

DRILL BETTER TWIST DRILL EXPLAINED

MATERIAL

HIGH SPEED STEEL (HSS): The most commonly used tool material for general purpose drilling. Suitable for most materials, including low to medium strength steels, aluminum and other non-ferrous materials, as well as wood and plastic.

COBALT (HSCo): This composition increases tool "hardness" and improves "wear resistance" making it a great option for drilling into harder steel as well as stainless steel grades.

CARBIDE (HM): Carbide tools are designed for very hard and very tough to machine materials. Carbide drills are more brittle than HSS or HSCo drills, and should only be used for production drilling in stationary equipment. They are not recommended for use in hand held portable drills.

Why it's important?

It's necessary to match the material of the drill bit to the material being drilled to maximize performance.

FINISH AND COATING



BRIGHT FINISH

Can be used on low-carbon steel and aluminum.



BLACK AND GOLD

Better resistance to corrosion and breakage while increasing lubricity. Reduces chipping and flaking. Can be used on most materials.



TITANIUM NITRIDE COATED (TIN)

A wear resistant gold colored, all-purpose ceramic coating provides high hardness, low coefficient of friction and thermal barrier. Tool life may be extended 500% or more in high wear or very abrasive drilling applications.



BLACK OXIDE

More lubricity than bright finish. Resists corrosion and oxidation with an added heat treatment that reduces friction.



BRONZE

Will increase lubricity and bit life while reducing chip build-up. For performance on harder metals and stainless steel. Applied primarily to Cobalt drills.

KEY FEATURES



DRILL POINT ANGLE

118°

Ideal for cutting mild steel, aluminum, and free machining materials.

135°

Ideal for drilling into more difficult to machine materials, such as stainless steel, hardened steels, cast iron and more. For CNC or hand drilling applications.

118°



135°



Why it's important?

The shorter the bit, the more suitable they are for applications that require precision and accuracy. They are also more rigid.

Make sure you have enough flute length to get the chips out of the hole.

DRILL POINT STYLE

CONVENTIONAL

Most commonly used drill point as it's ideal for a wide variety of materials.

SPLIT POINT

Designed to drill in hard and soft materials, it reduces "walking", lifts away debris, allowing you to drill holes faster and with less chance of breakage. Ideal for curved surfaces.



DRILL LENGTH

Stub/Screw Machine Length

Mechanic's Length

Jobber Length

Taper Length

Extra Length (8"/12"/18")

"Choosing the right drill for the application at hand is an important part of any project and can have **a significant impact on productivity, and life of your tools.**"

Marc-Olivier Singher
Product Manager - Tooling Solutions

PRO TIPS : MAXIMIZE DRILLING EFFICIENCY

Select the proper feed rate.

It will impact the rate of material removal, power requirements, and surface finish.

$$SFM = D \times RPM \times .262$$

SFM = Surface Feet per Minute
D = Drill Diameter

Use the correct RPM speed

it has the greatest influence on performance.

$$RPM = \frac{SFM \times 3.82}{D}$$

Reduce friction, prevent tool wear and breakage

by using cutting lubricants. Increase up to 5 times the life of your tools with COOLCUT™ Cutting Lubricants

Remember this rule:

Small diameter bits = **High speed, low feed**

Large diameter bits = **Low speed, high feed**



KEY SAFETY TIPS

1. Use recommended PPE such as safety glasses, face shields & gloves.
2. Secure workpiece being drilled to prevent movement.
3. Select the proper cutting speed, rpm, and feed rate for the job.
4. Do not use high speed steel (HSS) bits without coolant or cutting fluid.
5. Keep cutting tools sharp and clean to prevent injuries and for best performance.

