DIAMOND CORE DRILLS



INSTRUCTION MANUAL

DB-162P/162D

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1. INTRODUCTIONS

·Read and understand this manual before start working with diamond core drill motors. Save this instruction manual for future reference!

·Consult to specialists when you still feel uncertain about operating procedures after reading these instructions. If you have more questions about the use of our products, do not hesitate to contact us or our authorized distributors for more information.

·The DB-162P/162D drill motor is designed for diamond core drilling of concrete, masonry, stone and similar materials. It's intended for professional use and may be used by trained personnel only.

·The use of products such as cutters, grinders, drills, that sand or form material can generate dust and vapors which may contain hazardous chemicals. Check the nature of the material you intend to process and use an appropriate breathing mask. Unauthenticated spare parts and any modification are prohibited on our products.

·Please note: We reserves the right to modify the design and appearance of products and their instruction manuals. Future amendations of the manuals will be made without prior notice.

·Thank you for choice!

2. SYMBOLS USED IN THIS MANUAL



Warning of general danger. Failures in the compliance with these safety precautions and instructions can cause electric shock, fire and/or heavy injuries



Before start working, read all safety warnings and instructions carefully



In order to protect the operator, always wear approved personal protective equipment.



Always wear appropriate protective gloves

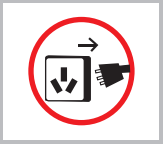


Don’t dispose of power tools, accessories and packaging together with household waste material. Used power tools must be collected separately and returned to an environmentally compatible recycling facility

SYMBOLS USED IN THIS MANUAL



See Declaration of Conformity section for detailed info



Before the beginning of the maintenance or repair works, make sure the plug disconnected from the mains



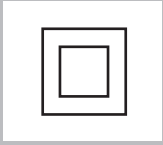
Warning of dangerous voltage



Danger of being ripped or cut



Warning of hot surface



Class II tool

3. TECHNICAL DESCRIPTION

DB-162P

1. Square bubble level
2. 2-gear speed selector with a dowel pin
3. Mode select ring for micro-percussion mode or normal mode
4. A:Quick water tube connector B:Quick vacuum cleaner tube connector
5. LED red/yellow light
6. Carbon brushes



Specification

Model:	DB-162P	
Art No:	1123162	
Power：	2200W	
Voltage:	230V	120V
Current:	10A	15A
N.W:	6.5KG	6.5KG
Frequency:	50-60HZ	
Max Portable Drilling Diameter:	162MM	
Max Drilling Diameter With Stand:	202MM	
No-Load Speed:	640/1420RPM	
No-Load Impact Speed:	14040/31200BPM	
Spindle Thread:	1-1/4" UNC& G1/2"	
1,2 Gear Drilling Diameter:	162/76MM	
1,2 Gear Drilling Diameter With Stand:	202/102MM	
Compatible Stands :	DSP-162& DSP-252	

TECHNICAL DESCRIPTION

DB-162D



1. Square bubble level
2. 2-gear speed selector with a dowel pin
3. Mode select ring for micro-percussion mode or normal mode
4. A:Quick water tube connector B:Quick vacuum cleaner tube connector
5. LED red/yellow light
6. Carbon brushes

Specification

Model:	DB-162D	
Art No:	1124162	
Power:	2200W	
Voltage:	230V	120V
Current:	10A	15A
N.W:	6.5KG	6.5KG
Frequency:	50-60HZ	
Max Portable Drilling Diameter:	162MM	
Max Drilling Diameter With Stand:	202MM	
No-Load Speed:	640/1420RPM	
No-Load Impact Speed:	14040/31200BPM	
Spindle Thread:	1-1/4" UNC& G1/2"	
1,2 Gear Drilling Diameter:	162/76MM	
1,2 Gear Drilling Diameter With Stand:	202/102MM	
Compatible Stands :	DSP-162& DSP-252	

4. SAFETY INSTRUCTIONS

4.1 Work area safety

4.1.1 Keep working area clean and well lit. Cluttered or unilluminated working areas can cause accidents.

4.1.2 Do not operate power tool in explosive environment, such as in the presence of flammable liquids, gases or dust. Power tool emits sparks which may ignite the dust and fumes.

4.1.3 Keep children and other persons away while operating a power tool. When being distracted, operator may lose control on the power tool.

4.2 Electrical safety

4.2.1 Power tool's plug must match the outlet. Never modify the plug under any circumstance. Do not use any adapter plugs with earthed (grounded) powers. Unmodified plugs and matching outlets will reduce the risk of electric shock.

4.2.2 Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.

4.2.3 Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

4.2.4 Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.

4.2.5 When operating outdoor with a power tool, only use an extension cord that is suitable for outdoor use. The use of a cord suitable for outdoor use reduces the risk of electric shock.

4.2.6 If operating a power tool in a humid environment is inevitable, use a residual current device (PRCD). The use of an PRCD reduces the risk of electric shock.

4.3 Personal safety

4.3.1 Stay alert and pay attention when operating a power tool. Do not use power tool while you are tired or under the influence of drugs, alcohol or medication. One moment of carelessness while using power tool may result in serious personal injury.

4.3.2 Always wear personal protective equipment. Protective equipment such as dust mask, boots with non-slip sole, protective helmet or hearing protection used for appropriate conditions will reduce personal injuries.

4.3.3 Avoid unintentional startup. Make sure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool. Carrying power tools with your finger on the switch or energizing power tools that have the switch on would cause injury.

4.3.4 Remove any adjusting tool or wrench before switching on the power tool. A tool or a wrench left attached to a rotating part of the power tool may result in personal injury.

4.3.5 Do not overreach. Keep proper footing and balance at all times. This will ensure a better control of the power tool in unexpected situations.

4.3.6 Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.

4.3.7 When a dust exhauster and colleting device is needed, ensure they are connected and used correctly. The use of dust exhauster can reduce dust-related hazards.

4.4 Power tool use and care

4.4.1 Do not overload the power tool. Use an appropriate power tool for your work. With an appropriate one, you will work in better and safer situation with its declared range of performance.

4.4.2 Do no use a power tool with a damaged switch. A power tool which can not be turned on and off by its own switch is dangerous and has to be repaired.

4.4.3 Disconnect the plug from the power source and/or remove the battery before making any adjustments, changing accessories, or storing power tools. This safety measure can prevent the power tool from starting up unintentionally.

4.4.4 Keep idle power tools out of reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.

4.4.5 Maintain the power tool periodically. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.

4.4.6 Keep cutting tools sharp and clean. Proper maintained cutting tools with sharp cutting edges are less likely to jam and easier to guide.

4.4.7 Use the power tool, accessories and drill bits etc. in accordance with this instruction manual, taking into account the working conditions and the work to be performed as well. Use of the power tool for operations different from those intended use could result in dangerous situation.

4.5 Service

4.5.1 Have your power tool repaired by qualified personnel and with original spare parts only.

4.6 Drill motor safety Precautions

4.6.1 Always wear hearing protection. While using drill motors, the noise in working area would cause hearing loss.

4.6.2 While drilling, keep a sufficient distance to the drill bit and do not touch rotating parts. Protect the danger zone and keep children and other persons away from it. Falling and splashing parts can cause injuries

4.6.3 This diamond core drill is only intended for professional use and may only be operated by trained personnel. The use of its intended purpose is only to the drilling of rock, concrete and masonry.

4.6.4 While in operation, the relevant regulations must be obeyed.

4.6.5 Drill motor must be checked regularly (approx. 6 months) by a specialist.

4.6.6 Vertical drilling only with suitable water collecting device.

4.6.7 Switch the power tool off if it stops for whatever reason, only to switch it on again after you make sure the drill bit can rotate freely.

5. OPERATING INSTRUCTIONS

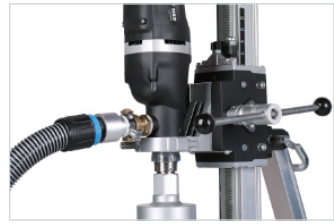
5.1 Check before starting

5.1.1 Inspect the power tool visually, and check if the network voltage conforms to the voltage indicated on the tool's name plate.

5.2 The fixing and mounting of drill motor and stand

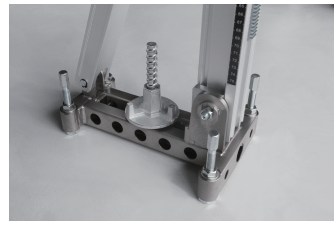
5.2.1 Ensure the power tool is unplugged when mounting to a drill stand.

5.2.2 Hand-held type drill motor DB-162P/162D can also be used for stand drilling. When mounting this type of motor, a Φ 60mm clamp bracket must be used.



5.2.3 When using vacuum base to fix the drill stand, make sure the vacuum is sufficient (minimal -0.8bar), and ensure the gaskets are not worn.

5.2.4 Use an expansion anchor bolt together with a wing nut anchoring kit to fix the stand to the surface. The anchoring plate should be placed around the center of the stand's base. Once fixed, adjust 4 leveling bolts on the base to achieve a good leveling position.



5.2.5 A water collecting device is highly recommended. Hand-held type drill motor DB-162P/162D can do dry drilling with a dust exhauster attached, and wet drilling while a water supply equipment is attached.

5.3 The using and changing of drill bit

5.3.1 The diamond core drill bit is a hollow drill tube which is fitted with soldered-on or welded-on segments impregnated with diamonds. There are two main types of diamond core drill bit: wet type drill bit and dry type drill bit. and the outside male thread of the spindle is 1-1/4" UNC. Hand-held type drill motor DB-162P/162D can do both wet and dry drilling. The thread of its spindle is 1-1/4" UNC male thread outside and G1/2" female thread inside.

5.3.2 With water-proof grease on both drill bit thread and spindle thread to provide with rust protection and easy drill bit removal.

5.3.3 Before the beginning of sharpen and change works on the drill bit, make sure you disconnect the plug from the mains.

5.3.4 The power tool and the drill bit are heavy, always wear protective gloves to prevent your hands from getting cut or ripped by the segments.

5.3.5 Use a 32mm wrench on the drill spindle and a 41mm wrench on the drill bit the same time to change the drill bit.



5.3.6 For drill bits with different male thread, adapters are available as accessories.

5.3.7 Let the drill bit rotate with no load after mounting it on. The radial runout must meet the requirement.

5.4 The cooling methods of drill motor

5.4.1 Gears in the drill motor's gearbox are using splash type lubrication to cool down.

5.4.2 Diamond segments on the drill bit are using water flow to cool down.

5.4.3 As for the motor, air cooling is used to cool down part of its stator and rotor.

5.5 Electrical connection

5.5.1 In order to reduce the risk of electric shock and protect the operator, drill motor DB-162P/162D can only be operated via a Portable Residual Current Device (PRCD) or a Ground Fault Circuit Interrupter (GFCI). Depending on the network voltage of different countries, there are 2 models of PRCD on our products, 230V model and 120V model.

5.5.2 After connecting to the power supply, first press the “RESET” button on PRCD to energize the circuit to the power tool. In the event of voltage drop, PRCD will switch off and must then be swi--tched on again once the power supply has been reestablished. The fault current at which PRCD switches off, is 10mA.



5.5.3 Never place PRCD in water. Before you start working, check the proper functioning by pressing the TEST button on PRCD. Never operate a diamond core drill without RCD or PRCD directly from the mains power source.

5.6 Water supply connection

5.6.1 To connect the water supply, attach the quick-release water coupling to a water hose. Use clean water and the maximum water pressure should not exceed 3 bar.

5.6.2 The water serves as a coolant to avoid the drill bit from heating up enormously while drilling.

5.6.3 Dust and particles formed while drilling may block the water supply system. Check and dredge if necessary.

5.6.4 Optional GARDENA connector can be used to connect a water hose directly or to an optional water tank with enough water pressure.

5.6.5 Using water that is not clean will speed up the process of water sealing ring’s worn-out.

5.6.6 Never allow water to get into the motor. It could lead to an electric shock.

5.6.7 As for hand-held type drill motor, there is a small indicator hole on the water feed collar. If this hole leaks water, it indicates that the water seals are worn out. Replace them immediately.

5.7 Speeds selecting

5.7.1 DB-162P/D is equipped with a mechanical 2-speed oil bath gearbox.



5.7.2 Select the speed according to the drilling diameter (ref. to the tool's name plate).

5.7.3 Speed selecting or gear changing may only be done when the tool is switched off. Turning the gear selector either clockwise or counterclockwise into the desired position until it locks. Slightly turn the drill spindle with a wrench to ease the speed changing.

5.7.4 Indicated max diameters and speeds on name plate are based on average hardness concrete. Speed varies with different material hardness. For reinforced concrete, please select to slower speed.

5.8 Drilling

5.8.1 Always switch on the machine with no load.

5.8.2 After switching on, open the water supply valve next.

5.8.3 When water flows from the center of the drill bit, then begin your cut slowly and gently.

5.8.4 If using hand-held drilling, start the cut by approaching at certain angle to the

cutting surface. Once a V notch cut is drilled on the cutting surface, straighten the bit to the correct perpendicular angle while keeping enough feed pressure on the bit.

5.8.5 Increase the feed pressure when the cut depth is approx. 10mm.

5.8.6 Pay attention to the motor speed, if it is significant slower while drilling, reduce the feed pressure to keep the bit from sticking.

5.8.7 Also keep an eye on the motor's condition. If it is smoking and you smell the fumes, slowly pull up the power tool by its feed handle and then continue your drilling slowly and gently again to prevent the drill motor from burning down because of longstanding overload.

5.8.8 When the cut is almost finished, please reduce feed pressure at this point. Apply the power tool slowly and evenly until its bit breaks through.

5.8.9 There are vertical drilling and angular drilling. When performing an angular drilling, use drill stand's angle adjustment function.

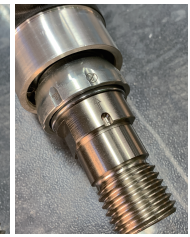
5.8.10 The drill bit is more likely to get stuck when your drilling speed is too fast or feed pressure is too high.

5.8.11 When the feed rate gets very slow and the water generally goes clear but with metal debris in it, it suggests that the reinforced steel is encountered. If it occurs, vibration will begin. Reduce the feed pressure and let the bit go at its own pace. Please note, keep the feed pressure not too slow.

5.8.12 When cut through wood plank, thick asphalt or asphaltic felt, the current will increase. At this point, reduce the propulsive force and apply it slowly to continue drilling.

5.8.13 If you have to drill deeper than the usable length of your drill bit is, please do not forget the optional drill bit extension is available.

5.9 Mode Selecting Ring

5.9.1 DB-162 series core drill motor has a mode select ring for working in 2 different operation modes: featured micro-percussion drilling mode and normal drilling mode. To select micro-percussion mode, first push the mode select ring following the direction of arrow on the spindle until the spring is compressed. Then turn the ring to the " " icon for micro-percussion mode, " " icon is for normal drilling mode. Micro-percussion mode is preferred when operating the machine in dry drilling.

6. OVERLOAD PROTECTION

6.1 Mechanical protection

6.1.1 This machine is equipped with a mechanical clutch to protect the operator and machine from excessive torque forces. If the drill bit suddenly stuck in the bore, this safety clutch will slip disengaging the drill spindle from the motor.

6.1.2 Make sure the slipping time of clutch is no more than 3-4 seconds. Otherwise, the wear and heat will increase rapidly and destroy the safety clutch. Please avoid drill bit sticking while operating.

6.1.3 Worn-out clutch must be replaced by a specialist in authorized repair station.

6.2 Overcurrent protection

6.2.1 There are 2 LED indicators on both hand-held type drill motor and rig-mounted type drill motor. When the power tool is in overcurrent condition, a red light will be on to warn the operator that the maximum current is reached.



6.2.2 When the red light is on, the overcurrent protection will kick in and shut the motor down immediately. Before restarting the motor, a total inspection needs to be carried out. And the power tool must be discharged. Otherwise it may damage the motor and/or result in hazardous situation.

6.3 Overvoltage Protection

6.3.1 The drill motor electronic can temporarily be used on 260V (resp. 140V on 120V machine). Higher voltages can cause irreparable damages. Please note that when operating the machine via a generator, it will not generate higher voltage peaks.

6.3.2 While operating drill motor DB-162P/162D , if the power tool is in overvoltage condition, the overvoltage protection will kick in and shut down the power tool entirely. Then check the voltage of the power supply, replace it with an appropriate one if necessary.

6.4 Overheat Thermal Protection

6.4.1 If the temperature of the motor gets too high, the thermal protection will kick in with LED indicators' yellow light on and shut the motor down. When this happens, do not restart the motor immediately. Always let the motor cool down for about 2-3 mins.

6.5 Auto-stop Carbon Brushes Protection

6.5.1 When the carbon brush nearly reaches the end of its lifetime, the power tool will stop automatically to protect the motor from further damaging.

6.5.2 The carbon brush warning system consists of 2 LED indicators with one red light and one yellow light. If both red and yellow lights are on, operator should check the carbon brushes and replace them if necessary. Remember, always replace them as a pair.

7.DECLARATION OF CONFORMITY

We declare under our sole responsibility that our diamond core drill motors model: DB-162P/162D conform with following standards or standardization documents: in accordance to the regulations of directives 2006/42/EC, 2014/30/EU.