
31/64"	.4844	4-3/8"	5-7/8"	—	3019131B
1/2"	.5000	4-1/2"	6"	—	3019132B

Size	Decimal Equiv.	Flute Length	Overall Length	Carded Item #	Bulk Item #
3/64"	.0469	3/4"	1-3/4"	—	63503
1/16"	.0625	7/8"	1-7/8"	67504*	63504
5/64"	.0781	1"	2"	67505*	63505
3/32"	.0938	1-1/8"	2-1/4"	67506*	63506
7/64"	.1094	1-1/2"	2-5/8"	67507*	63507
1/8"	.1250	1-5/8"	2-3/4"	67508*	63508
9/64"	.1406	1-3/4"	2-7/8"	67509	63509
5/32"	.1563	2"	3-1/8"	67510	63510
11/64"	.1719	2-1/8"	3-1/4"	67511	63511
3/16"	.1875	2-5/16"	3-1/2"	67512	63512
13/64"	.2031	2-7/16"	3-5/8"	67513	63513
7/32"	.2188	2-1/2"	3-3/4"	67514	63514
15/64"	.2344	2-5/8"	3-7/8"	67515	63515
1/4"	.2500	2-3/4"	4"	67516	63516
17/64"	.2656	2-7/8"	4-1/8"	67517	63517
9/32"	.2813	2-15/16"	4-1/4"	67518	63518
19/64"	.2969	3-1/16"	4-3/8"	67519	63519
5/16"	.3125	3-3/16"	4-1/2"	67520	63520ZR
21/64"	.3281	3-5/16"	4-5/8"	67521	63521ZR
11/32"	.3438	3-7/16"	4-3/4"	67522	63522ZR
23/64"	.3594	3-1/2"	4-7/8"	67523	63523ZR
3/8"	.3750	3-5/8"	5"	67524	63524ZR
25/64"	.3906	3-3/4"	5-1/8"	67525	63525ZR
13/32"	.4063	3-7/8"	5-1/4"	67526	63526ZR
27/64"	.4219	3-15/16"	5-3/8"	67527	63527ZR
7/16"	.4375	4-1/16"	5-1/2"	67528	63528ZR
29/64"	.4531	4-3/16"	5-5/8"	67529	63529ZR
15/32"	.4688	4-5/16"	5-3/4"	67530	63530
31/64"	.4844	4-3/8"	5-7/8"	67531	63531
1/2"	.5000	4-1/2"	6"	67532	63532

*Note: 2 bits per Card

Size	Decimal Equiv.	Flute Length	Overall Length	Carded Item #	Bulk Item #
25/64"	.3906	3-3/4"	5-1/8"	67825	63425
13/32"	.4063	3-7/8"	5-1/4"	67826	63426
27/64"	.4219	3-15/16"	5-3/8"	67827	63427
7/16"	.4375	4-1/16"	5-1/2"	67828	63428
29/64"	.4531	4-3/16"	5-5/8"	67829	63429
15/32"	.4688	4-5/16"	5-3/4"	67830	63430
31/64"	.4844	4-3/8"	5-7/8"	67831	63431
1/2"	.5000	4-1/2"	6"	67832	63432

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