MAGBEAST®

JEI Solutions
Built for Industry

SAFETY INSTRUCTIONS

AND OPERATORS MANUAL

FOR

DRILLING MACHINE

MAGBEAST HM100



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ELECTRO-MAGNETIC DRILLING MACHINES

C E

EC Declaration of conformity certificate No. EC/MT

We hereby certify that the machine described below:-

1. Type: Electromagnetic Drilling Machine
2. Model No: _____
3. Serial No: _____
4. Voltage: _____

Complies with: Machinery directive 89/392/EEC incorporating amendments- 91/368/EEC, 93/44EEC and 93/68/EEC. Low voltage directive 73/23/EEC and standard CE1/1EC 1029-L and with the essential health and safety requirements

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE USING THE EQUIPMENT

MANUFACTURED BY:
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PLEASE READ BEFORE OPERATING THE MACHINE

Remove the unit from its case along with the accessories included:
The box should contain, where appropriate:-

- HM100 Drilling Machine
- Oil Bottle
- Operating Instructions

Accessory pack containing:-

- Chain and Carabina Book
- Allen key and jib strip adjustment
- Allen key for arbour
- Drill drift
- Chuck & Key (Optional extra)

Please check that the unit is the correct voltage, see plate on motor unit.
Fit the correct power plug for the supply outlet.
Connect the wire coloured green & yellow to the terminal marled 'E' or 'I' or coloured green/yellow
Connect the wire coloured blue to the terminal marked 'N' or the coloured black.
Connect the wire coloured brown to the terminal marked 'L' or coloured red.

WARNING – THIS MACHINE MUST BE EARTHED

SAFETY INSTRUCTIONS

Please follow these simple instructions for your own protection:

1. Check cable and plug for any damage
2. Never use blunt cutters (send your cutters back to JEI Solutions for resharpening)
3. Always wear safety goggles and gloves
4. Secure the unit with the safety chain when working overhead or vertical.
5. Always disconnect from the power source before changing cutters or working on machines itself.
6. Remove rings, watches, ties etc that could tangle in the moving machine parts
7. Keep the unit and the workplace as clear of dirt and swarf as possible – check out JEI Magbrushes for quick and effective collection of swarf.
8. Do not attempt to change speed or reverse while the drill is operating and running.
9. Regular maintenance is essential, check nuts, screws and bolts for tightness.
10. Always use the safety guard where appropriate

IMPORTANT: THESE INSTRUCTIONS ARE FOR YOUR OWN SAFETY.

IMPORTANT SAFETY INFORMATION: SAFETY RULES FOR POWER TOOLS

WARNING:

When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal injury.

READ ALL INSTRUCTIONS

1. **KEEP WORK AREA CLEAN:** Cluttered areas and benches invite injures
2. **CONSIDER WORK AREA ENVIRIOMENT:**

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 tool in presence of flammable liquids or gases

Power tools produce sparks during operation. They also spark when switching ON/OFF.

Never use power tools in dangerous sites containing lacquer, paint, benzene, thinner, gasoline, and gases, adhesive materials which are combustible or explosive.

3. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces.

For example: pipes, radiators, ranges, refrigerator encloses.

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 and high or locked up place out of reach of children.
6. **DONT 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 tool or attachment to do the job of a heavy duty tool.

Don't use tool for purposes not intended

8. **DRESS PROPERLY:** Do not use wear loose clothing. 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 GLASES:** All persons in the area where power tools are being operated should also wear safety eye protectors and face or dust masks.
10. **DONT ABUSE CORD:** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.
11. **SECURE WORK:** Use clamps or a vice to hold work. It's safer that using your hand and it frees both hands to operate tool.
12. **DON'T OVEREACH:** Keep proper footing and balance at all times
13. **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 authorised service facility.

Keep handles dry, clean, and free from oil and grease.

14. **DISCONNECT TOOLS:** When not in use, before servicing and when changing accessories, such as blades, bits and cutters.
15. **REMOVE ADJUSTING KEYS AND WRENCHES:** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **AVOID UNINTENTIONAL STARTING:** Don't carry plugged in hand tool with finger on switch. Be sure switch is off when plugging in.
17. **OUTDOOR USE EXTENSION CORDS:** When tool is used outdoors, use only extension cords intended for outdoors and so marked.
18. **STAY ALERT:** Watch what you are doing, use common sense. Do not operate tool when you are tired.
19. **CHECK DAMAGED PARTS:** Before further use of 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, breaking 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 authorised service centre unless otherwise indicated elsewhere in this instruction manual.

Have defective switches replaced by authorised service centre.

Do not use tool if switch does not turn it on and off.

20. **AVOID USING A POWERTOOL FOR APPLICATIONS OTHER THAN THOSE SPECIFED.**

Never use a power tool for applications other than those specified in the instruction manual.

21. **ENSURE SAFE OPERATION THROUGH CORRECT HANDLING.** Secure safe operation through correct handling by observing the instruction herein.

Do not employ accessories other than those specified herein; otherwise a hazardous condition may be created.

Never allow a power tool to be used by persons not familiar with correct handling (such as children) or those who cannot handle the tool correctly.

22. **CONFIRM THAT NO ITEMS SUCH AS AN ELECTRIC CABLE OR CONDUIT ARE BURIED INSIDE:** In places where live wiring may be hidden behind a wall, floor, ceiling, etc. Do not hold or contact any metal parts of the tool. In such cases metal parts could become electrically live and present a serious shock hazard.
23. **KEEP THE RIGHT PARTS IN THE RIGHT POSITIONS:** Do not remove covers and screws which have been factory mounted. They perform important retrospective roles. Keep them in the right positions.
24. **SHOULD THE PLASTIC HOUSING OR HANDLE OF A POWER TOOL BE CRACKED OR DEFORMED. DO NOT USE IT:** Since cracked or deformed parts may lead to an operator receiving an electric shock, do not use such a power tool. Immediately have it repaired.
25. **SECURELY MOUNT ACCESSORIES AND BLADES TO THE TOOL MAIN BODY:** Extra care must be taken when using tools on elevated locations (such as a roof, ladder, scaffold or such like) to prevent injury to someone on a lower level in the event of the tool and or accessory should drop.

26. **ALWAYS KEEP THE MOTOR AIR VENT FULLY OPENED:** A constantly open motor vent is necessary to allow air to come in and out for cooling the motor. Do not allow it to become clogged up, even if the dust is blown through it.
27. **OPERATE POWERTOOLS AT THE RATED VOLTAGE:** Operate power tools at voltages specified on their nameplates.
28. **NEVER TOUCH THE MOVING PARTS:** Never touch the moving parts such as blades, bits, cutters and others.
29. **STOP OPERATION IMMEDIATLEY IF ANY ABNORMALITY IS DETECTED:** Should a power tool be detected as out of order or should other abnormalities be observed during operation , stop using the tool immediately.
30. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF:** Don't leave tool until it comes to a complete stop.
31. **CAREFULLY HANDLE POWERTOOLS:** Should a power tool be dropped or struck hard against hard materials inadvertently it may be deformed, cracked or damaged.
32. **DO NOT WIPE PLASTIC PARTS WITH SOLVENT:** Solvents such as gasoline, thinner, benzene, carbon tetrachloride, and alcohol may damage and crack plastic parts. Do not wipe them with solvents. Wipe plastic parts with a soft cloth lightly dampened with soapy water.
33. **WHEN REPLACING A COMPONENT PART, ADOPT THE SAME TYPE:** When replacing a component part with a new one, adopt the same type of new part. Also never attempt to repair a power tool yourself.

ENVIROMENTAL PROTECTION


Raw material recycling instead of waste disposal

In order to avoid damages on transportation, the power tool has to be delivered in sturdy packing. The packing as well as the tool and its accessories are made of recyclable materials and can be disposed accordingly.

The tools plastic components are marked accordingly to their material, which makes it possible to remove environmental friendly and differentiated because of available collection facilities.

ONLY FOR EU COUNTRIES



Do not dispose of household tools together with household waste material, In observance of European directive 2002/96/EC on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

NOISE EMISSION / VIBRATION

The indication of noise emission is measured according to DIN 45 635, part 21. Level of acoustic pressure on the work place could exceed 85 dB (A) in this case protection measures must be taken.



WEAR EAR PROTECTORS!

The typical hand arm vibration is now below 2.5m/s 2
Measured values determined according to EN 50 144

The declared vibration emission level represents the main applications of the tool. However if the tool is used for different applications with different accessories or poorly maintained the vibration emission may differ. This may significantly increase the exposure level over the total working period.

SAFETY CLUTCH

The safety clutch should absorb shock and excessive stress. It is an aid and not an absolute protection. Therefore you have to handle and drill carefully.
To keep in good condition the clutch should slip for a very short time (max 2 seconds) in each case only.
After excessive wearing the clutch has to be renewed by an authorised service shop.
Always ensure that the motor is fully stopped before attempting to change the speed of the machine.

OPERATING THE MACHINE

a) Fitting the cutter or drills

Always unplug the power source to the machine before fitting or removing cutters or drills into the arbour. To fit cutters loosen both screws to permit the cutter shank to fit fully into the arbour ensuring the flats of the cutter are in line with set screws, then tighten the set screws until the cutter is safely locked in to the arbour.

With a gloved hand or a brush clean any dirt or swarf from the base of the magnet and the work piece and place unit in correct place for drilling.

Attach safety chain by looping it through the handle of the machine and around the work piece or other suitable anchor point. Take up any slack on the chain and clip the hook through a convenient link in the chain.

Plug the power cable in to a suitable power supply (using extension lead of the correct rating if necessary) The use of an RCD is also highly recommended.

b) Drilling – Broaching

Energise the magnet by switching on the magnet switch

Check the magnet is holding to the work piece. Using the oil bottle add oil to the work piece. If cutting in inverted position it is recommended a aerosol foam coolant or cutting paste is used.

Select the required speed. Do NOT attempt to change speed while the machine is drilling.

Start Motor

Please note that the motor will not run unless the magnet is energised.

If for any reason the power is interrupted the relay makes it necessary to restart the motor again before cutting can continue.

Advance the cutter to the work piece using light and controlled pressure until the cutter has broken the surface, then increase pressure until the motor is loaded. Maintain even pressure right through the cut.

Too much pressure will NOT speed up the cut, it will reduce the life of the cutter and may cause damage to the motor.

If the turnings become blue add more oil. At the end of the cut the slug will be ejected, check before commencing next hole.

Stop motor, switch off magnet.

WARNING: Under no circumstances try to remove turnings or swarf from the cutter when machine is in operation. **NEVER** introduce and body parts to moving parts of the machine when it is switched on.

This document is issued for general information and instruction and as such does not constitute a specification of the equipment.

Only use faultless and sharp drilling tools and avoid that the machine stops due to overload.

MOUNTING THE TOOL



DISCONNECT THE PLUG FROM THE MAINS BEFORE EVERY TOOL CHANGE!

Twist Drills:

Drills with MT3 connection can be directly fitted in the drill spindle.
For twist drills with MT2 connection use a reducing sleeve MT3 – MT2
For twist drills with parallel shank use a drill chuck B18 with appropriate taper mandrel MT3 – B18

Core Drills:

For working with core drills you need a mount MT3 – 0 19 weldon
Fit the ejector pin of suitable length in the core drill.
Place the core drill in the Weldon mount so that the two allen screws hit the two surfaces of the shaft.
Tighten the allen screws equally.

Attention!!
Never press the tool into the tool connection with might and main!
Morse tapper and – cone have to be free of grease and dirt.

REMOVING THE TOOL

Put the drill drift in the opening of the gearbox collar.
If you cannot insert the drill drift through the work spindle, turn the work spindle slightly.
Remove the tool from the work spindle by a slight impact on the drill drift.

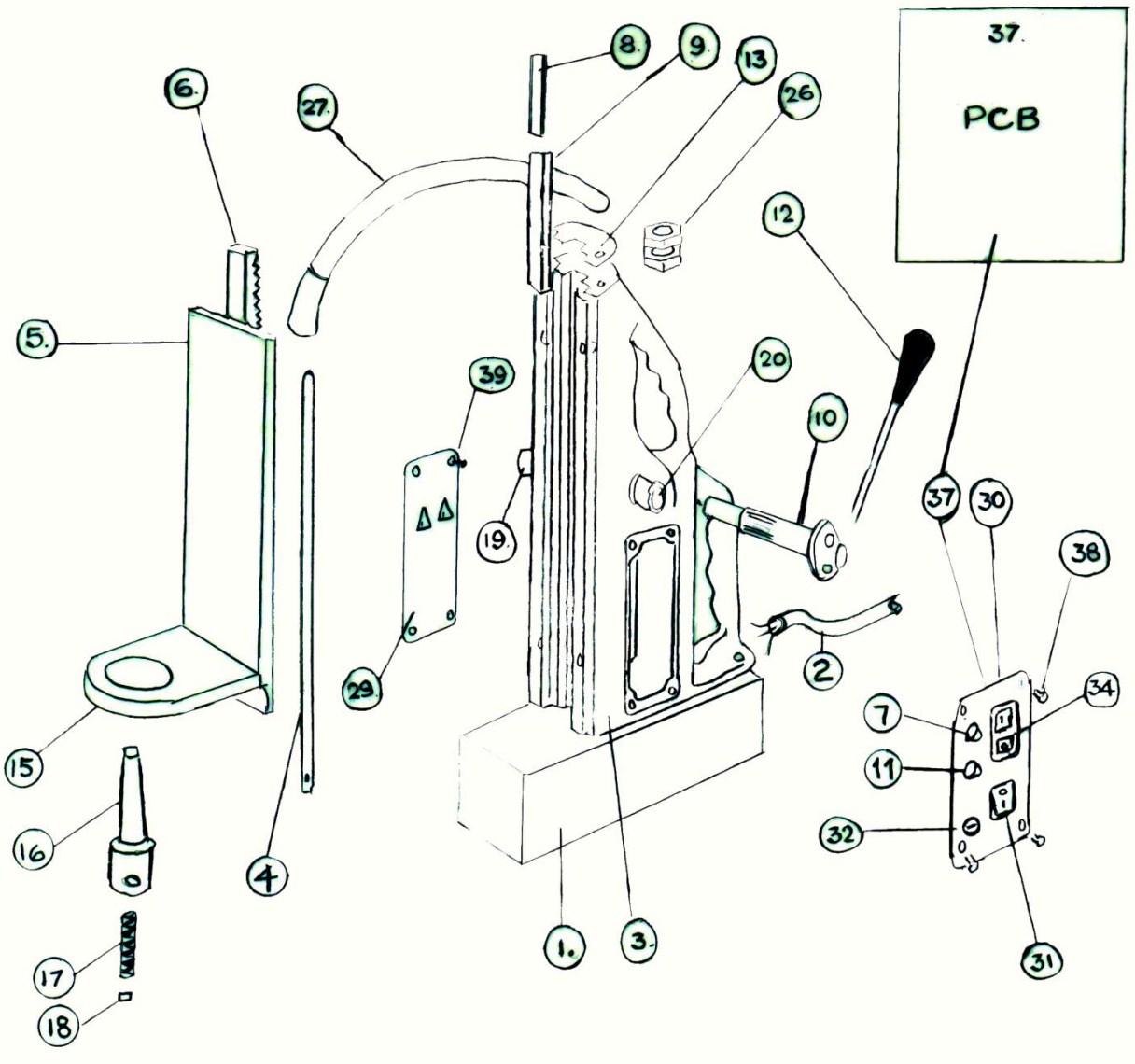
MAGNETIC STAND PARTS
HM100

POS NO	DESCRIPTION	HM100 PART/NO
1	MAGNETIC BASE	HM100-1
2	MAINS FLEX	HM100-2
3	DOVETAIL BODY CASTING	HM100-3
3	8MM DIAM RAIL BODY CASTING	HM100-3R4
4	8MM DIAM GUIDE RAIL	HM100-4R4
5	DOVETAIL SLIDE	HM100-5
5	8MM DIAM SLIDE RAIL	HM100-5R5
6	RACK	HM100-6
7	FWD/REV DIRECTION SWICH	N/A
8	JIB STRIP	HM100-8
9	G.F.S. SECTION	HM100-9
10	PINION GEAR	HM100-10
11	SPEED CONTROL SWITCH	N/A
12	HANDLE C/W KNOBS	HM100-12
13	JIB PLATE	HM100-13
15	MOTOR SUPPORT BRACKET	HM100-15
16	19MM WELDON ARBOR	HM100-16
17	ARBOR EJECTION SPRING	HM100-17
18	SPRING PISTON	HM100-18
19	SMALL PINION BUSH 12MM	HM100-19
20	LARGE PINION BUSH 25MM	HM100-20
26	CABLE GLAND	HM100-26
27	MOTOR FLEX CABLE	HM100-27
29	WARNING PLATE	HM100-29
30	SWITCH PLATE	HM100-30
31	MAGNET SWITCH	HM100-31
32	FUSE HOLDER C/W FUSE 2A	HM100-32
34	MOTOR STOP/START SWITCH	HM100-34
37	P.C.B 230V AC ONLY	HM100-37 230
37	P.C.B 110V AC ONLY	HM100-37 110
38	PANEL FIXING SCREWS	HM100-38
39	PANEL FIXING SCREWS	HM100-39
ARBOR ACCESSSORIES		
POS NO	**DESCRIPTION**	

N/A	CIRCLIP	
N/A	WASHER	
N/A	NITRILE SEAL WASHER 19MM	
N/A	COOLANT ARBOR RING	
N/A	SINGLE LIP SEAL 30X40X7	
N/A	FITTING 1/8 BSP X 6MM	
N/A	32MM X 40MM X 1 WASHER	
N/A	MT2 DRIFT KEY	
N/A	MT3 DRIFT KEY	
NA	SAFETY GUARD HM100/ MT30	

MAGNETIC STAND PARTS

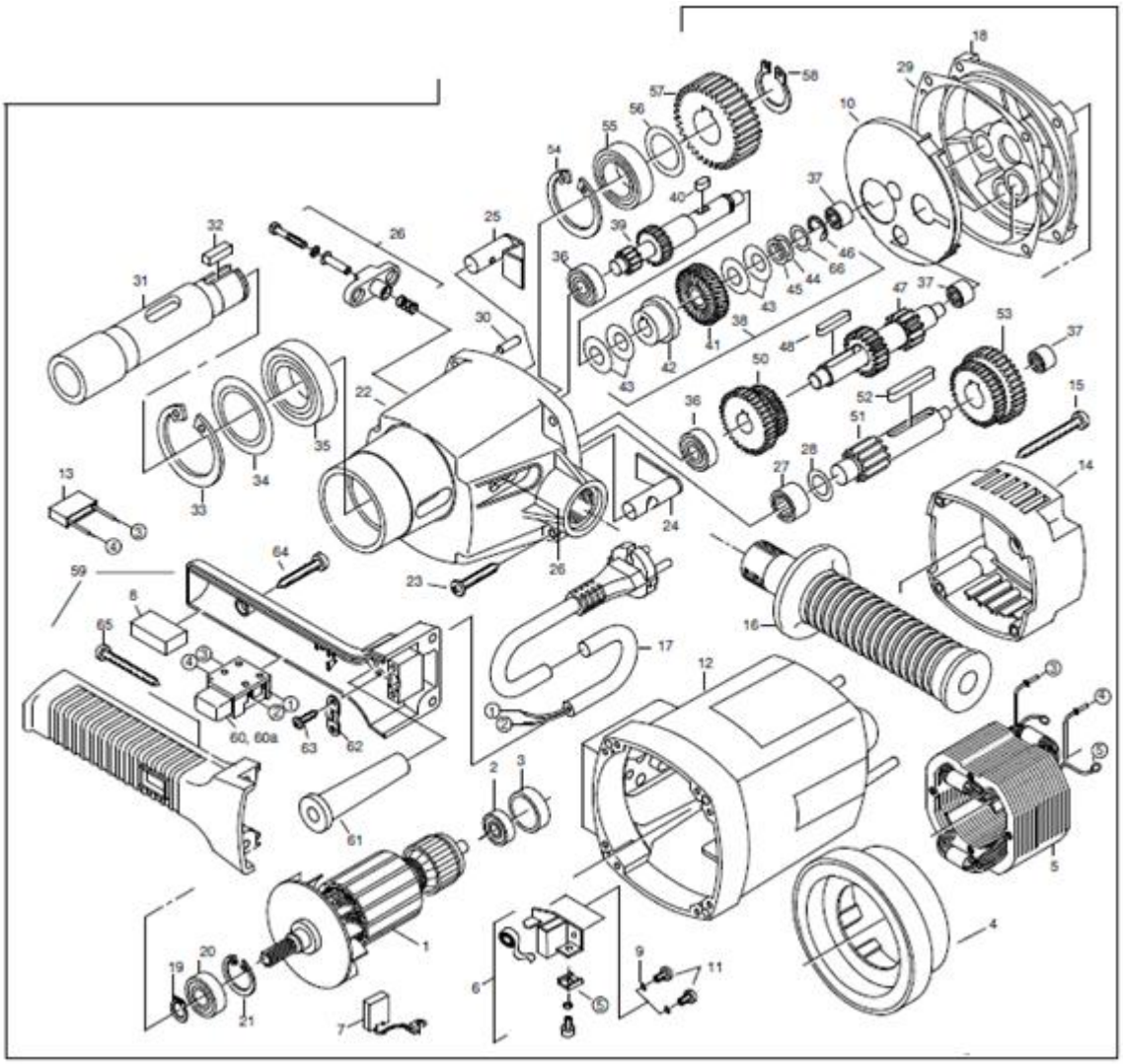
HM100



MOTOR SPARE PARTS

No.	Description	Part No	No.	Description	Part No
1	rotor complete 220V	HM101	35	grooved ball bearing 6006 2RS	HM135
2	grooved ball bearing 6000 2Z	HM102	36	grooved ball bearing 6000	HM136
3	bearing cap	HM103	37	needle sleeve HK 0810	HM137
4	air guiding ring	HM104	38	coupling complete	HM138
5	stator complete 220V	HM105	39	intermediate shaft 1	HM139
6	brush holder complete	HM106	40	locking spring 5x5x10	HM140
7	carbon brush	HM107	41	coupling wheel	HM141
8	spacer	HM108	42	coupling half	HM142
9	corrugated spring washer B4	HM109	43	spring washer 28/12,2x1	HM143
10	grease compartment barrier	HM110	44	pressure washer 1	HM144
11	self tapping screw ZM4x12	HM111	45	locking washer 12/18x0,2	HM145
12	motor housing	HM112	46	lock washer 9	HM146
13	anti parasit condenser	HM113	47	intermediate shaft 2	HM147
14	cap for motor housing	HM114	48	locking spring A5x5x28	HM148
15	self tapping screw HC 4,8x45	HM115	49		
16	tube handle compl.	HM116	50	gear block 1	HM150
17	connecting cable 2x1mm²	HM117	51	intermediate shaft 3	HM151
18	end shield of gearing	HM118	52	locking spring A6x6x40	HM152
19	locking ring 11/1	HM119	53	gear block 2	HM153
20	grooved ball bearing 6001 2Z	HM120	54	locking ring 47/1,75	HM154
21	locking ring 28/1,2	HM121	55	grooved ball bearing 6005 2RS	HM155
22	gearbox housing	HM122	56	locking washer 25x0,1	HM156
23	self tapping screw HC 5,5x38	HM123	57	spindle wheel	HM157
24	coupling bolt complete 2	HM124	58	locking ring 24/1,2	HM158
25	coupling bolt complete 1	HM125	59	pair of handle halves	HM159
26	gear changer complete	HM126	60	flush mounting switch	HM160
27	needle bearing RNA 4900	HM127	60a	soft start switch "S" 220V	HM160A
28	disc for needle bearing	HM128	61	cable grommet	HM161
29	gearbox seal	HM129	62	wire locking flange	HM162
30	notched pin plug 5x16	HM130	63	self tapping screw HC 4,2x16	HM163
31	work spindle	HM131	64	self tapping screw HC 5,5x32	HM164
32	fitting key B6x6x20	HM132	65	self tapping screw HF 5,5x25	HM165
33	locking ring 55/2	HM133	66	pressure washer 2	HM166
34	washer for ball bearing	HM134			

1	rotor complete 110V	HM101/1	17	connecting cable, 4h-plug, 2x1,5mm²	HM117/1
5	stator complete 110V	HM105/1	60	switch 110V	HM160/1



JEI Six (6) month limited warranty

JEI Solutions warrants the HM100 Drilling machine to be free of defects in material and workmanship under normal use for a period of six months from date of purchase. **This warranty does not cover damage or wear which arise from misuse, accident, tampering or any other causes not related to defects in workmanship or materials.** This warranty is conditioned upon the prepaid return of the HM100 Machine to JEI Solutions Ltd, Unit 30, Newhallhey Business Park, Rossendale, Lancs. Or our International representative for our international customers for examination and verification of the claimed defects. If defect is verified, JEI Solutions Ltd will replace, free of charge, any defective parts. If inspection of the machine does not disclose any defect in workmanship or materials, the original purchaser will be notified by JEI Solutions Ltd, or its representative, of the costs of necessary repairs. If repairs are authorized, repairs will be made and the costs of repair and return transportation will be billed through the customer's distributor.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES (EXPRESSED OR IMPLIED) INCLUDING WARRANTY OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SPECIAL AND CONSEQUENTIAL ARE EXPRESSLY EXCLUDED AND DENIED.

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