

Pivot Magnetic drilling& tapping machine

Model Number Element 50/1PM, Element 50/3PM

This machine (Serial Number) is CE approved.



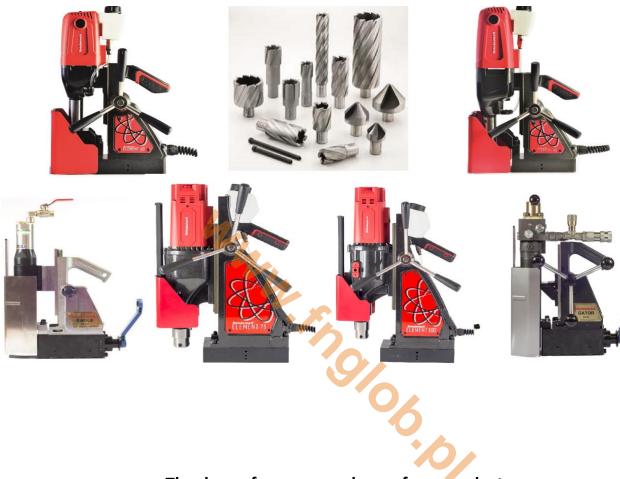


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Thank you for purchasing our Element 50PM magnetic drill. We would really like your feedback on the machine.

Other products by Rotabroach:



Thank you for your purchase of our product.

CONTENTS OF THE MANUAL

Section	Description	Page
1	Intended use	4
2	General safety rules	4
3	Information plate symbols	5
4	Specification	6
5	Operational safety procedures	7
6	Operating instructions	7
7	Control panel operation	8
8	Gear selection	9
9	Magnet operation	9
10	Extension cable selection	10
11	Mounting of cutters	10
12	Capstan operation	10
13	Remedies for hole making problems	11
14	Wiring diagram 🔥	12
15	Exploded view of machine	14
16	Exploded view of motor and gearbox	17
17	Control panel parts list	20
18	Fitting the chuck	21
19	Maintenance	21
20	Trouble shooting	23
21	Cutter selection and speeds	24
22	Cutter selection and speeds Warranty and CE statements	25
D/	N List of Contents with Magnetic Drill Unit	

P/N	List of Contents with Magnetic Drill Unit
RDC4083	Safety belt
RD4152	3mm hexagonal spanner
RDC4084	13mm Chuck
CA120	Arbor assembly – 6mm hexagonal spanner included
RDC4086	Drift
RDC4087	Arbor shank
RDA3105	Safety glasses
RDC4088	Spare brush-230V
RDC4089	Spare brush-110V
RD32059	25mm Arbor Extension Body

1) INTENDED USE

The intended use of this magnetic drill is to drill holes in ferrous metals. The magnet is used to hold the drill in place whilst the drill is functioning. It is designed for use in fabrication, construction, petrochemical and any other applications when drilling ferrous metal. Any deviation from its intended use will not be covered by warranty.

2) GENERAL SAFETY RULES



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. Please read all of these instructions before attempting to operate the machine. Never use the tool without the RCD.

- 1. Remove the power supply before carrying out any adjustment, servicing or maintenance.
- 2. Keep work area clear cluttered areas and benches invite injuries.
- 3. Consider work area environment;
 - Do not expose tools to rain.
 - Do not use tools in damp or wet locations.
 - Keep work area well lit (500 Lux recommended).
 - Do not use tools in the presence of flammable liquids or gases.
 - Ensure there is adequate space to gain access to the plug, mains and motor on/off switches.
- 4. Guard against electric shock:
 - Avoid body contact with earthed or ground surfaces (e.g. pipes, radiators, cookers and refrigerators). Electric safety can be further improved by using a high-sensitivity (30 m A/0.1s) residual current device (RCD).
- 5. Keep other persons away. Do not let untrained persons, especially children, touch the tool or the extension cord and keep them away from the work area.
- 6. Store idle tools when not in use. All tools should be stored in a dry locked-up place, out of reach of children.
- 7. Do not apply too much force through the machine. It will do a better and safer job at the feeds for which it was designed.
- 8. Use the right tool;
 - Do not force small tools to do the job of a heavy duty tool.
 - Do not use this tool for purposes not intended: e.g. do not use the magnetic drill to cut tree logs.
- 9. Dress properly;
 - Do not wear loose clothing or jewellery; they can be caught in moving parts.
 - Non-skid footwear is recommended when working outdoors.
 - Wear a protective hair covering to contain long hair. This will reduce the risk of entanglement.
- 10. Use protective equipment when using this machine;
 - Use safety glasses to prevent debris from damaging eyes.
 - Use ear defenders or ear plugs for hearing protection.
 - Use face or dust masks if cutting operations create dust.
 - Use protective gloves to prevent swarf or debris cutting the skin.
- 11. When using the drill, always ensure a safe operating distance from any swarf and do not reach into the cutting area, or near the cutter, when the machine is running.
- 12. Connect dust extraction and collecting equipment, if devices are provided, ensuring these are properly connected and used.
- 13. Do not abuse the cord; never pull the cord to disconnect it from the socket. Keep the cord away from heat, oil and sharp edges.
- 14. Secure work where possible, use clamps or a vice to hold the work. It is safer than using your hand.
- 15. Do not overreach! Keep proper footing and balance at all times.
- 16. Maintain tools with care;
 - Keep cutting tools sharp and clean for better and safer performance.

- Regularly check the machine for any wear or damage.
- Ensure the machine is clean and free from debris prior to use.
- Remove from the mains prior to any maintenance.
- Follow instructions for lubricating and changing accessories.
- Inspect tool cords periodically and if damaged have it repaired by an authorized Rotabroach service facility.
- Inspect extension cords periodically and replace if damaged.
- Keep handles dry, clean and free from oil and grease.
- 17. Disconnect tools from the power supply when not in use, before servicing or when changing accessories such as cutters.
- 18. Form the habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
- 19. Avoid unintentional starting. Ensure the magnet is off before plugging the machine in.
- 20. Use extension leads only intended for outdoor use when the tool is used outdoors.
- 21. The vibration emissions during actual use can differ from the declared total value depending on the ways in which the tool is being used.
- 22. Watch what you are doing, use common sense and do not operate the tool when you are tired. Do not operate the machine when under the influence of alcohol or any illegal substances.
- 23. Check damaged parts
- Before further use of tool, it should be carefully checked to determine that it will operate property 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 centre unless otherwise indicated in this instruction manual.

Have defective switches replaced by authorized service centre,

Do not use the tool if the switch does no turn it on and off.

- 24. The use of any accessory or attachment, other than ones recommended in this instruction manual, may present a risk of personal injury.
- 25. Have your machine repaired by a qualified Rotabroach technician. This electric tool complies with the relevant safety rules. Qualified persons using original spare parts should only carry out repairs otherwise this may result in considerable danger to the user.
- 26. Never operate the machine if parts are missing or damaged.
- 27. Never direct jets of water or flammable liquids over the drill.
- 28. Operator must be physically able to handle the weight of the machine.
- 29. Operator should be trained in the use of the machine.

3) INFORMATION PLATE SYMBOLS 1 2 3 4

- 1. Refer to the user manual for operational and safety issues with regard to this machine.
- **2.**Dispose of the machine and electrical components correctly.
- **3.**Eye protection must be worn when operating the machine.

4.Ear defenders must be worn when operating the machine.

4)SPECIFICATION

Maximum hole cutting capacity in .2/.3C steel = 50mm dia. x 50mm deep

Arbor bore = MT2

Motor Unit				
Voltages	110V 50-60Hz 230V 50-60Hz			0-60Hz
Normal full load	14.9 A	1500W	6.9 A	1500W
Size		277m	m long	
		190mi	n wide	
Holding Force at 20°C with 25mm minimum plate thickness		843	30N	
The use on any material less than 25mm thick will progressively				
reduce the magnetic performance. If possible, substitute				
material should be positioned under the magnet and work				
piece to equate to a suitable material thickness. If this is not				
possible, an alternative secure method of restraining the				
machine must be used.				
Overall Dimensions				
Height - maximum extended	640mm			
Height - minimum	490mm			
Width		190	mm	
Length Overall (including guard)	317mm			
Nett Weight		18Kgs	17	′.7Kgs
	Element	50/1PM	Element	50/3PM
Vibration total values (triax vector sum) in accordance with		nission value		nission value
EN61029-1:		62m/s ²	· ···	27 m/s²
		/(K):1.5m/s²	Uncertainty(
Level of sound pressure in accordance with EN61029-1:		ssure(LpA):		ssure(LpA):
		dB(A)		dB(A)
	· · ·	ower(LwA):		ower(LwA):
		dB(A)		dB(A)
	Uncertainty	(K): 3dB(A)	Uncertainty	(K): 3dB(A)

Ear and eye defenders must be worn when operating this machine. Wear gloves to protect hands when operating the machine.

The declared vibration total value has been measured in accordance with a standard test method and may be used for comparing one tool with another.

The declared vibration total value may also be used in a preliminary assessment of exposure.

The vibration emission during actual use of the power tool can differ from the declared total value depending on the ways in which the tool is used;

The need to identify safety measures to protect the operator that are based on an estimation of exposure in the actual conditions of use (taking account of all parts of the operating cycle such as the time and when the tool is switched off and when it is running idle in addition to the trigger time).

These tools are UK designed and manufactured with globally sourced components and conform with the requirements of EEC Document HD.400.1 and BS.2769/84.

Suitable only for a single phase 50-60Hz A.C. power supply

DO NOT USE ON D.C. SUPPLY

Do not use your magnetic drill on the same structure when arc welding is in progress. D.C. current will earth back through the magnet and cause irreparable damage.

WARNING: THIS APPLIANCE MUST BE EARTHED!

NB: ANY MODIFICATIONS TO THIS MACHINE WILL INVALIDATE THE GUARANTEE

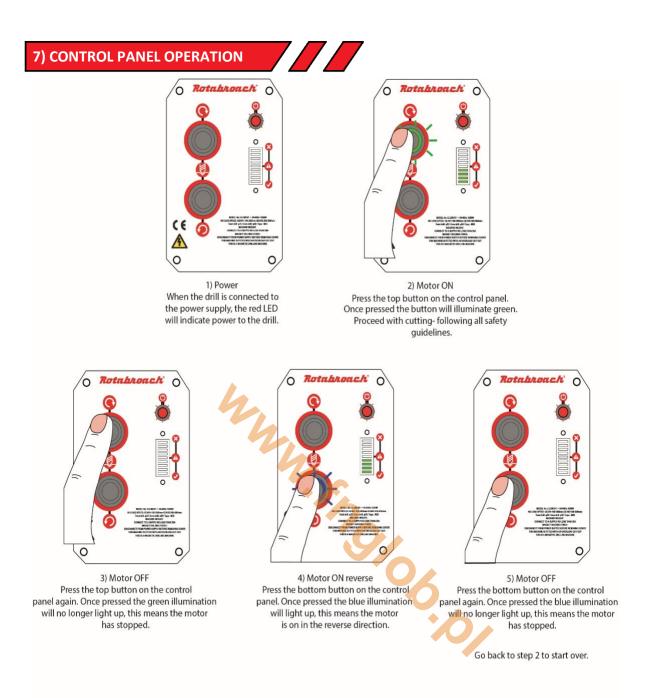
5) OPERATIONAL SAFETY PROCEDURES

READ BEFORE USING THE MACHINE

- When using electrical tools, basic safety precautions should always be followed to reduce the risk of electric shock, fire and personal injury.
- Ensure the magnet is off before plugging in the machine.
- Do not use in wet or damp conditions. Failure to do so may result in personal injury.
- Do not use in the presence of flammable liquids, gases or in high risk environments. Failure to do so may result in personal injury.
- Before activating the machine, inspect all electrical supply cables (including extension leads) and replace if damaged. Do not use if there are any signs of damage.
- Only use extension cables approved for site conditions.
- Before activating the machine, always check the correct function of all operational systems, switches, magnet etc.
- Before operating, the machine must be securely restrained to a fixed independent feature by using safety strap RDC4083.
- Always wear approved eye protectors, ear defenders and recommended PPE when operating the machine.
- Disconnect from power source when changing cutters or working on the machine.
- Cutters and swarf are sharp, always ensure that hands are adequately protected when changing cutters or removing swarf. Use a tool or brush where necessary to remove any swarf or the cutter from the arbor.
- Before operating the machine, always ensure cutter-retaining screws are secured tightly.
- Regularly clear the work area and machine of swarf and dirt, paying particular attention to the underside of the magnet base.
- Always remove tie, rings, watches and any loose adornments that might entangle with the rotating machinery before operating.
- Always ensure that long hair is securely enclosed by an approved restraint before operating the machine.
- Should the cutter become stuck in the work piece, stop the motor immediately to prevent personal injury. Disconnect from power source and turn arbor to and fro. Do not attempt to free the cutter by switching the motor on and off. Wear safety gloves to remove the cutter from the arbor.
- If the machine is accidentally dropped, always thoroughly examine the machine for signs of damage and check that it functions correctly before resuming drilling.
- Regularly inspect the machine and check for any damaged or loose parts.
- Always ensure when using the machine in an inverted position that only the minimum amount of coolant is used and that care is taken to ensure that coolant does not enter the motor unit.
- Cutting tools may shatter, always position the guard over the cutter before activating the machine. Failure to do so may result in personal injury.
- On completion of the cut, a slug will be ejected.
- When not in use always store the machine in a safe and secure location.
- Always ensure that approved ROTABROACH[™] agents conduct repairs.

6) OPERATING INSTRUCTIONS

- Keep the inside of the cutter clear of swarf. It restricts the operating depth of the cutter.
- Ensure that the coolant bottle contains sufficient cutting oil to complete the required operating duration. Refill as required.
- Occasionally depress the pilot to ensure cutting fluid is being correctly metered.
- To start the machine, follow the control panel operation instructions. The Element machine is fitted with a dual motor protection system to fully ensure safety and extended life of the motor. The CutSmart protection (found on the control panel) gives a clear and visible indication to the user of torque being applied to the motor, once the prescribed level is reached the motor is protected by automatic cut out. To re-start your machine, the operator will simply press the start button again (blue tapping button should a protection mode occur during tapping). If, however the speed controller protection is activated, this is torque sensor regulated at a pre-determined value above CutSmart (should CutSmart fail to operate) the operator is required to press the start button twice to re-activate the machine.
- Always switch off the motor by depressing the green start/stop button or blue button depending upon operation.
- Apply light pressure when commencing the cut of a hole until the cutter is introduced into the work surface. Pressure can then be increased sufficiently to load the motor. Excessive pressure is undesirable, it does not increase the speed of penetration and will cause the safety overload protection device to stop the motor (the motor can be restarted by operating the motor start button) and may cause excessive heat which may result in inconsistent slug ejection
- Always ensure that the slug has been ejected from the previous hole before commencing to cut the next.
- If the slug sticks in the cutter, move the machine to a flat surface, switch on the magnet and gently bring the cutter down to make contact with the surface. This will usually straighten a cocked slug and allow it to eject normally.
- Apply a small amount of light oil lubricant regularly to the slide.
- Cutter breakage is usually caused by insecure anchorage or a loosely fitting slide (Refer to routine maintenance instructions).
- Only use approved cutting fluid. Rotabroach cutting fluid has been specially formulated to maximise the cutters performance.



When tapping, always use the lowest gear with the lowest speed. Never tap without applying tapping or cutting compound, ensuring a smooth cut and prolonging tool life.

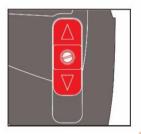
Drill the hole to the recommended tapping size for the thread to be cut, information can be found on the Rotabroach website (www.rotabroach.co.uk).

Once cutting, the tap will feed itself through. When using the reverse feature only gentle pressure on the feed handles should be necessary.

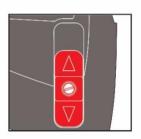
8) GEAR SELECTION

The Element 50 magnetic drill is fitted with a 2 speed gearbox. The gear is used to reduce the output speed when using larger cutters.

Slide Selector Position	Speed Controller Setting	
	Level 1 Level 6	
\wedge	200/min	500/min
V	100/min	265/min



Slide Selector Position Up



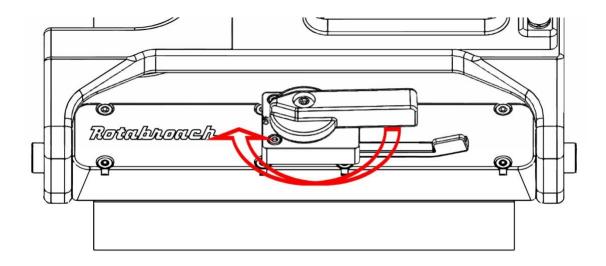
Slide Selector Position Down

9) MAGNET OPERATION



- 2. To turn the magnets, on rotate the activating ratchet handles as in the image seen below.
- 3. For positioning only, move the ratchet handles around 90°.
- 4. During operation always ensure the ratchet handles are set to maximum.
- 5. Only when the ratchet handles are rotated a full 180°, can the magnet be judged to be fully off or on.

ONLY WHEN FULL MAGNETIC ADHESION IS JUSTIFIED BY ROTATING THE RATCHET HANDLES TO MAXIMUM, SHOULD THE MOTOR BE POWERED ON.





The machines are factory fitted with a 3 metre length of cable having three conductors 1.5mm² LIVE, NEUTRAL and EARTH. If it becomes necessary to fit an extension cable from the power source, care must be taken in using a cable of adequate capacity. Failure to do so will result in a loss of traction by the magnet and a reduction of power from the motor.

Assuming a normal AC supply of the correct voltage, it is recommended that the following extension lengths shall not be exceeded:

For 110v supply:3.5metres of 3 core x 1.5mm²For 230v supply:26metres of 3 core x 1.5mm²

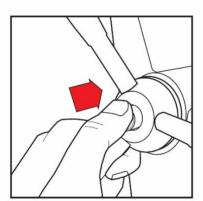
ALWAYS DISCONNECT THE MACHINE FROM THE POWER SOURCE BEFORE CHANGING CUTTERS.

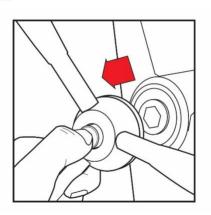
11) MOUNTING OF CUTTERS

• The machine has been made to accept cutters having 19.05mm (3/4") dia. Weldon shanks. The following procedure is to be used when mounting cutters:

- With the machine in the upright position, ensure the Arbor Assembly (CA120) is fully inserted into Arbor Spindle (RDC4009).
- Ensure extension piece RD32059 is fitted to arbor assembly CA120.
- Take appropriate pilot and place through the hole in cutter shank. Insert shank of cutter into bore of Arbor Assembly, ensuring alignment of two drive flats with socket screws.
- Tighten both screws using hexagon key.

12) CAPSTAN OPERATION





The quick release capstan is a feature that offers the user simple dual side operation.

To remove the capstan, simply do the following;

1: Press in the central button on the capstan hub, holding onto the capstan arms.

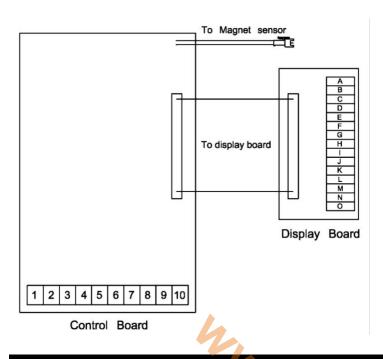
2: With the button pressed in, pull the capstan away from the main body, holding on to the capstan arms.

3: Re-insert the hexagonal shaft into the hexagonal slot to attach the capstan.

13) REMEDIES FOR HOLE MAKING PROBLEMS

Problem	Cause	Remedy
1) Magnetic base won't hold effectively	Material being cut may be too thin for efficient holding.	Attach an additional piece of metal under the magnet, or mechanically clamp magnetic base to work-piece.
encetively	Swarf or dirt under magnet.	Clean magnet.
	Irregularity on magnet contact or work-piece.	Use extreme care; file any imperfections flush to surface.
2) Cutter skips	Magnetic base is not holding effectively.	See causes and remedies above.
out of centre- punch mark at	Worn arbor bushing and/or ejector collar.	New arbor bushing is needed.
initiation of cut	Too much feed pressure at start of cut.	Light pressure only is needed until a groove is cut. The groove then serves as a stabilizer.
	Cutter is dull, worn, chipped or incorrectly sharpened.	Replace or re-sharpen. Sharpening service is available.
	Poor centre-punch mark; weak pilot spring; pilot not centred in centre-punch mark.	Improve centre-punch and/or replace worn parts
	Worn or bent pilot, worn pilot hole.	Replace part or parts
	Loose bolts on motor bushing support bracket, main casting or loose gib adjusting set screws.	Adjust where necessary
3) Excessive	Incorrectly re-sharpened, worn or chipped cutter.	Re-sharpen or replace.
drilling pressure required	Coming down on swarf lying on surface of work-	Take care not to start a cut on swarf.
	Gibstrips out of adjustment or lack of lubrication.	Adjust setscrews and lubricate.
	Swarf accumulated (packed) inside cutter.	Clear cutter.
4) Excessive cutter breakage	Steel swarf or dirt under cutter.	Remove cutter, clean part thoroughly and replace.
Cutter Dreakage	Incorrectly re-sharpened or worn cutter.	Always have a new cutter on hand to refer to for correct tooth geometry, together with instruction sheet.
	Cutter skipping.	See causes and remedies (2).
	Slide needs adjustment.	Tighten grub screws supporting the slide.
	Cutter not attached tightly to arbor.	Retighten.
	Insufficient use of cutting oil or unsuitable type of oil.	Inject oil of light viscosity into the coolant-inducing ring and check that oil is being metered into cutter when pilot is depressed. If not, check pilot groove and arbor internally for dirt or apply oil externally. (Even a small amount of oil is very effective).
	Incorrect speed	Ensure correct gear is used for the cutter.
5) Excessive	See cause and remedy above	Refer to instructions and a new cutter for proper tooth geometry.
cutter wear		
	Incorrectly re-sharpened cutter.	Use sufficient steady pressure to slow the drill down. This will
	Insufficient or spasmodic cutting pressure.	result in optimum cutting speed and chip load.

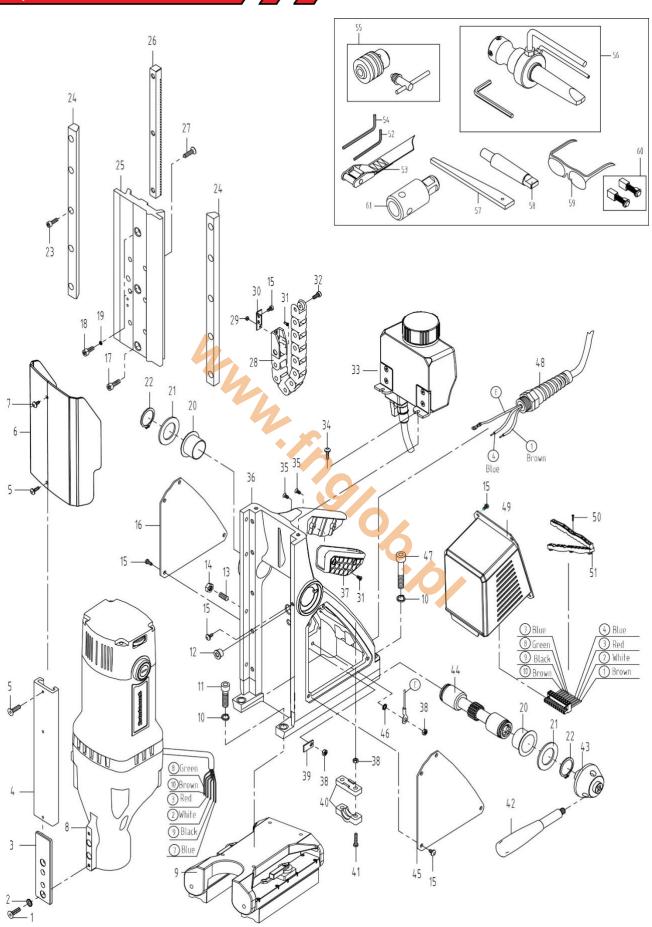
14) WIRING DIAGRAM



No	Function	Wire Colour
1	Mains Live Input	Brown
2	Speed controller module Lead wire 🌽	Nhite
3	Speed controller module Lead wire	Red
4	Mains Neutral Input	Blue
5	N/A	
6	N/A	
7	Field coil Lead wire	Blue
8	Field coil Lead wire	Green
9	Carbon brush Lead wire	Black
10	Carbon brush Lead wire	Brown

No	Function	Wire Colour
Α	Motor 'Reverse' Switch 0V	White
В	Motor 'Reverse' Switch +5V	White
С	Motor 'Forward' Switch 0V	White
D	Motor 'Forward' Switch +5V	White
E	N/A	
F	N/A	
G	N/A	
н	N/A	
I	N/A	
J	Power 'ON' LED 0V	White+Black
К	Power 'ON' LED +5V	White+Brown
L	Motor 'Reverse' LED 0V (BLUE)	White
М	Motor 'Reverse' LED +12V (BLUE) White	
Ν	Motor 'Forward' LED 0V (Green)	White
0	Motor 'Forward' LED+12V (Green)	White

ED 0V (ω. .D +12V (Green) 15) EXPLODED VIEW OF MACHINE



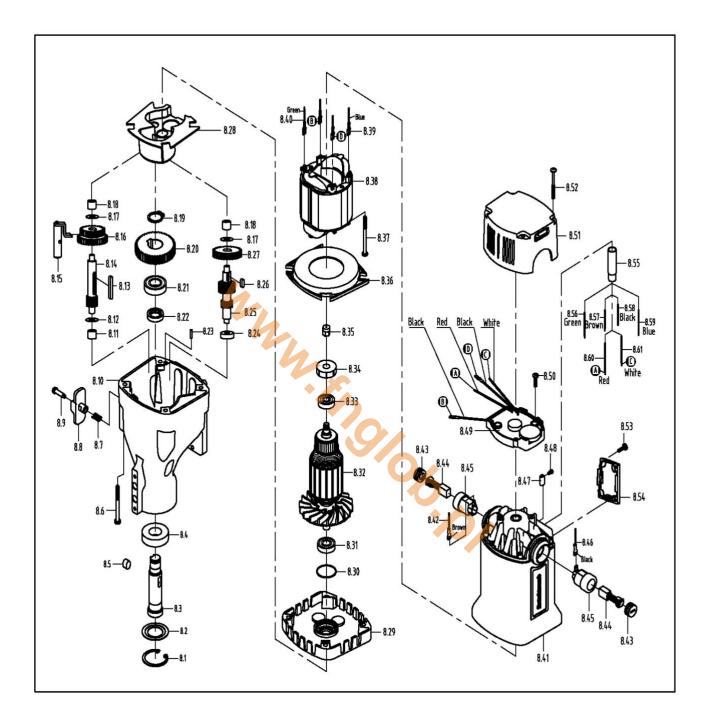




ltem#	Rotabroach P/N	Description	Qty/pcs
1	RDC4001	Screw	2
2	RD45607	M5 CSK Washer	2
3	RDC4002	Guard support	1
4	RDC4003PM	Slide channel	1
5	RDA4201	Screw M4×14 Button Head	2
6	RDB3037PM	Element E40 Guard	1
7	RDC4004	Screw M4×8 Button Head	1
9	RDC4136	Pivot Magnet	1
10	RD4079	Spring washer	4
11	RDC4055	Screw	2
12	RDA4005	Cable bush	1
13	RDC4056	Screw	4
14	RDC4057	Nut	4
15	RDA4021	Screw M4×8 Button Head	14
16	RDC4058PM	Right side plate	1
17	RD4098	Screw M6×20 CAP HD	1
18	RDA4029	Screw M6×16 CAP HD	2
19	RDC4104	Spring washer	2
20	RDA3092	Bush	2
21	RDA4006	Capstan Washer	2
22	RDA4004	Circlip	2
23	RDC4059	Screw	10
24	RDC4060	Guide bar	2
25	RDC4061	Slide	1
26	RDC4062	Rack	1
27	RDC4063	Screw	6
28	RDC4064	Chain	1
29	RDA4205	M3 Nut	2
30	RDC4065	Chain	1
31	RDA4204	Screw M3×8 CSK HD	14
32	RDC4066	Screw	1
33	RDC4067	Coolant bottle assembly	1

ltem#	Rotabroach P/N	Description	Qty/pcs
34	RDD4118	Screw M4×12 Button Head	2
35	RDC4068	Screw	2
36	RDC4069	Housing	1
37	RDA5008	Handle insert	1
38	RD4068	M4 nut	4
39	RD45604	Earth label	1
40	RDA4070	Cable clamp	1
41	RDA4071	Screw M4×22CAP HD	2
42	RDD4104	Capstan arm	3
43	RDA3015	Capstan Hub	1
44	RDC4070	Capstan spindle	1
45	RDC4071PM	Left side panel	1
46	RD4069	Washer	1
47	RDC4073	Screw	2
40	RDC4074	Cable plug assembly-230V	1
48	RDC4075	Cable plug assembly-110V	1
40	RDC4076PM	Control panel assembly-E50/3T	1
49	RDC4077PM	Control panel assembly-E50/1T	1
50	RDC4080	Tapping screw ST2.9×12(using 110V)	3
51	RDC4081	Clamp (using 110V)	1
52	RD4152	5mm Allen key	1
53	RDC4083	Safety belt	1
54	RD4152	3mm Allen key	1
55	RDC4084	13mm Chuck	1
56	CA120	Arbor assembly	1
57	RDC4086	Drift	1
58	RDC4087	Arbor shank 🧹	1
59	RDA3105	Safety Glasses	1
60	RDC4088	Spare brush-230V	1pair
60	RDC4089	Spare brush-110V	1pair
61	RD32059	25mm Arbor extension	1

16) EXPLODED VIEW OF MOTOR AND GEARBOX



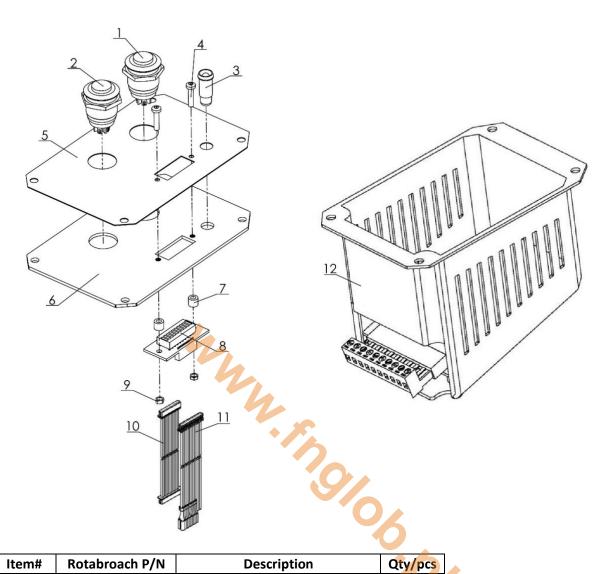
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PARTS LIST

ltem#	Rotabroach P/N	Description	Qty/pcs
8	RDC4005	Motor assembly-230V	1
0	RDC4006	Motor assembly-110V	1
8.1	RDC4007	Circlip	1
8.2	RDC4008	Oil seal washer	1
8.3	RDC4009	Arbor spindle	1
8.4	RDC4010	Roll Bearing	1
8.5	RDC4011	Flat Key	1
8.6	RDC4012	Tapping Screw	4
8.7	RDB4008	Spring	1
8.8	RDB3030	Gear lever	1
8.9	RDC4013	screw	1
8.10	RDC4014	Gear box	1
8.11	RDC4015	Needle bearing	1
8.12	RDB4004	Gear shaft washer 10mm ID	1
8.13	RDB3048	Key steel	1
8.14	RDB3046	Gear axel	1
8.15	RDB2010	Gear lever shaft	1
8.16	RDB2022	Dual gear	1
8.17	RDB4002	Washer	2
8.18	RDC4016	Needle bearing	2
8.19	RDC4017	Circlip	1
8.20	RDC4018	Big gear	1
8.21	RDC4019	Roll Bearing	1
8.22	RDC4020	Oil seal	1
8.23	RD45614	Straight Pin	1
8.24	RM17134	Rolling bearing 608	1
8.25	RDC4021	Shaft gear	1
8.26	RDC4022	Flat Key	1
8.27	RDC4023	Gear	1
8.28	RDC4024	Oil baffle plate	1
8.29	RDC4025	Inner gear plate	1
8.30	RDC4026	Seal washer	1
8.31	RD45522	Rolling bearing 6001	1
0.22	RDC4027	Armature-230V	1
8.32	RDC4028	Armature-110V	1
8.33	RD43603	Rolling bearing 629	1
8.34	RDB3069	Bearing Sleeve	1
8.35	RDC4029	Inductor	1

ltem#	Rotabroach P/N	Description	Qty/pcs
8.36	RDC4030	Baffle plate	1
8.37	RDC4031	Tapping Screw	2
0.20	RDC4032	Field coil-230V	1
8.38	RDC4033	Field coil-110V	1
8.39	RDC4034	Lead wire	1
8.40	RDC4035	Lead wire	1
8.41	RDC4036	Motor casing	1
8.42	RDC4037	Lead wire	1
8.43	RD33616	Brush cap	2
0.44	RDC4038	Carbon brush-230V	2
8.44	RDC4039	Carbon brush-110V	2
8.45	RD33614	Brush holder	2
8.46	RDC4040	Lead wire	1
8.47	RD35617	Terminal	6
8.48	RD45613	Screw M3×6 Button Head	12
8.49	RDC4041	Speed controller module-230V	1
0.49	RDC4042	Speed controller module-110V	1
8.50	RDA4035	Tapping Screw	2
8.51	RDC4043	Тор Сар	1
8.52	RDC4044	Tapping Screw	4
8.53	RDA4034	Tapping Screw ST2.9×8	4
8.54	RDC4045	Outlet clamp	1
8.55	RDC4046	Plastic tube	1
8.56	RDC4047	Lead wire(green)	1
8.57	RDC4048	Lead wire(brown)	1
8.58	RDC4049	Lead wire(black)	1
8.59	RDC4050	Lead wire(blue)	1
8.60	RDC4051	Lead wire(red)	1
8.61	RDC4052	Lead wire(white)	1

17)CONTROL PANEL AND PARTS LIST



Item#	Rotabroach P/N	Description	Qty/pcs
1	RDA4051	Green Motor Switch	1
2	RDC4090	Blue Motor Switch-Tapping	1
3	RDC4092	Red LED	1
4	RDA4036	Screw M3×12 BTTN HD	2
5	RDC4094PM	Control Panel Cover	1
6	RDC4095PM	Control Plate-230V Tapping	1
0	RDC4096PM	Control Plate-110V Tapping	1
7	RDA4019	Nylon Spacer	2
8	RDC4099	Array Board	1
9	RDA4205	M3 Nut	2
10	RDC4100	Connection line	1
11	RDC4101 PM	Connection line	1
12	RDC4103/3PM	E50PCBA-230V	1
12	RDC4103/1PM	E50PCBA-110V	1

18) FITTING THE CHUCK

- The machine comes supplied with an RDC4087 (Arbor Shank) & RDC4084 (13mm Chuck).
- Insert RDC4087 into RDC4009 (Arbor Spindle), ensure a good and tight fit is achieved.
- Insert RD4084 into RDC4087, ensure a good and tight fit is achieved.
- Replacing the chuck is the reverse sequence, by utilising RDC4086 (Drift).



In order to 'get the best life' out of your Rotabroach machine always keep it in good working order.

A number of items must always be checked on Rotabroach machines.

Always before starting any job make sure the machine is in good working order and that there are no damaged or loose parts. Any loose parts must be tightened.

Before proceeding with any maintenance work be certain that the power supply is disconnected.

		-	
Description	Every operation	1 week	1 Month
Visual check of	•		
machine for damage	Х		
Operation of machine			
	х		
Check brush wear		X	
Check magnetic base	Х		
Check alignment of			X
the machine			
Check grease			X
Check armature			X

Visually check the machine for damage.

The machine must be checked before operation for any signs of damage that will affect the operation of the machine. Particular notice must be taken to the mains cable, if the machine appears to be damaged it should not be used, failure to do so may cause injury or death.

Check operation of the machine.

The machines operation must be checked to ensure that all components are working correctly.

Machine Brushes

Should be checked to make sure there is no abnormal wear present (this should be checked at least once a week if used frequently). If the brush has worn more than 2/3 of the original length, the brushes should be changed. Failure to do so may cause damage to the machine.

Magnetic base

Before every operation the magnetic base should be checked to make sure that there is no damage present. An uneven magnet base will cause the magnet not to hold as efficiently and may cause injury to the operator.

Adjustment of slide and bearing bracket alignment.

An essential requirement of the machine is that the slide can move in a smooth and controlled manner, free of lateral movement and vibration.

This situation can be maintained by periodic adjustment of the slide and is accomplished in the following manner:

- 1. Place the machine in an upright position and, by means of the capstan, raise the slide to its highest position. Clean the brass gib strips and apply a small amount of light machine oil to the wear surfaces.
- 2. Now lower the slide back to its lowest position. Bring the slide into the center of the dovetail slide housing and loosen screws thus allowing free movement of the arbor support bracket.
- 3. Commencing with the middle screws, gently feed in all the screws until slight resistance is encountered.
- 4. Operate the slide up and down a few times to test the movement and make any further necessary adjustments. Try to ensure that all the screws are exerting a uniform pressure on the slide from top to bottom. A perfectly adjusted slide will operate freely up and down without any sideways movement.
- 5. Now raise the slide to its highest position. Slightly undo the arbor bearing bracket and, using fingers only, tighten the screws.
- 6. Place the machine on a steel plate, connect to power supply and switch on the magnet. Start up the motor. If the arbor is incorrectly aligned, the arbor support bracket will be seen to oscillate. Make any necessary further adjustments to the bracket to ensure correct alignment of the spindle and finally tighten the screws using a spanner. Lastly tighten the arbor bearing bracket.

Check machines grease.

The gearbox grease should be checked once a month to ensure all moving components are covered to prevent wear. The grease should be changed at least once a year to ensure you gain the best from your machine.

Check Armature of the machine.

This should be checked at least once a month to check that there are no visual signs of damage to the body or to the commutator. Some signs of wear will be seen on the commutator over a period of time but this is normal (this is the part that comes into contact with the brushes) however, if there are any signs of abnormal damage the part should be replaced.





Magnet and motor do not function	- Damaged or defective wiring			
Magnet and motor do not ranction	- Defective fuse			
	- Defective control unit			
	- Defective control unit			
Name at data for atting the material and at				
Magnet does function, the motor does not	- Damaged or defective wiring			
	- Carbon brushes are stuck or worn out			
	- Defective on / off switch			
	- Defective control unit			
	- Defective armature and/or field			
	- Defective protective reed switch			
Hole cutters break quickly, holes are bigger	- Play in the guide			
than the hole cutter	- Bent spindle			
	- Shaft extending from the motor is bent			
	- Pilot bent			
Motor running roughly and/or seizing up	- Bent spindle			
	- Shaft extending from the motor is bent			
	- Triangular guide not mounted straight			
	- Dirt between spindle and triangular guide			
Motor making a rattling sound	- Gear ring (bottom of the armature) worn out			
0 0	- Gear(s) worn out			
	- No grease in gear box			
Motor humming, big sparks and motor has no	- Armature damaged			
force	- Field burned			
	- Carbon brushes worn out			
Motor does not start or fails.	- Damaged or defective wiring			
wotor does not start of fails.	- Damage to armature or field coil			
	- Damage or defective brushes			
Guiding takes a great deal of effort	- Guide is set too tight			
Guiding takes a great deal of enort	- Guide is set too tight			
	- Guide/gear- rack/rotation system is dirty or damaged			
Insufficient magnetic force	- Bottom of magnet not clean and dry			
	- Bottom of magnet not flat			
	- Work piece is not bare metal			
	- Work piece is not flat			
	- Work piece is too thin less than 3.5mm			
	- Defective control unit			
	- Defective magnet			
Frame under voltage	- Damaged / defective wiring			
	- Motor seriously dirty			
Fuse blows when magnet switch is turned on	- Damaged or defective wiring			
	- Wrong value fuse			
	- Defective magnet switch			
	- Defective control unit			
Fuse blows when motor is started up	- Damaged or defective wiring			
·	- Wrong value fuse			
	- Motor running roughly			
	- Defective armature and / or field			
	- Carbon brushes worn out			
	- Defective control unit			
Rotation system free stroke too long	- Loose or defective gear-rack			
Notation system nee struke too long	0			
	- Defective rotation system			

21) CUTTER SELECTION AND SPEEDS

Material	Material Hardness	Cutter
Mild and free cutting steels	<900N/mm ²	RAP or RAPL
Mild and free cutting steels	<900N/mm ²	SRCV or SRCVL
Steel angle and joists	<900N/mm ²	RAP or RAPL
Steel angle and joists	<900N/mm²	SRCV or SRCVL
Plate and sheet steel	<900N/mm²	RAP or RAPL
Plate and sheet steel	<900N/mm²	SRCV or SRCVL
Aluminium	<900Nmm²	RAP or RAPL
Aluminium	<900N/mm²	SRCV or SRCVL
Brass	<900N/mm ²	RAP or RAPL
Brass	<900N/mm²	SRCV or SRCVL
Cast iron	<900N/mm²	RAP or RAPL
Cast iron	<900N/mm²	SRCV or SRCVL
Stainless steel	<900N/mm²	RAP or RAPL
Stainless steel	<900N/mm²	SRCV or SRCVL
Stainless steel	>1400N/mm²	CWC to CWCX
Rail track	>1400N/mm²	SCRWC or SCRWCL
Tool steel	>1400N/mm²	CWC to CWCX
Die Steel	>1400N/mm²	CWC to CWCX
Cast Iron	>1800N/mm²	СТСТ
Inox	>1800N/mm ² CTCT	
Inconel	>1800N/mm ² CTCT	
Fine Grain Steel	>1800N/mm²	СТСТ
Hardox	>1800N/mm ²	СТСТ

The data listed below is for reference purposes only, and indicate potential starting conditions. It is the responsibility of the site operation manager to determine correct application requirements.

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Retableach	Cutting surface	Cutter diameter/Material/RPM relationship													
	speed Meters/min	13 14			18		22		30		50		65		
Material to be cut	Lower - Upper	L	U	L	U	L	U	L	U	L	U	L	U	L	U
Aluminium	60 - 90	1469	2203	1364	2046	1061	1591	868	1302	637	955	382	<mark>5</mark> 73	294	441
Brass & Bronze	40 - 50	979	1224	909	1137	707	884	579	723	424	530	255	318	196	245
Iron: cast(soft)	30 - 50	734	1224	682	1137	530	884	434	723	318	530	191	318	147	245
cast(hard)	15 - 21	367	514	341	477	265	371	217	304	159	223	95	134	73	103
cast(malleable)	15 - 30	367	734	341	682	265	530	217	434	159	318	95	191	73	147
Steel: mild	24 - 30	588	734	546	682	424	530	347	434	255	318	153	191	118	147
high tensile	3 - 5	73	122	68	114	53	88	43	72	32	53	19	32	15	24
stainless (free cutting)	15 - 18	367	441	341	409	265	318	217	260	159	191	95	115	73	88
stainless (heat resisting)	6 - 13	26	318	136	296	106	230	87	188	64	138	38	83	29	64

These are only starting points. They will vary with application and work piece condition.

Material or Application Type	Feed Per Tooth (mm)
Thin Walled Workpieces Oblique Entry / Curved Surfaces Semi-Circles / Fragile Setups	.0254 / .0508 (.0762 FPT with Work Hardening Materials)
Soft / Gummy Materials	.1016 / .127
Typical / Average Applications	.0762 / .1016
Deep Holes	.1016 / .127

Difficult-to-machine materials will require reduced feed rates.



22) WARRANTY AND CE STATEMENTS

Rotabroach[™] warrants its machines to be free from faulty parts, under normal usage of machines, for a period of 12 months from initial date of purchase. All other parts (excluding cutters) are under warranty for 90 days, provided that the warranty registration card (or online registration) has been completed and returned to Rotabroach[™] or its designated distributor within a period of (30) days from the purchase date. Failure to do so will void the warranty. If the stated is adhered to, Rotabroach[™] will repair or replace (at its option) without charge any faulty items returned.

This Warranty does not cover:

- 1. Components that are subject to natural wear and tear caused by the uses not in accordance with the operator's instructions
- 2. Defects in the tool caused by non-compliance with the operating instructions, improper use, abnormal environment conditions, inappropriate operating conditions overload or insufficient servicing or maintenance.
- 3. Defects caused by using accessories, components or spare parts other than original Rotabroach[™] parts.
- 4. Tools to which changes or additions have been made.
- 5. Electrical components are subject to manufacturer's warranty.

Your online registration can be submitted atwww.rotabroach.co.uk

The warranty claim must be logged within the warranty period. This requires the submission or sending of the **complete** tool in question with the original sales receipt which must indicate the purchase date of the product. A complaint form must also be submitted prior to the return.

This can be found online at <u>www.rotabroach.co.uk</u>.Failure to complete this form will result in the delay of your claim. All goods returned defective must be returned pre-paid to Rotabroach[™], in no event shall Rotabroach[™] be liable for subsequent direct, or indirect loss or damage.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, (EXPRESSED OR IMPLIED) INCLUDING ANY WARRANTY OF MERCHANTABLITY OR FITNESS FOR A PARTICULAR PURPOSE. ROTABROACH™ RESERVE THE RIGHT TO MAKE IMPROVEMENTS AND MODIFICATIONS TO DESIGN WITHOUT PRIOR NOTICE

Known and Trusted Worldwide for Quality, Performance and Reliability

CE Declaration of Conformity



We hereby declare that this product has been tested and fully complies and conforms to the following standards and standards documents.

EN61029-1:2009 +A11:2010 - Safety of transportable motor-operated electric tools. EN

12717:2001+A1:2009 - Safety of machine tools. Drilling machines.

EN55014-1:2006/+A1:2009/+A2:2011 - Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. Emission.

EN55014-2:2015 - Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. Immunity. Product family standard.

EN61000-3-2:2014 - Electromagnetic compatibility (EMC). Limits. Limits for harmonic current emissions.

EN61000-3-3:2013 - Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current \leq 16 A per phase and not subject to conditional connection.

The EMC Directive (2014/30/EU)

Signed.....

Mathew Grey

Managing Director

Rotabroach Burgess Road Sheffield S9 3WD England United Kingdom

