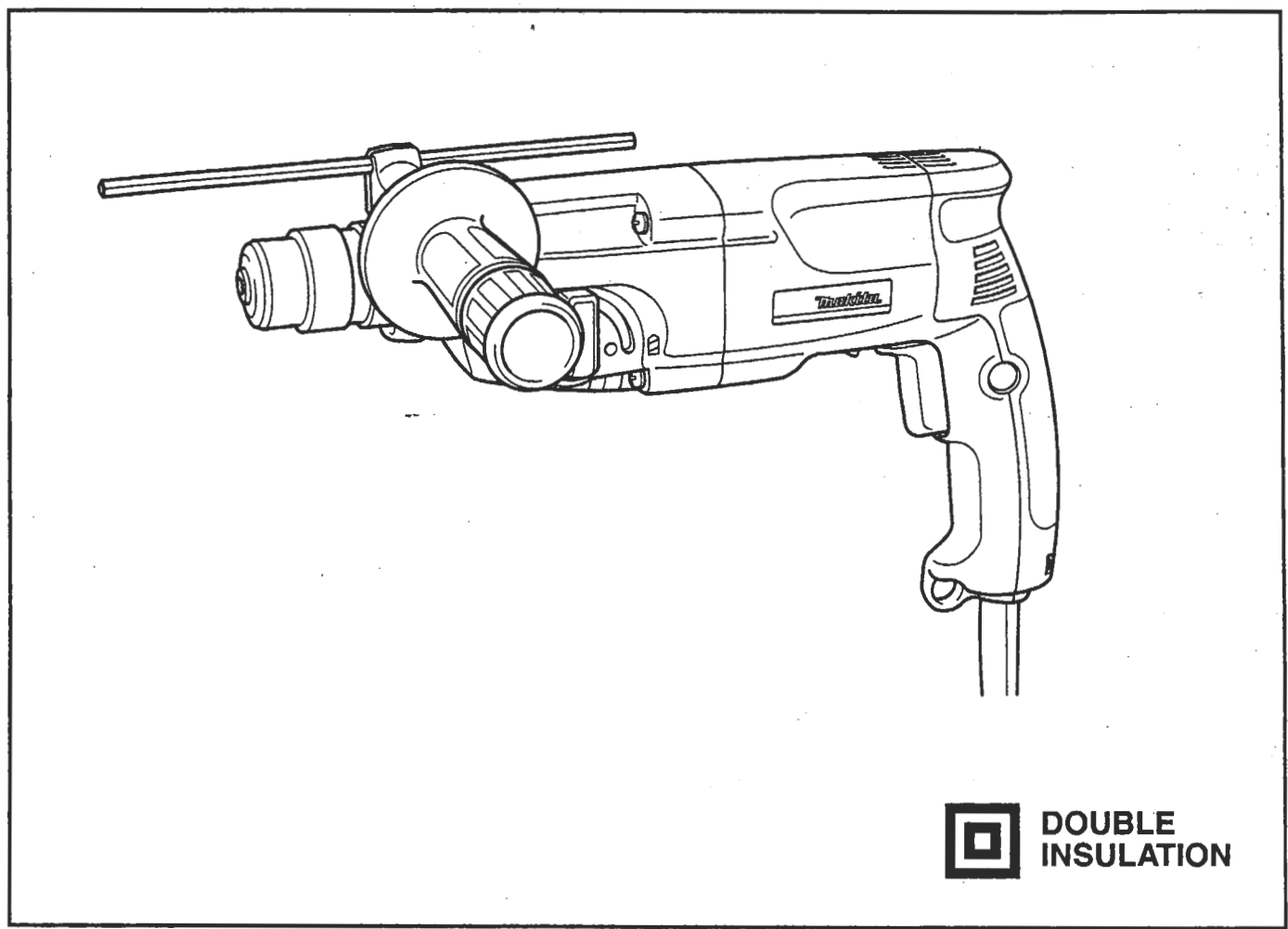


86604
77036



Rotary Hammer

- HR2020**
- HR2020X**
- HR2021**
- HR2022**



 **DOUBLE INSULATION**

SPECIFICATIONS

Model	HR2020/HR2020X	HR2021	HR2022
Capacities			
Concrete			
Tungsten-carbide tipped bit	20 mm	20 mm	20 mm
Core bit	54 mm	54 mm	54 mm
Diamond core bit (dry type)	65 mm	65 mm	65 mm
Wood	32 mm	32 mm	32 mm
Steel	13 mm	13 mm	13 mm
No load speed (min ⁻¹)	0-1,050	0-1,050	1,050
Blows per minute	0-4,050	0-4,050	4,050
Overall length	352 mm	352 mm	352 mm
Net weight	2.3 kg	2.3 kg	2.3 kg

- Due to our continuing program of research and development, the specifications herein are subject to change without notice.
- Note: Specifications may differ from country to country.

Intended use

The tool is intended for hammer drilling and drilling in brick, concrete and stone. It is also suitable for drilling without impact in wood, metal, ceramic and plastic.

Power supply

The tool should be connected only to a power supply of the same voltage as indicated on the nameplate, and can only be operated on single-phase AC supply. They are double-insulated in accordance with European standard and can, therefore, also be used from sockets without earth wire.

For European countries only

Noise and Vibration

The typical A-weighted noise levels are
sound pressure level: 87 dB (A)
sound power level: 100 dB (A)
- Wear ear protection. -

The typical weighted root mean square acceleration value is 8.0 m/s².

EC-DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product is in compliance with the following standards or standardized documents,

HD400, EN50144, EN55014, EN61000
in accordance with Council Directives, 73/23/EEC, 89/336/EEC and 98/37/EC.

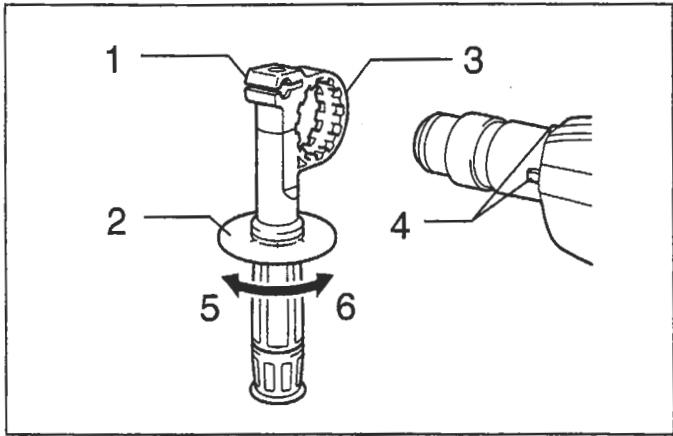
Yasuhiko Kanzaki CE 2001



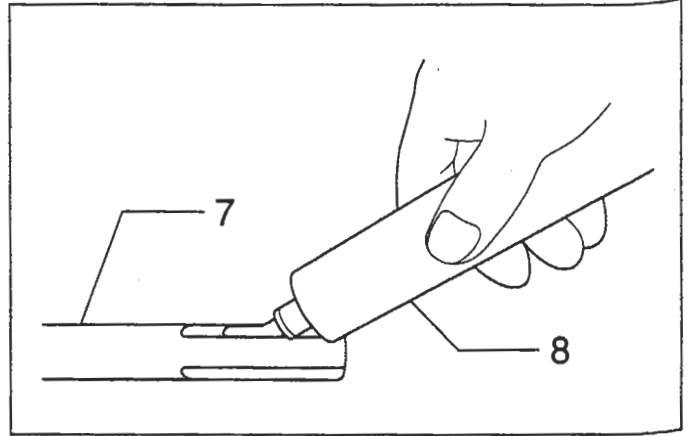
Director

MAKITA INTERNATIONAL EUROPE LTD.

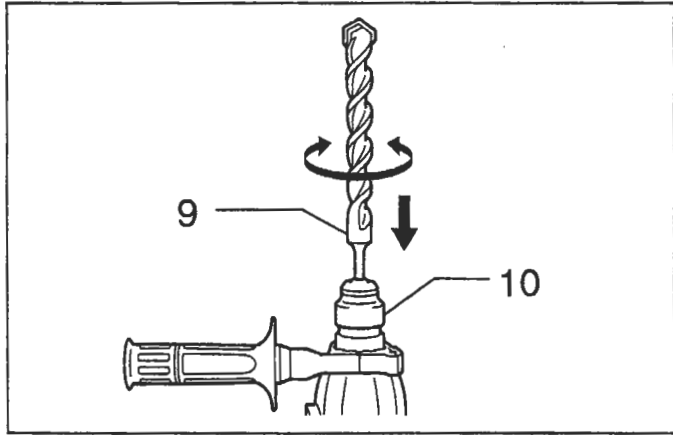
Michigan Drive, Tongwell, Milton Keynes,
Bucks MK15 8JD, ENGLAND



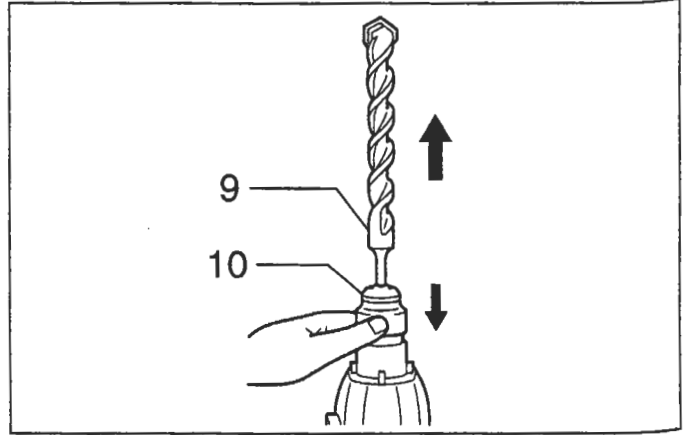
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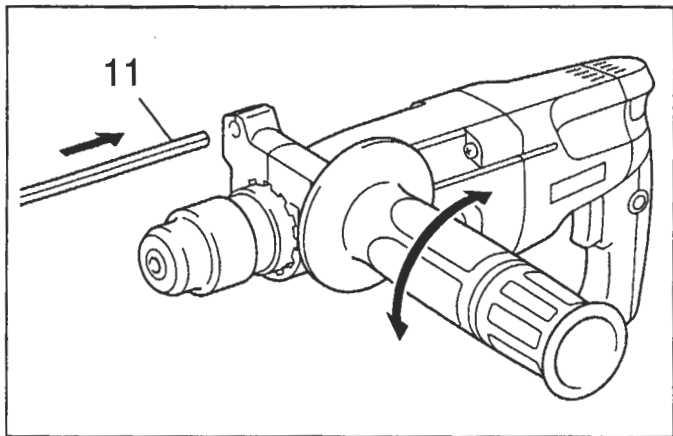
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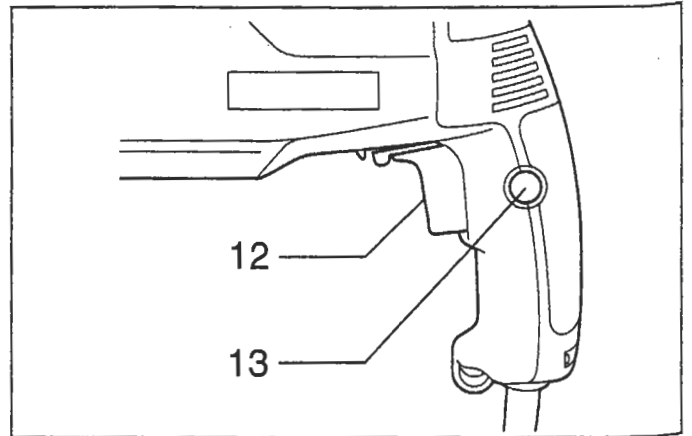
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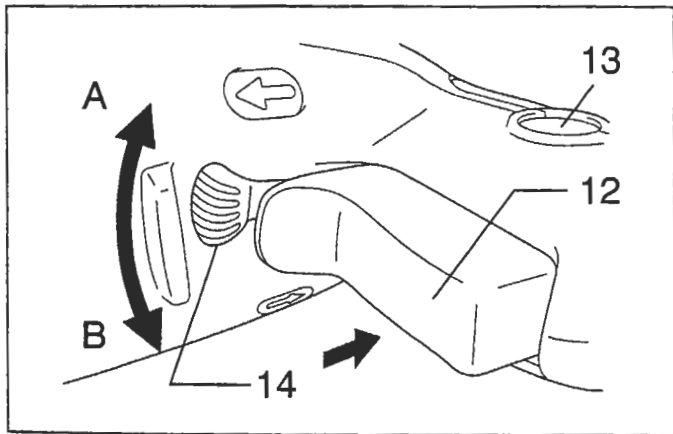
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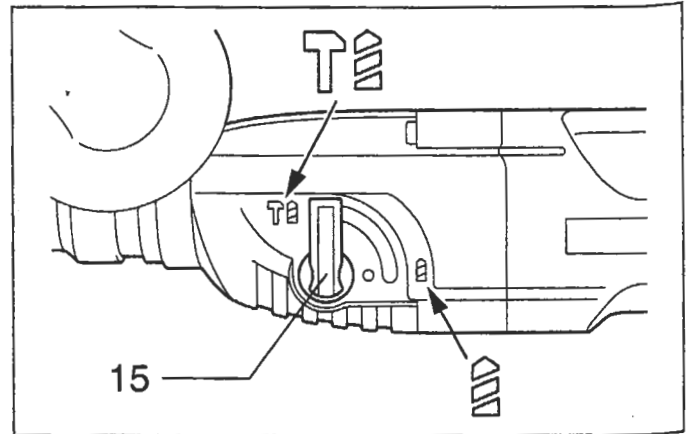
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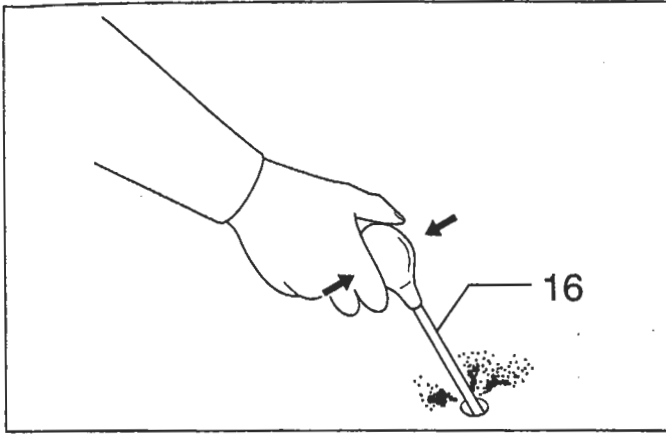
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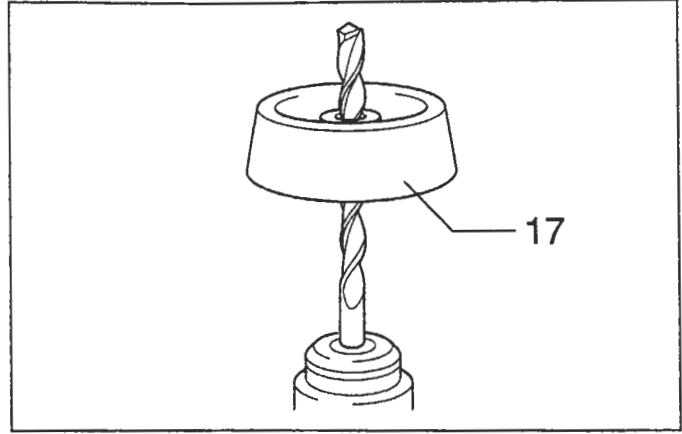
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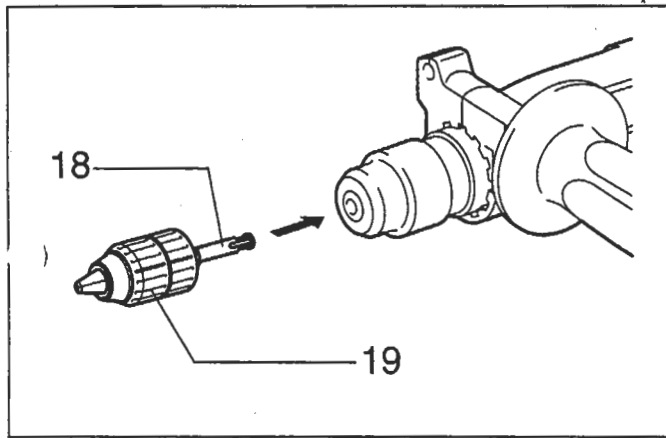
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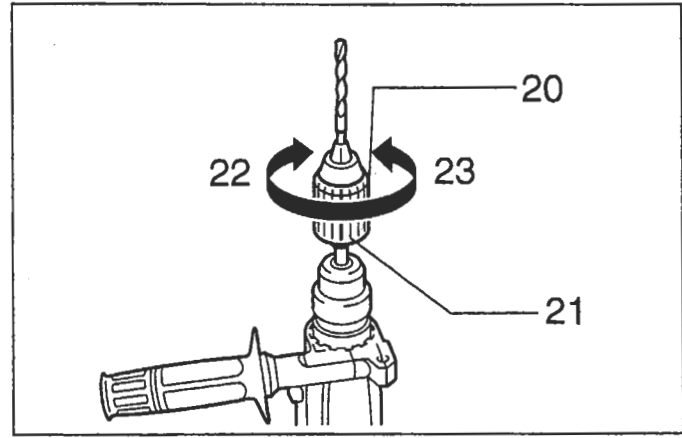
9



10




11



12

Symbols

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

 Read instruction manual.

 DOUBLE INSULATION

ENGLISH

Explanation of general view

1	Grip base	9	Bit	17	Dust cup
2	Side grip (auxiliary handle)	10	Chuck cover	18	Chuck adapter
3	Teeth	11	Depth gauge	19	Keyless drill chuck
4	Protrusions	12	Switch trigger	20	Sleeve
5	Loosen	13	Lock button	21	Ring
6	Tighten	14	Reversing switch lever	22	Tighten
7	Bit shank	15	Action mode changing knob	23	Loosen
8	Bit grease	16	Blow-out bulb		

SAFETY INSTRUCTIONS

Warning! When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury, including the following. Read all these instructions before attempting to operate this product and save these instructions.

For safe operation:

- 1. Keep work area clean**
Cluttered areas and benches invite injuries.
- 2. Consider work area environment**
Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit. Don't use power tools in presence of flammable liquids or gases.
- 3. Guard against electric shock**
Prevent body contact with grounded surfaces (e.g. pipes, radiators, ranges, refrigerators).
- 4. Keep children away**
Do not let visitors contact tool or extension cord. All visitors should be kept away from work area.
- 5. Store idle tools**
When not in use, tools should be stored in dry, high, or locked-up place, out of the reach of children.
- 6. Don't force tool**
It will do the job better and safer at the rate for which it was intended.
- 7. Use right tool**
Don't force small tools or attachments to do the job of a heavy duty tool. Don't use tools for purposes not intended; for example, don't use circular saw for cutting tree limbs or logs.
- 8. Dress properly**
Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
- 9. Use safety glasses and hearing protection**
Also use face or dust mask if cutting operation is dusty.
- 10. Connect dust extraction equipment**
If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.
- 11. Don't abuse cord**
Never carry tool by cord or yank it to disconnect it from receptacle. Keep cord from heat, oil and sharp edges.
- 12. Secure work**
Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
- 13. Don't overreach**
Keep proper footing and balance at all times.
- 14. Maintain tools with care**
Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and, if damaged, have repaired by authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean and free from oil and grease.
- 15. Disconnect tools**
When not in use, before servicing, and when changing accessories such as blades, bits and cutters.
- 16. Remove adjusting keys and wrenches**
Form the habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
- 17. Avoid unintentional starting**
Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
- 18. Outdoor use extension cords**
When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
- 19. Stay alert**
Watch what you are doing. Use common sense. Do not operate tool when you are tired.
- 20. Check damaged parts**
Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by and authorized service center. Do not use tool if switch does not turn it on and off.
- 21. Warning**
The use of any other accessory or attachment other than recommended in this operating instruction or the catalog may present a risk of personal injury.
- 22. Have your tool repaired by an expert**
This electric appliance is in accordance with the relevant safety rules. Repairing of electric appliances may be carried out only by experts otherwise it may cause considerable danger for the user.

ADDITIONAL SAFETY RULES

ENB010-1

1. Hold tools by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord. Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.
2. Wear ear protectors when using the tool for extended periods. Prolonged exposure to high intensity noise can cause hearing loss.
3. Wear a hard hat (safety helmet), safety glasses and/or face shield. It is also highly recommended that you wear a dust mask, and thickly padded gloves.
4. Be sure the bit is secured in place before operation.
5. Under normal operation, the tool is designed to produce vibration. The screws can come loose easily, causing a breakdown or accident. Check tightness of screws carefully before operation.
6. In cold weather or when the tool has not been used for a long time, let the tool warm up for a while by operating it under no load. This will loosen up the lubrication. Without proper warm-up, hammering operation is difficult.
7. Always be sure you have a firm footing. Be sure no one is below when using the tool in high locations.
8. Hold the tool firmly with both hands.
9. Keep hands away from moving parts.
10. Do not leave the tool running. Operate the tool only when hand-held.
11. Do not point the tool at any one in the area when operating. The bit could fly out and injure someone seriously.
12. Do not touch the bit or parts close to the bit immediately after operation; they may be extremely hot and could burn your skin.

SAVE THESE INSTRUCTIONS.

OPERATING INSTRUCTIONS

Side grip (auxiliary handle) (Fig. 1)

Always use the side grip to ensure operating safety. Install the side grip so that the teeth on the grip fit in between the protrusions on the tool barrel. Then tighten the grip by turning clockwise at the desired position. It may be swung 360° so as to be secured at any position.

Installing or removing the bit

CAUTION:

Always be sure that the tool is switched off and unplugged before installing or removing the bit.

Clean the bit shank and apply bit grease before installing the bit. (Fig. 2)

Insert the bit into the tool. Turn the bit and push it in until it engages. (Fig. 3)

After installing, always make sure that the bit is securely held in place by trying to pull it out.

To remove the bit, pull the chuck cover down all the way and pull the bit out. (Fig. 4)

Depth gauge (Fig. 5)

The depth gauge is convenient for drilling holes of uniform depth. Loosen the side grip and insert the depth gauge into the hole in the side grip. Adjust the depth gauge to the desired depth and tighten the side grip.

NOTE:

The depth gauge cannot be used at the position where the depth gauge strikes against the gear housing.

Switch action (Fig. 6)

CAUTION:

Before plugging in the tool, always check to see that the switch trigger actuates properly and returns to the "OFF" position when released.

For Model HR2020, HR2020X and HR2021

To start the tool, simply pull the switch trigger. Tool speed is increased by increasing pressure on the switch trigger. Release the switch trigger to stop. For continuous operation, pull the switch trigger and then push in the lock button. To stop the tool from the locked position, pull the switch trigger fully, then release it.

For Model HR2022

To start the tool, simply pull the switch trigger. Release the switch trigger to stop. For continuous operation, pull the switch trigger and then push in the lock button. To stop the tool from the locked position, pull the switch trigger fully, then release it.

Reversing switch action (Fig. 7)



For Model HR2020 and HR2020X

This tool has a reversing switch to change the direction of rotation. Move the reversing switch lever to the A side for clockwise rotation or the B side for counterclockwise rotation.

CAUTION:

- Always check the direction of rotation before operation.
- Use the reversing switch only after the tool comes to a complete stop. Changing the direction of rotation before the tool stops may damage the tool.
- When you operate the tool in counterclockwise rotation, the switch trigger is pulled only halfway and the tool runs at half speed. For counterclockwise rotation, you cannot push in the lock button.

Selection action mode (Fig. 8)

This tool employs an action mode changing knob. Select one of the two modes suitable for your work needs by using this knob. For rotation only, turn the knob so that the arrow on the knob points toward the  symbol on the tool body. For rotation with hammering, turn the knob so that the arrow on the knob points toward the  symbol on the tool body.

CAUTION:

- Always set the knob fully to your desired mode symbol. If you operate the tool with the knob positioned halfway between the mode symbols, the tool may be damaged.
- Use the knob after the tool comes to a complete stop.

Torque limiter

The torque limiter will actuate when a certain torque level is reached. The motor will disengage from the output shaft. When this happens, the bit will stop turning.

CAUTION:

- As soon as the torque limiter actuates, switch off the tool immediately. This will help prevent premature wear of the tool.
- Hole saws cannot be used with this tool. They tend to pinch or catch easily in the hole. This will cause the torque limiter to actuate too frequently.

Hammer drilling operation

Position the bit at the desired location for the hole, then pull the trigger.

Do not force the tool. Light pressure gives best results. Keep the tool in position and prevent it from slipping away from the hole.

Do not apply more pressure when the hole becomes clogged with chips or particles. Instead, run the tool at an idle, then remove the bit partially from the hole. By repeating this several times, the hole will be cleaned out and normal drilling may be resumed.

CAUTION:

There is tremendous and sudden twisting force exerted on the tool/bit at the time of hole breakthrough, when the hole becomes clogged with chips and particles, or when striking reinforcing rods embedded in the concrete. Always use the side grip (auxiliary handle) and firmly hold the tool by both side grip and switch handle during operations. Failure to do so may result in the loss of control of the tool and potentially severe injury.

Bit grease

Coat the bit shank head beforehand with a small amount of bit grease (about 0.5 – 1 g).

This chuck lubrication assures smooth action and longer service life.

Blow-out bulb (Fig. 9)

Use the blow-out bulb to clean out the hold.

Dust cup (Fig. 10)

Use the dust cup to prevent dust from falling over the tool and on yourself when performing overhead drilling operations. Attach the dust cup to the bit as shown in Fig. 10. The size of bits which the dust cup can be attached to is as follows.

	Bit diameter (mm)
Dust cup 5	6 – 14.5
Dust cup 9	12 – 16


Drilling in wood or metal (Fig. 11 and 12)

Use the optional drill chuck assembly (standard equipment for Model HR2020X). When installing it, refer to "Installing or removing drill bit" described on the previous page.

Hold the ring and turn the sleeve counterclockwise to open the chuck jaws. Place the bit in the chuck as far as it will go. Hold the ring firmly and turn the sleeve clockwise to tighten the chuck.

To remove the bit, hold the ring and turn the sleeve counterclockwise. Set the action mode changing knob to "rotation only". You can drill up to 13mm diameter in metal and up to 32 mm diameter in wood.

CAUTION:

- Never use "rotation with hammering" when the drill chuck assembly is installed on the tool. The drill chuck assembly may be damaged. Also, the drill chuck will come off when reversing the tool. (For Model HR2020 and HR2020X)
- Pressing excessively on the tool will not speed up the drilling. In fact, this excessive pressure will only serve to damage the tip of your bit, decrease the tool performance and shorten the service life of the tool.
- There is a tremendous twisting force exerted on the tool/bit at the time of hole breakthrough. Hold the tool firmly and exert care when the bit begins to break through the workpiece.
- A stuck bit can be removed simply by setting the reversing switch to reverse rotation in order to back out. However, the tool may back out abruptly if you do not hold it firmly.
- Always secure small workpieces in a vise or similar hold-down device.
- When performing diamond core drilling operation, always set the change lever to the  position to use "rotation only" action. If performing diamond core drilling operation with "rotation with hammering" action, the diamond core bit may be damaged.

MAINTENANCE

CAUTION:

Always be sure that the tool is switched off and unplugged before carrying out any work on the tool.

To maintain product safety and reliability, repairs, maintenance or adjustment should be carried out by a Makita Authorized Service Center.

ACCESSORIES

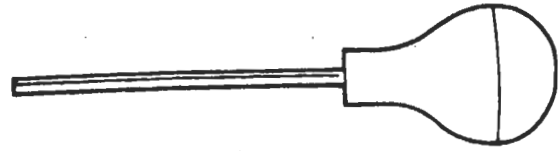
CAUTION:

These accessories or attachments are recommended for use with your Makita tool specified in this manual. The use of any other accessories or attachments might present a risk of injury to persons. The accessories or attachments should be used only in the proper and intended manner.

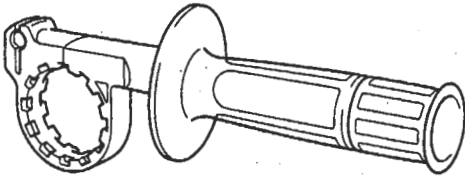
- Depth gauge



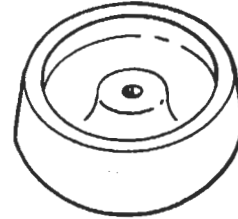
- Blow-out bulb



- Side grip



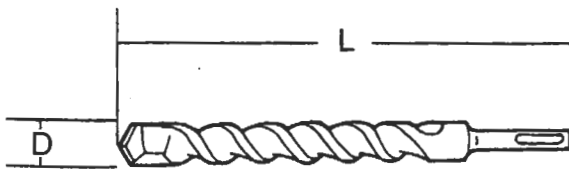
- Dust cup



- Plastic carrying case



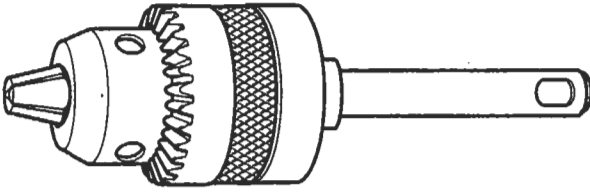
- SDS Plus tungsten-carbide tipped bit



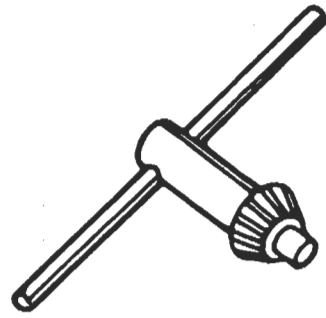
D (mm)	4.0	4.3	4.5	4.8	5.0	5.5	6.0	6.4	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	
L (mm)	110										160								

D (mm)	12.0	12.5	12.7	13.0	13.5	14.0	14.3	14.5	15.0	16.0	16.5	17.0	17.5	18.0	19.0	20.0
L (mm)	166			160			166		160	166		200				

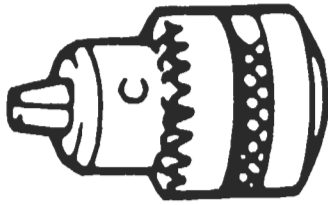
• Drill chuck assembly



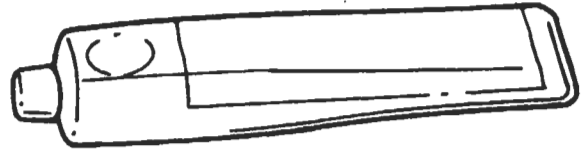
• Chuck key



• Drill chuck



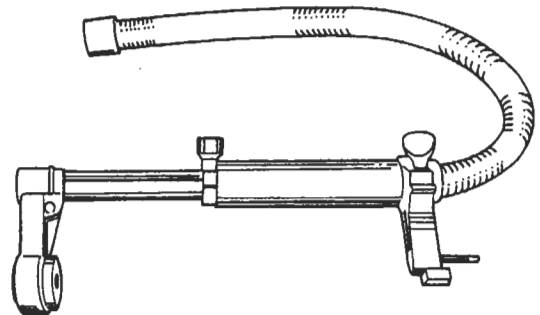
• Bit grease



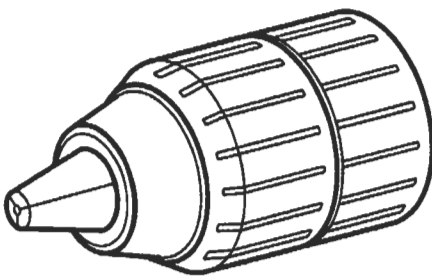
• Chuck adapter



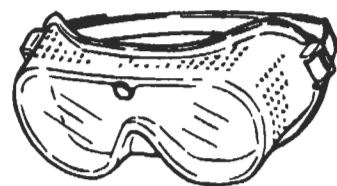
• Dust extractor attachment



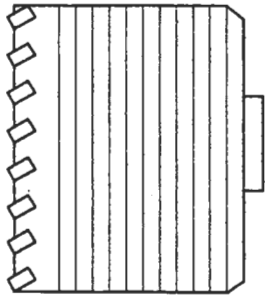
• Keyless drill chuck



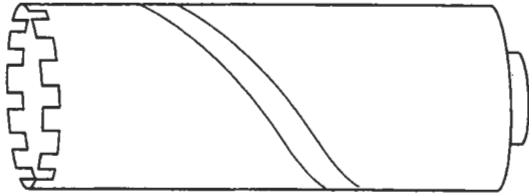
• Safety goggles



- Core bit

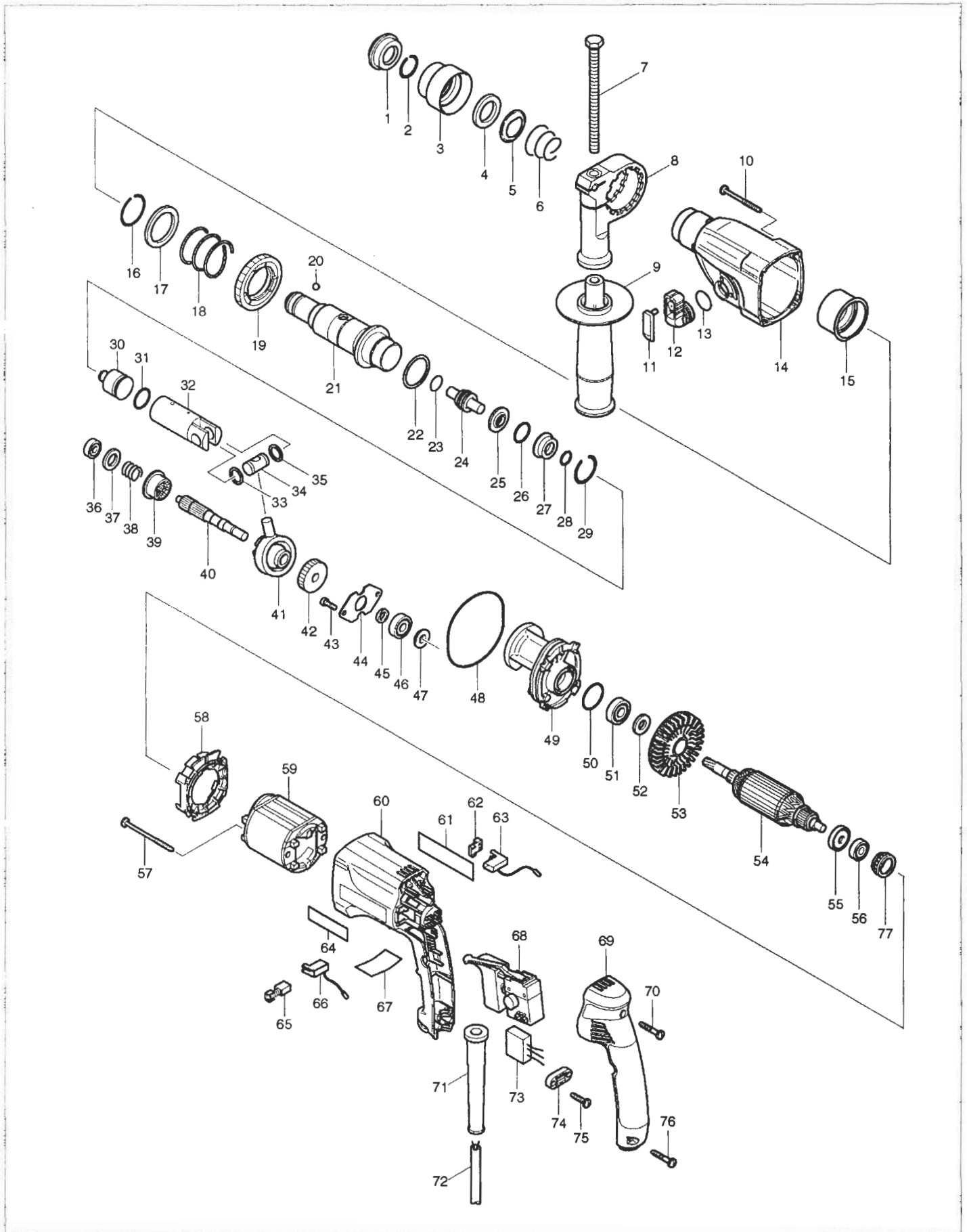


- Diamond core bit



SERVICE DRAWING

MODEL NO. HR2020



SPARE PARTS LIST

PAGE 1

MODEL NO. HR2020

ITEM	PART NO.	DESCRIPTION	QTY	NOTE
001	286263-4	CAP 35 HR2020/2440/2450	1	
002	233915-8	RING SPRING 19 HR2020/2440/245	1	
003	417629-9	CHUCK COVER HR2020/2440/2450	1	
004	257241-1	RING 21 HR2020/2440/2450	1	
005	345187-4	GUIDE WASHER HR2020/2440/2450	1	
006	233916-6	CONICAL COMP SPRING 21-29 HR20	1	
007	921923-8	HEX BOLT M8X120 HR2020/2440/24	1	
008	417630-4	GRIP BASE HR2020/2440/2450	1	
009	134943-5	GRIP 36 ASSY HR2020/HR2440 INC. 7,8,78	1	
010	266069-6	*PT SCREW 4X45 HR2400	4	
011	417628-1	CAP HR2020/HR2440	1	
012	153289-0	CHANGE LVER COMP HR2020/HR2440	1	
013	213278-8	O RING 17 HR2020/2440/2450	1	
014	183442-4	GEAR HOUSING SET HR2020/HR2440 INC. 15	1	
015	153290-5	NEEDLE BEARNG CO HR2020/HR2440	1	
016	233918-2	RING SPRING 28 HR2020/2440/245	1	
017	267228-5	WASHER 30 HR2020/2440/2450	1	
018	233328-3	COMPRESSION SPRING 31 HR2020	1	
019	227019-6	SPUR GEAR 51 HR2020/HR2440	1	
020	216022-2	*STEEL BALL 7.0 HR160DW/HR2420	1	
021	153288-2	TOOL HOLDER COMP HR2020/HR2440	1	
022	267229-3	FLAT WASHER 28 HR2020/2440/245	1	
023	213128-7	O RING 12 HR2020/2440/2450	1	
024	324278-4	IMPACT BOLT HR2450	1	
025	324218-2	RING 9 HR2020/2440/2450	1	
026	213232-2	O RING 15 HR2020/2440/2450	1	
027	324216-6	O RING CASE HR2020/2440/2450	1	
028	213073-6	O RING 9 HR2020/2440/2450	1	
029	233917-4	RING SPRING 28 HR2020/2440/245	1	
030	324214-0	STRIKER HR2020/2440/2450	1	
031	213227-5	O RING 16 HK0500/HR2450	1	
032	317517-9	PISTON CYLINDER HR2020/HR2440	1	
033	267104-3	*NARROW WASHER 12 HR2400	1	
034	324215-8	PISTON JOINT HR2020/2440/2450	1	
035	267104-3	*NARROW WASHER 12 HR2400	1	
036	211012-0	BALL BEARING 606ZZ HR2410/2450	1	
037	253744-3	*HARD WASHER 12 2414	1	
038	233347-9	COMPRESSION SPRING 12 HR2020	1	
039	324152-6	CLUTCH CAM HR2020/HR2440	1	
040	227029-3	SPUR GEAR HR2020/HR2440	1	
041	219014-0	SWASH BEARING 10 BHR200S/HR202	1	
042	226550-9	HELICAL GEAR 26 HR2020/2440/24	1	
043	266273-7	HEX S H BOLT M4X12 HR2020/2440	2	
044	345179-3	BEARING RETAINER HR2020/2440/2	1	
045	267234-0	FLAT WASHER 8 HR2020/2440/2450	1	
046	211032-4	BALL BEARING 608ZZCNM/2A 1901/	1	
047	324212-4	RING 8 HR2020/2440/2450	1	
048	213725-9	O RING 68 HR2020/2440/2450	1	
049	153287-4	INNER HOUSING CO HR2020/HR2440	1	
050	213380-7	O RING 24 HR2020/2440/6805B	1	
051	210060-6	BALL BEARING 609LLU HR2420	1	
052	267231-6	FLAT WASHER 9 HR2020/2440/2450	1	
053	240047-4	FAN 60 HR2020/2440/2450	1	
054	517376-3	ARMATURE ASSY 110V HR2020 INC. 51,52,53,55,56	1	
055	681636-0	INSULATION WASHER DP4003/4304	1	
056	211021-9	BALL BEARING 607LLB 4305/9522N	1	

SPARE PARTS LIST

PAGE 2

MODEL NO. HR2020

ITEM	PART NO.	DESCRIPTION	QTY	NOTE
057	266052-3	*PT SCREW 4X60 TRILBULAR HR242	2	
058	417631-2	BAFFLE PLATE HR2020/2440/2450	1	
059	633491-6	FIELD 110V HR2020	1	
060	183409-2	MOTOR HOUSING HR2020/2440/2450 INC. 64	1	
061	853553-6	NAME PLATE HR2020	1	
062	689111-0	SPACER HR2020/2440/2450/HP2050	2	
063	643988-7	BRUSH HOLDER HR2020/2440/2450	1	
064	819063-3	MAKITA LABEL 500 4305/HR160DW	1	
065	191962-4	CARBON BRUSH CB-419 SET HR2410	1	
066	643989-5	BRUSH HOLDER HR2020/2440/2450	1	
067	815913-0	HR2020 SERIAL NUMBER LABEL	1	
068	650508-0	SWITCH TG813TLB-1 HR2020/2440	1	
069	153285-8	HANDLE COVER COMP HR2020/2440	1	
070	265999-8	*PT SCREW 4X25 9029/6825/6900D	1	
071	682566-8	CORD GUARD 10 HR2020/2440/2450	1	
072	665940-5	POWER SUPPLY CORD 1.0-2-4.0	1	
073	645253-0	NOISE SUPPRESSOR RP1100/HK0500	1	
074	687052-4	STRAIN RELIEF BO6040/2414B/190	1	
075	265995-6	*PT SCREW 4X18 HR2420/4334D	2	
076	265999-8	*PT SCREW 4X25 9029/6825/6900D	2	
077	421494-0	RUBBER RING 19 4305/T/3707/HP2	1	
078	345280-4	HEX WASHER HP2050/51	1	
A01	324219-0	"DEPTH GAUGE HR2020/40/50,HP20	1	
A02	824650-5	PLASTIC CASE HR2020/2440/2450	1	
A03	122573-4	CHUCK ADAPTOR W/O CHUCK HR2010	1	
A04	192892-2	*KEYLESS CHUCK S13 DP4700	1	
E01	655030-2	PLUG UK TYPE 16A-4H/110V	1	