

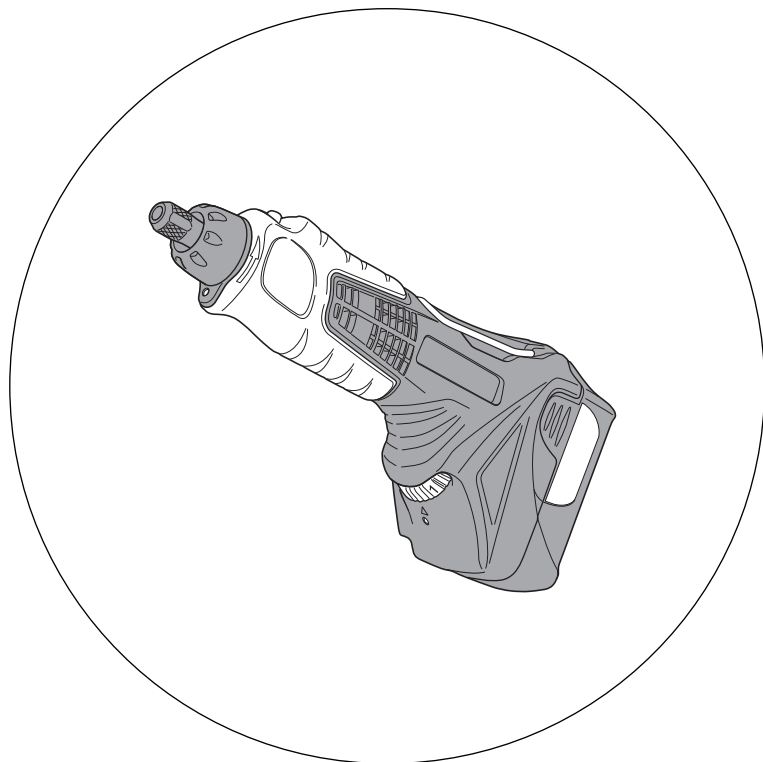
# HIKOKI

充电式电磨

Cordless Mini Grinder

## GP 10DL

中文  
English



保留备用

Keep for future reference



## 使用说明书

## Handling instructions

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## 电动工具通用安全警告

### ⚠ 警告！

阅读所有警告和所有说明。

不遵照以下警告和说明会导致电击、着火和 / 或严重伤害。

保存所有警告和说明书以备查阅。

在所有下列的警告中术语“电动工具”指市电驱动(有线)电动工具或电池驱动(无线)电动工具。

#### 1) 工作场地的安全

- a) 保持工作场地清洁和明亮。  
混乱和黑暗的场地会引发事故。
- b) 不要在易爆环境，如有易燃液体、气体或粉尘的环境下操作电动工具。  
电动工具产生的火花会点燃粉尘或气体。
- c) 让儿童和旁观者离开后操作电动工具。  
注意力不集中会使操作者失去对工具的控制。

#### 2) 电气安全

- a) 电动工具插头必须与插座相配。绝不能以任何方式改装插头。需接地的电动工具不能使用任何转换插头。  
未经改装的插头和相配的插座将减少电击危险。
- b) 避免人体接触接地表面，如管道、散热片和冰箱。  
如果你身体接地会增加电击危险。

- c) 不得将电动工具暴露在雨中或潮湿环境中。  
水进入电动工具将增加电击危险。
- d) 不得滥用电线。绝不能用电线搬运、拉动电动工具或拔出其插头。使电线远离热源、油、锐边或运动部件。  
受损或缠绕的软线会增加电击危险。
- e) 当在户外使用电动工具时，使用适合户外使用的外接软线。  
适合户外使用的软线将减少电击危险。
- f) 如果在潮湿环境下操作电动工具是不可避免的，应使用剩余电流动作保护器（RCD）。  
使用RCD可减小电击危险。

### 3) 人身安全

- a) 保持警觉，当操作电动工具时关注所从事的操作并保持清醒。当你感到疲倦，或在有药物、酒精或治疗反应时，不要操作电动工具。  
在操作电动工具时瞬间的疏忽会导致严重人身伤害。
- b) 使用个人防护装置。始终佩戴护目镜。  
安全装置，诸如适当条件下使用防尘面具、防滑安全鞋、安全帽、听力防护等装置能减少人身伤害。
- c) 防止意外起动。确保开关在连接电源和 / 或电池盒、拿起或搬运工具时处于关断位置。  
手指放在已接通电源的开关上或开关处于接通时插入插头可能会导致危险。
- d) 在电动工具接通之前，拿掉所有调节钥匙或扳手。  
遗留在电动工具旋转零件上的扳手或钥匙会导致人身伤害。
- e) 手不要伸展得太长。时刻注意立足点和身体平衡。  
这样在意外情况下能很好地控制电动工具。
- f) 着装适当。不要穿宽松衣服或佩戴饰品。让衣服、手套和头发远离运动部件。  
宽松衣服、佩饰或长发可能会卷入运动部件中。
- g) 如果提供了与排屑、集尘设备连接用的装置，要确保它们连接完好且使用得当。  
使用这些装置可减少尘屑引起的危险。

### 4) 电动工具使用和注意事项

- a) 不要滥用电动工具，根据用途使用适当的电动工具。  
选用适当设计的电动工具会使你工作更有效、更安全。
- b) 如果开关不能接通或关断工具电源，则不能使用该电动工具。  
不能用开关来控制的电动工具是危险的且必须进行修理。
- c) 在进行任何调节、更换附件或贮存电动工具之前，必须从电源上拔掉插头和 / 或使电池盒与工具脱离。  
这种防护性措施将减少工具意外起动的危险。

## 中文

- d) 将闲置不用的电动工具贮存在儿童所及范围之外，并且不要让不熟悉电动工具或对这些说明不了解的人操作电动工具。  
电动工具在未经培训的用户手中是危险的。
- e) 保养电动工具。检查运动件是否调整到位或卡住，检查零件破损情况和影响电动工具运行的其他状况。如有损坏，电动工具应在使用前修理好。  
许多事故由维护不良的电动工具引发。
- f) 保持切削刀具锋利和清洁。  
保养良好的有锋利切削刃的刀具不易卡住而且容易控制。
- g) 按照使用说明书，考虑作业条件和进行的作业来使用电动工具、附件和工具的刀头等。  
将电动工具用于那些与其用途不符的操作可能会导致危险。

### 5) 电池式工具使用和注意事项

- a) 只用制造商规定的充电器充电。  
将适用于某种电池盒的充电器用到其他电池盒时会发生着火危险。
- b) 只使用配有特制电池盒的电动工具。  
使用其他电池盒会发生损坏和着火危险。
- c) 当电池盒不用时，将它远离其他金属物体，例如回形针、硬币、钥匙、钉子、螺钉或其他小金属物体，以防一端与另一端连接。  
电池端部短路会引起燃烧或火灾。
- d) 在滥用条件下，液体会从电池中溅出；避免接触。如果无意间碰到了，用水冲洗。如果液体碰到了眼睛，还要寻求医疗帮助。  
从电池中溅出的液体会发生腐蚀或燃烧。

### 6) 维修

- a) 将你的电动工具送交专业维修人员，使用同样的备件进行修理。  
这样将确保所维修的电动工具的安全性。

## 注意！

不可让儿童和体弱人士靠近工作场所。

应将不使用的工具存放在儿童和体弱人士接触不到的地方。

## 砂磨、磨光、抛光或砂磨切割操作的通用安全警告

- a) 该电动工具是用于实现砂轮机、磨光机、抛光机或切断工具功能的。阅读随该电动工具提供的所有安全警告、说明、图解和规定。  
不了解以下所列说明将导致电击、着火和 / 或严重伤害。
- b) 不推荐用该电动工具进行诸如刷光等操作。  
电动工具不按指定的功能去操作，可能会发生危险和引起人身伤害。
- c) 不使用非工具制造商推荐和专门设计的附件。  
否则该附件可能被装到你的电动工具上，而它不能保证安全操作。

- d) 附件的额定速度必须至少等于电动工具上标出的最大速度。  
附件以比其额定速度大的速度运转会发生爆裂和飞溅。
- e) 附件的外径和厚度必须在电动工具额定能力范围之内。  
不正确的附件尺寸不能得到充分防护或控制。
- f) 砂轮、法兰盘、靠背垫或任何其他附件的轴孔尺寸必须适合于安装到电动工具的主轴上。  
带轴孔的、与电动工具安装件不配的附件将会失稳、过度振动并会引起失控。
- g) 不要使用损坏的附。在每次使用前要检查附件，例如砂轮是否有碎片和裂缝，靠背垫是否有裂缝、撕裂或过度磨损，钢丝刷是否松动或金属丝是否断裂。如果电动工具或附件跌落了，检查是否有损坏或安装没有损坏的附件。检查和安装附件后，让自己和旁观者的位置远离旋转附件的平面，并以电动工具最大空载速度运行 1 分。  
损坏的附件通常在该试验时会碎裂。
- h) 戴上防护用品。根据适用情况，使用面罩、安全护目镜或安全眼镜。适用时，戴上防尘面具、听力保护器、手套和能挡小磨料或工件碎片的工作围裙。  
眼防护罩必须挡住各种操作产生的飞屑。防尘面具或口罩必须能过滤操作产生的颗粒。长期暴露在高强度噪声中会引起失聪。
- i) 让旁观者与工作区域保持一安全距离。任何进入工作区域的人必须戴上防护用品。  
工件或破损附件的碎片可能会飞出并引起紧靠着操作区域的旁观者的伤害。切割附件触及带电导线会使电动工具外露的金属零件带电，并使操作者触电。
- j) 当在切割附件有可能切割到暗线或自身电线的场所进行操作时，只能通过绝缘握持面来握住电动工具。  
切割附件碰到一根带电导线可能会使电动工具的外露金属零件带电并使操作者发生电击危险。
- k) 使软线远离旋转的附件。  
如果控制不当，软线可能被切断或缠绕，并使得你的手或手臂可能被卷入旋转附件中。
- l) 直到附件完全停止运动才放下电动工具。  
旋转的附件可能会抓住表面并拉动电动工具而让你失去对工具的控制。
- m) 当携带电动工具时不要开动它。  
意外地触及旋转附件可能会缠绕你的衣服而使附件伤害身体。
- n) 经常清理电动工具的通风口。  
电动机风扇会将灰尘吸进机壳，过多的金属粉末沉积会导致电气危险。
- o) 不要在易燃材料附件操作电动工具。  
火星可能会点燃这些材料。
- p) 不要使用需用冷却液的附件。  
用水或其他冷却液可能会导致电腐蚀或电击。

## 反弹和相关警告

反弹是因卡住或缠绕住的旋转砂轮、靠背垫、钢丝刷或其他附件而产生的突然反作用力。卡住或缠绕会引起旋转附件的迅速堵转，随之使失控的电动工具在卡住点产生与附件旋转方向相反的运动。

例如，如果砂轮被工件缠绕或卡住，伸入卡住点的砂轮边缘可能会进入材料表面而引起砂轮爬出或反弹。

砂轮可能飞向或飞离操作者，这取决于砂轮在卡住点的运动方向。在此条件下砂轮也可能碎裂。

反弹是电动工具误用和 / 或不正确操作工序或条件的结果，可以通过采取以下给出的适当预防措施得以避免。

- a) 保持紧握电动工具，使你的身体和手臂处于正确状态以抵抗反弹力。如有辅助手柄，则要一直使用，以便最大限度控制住起动时的反弹力或反力矩。  
如采取合适的预防措施，操作者就可以控制反力矩或反弹力。
- b) 绝不能将手靠近旋转附件。  
附件可能会反弹碰到手。
- c) 不要站在发生反弹时电动工具可能移动到的地方。  
反弹将在缠绕点驱使工具逆砂轮运动方向运动。
- d) 当在尖角、锐边等处作业时要特别小心。避免附件的弹跳和缠绕。  
尖角、锐边和弹跳具有缠绕旋转附件的趋势并引起反弹的失控。
- e) 不要附装上锯链、木雕刀片或带齿锯片。  
这些锯片会产生频繁的反弹和失控。

## 对磨削和砂磨切割操作的专用安全警告

- a) 只使用所推荐的砂轮型号和为选用砂轮专门设计的护罩。  
不是为电动工具设计的砂轮不能充分得到防护，是不安全的。
- b) 砂轮只用作推荐的用途。例如：不要用切割砂轮的侧面进行磨削。  
施加到砂轮侧面的力可能会使其碎裂。
- c) 始终为所选砂轮选用未损坏的、有恰当规格和形状的砂轮法兰盘。  
合适的砂轮法兰盘支承砂轮可以减小砂轮破裂的可能性。切割砂轮的法兰盘可以不同于砂轮法兰盘。
- d) 不要使用从大规格电动工具上用剩的磨损砂轮。  
用于大规格电动工具上的砂轮不适于较小规格工具的高速工况并可能会爆裂。

## 对砂轮切割操作的附加专用安全警告

- a) 不要“夹”住切割砂轮或施加过大的压力。不要试图做过深的切割。  
给砂轮施加过应力增加了砂轮在切割时的负载，容易缠绕或卡住，增加了反弹或砂轮爆裂的可能性。

- b) 身体不要对着旋转砂轮，也不要站在其后。  
当把砂轮从操作者身边的操作点移开时，可能的反弹会使旋转砂轮和电动工具朝你推来。
- c) 当砂轮被卡住或无论任何原因而中断切割时，关掉电动工具并握住工具不要动，直到砂轮完全停止。决不要试图当砂轮仍然运转时使切割砂轮脱离切割，否则会发生反弹。  
调查并采取校正措施以消除砂轮卡住的原因。
- d) 不能在工件上重新起切割操作。让砂轮达到全速后再小心地重新进入切割。如果电动工具在工件上重新起切割，砂轮可能会卡住、爬出或反弹。

## 充电式电磨的一般安全说明

- 确认砂轮上所标示的转速等于或大于角磨机的额定转速；
- 确保砂轮尺寸与角磨机相符；
- 须按照厂家的使用说明书小心存放和使用磨轮；
- 使用前检查砂轮，不要使用破损、有裂缝或有其他缺陷的产品；
- 确保所安装的砂轮和节点已按照厂家的使用说明固定；
- 确保使用随研磨产品附带的吸油纸或在需要时使用吸油纸；
- 不得使用电动工具加工包含对健康有害成份的材料。
- 使用指定的附件。
- 在使用前确保已正确安装并拧紧研磨产品，并在安全场所在空载状态下运转 30 秒钟，若有较大的振动或察觉到其他缺陷，则应立即停止运转。遇此情况时，检查电动工具以究明原因；
- 若电动工具配备保护装置，切勿在未使用此保护装置时使用电动工具；
- 请勿将独立的减速轴衬或接头，以便使用大孔砂轮；
- 有关要用螺纹孔砂轮来安装的工具，确保砂轮的螺纹足够长，以适合轴长；
- 检查工件已被正确固定；
- 请勿使用切断砂轮进行侧面研磨；
- 确保使用时产生的火花不会引起危险，例如不要溅在身体上或点燃易燃物；
- 在多尘的条件下工作时，确保通风口畅通无堵塞现象。如果需要清除灰尘，首先使电动工具断开电源（使用非金属物品）并避免损坏内部零件；
- 始终采用视力和听力保护。必须使用其他个人保护装置，如口罩、手套、头盔和围裙等。
- 在切断本电动工具的电源之后，砂轮仍会继续旋转一段时间，请注意此事项。
- 务请在 0°C ~ 40°C 的温度下进行充电。温度低于 0°C 将会导致充电过度，极其危险。电池不能在高于 40°C 的温度下充电。  
最适合于充电的温度是 20 ~ 25°C。
- 一次充电完成后，充电结束时，在下节电池充电之前，请先将充电器放置大约 15 分钟。
- 勿让杂质进入电池连结口内。

## 中文

- 切勿拆卸电池与充电器。
- 切勿使电池短路。使电池短路将会造成很大的电流和过热，从而烧坏电池。
- 请勿将电池丢入火中。  
电池受热将会爆炸。
- 在墙壁、地板或天花板上钻孔时，请检查里面是否有电线等。
- 请勿将异物插入充电器的通风口。  
若将金属异物或易燃物插入通风口的话，将会引起触电事故或使充电器受损。
- 充电后电池寿命太短不够使用时，请尽快将电池送往经销店。请勿将用过的电池乱丢。
- 请勿使用耗竭了的电池，否则会损坏充电器。

## 锂离子电池使用注意事项

为延长使用期限，锂离子电池备配停止输出的保护功能。

若是在使用本产品时发生下列 1 至 3 的情况，即使按下开关，马达也可能停止。这并非故障，而是启动保护功能的结果。

1. 在残留的电池电力即将耗尽时，马达会停止。  
在这种情况下，请立即予以充电。
  2. 若工具超过负荷，马达亦可能停止。在这种情况下，请松开工具的开关，试着消除超过负荷的原因。之后您就可以再度使用。
  3. 若电池在过载工作情况下过热，电池电力可能会中止。  
在这种情况下，请停止使用电池，让电池冷却。之后您就可以再度使用。
- 此外，请留心下列的警告及注意事项。

### 警告！

为防止发生电池漏电、发热、冒烟、爆炸及提前点燃，请确保留意下列事项。

1. 确保电池上没有堆积削屑及灰尘。
  - 在工作时确定削屑及灰尘没有掉落在电池上。
  - 确定所有工作时掉落在电动工具上的削屑和灰尘没有堆积在电池上。
  - 请勿将未使用的电池存放在曝露于削屑和灰尘的位置。
  - 在存放电池之前，请清除任何可能附着在上面的削屑和灰尘，并请切勿将它与金属零件（螺丝、钉子等）存放在一起。
2. 请勿以钉子等利器刺穿电池、以铁锤敲打、踩踏、丢掷电池，或将其剧烈撞击。
3. 切勿使用明显损坏或变形的电池。
4. 使用电池时请勿颠倒电极。
5. 请勿直接连接电源插座或汽车点烟器孔座。
6. 请依规定方式使用电池，切勿移作他用。
7. 如果已过了再充电时间，电池仍无法完成充电，请立即停止继续再充电。
8. 请勿将电池放置于高温或高压处，例如微波炉、烘干机或高压容器内。
9. 在发觉有渗漏或异味时，请勿接近远离火源。
10. 请勿在会产生强烈静电的地方使用。



11. 如有电池渗漏、异味、发热、褪色或变形，或在使用、充电或存放时出现任何异常，请立即将它从装备或电池充电器拆下，并停止使用。
12. 请勿浸泡电池或让任何液体流入电池内部。导电液体进入（如水），可能造成电池损坏，甚至可导致火灾或爆炸。将电池存放在阴凉、干燥的地方，远离易燃物品。必须避免将电池置于腐蚀性气体环境中。

## 注意！

1. 若电池渗漏出的液体进入您的眼睛，请勿搓揉眼睛，并以自来水等干净清水充分冲洗，立刻送医。  
若不加以处理，液体可能会导致眼睛不适。
2. 若液体渗漏至您的皮肤或衣物，请立即以自来水等清水冲洗。  
上述情况可能会使皮肤受到刺激。
3. 若初次使用电池时发现生锈、异味、过热、褪色、变形及 / 或其它异常情况时，请勿使用并将该电池退还给供货商或厂商。

## 警告！

如果导电异物进入锂离子电池端子之间，可能发生短路，并造成火灾危险。存放电池时，请遵循下列事项。

- 请勿在存储盒中放入导电的切屑、铁钉、钢丝、铜线或其他导线。
- 或者将电池装在电动工具中，或者在牢固按入电池盖并挡住通风孔后再存放，以防止短路（参照图 1）。

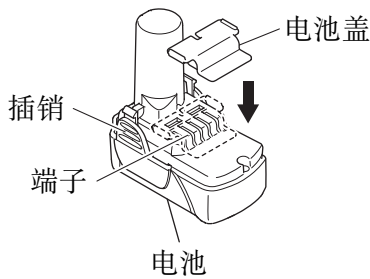


图 1

## 符号

### 警告！

如下所示的符号用于本机。使用前请务必理解其含意。



为降低伤害风险，用户必须阅读使用说明书。

## 规格

## 电动工具


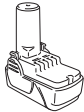
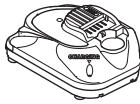
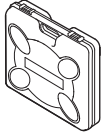

型式	GP10DL
无负荷速度	5000 — 35000 /min
筒夹容量	3.2 mm
电池	BCL1030C : 锂离子 直流 10.8 V (3.0 Ah 3 节)
重量	0.48 kg

## 充电器

型式	UC10SL2
充电电压	10.8 V
重量	0.35 kg

## 标准附件

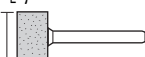



除了主机（1 台）外，产品包中还包括表中所列的附件。






		GP10DL (LMSK)
附件 × 40 件		1
电池 (BCL1030C)		1
充电器 (UC10SL2)		1
塑料盒		1
电池盖		—



有关附件的详细信息，请参阅“提供的附件”。



## 提供的附件

&lt; 使用 &gt;

用于木刻和砂磨。	氧化铝点 [ $\phi 15.9 \text{ mm} \times 1$ ] 15.9 mm 
用于加工硬材料，如玻璃和陶器。	金刚砂点 [ $\phi 4.8 \text{ mm} \times 1$ ] 4.8 mm 
用于在木材、塑料和软金属（铝、铜、黄铜）上进行雕刻、砂磨和开槽。	高速切割机 [ $\phi 3.2 \text{ mm} \times 1$ ] 3.2 mm 
用于在木材和夹板上钻孔。	钻孔 [ $\phi 3.2 \text{ mm} \times 1$ ] 3.2 mm 

用于分割或切割材料。 适用于切割薄的杆和管。 在螺丝头上重新切割螺纹。 不得强按工件，以免造成它破裂。	切割轮 [ $\phi 23.8 \times t0.6 \times 6$ ] 23.8 mm  0.6 mm H
	切割轮 [ $\phi 23.8 \times t1.0 \times 2$ ] 23.8 mm  1.0 mm H
用于抛光硬材料，如不锈钢。	氧化铝砂磨轮 [ $\phi 22.2 \times 1$ ] 22.2 mm 
适用于粗磨后的最后抛光。	磨光盘 [ $\phi 19.1 \text{ mm}/$ 180-粗砂 $\times 10$ ] 19.1 mm  180-粗砂
用于对金属表面进行光面精整。	抛光轮 [ $\phi 25.4 \text{ mm} \times 2$ ] 25.4 mm 

用于珠宝和金属的镜面抛光。 选择适合工件的尺寸。	毡制抛光轮 [ $\phi 12.7 \text{ mm} \times 4$ ] 12.7 mm 
	毡制抛光轮 [ $\phi 25.4 \text{ mm} \times 2$ ] 25.4 mm 

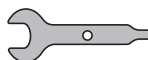
适用于木材成型和模型抛光等工作。 用不同的粗砂数分两个阶段进行砂磨，以获得较好的表面光度。	磨光带 [ $\phi 12.7 \text{ mm}/60\text{-粗砂} \times 6$ ] 12.7 mm  60-粗砂
	磨光带 [ $\phi 12.7 \text{ mm}/120\text{-粗砂} \times 2$ ] 12.7 mm  120-粗砂

## 注意！

标准附件专用于 GP10DL。  
请勿将其用于电钻等其它设备，以免造成人身伤害和钻头损坏。

[ 附件 ]

夹头扳手（用于松开夹头螺帽）



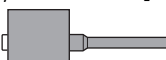
轮心轴

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

螺丝型心轴

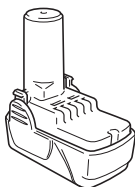
[  $\phi 3.2 \text{ mm} \times 1$  ]

鼓心轴

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

## 选购附件（分开销售）

### 1. 电池 (BCL1030C)



## 用途

- 制作木雕手工艺品和精致的金属装饰物
- 玻璃和陶瓷雕刻造型
- 钢材和石头砂磨和抛光

## 基本功能

### 1. 电池电量不足警示灯（图 2）

要检查剩余电量，请空载运行砂轮机。

如果剩余电量低，警示灯（红色 LED）会亮起。

如果灯亮，请立即给电池充电。

注：

- 电池电量不足警示灯可能会受到环境温度或电池特性的影响。请参考警示灯来判断何时需要充电。
- 砂轮机运行期间，电池电量不足警示灯可能会亮起。这是由于电池电压的瞬间降低，不是电池电量不足。
- 检查剩余电量时，务必使砂轮机空载运行。

### 2. 开关旋钮

开关旋钮也用作启动开关和速度旋钮。当开关旋钮从 [0] 旋转到更高数字时，砂轮机会开启并逐渐加速。同时，LED 灯亮起，点亮砂轮机的尖端。当开关旋钮恢复到 [0] 时，砂轮机关闭并停止旋转。

基于安全原因，在开关处于 [0] 以外的任何位置时插入电池，砂轮机都不会启动。

要在此时开启砂轮机，请将开关旋钮调到 [0]，然后再将其旋转到更高数字。

开关旋钮上的数字与旋转速度之间的大致关系如图 3 中所示。

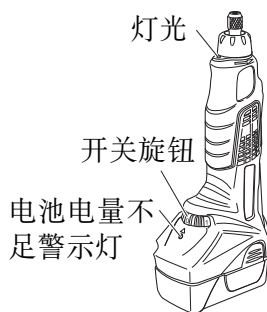
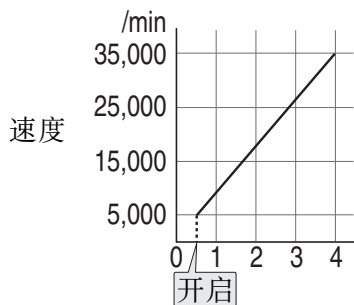


图 2



开关旋钮刻度盘

图 3

## 电池的拆卸 / 安装法

### 1. 电池的拆卸法

请先紧抓住把手、然后再推压电池插销以拆下电池（参照图 4 和 图 5）。

### 注意！

切勿使电池短路。

### 2. 电池的安装法

插入电池时请注意极性（参照图 5）

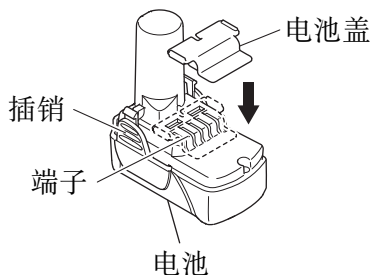


图 4

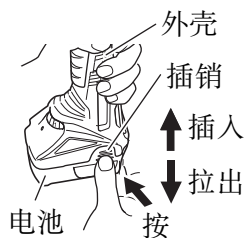


图 5

## 充电

使用电动工具之前，按下述方法将电池进行充电。

### 1. 将充电器的电源线连接到插座。

将充电器插头连接到插座时，指示灯闪烁红色（间隔为 1 秒）。

### 2. 将电池插入充电器。

如图 6 所示，将电池稳稳地插入充电器直至其接触到充电器的底部。

### 3. 充电

将电池插入充电器后，充电器上的指示灯将持续点亮呈红色。

电池完全充电后，指示灯将闪烁呈红色（以 1 秒的间隔）（参照表 1）。

#### (1) 指示灯显示

根据充电器或电池的情况，指示灯的显示如表 1 所示。

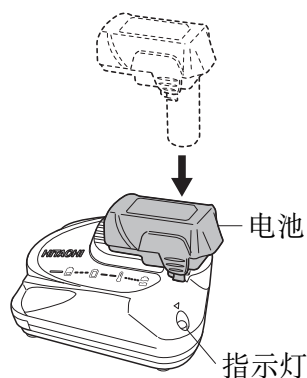











图 6

表 1

指示灯的显示				标记符号	
指示灯 (红色)	充电前	闪烁	点亮 0.5 秒钟，不点亮 0.5 秒钟（熄灭 0.5 秒钟） 	/	
	充电时	点亮	连续点亮 		
	充电完成	闪烁	点亮 0.5 秒钟，不点亮 0.5 秒钟（熄灭 0.5 秒钟） 		
	过热而等待	闪烁	点亮 1 秒钟，不点亮 0.5 秒钟（熄灭 0.5 秒钟） 		
	无法充电	闪烁	点亮 0.1 秒钟，不点亮 0.1 秒钟（熄灭 0.1 秒钟） 		

## (2) 关于电池的温度

电池的温度如表 2 所示，在充电前应使已发热的电池冷却片刻。

表 2 电池充电范围

电池	可以对电池进行充电的温度
BCL1030C	0°C – 50°C

## (3) 关于充电时间

由充电器和电池共同决定，充电时间变化如表 3 所示。

表 3 充电时间 (20°C下)

充电器 \ 电池	UC10SL2
BCL1030C	约 60 分钟

注：

充电时间可能根据环境温度和电压而有变化。

4. 从电源插座拔下充电器的电源线。

5. 握紧充电器并取出电池。

注：

充电后，先将电池从充电器中取出，然后妥善保存。

## 注意！

- 如果电池长时间放置在阳光直接照射的地方或者刚刚使用完毕时，电池会变热。如果此时对电池充电，充电器上的指示灯会点亮 1 秒钟，不点亮 0.5 秒钟（熄灭 0.5 秒钟）。  
在此情况下，先让电池冷却下来，然后再充电。
- 指示灯闪动时（以 0.2 秒钟的间隔），请检查并取出充电器电池接口处的任何异物。若无异物，则可能电池或充电器发生故障。请带去经授权的维修中心检查。
- 因内置的微机需要约 3 秒钟才能确认证用 UC10SL2 进行充电的电池已被取出，因此请待 3 秒钟后再重新插入电池继续充电。如果在不到 3 秒内就插入电池，则电池可能充电不正常。

## 作业之前

1. 工作环境的准备和检查  
请按下列注意事项检查工作环境是否适当。

## 如何安装钻头

### 警告！

为防意外，关闭电源后，请务必将电池从砂轮机上卸下。

### 注意！

确保心轴螺丝已经拧紧。

装上钻头后，检查钻头是否牢固。

如果钻头较松，则可能会脱落，从而造成设备损坏或人身伤害。

1. 如何使用螺丝型心轴（图 7 (a)）  
使用毡制抛光轮时，使用螺丝型心轴。  
让轮保持平直，用螺丝将其拧入螺丝型心轴的螺纹，直到抵住轮缘。
2. 如何使用轮心轴（图 7 (b)）  
用平头螺丝刀卸下心轴末端的螺丝，然后装上切割轮或砂轮盘。
3. 如何使用鼓心轴（图 7 (c)）  
出厂时，60- 粗砂磨光带已装配在鼓心轴上。  
用螺丝刀松开心轴末端的螺丝，之后卸下 / 安装磨光带。  
安装磨光带后，将螺丝拧紧。

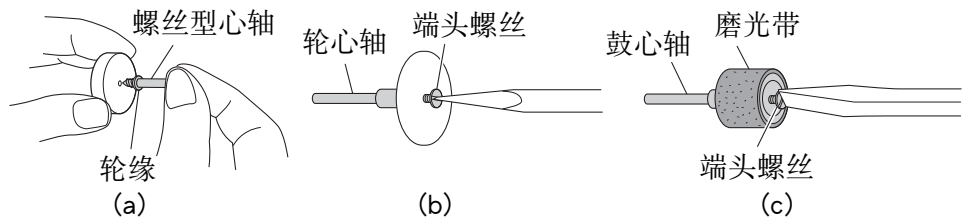


图 7

4. 将钻头装到砂轮机

按住锁定按钮，用手旋转夹头螺帽，以进一步按下锁定按钮。

在此状态下，轴杆会被锁定，夹头螺帽可以松开或拧紧。（图 8）

要安装钻头，尽最大可能插入钻头，然后拧紧夹头螺帽。

要卸下钻头，通常可以用手旋转夹头螺帽，尽管有时它会拧的很紧。

如果夹头螺帽太紧，请使用提供的夹头扳手松开。夹头螺帽、夹头或轴杆螺丝上的铁粉末可能会造成夹头螺帽旋转困难。（图 9）

在安装或卸下钻头之前，务必清除铁粉末。

注：

极少情况下，钻头可能很难从夹头上卸下。如果发生这种情况，请在夹头螺帽松开状态下，抵住一个硬物，用力按钻头的末端。（图 10）

5. 钻头的平衡调整（图 11）

安装钻头后，低速运行砂轮机。如果平衡不对，请按照以下步骤调整平衡。

在按住锁定按钮的同时，松开夹头螺帽。

之后，旋转钻头 1/4 圈，拧紧夹头螺帽。

低速运行砂轮机，检查平衡。如果平衡正确，则调整完成。

如果平均仍然不正确，请卸下钻头、夹头螺帽和夹头后重新安装。如果在几次尝试后钻头仍然不平衡，请检查钻头是否变形或磨损，或者夹头是否变形。如出现磨损或变形，请更换钻头或夹头。

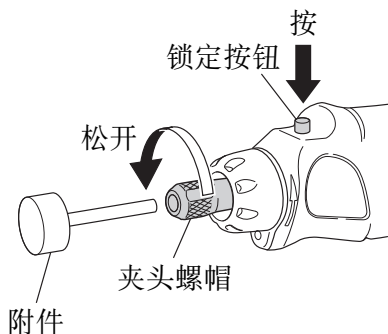


图 8

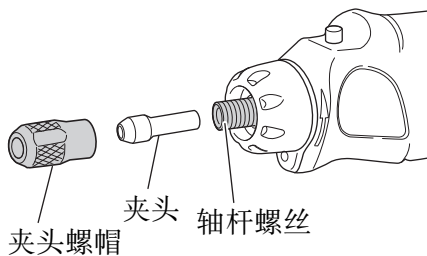


图 9

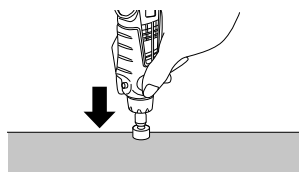


图 10

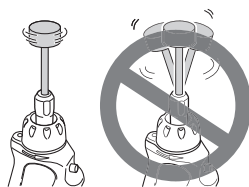


图 11



## 运行砂轮机

### 警告！

- 使用时让脸部远离钻头。
- 使用砂轮机时，佩戴护目镜和防尘面具。钻头破损可能会造成人身伤害。
- 运行砂轮机时速度不要太低。这样不会取得光滑平整的表面，并且可能会损坏钻头，造成砂轮机故障或人身伤害。

### 注意！

加工之后不要马上触摸钻头、夹头螺帽和夹头，此时温度会很高，触摸它们可能会造成烫伤。

1. 卸下电池后安装钻头
2. 将工件固定住，避免移动  
工件越小，加工时越不稳定。用老虎钳将小工件固定住。  
用手拿住工件可能会造成人身伤害。
3. 将电池插入砂轮机
4. 检查钻头的平衡  
目测低速（靠近开关旋钮上的 [1] 位置）运转的钻头。  
另外检查运行期间是否有异常噪音。
5. 选择加工速度
  - 在参照表 4 执行试验砂磨时，选择最适合材料的速度。
  - 如果对塑料高速进行加工，则高温可能会造成它融化。从低速开始逐渐进行测试。

表 4 开关旋钮设置

工件材料 钻头	软木	硬木	层压板 / 塑料	钢	铝、 黄铜等	贝壳 / 石头	陶瓷	玻璃
氧化铝点	3-4	3-4	—	2.5	1	1.5	3-4	—
金刚砂点	—	—	1.5	3-4	1	1.5	3-4	3-4
高速切割机	3-4	3-4	1	1.5	3-4	—	—	—
钻孔	3-4	3-4	1	—	1.5	—	—	—
切割轮	—	—	1	3-4	3-4	3-4	3-4	—
氧化铝砂磨轮	3-4	3-4	—	2.5	1	1.5	3-4	—
磨光盘	2.5	2.5	1	—	1	—	—	—
抛光轮	—	—	—	1	1	1	1	1
毡制抛光轮	—	—	—	1	1	—	—	—
磨光带	1-4	1-4	1-4	3-4	3-4	1-4	1-4	—

## 中文

### 6. 加工

- 将旋转钻头轻轻抵住工件，用最小的压力对工件进行加工。
- 好的光面不是一步就能完成的，需要多次加工才会取得理想效果。

### 注意！

- 砂轮机在朝向钻头固定槽的方向会变窄。请将手指放到窄处，握住砂轮机以方便操作。（图 12）
- 在首次加工材料或首次使用钻头时，请先进行试验砂磨以确定最佳速度，如何握住砂轮机，以及如何将钻头抵住工件。
- 如果没有取得预期结果，对电动工具施加更大压力也不会产生更好结果。倾斜电动工具也不会提高加工性能。此时应调整旋转速度或更换钻头。

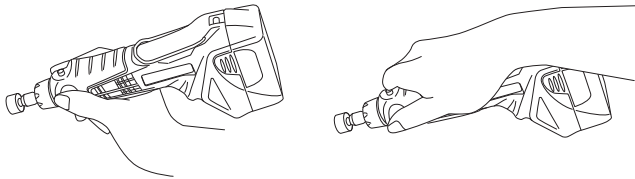


图 12

## 维护和检查

### 1. 检查附件

使用末端已磨损或损坏的钻头或心轴不仅会造成光面效果差，而且会对马达施加不合理的张力，从而造成效率降低、设备损坏或人身伤害。

如果钻头或心轴已磨损或损坏，请进行更换。

### 2. 检查安装螺钉

要经常检查安装螺钉是否紧固妥善。若发现螺钉松了，应立即重新扭紧，否则会导致严重事故。

### 3. 电动机的维护

电动机绕线是电动工具的“心脏部”应仔细检查有无损伤，是否被油液或水沾湿。

### 4. 清理外部

电磨沾污时，用干软布或沾肥皂水的布擦拭。切勿使用氯溶液、汽油或稀释剂，以免塑胶部分溶化。

### 5. 收藏

电磨应收藏于温度低于 40°C 和小孩拿不到的地方。

### 注：

存放锂离子电池

在存放前请确保电池已完全充电。

电池在低电量的状态下长时间存放（3 个月或更长），可能会导致电池性能劣化，使用时间明显减少或无法进行充电。

但是，即使是使用时间明显减少的电池，通过反复充电和使用 2 ~ 5 次，有时也可恢复使用时间。

若反复充电和使用后电池的使用时间仍非常短，请认作为电池已达到了使用寿命并更换新的电池。

## 注意！

在操作和维修电动工具时，必须遵守贵国制定的安全的有关规则和标准。

### 关于HiKOKI牌无线电动工具的重要通知：

请确保始终使用我们指定的正版电池。如果使用我们指定以外的电池，或对电池进行拆卸和改动（例如拆卸和更换电池组件或其他内部部件），那么我们无法保证我们无线电动工具的安全性和使用性能。

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## GENERAL POWER TOOL SAFETY WARNINGS

### **WARNING**

**Read all safety warnings and all instructions.**

*Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.*

**Save all warnings and instructions for future reference.**

*The term “power tool” in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.*

- 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.*
- f) **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.**  
*Use of an RCD 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.*

# English

- 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 tool's 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) **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.*

- b) **Use power tools only with specifically designated battery packs.**

*Use of any other battery packs may create a risk of injury and fire.*

- c) **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.*

- d) **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.*

**CAUTION**

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 is 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.*

## English

- 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.**

## English

*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 allow foreign matter to enter the hole for connecting the battery.
- Never disassemble the battery and charger.
- Never short-circuit the 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.

## English

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. 1).

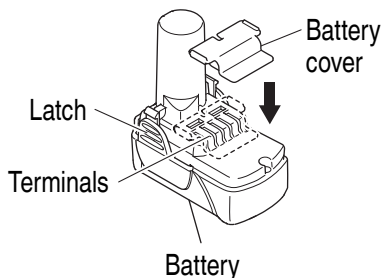


Fig. 1

## SYMBOL

### WARNING

The following show symbols used for the machine. Be sure that you understand their meaning before use.



To reduce the risk of injury, user must read instruction manual.

## SPECIFICATIONS

### POWER TOOL






Model	GP10DL
No-load speed	5000 – 35000 /min
Collet chuck capacity	3.0 mm
Battery	BCL1030C: Li-ion DC 10.8 V (3.0 Ah 3 cells)
Weight	0.48 kg

### CHARGER

Model	UC10SL2
Charging voltage	10.8 V
Weight	0.35 kg

## STANDARD ACCESSORIES

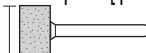


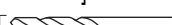









In addition to the main unit (1 unit), the package contains the accessories listed in the below.

		GP10DL (LMSK)
Accessories x 40 pcs		1
Battery (BCL1030C)		1
Charger (UC10SL2)		1
Plastic case		1
Battery cover		—

For details of the attachments, refer to “Provided attachments”.

**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 H
	Cutting wheel [φ23.8 × t1.0 × 2] 23.8 mm  1.0 mm H
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)



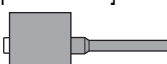
Wheel mandrel [φ3.2 mm × 1]



Screw-type mandrel [φ3.2 mm × 1]

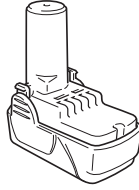


Drum mandrel [φ3.2 mm × 1]



## OPTIONAL ACCESSORIES (sold separately)

1. Battery (BCL1030C)



## 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. 2)  
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. 3.

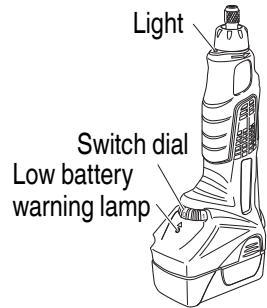


Fig. 2

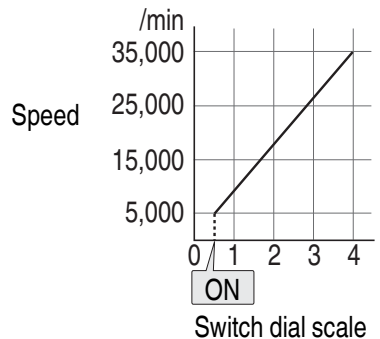


Fig. 3



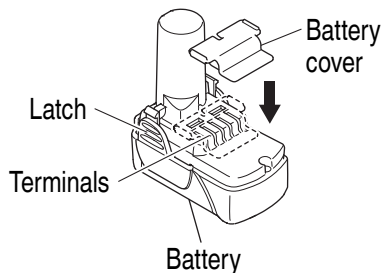
## BATTERY REMOVAL/INSTALLATION

1. Battery removal  
Hold the handle tightly and push the battery latch to remove the battery (see **Figs. 4 and 5**).

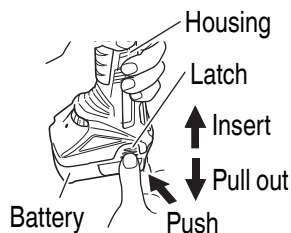
### CAUTION

**Never short-circuit the battery.**

2. Battery installation  
Insert the battery while observing its polarities (see **Fig. 5**).



**Fig. 4**

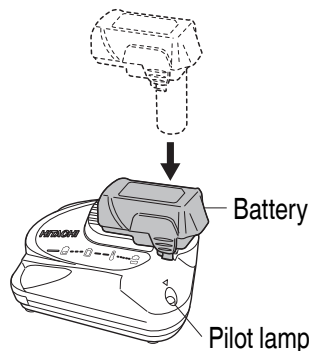


**Fig. 5**

## CHARGING










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

1. Connect the charger's power cord to the receptacle.  
When connecting the plug of the charger to a receptacle, the pilot lamp will blink in red (At 1-second intervals).
  2. Insert the battery into the charger.  
Firmly insert the battery into the charger till it contacts the bottom of the charger as shown in **Fig. 6**.
  3. Charging  
When inserting a battery in the charger, the pilot lamp will light up continuously in red.  
When the battery becomes fully recharged, the pilot lamp will blink in red (At 1-second intervals). (See **Table 1 on page 34**)
- (1) Pilot lamp indication  
The indications of the pilot lamp will be as shown in **Table 1 on page 34**, according to the condition of the charger or the battery.



**Fig. 6**

Table 1

Indications of the pilot lamp				Symbol mark	
Pilot lamp (red)	Before charging	Blinks	Lights for 0.5 seconds. Does not light for 0.5 seconds. (off for 0.5 seconds) 	/	
	While charging	Lights	Lights continuously 		
	Charging complete	Blinks	Lights for 0.5 seconds. Does not light for 0.5 seconds. (off for 0.5 seconds) 		
	Overheat standby	Blinks	Lights for 1 second. Does not light for 0.5 seconds. (off for 0.5 seconds) 	Battery overheated. Unable to charge (Charging will commence when battery cools). 	
	Charging impossible	Flickers	Lights for 0.1 second. Does not light for 0.1 seconds. (off for 0.1 seconds) 	Malfunction in the battery or the charger. 	

- (2) Regarding the temperature of the battery  
The temperatures for batteries are as shown in the **Table 2**, and batteries that have become hot should be cooled for a while before being recharged.

Table 2 Recharging ranges of batteries

Batteries	Temperatures at which the battery can be recharged
BCL1030C	0°C – 50°C

- (3) Regarding recharging time  
Depending on the combination of the charger and batteries, the charging time will become as shown in **Table 3**.

Table 3 Charging time (At 20°C)

Battery	Charger	UC10SL2
BCL1030C		Approx. 60 min.

**NOTE**

The charging time may vary according to temperature and power source voltage.

4. Disconnect the charger's power cord from the receptacle.
5. 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.

**CAUTION**

- If the battery is charged while it is heated because it has been left for a long time in a location subject to direct sunlight or because the battery has just been used, the pilot lamp of the charger lights for 1 second, does not light for 0.5 seconds (off for 0.5 seconds). In such a case, first let the battery cool, then start charging.
- When the pilot lamp flickers (at 0.2-second intervals), check for and take out any foreign objects in the charger's battery connector. If there are no foreign objects, it is probable that the battery or charger is malfunctioning. Take it to your authorized Service Center.
- Since the built-in micro computer takes about 3 seconds to confirm that the battery being charged with UC10SL2 is taken out, wait for a minimum of 3 seconds before reinserting it to continue charging. If the battery is reinserted within 3 seconds, the battery may not be properly charged.

**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. 7 (a) on page 36**)  
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. 7 (b) on page 36**)  
Remove the screw in the end of the mandrel with a flathead screwdriver and attach the cutting wheel or sanding disc.

# English

## 3. How to use the drum mandrel (Fig. 7 (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.

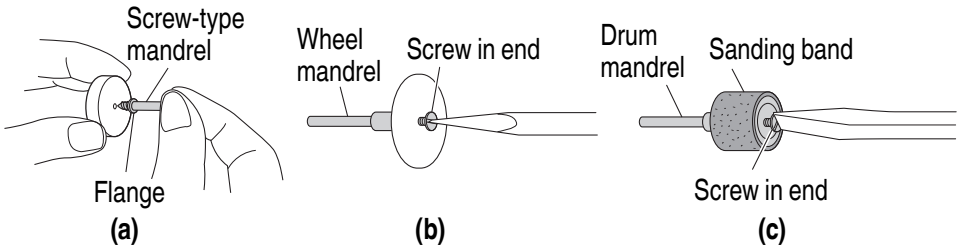


Fig. 7

## 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. 8)

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. 9)

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

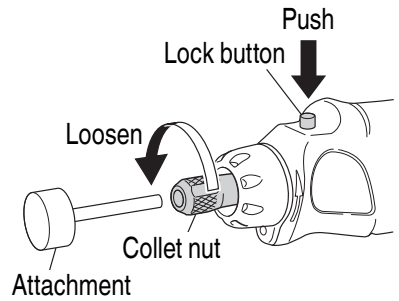


Fig. 8

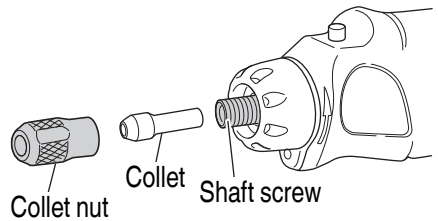


Fig. 9

## 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)

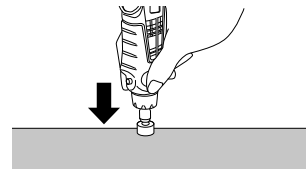


Fig. 10

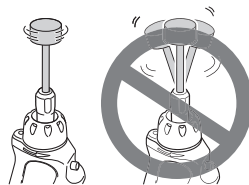
5. Balance adjustment of the tip tool (**Fig. 11**)  
After attaching the tip tool, operate the grinder at low speed. If the balance is not right, follow the procedure below to adjust the balance.

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.



**Fig. 11**

## 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 4 on page 38**.
  - If plastic is machined at high speed, it may melt due to heating. Test it gradually starting from a low speed.

# English

**Table 4 Switch dial settings**

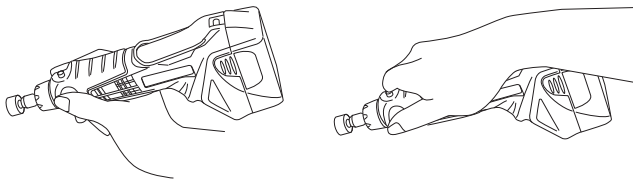
Tip tool \ Workpiece material	Softwood	Hardwood	Laminate/ Plastic	Steel	Aluminium, brass, etc.	Shell/ Stone	Ceramic	Glass
Aluminium oxide point	3-4	3-4	—	2.5	1	1.5	3-4	—
Silicon carbide point	—	—	1.5	3-4	1	1.5	3-4	3-4
High-speed cutter	3-4	3-4	1	1.5	3-4	—	—	—
Drill	3-4	3-4	1	—	1.5	—	—	—
Cutting wheel	—	—	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. 12)**
- 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.



**Fig. 12**

## 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.
5. Storage  
Store the grinder 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 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.

### 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).

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