

The German perfect industrial design, beauty and quality of experience

The new Cayken marks a new beginning in industrial grade drill machine aesthetic design and manufacturing process. It follows the consistent style of the leaders, with a forward-looking design ideas and the perfect ergonomic design, opened up a new era of drilling industry.

Germany Cayken authorized manufacturer: shanghai chengxiang mechanical and electric equipment co.,ltd

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OPERATING INSTRUCTION
<http://www.cayken.com.cn>

警语

为防止发生电击或火灾，请在使用过程中严格遵守操作规程！

本机器仅供受过专业训练的专业人士使用，请勿让其他人员私自操作！若有违反说明书的操作规定而造成的人身伤害或电机损坏的，本公司不负任何责任！

本机器仅限于有资格的维修人员对其维护！

鸣谢惠顾

非常感谢您购买 **CAYKEN** (凯宴) 金刚石钻孔机系列产品, 请在操作使用机器前认真阅读本手册。

正确恰当的操作，将会使您充分体验本公司机器的优越性能。

请将本手册放于安全的地方，以备将来参考。

关于本手册

本手册描述的机器型号为：

SCY: 1520-3BS/1520-3EBS

SCY: 1780-3BS/1780-3EBS

SCY: 2020-3BS/2020-3EBS

请通过检查机器铭牌上的文字来确认机器型号。



本手册最终解释权归上海呈祥机电设备有限公司所有。



工作场所的安全规章：

- a) 工作场所必须保持干净并且照明要充足. 杂乱或昏暗的工作场所容易导致意外。
- b) 不可在有爆炸危险的环境下操作本电动工具. 有爆炸危险的环境是指充斥了易燃液体、瓦斯或尘埃的工作场所. 操作机器时会产生火花, 火花容易引燃尘埃或易燃蒸汽。
- c) 操作机器时不可让儿童或旁观者靠近工作场所。工作时如果因为第三者的干扰而分散注意力可能导致操作失控。

使用电器用品的安全指示：

- a) 双重绝缘的工具配有极化插头（其中一个叶片较宽）。该插头只能单向插在极化插座上. 如果插头未能完全插入插座, 就将插头反过来. 如果仍不能插上, 请联系专业电工安装一个极化插座。切勿擅自更改插头。双重绝缘不需要三线电源。
- b) 避免让身体碰触接地的物体，例如水管、散热器、电炉和冰箱等。如果您的身体接地了，非常容易遭受电击。
- c) 机器必须远离雨水或湿气。如果让水渗入电动工具中，会使操作者遭受电击的危险。
- d) 正确地处理电线。不可以使用电线提携电动工具、悬挂电动工具或者以抽拉电线的方式拔出插头. 电线必须远离高温、油垢、锋利的边缘或转动中的机件。电线如果受损或缠绕在一起，会使操作者遭受电击的危险。
- e) 户外使用电动工具时，只能使用标注“W-A”或“W”的户外专用延长线。这种线是户外专用，能减少电击风险。

针对操作者的安全指示：

- a) 工作时务必要全神贯注，不但要保持头脑清醒更要理性的操作电动工具。疲惫、喝酒或服用毒品、兴奋剂、药物之后, 切勿操作电动工具. 使用电动工具时只要稍微分心便可能发生严重的意外。
- b) 穿好您个人的防护装备并戴上护目镜. 根据所使用的电动工具穿戴合适的防护装备, 例如防尘面罩、止滑工作鞋、安全帽或耳罩, 可降低工作伤害的发生机率。
- c) 避免意外启动机器。插上插头前，务必确保电动工具处于关闭状态。如果您在提携电动工具时，手指碰触了开关，或者在连接电源时，起停开关仍然设定在开动位置，都可能造成极严重的意外。
- d) 开动电动工具之前必须拆除仍然插在机器上的调整工具或螺丝扳手. 如果机器已经开始转动, 而机器上仍然插着调整工具, 很容易伤害使用者。
- e) 避免错误的持机姿势。操作机器时要确保立足稳固，并要随时保持平衡。正确的操作姿势能够帮助您在突发状况下及时控制住电动工具。
- f) 穿着合适的工作服。工作时不可以穿太宽松的衣服，也不可以戴首饰。不可以让头发、衣服和手套接触机器上的转动机件. 宽松的衣物、长发或首饰容易被卷入转动的机件中。
- g) 使用夹子或其他可行的方法将工作件固定在工作台上, 将工作件拿在手里或是靠在身上都是不合适的，可能导致失控。
- h) 勿让机器承载过重的负荷。根据工作性质选择适合的电动工具. 正确地选用电动工具可以在规定的功率范围中，更有效率更安全地操作机器。
- i) 勿使用有开关故障的电动工具。如果无法正常操控起停开关, 极容易在操作机器时产生意外。尽快将故障的机器送修。
- j) 在调整机器设定、更换零件或不使用机器时, 都必须先从插座上拔出插头并且这个预防措施可以避免不小心开动电动工具。
- k) 不使用电动工具时, 必须把机器存放在儿童无法取得之处。勿让不熟悉机器操作方法及未阅读本说明书的人使用本机器。让经验不足的人操作电动工具容易发生意外。

1) 细心地保养、维护电动工具。检查机器上的转动零件是否运作正常,并确定是否有零件断裂或损坏。故障的机件会影响电动工具的运作功能。使用机器之前务必先更换或修理故障的机件。若未彻底执行机器的维护工作容易导致工作意外。

针对机器的安全指示:

- ◆使用机器时要戴好耳罩。
- ◆使用随工具提供的辅助手柄。
- ◆工作时必须握持辅助手柄和主手柄。

1. 如果工作时可能切断隐藏著的电线或机器本身的电源线,那么一定要握着绝缘手柄操作机器。电动工具如果接触了带电的线路,机器上的金属部件会导电,并可能造成操作者触电。为减少伤害风险,请务必在钻孔之前检查隐藏着的电线。
2. 使用电动工具时请佩戴耳罩。噪音会损坏您的听力。
3. 请使用电动工具附带的辅助手柄。如果无法控制好电动工具容易造成伤害。
4. 小心维护工具。手柄保持干燥,清洁,远离油脂。刃口保持锋利,清洁。按照指示说明来润滑和更换配件。定期检查工具电线和延长线是否有破损,请使用合格的维修工具修理或更换破损部分。
5. 妥善保存标签及铭牌。这些标签及铭牌上有重要信息。一旦模糊不清或者遗失,请更换。警告! 喷,锯,磨,钻及其他建筑施工造成的灰尘可能含有导致癌症,生育缺陷或是或其他生育伤害的化学物质。为减少接触化学品,尽量在通风区工作,使用认可的安全设备,如专门过滤微粒的防尘面具。
6. 在楼板上取芯请为工作人员提供适当的保护。
7. 使用铭牌上的最大尺寸以内的取芯钻头和钻头。超尺寸的钻头会损坏电机,过多的扭矩可能会导致机器不受控制。
8. 只使用推荐的钻头,即符合机器最大额定转速。
9. 紧握钻孔机,确保身体和手臂不受扭矩反作用。该机器上装有安全离合器保护机器但是还是要时刻警惕。
10. 过载保护器起效时,按一下开关,将钻头移出,等待几分钟,直至工具冷却。
11. 请勿使用迟钝或是损坏的钻头。迟钝的钻头会导致电机过多的摩擦和负载,导致损坏。
12. 工作件变更角度前,确保机器完全停止。
13. 紧要: 钻孔完后,等到钻头完全停止后再放下。
14. 切勿在周边有易燃固体,液体,气体的地方,使用工具。换向器/碳刷上的火花可能会引起火灾和爆炸。
15. 对于工具的某些应用是已经设计好的,制造商强烈建议该工具不被修改或是用于其他本身没有的应用。对于工具的应用,如果您有任何疑问,在得到制造商的解答之前,请勿使用。

电源接入:

电力网电压必须符合工具铭牌上标示的电压。供电电缆破损时,绝不要使用工具。请立即请经授权的客服中心更换的损坏的电缆。使用破损的供电电缆可能导致触电。

按照规定使用机器:

该钻孔机适用于干湿岩石,混凝土和其他类似材料。工具上装有三档速度齿轮箱,这使工具在钻大孔或者小孔时,有两种速度范围选择。此外电机装有反馈电子速度的稳定器,确保工具在无论负载多少的情况下,保持转速不变。该工具可通过齿轮调节速度。工具上装有软启动,过载保护器和机械滑动离合器以确保安全性。

警告

请勿擅自改造或修改工具,如:添加其他本机指示说明未提及的应用。否则用户应承担由不当使用造成的损坏和意外事故。

加长线缆:

如需加长电缆,必须有足够的截面以防止电压过低及温度过高。电压过低会导致输出电流减少,引发电机故障。下列表格列出了机器加长电缆适用的直径。请使用UL和CSA认证的加长电缆。请勿混合使用两条加长电缆。(如下表所示)

加长电缆线总长(英尺)	线尺寸(AWG)
25	16
50	12
100	10
150	8
200	6

手册中的符号:

V.....伏特
A.....安培
Hz.....赫兹
~...交流电
rpm...空载转速
回...双重绝缘

拆箱:

将工具及配件从箱中小心取出。在检查及满意操作机器前,请保留所有包装材料。
注意:操作前,请装上合适的钻头。未阅读和理解所有指示说明前,切勿操作此工具。

可调节辅助手柄:

注意:可调节辅助手柄与主手柄成直角时,手柄得到最好利用。

可调节辅助手柄

1. 逆时针转动,松开手柄
2. 旋转手柄到理想角度
3. 重新拧紧手柄

包装清单:

名 称	数 量
金刚石钻孔机	1台
开口扳手	1把
可调节辅助手柄	1个

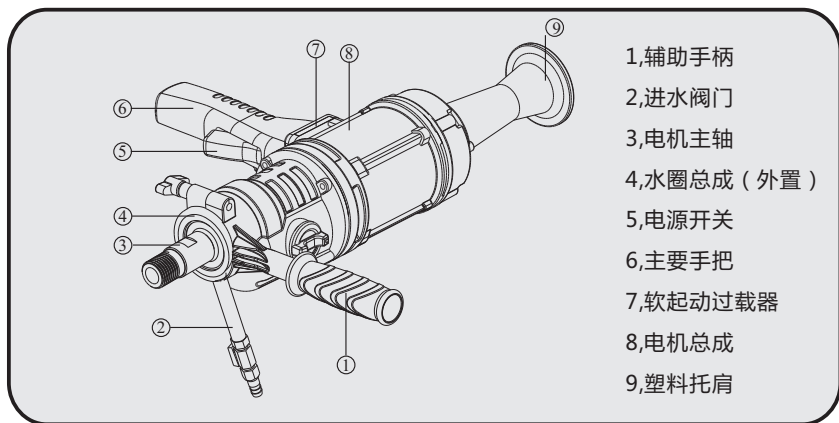
警告

连接与移除钻头时必须关闭电源!

连接与移除钻头:

1. 清理主轴上的灰尘。
2. 拧上钻头(不含),用2把适合的扳手(含一把)拧紧。
3. 移除钻头时,方向跟安装时相反。用两把扳手松钻头。

产品结构



油浸式优点

油浸式金刚石钻孔机是一种能在钢筋混凝土、砖石、岩石、陶瓷及耐火材料上钻孔的新型工具。适用于设备安装、水电安装、隧道等施工、安装领域。油浸式金刚石钻孔机齿轮油有良好的极压性，齿轮咬合时摩擦表面的温度达到足够高时，便与齿轮表面发生化学反应，生成临界剪切强度强的金属膜，防止齿轮咬合面出现磨损，大大提高了齿轮的使用寿命。齿轮油的承载能力高，有利于齿面保护。在最高工作温度时能保证齿轮的可靠润滑。良好的粘温性能即随着工作温度的变化，粘度变化小，足以保证在低温时具有足够的流动性，保证液体油带到齿面及轴承处，防止出现摩擦损伤。在高温时粘度不会降低太多，能形成足够厚的润滑油膜。

技术参数

产品规格	SCY-1520/3BS SCY-1520/3EBS 手持式	SCY-1520/3BS SCY-1520/3EBS 带支架	SCY-1780/3BS SCY-1780/3EBS 手持式	SCY-1780/3BS SCY-1780/3EBS 带支架	SCY-2020/3BS SCY-2020/3EBS 手持式	SCY-2020/3BS SCY-2020/3EBS 带支架
砖墙钻孔范围 mm	152	160	178	180	200	210
混凝土孔范围 mm	120	130	140	150	160	170
额定电压 V	110/220~	110/220~	110/220~	110/220~	110/220~	110/220~
额定频率 N	50-60Hz	50-60Hz	50-60Hz	50-60Hz	50-60Hz	50-60Hz
输入功率 W	1800	1800	1900	1900	2100	2100
对应转速 rpm	900/3900 100-900/3900		900/1900/3900 100-900/1900/3900		800/1790/3650 100-800/1790/3650	

为了不断改良产品，本公司保留对技术数据及零部件更改而无需事先通知的权利。

(警告：由于固定不牢，而导致的后果，本公司不负任何责任)

操作使用

要在空载状态下开动钻机，不允许带着负荷启动。启动以后，打开供水阀，当有水从钻头中流出时，方可开始下钻。手持式钻机，开孔时先将工具倾斜一定角度，在混凝土表面上钻成一月牙形槽，然后将钻机逐渐持成垂直，切忌左右摇晃，这会损坏钻头，开始时慢慢下钻，加力要轻而均匀，当钻头切进物体5mm左右深时可加大推力，进行正常钻孔作业（钻孔过程中一直要保持机器和所钻物体垂直）。在钻进过程中，发现电机转速明显降低时，表明是负荷运行，就立即适当减小进给压力，使转速达到钻孔的理想状态，如果发现电机冒烟，有异味，电刷打火应立即关机停息片刻再钻，以防电机过载而烧毁。当钻头切割到钢筋等异物而仍急于推进时，会使减速箱中的离合器瞬时打滑，过流保护开关跳开，工具停转。此时，应把钻头拉出施工孔，等约3分钟，待过流开关冷却后，再重新启动保护开关。

注意：钻孔时严禁无水作业，不得堵塞电机通风槽，保持电机通风冷却。

当钻头变钝时，可在砂轮或耐火砖上钻几下，可使钻头变得锋利。

钻机使用一段时间后机械保护装置的摩擦片磨损有可能出现松动，引起打滑，这时请从减速箱中取出离合器齿轮更换厚度统一的摩擦片，用公斤扳手拧紧螺母即可。然后将离合器齿轮装回齿轮箱中(最好有专业人员操作)。本机是通用型钻孔机，是干湿两用钻，如有水操作，应放在支架上使用，如无水则需把水圈卸下使用。

启动机器与停止机器：

请确保电压与铭牌上的电压一致，在连接电源前，请确认开关是关闭状态。

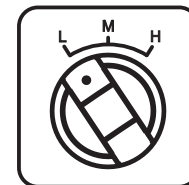
启动机器：启动和使用机器时，必须一手握住主手柄，一手握住辅助手柄，以保持平稳。启动机器时，按下触发开关，然后按下锁销。机器上有调速齿轮，向右转动时，速度增加。

关闭机器：按下触发开关，解锁，关闭机器。机器关闭后，柄轴仍会转动一会。小心，身体切勿接触钻头，机器未停止之前，请勿放下。

排档说明

为提高钻孔效率，机型设有三段式齿轮变速，分有高、中、低档位，高速档（H档）适用于小钻头和较软的材料；中速档（M档）适用于中号钻头和较硬的材料；低速档（L档）适用于大钻头和坚硬的材料。

- 机器在停止转动或行将停止状态下拨动拨钮变档。
- 机器在换档时必须换档到位，如果开机后发生主轴不转或有齿声，说明档位未挂到位，必须马上关闭开关，并再次拨动旋钮至所需档位，同时来回转动主轴（便于挂上档），有明显的挂档卡到位为止。
- 机器在全速运转，负载或卡住时，请勿变档。



L为低速档，H为高速档，M为中速档（三档机型），图示为低速档，

如果由低速档转到高速档则顺时针旋转旋钮，反之逆时针。

注意事项

- 1.使用前请确认电压伏特数，工作电压和额定电压高低相差不大于±5%，如有超过，将会造成马达烧毁与漏电事故的发生。
- 2.施工中请注意马达内部不能进水，或阻塞通风孔，以免降低马达的散热性能而烧毁马达。
- 3.施工前请确认钻孔位置之内是否有危险物，如高压线、煤气管道、水管电信管等。
- 4.钻机穿通地板施工时，请注意下层人员和物体之安全，梁柱转切时，注意建筑物结构之安全。
- 5.任何情况下，钻机应在空载状态下启动，禁止带负荷启动，以免损毁钻机或伤人，高空作业时，请注意钻机的稳固件，防止钻机掉下来。
- 6.电源线应使用符合安全规定的三芯橡皮电缆，保证接地线可靠接地同事所接的电源要有漏电保护功能。
- 7.不要过度使用，使用合适的机器更好更安全。
- 8.注意不可在尖顶上方钻孔。
- 9.使用的插座必须是保护插座，有些根据相关的规定还需要接地的。
- 10.定期检测一下漏电保护器是否能正常工作。
- 11.只能使用干净的水如果用脏水密封圈磨损更快。注意最大水量为3bar。

故障排除

故障	原因	排除方法
电机不转	电源不通，或接头松落	恢复电源，检查所有接头并拧紧
	碳刷卡住，脱开换向器	重新安装碳刷
	漏电保护器动作后未复位	按下复位按钮重新启动电机
	漏电保护器损坏	更换漏电保护器
钻孔太慢	钻头寿命已到	更换钻头
	进给压力太低	加大进给压力
	钻头刀头表面被细屑糊住	清洁钻头，加大水压
	转速太高	切换到低速档位
	切到粗钢筋打滑	进给压力减小，待穿过钢筋后再加大压力
	加工孔内积屑	清理孔底，加压
	水流不顺、漏水或无回流	检查进水球阀，检查水流
	钻头锋利度降低	使用耐火砖或砂轮重新开刃

故障	原因	排除方法
钻头卡住	钢筋皮或碎屑块卡在钻芯与钻头之间或钻头和孔壁之间机架固定不牢，产生位移	停止机器，利用扳手左右移动钻头，或拔出钻头敲碎钻心重新固定机架
	机架立柱与滑套间隙过大	调整滑套间隙
钻头壁磨损快	主轴不正	修理或更换主轴
	钻头不正	更换钻头
	钢筋或细屑无法排除孔外	改善水流，取出钻头，清洁孔内
水套漏水	骨架密封圈磨损或老化	更换骨架密封圈

维护与保养

注意：在进行机器维护前，一定要将机器的电源插头断开。

使用干净的抹布清洁机器，不可使用水来喷洗，确保机器电机和开关盒没有进水。确保通风孔畅通干净，清洁主轴丝扣并涂抹油脂并检查机器上所有的螺丝是否松懈并拧紧。

为了您的切身利益，请选用原厂配件。如果选用非原厂配件，将极有可能对操作者或机器本身产品伤害。

碳刷

机器累计工作300小时以后，应当检查碳刷是否需要更换。所有关于电机的维护应当由专业人员来完成。

质量保证

消费者购买本公司生产的机器六个月内，享受免费维护与保修服务。在正常使用下整机或配件发生任何制造工艺或元器件造成的产品故障，请凭发票正本，经销商盖章并填写保修凭证到本公司或本公司指定维修站享受免费服务。

机器易损件的正常磨损、过载、不按操作规程操作、自行拆卸造成的损坏以及因使用本公司以外的配件而造成的损坏，均不属于保修范围。保修期满后，由指定维修站提供有偿维修服务。维修记录必须经维修站盖章或签字才生效。

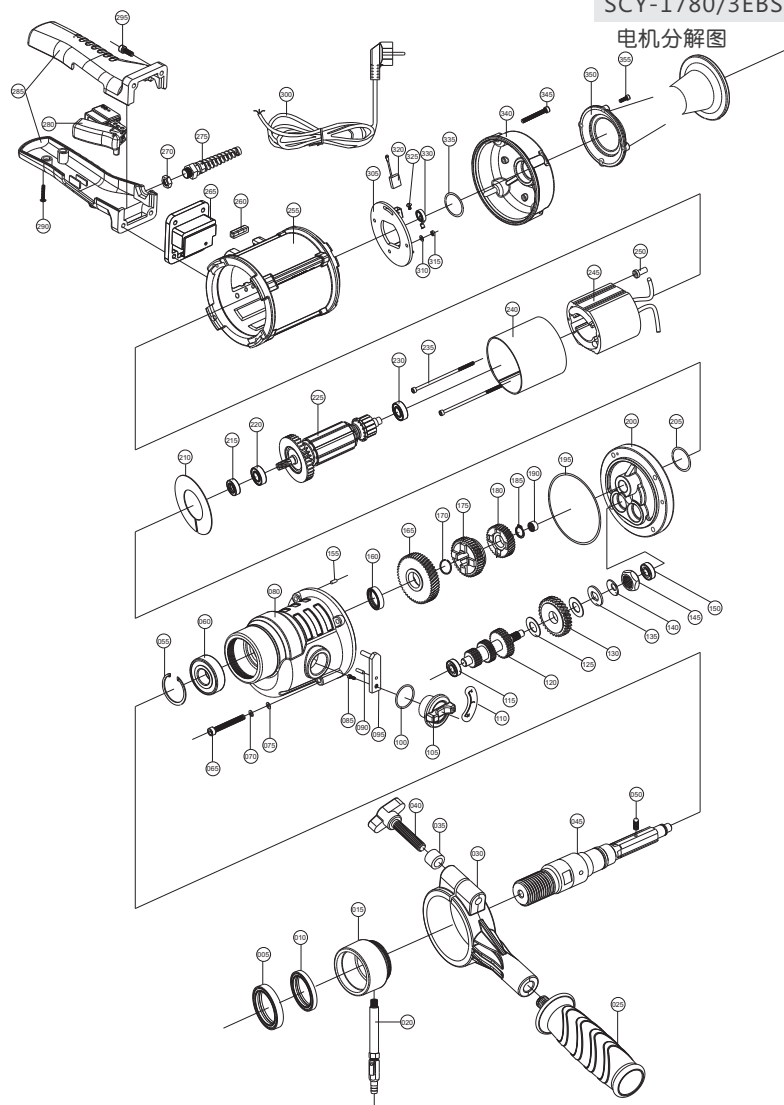
适用项目

本机适用于混凝土、石材、砖及柏油路面之取样，另外，管道工程，如冷气机、电器、水管、瓦斯管等等的钻孔。

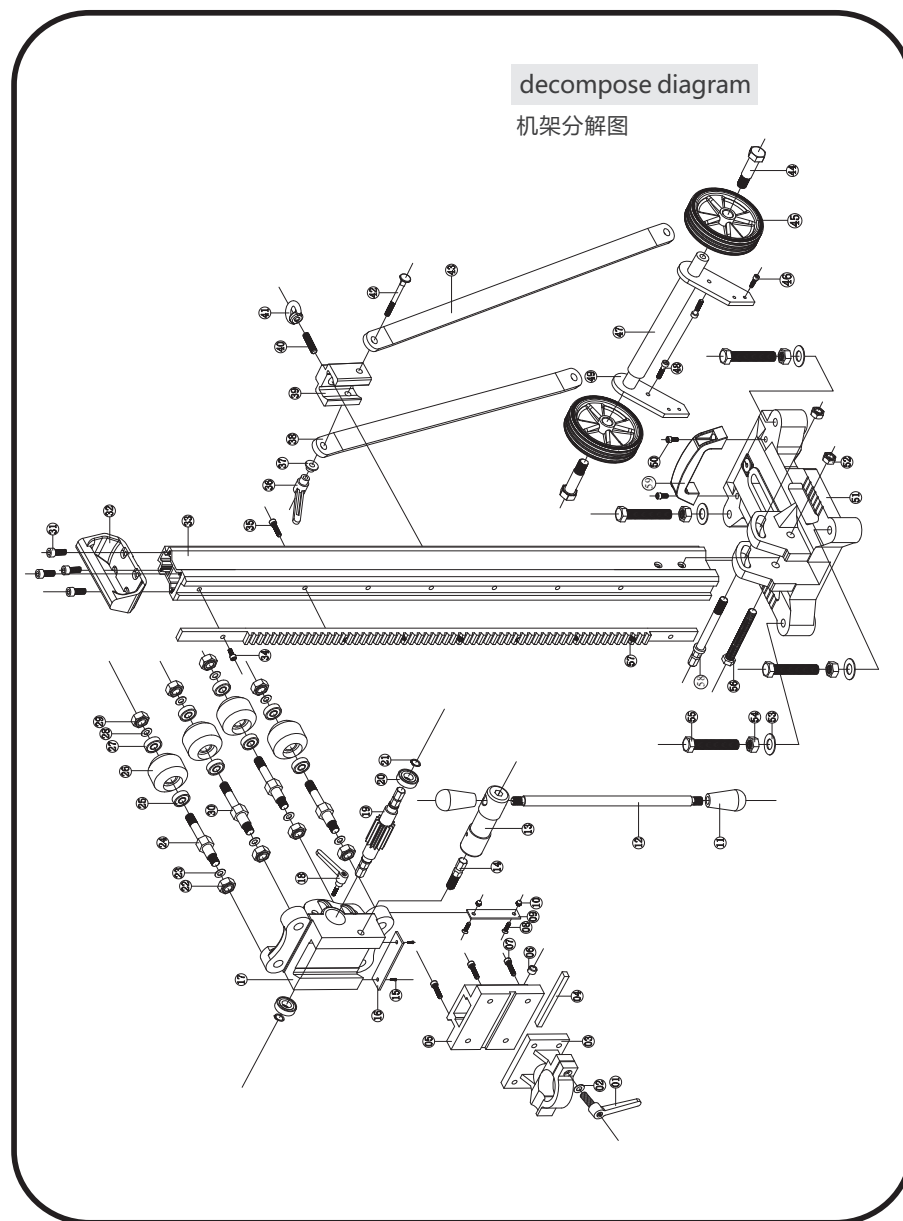
※为了不断改良产品，本公司保留对技术数据及零部件更改而无需事先通知的权利。

SCY-1780/3EBS

电机分解图



序号No.	名称 Parts Name	数量 QTY
005	油封38-47-7	1个
010	油封38-49-8	1个
015	水圈	1个
020	水龙头	1个
025	塑料手把	1个
030	夹箍	1个
035	小垫圈	1个
040	调紧螺丝	1个
045	主轴	1根
050	球头柱塞	1个
055	内卡	1个
060	6005轴承	1个
065	内六角螺丝 (M5*70-2, M5*45-2)	4个
070	垫片	4个
075	弹垫	4个
080	齿轮箱	1个
085	内六角螺丝 (M5*10)	1个
090	销子 (3*14)	1个
095	拨档块	1个
100	O型圈	1个
105	旋钮	1个
110	调速贴纸	1个
115	629轴承	1个
120	离合器轴	1个
125	铜片	2个
130	一级轮平板	1个
135	铁片	1个
140	弹垫	1个
145	螺帽	1个
150	608轴承	1个
155	销子 (4*12)	1个
160	油封 (22-35-7)	1个
165	大平板	1个
170	卡簧	1个
175	中速平板	1个
180	快速平板	1个
185	卡簧	1个
190	滚针	1个
195	O型圈	1个
200	中间盖	1个
205	O型圈	1个
210	挡风圈	1个
215	油封 (12-24-7)	1个
220	6001轴承	1个
225	转子	1个
230	6000轴承	1个
235	内六角螺丝 (4*100)	2个
240	定子内衬	1个
245	定子	1个
250	定子螺丝套	1个
255	定子壳	1个
260	水平仪	1个
265	过载器	1个
270	塑料螺帽	1个
275	防折弯接头	1个
280	电源开关	1个
285	塑料手把	1个
290	十字螺丝	4个
295	内六角螺丝 (M5*30)	4个
300	电源线	1根
305	电刷支架	1个
310	垫片	2个
315	防松螺帽	2个
320	电刷	2个
325	十字螺丝	2个
330	旁簧	2个
335	O型圈	1个
340	顶盖	1个
345	内六角螺丝 (M5*45)	4个
350	后托肩	1个
355	小内六角螺丝 (M4*16)	4个



序号No.	名称Parts name	数量 QTY
01	小滑片	1个
02	可调节把手	1个
03	垫片	1个
04	夹箍	1个
05	方销	1个
06	燕尾槽铝板	1个
07	圆销子套	1个
08	夹箍固定螺丝	4个
09	小滑片固定螺丝	2个
10	小滑片	1个
11	盖型螺帽	2个
12	胶木球	2个
13	摇杆	1个
14	内六角接头	1个
15	外六角紧固螺丝	1个
16	固定螺丝	2个
17	限位铁片	1个
18	升降器	1个
19	紧固扳手	1个
20	升降轴	1根
21	轴承	2个
22	卡簧	2个
23	螺帽	4个
24	垫片	4个
25	轮子轴	2根
26	轴承	4个
27	轮子	4个
28	轴承	4个
29	垫片	4个
30	防松螺帽	4个
31	偏心轮子轴	2根
32	手把固定螺丝	4个
33	手把	1个
34	铝合金方杆	1根
35	齿条固定螺丝	2个
36	齿条固定螺丝	4个
37	紧固扳手	1把
38	带台阶垫片	1个
39	大圆孔支撑杆	1根
40	小滑块	1块
41	螺丝杆	1根
42	不锈钢拉手	1个
43	马车螺丝	1个
44	方孔支撑杆	1个
45	轮子固定螺丝	2个
46	轮子	2个
47	铁片固定螺丝	4个
48	圆支撑杆	1根
49	支撑杆固定螺丝	2个
50	不规则铁片	2片
51	固定螺丝	2个
52	底座	1个
53	防松螺帽	2个
54	垫片	4个
55	螺帽	4个
56	底座螺丝	4个
57	方杆固定螺丝	1个
58	齿条	1根
59	外六角螺丝	1个
	胶木提手把	1个

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Operation Manual

WARNING

To prevent electric shock or fire, please strictly abide by the procedures in the operation manual.
The machine only for the specialized persons, please do not let other people to operate. If any violation of the instructions operation and cause personal injury or machine damage, our company disclaim all responsibility.
The machine can only maintain by the people who has the certification.

THANKS TO THE BUYER

Great thanks for buying the series of diamond drill of **CAYKEN**. Please read operation manual and must pay attention to safety precaution.
The right operation, will make you fully feel our products superior performance.
Please put this manual in a safe place for future reference.

ABOUT THIS MANUAL

The machine model of the description in this manual:

SCY: 1520-3BS/1520-3EBS

SCY: 1780-3BS/1780-3EBS

SCY: 2020-3BS/2020-3EBS



Confirm the machine model according to the nameplate.



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—、 Safety precaution

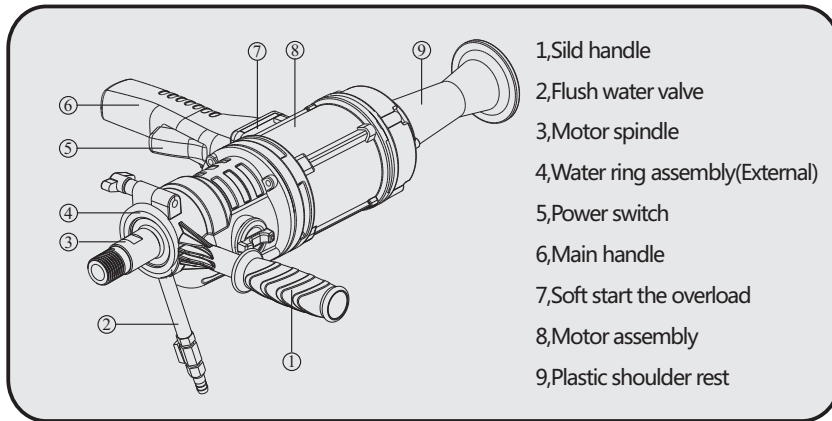
Read all precautions before operation and keep it forever.

Please follow the operating instruction strictly, failures in the compliance with these safety precautions and instructions can cause electric shock, fire and/or heavy injuries.

1. Keep your working area clean and well illuminated. Disorder or unilluminated working areas can cause accidents
2. Do not work in explosive ambiances with the electric tool, in which there are flammable liquid, gases or dusts. Electric tools generate sparks which can inflame the dust or vapors.
3. Keep children and other persons away from the electric tool while using it. When being distracted, you can lose the control on the device.
4. Be attentive, pay attention to what you do and go to work with the electric tool with reason. Do not use an electric tool when you are tired or under the influence of drugs, alcohol or pharmaceuticals. One moment of carelessness while using an electric tool can cause serious injuries.
5. Wear personal protective equipment and always goggles. The wearing of personal protective equipment, like dust mask, skid-proof shoes, protection helmet or hearing protection, depending on the kind and use of the electric tool reduces the risk of injuries.
6. Avoid unintended start up. Make sure that the electric tool is switched off before, connecting it to the mains and/or the battery, picking it up or carrying it. When you have your finger on the switch while carrying the electric tool or connect the device to the mains when it is switched on, this can cause accidents.
7. Remove adjusting tools or wrenches before switching on the electric tool. A tool or wrench which is located on a turning device can cause injuries.
8. Avoid abnormal posture. Care for safe standing and keep the balance anytime. Do not work on a ladder. Thus you can control the electric tool better in unexpected situations.
9. Wear suitable clothing. Do not wear wide clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Wide clothing, jewelry or long hair can be caught by moving parts.
10. Do not overload the device. Use the appropriate electric tool for your work. With the appropriate electric tool you work better and saver in the declared range of performance.
11. Do not use an electric tool whose switch is damaged. An electric tool which can not be switched on and off is dangerous and has to be repaired.
12. Unplug the plug from the socket and/or remove the battery before carrying out instrument settings, exchanging accessories or put the device aside. This safety measure avoids the unintended start of the electric tool.

13. Keep unused electric tools out of reach of children. Do not allow persons to use the device who are not familiar with it or have not read these instructions. Electric tools are dangerous if they are used by inexperienced persons.
14. Voltage: please be attention that the power voltage should be no more than + 5% of rated voltage. Higher voltages however can cause irreparable damages. Please note that when operating the machine via a generator, this does not generate higher voltage peaks.

二、 Product structure



Drilling - hand held :

- ▶ Wear hearing protection when operating the machine
- ▶ Use the additional handles that are supplied with the device
- ▶ Hold the handle while operating the machine

三、 Oil immersed advantages

Oil immersed type diamond drilling machine is a kind of drilling in the reinforced concrete, brick, stone, ceramic and refractory materials, New tools Suitable for equipment installation, installation of water and electricity, tunnels and other construction, installation. Oil immersed type diamond drilling machine gear oil has a very good pressure, gear meshing friction surface temperature is high enough, When, can react chemically with the gear surface, formation of metal film strength strong critical shear, preventing gear occlusal surface appearance.

The friction losses, greatly improving the service life of the gear. The carrying capacity of gear oil is high, is conducive to the tooth surface protection. At the highest. As temperature can guarantee the reliable lubrication of the gear. Viscosity temperature performance good with the variation of working temperature, low viscosity, To ensure a sufficient liquidity at low temperature, ensure the liquid oil to the tooth surface and bearing friction loss, prevent, Injury. In the high temperature viscosity does not decrease too much, can form a lubricating oil sufficiently thick film.

Attention: Our company does not assume any responsibility because the machine is not solid or fixed safety facilities are not in appropriate place cause accident.

四、 About this manual

Product model	SCY-1520/3BS SCY-1520/3EBS hand held	SCY-1520/3BS SCY-1520/3EBS in drill stand	SCY-1780/3BS SCY-1780/3EBS hand held	SCY-1780/3BS SCY-1780/3EBS in drill stand	SCY-2020/3BS SCY-2020/3EBS hand held	SCY-2020/3BS SCY-2020/3EBS in drill stand
Brick drilling range mm	152	160	178	180	200	210
Concrete drilling range mm	120	130	140	150	160	170
Rated voltage V	110/220~	110/220~	110/220~	110/220~	110/220~	110/220~
Rated frequency N	50-60Hz	50-60Hz	50-60Hz	50-60Hz	50-60Hz	50-60Hz
Rated input power W	1800	1800	19080	19080	2100	2100
Position speed rpm	900/3900 100-900/3900		900/1900/3900 100-900/1900/3900		800/1790/3650 100-800/1790/3650	

Notice: In order to constantly improve products, our company reserves the right to change technical data without prior inform.

五、 Safe operation

1. please ready the manual carefully before operation. This machine may only be used by trained people.
2. Please check the voltage before start, the power voltage should be no more than $\pm 5\%$ of rated voltage. Higher voltages however can cause damages such as motor burning and electric leakage.
3. Wear helmet, insulating gloves, labor suit. Do not wear wide clothing or jewelry, keep hair away from it in case of twist.
4. This machine is designed for wet drill bits, do not use other bits, and do not enlarge the motor load.
5. Pay attention that the water can't get into the motor, do not block the ventilation, in case of motor burning.

6. Check the workplace before operation, eliminate danger, such as high voltage power lines, gas piping water pipe and telecommunication facility and so on.
7. Pay attention to the safety of down layer if the machine should drill holes through floor. When drill on beam column, check the structure of building.
8. Do not work in explosive ambiances with the electric tool, in which there are flammable liquid, gases or dusts. Electric tools generate sparks which can inflame the dust or vapors.
9. Anyhow, the drill machine start to operate with no-load, starting with load is prohibited, or may cause damages to machine and users. Fix the machine well in case of dropping when working on high place.
10. Use high quality three-core cable and make sure the cable is connected with ground. A ground fault circuit interrupter is necessary.

六、Operation

1. The fixation of expansion bolt: Drill a hole by impact drill in the set position, screw the expansion bolt, make sure it is tight, fix the diamond drill machine on it, and adjust the four regulating screws to keep the drill machine from swinging.
2. The fixation of support rod : determine the drilling location, supporting rod, adjusting the length of the push rod, and adjust the fastening screws, so that the drilling rig substructure full contact face, and ensure the drill bit and drill vertical face ,no swing.
3. Fix the drill bit, connect the power and water supply, move adjusting tools, switch on when the drill machine is no load, check the drill bit and sound, if everything is fine, then open the water tap, the machine can start to drill when water flow from the drill bit.
4. Take it slow when at first, when the drill bit cut in the wall, change to normal speed. Slow down when the drill machine ran into steel.
5. Both mechanical and electronic protections exist in drill machine. When drilling, if the motor is working, while the drill bit is not moving, means the drill bit need sharpened or feeding speed is too fast, please pull out the drill bit then re-feed. If the motor stop short when drilling, please return on the machine and slow down the feed speed.
6. After using period of time, the abrasion of friction plate may cause slip. Please take the clutch gear out of gearbox and change friction plates to unified size, tight the screws. Then put the gear back to gearbox (This step should be done by trained person).

七、Instruction of shifting gear

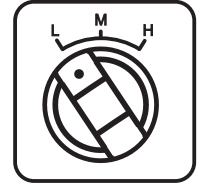
In order to improve the efficiency, some machines are designed with 2-speed gear shift, high speed(H speed) and low speed(L speed). H speed is for drilling on soft material with small drill bit , M speed is for drilling on hard material with medium drill bit, L speed is for drilling on hard material with large drill bit.

Shift when the machine stops or will stop.

Shift in place. If the spindle doesn' t rotate or there is somenoise after starting up, the gear may not shift in place. Turn off the machine immediately, and then shift the gear to proper place, rotate the spindle back and forth (easy to shift) at the same time till shift in place. Do not shift when the machine is full-speed operated, over load or stuck.

1. L is for low speed, H is for high speed and, M is for medium speed.

The drawing is for low speed. Low speed to high speed, turn the knob clockwise, otherwise, anti-clockwise.



八、Fault handing

Error	Cause	Solution
The Motor does not work	Power off, or plug loosed	Power up, plug in
	Carbon brush get stuck, and detach from diverter	Re-install carbon brush
	Reset PRCD failed	Push reset button or re-start the motor
	PRCD get damaged	Chang PRCD
Drill Slowly	Drill bit worn out	Change drill bit
	Feeding speed is too low	Accelerate feeding speed
	Drill bit was pasted by chips	Clean the drill bit, enhance water pressure
	Rotate speed is too high	Change to low speed
	Cutting on steel and slip	Reduce feeding speed, after cutting through the steel, increase it
	Too much chips in the hole	Clean the bottom of hole and enhance water pressure
	Less water supply or water leakage	Check the ball valve and the water flow
	Drill bit becoming glazed	Re-sharp the drill bit with grinder
Drill bit jam	The tube and drill bit or the drill bit and hole wall was jammed by chips The stand is not secured, move location	Switch off the machine, turn the drill bit right and left with wrench or pull the drill bit out and break up the core sample
	Rotate speed is too high	Re-fix the stand
	Cutting on steel and slip	Narrow the gap
Drill bit under cutting	Spindle is not straight	Repair or replace the spindle
	Drill bit is not straight	Replace the drill bit
	Chips can't be flushed out of the hole	Enhance water pressure, pull out the drill bit, clean the hole
Water jacket is leaking	The seal of skeleton is worn out	Change the seal

九、Maintenance

Warning: Always and on principle pull the mains plug before beginning with works of maintenance or repairs.

Clean the machine with a dry or moist cleaning-rag and not with a jet of water, make sure the water does not into the motor and switch box. Keep the ventilation apertures clean, do not forget to clean the core bit thread and grease it, get all screws checked and tighten. Have your tool only repaired by qualified personnel and only with original spare parts. Or else, it may cause damage to person or machine.

十、Carbon brush

After you have used the machine for about 300 hours you should check the carbon brushes for wear and replace them if necessary. Like any other work on the motor this must be done by an electrical specialist.

十一、Quality assurance

This product is covered by a guarantee for a period of 6 months from the date of purchase. The guarantee covers all defects or damages of the product during the guarantee period evidently due the defaults in workmanship or material and is limited to repair and/or adjustment. Please contact our company or authorized parties for free replacement or repair.

The guarantee is not valid in case of normally wear and tear, if the product has been misused, used contrary to the instruction manual, or by using extraneous parts. After warranty period, authorized parties have right to ask for payback for repair, the maintenance record effects with the stamp and signature of authorized party.

十二、Application field

This machine is applied for drilling holes in concrete, stone, masonry, and pipe work, such as air cooler, electric appliance, water pipe and gas pipe.

Notice: In order to constantly improve products, our company reserves the right to change technical data without prior inform.

