

Drill Bit Technologies Solutions for construction site applications

Description


Mungo exclusively uses the highest quality steel and carbide plates for hammer drill bit manufacturing. Precision is a key during manufacturing process, for instance alignment and welding of tungsten carbide plates. Ergonomics and safety at work are the most important aspects. Our aim is to meet highest professional requirements.

Collets


SDS

The SDS quick-release system is the established standard connection for hammer drill bits today. It guarantees best-in-class power transfer from the drilling system while at the same time offering fast, simple and safe clamping of the drill bit in the hammer drill. Depending on the task, there is the most widespread format, SDS-Plus with a diameter of approx. 10 mm for hammer drills < 5 kg and SDS-Max for hammer drills > 5 kg with a diameter of approx. 18 mm.


SDS-PLUS
Round shank collet, 10 mm diameter, two round grooves for axial fixation, two wedge grooves to transfer torque; for hammer drills < 5 kg




SDS-MAX
Round shank collet, 18 mm diameter, two round grooves for axial fixation, three wedge grooves to transfer torque; for hammer drills > 5 kg




HEX
Hexagon collet without a specific interior circle diameter as anti-twist lock in 3-jaw key type drill chucks




M14
Metric standard thread collet in size M14, mainly used on angle grinders



CYL
Round shank collet, cylindrical in the drill diameter up to a certain diameter, with a shouldered shank as of this diameter



TRI
Round shank collet of drill bit diameter with three recessed flats as anti-twist devices in 3-jaw key type drill chucks



Drilling procedure

There are three drilling methods available for drilling are hammer drilling, percussion drilling and rotary drilling:

In rotary drilling, the hole is created simply by the rotation of the drill bit. For building materials made of plaster, the drill bit also needs to be cut.

During percussion drilling, the drill is supported by light impact from the machine. They make the forwards motion possible.

Strong impact supports the drill bit during hammer drilling. A normal percussion drill cannot do this, you need a special hammer drill. These machines typically support all three drilling technologies.

| Hammer drilling | Percussion drilling | Rotary drilling |
|--|--|--|
| Normal concrete, light-weight concrete | Solid brick, clinker brick, calcium silicate brick | Lightweight vertically perforated bricks, hollow blocks of lightweight concrete, solid blocks of lightweight or aerated concrete |

Quality characteristics

Carbide edges

The innovative carbide metal cutters have been optimised for the most challenging applications in concrete and masonry. Even reinforced concrete is not a problem for the aggressive carbide cutters. An effective carbide metal profile and additional crusher zones ensure fast drilling progress. The integrated tip design ensures ideal drilling performance and perfect centring.

Milling processes

The helix is produced by grinding or milling. The helical is milled from solid material. This guarantees the precision of the spiral progression. The external and internal diameter dimensions of the spiral are precisely complied with. The benefits during application include a more stable drilling process and continuous drilling dust removal.

Helix shapes

The helical shapes guarantee an optimal removal of drilling dust through an alternating narrow and wide rear. The highest drilling speed through ideal impact energy performance is a result of the computer-aided design. In addition, Mungo hammer drill bits excel with quiet and low-vibration drilling.

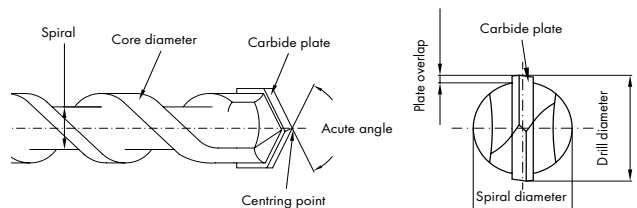
Run out check

Each drill bit is subject to a detailed run out test after having completed production. Hammer drill bits are accurately machined to the correct dimensions in the event of deviations from the nominal values. Computer-controlled measuring sensors identify deviations within the micro millimetre range. Special presses then machine drill bits accurate run out range. The advantages for users are more precise holes in terms of diameter and depth as well as lower degrees of vibration during operation.

Drill bit structure

Hammer drill bit structure

If you need drill masonry and concrete, it is advisable to use hammer bits to achieve fast and reliable results. To ensure correct installation of construction parts, it is important to use drills from certified manufacturing. Only the use of bits from audited manufacturing can guarantee that the diameter of a drill hole is not exceeded, and thus ensure sustainably good results. Drills that are too far out of round, or with excessive tolerances in the carbide cutting edges can lead to drill holes that do not give a plug sufficient values. In the worst case, installed elements will come loose causing major damage. We thus recommend the use of bits that comply with the rules established by the Prüfgemeinschaft Mauerbohrer (PGM - Wall Drill Test Association), an independent institute. You can identify these bits by the PGM mark.



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2-cutter

- The fastest SDS-Plus hammer drill bit in concrete
- Slim head and large drilling dust grooves for fastest possible drilling dust removal
- Will also survive impact on reinforcement



4-cutter

- Robust multiple cutter designed for use in reinforced concrete
- Longer service life thanks to multiple cutter head
- No snagging on impacting on reinforcement thanks to multiple cutters



3-cutter

- The best SDS-Plus hammer drill bit
- Durable and faster than a 4-cutter thanks to cutters with equal heights on same circumference
- More robust than a 2-cutter thanks to multiple cutter head
- No snagging on reinforcements due to cutters with reverse curvature
- Lowest price per hole drilled thanks to long service life
- Large drilling dust grooves optimise drilling dust removal

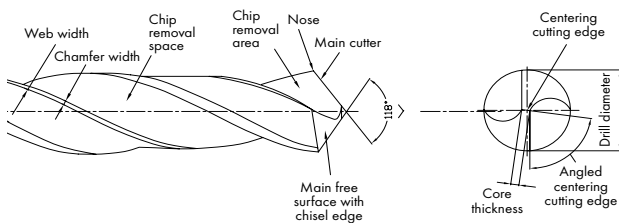


Y-cutter

- Robust multiple cutter for larger diameters
- Enlarged drilling dust grooves optimise drilling dust removal
- Asymmetrical angle distribution for lower vibration and a more pleasant drilling experience

Metal drill bit structure

High-quality tools are decisive when it comes to machining metals. To ensure a precise fit of the connections between components holes need to be drilled with precision. Eccentric or skewed holes with burrs can mean that rework is needed; this in turn decisively influences the quality of the workmanship. Against this background, it is essential to use drill bits manufactured in compliance with the applicable DIN standards.



| HSS drill bits | Rotational speeds | | | |
|----------------|-------------------|------|------|------|
| | ø2 | ø6 | ø10 | ø20 |
| Steel | 4500 | 1600 | 1000 | 500 |
| Cast iron | 1500 | 650 | 400 | 250 |
| CuZn alloys | 9500 | 3000 | 1800 | 1000 |
| Plastics | 4000 | 1300 | 800 | 400 |

Hollow drill bits

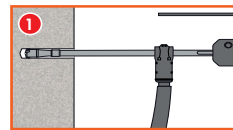
The Mungo hollow drill bit enables dust-free drilling in compliance with current, more stringent health protection standards (e.g., TRGS 900). 98% of drilling dust is removed where it originates at the drill tip. This makes the hollow drill bit perfect for interior applications. Positive side effect: Maximum productivity and process assurance when installing chemical products, as there is no need to clean the hole additionally. These drill bits are available with SDS-Plus and SDS-Max collets.



- The hollow drill bit combines two steps in one: it drills and simultaneously extracts the drilling dust directly from the hole during the drilling process.
- Health protection: 98% less dust than during conventional drilling processes
- Safety thanks to reliable cleaning of the hole
- Simple, fast and reliable
- Faster due to extracted dust reduces resistance
- For use with all popular hammer drills as well as commercially available M-class industrial vacuum cleaners with a volume flow: $V \geq 40 \text{ l/sec}$, negative pressure: $p > 230 \text{ mbar}$
- No more irritating and boring cleaning

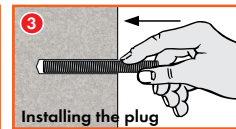
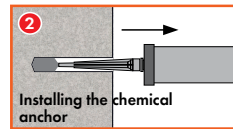


3 work steps for certified setting



Maximum productivity: Up to 3x faster than with conventional drill bits*

*Independent test



Mark of quality

Hand-arm vibration certificate

In addition to low-vibration power tools, low-vibration work processes are in demand - but poor quality drill bits can also have a negative impact. Mungo drill bits demonstrate ideal efficiency and the lowest vibrations during practical tests. The tools have even demonstrated significantly lower vibration effects. EU Vibration Directive 2002/44/EC.



Certified and safe with PGM seal

Mungo's products are certified by the independent Prüfungsgemeinschaft Mauerbohrer e.V (PGM) (Masonry Drill Bit Testing Association), which defines the highest requirements for a safe drill hole to plug joint. The PGM uses monitoring and testing procedures to ensure that users are only offered drills which are coordinated for use with approved plugs. Only a few authorised dealers worldwide are entitled to exhibit this seal, which every user of hammer or percussion drills has undoubtedly seen before. Drills with this symbol uphold what many others promise: geometrically accurate holes that offer top values of the plug and maximum safety for the user.



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Tips and Tricks

Check for reinforced concrete

Before you start drilling, we recommend to check the wall structure with a detector and to drill into the masonry only wherever possible. Reinforcements are integrated into constructions for reasons of structural strength and shouldn't be cut if this can be avoided. If you can't avoid this for design reasons, you must consult a structural engineer before you start.

Check for piping and cable routing

When you start drilling, we recommend to check the area for piping and cable routing. Cables and pipes normally lead vertically up and down to the socket or fitting. For this reason, it is a good idea not to drill directly above or below fittings or sockets. For through hole drilling you should always analyse the structure of the opposite side. Use a special detector for this purpose.

Grease the shank

We recommend greasing the shaft end of the bit before fastening in the chuck. This will extend the service life of your hammer drill.

Remove material residues

Before setting a plug, you should always remove material residues from the drill hole, by blowing out or using a hollow drill bit, to guarantee the holding values of installed plug.

Material suitability

Impact drills have been designed to process masonry, stone and also concrete. The soldered-in carbide plate allows hammer drill bits to survive the impact to reinforcement.

Power drop of drilling machine

Possible causes of significant drop of power may be influenced by using too much pressure on the machine, eccentric or non-linear positioning of the drilling machine. It is also possible, that the machine you are using has not sufficient power.

Preventing cracks (HSS)

Securely clamp the workpiece onto a base plate (rest) and slightly drill into the base plate when drilling through materials. This prevents cracks on the bottom of the workpiece.

Removing chips during drilling (HSS)

Pull the tool back through the hole regularly during drilling to remove chips from the drilling channel. In the event of a lack of ventilation, and hence the removal of chips, the drilling channel clogs up, the drill bit jams in the hole and causes the material to heat up.

Guiding the drill

Drilling with a box column drill creates precise holes and a straight progression of the drilling action. Holes produced with a hand-held drill require precise guiding by hand.

