

# USER MANUAL

TO REDUCE THE RISK OF INJURY USER MUST READ AND UNDERSTAND INSTRUCTION MANUAL



## RTC.32

## Magnetic Drilling Machine

SERIAL NO. \_\_\_\_\_ DATE OF PURCHASE \_\_\_\_\_



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**Read these directions and safety instructions completely and attentively and carefully follow these recommendations. All safety measures must be observed at all times when using magnetic drilling machines. Improper use and carelessness increase**



**the risk of accidents. This is for your own safety. Should you have any doubts about the use of this machine, please contact your supplier**



## 2 - Safety

1. During any work on non-horizontal components, the machine must always be secured with the supplied safety chain.
2. The magnetic drilling machine may only be used on a flat and clean foundation.
3. If the machine or the lead show signs of damage, the magnetic drilling machine must be switched off immediately.
4. Wearing safety glasses, hearing protection and protective clothing is necessary.
5. Do not wear any loose clothing or jewellery that may get entangled in the moving parts of the magnetic drilling machine.
6. Use only accessories or parts that are recommended by Rotec.
7. During drill operations, the hole cutter must be cooled and lubricated with good quality cutting or lubrication oil.
8. The motor must be switched off when tightening the machine with the safety chain.
9. When changing a hole cutter, the magnetic drilling machine must be disconnected from power supply.
10. Clean the area around the machine regularly. Keep the bottom of the magnet and keep it clean and dry.
11. Regularly inspect whether all screws, nuts and bolts are tight.
12. Remove the burr or slug from the hole cutter after each hole. Caution, the part may be hot!
13. Before using the machine make sure it is connected to the correct voltage and that all grips and parts are tightly attached.
14. When using the drill on non-horizontal surfaces, you must use a drilling compound or cutting paste.
15. Do not use oil because the oil can drip into the motor unit.



***When using this machine, you MUST wear ear and eye protection. Rotec has included these articles as standard accessories for your own safety. Do NOT touch the drill when it is running. Always follow the recommendations for personal protection when using this tool.***



## **Before use**

Rotec magnet drilling machines are specially designed for drilling holes in steel, possibly expanded by the possibility of tapping/reaming/countersinking (depending on model). Rotec magnetic drilling machines may not be adapted and/or used for applications other than those they were designed for, including driving other machines.

Make sure that you can oversee the entire work areas from where you are operating this machine. Use barriers to keep others away. Do not use the machine in places subject to hazard of explosion- electrical tools produce sparks which may ignite flammable materials or gasses. To prevent electrical shocks, do not use the machine in moist or wet conditions or environments. Always operate this tool using both hands. Make sure the work piece is always clamped down safely.

This magnetic drilling machine is equipped with a lead and plug approved for the country or region it is to be used in. The yellow-green wire in the lead is the earth wire. Never connect this to a pole under voltage. All Rotec magnetic drilling machines are manufactured to use with AC current and not suitable to work on DC current. Make sure the magnetic drilling machine is connected to a stable power supply. Rotec do not recommend the use of a generator or other mobile power supply for power supply. Rotec does not recommend the use of extension cables. If there is no other way, use good quality cables and keep extension cables as short as possible. Be aware that long power leads can cause less current.

## **3 - Items Included in Delivery**

Magnetic Drilling Machine	YES	Pilot Pin	NO
Carrying Case	YES	Morse Taper	NO
Drill Chuck 13mm	NO	Morse Taper Ejector Pin	NO
Tap Collets M10-M12-M14-M16	NO	Manual	YES
Allen Key 2.5	YES	Safety Chain	YES
Allen Key 3	NO	Drilling Oil	YES
Allen Key 4	YES	Safety Ear Protection	YES
Allen Key 5	YES	Safety Glasses	YES
Wrench 8	YES	Safety Gloves	YES

# 4 - The Hole Cutter

## Hole Cutter selection

There are many different types of steel. It is not possible to drill all these types of steel with 1 type of cutter. Rotec recommended the following :

### **Rotec Silver Line 536      For drilling holes in general 37/52 steel and aluminium**

536.xxx0	12 mm - 60 mm	Hole cutters with cutting depth 25 mm	increasing by 1 mm
536.xxx1	12 mm - 60 mm	Hole cutters with cutting depth 50 mm	increasing by 1 mm

### **Rotec Gold-Line 537      For processing steel, stainless steel and other high-quality steel alloy types**

537.xxxx	12 mm - 60 mm	Hole cutters with cutting depth 30 mm	increasing by 1 mm
538.xxx0	12 mm - 60 mm	Hole cutters with cutting depth 55 mm	increasing by 1 mm
538.xxx1	18 mm - 50 mm	Hole cutters with cutting depth 80 mm	increasing by 1 mm
538.xxx2	18 mm - 50 mm	Hole cutters with cutting depth 110 mm	increasing by 1 mm

### **Rotec Hard-Line 546/547      Tungsten Carbide Tipped. Cutters with hard metal teeth**

546.xxxx	12 mm - 65 mm	Hole cutters with cutting depth 40 mm	increasing by 1 mm
547.xxx0	12 mm - 150 mm	Hole cutters with cutting depth 55 mm	increasing by 1 mm
547.xxx2	18 mm - 100 mm	Hole cutters with cutting depth 110 mm	increasing by 1 mm

### **Rotec Rail-Line 548      With hard metal teeth, For drilling holes in rails**

548.xxxx	18 mm - 36 mm	Hole cutters with cutting depth 40 mm	increasing by 1 mm
548.xxxx	18 mm - 36 mm	Hole cutters with cutting depth 55 mm	increasing by 1 mm

**NOTE :**      Hole cutters    12mm - 60mm    have a 19,05 mm Weldon shank  
                  Hole cutters    61mm - 130mm    have a 31,75 mm Weldon shank

## Cooling/Lubrication



- 1 Holes for cooling and lubrication oil
- 2 Fixing screws of spindle

Rotec recommends the use of cooling and lubrication agents. Not only do these assist in drilling but they will also lengthen the lifespan of your tools. One of the advantages of the use of hole cutters is that cooling and lubrication agent can be supplied from the inside, so that the agents end up in the right place.

All magnetic drilling machines from Rotec can be equipped with a automatic cooling system which provides a guaranteed supply of the cooling and lubrication agents from the inside. If your machine is not be equipped with an automatic coolant system it will still be possible to cool from the inside.

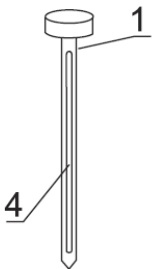
Use the holes in the spindle (number 1 in picture) for this purpose by squirting the cooling and lubrication agent into the drill spindle through them

### **NOTE :**

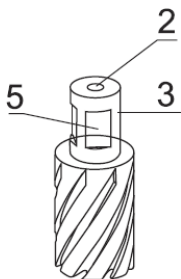
For vertical or upside-down processing, Rotec recommends the use of a drilling compound or paste like 901.4045 or 901.4046.

## **5 - Tool Assembly**

### **Hole Cutter Assembly**



- 1 : Pilot Pin
- 2 : Center hole in shank of Hole Cutter
- 3 : Shank of Hole Cutter
- 4 : Groove or flatted surface for oil pass
- 5 : Flat surface for fixing Hole Cutter



Clean the inner wall and the shaft of the Hole Cutter to ensure proper oil supply. First insert the Pilot Pin into the center hole of the Shank. After that you can slide the Hole Cutter assembly into the spindle of your Magnetic Drilling Machine. After sliding the Hole Cutter Assembly into type spindle, make sure the two flat surfaces (number 5 in picture) are located exactly in front of the two fixing screws of your spindle (see number 2 in picture of chapter 4-4-2). Tighten them both subsequently with the included 4mm Allen Key.



## Drill Chuck Assembly

The option of making our machines suitable for the use of standard spiral drills and other tools by using a cylindrical shaft is an important characteristic of Rotec magnetic drilling machines. Please see the technical data for maximum capacity.

### Installation of 13mm Chuck by using adapter 545.1021

The 545.1021 is a adaptor from 1/2"x20 UNF to 19mm Weldon.

Attach a Drill Chuck with internal 1/2"x20 UNF on the 545.1021 adaptor.

To attach the assembly into your Spindle, follow the instructions (with exception of the Pilot Pin) for installation of a Hole Cutter. Adaptor 545.1021 can be used on most machines in our program.

### Installation of 13mm Chuck directly on the motor unit

For the RTC.32 magnetic drilling machine it is possible to install a drill Chuck directly to the shaft extending from the motor unit. Remove the Spindle by using wrench 18 and 20. Fix the extending motor shaft with wrench 18 and turn the spindle with wrench 20 anti-clockwise.

Take the spindle of the shaft and out of the triangular guide (Steady). Remove all the Allen screws below the triangular guide by using the included Allen Key no. 5. Now can install the Drill Chuck with internal 1/2"x20 UNF tread on the extending shaft of the motor unit.

**IMPORTANT** : When reinstalling the spindle and the triangular guide (steady), you must ensure that the triangular guide (steady) does not cause any friction or resistance to the spindle as it turns.

## 6 - The Magnetic Drilling Machine

### The Magnetic base

Material of minimum 10mm thickness is required for the magnet to work the best.

The attachment force generated by the magnet depends on various factors.

- Thickness of the material the magnet is placed on
- Paint or coating of the material the magnet is placed on.
- Metal chips, oil or other dirt under the magnet.

If the LED indicator (see chapter 4-3-2) lights up GREEN, the magnet is generating sufficient attachment force. If the LED indicator lights up RED, the magnet may not generating sufficient attachment force.

**We would like to point out that this is only an indication and not a certainty that the magnet will not release from the material. Rotec accepts no liability ensuring from the magnet indicator not functioning or functioning poorly.**

Make sure that the magnet attaches tightly to the work piece before turning on the motor unit of the magnetic drilling machine. Rotec magnets have 2 coils; make sure that both coils are in contact with the material. Do not connect any other machines to the electrical outlet the magnetic drilling machine is plugged into, as it may result in the loss of magnetic force. Always use the safety chain included. Drilling above your head is extremely dangerous and is not recommended.

## The Control Panel

The control panel on your magnetic drilling machine is designed for maximum operating facility and safety.

### 1 - The Magnet Switch:

This switch is used to switch the main power and also the magnet On and Off. This switch is included on every Rotec magnetic drilling machine

### 2 - The On/Off Switch:

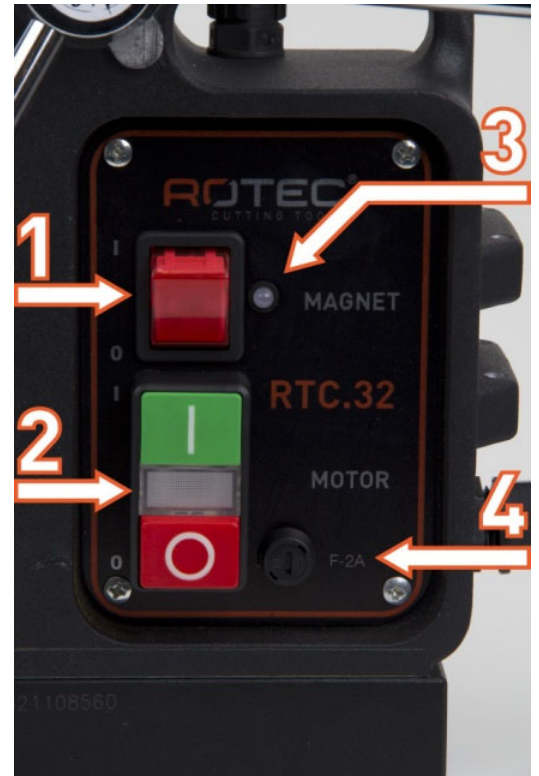
This switch is used to switch the motor unit On and Off and is included on every Rotec Magnetic Drilling Machine

### 3 - The Fuse holder with Fuse:

This Fuse holder is included on every Rotec Magnetic Drilling Machine and holds the fuse type : 5x20, F2A.

### 4 - The Magnet LED Indicator:

This LED indicator shows the generated magnetic force.



## Drilling

Now that you have read the explanatory information and safety recommendations above, you are ready to actually start drilling. Follow these 10 steps for best drilling result :

- 1 Use the tip of the pilot pin to determine the center of the hole to be drilled.
- 2 Turn the magnet on and verify that the drill is in the right position and that the machine is pushed tight against the work piece.`
- 3 If your machine is equipped with a auto coolant system, put open the valve to release the oil. If your machine does not have a auto coolant system, fill the holes of the spindle with oil.
- 4 Turn the motor on at the highest setting and allow it to run at full speed.
- 5 Turn the arms to start drilling. Apply only a slight pressure when the hole cutter touch the metal. Do not push the hole cutter with force into the metal.
- 6 Apply a regular pressure while drilling. The drilling performance does not improve by putting more pressure on the tool. Too much pressure will overload the motor and your hole cutter will be worn sooner. ***Let the cutter do the job and give it time to cut the metal !!!***
- 7 Adjust the oil supply when necessary, if your drill does not have a auto coolant system, stop drilling regularly, refill the holes of the spindle and continue drilling.
- 8 Apply less pressure when the drill cuts through the material.
- 9 Turn the arms to put the motor in highest position and turn off the motor unit.
- 10 Remove the burr, metal chips and clean the cutter and surface without getting injuries.  
Caution : The metal piece drilled out can be sharp and very hot!!

### **!!! IMPORTANT !!!**

**When using your magnetic drilling machine non-horizontal or upside-down be aware that no oil, drilling compound or metal chips can fall into the motor unit.**

**Rotec accepts no responsibility for damage done to your machine by such action under coverage of the warranty.**

## 5 - Maintenance

Just as every magnetic drilling machine with moving parts, your Rotec magnetic drilling machine also needs regular maintenance service. A few recommendations follow :

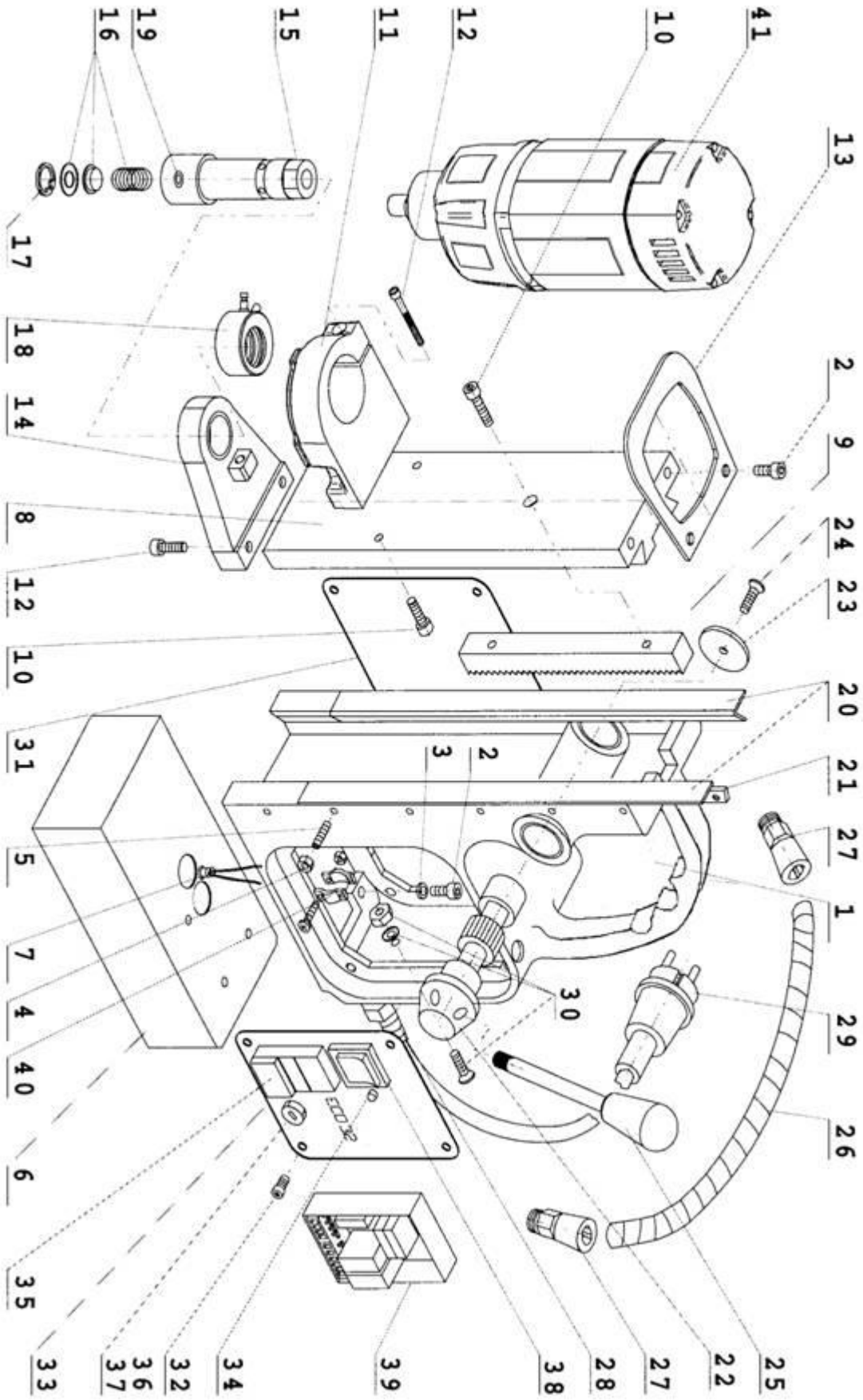
- Clean all dirt, dust, metal chips and burrs of your magnetic drilling machine
- Regularly check the carbon brushes for wear
- Replace any defective parts immediately. This prevents properly function parts from being damaged.
- Adjust your guide regularly and make sure it is clean and greased. This prevents any movement from being created and the spindle, triangular guide (steady) and guide parts from excessive wear or damage. The guide can be adjusted by loosening the setting nut (#7 on spare part drawing) with included wrench 8, tightening the setting screws (#5 on spare part drawing) with included Allen key 2.5 and tightening the setting nut (#7) again with included wrench 8. The adjustment is done well when the motor unit can be turned to every possible position without falling down by its own weight.
- Check the grease in the gearbox regularly and replace it if necessary. We recommend you to store your machine on its side regularly so that the gear box grease can run back to where the gears are. This is very important when you have used your machine non-horizontal or upside down.

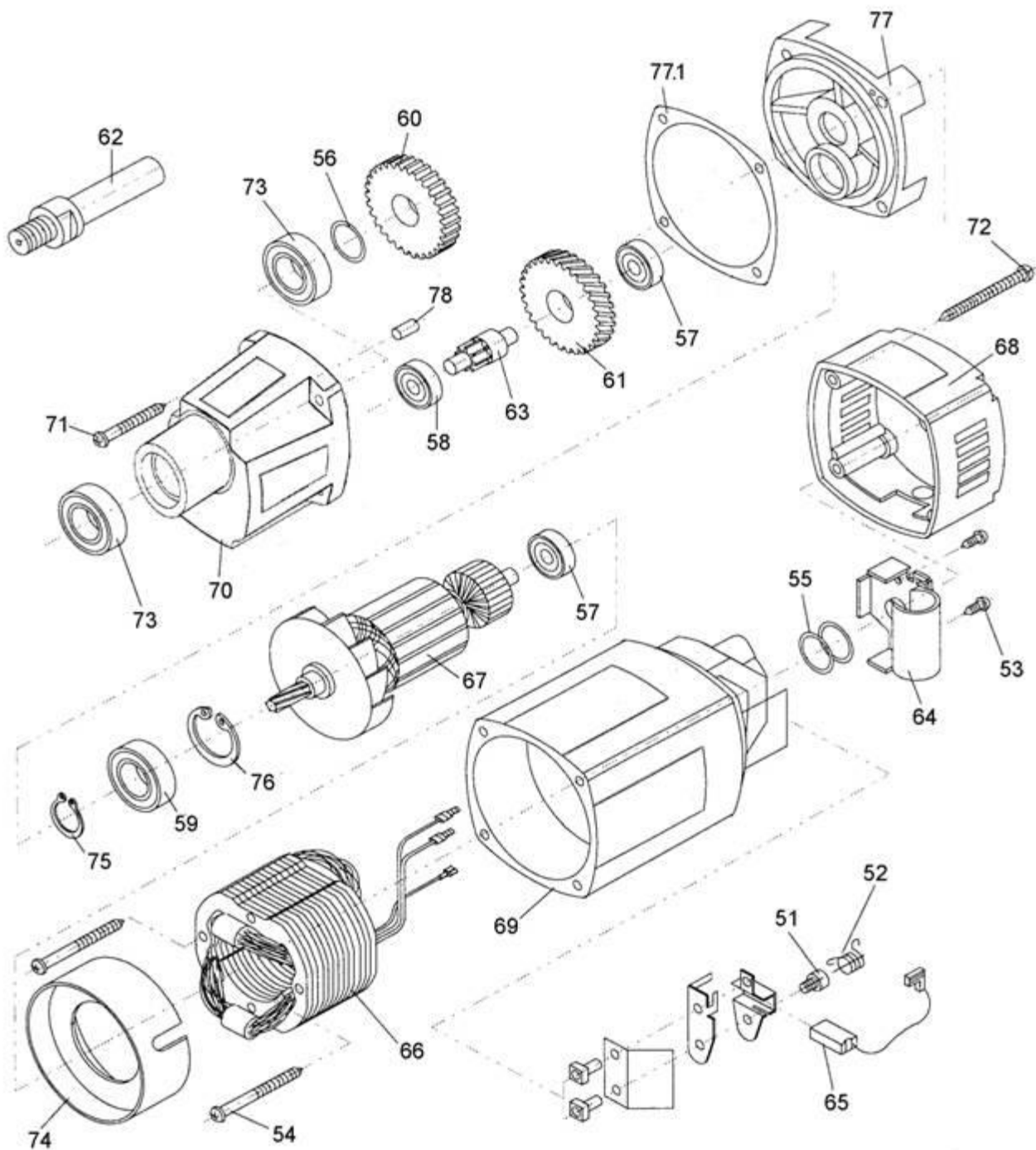
Repair, modification and inspection of Rotec Magnetic drilling machines must be done by a Rotec authorized dealer. The parts list will be helpful if presented with the machine to the Rotec dealer for service when requesting repair or other maintenance.

Rotec machines are constantly being improved and modified to incorporate the latest technological advancements. Accordingly, some parts (ie part numbers and/or design) may be changed without prior notice. Also, due to Rotec's continuing program of research and development, the specifications of machines are subject to change without prior notice.

## 6 - Spare parts & Exploded view of RTC.32

<u>Nr.:</u>	<u>Description</u>	<u>Nr.:</u>	<u>Article:</u>
1	Frame	35	On/Off switch
2	Screw SSM6x16	36	Fuse Holder
3	Washer M6	37	Fuse F2A
4	Setting Nut	38	Magnet Switch
5	Setting Screw	39	Control Unit 220v
	Setting set (6x No. 4+5)		Control Unit 110v
6	Magnet H=42mm	40	Cable clamp
	Magnet (-2004) H=48mm	41	Motor unit 220v
7	Sensor		Motor unit 110v
8	Slide	51	Screw for spring
9	Rack	52	Spring
10	Screw SSM6x20	53	Screw BK4,2x13
11	Motor holder	54	Screw BK3,9x60
12	Screw SSM6x25	55	Adaptor ring 22x0,5
13	Top fixing plate 120mm	56	Adaptor ring 17x0,1
14	Steady	57	Bearing (closed) 8x22x7
15	Spindle	58	Bearing 8x22x7
	Spindle Quick connect	59	Bearing 12x28x8
16	Spring set spindle	60	Spindle Gear
17	Circlip	61	First Gear
18	Auto coolant Ring	62	Spindle Drive shaft
19	Fixing Screw M8x8	63	Axle
20	Brass rail set-stick	64	Adaptor ring Cap
21	Pressing Strip 4 holes	65	Carbon brush set
	Pressing Strip 6 holes	66	Field 220v
22	Capstan Hub assembly		Field 110v
	Power Assist small	67	Armature 220v
23	End Plate		Armature 110v
24	End Screw	68	End Cover
25	Arm for Capstan	69	Housing
26	Motor cable	70	Gear Casing
27	Coupling nut motor cable	71	Screw BK4,8x38
28	Coupling nut main cable	72	Screw BK4,8x50
29	Main Cable	73	Bearing 17x35x10
30	Screw + washer + nut	74	Baffle
31	Rear plate	75	Circlip 471/10
32	Panel screw	76	Circlip 472/28
33	Front plate	77	Inner Gear Plate
34	Sensor LED + cable	78	Casing Pin





**Important notice :**

Because of minor changes to our machines it is recommended to provide the framenumber of your machine when ordering spareparts. This number can be found on front of machine at magnetic base and frame. When you have any doubt when ordering spareparts, please contact your supplier before ordering.