

INSTRUCTION MANUAL

BATTERY-OPERATED MAGNETIC BASE DRILLING MACHINE AMB 27/20-MV



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Content

1	General Information	3
2	Safety Information	4
3	Handling	13
4	Preparations.....	17
5	Machine Operation	23
6	Trouble-shooting	28
7	Maintenance and Service.....	29
8	Disposal.....	33
9	Technical Data	34
10	Declaration of Conformity.....	36

1 General Information

We hereby confirm that the tool described in this instruction manual complies with the basic safety and health requirements pursuant to the **EC Machinery Directive 2006/42/EC**, **Low Voltage Directive 2006/95/EC** and the **EMC Directive 2014/30/EC** relating to electromagnetic compatibility.

Keep this instruction manual in a place that all users of the tool are familiar with and can access easily. Read this manual carefully before using, maintaining, repairing or disposing of the tool. Make sure that you clearly understand the instructions and symbols explained in this manual or attached to any tools.

You can prevent accidents by adhering to the following basic safety advice pursuant to the EC Machinery Directive 2006/42/EC and the regulations for hand-operated tools. In any case inform yourself about and comply with the accident prevention regulations applicable in your country.

Do not remove existing labels and stickers, especially those containing legally required information.

Upon receiving the tool, make sure that the packaging is intact and the tool did not suffer any transportation damage. In case of damage, please contact HOLGER CLASEN's customer service at +49 (0) 40 511 28-0. Keep the packaging.

If operated correctly and if the required service intervals are adhered to, we grant a warranty of 12 months beginning as of the day of delivery unless legal regulations require other warranties.

Symbols used:

-  WARNING! Danger of injuries
-  WARNING! High voltage
-  Danger of hand injuries
-  Do not short-circuit the battery
-  Please wear safety goggles
-  Please wear protective clothes
-  Please wear safety shoes
-  IMPORTANT INFORMATION!
-  Don't dispose of in residual waste

Original instructions

Compliance with the following norms and directives:

DIN EN 60745-1:2009+A1:2010;
 DIN EN 60745-2-1:2010
 DIN EN 60335-1:2002 + A1:2004 + A2:2006;
 DIN EN 60335-2-29:2004 + A1:2004+A2:2010;
 DIN EN 62233:2008
 DIN EN 55014-1:2006+A1:2009+A2:2011
 DIN EN 55014-2:1997+A1:2001+A2:2008
 DIN EN 50581:2012

Machinery Directive 2006/42/EC
 EMC Directive 2014/30/EC:
 Low Voltage Directive 2006/95/EC
 RoHS Directive - 2011/65/EC

Stickers:

Serial number: punched
 Type label: manufacturer, CE-label, built, type designation, max. cutting range, LED indication
 Warnings

2 Safety Information

2.1 Intended Use

This battery-operated magnetic base drilling machine has been designed for drilling holes with broach cutters according to the technical data. The tool has been designed to be connected to a battery, 18 V technology.

Although this tool has been designed according to the state-of-the-art and recognized safety requirements, its use may constitute a potential threat to the life and limbs of its user or third parties or damage the tool or other material assets.



Use or application for purposes other than those intended by the manufacturer will be considered improper. HOLGER CLASEN will not be liable for damage resulting from improper use. The operator works at his own risk.

2.2 Qualification

This tool may only be used by qualified personnel who have read this safety advice and instruction manual.

2.3 General Safety Information

TO OPERATORS

Always wear Proper Clothing

- Do not wear loose clothing. Loose clothing can become caught in the drilling machine. This could cause severe injuries. Be careful that loose clothing does not come into contact with the machine.
- Wear non-skid footwear. If you lose your footing, you could contact moving portions of the machine. This could cause severe injuries. Always wear nonskid footwear and remain balanced when using the drilling machine.
- Be careful of long hair. Wear a hat or a hair net to contain long hair. Long hair can become caught in the drilling machine. This will cause severe injuries. Be careful that long hair does not come into contact with the drilling machine.

Always wear Suitable Eye Protection

- Always wear suitable eye protection. The operation of your drilling machine will cause flying chips and particles. These will cause severe eye injuries. You must always wear suitable eye protection.
- Not all glasses are suitable eye protection. Wear only suitable eye protection that comply with ANSI standards. Not all of the lenses are shock resistant. Ordinary glasses will not provide sufficient eye protection. Glasses only for visual correction are not appropriate to be used as safety glasses.

Always wear Suitable Hearing Protection

- Always wear suitable hearing protection. The operation of your drilling machine will cause big sound occurs. These will cause severe hearing loss injuries. You must always wear suitable hearing protection.

Always wear respiratory protective equipment (PPE).

- Always wear respiratory protective equipment (PPE) when working in an environment where dust particles are generated in operation.

Maintain good Posture

- Always wear non-skid footwear and maintain good posture. Do not use the drilling machine when you are tired. Fatigue or loss of balance could cause you to lose control of the machine. This could cause severe injuries. Always stay balanced. Always keep good posture. Stop using the machine if you are tired.

Never touch the Cutting Tip

- Never touch the moving or cutting tip. Contact with the moving tip will cause severe injuries. Always keep all parts of your body away from the cutting tip. Always keep your hand and clothing away from the cutting tip.

ABOUT THE WORK AREA

Keep Work Area clean

- Always keep your work area clean. Cluttered work areas cause accidents. Always keep clear of other objects.

- Never use the magnetic drilling machine when it is wet. Always use the drilling machine in a dry area. Do not use the drilling machine in the rain. If you use the machine when it is wet you can get electric shock. If you use the machine in the rain you can get an electric shock.

- Always use the drilling machine in a well-lighted area. Do not use the drilling machine in the dark.

- Avoid all flammable materials. Use of the drilling machine may cause a spark that could ignite a fire or an explosion. Never use the machine near any flammable material.

- Keep away from children. Always keep the drilling machine away from children. Do not operate drilling machine when children are present.

BEFORE OPERATION

Make sure that all parts are free from Damage

- Make sure that the drilling machine is in good operating condition. Operation of a damaged machine could result in severe injuries. If there is any damage to the machine, do not use the machine. If there is any damage to the machine, take it to HOLGER CLASEN for repair.

- Do not attempt service or repair of the drilling machine. All service or repair should be done by HOLGER CLASEN. When a failure is observed with the switch, request for repair to HOLGER CLASEN.

When a damage is observed with the power cord of the battery charger, request for repair HOLGER CLASEN. Do not use the machine that cannot be started or stopped by the start switch.

Secure your Work

- Always secure your work piece. Improperly mounted work can become loose. This can cause severe injuries. Always secure all work.

- Always use a vice or a clamp. Do not attempt to hold any work piece with your hand. Attempting to hold a work piece with your hand may cause severe injuries. Always use a vice or clamp to hold the work piece.

- Always secure your drilling machine. Improperly mounted drilling machine can come loose. This can cause severe injuries. Always secure the drilling machine.

Avoid Clutter

- Always stay clear of other objects. Cluttered work areas cause accidents. Always keep a clean work area and stay away from other objects. Always Remove Spanner Wrenches and Adjustment Tools
- Always remove spanner wrenches and adjustment tools after adjustments have been made to the drilling machine. Always remove all adjustment tools before using the drilling machine.

Always use a Cutter that is appropriate for your Work

- Always use a Cutter that is appropriate for your work. Avoid heavy-duty work that is beyond the capacity of your drilling machine. If the work exceeds the capacity of your drilling machine, this can cause accidents and severe injuries. Always use the drilling machine in accordance with its performance specifications.

SAFE HANDLING

- Never leave the magnetic drilling machine unattended while it is running. When the machine is unattended, disconnect the power source. Do not leave the work area until the machine comes to a complete stop. Operating the machine while it is unattended can cause accidents that may result in severe injuries.
- How to store the machine and battery pack. Store the machine and battery pack at a dry area under 50°C when not in use. Also, keep the machine and battery pack out of the reach of children.
- Pay attention when carrying the machine. Keep your hands away from the start switch when carrying the machine. Do not hold parts other than the handle to carry the machine.

MAINTENANCE

Do not take apart or modify your Magnetic Drilling Machine.

- Do not attempt to disassemble or modify your magnetic drilling machine.
- Do not modify your magnetic drilling machine. Modifications can cause accident and severe injuries.
- All service and repairs must be performed by HOLGER CLASEN. Any attempt to service or repair the machine yourself may result in an accident and severe injuries.

Check all Parts for Damage.

- Always inspect the magnetic drilling machine before use.
- Always check that the pilot pin and cutter are in good condition. Use of the machine with worn pilot pins or worn cutter can cause accidents and severe injuries.
- Inspect all cutters before you put them on the magnetic drilling machine.
- Do not operate the magnetic drilling machine with a damaged or worn cutter. Do not operate the machine with a damaged or worn pilot pin. Do not operate the machine with any damaged accessory. Operating the machine with any damaged part or accessory can cause accidents and severe injuries. If there is any damage to the magnetic drilling machine do not operate the machine. Take it to HOLGER CLASEN for repair.
- Always have the magnetic drilling machine repaired at HOLGER CLASEN. Always take the magnetic drilling machine to HOLGER CLASEN for service, repair and replacement parts.
- Always use genuine parts. The use of improper or non-origin parts can cause accidents and severe injuries. Never use unauthorized parts. To obtain genuine parts, contact your sales agent.

- Do not remove any nameplate from your magnetic drilling machine. Do not remove any labels from your magnetic drilling machine. If any label or nameplate is damaged contact your sales agent for a replacement.
- When damage is observed with the power cord of the battery charger, request for replacement at HOLGER CLASEN.



GENERAL POWER TOOL SAFETY WARNINGS WARNING

- Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in fire and 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.

Work area safety

- Keep work area clean and well lit. Cluttered or dark areas invite accidents.
- 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.
- Keep children and bystanders away while operating a power tool.

Electric safety

- Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.
- Do not expose power tools to rain or wet conditions.

Personal safety

- 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.
- Use personal protective equipment. Always wear eye protection.
- Prevent unintentional starting. Ensure the switch is in the off-position before connecting to battery pack, picking up or carrying the tool.
- Remove any adjusting wrench before turning the power tool on.
- Do not overreach. Keep proper footing and balance at all times.
- Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.

Power tool use and care

- Do not force the power tool. Use the correct power tool for your application.
- Do not use the power tool if the switch does not turn it on and off.
- Disconnect the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.

- 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.
- 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.
- Keep cutting tools sharp and clean.
- 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.

Battery tool use and care

- 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.
- Use power tools only with specifically designated battery packs. Use of any other battery packs may create a risk of injury and fire.
- 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.
- 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.

Service

- 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.
- Hold power tool by insulated gripping surface, when performing an operation where the cutting accessory may contact hidden wiring. Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and could give the operator an electric shock.

Drill safety warnings

- Wear ear protectors when impact drilling. Exposure to noise can cause hearing loss.
- Use auxiliary handle(s), if supplied with the tool. Loss of control can cause personal injury.



GENERAL SAFETY RULES FOR CORDLESS MACHINE WARNING

- Do not use the battery pack other than for the cordless machine. Use the battery charger and battery pack specified by HOLGER CLASEN described in the instruction manual and catalog. Use of a battery pack not specified by HOLGER CLASEN may cause machine failure, injury or damage.
- Do not use deteriorated battery pack. Use of deteriorated battery pack may cause liquid leak, heat generation or explosion of the battery.
- Use proper method for charging. Use a power source appropriate for the rated voltage of the battery charger. Do not use power source of direct current or engine generator. It may cause failure or fire.

Do not charge the battery pack when the temperature is less than 0°C or over 40°C. It may cause explosion or fire. Charge the battery pack at a well-ventilated area.

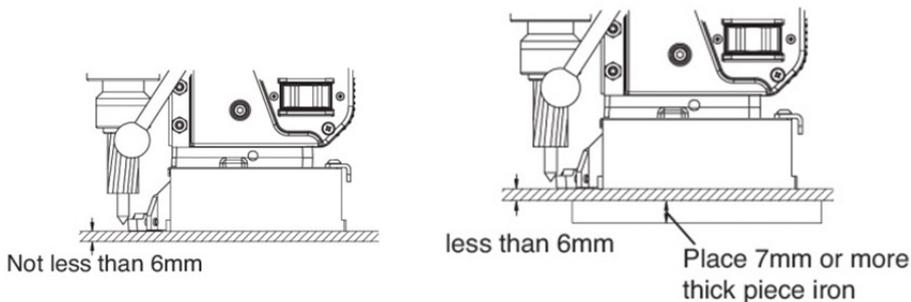
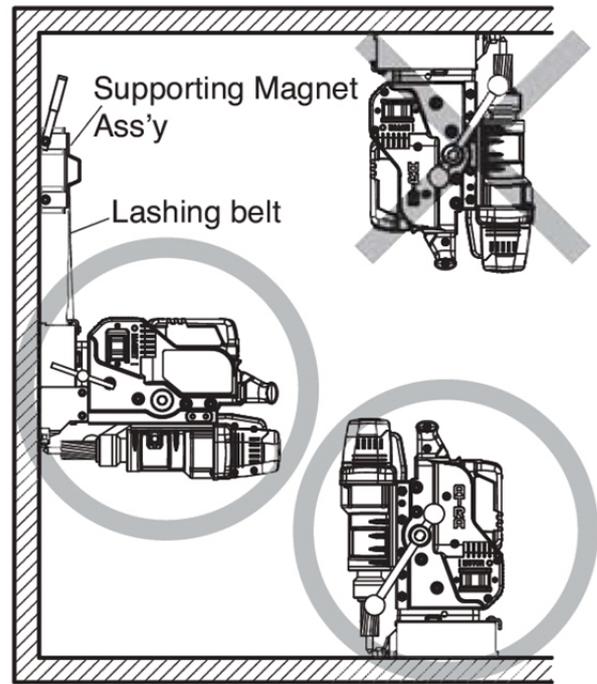
Do not cover the battery pack or battery charger with a cloth, etc. It may cause explosion, smoke or fire. When not in use, unplug the power supply plug of the battery charger from the electric outlet. Leaving the machine plugged may cause electric shock, smoke or fire.

- Do not use or charge at an area where there is flammable liquid or gas. It may cause smoke, ignition or explosion.
- Do not use or charge in rain or at damp or wet areas. It may cause electric shock or smoke.
- Do not short circuit between terminals of the battery pack. Short circuit by water, cutting chips and other conductive materials may cause smoke, ignition or explosion.
- Be careful of electric shock. Do not touch the power supply plug, terminals or their peripheral areas of the battery pack and battery charger with wet hands. It may cause electric shock.
- Turn the switch of the machine off and disconnect the battery pack from the machine in cases described:
 - when not in use or when repairing
 - when replacing accessories such as a drill,
 - when work is finished and storing the machine,
 - when other dangerous situation is assumed.
- Avoid abrupt starting. Check that the switch is turned off before attaching the battery pack. Do not touch the arbor or drill when attaching the battery pack.
- Use specified accessories and attachments. Use specified accessories and attachments described in this instruction manual and catalog. Use of other accessories and attachments may cause an accident or injury.
- Do not place the battery pack in fire. It may cause ignition or explosion.
- If the liquid of the battery pack leaks and gets into your eyes, do not rub your eyes but immediately wash your eyes with plenty of clean water such as tap water and consult with a medical doctor.
- If the liquid of the battery pack leaks and comes into contact with your skin or clothing, immediately wash with plenty of clean water and consult with a medical doctor since it may cause skin infection or injury.
- Pay attention that the battery pack is clean from chips and dust. Prevent chips to fall on the battery pack when working. Do not leave the battery pack where chips or dust accumulate when the battery pack is not in use. Clean off chips and dust when storing the battery pack and store it separately from metal parts. Do not stick a nail or apply strong impact to the battery pack.
- Do not apply heat or high pressure to the battery pack by putting it in a microwave or in a pressurized container.
- Immediately move the battery pack away from fire when any leaking or smell is identified.
- Do not use the battery pack for other devices.
- Stop charging the battery pack when charging is not completed even after the specified charging time is significantly exceeded.
- Do not use the battery pack that has external damage or significant deformation.
- Do not use at areas where strong static electricity is generated.



ABOUT YOUR PORTABLE MAGNETIC DRILLING MACHINE WARNING

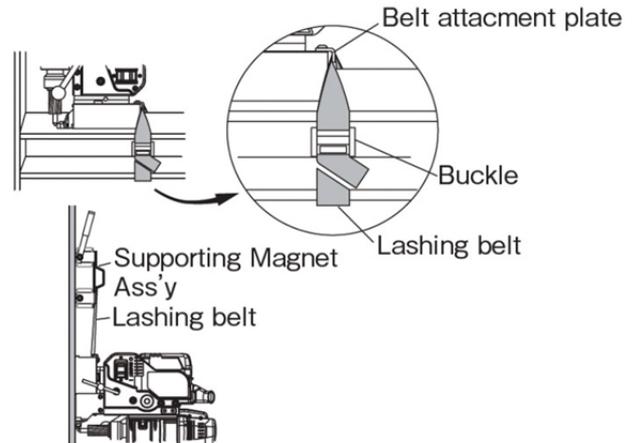
- Do not use the power supply for the engine powered welder.
- Do not operate on the ceiling.
The tool should be operated on a horizontal place or the wall (vertically). Do not operate the tool on the ceiling (upside down). Never use this unit at the work on ceiling (upside down).
- **Minimum workpiece thickness of 6mm.**
If a workpiece is not thick enough, it will weaken the magnetism, preventing proper operation due to the slipping or lifting from the workpiece. When drilling a workpiece of insufficient thickness, it is recommended that a piece of iron, approximately 7mm thick and somewhat larger in size than that of the Magnet, be placed on the reverse side of the workpiece.



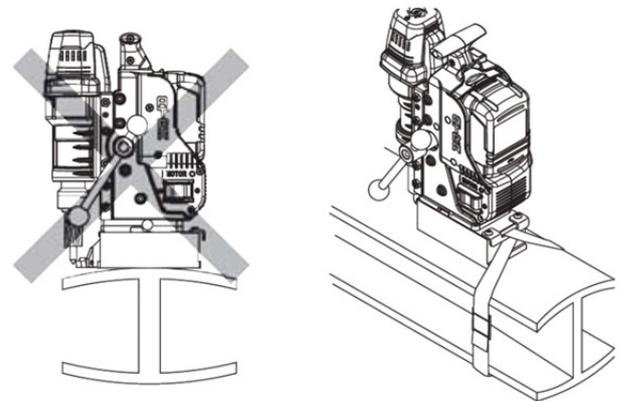
- Clean the adhesion surface of the Magnet and the surface of the workpiece. Any gaps between the adhesion surface of the Magnet and the surface of the workpiece will weaken the adhesive power of the Magnet and may cause the tool to swing around. Therefore the surfaces should always be kept clean and free from metal chips, bumps and depressions or rust. Also, do not place the Magnet over holes as this will also weaken the adhesion.

- Provide fall prevention using lashing belt.

Attach the lashing belt attached to the belt attachment plate of the machine and fix the work piece to prevent drop or fall of the machine due to working in high places or wall surface or because of lifting of magnet by low voltage of the battery pack, etc. Use the Supporting Magnet Ass'y (optional) for fall prevention of the machine when the lashing belt cannot be wrapped around the work piece due to its large size. Properly fix the lashing belt using the buckle to prevent loosening of the belt lashing.



- Align the Magnet parallel to the length of the workpiece. Since the surface of an H-section is normally curved as shown, the Magnet should be placed parallel to the length of the workpiece to ensure good adhesion and safe working. Insecure magnetic adhesion is the cause of cutter damage and unexpected accidents.



- Do not touch the rotating cutter or swarf with your hands, body, gloves, hair or clothes.
- **Beware of slag being ejected when a hole is finished.** Wear protective gear since slag (metal chips) is ejected with great force when a hole is finished. Do not allow unprotected people to approach the work site. When working in high places, make sure there is no one underneath and be very careful of falling slag. The slag is hot, do not touch it with bare hands.
- **When clearing away metal chips, set the Magnet Switch to Off.** Do not touch the chips with your hands, use a rod such as a screwdriver to remove them.
- When replacing cutters, do not touch the cutting blades with bare hands.
- **You must use a Pilot Pin which matches the cutter.** Pilot Pins differ according to cutter type, diameter and length (depth). An accident may be caused if the cutter and Pilot Pin combination is wrong. Refer to item 6-3 cutter and Pilot Pin Combinations.
- **Do not use Cutting Oil for other purposes.** Refer to chapter 4.6 Preparing the Cutting Oil.
- **Do not remove labels or name plates from the tool.** Contact the sales agent from whom you purchased the tool or an authorized dealer if a label or name plate is damaged or missing.
- When you put the machine back to the carrying case, please make sure to let out the cutting oil from Oil Tank.



Caution

Non-magnetic (aluminum, stainless steel, copper alloy, etc.) workpiece cannot be used since the Magnet will have no adhesion to it.

- Do not apply excess force on feed during manual drilling. HI-BROACH and JETBROACH have thin cutter blades with lower cutting resistance than twist drills. Therefore they should not be fed forcibly manual drilling. Be careful because if more than necessary force is used the cutters will be damaged and their useful life will be shortened.
- Never touch the drill after attaching the battery pack to the machine.
- Make sure that nobody is underneath the work area when working in high places.
- Securely attach the battery pack.
- Do not discard the battery pack with normal garbage or place in fire.
- Keep the battery pack out of the reach of children.
- Use the battery pack properly following the indicated specifications.



WARNING

This machine is not water proof. Use the machine following the description below. - Immediately wipe the electric drill or the machine when any liquid such as cutting fluid or water is applied.

- Do not operate with wet hand.
- Do not use in rain.



CAUTION

Do not force feed the cutter while drilling manually.

- Jetbroach and Hi-Broach cutters use a reduced wall thickness to minimize cutting resistance, resulting in faster hole productivity and less shavings. Pressure required to feed a Jetbroach or Hi-Broach cutter is far less than that of a twist drill bit; if too much pressure is applied to the cutter, life and or breakage may result.
- The color of LED changes according to the load of the electric drill. Use it with LED in green or yellow. LED turns green or yellow when the load of the electric drill is in normal condition and turns or blinks in red when it is in overload condition. Decrease the feeding rate of the drill when LED is turned or blinking in red since the electric drill is in overload condition and obtain a load with LED in green or yellow when drilling.
- The power of the electric drill drops when excessive load is applied to the electric drill and LED starts blinking rapidly in red. When load is applied continuously, the machine will automatically stop and LED will start blinking in white. When further load is applied to the electric drill even when LED is turned or blinking in red, the power of the electric drill drops to protect the electric drill and battery pack. The electric drill returns to normal operation when the load is decreased before it stops automatically due to overload. If the electric drill stops automatically, turn the switch off and then turn the switch back on to continue the operation.
- Store the machine by keeping the electric drill at lowered position when not in use. The machine may fall when stored with the electric drill at a lifted position.
- When energized, the magnet may exhibit a buzzing sound or a slight hum.

3 Handling

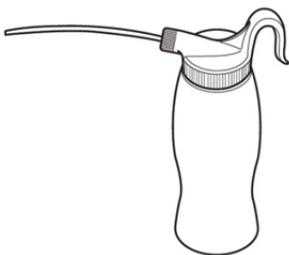
3.1 Check the Contents of the Package

Check the contents and make sure that the tool is not damaged due to an accident during the transportation, if any. The contents should correspond to the list as follows. Just in case there are some damaged or missing parts, contact the sales agent from whom you purchased the tool or an authorized dealer.

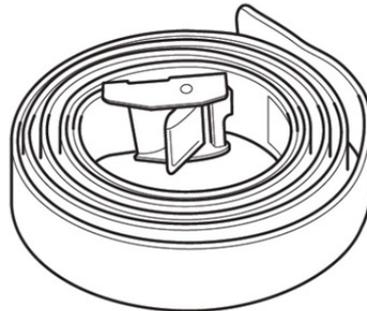
Content	Pcs.	Check
AMB27/20-MV	1 set	
Hex. Socket Screw Key 3	1	
Hex. Socket Screw Key 4	1	
Spanner 8×10	1	
Battery Charger	1 set	
Battery Pack	2 set	
Tube 4×7	1	

Content	Pcs.	Check
Cutting Oil 0.5 l Can	1	
Handle Assy	1	
Lashing belt	1	
Jet Oiler (No.3013)	1	
Instruction Manual	1	
Guard	1	
Hex. Socket Set Screw 8×28		
Hex. Socket Head Cap Screw 5×12	1	
Blade	1	
Cutting Oil 0.5 l Can	1	

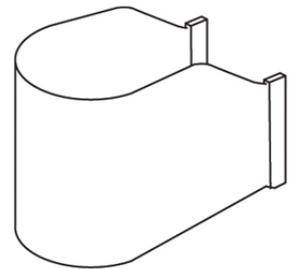
Jet Oiler



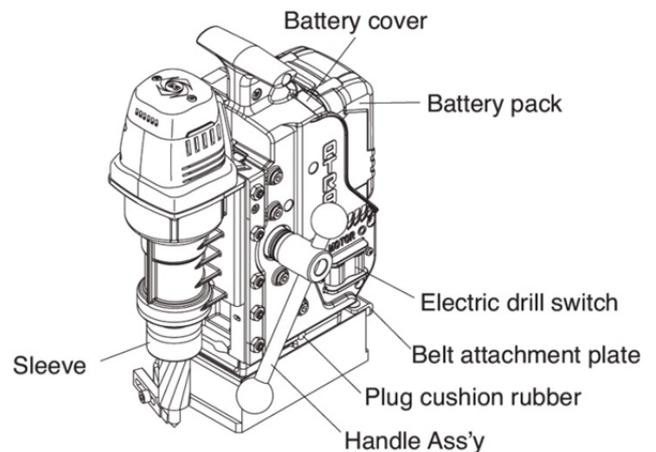
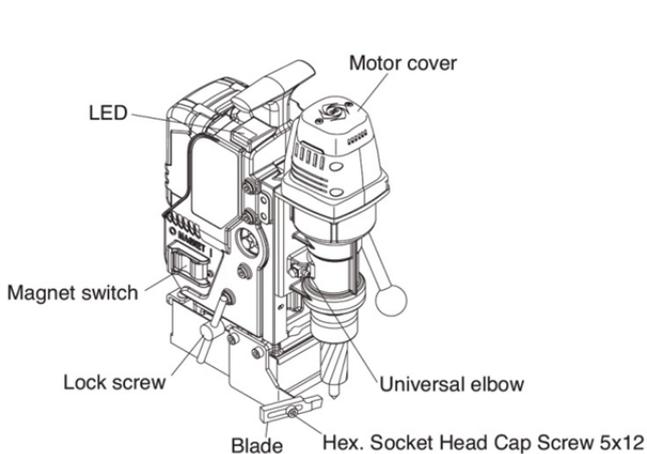
Lashing belt

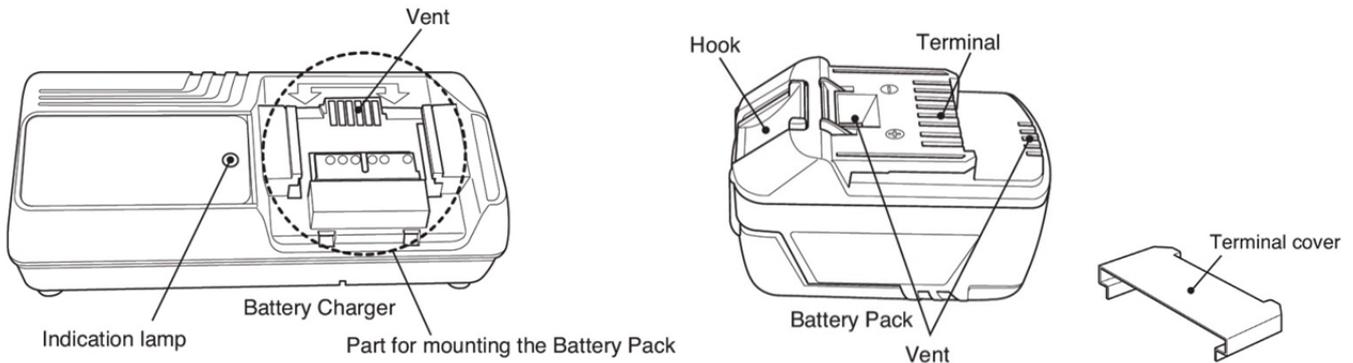


Guard



3.2 Name of Parts





3.3 Electronic Control Functions

(1) Load Detection Function

Functions below automatically perform when overload is generated at drilling. Load condition of the electric drill is indicated by turning on or blinking of LED.

(2) Battery Remaining Power Display Function

LED blinks three times in a color according to the remaining power of the battery right after the magnet switch is turned on.

LED	Load Condition
Green ●	Normal
Yellow ●	Normal
Red ●	Overload
Red ●*	Overload
Red ●* (Rapid)	During automatic stop function control Returns to normal control when load is released
White ●*	Overload automatic stop Operation continues when the electric drill switch is turned off and turned back on.

- Turned on
- * Blink

LED	Battery remaining Power Condition
Green ●*	Approximately fully charged
Yellow ●*	Remaining power has decreased slightly
Red ●*	Remaining power has decreased significantly. Replace the battery pack to a charged battery pack.

(3) Magnetic Force Control Function

Magnetic force is controlled when the electric drill is not operating with the magnet switch turned on to reduce unnecessary electricity consumption and maintain appropriate magnetic force.



CAUTION

The magnetic force drops completely when voltage of the battery pack decreases to a certain level and may cause the machine to fall. Turn the magnet "OFF" when finished with the machine to preserve battery life.

(4) Various Safety Functions and Error Detection Functions

LED indication is displayed as described in the table below according to the contents of safety functions and error detection functions.

Funktion Name LED	Description of function and countermeasure
Restart prevention function Green ●	Magnet adhesion operates even when the magnet switch is turned on in a condition where the electric drill switch is turned on or even when the battery pack is attached in a condition where the magnet switch and electric drill switch are turned on. However, the electric drill will not operate for safety and LED blinks in green. Turn the electric drill switch off and then turn the switch back on to continue the operation.
Warning function Red ● (Rapid)	Warning function is activated in operations described below for safety. - When the magnet switch is turned on in a condition where the battery pack is attached and the battery cover is open (condition where it is pushed toward the main body). Make sure to draw the battery cover toward the battery pack before starting the operation. - When the battery cover is pushed toward the main body to detach the battery pack before turning the magnet switch off - Make sure to detach the battery pack after turning the magnet switch off.
Magnet wire disconnection detection function Yellow ●	The electric drill will not operate and LED blinks in yellow when abnormality is generated with the magnet. Request for repair to HOLGER CLASEN.
Lateral slip detection function Blue ●	The electric drill stops and LED blinks in blue when lateral slip is generated with the magnet or abnormality such as wire disconnection is detected with the lateral slip detection device during drilling. Turn the magnet switch off and then turn the switch back on to continue the operation. When LED is blinking in blue and the electric drill does not start right after the magnet switch is turned on, the lateral slip detection function is defective. Request for repair to HOLGER CLASEN.
Electric drill overload stop function White ●	The electric drill stops and LED blinks in white when overload is applied and stops the electric drill during drilling. Turn the electric drill switch off and then turn the switch back on to continue the operation.
Remaining battery power drop detection function Red ●	LED blinks in red when the remaining battery power drops in a condition where the magnet switch is turned on. Turn the magnet switch off and immediately charge the battery pack.
Electric drill circuit abnormality detection function Red ↔ Green ● ●	LED blinks in red and green alternately when the control circuit of the electric drill is defective. Request for repair to HOLGER CLASEN.
Wasteful operation warning function Green ● (Rapid)	When no operation is performed for a certain amount of time after the magnet switch is turned on or when no load is applied for a certain amount of time after the electric drill is started, it will be taken as wasteful operation and stops the electric drill with LED blinking rapidly in green to draw attention. The indication is stopped by starting the electric drill or applying load.

- Turned on
- Blink

3.4 Charging Method



WARNING

- Charge at an area where the temperature is between 0°C to 40°C.
- Check the specification of the power source before plugging the supply plug to the electric outlet. Do not connect to power sources with other voltage.
- Do not charge a battery pack other than the specified battery pack.
- Before attaching the battery pack to the battery charger, check that the battery pack and battery charger is clean from conductive cutting chips and water.

(1) Plug the power supply plug in the electric outlet.

The charging condition indication lamp changes to green → red → yellow.

(2) Attach the battery pack to the battery charger.

The charging condition indication lamp changes according to the status as described below after attachment.

Changing condition indication lamp	Battery charger condition
Green ●	Waiting for charging
Red ●	Charging
Green ● + Buzzer	Charging completed. Buzzer is activated for few seconds to notify the completion of charging.
Red ●	Standby for charging due to high temperature of the battery pack. Charging will start automatically when the battery pack is cooled by internal fan and the temperature is lowered.
Orange ●	Cannot start charging due to defect in the battery pack. Replace with a new battery pack.

- Turned on
- Blink

(3) Detach the battery pack after charging and unplug the power supply plug from the electric outlet.

4 Preparations



WARNING

Turn the magnet switch off and detach the battery pack from the machine when preparing.

4.1 Attaching handle Ass'y

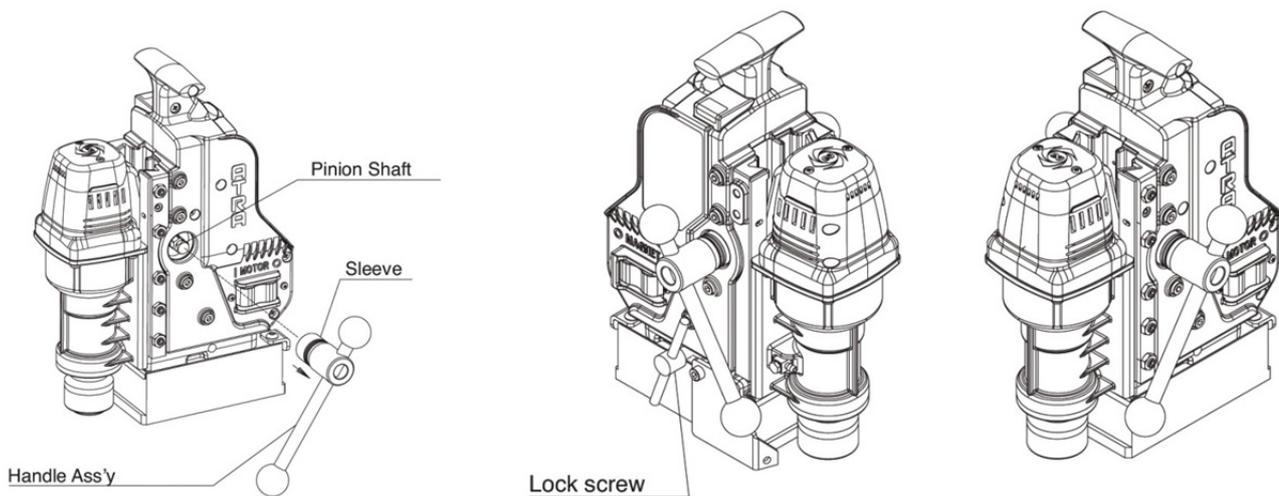
Attachment and detachment of handle Ass'y

(1) How to attach the handle Ass'y

- Insert the sleeve of the handle Ass'y in the pinion shaft while the sleeve is pulled toward the handle.
- After it is attached, check that the handle Ass'y will not be detached before use.
 - * The handle Ass'y can be attached on either right or left of the machine.
 - * When the handle Ass'y interferes with the lock screw, attach the lock screw on the opposite side of the handle Ass'y. Refer to 7-2-(3) Aligning with Punch Mark for attaching the lock screw.

(2) How to detach the handle Ass'y

- The handle Ass'y can be detached by pulling the sleeve of the handle Ass'y toward the handle.



4.2 Cutter Usage



CAUTION

Cutters other than one-touch type can't be used.
For better working and greater safety, do not use worn or broken cutters.
When you need one-touch type cutters or accessories, refer to Accessories.

4.3 Cutter and Pilot Pin Combinations



WARNING

You must use a Pilot Pin which matches the cutter.
Pilot Pins differ according to cutter type, diameter, and length (depth).
An accident may be caused if the cutter and Pilot Pin combination is wrong.

Pilot Pin	HI-BROACH Cutters
06025 PN : TK01167 	HBO 12 to 17mm dia. Depth 25 mm
08025 PN : TJ12696 	HBO 17.5 to 27mm dia. Depth 25 mm
Pilot Pin	JETBROACH Cutters
06025 PN : TK01167 	JBO 12 to 17mm dia. Depth 25 mm
08035 PN : TJ15859 	JBO 17.5 to 27mm dia. Depth 35 mm

Match the appropriate Pilot Pin to the cutter which is to be used.

Pilot Pins differ according to the type, diameter and length (depth) of the cutter.

If the cutter and Pilot Pin combination is wrong, the cutter will be damaged due to failure to eject the slag (metal chip) or poor Cutting Oil supply.

Unspecified usage not only significantly reduces the life of the cutter but also damage the cutter and lead to unexpected accidents.

4.4 Mounting and Dismounting the Cutter



WARNING

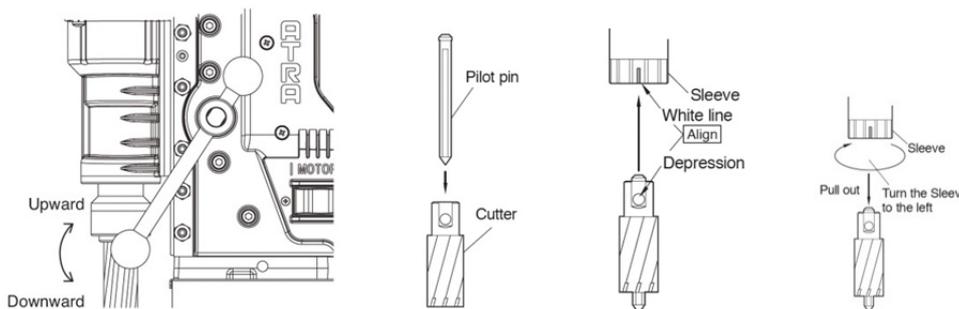
Do not touch cutting blades with bare hands.
Wear safety gloves.



CAUTION

Pay attention to prevent cutting chips entering in the drill insertion area.
When cutting chips have entered the drill insertion area, make sure to remove the cutting chips before attaching the drill.

- (1) Raise the Drill Motor by turning the Handle Ass'y.
- (2) Take the Pilot Pin which suits the size of cutter to be used and insert the Pilot Pin in the cutter.
- (3) Align the depression in the cutter with the white line on the Sleeve and insert the cutter. When the cutter is pushed right in, the Sleeve can be turned to the right and will lock into place with a click.
If the cutter will not go in, turn the Sleeve to the left and try again.
- (4) To remove the cutter, turn the Sleeve to the left and pull out the cutter.



4.5 Preparation of Chip Breakers



WARNING

Set the Chip Breaker so that the tips of the blade may not interfere with the cutter both at the top and bottom in setting up the Chip Breaker.

Make sure that no gap is created between the magnet adhesion surface and work piece due to the force of blade applied to the work piece.

The magnetic force significantly drops and is dangerous when there is a gap between the work piece and the magnet adhesion area.



CAUTION

Cutting performance deteriorates and the drill may get damaged or the service life decreases when the chip breaker is not properly used.

Chip Breaker is to shred down cutting chips in randomly short length that are produced during the drilling operation for easy discharge of the succeeding cutting chips.

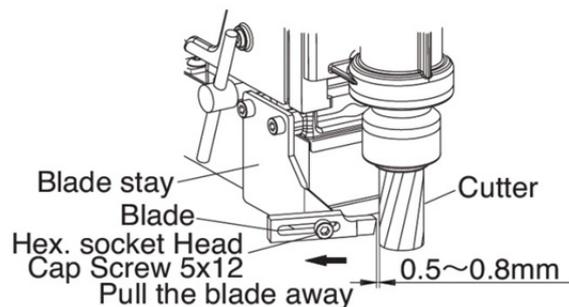
Setting the blade

(1) Mounting the cutter

Loosen the Hex. Socket Head Cap Screw and retract the Blade in the arrow direction until it cannot retract any further, and then mount the cutter.

(2) Setting the blade

Set the Blade with the gap between the cutter and tip of the blade being 0.5 mm to 0.8 mm, securely mount it on the Blade Base with the hex. socket head cap screw.



4.6 Preparing the Cutting Oil



WARNING

Safety Notes on Cutting Oil should be observed.

(1) Application and Usage Limitations

Use only as cutting fluid. Not for use in ordinary households.

(2) Precautions on Handling Cutting Oil

- This liquid contains amines. It should not be mixed with rust preventives containing nitrite.
- May cause inflammation if it enters the eyes.
- Protective eye-wear should be used when handling to prevent entry into the eyes.
- Skin contact may cause inflammation. Protective gloves should be worn when handling to prevent contact with the skin.
- May cause discomfort if mist or vapor is inhaled. Breathing apparatus should be used when handling so that mist or vapor should not be inhaled.
- Dilution should be carried out in accordance with the Instruction Manuals.
- Keep it out of reach of children.
- Do not drink it.

(3) Emergency Treatment

If it has entered eyes, immediately open the eyelids as wide as possible and wash thoroughly with water for at least 15 minutes. If there is inflammation, consult a physician and follow the instructions.

If it has contacted the skin, wash immediately with soap and water. Soiled clothing should be removed and laundered thoroughly before re-use. If there is inflammation, consult a physician and follow the instructions.

If mist or vapor has been inhaled, immediately transfer the patient to fresh air, cover his/her body with a blanket and keep warm and quiet. Consult a physician and follow the instructions.

If it has been ingested, immediately give copious water and induce vomiting. Consult a physician and follow the instructions. If the patient is unconscious, do not administer water or induce vomiting.

(4) In Case of Fire

For a fire in the vicinity, wear protective equipment and extinguish the fire approaching from the windward side with foam, powder or CO₂ fire extinguishers.

(5) Method of Storage

Seal after use to prevent admixture with dirt and/or water.
Store in a cool, dark place away from direct sunlight and rain.

(6) Method of Disposal

Disposal of undiluted and diluted fluid should be handled as waste fluid in accordance with the law by a waste disposal specialist.

Wash water should be treated by pH adjustment, flocculation and settling, activated sludge treatment, activated carbon absorption, etc., and discharged in accordance with municipal standards.

Since empty containers contain dregs, they should be handled with care.

(7) Other

If transferred to other containers for use, the names of chemicals used in the workplace and the labeled contents should be displayed and kept together with the manuals ready for immediate perusal.

Anyone wishing to have further details may request product safety data sheets from manufacturer.

The inscribed details are based on currently available information and data and updated by new knowledge.

Items to be noted are aimed at normal handling. Where special handling is involved, safety measures appropriate to the application and method of handling should be implemented.

The inscribed details are submitted for your information and do not imply assurances or acceptance of responsibility.

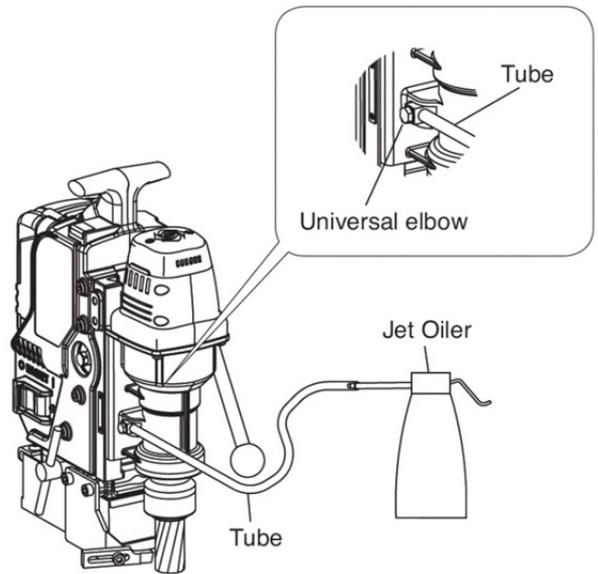


CAUTION

Use genuine blue Cutting Oil. Cutting performance and life may be reduced when other Cutting Oils are used.

Dilute the Cutting Oil in the proportion of eight to ten times with tap water.
Do not use well water for dilution.

Put the cutting oil in the supplied jet oiler and connect to the universal elbow of the machine using a tube of 4 × 7 × 1000.



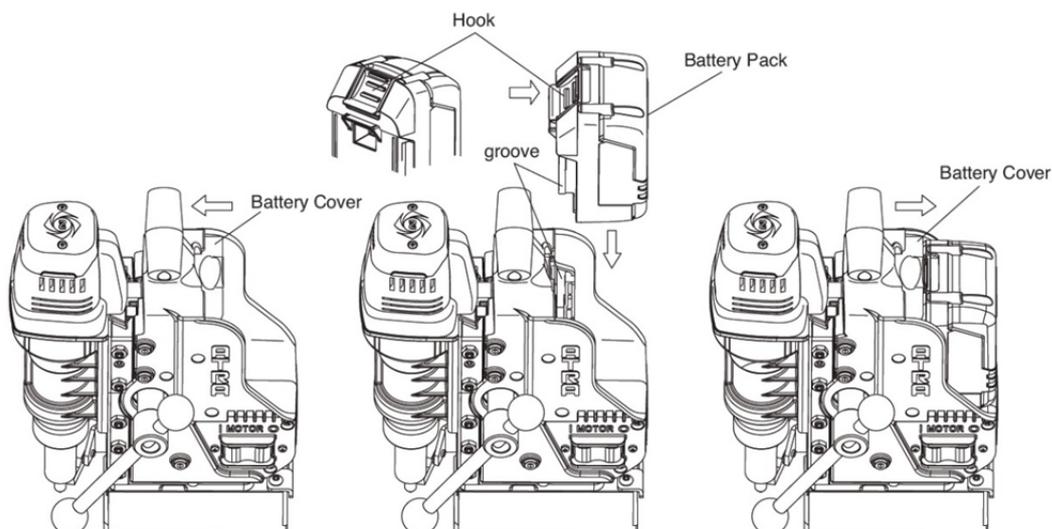
4.7 Attachment of Battery Pack



WARNING

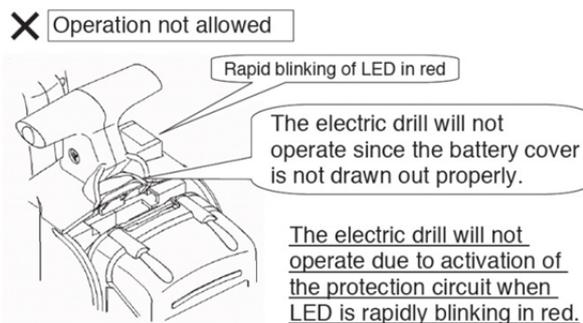
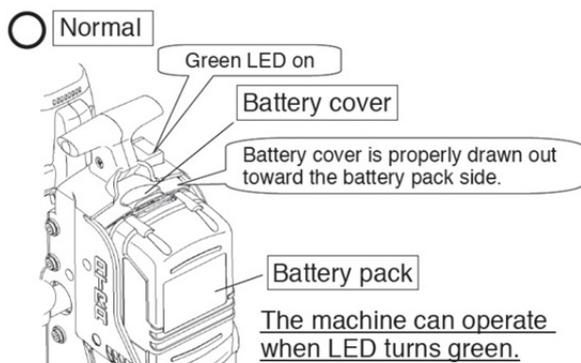
Check that there is no cutting chips or water on the battery pack and machine before attaching the battery pack.
Securely attach the battery pack.

- (1) Check that the magnet switch and electric drill switch are turned off.
- (2) Push the battery cover toward the main body.
- (3) Attach along the groove of the machine while pressing the hook of the battery pack. Make sure to check that it is locked with a clicking sound and check that it does not get detached.
- (4) Draw the battery cover out toward the battery pack and cover the battery pack.



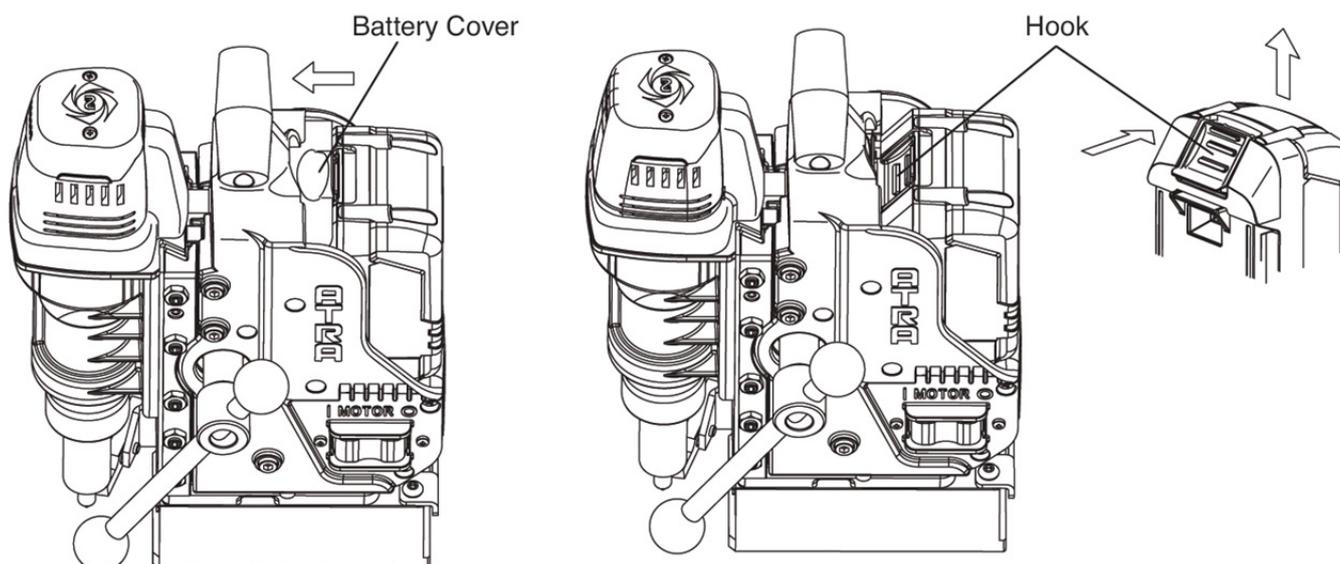
CAUTION

Be sure to pull out a Battery cover to the Battery pack side after attaching a Battery pack. If the battery cover is not pulled out to a predetermined position, the electric drill does not operate by the protection circuit.



4.8 Detachment of Battery Pack

- (1) Check that the magnet switch and electric drill switch are turned off.
- (2) Push the battery cover toward the main body.
- (3) Pull upward the battery pack while pressing the hook



5 Machine Operation



WARNING

Wear the safety goggle while working. If much dust is produced, wear a dust mask.

Do not wear gloves. Wearing of gloves may cause the hand to be caught in the rotating drill or cutting chips.

Oil smoke will be generated during the drill by cutting heat. Wear a mask.

Do not use a hard object such as a screw driver to operate the electric drill switch. It may damage the switch and cause failure.

Make sure to provide drop prevention to the main body using lashing belt when working in high places or wall surface.

5.1 Starting and Stopping



CAUTION

The electric drill will not rotate when the battery cover is not completely drawn out toward the battery pack (chapter 6.8).

The electric drill will not rotate with the electric drill switch operation unless the magnet is turned on.

(1) Starting

Magnet switch ON

When the magnet switch is turned on, the magnet starts the adhesion and LED turns white momentarily. After that, LED indicates the remaining power of the battery (blinks three times).

Battery Remaining Power Display Function

LED	Battery remaining Power Condition
Green 	Approximately fully charged
Yellow 	Remaining power has decreased slightly
Red 	Remaining power has decreased significantly. Replace the battery pack to a charged battery pack.

Electric drill switch ON

When the electric drill switch is turned on, the electric drill starts rotating.

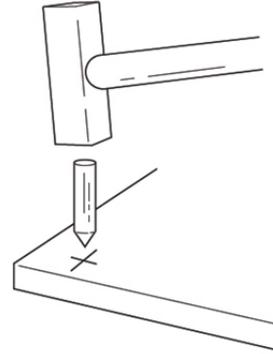
(2) Stopping

When the electric drill switch is turned off, the electric drill stops. Furthermore, when the magnet switch is turned off, the magnetic force of the magnet is released.

5.2 Drilling Procedure

(1) Punching

The punch hole should be vertical with respect to the work piece and rather large in size. Precisely place the punch hole since it serves as a drilling guide.



(2) Make sure that both the magnet adhesion surface and the workpiece surface are clean.



CAUTION

If something is caught under the magnet, there is a danger that the machine may slide off.

Gaps between the magnet adhesion surface and the work piece weaken the magnetic holding power. Always keep the magnet adhesion surface free from foreign matter (such as metal chips), unevenness, and rust.

(3) Align with punch hole

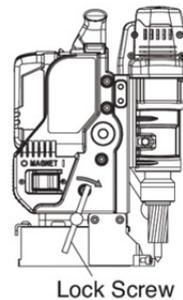


WARNING

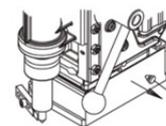
Make sure that the lock screw to fix body position is securely fastened before drilling.

Loosen the lock screw on the side of the body, and moves the body back and forth or around to align the tip of the pilot pin with the punch. Then tighten the lock screw in the arrow direction. The lock screw has the wings and is designed to fasten with hands. Do not tighten it with a spanner or the like.

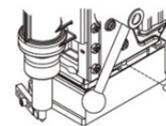
※The lock screw can be mounted on either left or right side of the body.



Lock Screw



Plug cushion Rubber



Lock Screw

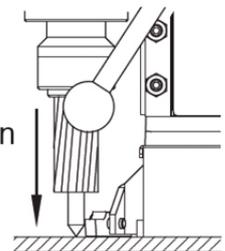


CAUTION

Remove the plug cushion rubber and attach the lock screw. Insert the removed plug cushion rubber in the screw hole of the pole plate on the opposite side.

Turn the Handle Ass'y downward to lower the cutter and align the tip of the Pilot Pin with the punch hole.

Pull down to place tip of Pin on to punch hole.



(4) Magnet on



CAUTION
Check that the magnet is adhered. When energized, the magnet may exhibit a buzzing sound or a slight hum.

Turn the magnet switch on. The magnet starts the adhesion and LED turns white momentarily. After that, LED indicates the remaining power of the battery (blinks three times).

Battery Remaining Power Display Function

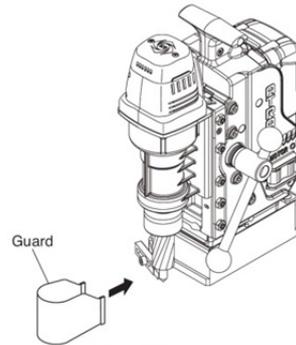
LED	Battery remaining Power Condition
Green 	Approximately fully charged
Yellow 	Remaining power has decreased slightly
Red 	Remaining power has decreased significantly. Replace the battery pack to a charged battery pack.

(5) How to attach the Guard

Please attach the guard as shown:

(6) Lubrication

Provide cutting oil using the jet oiler. As a guide, it is desirable to have cutting chips always in wet condition when drilling to prevent burning of cutting chips.



(7) Electric drill switch ON



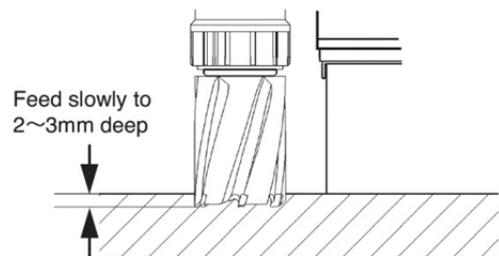
WARNING
Do not touch the rotating area.

Turn the electric drill switch on. The electric drill starts rotating. Rotate the handle Ass'y and lower the electric drill to start drilling.

(8) Drilling

Turn the Handle Ass'y downward to start drilling. For the first 2 – 3 mm of the drilling, slowly feed the drill motor.

Feed slowly to 2 – 3 mm deep.



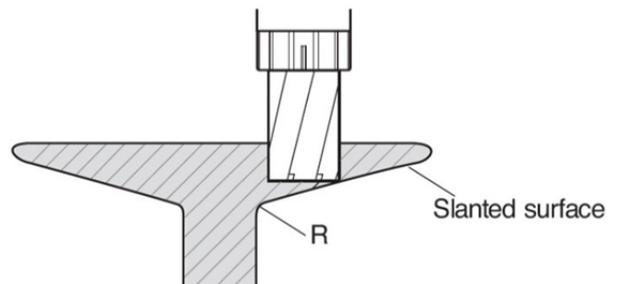
Final stage of drilling



CAUTION

When drilling a hole in an angle, channel or H-section irons, etc., cutter may be damaged when it comes to the slanted part of the work piece on the final cutting stage.

Feed slowly in its start and finish cutting.



(9) Finish drilling the hole



WARNING

Pay attention to the ejection of slug when finishing the drilling.
Never touch slug since the slug is in high temperature and is sharp.

Make sure that nobody is underneath the work area when working in high places.

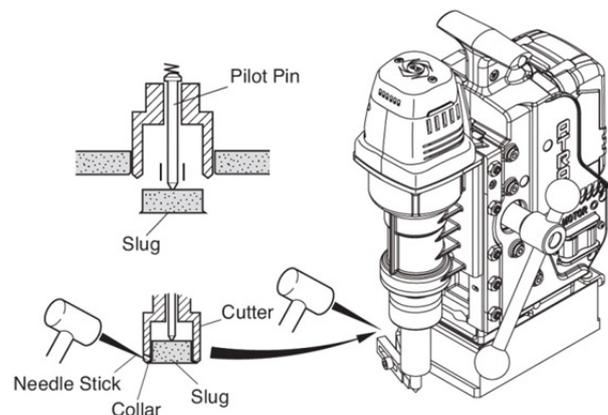
The machine main body may fall. Also, slug may eject out after drilling. Check that nobody is close to the work area taking dropping of slug into consideration.

Immediately turn the magnet switch off when drilling is completed. Leaving the machine on for an extend period of time leaves electricity flowing in the magnet in which it will shorten the service life of the magnet and the magnetic force will be lost by electric discharge of the battery pack.

(10) Removing slug

Do not start drilling the next hole with slug remaining on the drill.

At the end of drilling operation, the pilot pin will be pushed by a spring automatically and slug will be ejected. In a case where slug is left in the drill, remove the slug by tapping the collar of the slug with a needle stick, etc. since drilling operation cannot be continued when slug is unremoved.



5.3 Drilling Oblong Hole

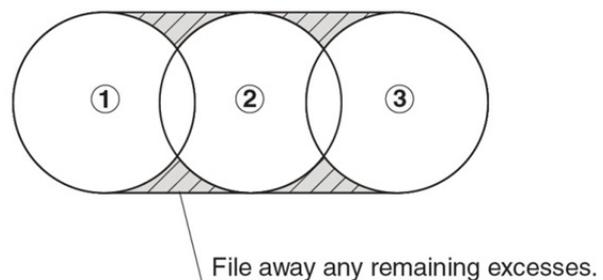


CAUTION

Always drill slowly.

Drill round holes in the order of ①, ②, ③ to get an oblong hole. For the steps ② and ③, take care so that the cutter may not be fed into the work piece with so much force.

File away any remaining excesses. Spacing of

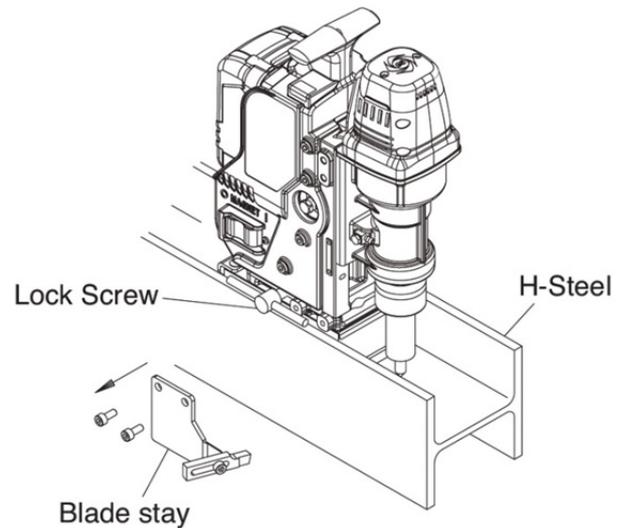


round holes should be so arranged that the Pilot Pin will always hit the material yet to be machined.

5.4 Drilling H-steel, etc.

Remove the blade stay when drilling H-steel, etc.
The lock screw may interfere depending on the size of the steel material. Remove the lock screw and use the supplied hexagon socket lock screw 8 x 28 to fix the machine.

Attach the blade stay and lock screw back when the work is completed.



6 Trouble-shooting



WARNING

Do not attempt to repair the tool by yourself.

This will cause damage to the tool and danger to yourself when you use it again.

If any of the following, or other symptoms occur, or if there are other matters concerning usage that you do not understand, please consult the sales agent from whom you purchased the tool or an authorized dealer.

Various errors are indicated by LED with this machine in which the contents of error can be identified by the color of LED. Refer to “4-4 Various Safety Functions and Error Detection Functions” for details including countermeasures for various errors.

7 Maintenance and Service

Disassembly or modification of the tool by unqualified persons could cause accidents. Always allow qualified technicians only or the HOLGER CLASEN Technical Service Center (TSC) to carry out maintenance work. Use original spare parts by HOLGER CLASEN.

Service:

The TSC will do all required maintenance and repair work for you.



TSC Technical-Service-Center
Alsterdorfer Straße 234
DE-22297 Hamburg
Phone +49 (0)40 – 511 28-0
Fax +49 (0)40 – 511 28-315

Service@Holger-Clasen.de
www.Holger-Clasen.de



WARNING

When performing maintenance or inspection work, turn the magnet switch off and remove the battery pack from the machine. Furthermore, unplug the power supply plug of the charger from the electric outlet.

Periodically check for looseness of screws fastened at each part. Tighten the screw if it is loose.

After work, store at a dry area where the temperature is less than 50°C and is out of reach of children.

After work, do not store at an area where volatile that has possibility of ignition or explosion is kept.

Do not put conductive items such as chips, nails and copper wires in the storage case.

Attach a terminal cover to the battery pack when storing.

7.1 Greasing of sliding surfaces

From time to time, the sliding surfaces between the body and the Slide Board should be greased.

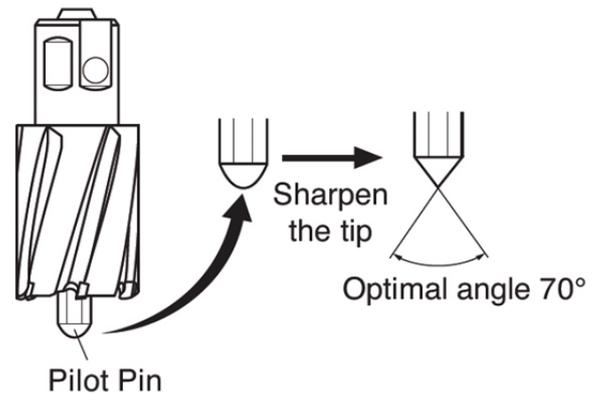
7.2 Loose Slide Board adjustment

When adjusting looseness of the slide board, check that the slide board is located at the slide board adjustment screw position before tightening. Any looseness between the body and the Slide Board will adversely affect drilling precision, leading to premature wear on the cutter. When looseness is encountered, eliminate it by uniformly re-tightening the four Slide Board adjustment screws on the lateral side of the body to the extent that the Drill Motor will not fall under its dead weight. The screws are designed to work as a double-lock, so they should be securely tightened by turning the nuts.

7.3 Sharpening of Pilot Pin tip

If the Pilot Pin tip is dull, the pin will not be able to fit itself into the punching hole, causing poor drilling precision. It should be inspected from time to time, and, if the Pilot Pin tip is found to be dull, sharpen the tip or replace with a new one.

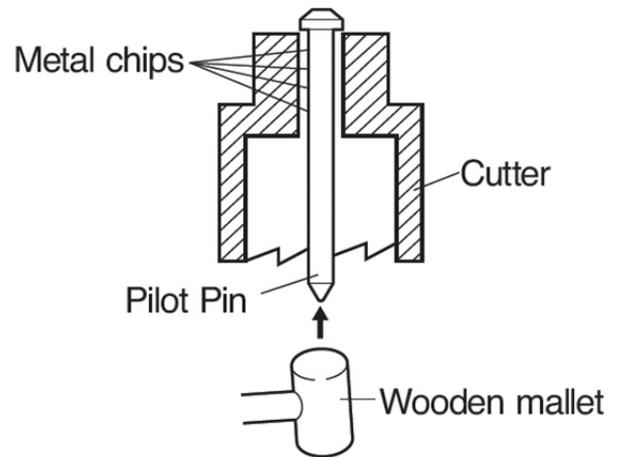
Exercise caution during the sharpening operation as any rough grinding softens the tip due to annealing, even to the point of disabling it in some cases.



7.4 Loosen a tight Pilot Pin

When the cutter needs to be replaced, pull out and change the Pilot Pin which acts as a guide.

However, if Metal chips are caught between the cutter and the pin, the pin may be difficult to be pulled out. Tap the end of the pin gently with a wooden mallet as you pull it out.



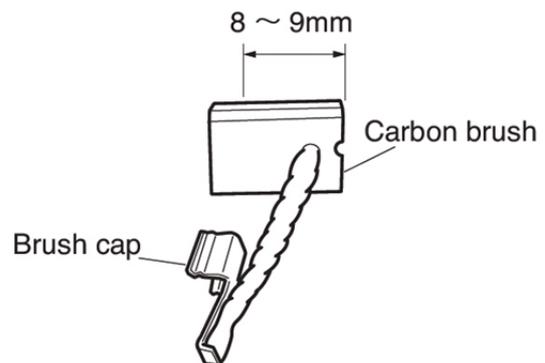
7.5 Cutter grinding

When the cutter needs re-grinding, consult the sales agent from whom you purchased the tool or an authorized dealer.

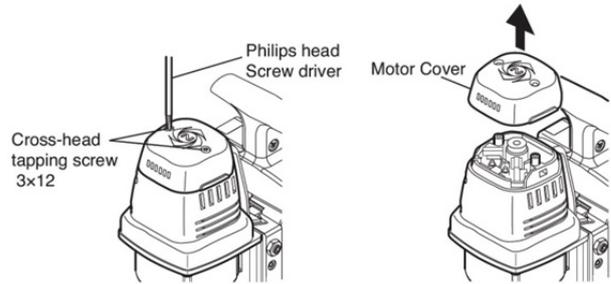
7.6 Inspection and Replacement of Carbon Brush

Periodically inspect the abrasion condition of the carbon brush.

Replace the carbon brush with a new carbon brush when the remaining length of the carbon brush is 8 to 9 mm since the rectification will deteriorate and may cause machine failure when left unreplaced.

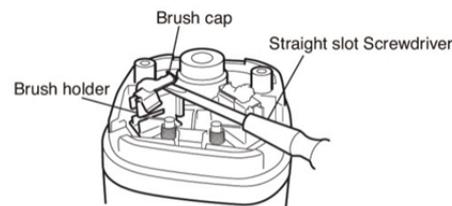


(1) Remove the cross-head tapping screw 3x12 with a Phillips head screwdriver and remove the motor cover.

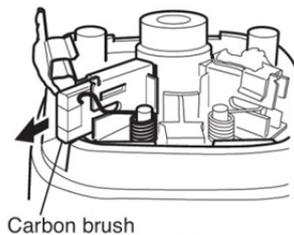
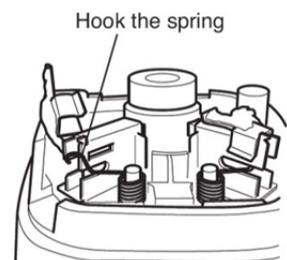
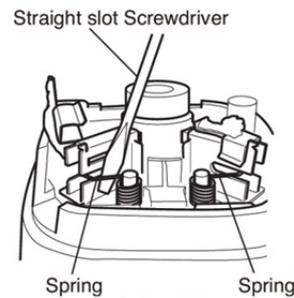


(2) Remove the brush cap of the carbon brush from the brush holder.

Remove the brush cap with a tool such as a straight slot screwdriver.

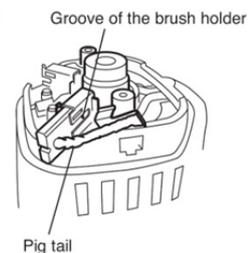
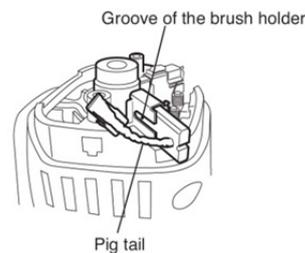


(3) Detach the spring stopper and remove the worn carbon brush. Detach the spring from the brush holder using a straight slot screwdriver and hook it on the brush holder.

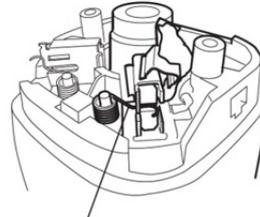


(4) Replace with a new carbon brush.

The direction of the carbon brush is specified. Align the pig tail with the groove of the brush holder when attaching.



(5) Securely hold the carbon brush with the spring.



Hold the carbon brush with spring

(6) Align the convex area of the brush cap with the oblong hole of the brush holder and securely attach the brush cap.



Oblong hole of the Brush holder

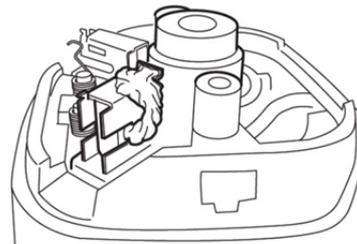


CAUTION

Pay attention to prevent jamming (hooking) of the lead line (pig tail) with the brush holder when attaching a new carbon brush.

(7) Attach the motor cover and properly fasten using cross-head tapping screw 3 × 12.

- Tightening torque: 1.2 Nm



8 Disposal



ATTENTION

The tool must not be disposed of as residual waste because some parts of the tool may cause environmental damage! Improper disposal constitutes a punishable offence according to the Environmental Liability Act!

The battery, the circuit boards, and other components must be disposed of separately in accordance with the environmental standards in force in the European Union or in your country. Send the tool to HOLGER CLASEN for disposal.

9 Technical Data

Item	AMB 27/20-MV
Idle Speed	430 min ⁻¹
Magnet Holding Power	5,500 N
Min. Material Thickness	6 mm
Hole Ø, JET-BROACH, TCT	Ø 12 – 17 mm (Thickness: max. 12 mm) Ø 17.5 – 28 mm (Thickness: max. 20 mm)
Hole Ø, HI-BROACH, HSS	Ø 12 – 15 mm (Thickness: max. 12 mm) Ø 16 – 28 mm (Thickness: max. 20 mm)
Battery Voltage	18 V, 4 Ah (Battery: NBL18006)
Dimensions Magnetic Base	126 x 65 x 46 mm
Weight	7.0 kg
Item No. Set	42505000

May be subject to changes.

Scope of delivery: Tool with 2 Lilon-batteries, 1 battery charger, assembly tools, drilling oil, lashing belt, guard, transport box

EC DECLARATION OF CONFORMITY

We: **HOLGER CLASEN GmbH & Co. KG**
Alsterdorfer Straße 234
D-22297 Hamburg,

in accordance with the following Directives

2006/42/EC - The Machinery Directive
2006/95/EC – Low Voltage Directive
2014/30/EC - The Electromagnetic Compatibility Directive
2011/65/EU – RoHS Directive

hereby declare that,

Equipment: **Battery-operated Magnetic Base Drilling Machine**
Type: **AMB 27/20-MV**
Serial number: **X(X) (Christian era's latest digit)**
XXXXX (Continuously numbered 00001 – 99999)

is in conformity with the applicable requirements of the following documents:

DIN EN 60745-1:2009+A1:2010; DIN EN 60745-2-1:2010

DIN EN 60335-1:2002 + A1:2004 + A2:2006;

DIN EN 60335-2-29:2004 + A1:2004+A2:2010; DIN EN 62233:2008

DIN EN 55014-1:2006+A1:2009+A2:2011

DIN EN 55014-2:1997+A1:2001+A2:2008

DIN EN 50581:2012

I hereby confirm that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable Essential Requirements of the Directives.

Hamburg, 05.01.2015

HOLGER CLASEN GmbH & Co. KG


Lennart Clasen (Managing Director)