

HiKOKI

Cordless Mini Grinder

砂輪機

충전 미니 그라인더

Máy mài khuôn dùng pin

เครื่องเจียรคอยาวไร้สาย

GP10DL

Handling instructions

使用説明書

취급 설명서

Hướng dẫn sử dụng

คู่มือการใช้งาน



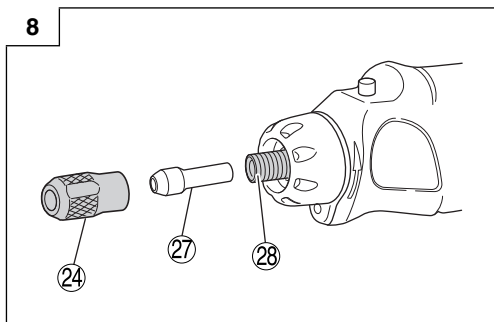
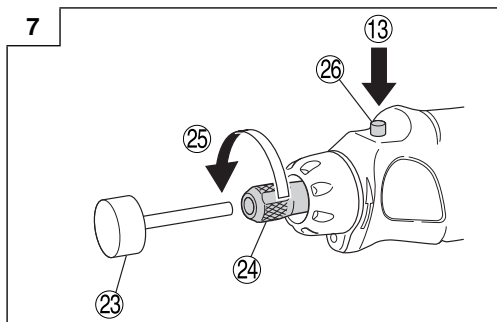
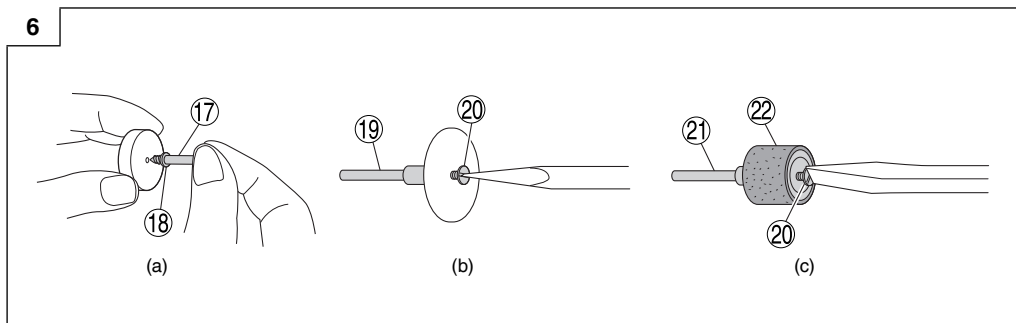
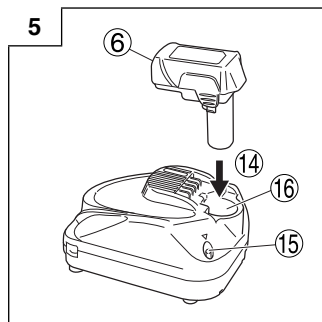
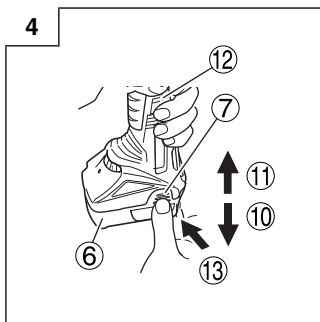
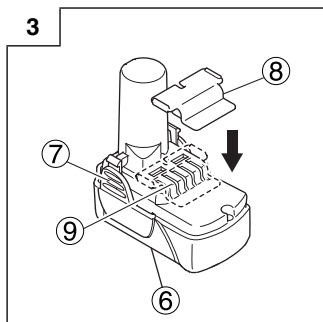
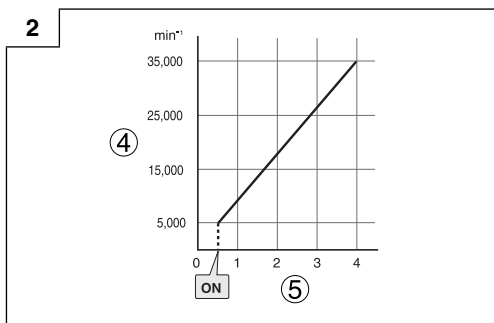
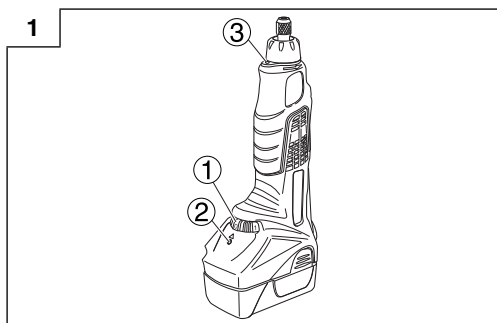
Read through carefully and understand these instructions before use.

使用前務請詳加閱讀

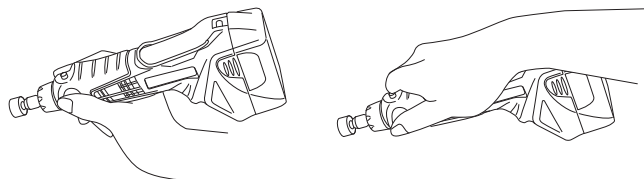
본 설명서를 자세히 읽고 내용을 숙지한 뒤 제품을 사용하십시오.

Đọc kỹ và hiểu rõ các hướng dẫn này trước khi sử dụng.

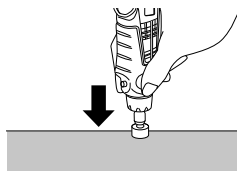
โปรดอ่านโดยละเอียดและทำความเข้าใจก่อนใช้งาน



9



10



	English	中國語	한국어
①	Switch dial	開關轉盤	스위치 다이얼
②	Low battery warning lamp	低電量警示燈	배터리 부족 경고등
③	Light	燈	라이트
④	Speed	轉速	속도
⑤	Switch dial scale	開關轉盤刻度	스위치 다이얼 눈금
⑥	10.8 V Rechargeable battery	10.8 V 充電式電池	10.8 V 충전식 배터리
⑦	Latch	插銷	래치
⑧	Battery cover	電池蓋	배터리 커버
⑨	Terminals	端子	단자
⑩	Pull out	拉出	잡아당김
⑪	Insert	插入	삽입
⑫	Housing	機身	하우징
⑬	Push	推	밀기
⑭	Insert	插入	삽입
⑮	Pilot lamp	指示燈	파일럿 램프
⑯	Hole for connecting the rechargeable battery	充電式電池連接孔	충전식 배터리 연결용 구멍
⑰	Screw-type mandrel	螺絲型心軸	나사형 맨드릴
⑱	Flange	凸緣	플랜지
⑲	Wheel mandrel	盤式心軸	휠 맨드릴
⑳	Screw in end	頂端螺絲	스쿠루 인 엔드
㉑	Drum mandrel	鼓形心軸	드럼 맨드릴
㉒	Sanding band	砂輪環	샌딩 밴드
㉓	Attachment	附件	어태치먼트
㉔	Collet nut	套爪螺帽	콜릿 너트
㉕	Loosen	鬆開	풀기
㉖	Lock button	鎖止按鈕	잠금 버튼
㉗	Collet	套爪	콜릿
㉘	Shaft screw	轉軸螺絲	샤프트 나사

	Tiếng Việt	ไทย
①	Núm xoay điều chỉnh	สวิตช์หมุน
②	Đèn báo pin yếu	ไฟเตือนแบตเตอรี่ต่ำ
③	Đèn	ไฟ
④	Tốc độ	ความเร็ว
⑤	Thang đo núm xoay điều chỉnh	สวิตช์สเกลหมุน
⑥	Pin sạc 10,8 V	แบตเตอรี่แบบรีชาร์จ 10.8 V
⑦	Chốt	สลัก
⑧	Nắp pin	ฝาปิดแบตเตอรี่
⑨	Đầu cuối	ปลาย
⑩	Kéo ra	ดึงออก
⑪	Gắn vào	เสียบเข้า
⑫	Vỏ máy	ตัวเครื่อง
⑬	Đẩy	ดัน
⑭	Gắn vào	เสียบเข้า
⑮	Đèn báo hiệu	ไฟแสดง
⑯	Lỗ để lắp pin sạc	ช่องสำหรับใส่แบตเตอรี่แบบรีชาร์จ
⑰	Mũi đột dạng vít	ด้ามชนิดสกรู
⑱	Bích	หน้าแปลน
⑲	Mũi đột bánh mài	ด้ามล้อ
⑳	Vít sau cùng	ปลายสกรูเข้า
㉑	Mũi đột dạng tang trống	ด้ามดรัม
㉒	Đai mài phủ cát	ผ้าทราย
㉓	Linh kiện	ส่วนต่อ
㉔	Đai ốc ống kẹp	น็อตปะกับ
㉕	Nới lỏng	คลาย
㉖	Nút khóa	ปุ่มล็อก
㉗	Ống kẹp	ปะกับ
㉘	Vít cần trục	สกรูเพลลา

GENERAL SAFETY RULES

WARNING!

Read all instructions

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

The term "power tool" in all of the warnings listed below refers to your mains operated (corded) power tool or battery operated (cordless) power tool.

SAVE THESE INSTRUCTIONS

1) Work area safety

- a) **Keep work area clean and well lit.**
Cluttered or dark areas invite accidents.
- b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.**
Power tools create sparks which may ignite the dust or fumes.
- c) **Keep children and bystanders away while operating a power tool.**
Distractions can cause you to lose control.

2) Electrical safety

- a) **Power tool plugs must match the outlet.**
Never modify the plug in any way.
Do not use any adapter plugs with earthed (grounded) power tools.
Unmodified plugs and matching outlets will reduce risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.**
There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not expose power tools to rain or wet conditions.**
Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. 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.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.**
Use of a cord suitable for outdoor use reduces the risk of electric shock.

3) Personal safety

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool.**
Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.
A moment of inattention while operating power tools may result in serious personal injury.
- b) **Use personal protective equipment. Always wear eye protection.**
Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c) **Prevent unintentional starting. Ensure 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 energising power tools that have the switch on invites accidents.

- d) **Remove any adjusting key or wrench before turning the power tool on.**
A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

- e) **Do not overreach. Keep proper footing and balance at all times.**
This enables better control of the power tool in unexpected situations.

- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.**
Loose clothes, jewellery or long hair can be caught in moving parts.

- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.**
Use of dust collection can reduce dust related hazards.

4) Power tool use and care

- a) **Do not force the power tool. Use the correct power tool for your application.**
The correct power tool will do the job better and safer at the rate for which it was designed.
- b) **Do not use the power tool if the switch does not turn it on and off.**
Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.**
Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d) **Store idle power tools out of the 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.
- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools' operation.**
If damaged, have the power tool repaired before use.
Many accidents are caused by poorly maintained power tools.
- f) **Keep cutting tools sharp and clean.**
Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.**
Use of the power tool for operations different from those intended could result in a hazardous situation.

5) Battery tool use and care

- a) **Ensure the switch is in the off position before inserting battery pack.**
Inserting the battery pack into power tools that have the switch on invites accidents.
- b) **Recharge only with the charger specified by the manufacturer.**
A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- c) **Use power tools only with specifically designated battery packs.**
Use of any other battery packs may create a risk of injury and fire.

- d) When battery pack is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another.

Shorting the battery terminals together may cause burns or a fire.

- e) Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.

Liquid ejected from the battery may cause irritation or burns.

6) Service

- a) Have your power tool serviced by a qualified repair person using only identical replacement parts.

This will ensure that the safety of the power tool is maintained.

PRECAUTION

Keep children and infirm persons away.

When not in use, tools should be stored out of reach of children and infirm persons.

SAFETY WARNINGS COMMON FOR GRINDING, SANDING, POLISHING OR ABRASIVE CUTTING-OFF OPERATIONS

- a) This power tool is intended to function as a grinder, sander, polisher or cut-off tool. Read all safety warnings, instructions, illustrations and specifications provided with this power tool.

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

- b) Operations such as wire brushing are not recommended to be performed with this power tool.

Operations for which the power tool was not designed may create a hazard and cause personal injury.

- c) Do not use accessories which are not specifically designed and recommended by the tool manufacturer.

Just because the accessory can be attached to your power tool, it does not assure safe operation.

- d) The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool.

Accessories running faster than their rated speed can break and fly apart.

- e) The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool.

Incorrectly sized accessories cannot be adequately guarded or controlled.

- f) The arbour size of wheels, flanges, backing pads or any other accessory must properly fit the spindle of the power tool.

Accessories with arbour holes that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.

- g) Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, backing pad for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped,

inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute.

Damaged accessories will normally break apart during this test time.

- h) Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses. As appropriate, wear dust mask, hearing protectors, gloves and workshop apron capable of stopping small abrasive or workpiece fragments.

The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtering particles generated by your operation.

Prolonged exposure to high intensity noise may cause hearing loss.

- i) Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment.

Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.

- j) Hold power tool by insulated gripping surfaces only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.

Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and shock the operator.

- k) Position the cord clear of the spinning accessory.

If you lose control, the cord may be cut or snagged and your hand or arm may be pulled into the spinning accessory.

- l) Never lay the power tool down until the accessory has come to a complete stop.

The spinning accessory may grab the surface and pull the power tool out of your control.

- m) Do not run the power tool while carrying it at your side.

Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body.

- n) Regularly clean the power tool's air vents.

The motor's fan will draw the dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.

- o) Do not operate the power tool near flammable materials.

Sparks could ignite these materials.

- p) Do not use accessories that require liquid coolants.

Using water or other liquid coolants may result in electrocution or shock.

KICKBACK AND RELATED WARNINGS

Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad, brush or any other accessory. Pinching or snagging causes rapid stalling of the rotating accessory which in turn causes the uncontrolled power tool to be forced in the direction opposite of the accessory's rotation at the point of the binding.

For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material causing the wheel to climb out or kick out. The wheel may

either jump toward or away from the operator, depending on direction of the wheel's movement at the point of pinching. Abrasive wheels may also break under these conditions.

Kickback is the result of power tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.

- a) **Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start-up.**
The operator can control torque reactions or kickback forces, if proper precautions are taken.
- b) **Never place your hand near the rotating accessory.**
Accessory may kickback over your hand.
- c) **Do not position your body in the area where power tool will move if kickback occurs.**
Kickback will propel the tool in direction opposite to the wheel's movement at the point of snagging.
- d) **Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory.**
Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.
- e) **Do not attach a saw chain woodcarving blade or toothed saw blade.**
Such blades create frequent kickback and loss of control.

SAFETY WARNINGS SPECIFIC FOR GRINDING AND ABRASIVE CUTTING-OFF OPERATIONS

- a) **Use only wheel types that are recommended for your power tool and the specific guard designed for the selected wheel.**
Wheels for which the power tool was not designed cannot be adequately guarded and are unsafe.
- b) **Wheels must be used only for recommended applications. For example: do not grind with the side of cut-off wheel.**
Abrasive cut-off wheels are intended for peripheral grinding, side forces applied to these wheels may cause them to shatter.
- c) **Always use undamaged wheel flanges that are of correct size and shape for your selected wheel.**
Proper wheel flanges support the wheel thus reducing the possibility of wheel breakage. Flanges for cut-off wheels may be different from grinding wheel flanges.
- d) **Do not use worn down wheels from larger power tools.**
Wheel intended for larger power tool is not suitable for the higher speed of a smaller tool and may burst.

ADDITIONAL SAFETY WARNINGS SPECIFIC FOR ABRASIVE CUTTING-OFF OPERATIONS

- a) **Do not "jam" the cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut.**
Overstressing the wheel increases the loading and susceptibility to twisting or binding of the wheel in the cut and the possibility of kickback or wheel breakage.
- b) **Do not position your body in line with and behind the rotating wheel.**
When the wheel, at the point of operation, is moving away from your body, the possible kickback may propel the spinning wheel and the power tool directly at you.

- c) **When wheel is binding or when interrupting a cut for any reason, switch off the power tool and hold the power tool motionless until the wheel comes to a complete stop. Never attempt to remove the cut-off wheel from the cut while the wheel is in motion otherwise kickback may occur.**
Investigate and take corrective action to eliminate the cause of wheel binding.
- d) **Do not restart the cutting operation in the workpiece. Let the wheel reach full speed and carefully reenter the cut.**
The wheel may bind, walk up or kickback if the power tool is restarted in the workpiece.

GENERAL SAFETY INSTRUCTIONS FOR CORDLESS MINI GRINDERS

- Check that speed marked on the wheel is equal to or greater than the rated speed of the grinder;
- Ensure that the wheel dimensions are compatible with the grinder;
- Abrasive wheels shall be stored and handled with care in accordance with manufacturer's instructions;
- Inspect the grinding wheel before use, do not use chipped, cracked or otherwise defective products;
- Ensure that mounted wheels and points are fitted in accordance with the manufacturer's instructions;
- Ensure that blotters are used when they are provided with the bonded abrasive product and when they are required;
- Do not use the power tool to machine materials that contain components that are harmful to health.
- Use the designated accessory or attachment.
- Ensure that the abrasive product is correctly mounted and tightened before use and run the tool at no-load for 30 s in a safe position, stop immediately if there is considerable vibration or if other defects are detected. If this condition occurs, check the machine to determine the cause;
- If a guard is equipped with the tool never use the tool without such a guard;
- Do not use separate reducing bushings or adapters to adapt large hole abrasive wheels;
- For tools intended to be fitted with threaded hole wheel, ensure that the thread in the wheel is long enough to accept the spindle length;
- Check that the work piece is properly supported;
- Do not use cutting off wheel for side grinding;
- Ensure that sparks resulting from use do not create a hazard e.g. do not hit persons, or ignite flammable substances;
- Ensure that ventilation openings are kept clear when working in dusty conditions, if it should become necessary to clear dust, first disconnect the tool from the mains supply (use non metallic objects) and avoid damaging internal parts;
- Always use eye and ear protection. Other personal protective equipment such as dust mask, gloves, helmet and apron should be worn;
- Pay attention to the wheel that continues to rotate after the tool is switched off.
- Always charge the battery at a temperature of 0 – 40°C.
A temperature of less than 0°C will result in over charging which is dangerous. The battery cannot be charged at a temperature greater than 40°C.
The most suitable temperature for charging is that of 20 – 25°C.

- Do not use the charger continuously. When one charging is completed, leave the charger for about 15 minutes before the next charging of battery. Do not charge the battery more than 2 hours.
- Do not allow foreign matter to enter the hole for connecting the rechargeable battery.
- Never disassemble the rechargeable battery and charger.
- Never short-circuit the rechargeable battery. Short-circuiting the battery will cause a great electric current and overheat. It results in burn or damage to the battery.
- Do not dispose of the battery in fire. If the battery burnt, it may explode.
- When drilling in wall, floor or ceiling, check for buried electric power cord, etc.
- Do not insert object into the air ventilation slots of the charger. Inserting metal objects or inflammables into the charger air ventilation slots will result in electrical shock hazard or damaged charger.
- Bring the battery to the shop from which it was purchased as soon as the post-charging battery life becomes too short for practical use. Do not dispose of the exhausted battery.
- Using an exhausted battery will damage the charger.

CAUTION ON LITHIUM-ION BATTERY

To extend the lifetime, the lithium-ion battery equips with the protection function to stop the output.

In the cases of 1 to 3 described below, when using this product, even if you are pulling the switch, the motor may stop. This is not the trouble but the result of protection function.

1. When the battery power remaining runs out, the motor stops.
In such case, charge it up immediately.
2. If the tool is overloaded, the motor may stop. In this case, release the switch of tool and eliminate causes of overloading. After that, you can use it again.
3. If the battery is overheated under overload work, the battery power may stop.
In this case, stop using the battery and let the battery cool. After that, you can use it again.

Furthermore, please heed the following warning and caution.

WARNING

In order to prevent any battery leakage, heat generation, smoke emission, explosion and ignition beforehand, please be sure to heed the following precautions.

1. Make sure that swarf and dust do not collect on the battery.
 - During work make sure that swarf and dust do not fall on the battery.
 - Make sure that any swarf and dust falling on the power tool during work do not collect on the battery.
 - Do not store an unused battery in a location exposed to swarf and dust.
 - Before storing a battery, remove any swarf and dust that may adhere to it and do not store it together with metal parts (screws, nails, etc.).
2. Do not pierce battery with a sharp object such as a nail, strike with a hammer, step on, throw or subject the battery to severe physical shock.
3. Do not use an apparently damaged or deformed battery.
4. Do not use the battery in reverse polarity.
5. Do not connect directly to an electrical outlets or car cigarette lighter sockets.
6. Do not use the battery for a purpose other than those specified.
7. If the battery charging fails to complete even when a specified recharging time has elapsed, immediately stop further recharging.

8. Do not put or subject the battery to high temperatures or high pressure such as into a microwave oven, dryer, or high pressure container.
9. Keep away from fire immediately when leakage or foul odor are detected.
10. Do not use in a location where strong static electricity generates.
11. If there is battery leakage, foul odor, heat generated, discolored or deformed, or in any way appears abnormal during use, recharging or storage, immediately remove it from the equipment or battery charger, and stop use.
12. Do not immerse the battery or allow any fluids to flow inside. Conductive liquid ingress, such as water, can cause damage resulting in fire or explosion. Store your battery in a cool, dry place, away from combustible and flammable items. Corrosive gas atmospheres must be avoided.

CAUTION

1. If liquid leaking from the battery gets into your eyes, do not rub your eyes and wash them well with fresh clean water such as tap water and contact a doctor immediately.
If left untreated, the liquid may cause eye-problems.
2. If liquid leaks onto your skin or clothes, wash well with clean water such as tap water immediately.
There is a possibility that this can cause skin irritation.
3. If you find rust, foul odor, overheating, discolor, deformation, and/or other irregularities when using the battery for the first time, do not use and return it to your supplier or vendor.

WARNING

If an electrically conductive foreign object enters the terminals of the lithium ion battery, a short-circuit may occur resulting in the risk of fire. Please observe the following matters when storing the battery.

- Do not place electrically conductive cuttings, nails, steel wire, copper wire or other wire in the storage case.
- Either install the battery in the power tool or store by securely pressing into the battery cover until the ventilation holes are concealed to prevent short-circuits (See Fig. 3).

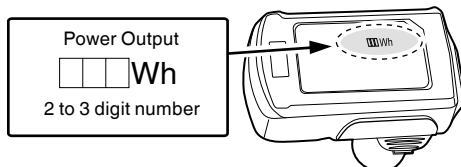
REGARDING LITHIUM-ION BATTERY TRANSPORTATION

When transporting a lithium-ion battery, please observe the following precautions.

WARNING

Notify the transporting company that a package contains a lithium-ion battery, inform the company of its power output and follow the instructions of the transportation company when arranging transport.

- Lithium-ion batteries that exceed a power output of 100 Wh are considered to be in the freight classification of Dangerous Goods and will require special application procedures.
- For transportation abroad, you must comply with international law and the rules and regulations of the destination country.



SPECIFICATIONS

POWER TOOL

No-load speed	5000-35000 /min
Collet chuck capacity	3.2 mm
Rechargeable battery	BCL1015: Li-ion 10.8 V / 12 V Peak (1.5 Ah 3 cells)
Weight	0.48 kg

CHARGER

Model	UC10SFL
Charging voltage	10.8 V
Weight	0.35 kg

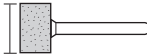
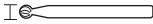
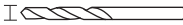
STANDARD ACCESSORIES

GP10DL (2LCSK)	① Accessories × 40 pcs 1
	② Battery (BCL1015) 2
	③ Charger (UC10SFL)..... 1
	④ Plastic case 1
	⑤ Battery cover 1
GP10DL (LCSK)	① Accessories × 40 pcs 1
	② Battery (BCL1015) 1
	③ Charger (UC10SFL)..... 1
	④ Plastic case 1
GP10DL (NN)	① Accessories × 40 pcs 1

For details of the attachments, refer to “Provided attachments”.
Standard accessories are subject to change without notice.

Provided attachments

<Uses>

Use for wood engraving and grinding.	Aluminium oxide point [φ15.9 mm × 1] 15.9 mm 
Use to machine hard materials such as glass and ceramics.	Silicon carbide point [φ4.8 mm × 1] 4.8 mm 
Use to engrave, grind and make grooves in wood, plastic and soft metals (aluminium, copper, brass).	High-speed cutter [φ3.2 mm × 1] 3.2 mm 
Use to make holes in wood and plywood.	Drill [φ3.2 mm × 1] 3.2 mm 
Use to slice or cut materials. Suitable for cutting thin rods and pipes. Recuts crushed grooves in screw heads. Do not press hard against workpiece as it may crack.	Cutting wheel [φ23.8 × t0.6 × 6] 23.8 mm  0.6 mm
	Cutting wheel [φ23.8 × t1.0 × 2] 23.8 mm  1.0 mm
Use to polish hard materials such as stainless steel.	Aluminium oxide grinding wheel [φ22.2 × 1] 22.2 mm 
Suitable for final polishing after rough grinding.	Sanding disc [φ19.1 mm/180-grit × 10] 19.1 mm  180-grit
Use to give smooth finish to metal surfaces.	Polishing wheel [φ25.4 mm × 2] 25.4 mm 
Use for mirror polishing of jewelry and metals. Choose the size to suit the workpiece.	Felt polishing wheel [φ12.7 mm × 4] 12.7 mm 
	Felt polishing wheel [φ25.4 mm × 2] 25.4 mm 
Suitable for tasks such as shaping wood and finishing models. Grind in two stages with different grit numbers to achieve a good surface finish.	Sanding band [φ12.7 mm/60-grit × 6] 12.7 mm  60-grit
	Sanding band [φ12.7 mm/120-grit × 2] 12.7 mm  120-grit

CAUTION

Standard attachments are exclusively for use with the GP10DL. Do not use with other equipment such as electric drills, etc. Doing so may result in injury or damage to the tip tool.

[Accessory]

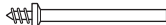
Collet spanner (for loosening tight collet nuts)



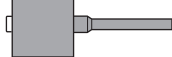
Wheel mandrel [φ3.2 mm × 1]



Screw-type mandrel [φ3.2 mm × 1]

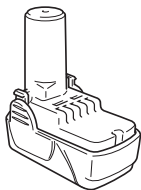


Drum mandrel [φ3.2 mm × 1]



OPTIONAL ACCESSORIES (sold separately)

1. Battery (BCL1015)



Optional accessories are subject to change without notice.

APPLICATIONS

- Making wood carved handicrafts and precious metal ornaments
- Engraving and sculpting glass and ceramics
- Grinding and polishing steel and stone

BASIC FUNCTIONS

1. Low battery warning lamp (Fig. 1)

To check the remaining battery power, operate the grinder unloaded.

If the remaining battery power is low, the warning lamp (red LED) will light. If the lamp lights, charge the battery without delay.

NOTE

- The low battery warning lamp may be affected by the ambient temperature or battery characteristics. Use the lamp as a guide for when to charge the battery.
- The low battery warning lamp may light during operation of the grinder. This is due to a temporary drop in the battery voltage, and not to low battery power.
- When checking the remaining battery power, be sure to operate the grinder in an unloaded condition.

2. Switch dial

The switch dial also serves as the start-up switch and the speed dial. When the dial is rotated from [0] to a higher number, the grinder switches on and gradually builds up speed. At the same time, the LED lamp lights and illuminates the tip of the grinder.

When the dial is returned to [0], the grinder switches off and rotation stops.

For safety reasons, the grinder will not start up if the battery is inserted while the switch is at any position other than [0].

To switch the grinder on at such time, return the dial to [0] and then rotate it to a higher number.

The approximate relationship between the numbers on the switch dial and the rotation speed is shown in the graph in Fig. 2.

BATTERY REMOVAL/INSTALLATION

1. Battery removal

Hold the handle tightly and push the battery latch to remove the battery (see Figs. 3 and 4).

CAUTION

Never short-circuit the battery.

2. Battery installation

Insert the battery while observing its polarities (see Fig. 4).

CHARGING

Before using the power tool, charge the battery as follows.

1. **Connect the charger power cord to the receptacle**
2. **Insert the battery in the charger**

Position the battery so that the nameplate faces toward the nameplate of the charger and press in the battery until it comes into contact with the bottom plate (See Fig. 5).

Inserting the battery will turn on the charger (the pilot lamp lights up).

CAUTION

If the pilot lamp does not light up, pull out the power cord from the receptacle and check the battery mounting condition.

The pilot lamp goes off to indicate that the battery is fully charged.

CAUTION

If the battery is heated due to direct sunlight, etc., just after operation, the charger pilot lamp may not light. At that time cool the battery first, then start charging.

- Regarding recharging time

Table 1 shows the recharging time required according to the type of battery.

Table 1 Recharging time (approx. min) at 20°C

Battery voltage (V)	Battery capacity (Ah)	
	1.5 Ah	
10.8 V	BCL1015	40 min

NOTE

The recharging time may vary according to the ambient temperature.

3. Disconnect the charger's power cord from the receptacle

4. Hold the charger firmly and pull out the battery

NOTE

Be sure to pull out the battery from the charger after use, and then keep it.

How to make the batteries perform longer

- (1) Recharge the batteries before they become completely exhausted.
When you feel that the power of the tool becomes weaker, stop using the tool and recharge its battery. If you continue to use the tool and exhaust the electric current, the battery may be damaged and its life will become shorter.
- (2) Avoid recharging at high temperatures.
A rechargeable battery will be hot immediately after use. If such a battery is recharged immediately after use, its internal chemical substance will deteriorate, and the battery life will be shortened. Leave the battery and recharge it after it has cooled for a while.

CAUTION

- When the battery charger has been continuously used, the battery charger will be heated, thus constituting the cause of the failures. Once the charging has been completed, give 15 minutes rest until the next charging.
- If the battery charger does not work while the battery is mounted correctly, it is probable that the battery or charger is malfunctioning. Take it to your authorized Service Center.

PRIOR TO OPERATION

1. Setting up and checking the work environment

Check if the work environment is suitable by the above precautions.

HOW TO ATTACH THE TIP TOOL

WARNING

To prevent accidents, be sure to switch the power off and remove the battery from the grinder.

CAUTION

Make sure the mandrel is screwed in tightly.

After attaching the tip tool, check that the tool is securely fixed.

If the tool is loose, it may come off, causing damage or injury.

1. How to use the screw-type mandrel (Fig. 6 (a))

Use the screw-type mandrel when using the felt polishing wheel.

Keeping the wheel straight, screw it onto the thread of the screw-type mandrel as far as the flange.

2. How to use the wheel mandrel (Fig. 6 (b))

Remove the screw in the end of the mandrel with a flathead screwdriver and attach the cutting wheel or sanding disc.

3. How to use the drum mandrel (Fig. 6 (c))

A 60-grit sanding band is fitted to the drum mandrel when it leaves the factory.

Loosen the screw in the end of the mandrel with a screwdriver to remove/attach the sanding band.

After attaching the sanding band, tighten the screw securely.

4. Attach the tip tool to the grinder

Rotate the collet nut by hand while pressing the lock button to further depress the lock button.

In this state, the shaft is locked and the collet nut can be loosened or tightened. (Fig. 7)

To attach the tip tool, insert the tip tool as far as it will go and tighten the collet nut securely.

To detach the tip tool, the collet nut can usually be rotated by hand, though occasionally it may be tight.

If the collet nut is tight, use the provided collet spanner to loosen it.

Iron powder on the collet nut, collet or shaft screw may cause the collet nut to be difficult to rotate. (Fig. 8)

Be sure to remove any powder before attaching or detaching the tip tool.

NOTE

Very occasionally, the tip tool may be difficult to detach from the collet.

If this happens, with the collet nut loosened, press the end of the tool lightly against a hard object. (Fig. 10)

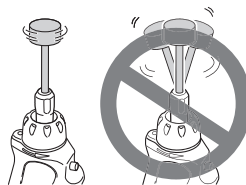
5. Balance adjustment of the tip tool

After attaching the tip tool, operate the grinder at low speed. If the balance is not right, follow the procedure below to adjust the balance.

Loosen the collet nut while pressing the lock button.

Next, rotate the tip tool by 1/4 and tighten the collet nut. Operate the grinder at low speed and check the balance. If the balance is right, adjustment is completed.

If the balance still is not right, detach the tip tool, the collet nut and collet and re-attach them. If the tip tool is still not balanced after several such attempts, check for deformation or wear of the tip tool or deformation of the collet. If worn or deformed, replace the tip tool or collet.



OPERATING THE GRINDER

WARNING

- Keep your face away from the tip tool during use.
- Wear goggles and a dust mask when using the grinder. Breakage of the tip tool may lead to injury.
- Do not operate the grinder at extremely slow speed. A smooth finished surface will not be achieved and doing so may lead to damage of the tip tool, breakdown of the grinder or injury.

CAUTION

Do not touch the tip tool, collet nut or collet immediately after machining as they will be very hot and touching them may result in burns.

1. Remove the battery and attach the tip tool
2. Fix the workpiece so that it does not move

The smaller the workpiece, the more unstable it is to machine. Fix small workpieces in a vise.

Holding the workpiece by hand may result in injury.

3. Insert the battery in the grinder

4. Check the balance of the tip tool

Check the tip tool visually at low speed (around [1] on the switch dial).

Also check for abnormal noise during operation.

5. Select the machining speed

- Select the optimal speed for the material while performing trial grinding with reference to **Table 2**.
- If plastic is machined at high speed, it may melt due to heating. Test it gradually starting from a low speed.

Table 2 Switch dial settings

Workpiece material Tip tool	Softwood	Hardwood	Laminate/ Plastic	Steel	Aluminium, brass, etc.	Shell/ Stone	Ceramic	Glass
Aluminium oxide point	3-4	3-4	—	2.5	1	1.5	3-4	—
Silicon carbide point	—	—	1.5	3-4	1	1.5	3-4	3-4
High-speed cutter	3-4	3-4	1	1.5	3-4	—	—	—
Drill	3-4	3-4	1	—	1.5	—	—	—
Cutting wheel	—	—	1	3-4	3-4	3-4	3-4	—
Aluminium oxide grinding wheel	3-4	3-4	—	2.5	1	1.5	3-4	—
Sanding disc	2.5	2.5	1	—	1	—	—	—
Polishing wheel	—	—	—	1	1	1	1	1
Felt polishing wheel	—	—	—	1	1	—	—	—
Sanding band	1-4	1-4	1-4	3-4	3-4	1-4	1-4	—

6. Machining

- Place the rotating tip tool lightly against the workpiece and machine the workpiece with minimal pressure.
- Rather than doing the whole task in a single action, a better finish is achieved gradually by multiple machinings.

NOTE

- The grinder narrows toward the tip tool holder. Place your finger on the narrow section and hold the grinder for easy operation. (Fig. 9)
- When machining a material for the first time or using the tip tool for the first time, perform trial grinding first to check the optimal speed, how to hold the grinder and how to place the tool against the workpiece.
- If you do not achieve the expected results, applying more pressure to the power tool will not give better results. Nor will the machining performance be improved by tilting the power tool. Adjust the rotating speed or change to another tip tool.

5. Storage

Store the power tool in a place in which the temperature is less than 40°C and out of reach of children.

NOTE

Storing lithium-ion batteries.

Make sure the lithium-ion batteries have been fully charged before storing them.

Prolonged storage (3 months or more) of batteries with a low charge may result in performance deterioration, significantly reducing battery usage time or rendering the batteries incapable of holding a charge.

However, significantly reduced battery usage time may be recovered by repeatedly charging and using the batteries two to five times.

If the battery usage time is extremely short despite repeated charging and use, consider the batteries dead and purchase new batteries.

MAINTENANCE AND INSPECTION**1. Inspecting the accessories**

Using a tip tool or mandrel with a worn or damaged end will not only result in a poor finish, but will place unreasonable strain on the motor, causing reduced efficiency, damage or injury.

If the tip tool or mandrel is worn or damaged, replace it.

2. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately. Failure to do so could result in serious hazard.

3. Maintenance of the motor

The motor unit winding is the very "heart" of the power tool.

Exercise due care to ensure the winding does not become damaged and/or wet with oil or water.

4. Cleaning of the outside

When the grinder is stained, wipe with a soft dry cloth or a cloth moistened with soapy water. Do not use chloric solvents, gasoline or paint thinner, for they melt plastics.

CAUTION

In the operation and maintenance of power tools, the safety regulations and standards prescribed in each country must be observed.

Important notice on the batteries for the HiKOKI cordless power tools

Please always use one of our designated genuine batteries. We cannot guarantee the safety and performance of our cordless power tool when used with batteries other than these designated by us, or when the battery is disassembled and modified (such as disassembly and replacement of cells or other internal parts).

NOTE

Due to HiKOKI's continuing program of research and development, the specifications herein are subject to change without prior notice.

一般安全規則

警告！

閱讀所有說明，未遵守下列之說明可能導致電擊、火災及/或嚴重傷害。

「電動工具」一詞在下列警告中，關係到電源操作（有線）之電動工具或電池操作（無線）之電動工具。

記住這些說明

1) 工作場所

- 保持工作場所清潔及明亮。
雜亂及昏暗區域易發生意外。
- 勿在易產生爆炸之環境中操作，譬如有易燃液體、瓦斯或粉塵存在之處。
電動工具產生火花會引燃粉塵或煙氣。
- 當操作電動工具時，保持兒童及過往人員遠離。
分神會讓你失去控制。

2) 電氣安全

- 電動工具插頭必須與插座配合，絕不可以任何方法修改插頭，且不得使用任何轉接插頭於有接地之電動工具。
不修改插頭及所結合之插座可減少電擊。
- 避免身體接觸到接地面諸如管子、散熱器、爐灶及冰箱。
如果你的身體接地或搭地，會增加電擊的危險。
- 勿讓電動工具淋雨或曝露在潮濕的環境下。
電動工具進水會增加電擊的危險。
- 勿濫用電源線。絕勿使用電源線去纏繞、拖拉電動工具或拔插頭，保持電源線遠離熱氣、油氣、尖角或可動零件。
損壞或纏繞的電源線會增加電擊之危險。
- 電動工具在室外操作時要使用一適合室外的延長線。
使用合適之室外用延長線會減少電擊的危險。

3) 人員安全

- 保持機警，注意你正在做什麼，並運用普通常識操作電動工具。
當你感到疲勞或受藥品、酒精或醫療影響時，勿操作電動工具。
操作中瞬間的不注意可能造成人員嚴重的傷害。
- 使用安全裝備，常時佩戴安全眼鏡。
安全裝備有防塵口罩、防滑安全鞋、硬帽，或在適當情況下使用聽覺防護，可減少人員傷害。
- 避免意外地啟動。在插電前確認開關是在“off”的位置。
以手指放在開關握持電動工具，或在電動工具的開關於“on”的狀況下插上插頭，都會導致意外發生。

- 在將電動工具啟動前，先卸下任何調整用鑰匙或扳手。
扳手或鑰匙遺留在電動工具的轉動部位時，可能導致人員傷害。

- 身體勿過度伸張，任何時間要保持站穩及平衡。

以便在不預期的狀態下，能對電動工具有較好的控制。

- 衣著要合宜，別穿太鬆的衣服或戴首飾。
保持你的頭髮、衣服及手套遠離轉動部位。
寬鬆的衣服、手飾及長髮會被捲入轉動部位。
- 如果裝置要用於粉塵抽取及集塵設施，要確保其連接及正當使用。
使用此類裝置能減少與粉塵有關之危害。

4) 電動工具之使用及注意事項

- 勿強力使用電動工具，使用正確之電動工具為你所需。
正確使用電動工具會依其設計條件使工作做得更好更安全。
- 如果開關不能轉至開及關的位置，勿使用電動工具。
任何電動工具不能被開關所控制是危險的，必須要修理。
- 在做任何調整、更換配件或收存電動工具時，要將插頭與電源分開，且/或將電池從電動工具中取出。
此種預防安全措施可減少意外開啟電動機之危險。
- 收存停用之電動工具，遠離兒童，且不容許不熟悉電動工具或未瞭解操作電動工具說明書的人操作電動工具。
在未受過訓練的人手裡，電動工具極為危險。
- 保養電動工具，檢核是否有可動零件錯誤的結合或卡住、零件破裂及可能影響電動工具操作的任何其他情形。
電動工具如果損壞，在使用前要修好。許多意外皆肇因於不良的保養。
- 保持切割工具銳利清潔。
適當的保養切割工具，保持銳利之切削鋒口，可減少卡住並容易控制。
- 按照說明書使用電動工具、配件及刀具等，使用特殊型式之電動工具時要考量工作條件及所執行之工作。
使用電動工具未如預期用途之操作時，會導致危害。

5) 電池式工具的使用及注意事項

- 在插入電池組之前，確保開關置於斷開（off）的位置。
因插入電池組進入電動工具時，若開關置於接通（on）的位置時，將導致意外事故發生。

- b) 需再充電時，僅能使用製造商指定的充電器。
因充電器僅適合同一型式的電池組，若使用任何其它電池組時，將導致起火的危險。
- c) 使用電動工具時，僅能使用按照其特性設計的電池組。
因使用其它任何電池組時，將導致人員傷害及起火的危險。
- d) 當電池組不在使用時，需保存遠離其它的金屬物件，例如：迴紋針、錢幣、鑰匙、圖釘、螺釘，或類似能造成端子與端子間連接的其它較小金屬物件。
因電池組端子間短路時，將導致燃燒或起火的危險。
- e) 在誤用情況下，電解液可能自電池中噴出；請避免接觸。當發生意外接觸時，請用清水沖洗。若電解液觸及眼睛時，請儘速尋求醫療協助。
因自電池中噴出的電解液，將導致灼傷或刺激皮膚。
- 6) 維修
 - a) 工具需維修時，請找合格修理人員，並請使用與原材料相同的零組件予以更換。
遵循此規定，方能維持及確保電動工具的安全性。

注意事項

不可讓孩童和體弱人士靠近工作場所。

應將不使用的工具存放在孩童和體弱人士伸手不及的地方。

研磨、砂磨、拋光或砂磨切割操作的通用安全警告

- a) 本電動工具在設計上具有研磨、砂磨、拋光或砂磨切斷的功能。閱讀隨該電動工具提供的所有安全警告、說明、圖解和規定。
不瞭解以下所列所有說明將導致電擊、著火和/或嚴重傷害。
- b) 不可使用本電動工具進行鋼絲刷光操作。
電動工具不按指定的功能去操作，可能會發生危險和引起人身傷害。
- c) 不使用非工具製造商推薦和專門設計的附件。
否則該附件可能被裝到你的電動工具上，而它不能保證安全操作。
- d) 附件的額定速度必須至少等於電動工具上標出的最大速度。
附件以比其額定速度大的速度運轉會發生爆裂和飛濺。
- e) 附件的外徑和厚度必須在電動工具額定能力範圍之內。
不正確的附件尺寸不能得到充分防護或控制。
- f) 砂輪、法蘭盤、靠背墊或任何其他附件的軸孔尺寸必須適合於安裝到電動工具的主軸上。
帶軸孔的、與電動工具安裝件不配的附件將會失穩、過度振動並會引起失控。
- g) 不要使用損壞的附。在每次使用前要檢查附件，例如砂輪是否有碎片和裂縫，靠背墊是否有裂縫、撕裂或過度磨損，鋼絲刷是否鬆動或金屬絲是否斷裂。如果電動工具或附件跌落了，檢查是否有損壞或安裝沒有損壞的附件。檢查和安裝附件後，讓自己和旁觀者的位置遠離旋轉附件的平面，並以電動工具最大空載速度運行1min。
損壞的附件通常在該試驗時會碎裂。
- h) 戴上防護用品。根據適用情況，使用面罩、安全護目鏡或安全眼鏡。適用時，戴上防塵面具、聽力保護器、手套和能擋小磨料或工件碎片的工作圍裙。
眼防護罩必須擋住各種操作產生的飛屑。防塵面具或口罩必須能過濾操作產生的顆粒。長期暴露在高強度雜訊中會引起失聰。
- i) 讓旁觀者與工作區域保持一安全距離。任何進入工作區域的人必須戴上防護用品。
工件或破損附件的碎片可能會飛出並引起緊靠著操作區域的旁觀者的傷害。
- j) 當在切割附件有可能切割到暗線或自身電線的場所進行操作時，只能通過絕緣握持面來握住電動工具。
切割附件碰到一根帶電導線可能會使電動工具的外露金屬零件帶電並使操作者發生電擊危險。
- k) 使軟線遠離旋轉的附件。
如果控制不當，軟線可能被切斷或纏繞，並使得你的手或手臂可能被捲入旋轉附件中。
- l) 直到附件完全停止運動才放下電動工具。
旋轉的附件可能會抓住表面並拉動電動工具而讓你失去對工具的控制。
- m) 當攜帶電動工具時不要開動它。
意外地觸及旋轉附件可能會纏繞你的衣服而使附件傷害身體。
- n) 經常清理電動工具的通風口。
電動機風扇會將灰塵吸進機殼，過多的金屬粉末沈積會導致電氣危險。
- o) 不要在易燃材料附件操作電動工具。
火星可能會點燃這些材料。
- p) 不要使用需用冷卻液的附件。
用水或其他冷卻液可能會導致電腐蝕或電擊。

反彈和相關警告

反彈是因卡住或纏繞住的旋轉砂輪、靠背墊、鋼絲刷或其他附件而產生的突然反作用力。卡住或纏繞會引起旋轉附件的迅速堵轉，隨之使失控的電動工具在卡住點產生與附件旋轉方向相反的運動。

例如，如果砂輪被工件纏繞或卡住，伸入卡住點的砂輪邊緣可能會進入材料表面而引起砂輪爬出或反彈。砂輪可能飛向或飛離操作者，這取決於砂輪在卡住點的運動方向。在此條件下砂輪也可能碎裂。

反彈是電動工具誤用和/或不正確操作工序或條件的結果，可以通過採取以下給出的適當預防措施得以避免。

- 保持緊握電動工具，使你的身體和手臂處於正確狀態以抵抗反彈力。如有輔助手柄，則要一直使用，以便最大限度控制住起動時的反彈力或反力矩。如採取合適的預防措施，操作者就可以控制反力矩或反彈力。
- 絕不能將手靠近旋轉附件。
附件可能會反彈碰到手。
- 不要站在發生反彈時電動工具可能移動到的地方。
反彈將在纏繞點驅使工具逆砂輪運動方向運動。
- 當在尖角、銳邊等處作業時要特別小心。避免附件的彈跳和纏繞。
尖角、銳邊和彈跳具有纏繞旋轉附件的趨勢並引起反彈的失控。
- 不要附裝上鋸鏈、木雕刀片或帶齒鋸片。
這些鋸片會產生頻繁的反彈和失控。

對磨削和砂磨切割操作的專用安全警告

- 只使用所推薦的砂輪型號和為選用砂輪專門設計的護罩。
不是為電動工具設計的砂輪不能充分得到防護，是不安全的。
- 砂輪只用作推薦的用途。例如：不要用切割砂輪的側面進行磨削。
施加到砂輪側面的力可能會使其碎裂。
- 始終為所選砂輪選用未損壞的、有恰當規格和形狀的砂輪法蘭盤。
合適的砂輪法蘭盤支承砂輪可以減小砂輪破裂的可能性。切割砂輪的法蘭盤可以不同於砂輪法蘭盤。
- 不要使用從大規格電動工具上用剩的磨損砂輪。
用於大規格電動工具上的砂輪不適於較小規格工具的高速工況並可能會爆裂。

對砂輪切割操作的附加專用安全警告

- 不要“夾”住切割砂輪或施加過大的壓力。不要試圖做過深的切割。
給砂輪施加過應力增加了砂輪在切割時的負載，容易纏繞或卡住，增加了反彈或砂輪爆裂的可能性。
- 身體不要對著旋轉砂輪，也不要站在其後。
當把砂輪從操作者身邊的操作點移開時，可能的反彈會使旋轉砂輪和電動工具朝你推來。
- 當砂輪被卡住或無論任何原因而中斷切割時，關掉電動工具並握住工具不要動，直到砂輪完全停止。決不要試圖當砂輪仍然運轉時使切割砂輪脫離切割，否則會發生反彈。
調查並採取校正措施以消除砂輪卡住的原因。
- 不能在工件上重新起動切割操作。讓砂輪達到全速後再小心地重新進入切割。
如果電動工具在工件上重新起動，砂輪可能會卡住，爬出或反彈。

充電式砂輪機的一般安全事項

- 確認砂輪上所標示的轉速等於或大於角磨機的額定轉速；
- 確保砂輪尺寸與角磨機相符；
- 須按照廠家的使用說明書小心存放和使用磨輪；
- 使用前檢查砂輪，不要使用破損、有裂縫或有其他缺陷的產品；
- 確保所安裝的砂輪和節點已按照廠家的使用說明固定；
- 確保使用隨研磨產品附帶的吸油紙或在需要時使用吸油紙；
- 工件中若含有有害人體的成份，切勿使用電動工具進行加工。
- 請使用專用配件或附件。
- 在使用前確保已正確安裝並擰緊研磨產品，並在安全場所空載狀態下運轉30秒鐘，若有較大的振動或察覺到其他缺陷，則應立即停止運轉。遇此情況時，檢查電動工具以究明原因；
- 若電動工具配備保護裝置，切勿在未使用此保護裝置時使用電動工具；
- 請勿將獨立的減速軸襯或接頭，以便使用大孔砂輪；
- 有關要用螺紋孔砂輪來安裝的工具，確保砂輪的螺紋足夠長，以適合軸長；
- 檢查工件已被正確固定；
- 請勿使用切斷砂輪進行側面研磨；
- 確保使用時產生的火花不會引起危險，例如不要濺在身體上或點燃易燃物；

- 在多塵的條件下工作時，確保通風口暢通無堵塞現象。如果需要清除灰塵，首先使電動工具斷開電源（使用非金屬物品）並避免損壞內部零件；
- 始終採用視力和聽力保護。必須使用其他個人保護裝置，如口罩、手套、頭盔和圍裙等。
- 在切斷本電動工具的電源之後，砂輪仍會繼續旋轉一段時間，請注意此事項。
- 務請在 0~40°C 的溫度下進行充電。溫度低於 0°C 將會導致充電過度，極其危險。電池不能在高於 40°C 的溫度下充電。
最適合於充電的溫度是 20~25°C。
- 切勿連續使用充電器。
一次充電完成后，請將充電器擱置 15 分鐘以上，然后再進行下一次充電。
請勿連續給兩節以上的電池充電。
- 勿讓雜質進入充電電池連結口內。
- 切勿拆卸充電式電池與充電器。
- 切勿使充電式電池短路。使電池短路將會造成很大的電流和過熱，從而燒壞電池。
- 請勿將電池丟入火中。
電池受熱將會爆炸。
- 在牆壁、地板或天花板上鑽孔時，請檢查有無埋入電線等。
- 請勿將異物插入充電器的通風口。
若將金屬異物或易燃物插入通風口的話，將會引起觸電事故或使充電器受損。
- 充電後電池壽命太短不夠使用時，請盡快將電池送往經銷店。不可將用過的電池亂丟。
- 請勿使用耗竭了的電池，否則將會損壞充電器。

鋰離子電池使用注意事項

為延長使用期限，鋰離子電池備配停止輸出的保護功能。

若是在使用本產品時發生下列 1 至 3 的情況，即使按下開關，馬達也可能停止。這並非故障，而是 動保護功能的結果。

1. 在殘留的電池電力即將耗盡時，馬達會停止。
在這種情況下，請立即予以充電。
2. 若工具超過負荷，馬達亦可能停止。在這種情況下，請鬆開工具的開關，試著消除超過負荷的原因。之後您就可以再度使用。
3. 若電池在過載工作情況下過熱，電池電力可能會中止。
在這種情況下，請停止使用電池，讓電池冷卻。之後您就可以再度使用。

此外，請留心下列的警告及注意事項。

警告

為防止發生電池漏電、發熱、冒煙、爆炸及提前點燃，請確保留意下列事項。

1. 確保電池上沒有堆積削屑及灰塵。
 - 在工作時確定削屑及灰塵沒有掉落在電池上。
 - 確定所有工作時掉落在電動工具上的削屑和灰塵沒有堆積在電池上。
 - 請勿將未使用的電池存放在曝露於削屑和灰塵的位置。
 - 在存放電池之前，請清除任何可能附著在上面的削屑和灰塵，並請切勿將它與金屬零件（螺絲、釘子等）存放在一起。
2. 請勿以釘子等利器刺穿電池、以鐵錘敲打、蹂躪、丟擲電池，或將其劇烈撞擊。
3. 切勿使用明顯損壞或變形的電池。
4. 使用電池時請勿顛倒電極。
5. 請勿直接連接電源插座或汽車點煙器孔座。
6. 請依規定方式使用電池，切勿移作他用。
7. 如果已過了再充電時間，電池仍無法完成充電，請立即停止繼續再充電。
8. 請勿將電池放置於高溫或高壓處，例如微波爐、烘乾機或高壓容器內。
9. 在發覺有滲漏或異味時，請勿接近遠離火源。
10. 請勿在會產生強烈靜電的地方使用。
11. 如有電池滲漏、異味、發熱、褪色或變形，或在使用、充電或存放時出現任何異常，請立即將它從裝備或電池充電器拆下，並停止使用。
12. 請勿將電池浸入任何液體，或讓任何液體流入電池內。若水等具有傳導性的液體滲入，可能會造成損壞，進而導致火災或爆炸。將電池存放在陰涼、乾燥的地方，遠離可燃及易燃物品。必須避免腐蝕性氣體環境。

注意

1. 若電池滲漏出的液體進入您的眼睛，請勿搓揉眼睛，並以自來水等乾淨清水充彬沖洗，立刻送醫。
若不加以處理，液體可能會導致眼睛不適。
2. 若液體滲漏至您的皮膚或衣物，請立即以自來水等清水沖洗。
上述情況可能會使皮膚受到刺激。
3. 若初次使用電池時發現生鏽、異味、過熱、褪色、變形及／或其他異常情況時，請勿使用並將該電池退還給供應商或廠商。

警告

若具有導電性的異物進入鋰離子電池的端子，可能會造成短路，進而引發火災。請在存放電池時遵循以下事項。

- 請勿將切削下來會導電的物品、鐵釘、鋼線、銅線或其他電線放入儲存箱內。
- 無論是將電池安裝在電動工具內，或是儲存電池，請確實壓下電池蓋，直至遮住通風孔為止，以防短路（請參閱圖 3）。

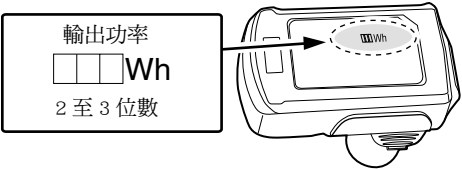
關於鋰離子電池的運輸

運輸鋰離子電池時，請遵守以下注意事項。

警告

安排運輸時，請通知運輸公司包裹中含有鋰離子電池，告知該電池之輸出功率，並按照運輸公司的指示。

- 輸出功率超過 100 Wh 的鋰離子電池被視為貨物分類中的危險物品，將需要特殊的申請程序。
- 對於國外的運輸，必須遵守國際法規則和目的國法規。



規 格

電動工具

無負荷速度	5000-35000 轉/分
套爪夾盤容量	3.2 mm
充電式電池	BCL1015: Li-ion 10.8 V / 12 V 最大值 (1.5 Ah , 3 節電池)
重量	0.48 kg

充電器

型式	UC10SFL
充電電壓	10.8 V
重量	0.35 kg

標 準 附 件

GP10DL (2LCSK)	① 附件 × 40件..... 1
	② 電池 (BCL1015)..... 2
	③ 充電器 (UC10SFL)..... 1
	④ 塑料套 1
	⑤ 電池外蓋..... 1
GP10DL (LCSK)	① 附件 × 40件..... 1
	② 電池 (BCL1015)..... 1
	③ 充電器 (UC10SFL)..... 1
	④ 塑料套 1
GP10DL (NN)	① 附件 × 40件..... 1

有關附件的詳盡資訊，請參閱「隨機附件」部分。

標準附件可能不預先通告而徑予更改。

隨機附件

<用途>

用於木料的雕刻及研磨。	氧化鋁研磨頭 [φ15.9 mm × 1] 15.9 mm
用於加工質地堅硬的材料，例如：玻璃、陶瓷。	碳化矽研磨頭 [φ4.8 mm × 1] 4.8 mm
用於木料、塑料、軟金屬（鋁、黃銅、紅銅）的雕刻、研磨、開槽。	高速切割頭 [φ3.2 mm × 1] 3.2 mm
用於木料、合板的開孔。	鑽頭 [φ3.2 mm × 1] 3.2 mm
用於分割或切割材料。適用於小型棒狀物及管路。重新塑形螺絲頭受損的槽口。切勿重壓於工件上，以避免切割片碎裂。	切割片 [φ23.8 × t0.6 × 6] 23.8 mm 0.6 mm H
	切割片 [φ23.8 × t1.0 × 2] 23.8 mm 1.0 mm H
用於拋光不鏽鋼等質地堅硬的材料。	氧化鋁研磨砂輪 [φ22.2 × 1] 22.2 mm
適用於粗磨後的最終拋光。	砂磨片 [φ19.1 mm/180-粒度 × 10] 19.1 mm 180-粒度
用於金屬表面的平滑加工。	拋光輪 [φ25.4 mm × 2] 25.4 mm
用於珠寶及金屬的鏡面加工。 請選擇適合工件的尺寸。	氈布拋光輪 [φ12.7 mm × 4] 12.7 mm
	氈布拋光輪 [φ25.4 mm × 2] 25.4 mm
適用於木料塑形及模型表面加工。 分兩段式不同粒度研磨，可獲得最佳表面加工效果。	砂輪環 [φ12.7 mm/60-粒度 × 6] 12.7 mm 60-粒度
	砂輪環 [φ12.7 mm/120-粒度 × 2] 12.7 mm 120-粒度

注意事項

各項標準附件均為GP10DL專用附件，切勿用於電鑽等其他設備，以免造成人員受傷或前端刀具損壞。

[附件]

套爪扳手（用於旋鬆鎖緊的套爪螺帽）



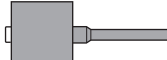
盤式心軸
[φ3.2 mm × 1]



螺絲型心軸
[φ3.2 mm × 1]

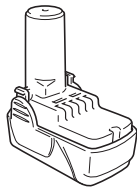


鼓形心軸
[φ3.2 mm × 1]



選購附件(分開銷售)

1. 電池(BCL1015)



選購附件可能不預先通告而徑予更改。

用途

- 製作木雕手工藝品及精緻金屬飾品
- 雕刻及雕塑玻璃與陶瓷品
- 研磨及拋光鋼鐵與石材

基本功能

1. 低電量警示燈(圖 1)

檢查電池剩餘電量時，請以空載方式操作砂輪機。
若電池剩餘電量過低，警示燈會亮起(紅色LED)。
如果警示燈亮起，請立即充電。

註

- 低電量警示燈可能受環境溫度或電池特性所影響。警示燈可作為電池是否需充電的參考。
- 操作砂輪機期間，低電量警示燈可能因電池電壓暫時下降而亮起，並非電量過低所導致。
- 檢查電池剩餘電量時，務必於空載條件下操作砂輪機。

2. 開關轉盤

開關轉盤同時兼具啟動開關及速度調整盤的功能。轉盤由 [0] 轉至較高號數時，砂輪機將啟動並逐漸提高轉速。同時，前方的LED燈點亮，用於照明砂輪機的前方。

轉盤轉至 [0] 時，砂輪機電源關閉並停止轉動。

為確保使用安全，若開關轉盤位於 [0] 以外的其他位置，裝入電池時砂輪機不會啟動。

此時，若需啟動砂輪機，請先將開關轉盤歸回 [0] 位置，再轉至較高的號數。

開關轉盤號數與砂輪機轉速之間的約略關係，請參閱圖 2。

電池的拆卸/安裝法

1. 電池的拆卸法

緊握住手柄並推動電池卡榫即可拆除電池(請參閱圖 3 與圖 4)。

注意

請勿使電池短路。

2. 電池的安裝法

請先確認了電池的正負極後，再將電池插進去(見圖 4)。

充電

使用電動工具之前，按下述方法將電池進行充電。

1. 將充電器的電源線插頭插入插座

2. 將電池插入充電器中

以電池標籤朝充電器標籤的方向插入電池，然後將電池往下壓，直到電池接觸到下方的金屬(請參見圖 5)。

插入電池後，隨即開啟充電器電源(指示燈會亮起)。

注意

若指示燈未亮起，請從電源插座拔下電源線，然後檢查電池安裝狀態。

指示燈熄滅表示電池已經充好。

注意

作業停止後，如電池(因曬太陽等原因)而變熱，充電指示燈會不亮。這時，應先讓電池冷卻，然後再充電。

○ 關於充電時間

表格 1 顯示不同類型電池所需的充電時間。

表格 1 在 20°C 時的再充電時間(約分鐘)

電池電壓 (V)	電池容量(Ah)	
	1.5 Ah	
10.8 V	BCL1015	40 分鐘

註

充電時間會依環境溫度而有不同。

3. 將充電器電線從插頭拔下

4. 抓穩充電器並取出電池

註

充電後，先將電池從充電器中取出，然後妥善保存。

怎樣讓電池使用時間更長。

(1) 在電池電量完全耗盡之前給電池充電。

在感覺工具的動力變弱時，停止使用工具並為電池充電。如果繼續使用工具消耗電流，可能會造成對電池的損壞，電池使用壽命會縮短。

(2) 避免在高溫下充電。

充電電池在剛使用後會發熱。如果在電池剛使用後為電池充電，電池的內部化學物質的性能會下降，電池使用壽命會縮短。請先將電池放置一會，待電池冷卻後再進行充電。

注意

- 連續使用電池充電器時，充電器會變熱，因而導致故障。完成一次充電後，請休息 15 分鐘再進行下次充電。
- 若電池已正確裝入，但電池充電器仍無法運作，即有可能是電池或充電器故障。請將它們送到授權的服務中心檢查。

操作前

1. 設置與工作環境檢查

檢查工作環境是否符合上述的各項安全注意事項。

安裝前端刀具的方式

警告

為避免發生意外，請先關閉電源並將電池取出。

注意

確認已將心軸鎖緊。裝入前端刀具之後，確認刀具已確實固定。若刀具未確實固定，則可能因鬆脫而造成物品損壞或人員受傷。

1. 螺絲型心軸的使用方式 (圖 6 (a))

氈布拋光輪需搭配螺絲型心軸使用。將拋光輪直立，再鎖入螺絲型心軸的螺紋部分，直到拋光輪碰觸心軸的凸緣為止。

2. 盤式心軸的使用方式 (圖 6 (b))

利用平口螺絲起子旋下盤式心軸頂端的螺絲，再裝上切割片或砂輪片。

3. 鼓形心軸的使用方式 (圖 6 (c))

出廠時，鼓形心軸上已裝入一只60-粒度的砂輪環。利用螺絲起子鬆開心軸頂端的螺絲，即可取出 / 裝入砂輪環。

裝入砂輪環後，確實將螺絲鎖緊。

4. 將前端刀具裝入砂輪機

壓下鎖止按鈕的同時，用手轉動套爪螺帽，可使鎖止按鈕更深入的壓下。

此時已鎖住轉軸，可將套爪螺帽旋鬆 / 鎖緊 (圖 7)。

裝入前端刀具時，先將前端刀具插到底，再確實鎖緊套爪螺帽。

拆下前端刀具時，雖然有時套爪螺帽會過緊，但通常可用手轉鬆。若套爪螺帽過緊，請使用隨附的套爪扳手旋鬆。

鐵屑若附著於套爪螺帽、套爪或轉軸螺絲上，可能會使套爪螺帽難以轉動。(圖 8)

拆裝前端刀具之前，務必先將所有碎屑清除。

註

雖不常見，但仍可能發生難以取出套爪內前端刀具的情形。若發生此情形，先將套爪螺帽旋鬆，再將刀具頂端抵住堅硬物體後施予輕壓。(圖 10)

5. 調整前端刀具的平衡

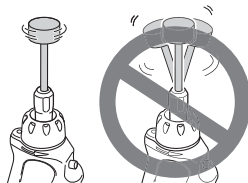
裝入前端刀具後，以低速操作砂輪機。若平衡度不佳，請依下列程序調整平衡。

按下鎖止按鈕並旋鬆套爪螺帽。

將前端刀具旋轉1/4圈，再鎖緊套爪螺帽。

以低速操作砂輪機，檢查平衡情形。若平衡良好，即完成調整作業。

若平衡度仍不佳，請先取出前端刀具、拆下套爪螺帽及套爪，再重新裝入。若經數次調整而仍無法取得良好平衡，請檢查前端刀具是否有變形或磨損情形，套爪是否變形。若有變形或磨損情形，請更換前端刀具或套爪。



操作砂輪機

警告

- 使用砂輪機時，臉部必須與前端刀具保持安全距離。
- 使用砂輪機時，請配戴護目鏡及防塵面罩。前端刀具若斷裂，可能造成人員受傷。
- 切勿以極低轉速操作砂輪機，否則不僅無法研磨出平滑表面，也可能造成前端刀具損壞、砂輪機故障，甚或導致人員受傷。

注意

加工作業完成后，切勿立即碰觸溫度極高的前端刀具、套爪螺帽及套爪，以免發生燒燙傷意外。

1. 取出電池並裝入前端刀具

2. 確實固定住工件

工件越小，加工時越不穩定。請將小型工件固定於虎頭鉗上。用手握持工件容易導致人員受傷。

3. 將電池插入砂輪機內

4. 檢查前端刀具的平衡度

低速運轉並目視檢查前端刀具（開關轉盤轉至 [1] 附近）。
操作期間同時注意有無任何雜音。

5. 選擇加工最適合的轉速

- 試研磨時，請參照 [表2] 選擇工件材質最適用的轉速。
- 若以高轉速進行塑料的加工，可能使塑料因高熱而產生熔融情形。請先由低速開始進行測試，再逐漸提高轉速。

表2 開關轉盤設定值

工件材質 前端刀具	軟質木料	硬質木料	合板 / 塑料	鋼鐵	鋁、紅銅等	貝殼 / 石材	陶瓷	玻璃
氧化鋁研磨頭	3-4	3-4	—	2.5	1	1.5	3-4	—
碳化矽研磨頭	—	—	1.5	3-4	1	1.5	3-4	3-4
高速切割頭	3-4	3-4	1	1.5	3-4	—	—	—
鑽頭	3-4	3-4	1	—	1.5	—	—	—
切割片	—	—	1	3-4	3-4	3-4	3-4	—
氧化鋁研磨砂輪	3-4	3-4	—	2.5	1	1.5	3-4	—
砂磨片	2.5	2.5	1	—	1	—	—	—
拋光輪	—	—	—	1	1	1	1	1
麁布拋光輪	—	—	—	1	1	—	—	—
砂輪環	1-4	1-4	1-4	3-4	3-4	1-4	1-4	—

6. 加工

- 將旋轉中的前端刀具輕觸工件，以最小壓力對工件進行加工。
- 以多次加工方式所獲得的表面加工效果，通常優於一次完成所有加工作業的工法。

4. 清理外部

砂輪機髒污時，請使用乾淨軟布或沾肥皂水的布擦拭。切勿使用氯溶液、汽油或稀釋劑，以免塑膠部分溶化。

5. 收藏

電動工具應收藏於溫度低於 40℃ 而為小孩拿不到的地方。

註

存放鋰離子電池
存放鋰離子電池前，確保其已完全充電。
電池在低電力的狀態下長期存放（3 個月以上），可能會導致性能劣化，電池的使用時間顯著降低或無法再進行充電。
然而，反覆將電池充電和暫停充電二至五次，可能會改善電池使用時間的顯著降低情況。
反覆充電後，若電池的使用時間仍呈現極短現象，表示電池壽命已盡，請購買新的電池。

註

- 砂輪機的機身前端採用漸細設計，將手指放置於較細處，可使操作更輕鬆。(圖9)
- 第一次加工新的材料或前端刀具第一次使用時，應先進行試研磨作業，以利取得最佳轉速、握持砂輪機的最佳方式以及工件加工的最佳力道。
- 若加工成果不如預期，徒增施加於電動工具上的力道並不能獲得較佳的效果，傾斜電動工具的加工角度亦無法獲得實質的改善。請調整轉速或更換為其他的前端刀具。

保養與檢查

1. 檢查配件

若使用已磨損的前端刀具或頂端受損的心軸，不僅會使加工成果不佳，更會增加馬達額外的負荷、影響使用效益、造成物品損壞或導致人員受傷。
如果尖端的工具或頂桿有磨損，請替換它。

2. 檢查安裝螺釘

要經常檢查安裝螺釘是否緊固妥善。若發現螺釘鬆了，應立即重新扭緊，否則會導致嚴重的事故。

3. 電動機的維護

電動機繞線是電動工具的“心臟部”。應仔細檢查有無損傷，是否被油液或水沾濕。

注意

在操作和維修電動工具中，必須遵守各國的安全規則和標準規定。

HiKOKI 充電式工具電池重要注意事項

請務必使用本公司所指定的原廠電池。若未使用本公司所指定的電池，或使用經拆解及改裝的電池（例如，拆解後更換電池芯或其他內部零件），則本公司無法保證充電式工具的性能及操作安全。

註

為求改進，本手冊所載規格可能不預先通告而徑予更改。

일반적인 안전 수칙

경고!

설명서를 자세히 읽으십시오.

설명서의 내용에 따르지 않을 시에는 감전 사고나 화재가 발생할 수 있으며 심각한 부상을 입을 수도 있습니다.

아래에 나오는 '전동 툴'이란 용어는 플러그를 콘센트에 연결해 유선 상태로 사용하는 제품 또는 배터리를 넣어 무선 상태로 사용하는 제품을 가리킵니다.

설명서의 내용을 숙지하십시오.

1) 작업 공간

- a) 작업 공간을 깨끗하게 청소하고 조명을 밝게 유지하십시오.

작업 공간이 정리되어 있지 않거나 어두우면 사고가 날 수 있습니다.

- b) 인화성 액체나 기체 또는 먼지 등으로 인해 폭발 위험이 있는 환경에서는 전동 툴을 사용하지 마십시오.

전동 툴을 사용하다 보면 불꽃이 튀어서 먼지나 기체에 불이 붙을 수 있습니다.

- c) 어린이를 비롯하여 사용자 외에는 작업장소에 접근하지 못하도록 하십시오.

주의가 산만해지면 문제가 생길 수 있습니다.

2) 전기 사용시 주의사항

- a) 전동 툴 플러그와 콘센트가 일치해야 합니다.

플러그를 절대로 변형하지 마십시오.

접지된 전동 툴에는 어댑터 플러그를 사용하지 마십시오.

플러그를 변형하지 않고 알맞은 콘센트에 꽂아 사용하면, 감전 위험을 줄일 수 있습니다.

- b) 파이프, 라디에이터, 레인지, 냉장고 등 접지된 표면에 몸이 닿지 않도록 주의하십시오.

작업자의 몸이 접지되면, 감전될 위험이 있습니다.

- c) 전동 툴에 비를 맞거나 젖은 상태로 두지 마십시오.

물이 들어가면 감전될 위험이 있습니다.

- d) 코드를 조심해서 다루십시오. 전동 툴을 들거나 당기거나 콘센트에서 뽑으려고 할 때 코드를 잡아당기면 안 됩니다.

열, 기름, 날카로운 물건, 움직이는 부품 등으로부터 코드를 보호하십시오.

코드가 파손되거나 엉키면 감전될 위험이 높아집니다.

- e) 실외에서 전동 툴을 사용할 때는 실외 용도에 적합한 연장선을 사용하십시오.

실외 용도에 적합한 코드를 사용해야 감전 위험이 줄어듭니다.

3) 사용자 주의사항

- a) 전동 툴을 사용할 때는 작업에 정신을 집중하고, 상식의 범위 내에서 사용하십시오.

약물을 복용하거나 알코올을 섭취한 상태 또는 피곤한 상태에서는 전동 툴을 사용하지 마십시오.

전동 툴을 사용할 때 주의가 흐트러지면 심각한 부상을 입을 수 있습니다.

- b) 안전 장비를 사용하십시오. 항상 눈 보호 장구를 착용해야 합니다.

먼지 보호 마스크, 미끄럼 방지 신발, 안전모, 청각 보호 장비 등을 사용하면 부상을 줄일 수 있습니다.

- c) 전동 툴이 갑자기 작동되지 않도록 합니다. 플러그를 꽂기 전에 스위치가 'OFF' 위치에 있는지 확인하십시오.

손가락을 스위치에 접촉한 채 전동 툴을 들거나 스위치가 켜진 상태로 플러그를 꽂으면 사고가 날 수 있습니다.

- d) 전원을 켜기 전에 조정 키 또는 렌치를 반드시 제거해야 합니다.

전동 툴의 회전 부위에 키 또는 렌치가 부착되어 있으면, 부상을 입을 수 있습니다.

- e) 작업 대상과의 거리를 잘 조절하십시오. 알맞은 발판을 사용하여 항상 균형을 잡고 있어야 합니다.

그렇게 하면 예기치 못한 상황에서도 전동 툴을 잘 다룰 수 있습니다.

- f) 알맞은 복장을 갖추십시오. 헐렁한 옷이나 장신구를 착용하면 안 됩니다. 머리카락, 옷, 장갑 등을 움직이는 부품으로부터 보호하십시오.

헐렁한 옷이나 장신구, 긴 머리카락이 부품에 떨어 들어갈 수도 있습니다.

- g) 분진 추출 및 집진 장비에 연결할 수 있는 장치가 제공되는 경우, 그러한 장치가 잘 연결되어 있고 제대로 작동하는지 확인하십시오.

이러한 장치를 사용하면, 먼지와 관련된 사고를 줄일 수 있습니다.

4) 전동 툴 사용 및 관리

- a) 전동 툴을 아무 곳에도 사용하지 마십시오. 용도에 알맞은 전동 툴을 사용하십시오.

적절한 전동 툴을 사용하면, 정상 속도로 안전하고 효과적으로 작업을 수행할 수 있습니다.

- b) 스위치를 눌렀을 때 전동 툴이 켜지거나 꺼지지 않으면 사용하지 마십시오.

스위치로 작동시킬 수 없는 전동 툴은 위험하므로, 수리를 받아야 합니다.

- c) 전동 툴을 조정하거나 부속품을 바꾸거나 보관할 때는 반드시 전원에서 플러그를 빼야 합니다.

이러한 안전 조치를 취해야 전동 툴이 갑자기 켜지는 위험을 피할 수 있습니다.

- d) 사용하지 않는 전동 툴은 어린이의 손이 닿지 않는 곳에 보관하고, 사용법을 잘 모르는 사람이 사용하지 못하도록 하십시오.

전동 툴은 미숙련자가 다루기에는 매우 위험한 물건입니다.

- e) 전동 툴을 잘 관리하십시오. 움직이는 부품이 잘못 결합되어 있거나 꼭 끼어 움직이지 못하게 되어 있지 않은지 점검하십시오. 또한 전동 툴의 작동에 영향을 미칠 수 있는 기타 파손이 없는지 확인하십시오.

파손된 부분이 있는 경우, 사용하기 전에 수리하십시오.

전동 툴을 제대로 관리하지 못해서 생기는 사고가 많습니다.

- f) 절삭 툴은 날카롭고 청결한 상태로 관리하십시오.

절삭 날을 날카로운 상태로 잘 관리하면, 원활하게 잘 움직이며 다루기도 훨씬 편리합니다.

- g) 설명서를 참조하여 전동 툴과 부속품, 툴 비트 등을 사용하십시오. 또한 작업 환경과 수행할 작업의 성격을 고려해서 알맞은 종류의 전동 툴을 선택하고, 적절한 방식으로 사용하십시오.

원래 목적과 다른 용도로 전동 툴을 사용하면 위험한 사고가 날 수 있습니다.

5) 배터리 도구 사용 및 관리

- a) 배터리 팩을 삽입하기 전에 스위치가 꺼졌는지 확인하십시오.

스위치가 켜진 상태에서 배터리 팩을 전동 툴에 삽입하면 사고가 발생할합니다.

- b) 제조업체가 지정한 충전기로만 충전하십시오.

한 종류의 배터리 팩에 적합한 충전기는 다른 배터리 팩에 사용될 때 화재 위험을 발생시킬 수 있습니다.

- c) 구체적으로 지정된 배터리 팩만 전동 툴에 사용하십시오.

다른 배터리 팩을 사용하면 부상 및 화재의 위험이 발생할 수 있습니다.

- d) 배터리 팩을 사용하지 않을 때는 종이 클립, 동전, 열선, 못, 나사와 같은 기타 금속 물체 또는 단자간 연결을 만들어낼 수 있는 기타의 작은 금속 물체와 떨어진 곳에 놓아두십시오.
배터리 단자가 모두 단락되면 화재 또는 화재가 발생할 수 있습니다.
- e) 가혹한 조건 하에서 액체가 배터리에서 누출될 수 있습니다. 배터리 누액과 접촉하지 마십시오. 배터리 누액과 우발적으로 접촉할 경우 물로 씻으십시오. 배터리 누액이 눈에 들어갈 경우 의사의 진찰을 받으십시오.
배터리에서 누출되는 액체는 염증 또는 화상을 일으킬 수 있습니다.
- 6) 서비스
- a) 자격을 갖춘 전문가에게 서비스를 받고, 항상 원래 부품과 동일한 것으로 교체해야 합니다.
그렇게 하면 전동 툴을 보다 안전하게 사용할 수 있습니다.

주의사항

어린이나 노약자가 가까이 오지 못하도록 하십시오.
전동 툴을 사용하지 않을 때는 어린이나 노약자의 손이 닿지 않는 곳에 보관해야 합니다.

연삭, 샌딩, 연마 또는 절단 연삭 작업에 공통적인 안전 경고

- a) 이 전동 툴은 그라인더, 샌더, 연마기 또는 절단기로 기능하도록 고안되었습니다. 이 전동 툴과 함께 제공된 모든 안전 경고, 지침, 그림 및 규격을 읽으십시오.
아래에 열거한 모든 지침을 따르지 않을 경우 감전, 화재 및/또는 중상이 발생할 수 있습니다.
- b) 이 전동 툴로 와이어 브러싱과 같은 작업을 수행하는 것은 권장되지 않습니다.
전동 툴을 지정된 용도 이외로 조작할 경우 위험과 상해가 유발될 수 있습니다.
- c) 툴 제조업체가 구체적으로 지정 및 권장하지 않은 부속품을 사용하지 마십시오.
부속품이 전동 툴에 장착될 수 있다고 해서 반드시 안전한 조작이 보장되는 것은 아닙니다.
- d) 부속품의 정격 속도는 최소한 전동 툴에 표시된 최고 속도와 같아야 합니다.
정격 속도보다 더 빨리 작동하는 부속품은 파손되어 조각이 될 수 있습니다.
- e) 부속품의 외경과 두께는 전동 툴의 정격 용량의 범위 내에 있어야 합니다.
잘못된 크기의 부속품은 적절하게 보호 또는 제어될 수 없습니다.
- f) 스톨, 플랜지, 지지 패드 또는 모든 기타 부속품의 축 크기는 전동 툴의 스피indle에 적합해야 합니다.
축 구멍이 전동 툴의 장착 하드웨어와 일치하지 않는 부속품은 균형을 잃은 상태로 작동하고, 과도하게 진동하여 제어하지 못하게 될 수 있습니다.
- g) 손상된 부속품은 사용하지 마십시오. 매번 사용하기 전에 연마 스톨과 같은 부속품에 흠과 균열이 있는지 검사하고, 지지 패드의 균열, 파열 또는 과도한 마모 여부를 검사하고, 와이어 브러시의 와이어가 느슨하거나 균열이 있는지 검사하십시오. 전동 툴 또는 부속장치가 떨어진 경우, 손상 여부를 검사하거나 손상되지 않은 부속품을 장착하십시오. 부속품을 검사 및 장착한 후, 사용자 및 주변 작업자들은 회전 부속품의 평면에서 떨어져 있고 전동 툴을 일본 동안 최고 무부하 속도로 작동해야 합니다.
손상된 부속품은 일반적으로 이 시험 시간 동안 부서집니다.

- h) 개인보호장구를 착용하십시오. 용도에 따라 안전 보호대, 안전 고글 또는 보안경을 착용하십시오. 적합한 경우, 방진 마스크, 귀마개, 장갑, 작은 마벨 파편 또는 작업물 파편을 막아 주는 작업장용 에어프린을 착용하십시오.
보안대는 여러 조작에 의해서 생성되는 날아다니는 찌꺼기로부터 눈을 보호합니다. 방진 마스크 또는 마스크는 조작에 의해서 생성되는 입자들을 걸러줄 수 있어야 합니다.
고강도 소음에 장시간 노출되면 청력을 상실할 수 있습니다.
- i) 주변 작업자들을 작업 영역으로부터 안전한 거리만큼 떨어져 있게 하십시오. 작업 영역에 들어오는 사람은 누구나 개인보호장구를 착용해야 합니다.
작업을 파편 또는 부서진 부속품의 파편이 날아다니는 직접적인 작업 영역 이외의 사람에게 상해를 입힐 수 있습니다.
- j) 절단 부속품이 숨어 있는 전선 또는 자체의 코드와 접촉할 수 있는 경우 작업을 수행할 때 절연된 고정면으로 전동 툴을 잡으십시오.
"전기가 흐르는" 전선과 접촉하는 절단 부속품은 전동 툴의 노출된 금속부에 "전기가 흐르게" 하여 조작자를 감전시킬 수 있습니다.
- k) 코드를 회전 부속품이 없는 곳에 놓으십시오.
통제력을 상실할 경우, 코드가 절단되거나 찢어질 수 있으며 손이나 팔이 회전 부속품에 빨려 들어갈 수 있습니다.
- l) 전동 툴을 부속품이 완전히 정지할 때까지 절대로 내려놓지 마십시오.
회전 부속품이 표면을 잡아 전동 툴을 당겨 사용자가 통제력을 상실할 수 있습니다.
- m) 전동 툴을 옆에 들고 있는 상태에서 작동하지 마십시오.
회전 부속품과 우발적으로 접촉할 경우 못이 찢어져서 부속품에 의해 상해를 입을 수 있습니다.
- n) 전동 툴의 에어 밴드를 정기적으로 청소하십시오.
모터의 팬이 하우징 내의 먼지를 끌어당기게 되며 금속 가루가 과도하게 쌓일 경우 전기적 위험이 유발될 수 있습니다.
- o) 전동 툴을 가연성 물질과 가까이에서 사용하지 마십시오.
불꽃 때문에 가연성 물질에 불이 붙을 수 있습니다.
- p) 액체 냉각제가 필요한 부속품을 사용하지 마십시오.
물 또는 기타 액체 냉각제를 사용하면 감전사 또는 감전이 발생할 수 있습니다.

반동 및 관련 경고

- 반동은 놀리거나 걸린 회전 스톨, 지지 패드, 브러시 또는 기타의 부속품에 대한 갑작스러운 반응입니다.
놀리거나 걸리면 회전 부속품이 갑자기 정지하고 이로 인해 통제력이 상실된 전동 툴이 부속품 장착 시의 부속품 회전 방향과 반대 방향으로 강제로 회전합니다.
예를 들어, 연마 스톨이 작업물에 의해 걸리거나 놀릴 경우, 놀리는 지점에 들어가는 스톨의 가장자리가 작업물의 표면을 파고 들어 스톨이 위로 올라가거나 반동할 수 있습니다. 놀리는 지점의 스톨의 운동 방향에 따라 스톨이 조작자쪽으로 움직이거나 조작자와 반대 방향으로 움직일 수 있습니다. 연마 스톨도 이러한 조건에서는 부서질 수 있습니다.
반동은 전동 툴의 오용 및/또는 올바르게 않은 조작 절차 또는 조건의 결과이며 아래와 같은 적절한 주의사항을 준수하여 방지할 수 있습니다.
- a) 전동 툴을 세게 잡고 몸과 팔을 반동력을 저지하는 위치에 두십시오. 이동 중에 반동 또는 토크 반작용을 최대한 통제하도록 항상 보조 핸들(제공된 경우)을 사용하십시오. 조작자는 적절한 예방 조치를 취할 경우 토크 반작용 또는 반동력을 제어할 수 있습니다.
- b) 손을 회전 부속품 가까이에서 절대로 놓지 마십시오.
부속품이 손 위로 반동할 수 있습니다.

- c) **반동할 경우 전동 톨이 이동하는 공간에 몸을 두지 마십시오.**
반동은 톨을 걸릴 때의 슛들의 이동 방향과 반대 방향으로 밀어냅니다.
- d) **구석, 날카로운 가장자리 등을 가공할 때 특히 주의하십시오.** 부속품이 튀어오르거나 걸리지 않게 하십시오.
구석이 날카로운 가장자리를 가공하거나 부속품이 튀어오르면 부속품이 걸리게 되어 통제 상실 또는 반동이 유발됩니다.
- e) **톨 체인 목재조각 날 또는 톨니형 톨날을 장착하지 마십시오.**
이러한 날들은 작은 반동과 통제 상실을 유발합니다.

연삭 및 절단 연삭 작업에만 적용되는 안전 경고

- a) **전동 톨에 권장되는 종류의 슛들과 선택한 슛들에 지정된 보호대만 사용하십시오.**
전동 톨에 사용되도록 지정되지 않은 슛들은 올바른 보호대로 보호될 수 없으며 안전하지 않습니다.
- b) **스�들은 권장 용도로만 사용해야 합니다. 예: 절단 슛들의 측면으로 연삭하지 마십시오.**
절단 연삭 슛들은 횡측 연삭용이기 때문에 측면에 힘을 가하면 부서질 수 있습니다.
- c) **항상 선택한 슛들에 적합한 크기와 모양의 손상되지 않은 슛들 플랜지를 사용하십시오.**
올바른 슛들 플랜지는 슛들을 지지하여 슛들 파손의 가능성을 줄입니다. 절단 슛들의 플랜지는 연삭 슛들 플랜지와 다를 수 있습니다.
- d) **더 큰 전동 톨에서 사용되어 마모로 인해 작아진 슛들을 사용하지 마십시오.**
더 큰 전동 톨에 사용되도록 지정된 슛들은 더 높은 속도의 더 작은 톨에 적합하지 않으며 깨질 수 있습니다.

절단 연삭 작업에만 적용되는 추가 안전 경고

- a) **절단 슛들을 "걸리게" 하거나 과도한 압력을 가하지 마십시오. 과도한 깊이로 절단하려 하지 마십시오.**
스�들에 과도한 힘을 가하면 슛들이 받는 부하가 커져 슛들이 절단부에 끼어 비틀리거나 고착될 가능성 및 반동 또는 파손의 가능성이 높아집니다.
- b) **몸을 회전 슛들 옆과 뒤에 두지 마십시오.**
작동 시점에 슛들이 몸과 반대쪽으로 움직일 경우, 반동으로 인해 회전 슛들과 전동 톨이 사용자쪽으로 밀릴 수 있습니다.
- c) **스�들이 고착되어 있을 때 또는 절단이 모종의 이유로 중단될 때, 전동 톨을 끄고 슛들이 완전히 정지할 때까지 전동 톨을 정지 상태로 두십시오. 슛들이 움직이는 상태에서 절단 슛들을 제거하려고 하지 마십시오. 반동이 발생할 수 있습니다.**
스�들 고착 원인을 조사한 후 시정 조치를 취해 슛들 고착의 원인을 제거하십시오.
- d) **작업물에서 절단 조작을 재시작하지 마십시오. 슛들을 전속도로 작동한 후 절단을 주의하여 재시작하십시오.**
전동 톨을 작업물에서 재시작할 경우 슛들이 고착되거나 튀어 오르거나 반동할 수 있습니다.

충전 미니 그라인더를 위한 안전 지침

- 슛들에 표시된 속도가 그라인더의 정격 속도 이상인지 확인하십시오.
- 슛들 치수가 그라인더와 호환되는지 확인하십시오.
- 연마 슛들은 제조업체의 지침에 따라 주의하여 보관 및 취급해야 합니다.
- 사용하기 전에 연마 슛들을 검사하십시오. 조각나거나 금이거나 결함있는 제품은 사용하지 마십시오.

- 장착 슛들과 장착점이 제조업체의 지침에 따라 일치하는지 확인하십시오.
- 접합식 연마 제품과 함께 제공되고 필요할 경우 블라터가 사용되는지 확인하십시오.
- 전동 톨을 사용하여 건강에 해로운 성분이 포함된 재료를 가공하지 마십시오.
- 지정된 부속품 또는 어댑터먼트를 사용하십시오.
- 사용 전에 연마 제품을 올바르게 장착하고 조였는지 확인하고 톨을 무부하 상태에서 안전 위치에서 30초 동안 작동시킨 다음 상당한 진동이 있거나 다른 결함이 감지될 경우 즉시 정지시키십시오. 이러한 조건이 발생할 경우 기계를 점검하여 원인을 찾으십시오.
- 보호대가 톨에 장착된 경우 절대로 톨을 보호대 없이 사용하지 마십시오.
- 별도의 축소 부싱 또는 어댑터를 사용하여 커다란 구멍의 연마 슛들에 끼우지 마십시오.
- 톨에 나사식 구멍이 있는 슛들을 장착하려는 경우 슛들의 나사산 길이가 주축 길이에 일치하는지 확인하십시오.
- 작업물이 올바르게 지지되지 않는지 확인하십시오.
- 측면 연삭을 위해 절단 슛들을 사용하지 마십시오.
- 슛들 사용 중에 발생하는 불꽃이 위험을 일으키지 않도록, 즉 사람에게 튀지 않게 또는 인화성 물질을 발화시키지 않게 하십시오.
- 먼지가 많은 환경에서 작업할 때에는 통기구가 막히지 않게 하십시오. 먼지를 제거할 필요가 있을 경우 우산 톨을 전원에서 분리하고(비금속 물체를 사용) 내부 부품이 손상되지 않게 하십시오.
- 항상 보안경과 귀마개를 사용하십시오. 방진 마스크, 장갑, 헬멧 및 아이프린과 같은 다른 개인보호장구를 착용해야 합니다.
- 톨을 끈 뒤에라도 슛들이 몇 초 동안 계속 회전하므로 사용하지 마십시오.
- 항상 배터리를 0°C - 40°C의 온도에서 충전하십시오. 0°C 보다 낮은 온도에서 충전하면 과충전되어 위험해질 수 있습니다. 배터리는 40°C보다 높은 온도에서 충전할 수 없습니다. 가장 적합한 충전 온도는 20°C - 25°C입니다.
- 충전기를 계속 사용하는 마십시오.
- 배터리 한 개를 충전한 후 15분 정도 기다렸다가 다음 배터리를 충전하십시오. 두 개 이상의 배터리를 연속적으로 충전하지 마십시오.
- 충전식 배터리 연결 구멍에 이물질이 들어가지 않게 하십시오.
- 충전식 배터리와 충전기를 절대로 분해하지 마십시오.
- 충전식 배터리를 절대로 단락시키지 마십시오. 배터리를 단락시키면 전류가 높아져 과열됩니다. 화상을 입거나 배터리가 손상됩니다.
- 배터리를 불속에 버리지 마십시오.
- 배터리가 타면 폭발할 수 있습니다.
- 벽, 바닥 또는 천장에 구멍을 뚫을 때 매설된 전선 코드가 있는지 확인하십시오.
- 물체에 충전기 통기 홈에 넣지 마십시오. 금속 물체 또는 인화물을 충전기 통기 홈에 넣으면 감전될 위험이 있거나 충전기가 손상됩니다.
- 수명용 배터리 수명이 실제 사용 중에 너무 짧아지면 배터리를 구입점에 즉시 갖고 오십시오. 수명을 다한 배터리는 버리지 마십시오.
- 수명을 다한 배터리를 사용하면 충전기가 손상됩니다.

리튬-이온 배터리에 대한 주의사항

수명을 연장하기 위해서 리튬-이온 배터리에는 출력을 중지시키기 위한 보호 기능이 탑재되어 있습니다. 아래에서 설명된 1에서 3의 경우에, 이 제품을 사용할 때, 스위치를 잡아당기고 있을 때조차, 모터가 정지할 수 있습니다. 이것은 문제는 아니지만 보호 기능의 결과입니다.

- 남은 배터리 전원이 모두 소모되면, 모터가 정지합니다. 그러한 경우 즉시 충전하십시오.
- 공구에 과부하가 발생하면 모터가 정지할 수 있습니다. 이러한 경우 공구의 스위치를 놓은 후 과부하의 원인을 제거하십시오. 그런 다음 공구를 다시 사용할 수 있습니다.
- 배터리가 과부하 작업으로 인해 과열된 경우 배터리 전원이 정지할 수 있습니다. 이러한 경우 배터리 사용을 중지하고 배터리를 냉각시키십시오. 그런 다음 공구를 다시 사용할 수 있습니다.

또한 다음 경과 및 주의사항에 주의하십시오.

경고

배터리 누액, 발열, 연기 배출, 폭발 및 접합을 사전에 방지하려면, 다음 주의사항에 주의하십시오.

- 부스레기와 먼지가 배터리에 묻쳐 있지 않은지 확인하십시오.
 - 작업 중에 부스레기와 먼지가 배터리에 떨어지지 않는지 확인하십시오.
 - 작업 중에 전동 톨에 떨어지는 부스레기와 먼지가 배터리에 묻쳐 있지 않은지 확인하십시오.
 - 부스레기와 먼지에 노출된 위치에 미사용 배터리를 보관하지 마십시오.
 - 배터리를 보관하기 전에, 배터리에 붙을 수 있는 부스레기와 먼지를 모두 제거하고 배터리를 금속 부품(나사, 못 등)과 함께 보관하지 마십시오.
- 못과 같은 날카로운 물체로 배터리에 구멍을 내거나, 배터리를 망치로 두들기거나, 밟거나, 던지거나 배터리에 심한 물리적 충격을 가하지 마십시오.
- 손상되거나 변형된 듯한 배터리는 사용하지 마십시오.
- 배터리의 음극과 양극을 반대로 맞춰 사용하지 마십시오.
- 배터리를 전기 콘센트 또는 차량 시가ライター 소켓에 직접 연결하지 마십시오.
- 배터리를 지정된 목적 이외의 목적으로 사용하지 마십시오.
- 지정된 충전 시간이 경과했는데도 배터리 충전이 완료되지 않을 경우 충전을 즉시 중지하십시오.
- 배터리를 전자 레인지, 드라이어 또는 고압 용기 등과 같은 고온 또는 고압 기기에 넣거나 고온 또는 고압에 노출시키지 마십시오.
- 누액 또는 악취가 감지되는 즉시 불에서 멀리 떨어지십시오.
- 강력한 정전기가 발생하는 곳에서는 사용하지 마십시오.
- 사용, 충전 또는 보관 중에 배터리 누액, 악취, 발열, 변색 또는 변형이 있을 경우, 또는 어떤 식으로든 비정상적으로 보일 경우, 배터리를 즉시 장치 또는 배터리 충전기에서 제거한 후 사용을 중지하십시오.

- 배터리를 물에 담거나 액체가 안으로 흘러 들어가지 않게 하십시오. 물과 같은 전도성 액체가 유입되면 손상을 일으켜 화재나 폭발이 발생할 수 있습니다. 배터리를 연소성 또는 가연성 물체에서 멀리 떨어진 시원하고 건조한 곳에 보관하십시오. 부식성 기체가 있는 곳을 피해야 합니다.

주의

- 배터리 누액이 눈에 들어갈 경우 눈을 비비지 말고 수돗물과 같은 깨끗한 물로 잘 닦은 후 즉시 의사의 진찰을 받으십시오. 치료하지 않을 경우 액체가 시력 문제를 유발할 수 있습니다.
- 액체가 피부나 옷에 묻을 경우, 즉시 수돗물과 같은 깨끗한 물로 잘 닦으십시오. 피부에 염증이 발생할 가능성이 있습니다.
- 배터리를 처음 사용할 때 녹, 악취, 과열, 변색, 변형 및/또는 기타의 문제가 발견될 경우, 사용하지 말고 공급자 또는 벤더에게 반품하십시오.

경고

전도성 이물질이 리튬 이온 배터리의 단자에 들어가면, 단락이 발생해 화재가 발생할 위험이 있습니다. 배터리를 보관할 때 다음 사항을 준수하십시오.

- 전도성 절단 도구, 못, 강선, 구리선 또는 기타 철사를 보관함에 넣지 마십시오.
- 배터리를 전동 톨에 장착하거나 통기구가 가려져서 단락이 방지될 때까지 배터리 커버에 단단히 눌러 넣어 배터리를 보관하십시오(그림 3 참조).

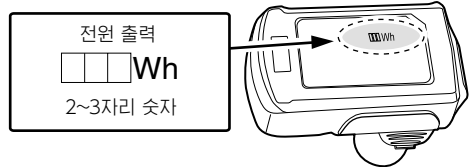
리튬이온 배터리 운반 시

리튬이온 배터리를 운반할 때 다음 주의사항을 준수하십시오.

경고

운송 회사에 포장에 리튬이온 배터리가 들어 있다는 것과 배터리의 전원 출력을 알려주고, 운반을 준비할 때 운송 회사의 지침을 따르십시오.

- 전원 출력이 100 Wh를 넘는 리튬이온 배터리는 위험 물품인 화물 등급으로 간주되며, 취급시 특별한 주의가 필요합니다.
- 해외 운반 시에는 국제법과 목적지 국가의 규칙 및 규정을 준수해야 합니다.



사양

전동 톨

무부하 속도	5000~35000 /분
콜릿 척 용량	3.2 mm
충전식 배터리	BCL1015: 리튬 이온 10.8 V / 12 V 접두전압 (1.5 Ah 3셀)
중량	0.48 kg

충전기

모델	UC10SFL
충전 전압	10.8 V
중량	0.35 kg

기본 부속품

GP10DL (2LCSK)	① 부속품 × 40개	1
	② 배터리 (BCL1015)	2
	③ 충전기 (UC10SFL)	1
	④ 플라스틱 케이스	1
	⑤ 배터리 커버	1

GP10DL (LCSK)	① 부속품 × 40개	1
	② 배터리 (BCL1015)	1
	③ 충전기 (UC10SFL)	1
	④ 플라스틱 케이스	1
GP10DL (NN)	① 부속품 × 40개	1

어태치먼트에 대한 자세한 내용에 대해서는 "제공된 어태치먼트"를 참조하십시오.
기본 부속품은 예고 없이 변경됩니다.

제공된 어태치먼트

<용도>

목재 조각 및 연삭에 사용됩니다.	산화알루미늄 포인트[$\phi 15.9 \text{ mm} \times 1$] 15.9 mm
유리 및 세라믹과 같은 경성 소재의 가공에 사용됩니다.	실리콘 카바이드 포인트[$\phi 4.8 \text{ mm} \times 1$] 4.8 mm
목재, 플라스틱 및 연성 금속 (알루미늄, 구리, 청동)을 양각하고 연삭하고 홈을 파는 데 사용됩니다.	고속 절단기[$\phi 3.2 \text{ mm} \times 1$] 3.2 mm
목재와 합판에 구멍을 만드는 데 사용된다.	드릴[$\phi 3.2 \text{ mm} \times 1$] 3.2 mm
자재의 슬라이싱 또는 절단에 사용됩니다. 가는 막대와 파이프를 절단하는 데 적합합니다. 나사 머리에 패인 홈을 다시 절단합니다. 작업물에 대고 세게 누르지 마십시오. 작업물에 균열이 있을 수 있습니다.	절단 스톨[$\phi 23.8 \times t0.6 \times 6$] 23.8 mm 0.6 mm H 절단 스톨[$\phi 23.8 \times t1.0 \times 2$] 23.8 mm 1.0 mm H
스테인리스 스틸과 같은 강성 소재의 연마에 사용됩니다.	산화알루미늄 연삭 스톨 [$\phi 22.2 \times 1$] 22.2 mm
거친 연삭 후의 최종 연마에 적합합니다.	샌딩 디스크 [$\phi 19.1 \text{ mm}/180\text{-임도} \times 10$] 19.1 mm 180-임도
금속 표면을 부드럽게 마감 처리하는 데 사용됩니다.	연마 스톨 [$\phi 25.4 \text{ mm} \times 2$] 25.4 mm
보석과 금속의 미러 폴리싱에 사용됩니다. 작업물에 적합한 크기를 선택하십시오.	펠트 연마 스톨[$\phi 12.7 \text{ mm} \times 4$] 12.7 mm 펠트 연마 스톨[$\phi 25.4 \text{ mm} \times 2$] 25.4 mm
목재 성형 및 모형 마감과 같은 작업에 적합합니다. 표면을 우수하게 마감 처리하려면 서로 다른 그리트 숫자로 두 단계로 연삭하십시오.	샌딩 밴드 [$\phi 12.7 \text{ mm}/60\text{-임도} \times 6$] 12.7 mm 60-임도 샌딩 밴드 [$\phi 12.7 \text{ mm}/120\text{-임도} \times 2$] 12.7 mm 120-임도

주의

표준 어태치먼트는 GP10DL에만 사용할 수
있습니다. 전기 드릴 등과 같은 다른 장비와
함께 사용하지 마십시오. 함께 사용할 경우
상해를 입거나 톨이 손상될 수 있습니다.

[부속품]

콜릿 스페너
(조여 있는 콜릿 너트를 풀기 위한)



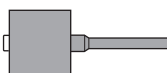
휠 맨드릴
[$\phi 3.2 \text{ mm} \times 1$]



나사형 맨드릴
[$\phi 3.2 \text{ mm} \times 1$]

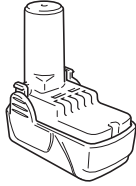


드럼 맨드릴
[$\phi 3.2 \text{ mm} \times 1$]



옵션 부속품 (별매품)

1. 배터리(BCL1015)



옵션 부속품은 예고 없이 변경됩니다.

용도

- 목공예품 및 귀금속 장신구 제작
- 유리 와 세라믹의 조각
- 금속과 석재의 연삭 및 연마

기본 기능

1. 배터리 부족 경고등(그림 1)

배터리 전원 잔량을 확인하려면 그라인더를 무부하 상태에서 작동하십시오.
배터리 전원 잔량이 부족할 경우 경고등 (적색 LED)이 켜집니다. 경고등이 켜질 경우 배터리를 즉시 충전하십시오.

참고

- 배터리 부족 경고등은 주변 온도 또는 배터리 특성의 영향을 받을 수 있습니다. 배터리 부족 경고등을 배터리 충전 시간을 정하기 위한 지침으로 사용하지 않습니다.
- 배터리 부족 경고등이 그라인더 작동 중에 켜질 수 있습니다. 이것은 배터리 전압의 일시적 강하 때문이며 배터리 전원 부족 때문이 아닙니다.
- 배터리 전원 잔량을 확인할 때 반드시 그라인더를 무부하 상태에서 작동하십시오.

2. 스위치 다이얼

스위치 다이얼은 시동 스위치 및 속도 다이얼로도 기능합니다. 다이얼을 [O] 에서 더 높은 숫자쪽으로 돌리면, 그라인더가 켜지고 서서히 속도가 빨라집니다. 동시에 LED 램프가 켜지고 그라인더의 틸을 비춥니다. 다이얼을 [0] 으로 돌리면, 그라인더가 꺼지고 회전이 중지됩니다.
스위치가 [O] 이외의 다른 위치에 있을 때 배터리를 삽입할 경우 안전을 위해서 그라인더가 시동되지 않습니다. 그럴 때 그라인더를 켜려면 다이얼을 [O] 으로 돌린 다음 더 높은 숫자쪽으로 돌리십시오.
스위치 다이얼의 숫자들과 회전 속도 사이의 대략적인 관계는 그림 2의 그래프에 나와 있습니다.

배터리 제거/설치

1. 배터리 제거

핸들을 세게 잡고 배터리 래치를 밀어 배터리를 제거하십시오(그림 3 과 4 참조).

주의

배터리를 절대로 단락시키지 마십시오.

2. 배터리 설치

배터리를 음극과 양극을 확인하여 삽입하십시오 (그림 4참조).

충전

드라이버 드릴을 사용하기 전에 배터리를 다음과 같이 충전하십시오.

1. 충전기 전원 코드를 전원 콘센트에 연결

2. 배터리를 충전기에 삽입하십시오.

배터리를 명판이 충전기의 명판을 향하게 놓고 배터리를 눌러 넣어 하부판과 접촉하게 하십시오(그림 5 참조). 배터리를 삽입하면 충전기가 켜집니다(파일럿 램프가 켜짐).

주의

파일럿 램프가 켜지지 않을 경우, 전원 코드를 소켓에서 분리한 후 배터리 장착 상태를 점검하십시오. 파일럿 램프가 꺼져 배터리 만충전 상태를 나타냅니다.

주의

배터리가 작동 직후 직사광선 등에 의해 뜨거워진 경우, 충전기 파일럿 램프가 켜지지 않을 수 있습니다. 이럴 경우 우선 배터리를 냉각시킨 후 충전을 시작하십시오.

- 충전 시간에 대하여

표 1은 배터리 유형에 따라 요구되는 충전 시간을 보여줍니다.

표 1 20°C일 때의 대략적인 충전 시간(분)

배터리 전압 (V)	배터리 용량 (Ah)	
	1.5 Ah	
10.8 V	BCL1015	40분

참고

충전 시간은 주변 온도에 따라 다를 수 있습니다.

3. 충전기 전원 코드를 전원 콘센트에서 분리

4. 충전기를 단단히 쥐고 배터리를 제거

참고

배터리는 사용 후 반드시 충전기에서 꺼내 별도로 보관하십시오.

배터리 수명 연장 방법

- (1) 배터리를 완전히 방전되기 전에 충전하십시오.
툴의 출력이 점점 약해진다고 느낄 경우, 툴 사용을 멈추고 배터리를 충전하십시오. 툴을 계속 사용하고 전류가 모두 사용된 경우, 배터리가 손상될 수 있고 배터리 수명이 더 짧아집니다.
- (2) 고온에서 충전하지 마십시오.
충전식 배터리는 사용 직후 뜨거워집니다. 그러한 배터리를 사용 직후 충전하면 내부에 들어 있는 화학물질이 열화되고 배터리 수명이 줄어듭니다. 배터리를 한 동안 냉각시킨 후 충전하십시오.

주의

- 배터리 충전기가 연속적으로 사용된 경우, 배터리 충전기가 가열되어 고장의 원인이 될 수 있습니다. 일단 충전이 완료되면 15분 쉬었다가 충전하십시오.
- 배터리가 올바르게 장착되었는데도 배터리 충전기가 작동하지 않을 경우, 배터리 또는 충전기가 오작동하는 것일 수 있습니다. 공인 서비스 센터에 가져가십시오.

사용전 주의사항

1. 작업 환경의 구성 및 점검

위의 주의사항에 따라 작업 환경이 적합한지 확인하십시오.

팁 톨 장착 방법

경고

사고를 방지하려면, 반드시 전원을 끄고 배터리를 그라인더에서 제거하십시오.

주의

맨드럴을 세게 조였는지 확인하십시오.

팁 톨을 장착한 후 톨이 단단히 고정되어 있는지 확인하십시오.

톨이 제대로 고정되지 않은 경우 톨이 떨어져 손상 또는 상해를 유발할 수 있습니다.

1. 나사형 맨드럴 사용법(그림 6 (a))

펠트 연마 스톨을 사용할 때 나사형 맨드럴을 사용하십시오.

스톨을 똑바로 하여 나사형 맨드럴의 나사산에 플랜지 위치까지 돌려서 끼우십시오.

2. 휠 맨드럴 사용법(그림 6 (b))

일자 드라이버로 맨드럴의 끝에서 나사를 제거하고 절단 스톨 또는 샌딩 디스크를 장착하십시오.

3. 드럼 맨드럴 사용법(그림 6 (c))

드럼 맨드럴은 60-임프 샌딩 밴드가 장착된 상태로 출고됩니다.

맨드럴 끝의 나사를 스크루드라이버로 풀어 샌딩 밴드를 제거/장착하십시오.

샌딩 밴드를 장착한 후 나사를 단단히 조이십시오.

4. 팁 톨을 그라인더에 장착

잠금 버튼을 누른 상태에서 콜릿 너트를 손으로 돌려 잠금 버튼을 추가로 누르십시오.

이 상태에서 샤프트는 잠금 상태가 되고 콜릿 너트를 풀거나 조일 수 있습니다. (그림 7)

팁 톨을 장착하려면 팁 톨을 최대한 멀리 삽입하고 콜릿 너트를 단단히 조이십시오.

팁 톨을 분리하기 위해서 콜릿 너트를 평소와 같이 손으로 돌릴 수 있습니다. 물론 콜릿 너트는 때때로 단단히 조여 있을 수 있습니다.

콜릿 너트가 단단히 조여 있을 경우, 제공된 콜릿 스패너를 사용해 풀어 주십시오. 콜릿 너트, 콜릿 또는 샤프트 나사에 철가루가 있을 경우 콜릿 너트를 돌리기 어려울 수 있습니다. (그림 8)

팁 톨을 장착하거나 분리하기 전에 모든 가루를 제거하십시오.

참고

때때로 팁 톨을 콜릿에서 분리하기가 어려울 수 있습니다. 이러한 경우, 콜릿 너트를 풀고 톨 끝을 단단한 물체에 대고 가볍게 누르십시오. (그림 10)

5. 팁 톨의 균형 조정

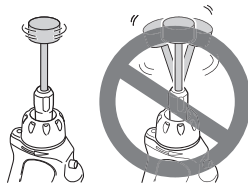
팁 톨을 장착한 후 그라인더를 저속으로 작동하십시오. 균형이 맞지 않을 경우 아래 절차를 따라 균형을 조정하십시오.

잠금 버튼을 누른 상태에서 콜릿 너트를 풀어 주십시오.

다음으로 팁 톨을 1/4바퀴 돌려 콜릿 너트를 조이십시오.

그라인더를 저속에서 작동시키고 균형을 확인하십시오. 균형이 맞을 경우, 조정이 완료된 것입니다.

균형이 아직 맞지 않을 경우, 팁 톨과 콜릿 너트와 콜릿을 분리한 후 재장착하십시오. 여러 차례 그러한 시도를 한 후에도 여전히 균형이 맞지 않을 경우, 팁 톨의 변형 또는 마모 여부 또는 콜릿의 변형 여부를 확인하십시오. 마모되거나 변형된 경우 팁 톨 또는 콜릿을 교환하십시오.



그라인더 작동

경고

○ 사중 중에 얼굴을 팁 톨에서 멀리 떨어져 있게 하십시오.

○ 그라인더를 사용할 때 고글과 방진 마스크를 착용하십시오.

팁 톨이 부러지면 상해를 입을 수 있습니다.

○ 그라인더를 극히 느린 속도로 작동하지 마십시오. 표면이 부드럽게 마감되지 않게 되며 팁 톨이 손상되거나 그라인더가 파손되거나 상해를 입을 수 있습니다.

주의

가공 작업 직후 팁 톨, 콜릿 너트 또는 콜릿을 만지지 마십시오. 매우 뜨겁기 때문에 만지면 화상을 입을 수 있습니다.

1. 배터리 제거 및 팁 톨 장착

2. 작업물을 움직이지 않게 고정

작업물이 작을수록 가공 불안정성이 더욱 커집니다. 작은 작업물은 바이스에 고정하십시오. 작업물을 손으로 고정하면 상해를 입을 수 있습니다.

3. 배터리를 그라인더에 삽입

4. 팁 톨의 균형 확인

팁 톨을 저속에서 육안으로 확인하십시오 (스위치 다이얼에서 [1] 부근).

또한 작동 중에 비정상적 소음이 들리는지 확인하십시오.

5. 가공 속도 선택

○ 표 2를 참조하여 시험 연삭을 수행하는 동안 작업물에 적합한 최적 속도를 선택하십시오.

○ 플라스틱을 고속에서 가공할 경우, 가열되어 녹을 수 있습니다. 저속에서 시작하여 서서히 시험하십시오.

표 2 스위치 다이얼 설정

작업물 팁 툴	연목	강목	라미네이트/ 플라스틱	강철	알루미늄, 황동 등	조개껍질/ 석재	세라믹	유리
산화알루미늄 포인트	3-4	3-4	-	2.5	1	1.5	3-4	-
실리콘 카바이드 포인트	-	-	1.5	3-4	1	1.5	3-4	3-4
고속 절단기	3-4	3-4	1	1.5	3-4	-	-	-
드릴	3-4	3-4	1	-	1.5	-	-	-
절단 슷돌	-	-	1	3-4	3-4	3-4	3-4	-
산화알루미늄 절단 스�돌	3-4	3-4	-	2.5	1	1.5	3-4	-
샌딩 디스크	2.5	2.5	1	-	1	-	-	-
연마 슷돌	-	-	-	1	1	1	1	1
펠트 연마 슷돌	-	-	-	1	1	-	-	-
샌딩 밴드	1-4	1-4	1-4	3-4	3-4	1-4	1-4	-

6. 가공

- 회전 팁 툴을 작업물에 가볍게 대고 최소 압력으로 작업물을 가공하십시오.
- 전채 작업을 한 번의 동작으로 수행하지 말고 여러 차례 가공하면 마감 처리가 점점 더 좋아집니다.

참고

- 그라인더는 팁 툴 홀더쪽으로 갈수록 좁아집니다. 손가락을 좁은 부위에 놓고 그라인더를 잡으면 간편하게 작동할 수 있습니다. (그림 9)
- 작업물을 처음 가공하거나 팁 툴을 처음 사용할 때, 우선 시험 연삭을 수행하여 최적 속도, 그라인더 고정 방법, 공구를 작업물에 대는 방법을 점검하십시오.
- 예상한 결과를 얻지 못할 경우, 전동 툴에 더 많은 압력을 가하면 더 좋은 결과를 얻지 못합니다. 또한 전동 툴을 기울여도 가공 성능이 개선되지 않습니다. 회전 속도를 조정하거나 다른 팁 툴로 교환하십시오.

관리 및 검사

1. 부족품 검사

끝이 마모되거나 손상된 팁 툴 또는 맨드릴을 사용하면 마감 처리가 불량해질 뿐 아니라 부적합한 응력이 모터에 가해져 효율이 떨어지고 손상 또는 상해를 유발하게 됩니다.

팁돌 또는 맨드릴이 파손되거나 닳으면 교체하십시오.

2. 부착 나사 검사

정기적으로 모든 부착 나사를 검사하고 잘 고정되어 있는지 확인합니다. 느슨한 나사가 있는 경우, 즉시 꼭 조여야 합니다. 그렇게 하지 않으면 심각한 사고가 날 수 있습니다.

3. 모터 관리

모터부 권선은 전동 툴의 ‘심장부’입니다. 권선이 손상되거나 물 또는 기름에 젖지 않도록 주의를 기울여야 합니다.

4. 외부 청소

그라인더에 얼룩이 묻으면 부드럽고 마른 천이나 비눗물로 적신 천을 이용해 닦으십시오. 염소 계통 솔벤트, 휘발유 또는 페인트 신너는 사용하지 마십시오. 플라스틱이 녹습니다.

5. 보관

드라이버 드릴을 온도가 40° C 미만이고 어린이의 손길이 닿지 않는 곳에 보관하십시오.

참고

리튬-이온 배터리 보관
리튬-이온 배터리를 완전히 충전한 후에 보관하십시오.
저충전 상태로 장기간(3개월 이상) 배터리를 보관하면 배터리 성능이 저하되어 배터리 사용 시간이 현저하게 감소되거나 충전할 수 없게 되는 경우가 있습니다.
단, 배터리를 2~5회 충전과 사용을 반복하면 현저하게 감소된 배터리 사용 시간이 회복될 수도 있습니다.
충전과 사용을 반복해도 배터리 사용 시간이 매우 짧으면 배터리의 수명이 다한 것이므로 새 배터리로 교체하십시오.

주의

전동 툴을 사용하거나 점검할 때는 각국의 안전 수칙 및 규정을 준수해야 합니다.

HiKOKI 무선 전동 툴의 배터리에 대한 중요 알림

항상 당사의 지정된 순정 배터리 가운데 하나를 사용하십시오. 당사는 당사가 지정하지 않은 배터리와 함께 사용될 경우 또는 배터리를 분리하여 개조할 경우(분해 및 셀 또는 내부 부품의 교환) 당사의 무선 전동 툴의 안전 및 성능을 보장할 수 없습니다.

참고

HiKOKI는 지속적인 연구개발 프로그램을 진행하고 있으므로, 본 설명서의 사양은 사전 예고 없이 변경될 수 있습니다.

CÁC NGUYÊN TẮC AN TOÀN CHUNG

CẢNH BÁO!

Đọc kỹ tất cả hướng dẫn

Việc không tuân theo mọi hướng dẫn được liệt kê dưới đây có thể dẫn đến bị điện giật, cháy và/hoặc bị chấn thương nghiêm trọng.

Thuật ngữ "dụng cụ điện" có trong tất cả các cảnh báo dưới đây đề cập đến dụng cụ điện (có dây) điều khiển bằng tay hoặc dụng cụ điện (không dây) vận hành bằng pin.

GHI NHỚ CÁC HƯỚNG DẪN NÀY

1) Khu vực làm việc

- Giữ khu vực làm việc sạch và đủ ánh sáng.**
Khu vực làm việc tối tăm và bừa bộn dễ gây tai nạn.
- Không vận hành dụng cụ điện trong khu vực dễ cháy nổ, chẳng hạn như nơi có chất lỏng dễ cháy, khí đốt hoặc bụi khô.**
Các dụng cụ điện tạo tia lửa nên có thể làm bụi khô bén lửa.
- Không để trẻ em và những người không phận sự đứng gần khi vận hành dụng cụ điện.**
Sự phân tâm có thể khiến bạn mất kiểm soát.

2) An toàn về điện

- Phích cắm dụng cụ điện phải phù hợp với ổ cắm.**
 Không bao giờ được cài biến phích cắm dưới mọi hình thức. Không được sử dụng phích tiếp hợp với dụng cụ điện nối đất (tiếp đất).
Phích cắm nguyên bản và ổ cắm điện đúng loại sẽ giảm nguy cơ bị điện giật.
- Tránh để cơ thể tiếp xúc với các bề mặt nối đất hoặc tiếp đất như đường ống, lò sưởi, bếp ga và tủ lạnh.**
Có nhiều nguy cơ bị điện giật nếu cơ thể bạn nối hoặc tiếp đất.
- Không để các dụng cụ điện tiếp xúc với nước mưa hoặc ẩm ướt.**
Nước thấm vào dụng cụ điện sẽ làm tăng nguy cơ bị điện giật.
- Không được làm dụng dây dẫn điện. Không bao giờ nắm dây dễ xước, kéo hoặc rút dụng cụ điện.**
 Để dây cách xa nơi có nhiệt độ cao, trơn trượt, vật sắc cạnh hoặc bộ phận chuyển động.
Dây bị hư hỏng hoặc rơi sẽ làm tăng nguy cơ bị điện giật.
- Khi vận hành dụng cụ điện ở ngoài trời, hãy sử dụng dây nối thích hợp cho việc sử dụng ngoài trời.**
Sử dụng dây nối ngoài trời thích hợp làm giảm nguy cơ bị điện giật.

3) An toàn cá nhân

- Luôn cảnh giác, quan sát những gì bạn đang làm và phán đoán theo kinh nghiệm khi vận hành dụng cụ điện.** Không được sử dụng dụng cụ điện khi mệt mỏi hoặc dưới ảnh hưởng của rượu, ma túy hoặc dược phẩm.
Một thoáng mất tập trung khi vận hành dụng cụ điện có thể dẫn đến chấn thương cá nhân nghiêm trọng.
- Sử dụng thiết bị bảo hộ. Luôn đeo kính bảo vệ mắt.**
Thiết bị bảo hộ như khẩu trang, giày an toàn chống trượt, nón bảo hộ, hoặc dụng cụ bảo vệ tai được sử dụng trong các điều kiện thích hợp sẽ làm giảm nguy cơ thương tích cá nhân.
- Tránh để máy khởi động bắt ngờ. Đảm bảo công tắc ở vị trí tắt trước khi cầm điện.**
Đặt ngón tay trên công tắc khi xách dụng cụ điện hoặc cầm điện lúc công tắc ở vị trí bật rất dễ dẫn đến tai nạn.

- Tháo mọi khóa điều chỉnh hoặc chia vận đai ốc ra trước khi bật dụng cụ điện.**
Chia vận đai ốc hoặc chia khóa còn cắm trên một bộ phận quay của dụng cụ điện có thể gây thương tích cá nhân.

- Không với tay quá xa. Luôn luôn đứng vững và cân bằng.**
Điều này giúp kiểm soát dụng cụ điện trong tình huống bất ngờ tốt hơn.
- Trang phục phù hợp. Không mặc quần áo rộng thùng thình hoặc đeo trang sức. Giữ tóc, quần áo và giày tay tránh xa các bộ phận chuyển động.**
Quần áo rộng thùng thình, đồ trang sức hoặc tóc dài có thể bị cuốn vào các bộ phận chuyển động.
- Nếu có các thiết bị đi kèm để nối máy hút bụi và các phụ tùng chọn lọc khác, hãy đảm bảo các thiết bị này được nối và sử dụng đúng cách.**
Việc sử dụng các thiết bị này có thể làm giảm độc hại do bụi gây ra.

4) Sử dụng và bảo dưỡng dụng cụ điện

- Không được ép máy hoạt động quá mức. Sử dụng đúng loại dụng cụ điện phù hợp với công việc của bạn.**
Dụng cụ điện đúng chủng loại sẽ hoàn thành công việc tốt và an toàn hơn theo đúng tiêu chí mà máy được thiết kế.
- Không sử dụng dụng cụ điện nếu công tắc không tắt hoặc bật được.**
Bất kỳ dụng cụ điện nào không thể điều khiển được bằng công tắc đều rất nguy hiểm và phải được sửa chữa.
- Luôn rút phích cắm ra khỏi nguồn điện trước khi điều chỉnh, thay phụ tùng, hoặc cất dụng cụ điện.**
Những biện pháp ngăn ngừa như vậy giúp giảm nguy cơ dụng cụ điện khởi động bất ngờ.
- Cắt giữ dụng cụ điện không sử dụng ngoài tầm tay trẻ em và không được cho người chưa quen sử dụng dụng cụ điện hoặc chưa được hướng dẫn sử dụng này vận hành dụng cụ điện.**
Dụng cụ điện rất nguy hiểm khi ở trong tay người chưa được đào tạo cách sử dụng.
- Bảo dưỡng dụng cụ điện. Kiểm tra đảm bảo các bộ phận chuyển động không bị xê dịch hoặc mắc kẹt, các bộ phận không bị rạn nứt và kiểm tra các điều kiện khác có thể ảnh hưởng đến quá trình vận hành máy. Nếu bị hư hỏng, phải sửa chữa dụng cụ điện trước khi sử dụng.**
Nhiều tai nạn xảy ra do bảo quản dụng cụ điện kém.
- Giữ các dụng cụ cất sạch sẽ và sạch sẽ.**
Dụng cụ cất ở cạnh cắt bên được bảo quản đúng cách sẽ ít khi bị kẹt và dễ điều khiển hơn.
- Sử dụng dụng cụ điện, phụ tùng và đầu cài v.v... đúng theo những chỉ dẫn này và tập trung vào loại dụng cụ điện có thể, lưu ý đến điều kiện làm việc và công việc phải thực hiện.**
Vận hành dụng cụ điện khác với mục đích thiết kế có thể dẫn đến các tình huống nguy hiểm.

5) Sử dụng và bảo quản dụng cụ chạy pin

- Kiểm tra đảm bảo công tắc ở vị trí tắt khi lắp pin.**
Lắp pin vào dụng cụ điện đang bật có thể gây tai nạn.
- Chỉ sạc pin bằng bộ sạc chuyên dụng của nhà cung cấp.**
Bộ sạc chỉ phù hợp với một loại pin nên nếu sử dụng cho một loại pin khác có thể gây nguy cơ cháy nổ.
- Chỉ vận hành dụng cụ với loại pin được thiết kế riêng.**
Sử dụng bất kỳ loại pin nào khác có thể gây nguy cơ tai nạn và cháy nổ.

d) Khi không dùng pin, bảo quản pin ở xa các vật dụng kim loại như kẹp giấy, tiền xu, chìa khóa, đinh ốc hoặc các vật kim loại nhỏ khác vốn có thể kết nối thiết bị đầu cuối này với thiết bị đầu cuối khác.

Các đầu pin chạm nhau sẽ chập mạch và có thể gây bỏng hoặc cháy.

e) Trong điều kiện sử dụng quá mức, chất lỏng trong pin có thể bị chảy ra; cần tránh tiếp xúc. Nếu vô tình tiếp xúc, rửa sạch bằng nước.

Nếu chất lỏng tiếp xúc với mắt, cần đến cơ sở y tế để được chăm sóc. Chất lỏng chảy ra từ pin có thể gây kích ứng hoặc bỏng rát.

6) Bảo dưỡng

a) Đem dụng cụ điện của bạn đến thợ sửa chữa chuyên nghiệp để bảo dưỡng, chỉ sử dụng các phụ tùng đúng chủng loại để thay thế.

Điều này giúp đảm bảo duy trì tính năng an toàn của dụng cụ điện.

PHÒNG NGỪA

Giữ trẻ em và những người không phận sự tránh xa dụng cụ.

Khi không sử dụng, các dụng cụ điện phải được cất giữ tránh xa tầm tay trẻ em và người không phận sự.

NHỮNG CẢNH BÁO AN TOÀN CHUNG DÀNH CHO HOẠT ĐỘNG MÀI, MÀI BẢNG CÁT, ĐÁNH BÓNG HOẶC MÀI CẮT

a) Dụng cụ điện này được thiết kế nhằm thực hiện chức năng như một máy mài, máy mài bảng cát, máy đánh bóng hoặc máy cắt. Đọc tất cả các cảnh báo an toàn, hướng dẫn, minh họa và thông số kỹ thuật kèm theo máy.

Việc không tuân thủ bất kỳ hướng dẫn nào liệt kê dưới đây có thể gây điện giật, hỏa hoạn và/hoặc chấn thương nghiêm trọng.

b) Chúng tôi khuyến cáo không nên sử dụng dụng cụ này cho các hoạt động như đánh bóng bằng bàn chải sắt.

Các hoạt động vốn không thuộc chức năng thiết kế của dụng cụ có thể gây nguy hiểm và dẫn đến chấn thương cá nhân.

c) Không sử dụng các phụ tùng không được thiết kế chuyên biệt và không được nhà sản xuất dụng cụ khuyến dùng.

Phụ tùng cho dù có thể lắp khít vào dụng cụ điện cũng không có nghĩa là nó sẽ hoạt động an toàn.

d) Tốc độ danh định của phụ tùng phải bằng hoặc lớn hơn tốc độ tối đa ghi trên dụng cụ điện.

Phụ tùng chạy nhanh hơn tốc độ danh định có thể bị vỡ và văng xa.

e) Đường kính ngoài và độ dày của phụ tùng phải nằm trong giới hạn công suất của dụng cụ điện.

Phụ tùng có kích thước không đúng có thể sẽ không được bảo vệ và kiểm soát thích đáng.

f) Kích thước thực chính của bánh mài, mặt bích, tấm đỡ hoặc bất kỳ phụ tùng nào khác phải vừa khít với cần trục của dụng cụ điện.

Các phụ tùng có lỗ trục chính không khớp với phần cứng lắp đặt của dụng cụ điện sẽ khiến dụng cụ mất cân bằng, rung quá mức và có thể mất khả năng kiểm soát.

g) Không sử dụng phụ tùng đã hỏng. Trước mỗi lần sử dụng, kiểm tra phụ tùng như bánh mài để xem có mảnh vụn và vết nứt không, tấm đỡ có vết nứt, rách hay mòn quá mức không, chổi kim loại có bị lỏng hoặc bị đứt dây không. Nếu dụng cụ điện hay phụ tùng bị rơi, hãy kiểm tra xem máy có bị hư hỏng không hoặc lắp phụ tùng còn nguyên vào.

Sau khi kiểm tra và lắp ráp phụ tùng, bạn và những người xung quanh nên tránh xa mặt phẳng quay của phụ tùng và bật máy ở tốc độ không tải tối đa trong vòng một phút.

Phụ tùng hư hỏng thường bị vỡ thành mảnh trong thời gian chạy thử máy.

h) Mặc thiết bị bảo hộ cá nhân. Tùy thuộc vào từng loại công việc, sử dụng mặt nạ, kính bảo hộ hoặc kính an toàn. Khi cần, nên mang mặt nạ chống bụi, miếng bảo vệ tai, găng tay và tấm chắn bảo vệ có khả năng ngăn chặn các mảnh vụn gia công hoặc bột mài nhỏ.

Dụng cụ bảo vệ mắt phải có khả năng ngăn mảnh vỡ bay ra từ nhiều loại hoạt động khác nhau. Mặt nạ hoặc khẩu trang chống bụi phải có khả năng lọc các hạt nhỏ phát sinh từ hoạt động của máy.

Tiếp xúc lâu với tiếng ồn ở cường độ cao có thể gây mất thính lực.

i) Giữ những người ngoài tránh xa khu vực làm việc ở khoảng cách an toàn. Bất kỳ ai vào khu vực làm việc phải mặc thiết bị bảo hộ cá nhân.

Những mảnh vỡ của phôi gia công hoặc phụ tùng bị bể có thể văng xa và gây chấn thương bên ngoài khu vực vận hành trực tiếp.

j) Chỉ cầm dụng cụ điện ở phần tay cầm cách điện, khi vận hành công việc mà phụ tùng cắt có thể tiếp xúc với các dây điện ngầm hoặc dây của chính dụng cụ.

Phụ tùng cắt tiếp xúc với dây dẫn “có điện” có thể làm cho các bộ phận kim loại hở “có điện” và khiến người vận hành bị giật điện.

k) Đặt dây tránh xa phụ tùng đang quay.

Nếu bạn mất kiểm soát, dây sẽ có thể bị cắt hoặc vướng vào, và tay hoặc cánh tay của bạn sẽ bị kéo vào phụ tùng đang quay.

l) Không bao giờ đặt dụng cụ điện xuống cho đến khi phụ tùng ngừng hoạt động hẳn.

Phụ tùng đang quay có thể găm vào bề mặt và kéo dụng cụ điện ra khỏi tầm kiểm soát của bạn.

m) Không bật dụng cụ điện khi bạn đang cầm bên người.

Vô tình chạm vào phụ tùng đang quay có thể làm quần áo bị vướng vào, kéo phụ tùng vào người bạn.

n) Thường xuyên làm sạch lỗ thông gió của dụng cụ điện.

Quạt của động cơ sẽ hút bụi vào bên trong vỏ máy và việc tích tụ quá nhiều bột kim loại có thể gây tai nạn về điện.

o) Không vận hành dụng cụ gần các vật liệu dễ cháy.

Tia lửa điện có thể bắt vào các vật liệu này gây cháy.

p) Không sử dụng các linh kiện cần có chất làm mát dạng lỏng.

Sử dụng nước hoặc chất làm mát dạng lỏng khá có thể gây giật điện hoặc sốc.

LƯC GIẬT LÙI VÀ CẢNH BÁO LIÊN QUAN

Lực giật lùi là phản ứng bất ngờ do bánh mài, tấm đỡ, chổi hoặc bất kỳ phụ tùng khác đang quay bị kẹt hoặc vướng. Phụ tùng đang quay bị kẹt hoặc vướng có thể ngừng đột ngột, việc này sẽ làm cho dụng cụ điện đang mất kiểm soát bị ép vào hướng ngược với hướng quay của phụ tùng tại điểm bị kẹt.

Ví dụ, nếu bánh mài bị vướng hoặc kẹt vào phôi gia công, cạnh của bánh mài đang ở chỗ kẹt có thể cắm vào bề mặt vật liệu làm cho đĩa mài này lên hoặc văng ra. Bánh mài có thể nảy ra xa hoặc về hướng người vận hành, tùy vào hướng chuyển động của bánh mài tại điểm bị kẹt. Bánh mài cũng có thể bị vỡ trong những điều kiện này.

Lực giặt lùi xảy ra do sử dụng sai dụng cụ và/hoặc quy trình hoặc điều kiện vận hành không chính xác và có thể tránh được bằng cách thực hiện các biện pháp phòng ngừa thích hợp liệt kê bên dưới.

- Cầm chắc dụng cụ điện và định vị cơ thể cũng như cánh tay sao cho có thể cần được lực giặt lùi.** Luôn sử dụng tay cầm phụ, nếu có, để kiểm soát tốc độ lực giặt lùi hoặc phản lực mô men xoắn khi khởi động.
Người vận hành có thể kiểm soát phản lực mô men xoắn hoặc lực giặt lùi nếu thực hiện các biện pháp phòng ngừa thích hợp.
- Không đặt tay gần phụ tùng đang quay.**
Phụ tùng có thể giặt lùi về tay bạn.
- Không đứng trong khu vực mà dụng cụ điện sẽ chuyển động nếu xảy ra lực giặt lùi.**
Lực giặt lùi sẽ đẩy dụng cụ theo hướng ngược với hướng chuyển động của bánh mài tại điểm bị kẹt.
- Đặc biệt chú ý khi làm việc với các góc, cạnh sắc, v.v.... Tránh làm nảy và kẹt phụ tùng.**
Các góc, cạnh sắc hoặc nổi lên có xu hướng làm kẹt phụ tùng đang quay và gây mất kiểm soát hoặc tạo lực giặt lùi.
- Không lắp lưới cửa xích, dao khắc gỗ hoặc lưới cửa có răng.**
Những lưới này thường xuyên tạo ra lực giặt lùi và gây mất kiểm soát.

CẢNH BÁO AN TOÀN DÀNH RIÊNG CHO HOẠT ĐỘNG MÀI VÀ MÀI CẮT

- Chỉ sử dụng loại bánh mài được khuyến dùng cho dụng cụ của bạn và đảm bảo an toàn vệ sinh được thiết kế cho bánh mài đã chọn.**
Bánh mài không được thiết kế riêng cho dụng cụ điện này sẽ không được bảo vệ thích đáng và không an toàn.
- Chỉ sử dụng bánh mài cho các ứng dụng được khuyến nghị.** Ví dụ: không mài bằng cạnh của bánh mài cắt.
Bánh mài cắt được sử dụng cho mục đích mài ở ngoài cùng, các lực bên tác dụng vào những bánh mài này có thể làm cho bánh mài bị vỡ.
- Luôn sử dụng các mặt bích bánh mài còn tốt, kích thước và hình dạng đúng với bánh mài mà bạn đã chọn.**
Mặt bích bánh mài phù hợp sẽ đỡ được bánh mài do đó làm giảm khả năng làm vỡ bánh mài. Mặt bích dành cho bánh mài cắt có thể khác với mặt bích bánh mài.
- Không sử dụng bánh mài đã mòn của các dụng cụ điện lớn hơn.**
Bánh mài dùng cho các dụng cụ điện lớn hơn không thích hợp với tốc độ cao hơn của dụng cụ nhỏ hơn và có thể bị vỡ.

CẢNH BÁO AN TOÀN BỔ SUNG DÀNH RIÊNG CHO CÁC HOẠT ĐỘNG MÀI CẮT

- Không “kẹt chặt” bánh mài cắt hoặc tác dụng lực quá lớn.** Không cố tạo ra vết cắt quá sâu.
Áp lực quá mạnh sẽ tăng lực tải và dễ làm xoắn hoặc kẹt bánh mài khi cắt và có khả năng xảy ra lực giặt lùi hoặc vỡ bánh mài.
- Không đứng phía sau hoặc thẳng hàng với bánh mài đang quay.**
Khi bánh mài đang hoạt động chuyển động ra xa bạn, lực giặt lùi tiềm tàng có thể đẩy bánh mài đang quay và dụng cụ điện hướng thẳng vào bạn.

- Khi bánh mài bị kẹt hoặc khi ngừng cắt vì lý do nào đó, hãy ngắt điện dụng cụ và giữ máy đứng yên đến khi bánh mài ngừng hoàn toàn.** Không cố rút bánh mài cắt ra khỏi vết cắt khi bánh mài đang chuyển động, nếu không sẽ làm phát sinh lực giặt lùi.
Kiểm tra và tiến hành khắc phục để loại bỏ nguyên nhân gây kẹt bánh mài.

- Không bắt đầu lại hoạt động cắt ngay trên phối gia công.** Hãy đợi bánh mài đạt tốc độ tối đa và cân thận đặt lại vào vết cắt.
Bánh mài có thể bị kẹt, nảy lên hoặc giặt lùi nếu bắt đầu sử dụng lại dụng cụ điện ngay trên phối gia công.

CẢNH BÁO AN TOÀN CHUNG DÀNH CHO MÁY MÀI KHUÔN DÙNG PIN

- Kiểm tra để đảm bảo tốc độ ghi trên bánh mài bằng hoặc lớn hơn tốc độ danh định của máy mài;
- Đảm bảo rằng kích thước bánh mài tương thích với máy mài;
- Bánh mài nhám phải được cất giữ và xử lý cẩn thận theo hướng dẫn của nhà sản xuất;
- Kiểm tra bánh mài trước khi sử dụng, không dùng các sản phẩm nứt mẻ, nứt hoặc có khiếm khuyết khác;
- Đảm bảo rằng bánh mài lắp ráp và các tiếp điểm được ráp đúng hướng dẫn của nhà sản xuất;
- Đảm bảo rằng sẽ sử dụng các bản đệm nếu chúng được cung cấp kèm theo sản phẩm mài gắn kết và khi cần thiết;
- Không sử dụng dụng cụ điện để gia công các vật liệu chứa thành phần độc hại cho sức khỏe;
- Sử dụng linh kiện hay phụ tùng chuyên biệt;
- Đảm bảo sản phẩm mài được lắp ráp và siết chặt đúng cách trước khi sử dụng và chạy không tải khoảng 30 giây ở khu vực an toàn, ngừng máy ngay nếu thấy máy rung đáng kể hoặc phát hiện khiếm khuyết gì khác.
- Nếu dụng cụ được trang bị tấm chắn bảo vệ thì không bao giờ được vận hành dụng cụ mà không gắn tấm chắn bảo vệ vào;
- Không được sử dụng ống nối hoặc đầu nối tiếp chuyển để lắp vào bánh mài nhám lỗ lớn.
- Đối với các dụng cụ được thiết kế sao cho khớp với bánh mài lỗ ren, đảm bảo sao cho ren của bánh mài đủ dài để tương thích với chiều dài cần trục;
- Kiểm tra đảm bảo phối gia công được đỡ đúng cách;
- Không sử dụng bánh cắt để mài biên;
- Đảm bảo sao cho tia lửa điện phát ra do sử dụng máy không gây nguy hiểm, ví dụ như không bắn vào người, không bắt lửa với các chất dễ cháy;
- Đảm bảo rằng các lỗ thông gió luôn sạch sẽ khi làm việc trong điều kiện bụi bẩn, nếu cần lau sạch bụi, trước tiên phải ngắt dụng cụ khỏi nguồn điện chính (sử dụng vật phi kim) và tránh làm hỏng các bộ phận bên trong;
- Luôn đeo bảo vệ mắt và tai. Phải mang các thiết bị bảo hộ cá nhân như: mặt nạ chống bụi, găng tay, mũ bảo hiểm và tấm chắn;
- Chú ý đến các bánh mài vẫn còn quay sau khi đã tắt dụng cụ.
- Luôn sạc pin ở nhiệt độ từ 0 – 40°C.
Nhiệt độ thấp hơn 0°C sẽ dẫn đến tình trạng sạc quá mức rất nguy hiểm. Pin không thể sạc ở nhiệt độ cao hơn 40°C.
Nhiệt độ thích hợp nhất để sạc pin là 20 – 25°C.
- Không sử dụng bộ sạc liên tục.
Khi kết thúc một lần sạc, để cho bộ sạc nghỉ khoảng 15 phút trước khi sạc tiếp. Không sạc pin lâu quá 2 giờ.

- Không được để các vật lạ rơi vào lỗ và dính vào pin sạc.
- Không bao giờ tháo rời pin sạc và bộ sạc.
- Không bao giờ làm đoản mạch pin sạc. Đoản mạch pin sẽ gây quá tải dòng điện và quá nóng. Việc này gây cháy hoặc hư pin.
- Không bỏ pin vào lửa. Nếu pin bị cháy, nó có thể phát nổ.
- Khi khoan trên sàn, tường hay trần, kiểm tra các dây điện ngầm, v.v....
- Không được chèn vật gì vào lỗ thông hơi của bộ sạc. Gắn các vật kim loại hoặc để cháy vào lỗ thông hơi của bộ sạc sẽ gây nguy hiểm như điện giật hoặc hư bộ sạc.
- Mang pin đến cửa hàng đã mua ngay khi thấy tuổi thọ pin sau khi sạc quá ngắn lúc sử dụng thực tế. Không vứt pin đã sử dụng kiệt.
- Sử dụng pin đã kiệt sẽ làm hỏng bộ sạc.

CẢNH BÁO VỀ PIN LITHIUM-ION

Để kéo dài tuổi thọ, pin lithium-ion được thiết kế có chức năng bảo vệ nhằm ngăn chặn rò rỉ pin.

Trong các trường hợp từ 1 đến 3 được liệt kê bên dưới, khi sử dụng sản phẩm này, cho dù bạn đã kéo công tắc thì động cơ vẫn có thể ngừng hoạt động. Đây không phải là lỗi kỹ thuật mà là chức năng bảo vệ của máy.

1. Khi thời lượng sử dụng pin hết, động cơ sẽ ngừng. Trong trường hợp này cần sạc pin ngay.
2. Nếu dụng cụ bị quá tải, động cơ có thể ngừng. Trong trường hợp này, nhà công tắc dụng cụ và loại bỏ nguyên nhân gây quá tải. Sau đó bạn có thể sử dụng tiếp dụng cụ.
3. Nếu pin quá nóng khi làm việc quá mức, pin có thể ngừng tiếp điện. Trong trường hợp này, ngừng sử dụng pin và đợi pin mát lại. Sau đó bạn có thể dùng tiếp.

Ngoài ra, vui lòng chú ý đến những cảnh báo và lưu ý sau.

CẢNH BÁO

Để tránh pin bị rò rỉ, phát nhiệt, thải khói, nổ và đánh lửa sớm, vui lòng chú ý các biện pháp phòng ngừa sau.

1. Đảm bảo rằng mặt kim loại và bụi không dính vào pin.
- Trong khi gia công, đảm bảo sao cho mặt kim loại và bụi không rơi vào pin.
- Đảm bảo sao cho nếu có bất kỳ mặt kim loại và bụi nào rơi vào dụng cụ đang trong lúc gia công thì chúng không bị dính vào pin.
- Không cất giữ pin chưa sử dụng ở nơi có mặt kim loại và bụi.
- Trước khi cất giữ, lau sạch mặt kim loại và bụi có thể bám pin vào và không cất giữ cùng các vật dụng kim loại khác (vít, đinh, v.v....).
2. Không đục pin bằng vật sắc nhọn như đinh, không đập bằng búa, không đập lên pin, không quăng hoặc tác động lực quá lớn lên pin.
3. Không sử dụng pin đã hỏng hoặc bị biến dạng rõ ràng.
4. Không dùng pin ngược cực.
5. Không gắn trực tiếp pin vào ổ cắm điện hoặc để bật lửa trên xe hơi.
6. Không sử dụng pin cho mục đích khác quy định.
7. Nếu pin chưa được sạc đầy, ngay cả khi hết thời gian sạc quy định, ngay lập tức ngừng chứ không sạc tiếp.
8. Không đặt hoặc làm cho pin chịu nhiệt độ hoặc áp suất cao chẳng hạn như trong lò vi sóng, máy sấy, vật chứa áp suất cao.
9. Giữ pin tránh xa lửa ngay lập tức nếu phát hiện pin bị rò rỉ hoặc có mùi hôi.
10. Không sử dụng pin ở khu vực tạo ra tĩnh điện mạnh.

11. Nếu pin bị rò rỉ, có mùi hôi, phát nhiệt, đổi màu, biến dạng hoặc có biểu hiện khác thường khi sử dụng, khi sạc pin hoặc cất giữ, ngay lập tức tháo pin ra khỏi thiết bị hoặc bộ sạc và ngừng sử dụng.
12. Không nhúng pin vào chất lỏng hoặc để bất kỳ chất lỏng chảy nào chảy vào bên trong. Chảy dòng chất lỏng dẫn điện, chẳng hạn như nước, có thể gây ra hư hỏng, dẫn đến cháy hoặc nổ. Cất giữ pin ở nơi thoáng mát, tránh xa các vật dễ cháy và để bất lửa. Phải tránh xa môi trường khí gây ăn mòn.

CẢNH BÁO

1. Nếu chất lỏng bị rò rỉ từ pin dính vào mắt, không chà xát mắt, phải rửa mắt bằng nước sạch như nước máy và ngay lập tức liên hệ với bác sĩ. Nếu không xử lý ngay, chất lỏng có thể gây thương tổn cho mắt.
2. Nếu chất lỏng bị rò rỉ dính vào da hoặc quần áo, lập tức rửa bằng nước sạch như nước máy. Việc này có khả năng gây kích ứng da.
3. Nếu bạn thấy vết rỉ sắt, mùi hôi, phát nhiệt, đổi màu, biến dạng, và/hoặc bất thường khác khi sử dụng pin lần đầu, không dùng nữa và trả lại cho nhà cung cấp hoặc cung ứng của bạn.

CẢNH BÁO

Nếu có vật dẫn điện bên ngoài dính vào các cực của pin lithium ion, có thể xảy ra hiện tượng đoản mạch và dẫn đến nguy cơ hỏa hoạn. Vui lòng quan sát các vấn đề sau khi cất giữ pin.

- Không đặt mảnh nhỏ, đinh, dây thép, dây đồng hoặc dây dẫn điện khác vào hộp cất giữ.
- Hoặc lắp pin vào dụng cụ điện hoặc cất giữ bằng cách cất kỹ vào trong nắp pin sao cho giấu được các lỗ thông gió để tránh đoản mạch (Xem Hình 3).

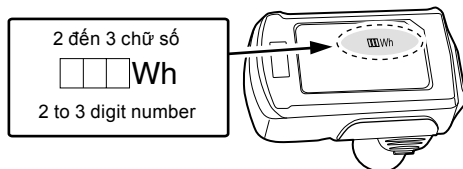
LIÊN QUAN ĐẾN VẬN CHUYỂN PIN LITHIUM-ION

Khi vận chuyển pin lithium-ion, vui lòng quan sát các phòng ngừa sau đây.

CẢNH BÁO

Thông báo cho công ty chuyên chở là có kiện hàng chứa pin lithium-ion, cung cấp cho công ty này biết đầu ra công suất của pin và tuân theo hướng dẫn của công ty vận chuyển khi tổ chức vận tải.

- Pin lithium-ion vượt quá đầu ra công suất 100 Wh được xem xét để đưa vào phân loại hàng hóa về Hàng hóa nguy hiểm và sẽ yêu cầu thủ tục áp dụng đặc biệt.
- Đối với việc vận chuyển ra nước ngoài, bạn phải tuân thủ luật pháp quốc tế và các nguyên tắc và quy định của nước đến.



THÔNG SỐ KỸ THUẬT

DỤNG CỤ ĐIỆN

Tốc độ không tải	5.000 – 35.000 /phút
Công suất ống kẹp đàn hồi	3,2 mm
Pin sạc	BCL1015: Li-ion 10,8 V / 12 V với mức tối đa (1,5 Ah 3 cục)
Trọng lượng	0,48 kg

BỘ SẠC

Mẫu	UC10SFL
Điện thế sạc	10,8 V
Trọng lượng	0,35 kg

CÁC PHỤ TÙNG TIÊU CHUẨN

GP10DL (2LCSK)	① Phụ tùng × 40 cái 1
	② Pin (BCL1015)..... 2
	③ Bộ sạc (UC10SFL) 1
	④ Vỏ nhựa 1
	⑤ Nắp pin 1
GP10DL (LCSK)	① Phụ tùng × 40 cái 1
	② Pin (BCL1015)..... 1
	③ Bộ sạc (UC10SFL) 1
	④ Vỏ nhựa 1
GP10DL (NN)	① Phụ tùng × 40 cái 1

Để biết thêm thông tin về các linh kiện, vui lòng tham khảo
“Các linh kiện kèm theo”
Phụ tùng tiêu chuẩn có thể thay đổi mà không báo trước.

Các linh kiện kèm theo

<Sử dụng>

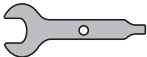
Dùng để khắc gỗ và mài.	Mũi nhôm oxit [φ15,9 mm × 1] 15,9 mm
Dùng để gia công vật liệu cứng như kính và gốm sứ.	Mũi silicon cacbit [φ4,8 mm × 1] 4,8 mm
Dùng để khắc, mài và đục lỗ trên gỗ, nhựa và kim loại mềm (nhôm, đồng, đồng thau).	Dao cắt tốc độ cao [φ3,2 mm × 1] 3,2 mm
Dùng để đục lỗ trên gỗ và ván ép	Khoan [φ3,2 mm × 1] 3,2 mm
Dùng để lát hoặc cắt vật liệu. Thích hợp để cắt thanh mỏng và ống dẫn. Giữ rãnh nghiêng trong đầu đinh vít. Không nhấn mạnh vào phối gia công vì nó có thể vỡ.	Bánh mài cắt [φ23,8 × t0,6 × 6] 23,8 mm 0,6 mm
	Bánh mài cắt [φ23,8 × t1,0 × 2] 23,8 mm 1,0 mm
Dùng để đánh bóng vật liệu cứng như thép không rỉ.	Bánh mài nhôm oxit [φ22,2 × 1] 22,2 mm
Thích hợp để đánh bóng tinh sau khi mài thô.	Đĩa mài [φ19,1 mm/180-hạt × 10] 19,1 mm 180-hạt
Dùng để gia công tinh bề mặt kim loại.	Bánh mài đánh bóng [φ25,4 mm × 2] 25,4 mm
Dùng để đánh bóng làm sáng trang sức và kim loại. Chọn kích cỡ phù hợp với phối gia công.	Bánh mài đánh bóng bằng ni [φ12,7 mm × 4] 12,7 mm
	Bánh mài đánh bóng bằng ni [φ25,4 mm × 2] 25,4 mm
Thích hợp cho các công việc như định hình gỗ và hoàn thiện các mô hình. Mài hai giai đoạn với số lượng hạt khác nhau để có bề mặt gia công tinh xảo.	Đai mài phủ cát [φ12,7 mm/60-hạt × 6] 12,7 mm 60-hạt
	Đai mài phủ cát [φ12,7 mm/120-hạt × 2] 12,7 mm 120-hạt

CẢNH BÁO

Các linh kiện tiêu chuẩn được thiết kế dành riêng cho GP10DL. Không sử dụng chúng cho các thiết bị khác như khoan điện, v.v... Làm như vậy có thể gây chấn thương hoặc hư đầu dụng cụ.

[Phụ tùng]

Chìa vặn ống kẹp (để nối lồng các đai ốc ống kẹp đã siết)



Mũi đột bánh mài [φ3,2 mm × 1]

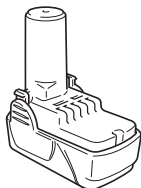
Mũi đột dạng đinh ốc [φ3,2 mm × 1]

Mũi đột dạng tang trống [φ3,2 mm × 1]



CÁC PHỤ TÙNG TÙY CHỌN (bán riêng)

1. Pin (BCL1015)



Các phụ tùng tùy chọn có thể thay đổi mà không báo trước.

ỨNG DỤNG

- Chế tác chạm khắc gỗ và trang sức kim loại quý
- Chạm khắc và điêu khắc thủy tinh và gốm sứ
- Mài và đánh bóng thép và đá

CHỨC NĂNG CƠ BẢN

1. Đèn báo pin yếu (Hình 1)

Để kiểm tra lượng pin còn lại, cho máy mài chạy không tải.

Nếu lượng pin còn lại thấp thì đèn báo (đèn LED màu đỏ) sẽ sáng. Nếu đèn báo này sáng thì phải thay pin ngay lập tức.

CHÚ Ý

- Đèn báo pin yếu có thể bị ảnh hưởng bởi nhiệt độ môi trường hoặc các đặc tính của pin. Sử dụng đèn này như một dấu hiệu cho biết khi nào cần sạc pin.
- Đèn báo pin yếu có thể sáng trong quá trình vận hành máy mài. Hiện tượng này là do sự giảm điện áp pin tạm thời chứ không phải do pin yếu.
- Khi kiểm tra lượng pin còn lại, hãy đảm bảo rằng máy mài hoạt động trong điều kiện không tải.

2. Nút xoay điều chỉnh

Nút xoay điều chỉnh có chức năng như công tắc khởi động đồng thời là nút chỉnh tốc độ. Khi xoay nút từ [0] sang số lớn hơn, máy mài sẽ bật và dần dần tăng tốc. Cùng lúc, đèn LED bật và soi sáng đầu máy mài. Khi vận nút xoay về [0], máy mài tắt và ngừng quay.

Để đảm bảo an toàn, máy mài sẽ không khởi động nếu lắp pin trong lúc công tắc đang ở bất kỳ vị trí nào khác [0].

Để bật máy mài trong trường hợp đó, chuyển nút xoay về [0] và sau đó quay sang số lớn hơn.

Mối quan hệ tương đối giữa các con số trên nút xoay điều chỉnh và tốc độ quay được thể hiện trong đồ thị ở Hình 2.

THÁO/LẮP PIN

1. Tháo pin

Giữ chặt tay cầm và đẩy chốt pin để tháo pin ra (xem Hình 3 và 4).

CẢNH BÁO

Không bao giờ được làm đoản mạch pin.

2. Lắp pin

Lắp pin đồng thời chú ý quan sát các cực của pin (xem Hình 4).

SẠC PIN

Trước khi sử dụng dụng cụ điện, sạc pin như hướng dẫn bên dưới.

1. Nối dây điện của bộ sạc vào ổ cắm

2. Lắp pin vào bộ sạc

Lắp pin vào sao cho bề mặt có đinh tên hướng về phía có tên của bộ sạc và nhấn pin xuống cho đến khi nó tiếp xúc với đáy (Xem Hình 5).

Lắp pin vào thì bộ sạc sẽ tự động bật (đèn báo hiệu sáng).

CẢNH BÁO

Nếu đèn báo không sáng lên, rút dây điện ra khỏi ổ cắm và kiểm tra tình trạng lắp pin.

Đèn báo tắt để báo hiệu rằng pin đã sạc đầy

CẢNH BÁO

Nếu pin bị nóng do ánh sáng mặt trời chiếu trực tiếp, v.v..., ngay sau khi vận hành, thì đèn báo của bộ sạc sẽ không sáng. Lúc này phải làm mát pin trước rồi sau đó mới sạc pin.

- Liên quan đến thời gian sạc lại

Bảng 1 trình bày thời gian sạc lại theo yêu cầu cần cứ vào từng loại pin.

Bảng 1 Thời gian sạc lại (tương đương phút) ở 20°C

Điện áp pin (V)	Công suất pin (Ah)	
	1,5 Ah	
10,8 V	BCL1015	40 /phút

CHÚ Ý

Thời gian sạc lại pin có thể thay đổi tùy theo nhiệt độ môi trường xung quanh.

3. Rút dây điện của bộ sạc khỏi ổ cắm

4. Giữ chắc bộ sạc và rút pin ra

CHÚ Ý

Đảm bảo rút pin ra khỏi bộ sạc sau khi sử dụng và cất giữ bộ sạc cẩn thận.

Cách kéo dài tuổi thọ pin

- (1) Sạc pin trước khi chúng hoàn toàn cạn kiệt.

Khi bạn cảm thấy công suất của dụng cụ trở nên yếu hơn, ngừng sử dụng dụng cụ và sạc pin.

Nếu bạn cứ tiếp tục sử dụng dụng cụ và làm cạn hết dòng điện, pin có thể bị hỏng và rút ngắn tuổi thọ.

- (2) Tránh sạc pin ở nhiệt độ cao.

Pin sạc sẽ nóng lên ngay sau khi sử dụng. Nếu sạc pin ngay sau khi sử dụng, các chất hóa học bên trong pin sẽ hỏng, và tuổi thọ pin sẽ bị rút ngắn. Để pin nghỉ ngơi và sạc lại sau khi pin đã nguội.

CẢNH BÁO

- Khi sử dụng liên tục, bộ sạc pin sẽ nóng lên, đây chính là nguyên nhân gây hư hỏng. Khi hoàn tất một lần sạc pin, để pin nghỉ 15 phút trước khi sạc tiếp.

- Nếu bộ sạc pin vẫn không hoạt động cho dù đã lắp pin đúng cách, rất có thể là pin hoặc bộ sạc bị trục trặc. Mang đến Trung tâm Dịch vụ ủy quyền của bạn.

TRƯỚC KHI VẬN HÀNH

1. Thiết lập và kiểm tra môi trường làm việc

Kiểm tra xem môi trường làm việc có phù hợp với các phòng ngừa nêu trên không.

CÁCH LẮP ĐẦU DỤNG CỤ

CẢNH BÁO

Để tránh xảy ra tai nạn, kiểm tra để đảm bảo đã tắt nguồn và lấy pin ra khỏi máy mài.

CẢNH BÁO

Đảm bảo mũi đột đã được siết chặt.

Sau khi gắn đầu dụng cụ, kiểm tra xem dụng cụ đã được vận chắc chưa.

Nếu dụng cụ bị lỏng, nó có thể bị rơi ra, gây thiệt hại hoặc thương tích.

1. Cách sử dụng mũi đột dạng vít (Hình 6 (a))

Sử dụng mũi đột dạng vít khi gia công với bánh mài đánh bóng bằng ni.

Giữ bánh mài thẳng, vận cho khớp vào ren của mũi đột dạng vít cho đến khi chạm mặt bích.

2. Cách sử dụng mũi đột bánh mài (Hình 6 (b))

Tháo vít ở đầu cuối của mũi đột bằng tước nơ vít đầu bằng và gắn bánh mài cắt hoặc đĩa mài vào.

3. Cách sử dụng mũi đột dạng tang trống (Hình 6 (c))

Một đai mài phủ cát 60-hạt được gắn vào mũi đột dạng tang trống khi xuất xưởng.

Tháo đinh ốc ở cuối mũi đột bằng tước nơ vít để tháo/ gắn đai mài phủ cát.

Sau khi gắn đai mài phủ cát, siết chặt vít lại.

4. Lắp đầu dụng cụ vào máy mài

Xoay đai ốc ống kẹp bằng tay, đồng thời nhấn vào nút khóa để ấn nút khóa xuống.

Ở trạng thái này, cần trục bị khóa và có thể nối lồng hoặc siết chặt đai ốc ống kẹp. (Hình 7)

Để lắp đầu dụng cụ, gắn đầu dụng cụ vào sâu hết mức và siết chặt đai ốc ống kẹp.

Để tháo đầu dụng cụ, có thể xoay đai ốc ống kẹp bằng tay, cho dù đôi khi đai ốc này rất chặt.

Nếu đai ốc ống kẹp quá chặt, sử dụng chìa vận ống kẹp để nối lồng.

Bột sắt trong đai ốc ống kẹp, ống kẹp hoặc vít cần trục có thể làm cho đai ốc ống kẹp trở nên khó vận. (Hình 8)

Đảm bảo lau sạch mọi loại bột trước khi lắp hoặc tháo đầu dụng cụ.

CHÚ Ý

Thình thoảng, có thể khó tháo đầu dụng cụ ra khỏi ống kẹp.

Nếu điều này xảy ra, nối lồng đai ốc ống kẹp, đồng thời nhấn đầu cuối dụng cụ nhẹ vào một vật cứng (Hình 10)

5. Điều chỉnh độ cân bằng cho đầu dụng cụ

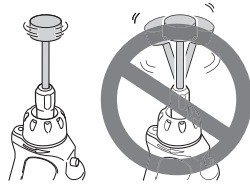
Sau khi gắn đầu dụng cụ, vận hành máy mài ở tốc độ thấp. Nếu không cân bằng, làm theo các bước bên dưới để điều chỉnh độ cân bằng.

Nối lồng đai ốc ống kẹp đồng thời nhấn nút khóa.

Tiếp theo, xoay đầu dụng cụ khoảng 1/4 vòng và siết chặt đai ốc ống kẹp.

Vận hành máy mài ở tốc độ thấp và kiểm tra độ cân bằng. Nếu đã cân bằng, quá trình điều chỉnh hoàn tất.

Nếu vẫn chưa cân bằng, tháo đầu dụng cụ, đai ốc ống kẹp và ống kẹp sau đó lắp chúng lại lần nữa. Nếu đầu dụng cụ vẫn chưa cân bằng sau vài lần cố gắng điều chỉnh, kiểm tra xem đầu dụng cụ có bị biến dạng hoặc mài mòn không, hoặc kiểm tra ống kẹp có bị biến dạng không. Nếu bị mòn hay biến dạng, thay mới đầu dụng cụ hoặc ống kẹp.



VẬN HÀNH MÁY MÀI

CẢNH BÁO

- Giữ mặt của bạn tránh xa đầu dụng cụ khi vận hành.
- Đeo kính và khẩu trang chống bụi khi sử dụng máy mài. Mạnh vớ của đầu dụng cụ có thể gây chấn thương.
- Không vận hành máy mài ở tốc độ quá thấp. Khi đó không thể gia công để cho ra sản phẩm có bề mặt trơn nhẵn và làm như vậy có thể gây hỏng đầu dụng cụ, gây sự cố cho máy mài hoặc chấn thương.

CẢNH BÁO

Không chạm vào đầu dụng cụ, đai ốc ống kẹp hoặc đai ốc ngay sau khi gia công vì chúng sẽ rất nóng và chạm vào có thể gây bỏng.

1. Tháo pin ra và lắp đầu dụng cụ vào
2. Điều chỉnh phối gia công sao cho nó không bị dịch chuyển
Phôi càng nhỏ, thì càng không ổn định khi gia công. Có định phối nhỏ trong một mô cặp.
Giữ phối bằng tay có thể gây chấn thương.
3. Lắp pin vào máy mài
4. Kiểm tra độ cân bằng của đầu dụng cụ
Kiểm tra đầu dụng cụ bằng mắt ở tốc độ thấp (khoảng mức [1] trên núm xoay điều chỉnh).
Đồng thời kiểm tra xem có tiếng ồn bất thường trong quá trình vận hành không.
5. Chọn tốc độ gia công
○ Chọn tốc độ gia công tối ưu đối với vật liệu trong lúc tiến hành chạy thử, tham khảo trong Bảng 2.
○ Nếu gia công nhựa ở tốc độ cao, nhựa có thể nóng chảy do nhiệt. Kiểm tra dần dần, bắt đầu từ tốc độ thấp.

Bảng 2 Cài đặt núm xoay điều chỉnh

Vật liệu ia gong Đầu dụng cụ	Gỗ mềm	Gỗ cứng	Lamina/ Nhựa	Thép	Nhôm, đồng, v.v...	Vỏ cứng/ Đá	Gạch	Kính
Mũi nhôm oxit	3-4	3-4	—	2,5	1	1,5	3-4	—
Mũi silicon carbít	—	—	1,5	3-4	1	1,5	3-4	3-4
Dao cắt tốc độ cao	3-4	3-4	1	1,5	3-4	—	—	—
Khoan	3-4	3-4	1	—	1,5	—	—	—
Bánh mài cắt	—	—	1	3-4	3-4	3-4	3-4	—
Bánh mài nhôm oxit	3-4	3-4	—	2,5	1	1,5	3-4	—
Đĩa mài	2,5	2,5	1	—	1	—	—	—
Bánh mài đánh bóng	—	—	—	1	1	1	1	1
Bánh mài đánh bóng bằng ni	—	—	—	1	1	—	—	—
Đai mài phủ cát	1-4	1-4	1-4	3-4	3-4	1-4	1-4	—

6. Gia công

- Đặt đầu dụng cụ đang quay chậm nhẹ vào phôi và gia công phôi với lực nén tối thiểu.
- Thay vì thực hiện toàn bộ công việc một lần, nên gia công nhiều lần để đạt được bề mặt gia công tinh xảo hơn.

CHÚ Ý

- Phần hẹp của máy mài hướng về người giữ đầu dụng cụ. Đặt ngón tay lên phần hẹp và giữ máy mài sao vận hành thuận tiện (Hình 9)
- Khi gia công vật liệu lần đầu hoặc sử dụng đầu dụng cụ lần đầu, trước hết tiến hành mài thử để kiểm tra tốc độ tối ưu, cách giữ máy mài và cách đặt dụng cụ vào phôi gia công.
- Nếu bạn kết quả gia công không được như mong đợi, tác dụng lực nhiều hơn lên dụng cụ điện sẽ không cho kết quả tinh xảo hơn. Nếu kết quả gia công cũng không được cải thiện bằng cách nghiêng dụng cụ điện. Điều chỉnh tốc độ quay hoặc thay đầu dụng cụ khác.

BẢO DƯỠNG VÀ KIỂM TRA

1. Kiểm tra các phụ tùng

Sử dụng đầu dụng cụ hoặc mũi đột có đầu cuối bị mòn hoặc hỏng không những làm bề mặt sản phẩm có chất lượng xấu mà còn gây biến dạng động cơ, làm cho hiệu suất giảm, hư hỏng hoặc chấn thương. Nếu đầu dụng cụ hay mũi đột bị mòn hay bị hỏng, hãy thay mới.

2. Kiểm tra các đinh ốc đã lắp

Thường xuyên kiểm tra tất cả các đinh ốc đã lắp và đảm bảo rằng chúng được siết chặt. Nếu có bất kỳ đinh ốc nào bị nới lỏng, siết chặt lại ngay lập tức. Nếu không làm như vậy có thể gây nguy hiểm nghiêm trọng.

3. Bảo dưỡng động cơ

Cuộn dây động cơ là “trái tim” của dụng cụ điện. Kiểm tra và bảo dưỡng để đảm bảo cuộn dây không bị hư hỏng và/hoặc ẩm ướt do dính dầu nhớt hoặc nước.

4. Vệ sinh bên ngoài

Khi máy mài bị xỉn màu, dùng vải khô mềm hoặc miếng vải thấm nước xà phòng lau sạch. Không sử dụng dung môi cloric, xăng hoặc chất pha loãng sơn, vì chúng làm tan chảy nhựa.

5. Bảo quản

Bảo quản dụng cụ máy ở nơi có nhiệt độ thấp hơn 40°C và tránh xa tầm tay trẻ em.

CHÚ Ý

Cất giữ pin Lithium-ion
Đảm bảo pin lithium-ion đã được sạc đầy trước khi cất giữ.
Cất giữ pin trong một thời gian dài (từ 3 tháng trở lên) với mức sạc yếu có thể làm cho pin bị suy giảm hiệu suất, giảm đáng kể thời gian sử dụng pin hoặc làm cho pin bị mất khả năng sạc lại.
Tuy nhiên, việc giám đắg kể thời gian sử dụng pin có thể được phục hồi bằng cách sạc và sử dụng pin liên tục từ hai đến năm lần.
Nếu thời gian sử dụng pin là cực ngắn mặc dù đã liên tục sạc và sử dụng, thì xem như là đã bị chai pin và cần phải mua pin mới.

CẢNH BÁO

Trong khi vận hành và bảo trì dụng cụ điện, phải tuân theo các nguyên tắc an toàn và tiêu chuẩn quy định của từng quốc gia.

Lưu ý quan trọng về pin dành cho các dụng cụ điện không dây HIKOKI

Luôn sử dụng pin chính hãng theo quy định của chúng tôi. Chúng tôi không thể đảm bảo cho sự an toàn và hiệu quả của dụng cụ điện không dây nếu dụng cụ được sử dụng với pin khác loại mà chúng tôi khuyến nghị, hoặc khi pin bị tháo rời hoặc sửa chữa (chẳng hạn như tháo và thay thế các cells hoặc các bộ phận bên trong khác).

CHÚ Ý

Do chương trình nghiên cứu và phát triển liên tục của HIKOKI, các thông số kỹ thuật nêu trong tài liệu này có thể thay đổi mà không thông báo trước.

กฎความปลอดภัยโดยทั่วไป

คำเตือน!

โปรดอ่านคำแนะนำทั้งหมด

ถ้าไม่ปฏิบัติตามคำแนะนำทั้งหมด อาจถูกไฟฟ้าดูด เกิดไฟไหม้ และ/หรือบาดเจ็บสาหัสได้

คำว่า "เครื่องมือไฟฟ้า" ในคำเตือนต่อไปนี้ทั้งหมดหมายถึงเครื่องมือที่คุณใช้งานกับปลั๊กไฟฟ้า (มีสายไฟ) หรือใช้งานกับแบตเตอรี่ (ไร้สาย)

โปรดปฏิบัติตามคำแนะนำต่อไปนี้

1) พื้นที่ทำงาน

- รักษพื้นที่ทำงานให้สะอาดและมีแสงสว่างเพียงพอ
สิ่งที่เกาะและความมืดทำให้เกิดอุบัติเหตุได้
- อย่าใช้เครื่องมือไฟฟ้าในบรรยากาศที่อาจระเบิด เช่น มีของเหลวไวไฟ แก๊สหรือฝุ่น

เครื่องมือไฟฟ้าอาจเกิดประกายไฟที่อาจทำให้ฝุ่นและไอติดไฟได้

- ใช้งานเครื่องมือไฟฟ้าให้ไกลจากเด็กและคนเฝ้าชม
คนที่วอกแวกทำให้คุณขาดสมาธิในการทำงานได้

2) ความปลอดภัยทางไฟฟ้า

- ปลั๊กของเครื่องมือไฟฟ้าต้องเหมาะสมกับเต้าเสียบ
อย่าตัดแปลงปลั๊ก
อย่าใช้ปลั๊กของตัวปรับแรงดันไฟฟ้ากับเครื่องมือไฟฟ้าชนิดที่ต่อลงดิน
ปลั๊กกับเต้าเสียบที่ไม่พอดีกันอาจทำให้คุณถูกไฟฟ้าดูด
- อย่าให้ตัวคุณสัมผัสกับพื้นผิวที่ต่อลงดิน เช่น ท่อโลหะ เครื่องทำความร้อน เตapot ตู้เย็น เป็นต้น
อาจถูกไฟฟ้าดูดถ้าร่างกายของคุณต่อวงจรลงดิน
- อย่าให้เครื่องมือไฟฟ้าถูกกับน้ำฝนหรือความเปียกชื้น
น้ำที่เข้าไปในเครื่องมือไฟฟ้าจะเพิ่มความเสี่ยงที่จะถูกไฟฟ้าดูด
- อย่าใช้สายไฟฟ้าในทางอื่น อย่าใช้สายเพื่อหิ้ว ดึงหรือ เสียบเครื่องมือไฟฟ้า ให้สายไฟอยู่ห่างจากความร้อน น้ำมัน ขอบแหลมคมหรือชิ้นส่วนที่เคลื่อนไหว
สายที่ชำรุดหรือดึงอาจทำให้คุณถูกไฟฟ้าดูดได้ง่าย
- เมื่อใช้งานเครื่องมือไฟฟ้านอกอาคาร
ใช้สายพ่วงชนิดที่ใช้กับนอกอาคารเมื่อใช้สายที่เหมาะสมจะลดความเสี่ยงที่จะถูกไฟฟ้าดูด

3) ความปลอดภัยส่วนบุคคล

- ระวังตัว คุณสิ่งที่คุณกำลังทำ ใช้สามัญสำนึกเมื่อใช้เครื่องมือไฟฟ้า
อย่าใช้เครื่องมือไฟฟ้าเมื่อคุณอ่อนเพลียหรือหิว ยา สุรา หรือ ยาเสพติด
การขาดสติชั่วคราวเมื่อใช้เครื่องมือไฟฟ้าอาจทำให้คุณบาดเจ็บสาหัส
- ใช้อุปกรณ์นิรภัย สวมแว่นตาป้องกันเสมอ
อุปกรณ์ป้องกันเช่น หน้ากากกันฝุ่น รองเท้ากันส้น หมวกนิรภัย หรือ จุกอุดหูที่เหมาะสมจะเลือกการบาดเจ็บเชิงโครงสร้างได้
- ระวังเครื่องทำงานโดยไม่ตั้งใจ ให้สวิทช์อยู่ในตำแหน่งปิดก่อนเสียบปลั๊ก

เมื่อจับเครื่องมือไฟฟ้าเมื่อนิ้วอยู่ที่ตัวสวิทช์ หรือเมื่อเสียบปลั๊ก ขณะเปิดสวิทช์ไว้อาจทำให้เกิดอุบัติเหตุ

- เอสลักปรับแต่งหรือปรับแฉกก่อนเปิดสวิทช์ไฟฟ้า
เล้าหรือปรับแฉกที่ติดกับส่วนหมุนของเครื่องมือไฟฟ้าอาจทำให้คุณบาดเจ็บได้
- อย่าเอื้อมตัว ยื่นให้มันและสมดุลตลอดเวลา
ทำให้ควบคุมเครื่องมือไฟฟ้าได้ดีขึ้นเมื่อมีเหตุที่ไม่คาดฝัน
- แต่งตัวให้รัดกุม อย่าสวมเสื้อผ้าหลวมหรือใช้เครื่องประดับ ให้ผม เสื้อผ้าและถุงมืออยู่ห่างจากชิ้นส่วนที่เคลื่อนที่
เสื้อผ้าหลวม เครื่องประดับหรือผมอาจถูกชิ้นส่วนหมุนรั้งเข้าไป
- ถ้าออกแบบเครื่องมือไฟฟ้าไว้ให้ต่อกับชุดดูดฝุ่นหรือเศษวัสดุ ให้เชื่อมต่อและใช้งานอย่างถูกต้อง
เมื่อใช้กับชุดอุปกรณ์เหล่านี้ จะลดอันตรายจากฝุ่น

4) การใช้และบำรุงรักษาเครื่องมือไฟฟ้า

- อย่าใช้เครื่องมือไฟฟ้าโดยฝืนกำลัง ใช้เครื่องมือที่ถูกต้องกับงานของคุณ
เครื่องมือไฟฟ้าที่ถูกต้องจะทำงานได้ดีกว่าและปลอดภัยกว่า ในอัตราตามที่ออกแบบไว้แล้ว
- อย่าใช้เครื่องมือไฟฟ้าถ้าสวิทช์ปิดเปิดไม่ได้
เครื่องมือไฟฟ้าที่ควบคุมด้วยสวิทช์ไม่ได้ จะมีอันตรายและต้องซ่อม
- ถอดปลั๊กจากแหล่งไฟฟ้าก่อนปรับแต่ง เปลี่ยนอะไหล่ หรือ เก็บรักษา
มาตรการป้องกันเช่นนี้จะลดความเสี่ยงของอุบัติเหตุที่เครื่องมือไฟฟ้าจะเริ่มทำงานโดยไม่ตั้งใจ
- เก็บเครื่องมือไฟฟ้าให้ห่างจากเด็ก และอย่ายอมให้ผู้ที่ไม่เคยชินกับเครื่องมือไฟฟ้าหรือคำแนะนำเหล่านี้ให้ใช้เครื่องมือไฟฟ้า
เครื่องมือไฟฟ้าเป็นสิ่งที่อันตรายมากเมื่ออยู่ในมือของคนที่ไม่มีชำนาญ
- บำรุงรักษาเครื่องมือไฟฟ้า ตรวจสอบดูศูนย์เคลื่อน ส่วนบิตงอ ชำรุด หรือสภาพอื่นๆ ที่มีผลต่อการทำงานของเครื่องมือไฟฟ้า
หากชำรุด ให้ซ่อมแซมก่อนใช้งาน
อุบัติเหตุจำนวนมากเกิดจากเครื่องมือไฟฟ้าที่บำรุงรักษาไม่ดีพอ
- ให้เครื่องมือตัดมีความคมและสะอาด
เครื่องมือตัดที่บำรุงรักษาอย่างถูกต้องและมีขอบคมจะไม่ค่อยบิตงอ และควบคุมได้ง่ายกว่า
- ใช้เครื่องมือไฟฟ้า ส่วนประกอบและปลายเครื่องมือตัดตามคำแนะนำเหล่านี้ และตามที่ออกแบบไว้ โดยพิจารณาสภาพงานและสิ่งที่จะใช้งาน
ถ้าใช้เครื่องมือไฟฟ้ากับงานที่ไม่ได้ออกแบบไว้ อาจเกิดความเสี่ยงภัยได้

5) การดูแลรักษาและการใช้แบตเตอรี่

- ก่อนจะบรรจุก้อนแบตเตอรี่ ควรตรวจสอบให้แน่ใจว่าสวิทช์อยู่ที่ตำแหน่งปิด
การใส่ก้อนแบตเตอรี่ลงในเครื่องมือที่มีกระแสไฟฟ้าไหลเวียนจะทำให้เกิดอุบัติเหตุ

- b) ชาร์จแบตเตอรี่ซ้ำโดยใช้เครื่องชาร์จตามที่ผู้ผลิตกำหนดไว้เท่านั้น
หากนำเครื่องชาร์จที่เหมาะสมสำหรับใช้งานกับแบตเตอรี่ประเภทอื่นมาใช้กับแบตเตอรี่อีกประเภท อาจทำให้เกิดไฟไหม้ได้
- c) ใช้เครื่องมือที่ต้องการกำลังไฟกับแบตเตอรี่ตามประเภทที่ได้ระบุไว้เท่านั้น
การใช้แบตเตอรี่แบบอื่นอาจทำให้เกิดไฟไหม้และการบาดเจ็บได้
- d) เมื่อไม่ใช้งานแบตเตอรี่ ควรเก็บให้ห่างจากวัตถุที่เป็นโลหะ เช่น คลิปหนีบกระดาษ เหรียญ กุญแจ ตะปู สกรู หรือวัตถุที่เป็นโลหะขนาดเล็ก ที่สามารถเชื่อมต่อเข้าด้วยกันได้ การลัดวงจรขั้วต่อแบตเตอรี่เข้าด้วยกันอาจทำให้เกิดแผลไหม้พุพองหรือไฟไหม้ได้
- e) ภายใต้อากาศที่เป็นอันตราย อาจมีของเหลวรั่วซึมออกจากแบตเตอรี่ ห้ามสัมผัสกับของเหลวดังกล่าว หากสัมผัสกับของเหลวโดยบังเอิญ ให้ล้างออกด้วยน้ำสะอาด หากของเหลวเข้าตา ควรรีบไปพบแพทย์
- ของเหลวที่ไหลออกจากแบตเตอรี่อาจทำให้เกิดอาการระคายเคืองหรือแผลไหม้พุพองได้
- 6) การซ่อมบำรุง
- a) ให้ช่างซ่อมที่ชำนาญเป็นผู้ซ่อม และเปลี่ยนอะไหล่ที่เป็นของแท้ ทำให้เครื่องมือไฟฟ้ามีความปลอดภัย
- คำเตือน
เก็บให้พ้นมือเด็กและผู้ไม่ชำนาญ
หากไม่ได้ใช้ ควรเก็บให้พ้นมือเด็กและผู้ไม่ชำนาญ

คำเตือนความปลอดภัยทั่วไปสำหรับงานเจียร์ งานขัดกระดาษทราย งานขัด หรืองานตัด

- a) ออกแบบเครื่องมือไฟฟ้านี้เพื่อใช้กับงานขัด งานขัดกระดาษทราย งานขัด หรืองานตัด โปรดอ่านคำเตือนความปลอดภัย คำแนะนำ ภาพประกอบ และรายละเอียดทางเทคนิคที่มาพร้อมกับเครื่องมือไฟฟ้านี้ ถ้าไม่ปฏิบัติตามคำแนะนำข้างล่าง อาจถูกไฟฟ้าดูด ไฟไหม้ และบาดเจ็บสาหัสได้
- b) ไม่แนะนำให้ใช้เครื่องมือไฟฟ้านี้กับงานขัดแปรงลวด หากใช้กับงานอื่นที่ไม่ได้ออกแบบไว้ อาจเกิดความเสี่ยงและบาดเจ็บสาหัสได้
- c) อย่าใช้อุปกรณ์ประกอบที่ไม่ได้ออกแบบมาเฉพาะ และผู้ผลิตเครื่องมือไม่ได้แนะนำให้ใช้ แม้จะติดอุปกรณ์ประกอบเข้าได้กับเครื่องมือไฟฟ้า ก็อาจไม่สามารถทำงานอย่างปลอดภัยก็ได้
- d) อย่างน้อยที่สุด พักความเร็ของอุปกรณ์ประกอบต้องเท่ากับความเร็วสูงสุดที่เขียนไว้บนเครื่องมือไฟฟ้า ถ้าอุปกรณ์ประกอบใช้ความเร็วสูงกว่าพักความเร็ ก็อาจแตกและปลิวว่อนได้
- e) เส้นผ่านศูนย์กลางภายนอกและความหนาของอุปกรณ์ประกอบต้อง อยู่ภายในขีดความสามารถของเครื่องมือไฟฟ้า

ไม่อาจป้องกันหรือควบคุมอุปกรณ์ประกอบที่ผิดปกติได้อย่างเพียงพอ

- f) ขนาดรูปเลขาของงานขัด หน้าแปลน แผ่นทาบหลัง หรือชิ้นส่วน ประกอบอื่นๆ ต้องยึดกับเลขาของเครื่องมือไฟฟ้าให้พอดี อุปกรณ์ประกอบที่รูปร่างไม่เท่ากับชิ้นส่วนที่ติดตั้งของเครื่องมือไฟฟ้าจะขาดความสมดุล สั่นอย่างรุนแรง และอาจสูญเสียการควบคุมได้
- g) อย่าใช้อุปกรณ์ประกอบที่ชำรุด ก่อนการใช้งานแต่ละครั้ง โปรดตรวจสอบอุปกรณ์เสียก่อน เช่น รอยบิ่นหรือร้าวที่หินเจียร์ รอยร้าว รอยฉีกหรือส่วนหักหรือผิดปกติที่แผ่นทาบหลัง จุดที่หลวมหรือร้าวของแปรงลวด เป็นต้น ถ้าเครื่องมือไฟฟ้าหรืออุปกรณ์ประกอบแตกกระเทาะ ตรวจสอบความเสียหายหรือเปลี่ยนไปใช้อุปกรณ์ที่ไม่ชำรุด หลังจากตรวจสอบและติดตั้งอุปกรณ์ประกอบแล้ว หันตัวคุณและคนอื่นอยู่ ออกจากระนาบงานหมุนของอุปกรณ์ และเปิดสวิทช์ให้เครื่องมือทำงาน โดยให้แรงกดทำเป็นเวลา 1 นาที
- ในขณะทดสอบเปิดเครื่องนี้ อุปกรณ์ที่ชำรุดมักแตกออกเป็นชิ้นๆ
- h) ใช้อุปกรณ์ป้องกันภัยส่วนบุคคล อาจขึ้นกับลักษณะงาน แต่ควาใช้หน้ากากป้องกัน แว่นตานิรภัย หรือแว่นตากันฝุ่น ใช้หมวกกันน็อก จุกปิดหู ถุงมือ และผ้ากันเปื้อนงานช่างตามความจำเป็น เพื่อป้องกันจากเศษวัสดุหรือชิ้นงานที่ปลิวกระจาย ชูดป้องกันตาต้องสามารถยับยั้งเศษวัสดุที่ปลิวในการปฏิบัติงานต่าง ๆ ได้ หน้ากากกันฝุ่นหรือชุดช่วยหายใจต้องสามารถกรองอนุภาคเล็ก จากการปฏิบัติงานของคุณได้ ถ้าทำงานภายใต้เสียงดังเป็นเวลานาน ความสามารถในการได้ยินอาจสูญเสียไป
- i) ให้คนอื่นอยู่ ยืนห่างจากจุดที่ทำงานจนปลอดภัยเพียงพอ ผู้ที่เข้าไปยังพื้นที่ปฏิบัติงานจะต้องใช้อุปกรณ์ป้องกันภัยส่วนบุคคล เศษของชิ้นงานหรืออุปกรณ์ที่แตกหักอาจกระเด็น และคนที่อยู่ติดกับพื้นที่ปฏิบัติงานอาจบาดเจ็บได้
- j) ห้ามเจาะมือจับที่มีฉนวนของเครื่องมือไฟฟ้าเท่านั้น เมื่อปฏิบัติงานโดยที่อุปกรณ์ตัดอาจแตะกับสายไฟฟ้าที่มองไม่เห็นหรือแตะกับสายไฟของตัวเครื่องเอง
- เพราะว่า อุปกรณ์ตัดที่แตะกับสายไฟ "มีกระแส" ทำให้ชิ้นส่วนโลหะของเครื่องมือ "มีกระแส" และคุณอาจถูกดูดได้
- k) วางสายไฟไม่ให้อยู่ใกล้กับอุปกรณ์หมุน
- เพราะว่า ถ้าคุณสูญเสียการควบคุม สายไฟอาจขาดหรือตัด และมือหรือแขนของคุณอาจถูกดูดเข้าไปในอุปกรณ์หมุนก็ได้
- l) อย่าวางเครื่องมือไฟฟ้าลงจนอุปกรณ์ประกอบหยุดทำงานสนิทแล้ว
- เพราะว่า อุปกรณ์หมุนอาจแตะกับพื้นและคุณสูญเสียการควบคุมของตัวเครื่องมือไฟฟ้าได้
- m) อย่าให้เครื่องมือไฟฟ้าทำงานเมื่อถือไว้ข้างๆ ตัวคุณ
- เพราะการแตะกับอุปกรณ์หมุนโดยไม่ตั้งใจอาจดูดเสื้อผ้า ทำให้อุปกรณ์ตัดสวนของร่างกายของคุณได้
- n) ทำความสะอาดช่องระบายอากาศของเครื่องมือไฟฟ้าอย่างสม่ำเสมอ
- พัดลมของมอเตอร์จะดูดฝุ่นเข้าไปสะสมในเครื่องมือ ทำให้ไฟฟ้าร้อนขึ้นส่วนโลหะได้

- o) อย่าเปิดสวิตช์เครื่องมือไฟฟ้าใกล้วัสดุที่ติดไฟได้ เพราะประกายไฟอาจทำให้วัสดุเหล่านั้นเผาไหม้
- p) อย่าใช้อุปกรณ์ประกอบที่ต้องใช้น้ำยาหล่อเย็น เพราะการใช้ น้ำหรือน้ำยาหล่อเย็นอื่นๆ อาจทำให้ไฟฟ้ารั่ว หรือไฟดูดก็ได้

แรงผลักและคำเตือน

แรงผลักเป็นปฏิกิริยาทันทีจากจานหมุน แผ่นทาบหลัง แปรง หรืออุปกรณ์อื่นๆ ที่ติดหรือสะดุด เมื่อติดหรือสะดุด ทำให้อุปกรณ์หมุนหยุดทำงานโดยเร็ว ทำให้เครื่องมือไฟฟ้าที่ขาดการควบคุมเคลื่อนไปในทิศทางตรงกันข้ามกับทิศทางหมุนของอุปกรณ์ ในจุดที่ยึดไว้

ตัวอย่างเช่น ถ้าจานขัดติดหรือสะดุดกับชิ้นงาน ขอบของจานที่อยู่ตรงข้างจากผิวของวัสดุ ทำให้จานขัดไหลออกหรือผลักตัวออก จานขัดอาจกระโดดเข้ามา หรือออกจากตัวผู้ปฏิบัติงาน โดยขึ้นกับทิศทางหมุนของจานขณะที่สุด ในกรณีนี้ จานขัดหยابก็อาจแตกได้อีกด้วย

แรงผลักเป็นผลของการใช้เครื่องมือไฟฟ้าอย่างไม่ถูกต้องตามลำดับ และ/หรือผิดพลาด หรือผิดเงื่อนไข และอาจเสี่ยงได้โดยใช้ความระมัดระวังดังต่อไปนี้

- a) จับเครื่องมือไฟฟ้าให้แน่น วางตำแหน่งที่ถูกต้องของตัวคุณและแขน เพื่อรับกับแรงต้านได้พอเพียง ใช้มือถือช่วยถ้ามี เพื่อให้ควบคุมแรงต้านหรือแรงบิดได้ดีที่สุดเมื่อเริ่มสวิตช์เปิดเครื่องมือ ผู้ปฏิบัติงานอาจควบคุมแรงบิดหรือแรงต้านได้ ถ้าใช้ความระมัดระวังมากพอ
- b) อย่าวางมือของคุณไว้ใกล้อุปกรณ์ที่หมุน เพราะอุปกรณ์เช่นนั้นอาจผลักตัวเองมาที่มือของคุณก็ได้
- c) อย่ายืนในตำแหน่งที่เครื่องมือไฟฟ้าอาจผลักตัวมา เมื่อเกิดแรงต้านขึ้นมา แรงต้านจะทำให้เครื่องมือไปยังทิศทางหมุนของจานขัด ในจุดที่สะดุด
- d) ใช้ความระมัดระวังเป็นพิเศษเมื่อทำงานกับมุม ขอบที่คม เป็นต้น อย่ากระเด็นหรือจับอุปกรณ์
- มุม ขอบคมหรือแฉกทำให้จานหมุนสะดุด และสูญเสียการควบคุมหรือเกิดแรงต้านได้
- e) อย่าติดเสื้อผ้าติดไม้หรือพันเสื้อผ้าติดไม้ เพราะใบเลื่อยเช่นนั้นมักเกิดแรงต้านและสูญเสียการควบคุมได้บ่อย

คำเตือนความปลอดภัยเฉพาะสำหรับงานเจียร์ งานขัด หรืองานตัด

- a) ใช้เฉพาะจานขัดที่ออกแบบเฉพาะสำหรับเครื่องมือไฟฟ้าของคุณ และใช้แผ่นกั้นเฉพาะจานขัดแต่ละอย่าง หากใช้จานขัดที่ไม่ได้ออกแบบไว้ใช้กับเครื่องมือไฟฟ้า อาจป้องกันได้ไม่พอ และขาดความปลอดภัย
- b) ต้องใช้จานขัดกับงานที่แนะนำไว้เท่านั้น ตัวอย่างเช่น: อย่าขัดด้วยด้านข้างของจานตัดจากเพชร
- เนื่องจากได้ออกแบบจานขัดไว้เพื่องานขัดตามเส้นรอบวงแรงกระทำที่ด้านข้างของจานอาจทำให้สั่นหรือโยกได้

- c) ใช้หน้าแปลนจานขัดที่ไม่ชำรุด มีขนาดและรูปทรงถูกต้องตามจานขัดที่คุณเลือก หน้าแปลนที่เหมาะสมจะรองรับจานขัด และลดโอกาสที่หน้าขัดจะแตกหัก หน้าแปลนของจานตัดอาจต่างจากหน้าแปลนของจานขัดก็ได้
- d) อย่าใช้จานขัดที่สึกหรอบกับเครื่องมือไฟฟ้าขนาดใหญ่กว่า เพราะจานขัดที่ใช้กับเครื่องมือขนาดใหญ่ไม่เหมาะสมกับเครื่องมือเล็กที่ความเร็วสูงกว่า และอาจแตกกระจายได้

คำเตือนความปลอดภัยเพิ่มเติม เฉพาะสำหรับงานเจียร์ งานขัด หรืองานตัด

- a) อย่า "แซ่" งานตัดหรือให้แรงกดมากเกินไป อย่าพยายามตัดให้เป็นร่องลึกเกินไป ถ้าใช้แรงกดมาก จานขัดจะรับแรงสูงขึ้นและมีความเปราะบางมากขึ้น ทำให้จานขัดบิดหรืออยู่ในร่องตัดและอาจเกิดแรงผลักหรือจานตัดอาจแตกได้
- b) อย่ายืนอยู่ในเส้นแนวของจาน และอยู่ด้านหลังของจานหมุน ในตำแหน่งที่ปฏิบัติงาน จานขัดจะเลื่อนออกจากตัวคุณ และแรงผลักอาจทำให้จานที่กำลังหมุนและตัวเครื่องมือวิ่งมาทางตัวคุณก็ได้
- c) เมื่อจานขัดติดแน่น หรือหยุดติดเนื่องจากสาเหตุใดๆ ให้ปิดสวิตช์เครื่องมือไฟฟ้า และจับไว้หนึ่ง จานจานขัดหยุดสนิท อย่าพยายามเอามาตัดออกจากร่องตัดเมื่อยังหมุนอยู่ เพราะอาจเกิดแรงผลักขึ้นได้
- ตรวจสอบสาเหตุและแก้ไขสาเหตุที่จานขัดบิดงอเสีย
- d) อย่าเปิดสวิตช์อีกเมื่อจานตัดยังอยู่ในชิ้นงาน โปรดเปิดสวิตช์จนจานหมุนได้ความเร็วเต็มที่ และนำเข้าไป ที่ร่องตัดอีกครั้ง เพราะจานตัดอาจจ่อ ถลาขึ้นหรือผลัก ถ้าเปิดสวิตช์เมื่อจานตัดยังฝังอยู่ในชิ้นงาน

คำแนะนำความปลอดภัยทั่วไปเกี่ยวกับเครื่องเจียร์คอยาวไร้สาย

- ตรวจสอบว่า รอบหมุนบนจานตัดไม่น้อยกว่ารอบหมุนของเครื่องขัดไฟฟ้า
- โปรดแนใจว่า ขนาดของจานขัดเหมาะสมกับเครื่องขัดไฟฟ้า;
- เก็บและใช้จานขัดตามคำแนะนำของผู้ผลิต;
- ตรวจสอบจานขัดก่อนใช้งาน อย่าใช้จานขัดที่แตก ร้าวหรือชำรุด;
- โปรดแนใจว่า ได้ติดตั้งจานขัดและสลับไปตามข้อกำหนดของผู้ผลิต;
- โปรดแนใจว่า ได้ใช้กระดาดจับ เมื่อแนมมากับจานขัดแบบกว และเมื่อมีความจำเป็น;
- อย่าใช้เครื่องมือไฟฟ้านี้เพื่อขัดวัสดุที่ประกอบด้วยส่วนประกอบที่เป็นอันตรายต่อสุขภาพ
- ใช้อุปกรณ์เสริมหรืออุปกรณ์ต่อพ่วงที่กำหนดไว้
- โปรดแนใจว่า ติดตั้งและยึดจานขัดไว้อย่างแน่นหนา ก่อนใช้งานแล้วเปิดเครื่องโดยไม่ได้ขัดในตำแหน่งที่ปลอดภัยประมาณ 30 วินาทีหยุดทันทีถ้ามีการสัมผัสผิดปกติ หรือตรวจพบความผิดปกติอื่นๆ ถ้าเกิดอาการเช่นนี้ ตรวจสอบเช็คเครื่องมือเพื่อหาสาเหตุเสีย;
- ถ้าเครื่องมือมีแผ่นกั้นมาด้วย อย่าใช้งานเมื่อถอดแผ่นกั้นออกไป;

- อย่าใช้บูชหรือปลอกแยกเพื่อปรับขนาดงานขัดที่มีรูโต;
- ถ้าเป็นเครื่องมือที่ออกแบบมาให้ใช้กับงานขัดรูปเกลียว โปรดแน่ใจว่าเกลียวของงานขัดยาวพอที่จะรองรับความยาวของเพลาคิด;
- ตรวจสอบว่า ได้รองรับชิ้นงานไว้แน่นหนาแล้วยัง;
- อย่าใช้จานตัดเพื่อขัดด้านข้าง;
- โปรดแน่ใจว่า เศษวัสดุจากงานขัดไม่ทำให้เกิดอันตราย เช่นไม่กระเด็นใส่คน หรือทำให้วัสดุถูกกัดไป;
- โปรดแน่ใจว่า เปิดช่องระบายอากาศไว้เมื่อทำงานในที่ๆ มีฝุ่นมาก ถ้าจะต้องระบายฝุ่นออก ในตอนแรกให้ถอดออกจากแหล่งจ่ายไฟ (ใช้วัสดุที่เป็นโลหะ) และอย่าทำให้ชิ้นส่วนภายในเสียหาย;
- ใช้อุปกรณ์ป้องกันตาและหูเสมอ ควรใช้อุปกรณ์ป้องกันกับส่วนบุคคลอื่นๆ ตามที่จำเป็น เช่นหนานากันฝุ่น ถุงมือ หมวกนิรภัย และผ้าคาดกันเปื้อน เป็นต้น;
- โปรดสังเกตว่า งานขัดยังหมุนต่อไป แม้ปิดสวิตช์ของเครื่องมือไปแล้วก็ตาม
- ชาร์จแบตเตอรี่ที่อุณหภูมิ 0°C - 40°C ทุกครั้ง หากอุณหภูมิต่ำกว่า 0°C จะทำให้การชาร์จประจุเกิน ซึ่งเป็นอันตราย ห้ามชาร์จแบตเตอรี่ที่อุณหภูมิสูงกว่า 40°C
- อุณหภูมิที่เหมาะสมที่สุดในการชาร์จคือ 20°C - 25°C
- อย่าใช้เครื่องชาร์จอย่างต่อเนื่องเมื่อทำการชาร์จครั้งหนึ่งเสร็จสิ้นลง ควรปล่อยเครื่องชาร์จทิ้งไว้ประมาณ 15 นาที ก่อนทำการชาร์จแบตเตอรี่ครั้งต่อไป ห้ามชาร์จแบตเตอรี่มากกว่า 2 ก่อนต่อเนื่องกัน
- อย่าให้วัสดุถูแลกเปลี่ยนไปลงในช่องสำหรับใส่แบตเตอรี่
- ห้ามถอดแยกแบตเตอรี่แบบรีชาร์จ และเครื่องชาร์จ
- ห้ามลัดวงจรแบตเตอรี่แบบรีชาร์จ การลัดวงจรแบตเตอรี่จะทำให้เกิดกระแสไฟ และความร้อนสูง ซึ่งทำให้แบตเตอรี่ไหม้ หรือเสียหายได้
- ห้ามเผาแบตเตอรี่หากแบตเตอรี่ไหม้ อาจทำให้เกิดการระเบิดได้
- เมื่อเจาะที่ผนัง พื้น หรือเพดาน ให้ระมัดระวังไฟฟ้า ชลข ที่มีอยู่ด้วย
- ห้ามใส่วัตถุเข้าไปในช่องระบายอากาศของเครื่องชาร์จ การใส่วัตถุที่เป็นโลหะ หรือวัตถุติดไฟได้เข้าไปในช่องระบายอากาศจะทำให้เกิดอันตรายจากไฟฟ้าดูด หรือทำให้เครื่องชาร์จเสียหาย
- นำแบตเตอรี่ที่เสื่อมกลับไปยังร้านทันที หากชาร์จแบตเตอรี่ และสามารถใช้งานแบตเตอรี่ได้เพียงช่วงสั้นๆ เท่านั้น ห้ามทิ้งแบตเตอรี่ที่คายประจุจนหมดแล้ว
- การใช้แบตเตอรี่ที่คายประจุหมดแล้ว จะทำให้เครื่องชาร์จเสียหาย

ข้อควรระวังเกี่ยวกับแบตเตอรี่ลิเทียม-ไอออน

เพื่อยืดอายุการใช้งาน แบตเตอรี่ลิเทียม-ไอออนมีฟังก์ชันการป้องกันเพื่อหยุดการปล่อยพลังงาน

ในกรณีที่เกิดเหตุการณ์ในข้อ 1 ถึง 3 ที่มีการอธิบายด้านล่างในขณะที่ใช้ผลิตภัณฑ์นี้ แม้ว่าคุณจะไม่กังวลถึงสวิตช์ มอเตอร์อาจหยุดหมุน นี่ไม่ได้เป็นปัญหา แต่เป็นผลของฟังก์ชันการป้องกัน

1. เมื่อพลังงานที่เหลืออยู่ของแบตเตอรี่หมดไป มอเตอร์จะหยุดหมุนในกรณีดังกล่าว ให้ชาร์จแบตเตอรี่ทันที
2. ถ้าเครื่องมือมีการใช้งานเกินปกติ มอเตอร์อาจหยุดหมุน ในกรณีนี้ ให้ปล่อยสวิตช์ของเครื่องมือ และกำจัดสาเหตุของการทำงานเกิน

ปกติ หลังจากนั้น คุณสามารถใช้เครื่องมือต่อไปได้อีกครั้ง

3. ถ้าแบตเตอรี่ร้อนเกินไปภายใต้การใช้งานเกิดพิกัด แบตเตอรี่อาจหยุดจ่ายพลังงาน

ในกรณีนี้ ให้หยุดการใช้แบตเตอรี่ และปล่อยให้แบตเตอรี่เย็นลง หลังจากนั้น คุณสามารถใช้เครื่องมือต่อไปได้อีกครั้ง

ยังไปว่านั้น โปรดใส่ใจถึงค่าเตือนและข้อควรระวังต่อไปนี้

คำเตือน

เพื่อป้องกันการรั่วของแบตเตอรี่ การสร้างความร้อน การปล่อยควัน การระเบิด หรือการเกิดประกายไฟ โปรดมั่นใจว่าคุณใส่ใจถึงข้อควรระวังต่อไปนี้

1. ตรวจสอบให้แน่ใจว่า ไม่มีการสะสมของเศษไม้หรือเศษโลหะและฝุ่นในแบตเตอรี่
- ระหว่างการทำงาน ให้แน่ใจว่าเศษไม้หรือเศษโลหะและฝุ่นไม่ตกลงไปบนแบตเตอรี่
- ตรวจสอบให้แน่ใจว่าเศษไม้หรือเศษโลหะและฝุ่นที่ตกลงไปบนเครื่องมือไฟฟ้า ไม่สะสมบนแบตเตอรี่
- อย่าเก็บแบตเตอรี่ที่ไม่ได้ใช้ในสถานที่ซึ่งสัมผัสกับอุณหภูมิหรือเศษโลหะและฝุ่น
- ก่อนที่จะเก็บแบตเตอรี่ ให้ปิดเศษไม้หรือเศษโลหะและฝุ่นที่ติดอยู่ ออก และอย่าเก็บไว้ที่เดียวกับชิ้นส่วนที่เป็นโลหะ (สกรู ตะปู ฯลฯ)
2. อย่าแทงแบตเตอรี่ด้วยวัตถุที่แหลม เช่น ตะปู ดอกด้วยค้อน ยินบนโยน หรือปล่อยให้แบตเตอรี่ถูกกระแทกอย่างรุนแรง
3. อย่าใช้แบตเตอรี่ที่มีลักษณะเสียหาย หรือมีการเปลี่ยนรูปร่าง
4. อย่าใช้แบตเตอรี่โดยใส่ขั้วกลับด้าน
5. อย่าเชื่อมต่อเข้ากับเต้าเสียบไฟฟ้า หรือรูเสียบที่จุดบุหรี่ในรถยนต์โดยตรง
6. อย่าใช้แบตเตอรี่สำหรับวัตถุประสงค์ที่นอกเหนือจากที่ระบุ
7. ถ้าการชาร์จแบตเตอรี่ไม่สมบูรณ์ แม้ว่าเวลาการชาร์จที่ระบุแล้วให้หยุดการชาร์จแบตเตอรี่ทันที
8. อย่างว่า หรือปล่อยให้แบตเตอรี่สัมผัสกับอุณหภูมิที่สูง หรือความดันสูง เช่น ในเตาไมโครเวฟ ตู้อบ หรือภาชนะที่มีความดันสูง
9. เมื่อแบตเตอรี่รั่ว หรือได้กลิ่นผิดปกติ ให้เก็บแบตเตอรี่ให้ห่างจากไฟทันที
10. อย่าใช้ในสถานที่ซึ่งมีการสร้างประจุไฟฟ้าสถิตย์อย่างรุนแรง
11. ถ้าแบตเตอรี่รั่ว มีกลิ่นผิดปกติ เกิดความร้อน เปลี่ยนสี หรือมีรูปร่างเปลี่ยนไป หรือมีลักษณะผิดปกติใดๆ ระหว่างการใช้งาน การชาร์จ หรือขณะที่เก็บ ให้นำออกจากอุปกรณ์ หรือเครื่องชาร์จแบตเตอรี่ทันที และหยุดการใช้งาน
12. ห้ามจุ่มแบตเตอรี่หรือหัวของเหลวใดๆ เข้าไปในแบตเตอรี่ ของเหลวแทรกซึมที่นำไฟฟ้า เช่น น้ำ สามารถทำให้เกิดไฟไหม้ หรือ ระเบิดได้ จัดเก็บแบตเตอรี่ในที่เย็นและแห้ง อยู่ห่างจากวัตถุที่ติดไฟได้ง่าย หลีกเลี่ยงที่มีเม็ลลิกัดก่อนในอากาศ

ข้อควรระวัง

1. ถ้าของเหลวที่รั่วจากแบตเตอรี่เข้าตา อย่าขยี้ตา ให้ล้างออกด้วยน้ำสะอาด เช่น น้ำก๊อก และรีบไปพบแพทย์ทันที ถ้าปล่อยทิ้งไว้โดยไม่ได้รับการรักษา ของเหลวอาจทำให้เกิดปัญหาเกี่ยวกับดวงตาได้

- ถ้าของเหลวที่รั่วจากแบตเตอรี่สัมผัสถูกผิวหนังหรือเสื้อผ้า ให้ล้างออกด้วยน้ำสะอาด เช่น น้ำก๊อกทันที
มีความเป็นไปได้ที่ของเหลวนี้สามารถทำให้เกิดการระคายเคืองต่อผิวหนัง
- ถ้าคุณพบสนิม กลิ่นที่ผิดปกติ การร่อนกินไป การเปลี่ยนสี การเปลี่ยนรูปร่าง และ/หรือสิ่งผิดปกติอื่นๆ ในขณะที่ใช้แบตเตอรี่เป็นครั้งแรก อย่าใช้ และส่งแบตเตอรี่กลับคืนไปยังผู้จำหน่าย หรือตัวแทนจำหน่ายของคุณ

คำเตือน

ถ้ามีวัตถุแปลกปลอมที่นำไฟฟ้าได้สัมผัสถูกขั้วต่อของแบตเตอรี่ลิเทียม-ไอออน อาจเป็นผลให้เกิดการลัดวงจรซึ่งทำให้เกิดความเสี่ยงจากไฟไหม้ได้ โปรดสังเกตสิ่งต่อไปนี้ ในขณะที่เก็บแบตเตอรี่

- อย่าให้มีเศษโลหะตัวนำไฟฟ้า ตะปู ลวด สายทองแดง หรือสายไฟอื่นๆ ในตู้เก็บแบตเตอรี่
- ติดตั้งแบตเตอรี่ในเครื่องมือไฟฟ้า หรือเก็บอย่างปลอดภัยโดยกดเข้าไปในฝาปิดแบตเตอรี่ จนกระทั่งรูระบายอากาศถูกปิดสนิท เพื่อป้องกันการลัดวงจร (ดูรูปที่ 3)

รายละเอียดจำเพาะ

เครื่องมือไฟฟ้า

ความเร็วอิสระ	5000-35000 / นาที
ความจุที่จับปะกับ	3.2 มม.
แบตเตอรี่แบบรีชาร์จ	BCL1015: Li-ion 10.8 โวลต์ / 12 โวลต์ สูงสุด (1.5 Ah 3 เซลล์)
น้ำหนัก	0.48 กก.

เครื่องชาร์จ

รุ่น	UC10SFL
แรงดันไฟฟ้าในการชาร์จ	10.8 โวลต์
น้ำหนัก	0.35 กก.

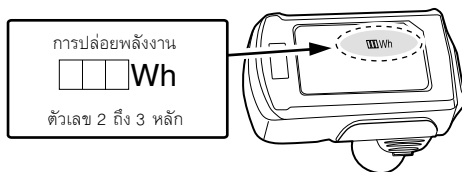
เกี่ยวกับการขนส่งแบตเตอรี่ลิเทียม-ไอออน

เมื่อขนส่งแบตเตอรี่ลิเทียม-ไอออน โปรดสังเกตตามข้อควรระวังดังต่อไปนี้

คำเตือน

แจ้งบริษัทที่ทำกาขนส่งให้ทราบว่าจะภายในกล่องบรรจุแบตเตอรี่ลิเทียม-ไอออน ให้ข้อมูลบริษัทเกี่ยวกับการปล่อยพลังงาน และปฏิบัติตามคำแนะนำของบริษัทขนส่งเมื่อเตรียมกาขนส่ง

- แบตเตอรี่ลิเทียม-ไอออนที่มีการปล่อยพลังงานออกมามากกว่า 100 Wh ถือเป็นสินค้าอันตรายตามการจำแนกสินค้า และต้องมีขั้นตอนปฏิบัติเป็นพิเศษ
- สำหรับการขนส่งไปต่างประเทศ คุณต้องปฏิบัติตามกฎหมายสากลและกฎหรือข้อบังคับของประเทศปลายทาง



อุปกรณ์มาตรฐาน

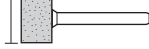
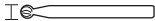
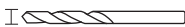
GP10DL (2LCSK)	① อุปกรณ์เสริม × 40 ชิ้น.....1
	② แบตเตอรี่ (BCL1015).....2
	③ เครื่องชาร์จ (UC10SFL).....1
	④ กรณิพลาสติก.....1
	⑤ ฝาปิดแบตเตอรี่.....1
GP10DL (LCSK)	① อุปกรณ์เสริม × 40 ชิ้น.....1
	② แบตเตอรี่ (BCL1015).....1
	③ เครื่องชาร์จ (UC10SFL).....1
	④ กรณิพลาสติก.....1
GP10DL (NN)	① อุปกรณ์เสริม × 40 ชิ้น1

สำหรับรายละเอียดของส่วนต่อ ให้ดู "ส่วนต่อที่ห้า"

อาจเปลี่ยนแปลงอุปกรณ์มาตรฐานได้โดยไม่ต้องแจ้งล่วงหน้า

ส่วนต่อที่ห้า

<ใช้>

ใช้สำหรับแกะสลักและเจียรไม้	จุดอลูมิเนียม ออกไซด์ [Φ15.9 มม. x 1] 15.9 มม. 
ใช้เพื่อขัดวัสดุที่แข็ง เช่น แก้ว และเซรามิค	จุดซิลิคอน คาร์ไบด์ [Φ4.8 มม. x 1] 4.8 มม. 
ใช้เพื่อแกะสลัก เชียร์ และเซาะร่องในไม้ พลาสติก และวัสดุที่อ่อน (อลูมิเนียม ทองแดง ทองเหลือง)	มีดตัดความเร็วสูง [Φ3.2 มม. x 1] 3.2 มม. 
ใช้เพื่อเจาะรูในไม้และไม้อัด	เจาะ [Φ3.2 มม. x 1] 3.2 มม. 
ใช้เพื่อผ่าน หรือตัดวัสดุ เหมาะสำหรับการตัดแต่งวัสดุ และท่อนางๆ ตัดขั้วรองที่ถูก ทำฟิงในหัวสกรู อย่างคบนบน ชิ้นงานแรง เนื่องจากชิ้นงาน อาจแตกได้	ไบต์ [Φ23.8 x t0.6 x 6] 23.8 มม.  0.6 มม. H
	ไบต์ [Φ23.8 x t1.0 x 2] 23.8 มม.  1.0 มม. H
ใช้เพื่อขัดวัสดุที่แข็ง เช่น สแตนเลส สตีล	หินเจียรอลูมิเนียม ออกไซด์ [Φ22.2 x 1] 22.2 มม. 
เหมาะสำหรับการขัดขั้นสุดท้ายหลังจากเจียรหยาบแล้ว	จานทราย [Φ19.1 มม. /180-กริต x 10] 19.1 มม.  180-กริต
ใช้เพื่อทำให้พื้นผิวโลหะเรียบ	ลูกขัด [Φ25.4 มม. x 2] 25.4 มม. 
ใช้สำหรับขัดอัญมณี และโลหะให้เป็นเงา เลือกขนาดให้เหมาะกับชิ้นงาน	ใยผ้าขัด [Φ12.7 มม. x 4] 12.7 มม. 
	ใยผ้าขัด [Φ25.4 มม. x 2] 25.4 มม. 
เหมาะสำหรับงาน เช่น การขึ้นรูปไม้ และการตกแต่งโมเดล เจียรสองขั้นตอนด้วยหมายเลขกริตที่แตกต่างกัน เพื่อให้ได้พื้นผิวที่ดี	ผ้าทราย [Φ12.7 มม. /60-กริต x 6] 12.7 มม.  60-กริต
	ผ้าทราย [Φ12.7 มม. /120-กริต x 2] 12.7 มม.  120-กริต

ข้อควรระวัง

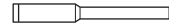
ส่วนต่อมาตรฐานใช้เฉพาะกับ GP10DL เท่านั้น
อย่าใช้กับอุปกรณ์อื่น เช่น สว่านไฟฟ้า ฯลฯ การทำ
เช่นนั้นอาจเป็นผลให้เกิดการบาดเจ็บ หรือเกิดความ
เสียหายกับเครื่องมือที่ปลาย

[อุปกรณ์เสริม]

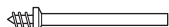
เครื่องขยายปะกับ
(สำหรับคลายน็อตปะกับที่แน่น)



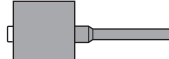
ด้ามลัด
[Φ3.2 มม. x 1]



ด้ามชนิดสกรู
[Φ3.2 มม. x 1]

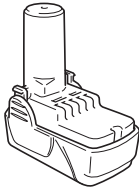


ด้ามดรัม
[Φ3.2 มม. x 1]



อุปกรณ์ประกอบ (แยกจำหน่าย)

1. แบตเตอรี่ (BCL1015)



อาจเปลี่ยนแปลงอุปกรณ์ประกอบได้โดยไม่ต้องแจ้งล่วงหน้า

การใช้งาน

- การทำหัตถกรรมแกะสลักไม้ และเครื่องประดับโลหะมีค่า
- การแกะสลักและปั้นแก้วและเซรามิค
- การเจียรและการขัดเหล็ก และหิน

การทำงานพื้นฐาน

1. ไฟเตือนแบตเตอรี่ต่ำ (รูปที่ 1)

ในการตรวจสอบพลังงานแบตเตอรี่ที่เหลือ ใช้เครื่องเจียรโดยไม่มีการใดๆ

ถ้าพลังงานแบตเตอรี่เหลือน้อย ไฟเตือนแบตเตอรี่ (LED สีแดง) จะสว่างขึ้น ถ้าหลอดไฟติด ให้ชาร์จแบตเตอรี่ทันที

หมายเหตุ

- ไฟเตือนแบตเตอรี่ต่ำอาจได้รับผลกระทบจากอุณหภูมิสิ่งแวดล้อมหรือคุณลักษณะของแบตเตอรี่ ใช้หลอดไฟเป็นแนวทางว่าเมื่อใดควรชาร์จแบตเตอรี่เท่านั้น
- ไฟเตือนแบตเตอรี่ต่ำอาจเกิดขึ้นระหว่างการทำงานของเครื่องเจียรซึ่งเกิดขึ้นเนื่องจากแรงดันไฟฟ้าแบตเตอรี่ลดลง ไม่ได้หมายความว่าพลังงานแบตเตอรี่เหลือน้อย
- ในขณะที่ตรวจสอบพลังงานแบตเตอรี่ที่เหลือ ให้แน่ใจว่าใช้เครื่องเจียรในสภาพที่ไม่มีการะ

2. สวิตช์หมุน

นอกจากนี้ สวิตช์หมุนยังทำหน้าที่เป็นสวิตช์เปิดเครื่อง และหมุนปรับความเร็วด้วย เมื่อหมุนปุ่มจาก [0] ไปยังตัวเลขที่สูงขึ้น เครื่องเจียรจะเปิดเครื่อง และเพิ่มความเร็วขึ้นเรื่อยๆ ในขณะเดียวกัน ไฟ LED จะติด และสว่างที่ปลายของเครื่องเจียร

เมื่อหมุนปุ่มกลับคืนมาที่ [0] เครื่องเจียรจะปิดเครื่อง และการหมุนจะหยุด

เพื่อเหตุผลด้านความปลอดภัย เครื่องเจียรจะไม่เริ่มทำงาน ถ้าแบตเตอรี่ถูกใส่ในขณะที่สวิตช์อยู่ที่ตำแหน่งใดๆ ที่นอกเหนือจากตำแหน่ง [0]

ในการเปิดเครื่องเจียรในกรณีนี้ ให้หมุนปุ่มกลับไปที่ [0] จากนั้นจึงหมุนไปยังตัวเลขที่สูงขึ้น

ความสัมพันธ์โดยประมาณระหว่างตัวเลขบนสวิตช์หมุน และความเร็วการหมุนแสดงอยู่ในกราฟในรูปที่ 2

การถอด/การใส่แบตเตอรี่

1. การถอดแบตเตอรี่

ถือมือจับให้แน่นและดันสลักล็อกแบตเตอรี่เพื่อถอด แบตเตอรี่ออก (ดูรูปที่ 3 และ 4)

ข้อควรระวัง

ห้ามลัดวงจรแบตเตอรี่

2. การใส่แบตเตอรี่

ตรวจสอบขั้วของแบตเตอรี่ขณะใส่แบตเตอรี่ (ดูรูปที่ 4)

การชาร์จ

ก่อนการใช้สว่านไขควง ให้ทำการชาร์จแบตเตอรี่ดังนี้

1. เสียบปลั๊กเครื่องชาร์จเข้ากับเต้ารับ

2. ใส่แบตเตอรี่ในเครื่องชาร์จ

จัดตำแหน่งแบตเตอรี่โดยให้แผ่นข้อหันไปทางแผ่นข้อของเครื่องชาร์จ และกดเข้าไปในแบตเตอรี่ จนกระทั่งแบตเตอรี่สัมผัสกับแผ่นโลหะด้านล่าง (ดูรูปที่ 5)

การใส่แบตเตอรี่ จะเป็นการเปิดเครื่องชาร์จ (ไฟสถานะจะติดขึ้น)

ข้อควรระวัง

ถ้าไฟสถานะไม่ติดขึ้น ให้ดึงสายไฟออกจากเต้าเสียบ และตรวจสอบลักษณะการยึดของแบตเตอรี่

ไฟสถานะดับ เพื่อระบุว่าแบตเตอรี่ชาร์จเต็มแล้ว

ข้อควรระวัง

ถ้าแบตเตอรี่ร้อนขึ้นเนื่องจากสัมผัสถูกแสงแดดโดยตรงหลังจากการทำงาน ไฟสถานะเครื่องชาร์จอาจไม่ติด ในกรณีนี้ ให้ปล่อยให้แบตเตอรี่เย็นลงก่อน จากนั้นจึงเริ่มการชาร์จ

- เกี่ยวกับเวลาในการชาร์จ

ตารางที่ 1 แสดงเวลาในการชาร์จที่ต้องการ ตามชนิดของแบตเตอรี่

ตารางที่ 1 เวลาการชาร์จ (นาที โดยประมาณ) ที่ 20°C

แรงดันไฟฟ้า แบตเตอรี่ (V)	ความจุแบตเตอรี่ (Ah)	
	1.5 Ah	
10.8 V	BCL1015	40 นาที

หมายเหตุ

เวลาการชาร์จอาจแตกต่างกัน ขึ้นอยู่กับอุณหภูมิสิ่งแวดล้อม

3. ถอดปลั๊กเครื่องชาร์จออกจากเต้ารับ

4. จับเครื่องชาร์จให้แน่น และดึงแบตเตอรี่ออก

หมายเหตุ

ให้แน่ใจว่าดึงแบตเตอรี่ออกจากเครื่องชาร์จหลังจากการใช้ จากนั้นนำไปเก็บ

วิธีการยืดอายุการใช้งานของแบตเตอรี่

(1) ชาร์จแบตเตอรี่ก่อนที่แบตเตอรี่จะคายประจุจนหมด

เมื่อท่านรู้สึกว่าการเครื่องมือมีกำลังอ่อนลง ให้หยุดใช้เครื่องมือและทำการชาร์จแบตเตอรี่ หากท่านยังใช้เครื่องมือต่อไปจนเครื่องดับ แบตเตอรี่อาจได้รับความเสียหาย และอายุการใช้งานของแบตเตอรี่อาจสั้นลง

(2) หลีกเลี่ยงการชาร์จที่อุณหภูมิสูง

แบตเตอรี่แบบรีชาร์จจะร้อนขึ้นทันทีหลังจากใช้งาน หากชาร์จแบตเตอรี่ดังกล่าวทันทีหลังจากใช้งาน จะทำให้สารเคมีภายในแบตเตอรี่เสื่อมสภาพ และอายุการใช้งานของแบตเตอรี่จะสั้นลง ทั้งแบตเตอรี่ไว้อีกทำให้เสี่ยงก่อนที่จะทำการชาร์จ

ข้อควรระวัง

- เมื่อเครื่องชาร์จแบตเตอรี่ถูกใช้อย่างต่อเนื่อง เครื่องชาร์จแบตเตอรี่จะร้อนขึ้น ซึ่งอาจเป็นสาเหตุของการทำงานล้มเหลว หลังจากทำการชาร์จสมบูรณ์แล้ว ให้พักเครื่อง 15 นาทีก่อนที่จะชาร์จครั้งต่อไป
- ถ้าเครื่องชาร์จแบตเตอรี่ไม่ทำงานในขณะที่ยึดแบตเตอรี่อย่างถูกต้อง อาจเป็นไปได้ว่าแบตเตอรี่หรือเครื่องชาร์จอาจเสีย ให้นำอุปกรณ์ไปยังศูนย์บริการที่ได้รับการแต่งตั้งของคุณ

ก่อนการทำงาน

1. การตั้งค่าและการตรวจสอบสภาพแวดล้อมการทำงาน

ตรวจสอบว่าสภาพแวดล้อมการทำงานมีความเหมาะสมตามข้อควรระวังด้านบนหรือไม่

วิธีการต่อเครื่องมือที่ปลาย

คำเตือน

เพื่อป้องกันอุบัติเหตุ ให้แน่ใจว่าปิดสวิตช์อยู่ และถอดแบตเตอรี่ออกจากเครื่องเจียร์

ข้อควรระวัง

ตรวจสอบให้แน่ใจว่าด้ามถูกไขสกรูไว้อย่างแน่นหนา

หลังจากที่ต่อเครื่องมือที่ปลาย ให้ตรวจสอบว่าเครื่องมือถูกยึดอยู่อย่างปลอดภัย

ถ้าเครื่องมือหลวม เครื่องมืออาจหลุดออกมา ทำให้เกิดความเสียหายหรือการบาดเจ็บได้

1. วิธีใช้ด้ามชนิดสกรู (รูปที่ 6 (a))

ใช้ด้ามชนิดสกรูในขณะที่ใช้ผ้าขัด

รักษาล้อให้ตรง ไขสกรูเข้าไปในเกลียวของด้ามชนิดสกรูไปจนสุด หน้าแปลน

2. วิธีใช้ด้ามล้อ (รูปที่ 6 (b))

ถอดสกรูที่ปลายของด้ามออกด้วยไขควงปากแบน และต่อใบตัด หรือจานทราย

3. วิธีใช้ด้ามดรัม (รูปที่ 6 (c))

ผ้าทรายขนาด 60-กิริตถูกใส่อยู่กับด้ามดรัมเมื่อออกจากโรงงาน

ไขสกรูที่ปลายของด้ามด้วยไขควง เพื่อถอด/ต่อผ้าทราย

หลังจากที่ต่อผ้าทราย ให้ไขสกรูให้แน่น

4. ต่อเครื่องมือที่ปลายเข้ากับเครื่องเจียร์

หมุนน็อตประกบด้วยมือ ในขณะที่กดปุ่มล็อกเพื่อกดปุ่มล็อกให้เข้าไขว้ในมากขึ้น

ในสถานะนี้ เพลางถูกล็อก และคุณสามารถคลายหรือขันน็อตประกบให้แน่นได้ (รูปที่ 7)

ในการต่อเครื่องมือที่ปลาย ให้ใส่เครื่องมือที่ปลายโดยสอดเข้าไปให้ลึกที่สุดเท่าที่จะไปได้ และขันน็อตประกบให้แน่น

ในการถอดเครื่องมือที่ปลาย โดยปกติเมื่อปะกับสามารถถูกหมุนโดยใช้มือได้ แม้บางครั้งอาจแน่นบ้างก็ตาม

ถ้าขันน็อตประกบแน่นเกินไป ให้ใช้เครื่องขยายปะกับเพื่อไขน็อตให้หลวม ผงเหล็กบนน็อตประกบ, ปะกับ หรือสกรูเพลางทำให้หมุนน็อตปะกับได้ยาก (รูปที่ 8)

ให้แน่ใจว่าได้กำจัดผงต่างๆ ที่มีทั้งหมดก่อนที่จะต่อหรือถอดเครื่องมือที่ปลาย

หมายเหตุ

ในบางโอกาส เครื่องมือที่ปลายอาจถูดออกจากปะกับได้ยาก แต่ก็เกิดขึ้นไม่บ่อยนัก

ถ้าเกิดเหตุการณ์เช่นนี้ขึ้น ในขณะที่น็อตปะกับหลวม ให้กดที่ปลายของเครื่องมือบนวัตถุที่แข็งเบาๆ (รูปที่ 10)

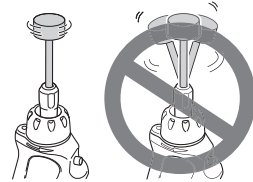
5. การปรับความสมดุลของเครื่องมือที่ปลาย

หลังจากที่ต่อเครื่องมือที่ปลาย ให้เปิดเครื่องเจียร์ที่ความเร็วต่ำ ถ้าความสมดุลไม่ถูกต้อง ให้ปฏิบัติตามขั้นตอนด้านล่างเพื่อปรับสมดุล คลายน็อตปะกับออกในขณะที่กดปุ่มล็อกอยู่

ถัดไป ให้หมุนเครื่องมือที่ปลายไป 1/4 รอบ และขันน็อตประกบให้แน่น

เปิดใช้งานเครื่องเจียร์ที่ความเร็วต่ำ และตรวจสอบความสมดุล ถ้าความสมดุลถูกต้อง หมายความว่าควรปรับนั้นสมบูรณ์

ถ้าความสมดุลยังคงไม่ถูกต้องอีก ให้ถอดเครื่องมือที่ปลาย น็อตปะกับ และปะกับออก และประกอบชิ้นส่วนต่างๆ กลับเข้าไปใหม่ ถ้าเครื่องมือที่ปลายยังคงไม่สมดุลอีกหลังจากที่พยายามปรับอีกหลายครั้ง ให้ตรวจสอบการบิดเบี้ยว หรือการสึกกร่อนของเครื่องมือที่ปลาย หรือการบิดเบี้ยวของปะกับ ถ้ามีการสึกกร่อน หรือมีการบิดเบี้ยว ให้เปลี่ยนเครื่องมือที่ปลาย หรือปะกับ



การใช้งานเครื่องเจียร์

คำเตือน

- ให้ใบหน้าของคุณห่างจากเครื่องมือที่ปลายระหว่างการใช้งาน
- สวมแว่นป้องกัน และหน้ากากกันฝุ่น ในขณะที่ใช้เครื่องเจียร์ การแตกของเครื่องมือที่ปลาย อาจทำให้เกิดการบาดเจ็บได้
- อย่าใช้เครื่องเจียร์ที่ความเร็วต่ำมาก เนื่องจากจะไม่ได้พื้นผิวที่เรียบของชิ้นงานที่แท้จริง และการดำเนินการดังกล่าวยังอาจทำให้เกิดความเสียหายกับเครื่องมือที่ปลาย เครื่องเจียร์เสีย หรือเกิดการบาดเจ็บ

ข้อควรระวัง

อย่าสัมผัสเครื่องมือที่ปลาย น็อตประกบ หรือปะกับทันทีหลังจากที่ใช้ เครื่อง เนื่องจากชิ้นส่วนนี้จะร้อนมาก และการสัมผัสถูกอาจทำให้ผิวไหม้ได้

1. แกะแบตเตอรี่ออก และต่อเครื่องมือที่ปลาย
2. ยึดชิ้นงานเพื่อให้ชิ้นงานไม่เคลื่อนที่
ชิ้นงานยังมีขนาดเล็ก ยังมีโอกาสเคลื่อนที่ในขณะที่ทำงานมากขึ้น
ยึดชิ้นงานที่มีขนาดเล็กด้วยเครื่องมือหนีบ
การจับชิ้นงานด้วยมือ อาจทำให้เกิดการบาดเจ็บได้
3. ใส่แบตเตอรี่ลงในเครื่องเจียร์
4. ตรวจสอบคุณสมบัติของเครื่องมือที่ปลาย
ตรวจสอบเครื่องมือที่ปลายด้วยการมองที่ความเร็วต่ำ (ประมาณ [1] บนสวิตช์หมุน)
นอกจากนี้ ให้ตรวจสอบเสียงที่ผิดปกติระหว่างการทำงานด้วย
5. เลือกความเร็วในการใช้เครื่อง
 - เลือกความเร็วที่เหมาะสมสำหรับวัสดุ ในขณะที่ทำการเจียร์ทดลอง โดยอ้างอิงจาก ตารางที่ 2
 - ถ้าพลาสติกถูกเจียร์ด้วยความเร็วสูง วัสดุอาจหลอมละลายได้เนื่องจากความร้อน ดังนั้นให้ค่อยๆ ทดสอบความเร็ว โดยเริ่มจากความเร็วต่ำก่อน

ตาราง 2 การตั้งค่าสวิตช์หมุน

วัสดุชิ้นงาน เครื่องมือที่ปลาย	ไม้อ่อน	ไม้แข็ง	ลามิเนต/ พลาสติก	สตีล	อลูมิเนียม ทองเหลือง ฯลฯ	เปลือกหอย/ หิน	เซรามิก	แก้ว
จุดอลูมิเนียม ออกไซด์	3-4	3-4	—	2.5	1	1.5	3-4	—
จุดซิลิคอน คาร์ไบด์	—	—	1.5	3-4	1	1.5	3-4	3-4
มีดตัดความเร็วสูง	3-4	3-4	1	1.5	3-4	—	—	—
เจาะ	3-4	3-4	1	—	1.5	—	—	—
ไบต์	—	—	1	3-4	3-4	3-4	3-4	—
ล้อเจียร์อลูมิเนียม ออกไซด์	3-4	3-4	—	2.5	1	1.5	3-4	—
จานทราย	2.5	2.5	1	—	1	—	—	—
ลูกขัด	—	—	—	1	1	1	1	1
ใยผ้าขัด	—	—	—	1	1	—	—	—
ผ้าทราย	1-4	1-4	1-4	3-4	3-4	1-4	1-4	—

6. การใช้เครื่อง

- วางเครื่องมือที่ปลายกำลังหมุนเบาๆ บนชิ้นงาน และทำงานบนชิ้นงานด้วยแรงกดน้อยที่สุด
- แทนที่จะทำงานทั้งหมดให้เสร็จในการดำเนินการครั้งเดียว การค่อยๆ ใช้เครื่องเจียร์หลายๆ ครั้งไปเรื่อยๆ จะให้พื้นผิวที่ดีกว่า

หมายเหตุ

- เครื่องเจียร์มีช่องว่างไปทางที่ยึดเครื่องมือที่ปลายแคบลง วางนิ้วของคุณบนส่วนที่แคบ และถือเครื่องเจียร์เพื่อการทำงานที่ง่าย (รูปที่ 9)
- ในขณะที่เดินเครื่องบนวัสดุเป็นครั้งแรก หรือใช้เครื่องมือที่ปลายเป็นครั้งแรก แรกสุดให้ทำการเจียร์ทดลองก่อน เพื่อตรวจสอบความเร็วที่เหมาะสม วิธีการจับเครื่องเจียร์ และวิธีการวางเครื่องมือบนชิ้นงาน
- ถ้าคุณไม่ได้ผลลัพธ์ตามที่คาดหวัง การใช้แรงมากขึ้นบนเครื่องมือไฟฟ้าจะไม่ให้ผลลัพธ์ที่ดีขึ้น เช่นเดียวกัน สมรรถนะของการใช้เครื่องมือจะไม่ได้ขึ้นโดยการเอียงเครื่องมือไฟฟ้า ให้ปรับความเร็วการหมุน หรือเปลี่ยนไปใช้เครื่องมือที่ปลายแบบอื่น

การบำรุงรักษาและการตรวจสอบ

1. การตรวจสอบอุปกรณ์เสริม

การใช้เครื่องมือที่ปลาย หรือด้ามที่มีปลายสึกกร่อน หรือเสียหาย จะไม่เพียงให้ผลลัพธ์ที่มีคุณภาพเท่านั้น แต่ยังทำให้เกิดความเค้นที่ไม่เหมาะสมบนมอเตอร์ด้วย สิ่งนี้เป็นสาเหตุให้ประสิทธิภาพการทำงานลดลง เกิดความเสียหาย หรือการบาดเจ็บ ถ้าปลายเครื่องมือหรือด้ามสึกหรือเสียหาย ให้เปลี่ยน

2. การตรวจสอบสกรูยึด

ให้ตรวจสอบสกรูยึดเสมอ และให้ขันไว้อย่างถูกต้อง ถ้าสกรูหลวม ให้ขันเสียใหม่โดยทันที มิฉะนั้นอาจเกิดอันตรายมาก

3. การบำรุงรักษามอเตอร์

การขจัดลวดของมอเตอร์เป็นหัวใจสำคัญของเครื่องมือไฟฟ้า ให้ใช้ความระมัดระวังเพื่อให้ขจัดลวดของมอเตอร์ชำรุดและ/หรือ เปียกน้ำหรือน้ำมัน

4. การทำความสะอาดภายนอก

เมื่อเครื่องเจียร์สกปรก ให้เช็ดด้วยผ้าแห้งที่แห้ง หรือผ้าชุบน้ำ สบู่ขัดหมาดๆ ห้ามใช้ตัวทำละลายคลอรีน น้ำมัน หรือทินเนอร์ เนื่องจากสารเหล่านี้จะทำให้พลาสติกละลาย

5. การจัดเก็บ

เก็บเครื่องมือในสถานที่ซึ่งมีอุณหภูมิต่ำกว่า 40°C และห่างจากมือเด็ก

หมายเหตุ

การจัดเก็บแบตเตอรี่ลิเทียม-ไอออน

แบตเตอรี่ลิเทียม-ไอออนจะต้องชาร์จไฟเต็มก่อนจัดเก็บ

การเก็บรักษาแบตเตอรี่ต่อเนื่อง (3 เดือนหรือมากกว่า) ด้วยพลังงานต่ำอาจทำให้ประสิทธิภาพการทำงานลดลง โดยเฉพาะการลดอายุการใช้งานแบตเตอรี่ หรือทำให้แบตเตอรี่ไม่สามารถเก็บพลังงานไว้ได้ ทั้งนี้สามารถแก้ไขปัญหาเมื่อเวลาใช้งานแบตเตอรี่ลดลงอย่างเห็นได้ชัดได้โดยการชาร์จไฟและใช้งานแบตเตอรี่ซ้ำ ๆ กันสองถึงห้ารอบ หากเวลาใช้งานแบตเตอรี่สั้นลงมากแม้ว่าจะมีการชาร์จและใช้งานซ้ำหลายรอบแล้ว แสดงว่าแบตเตอรี่หมดสภาพแล้วและต้องจัดซื้อแบตเตอรี่ใหม่

ข้อควรระวัง

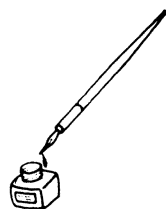
ต้องปฏิบัติตามระเบียบและมาตรฐานความปลอดภัยของแต่ละประเทศในการใช้งานและบำรุงรักษาเครื่องมือไฟฟ้า

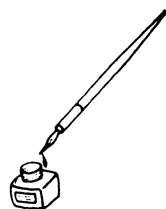
ข้อสังเกตที่สำคัญเกี่ยวกับแบตเตอรี่สำหรับเครื่องมือไฟฟ้าไร้สายของ HIKOKI

โปรดใช้แบตเตอรี่ของแท่งที่เรากำหนดไว้เสมอ เราไม่สามารถรับประกันความปลอดภัยและสมรรถนะของเครื่องมือไฟฟ้าไร้สายของเราได้ เมื่อใช้กับแบตเตอรี่ที่นอกเหนือจากที่เรากำหนดไว้ หรือเมื่อแบตเตอรี่ถูกถอดชิ้นส่วนหรือมีการดัดแปลง (เช่น การถอดชิ้นส่วนและทดแทนเซลล์แบตเตอรี่ หรือชิ้นส่วนภายใน)

หมายเหตุ

เนื่องจาก HIKOKI มีแผนงานวิจัยและพัฒนาอย่างต่อเนื่อง รายละเอียดเฉพาะนี้จึงอาจเปลี่ยนแปลงได้โดยไม่ต้องแจ้งล่วงหน้า





Koki Holdings Co., Ltd.

101

Code No. C99188732 G

Printed in China