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EDM DEVICE FOR REMOVING BROKEN TAPS AND TOOLS

Solution for broken taps and tools. Fast, low cost, high-precision.

Order No.: **EDM RBT1**

EDM device for removing broken taps and tools

Can be used vertically, horizontally or inclined. Small work pieces can be immersed in a tank of water. With large work pieces it is possible to build a "pool" around the hole using the putty, or simply supply a source of running water with a water hose.

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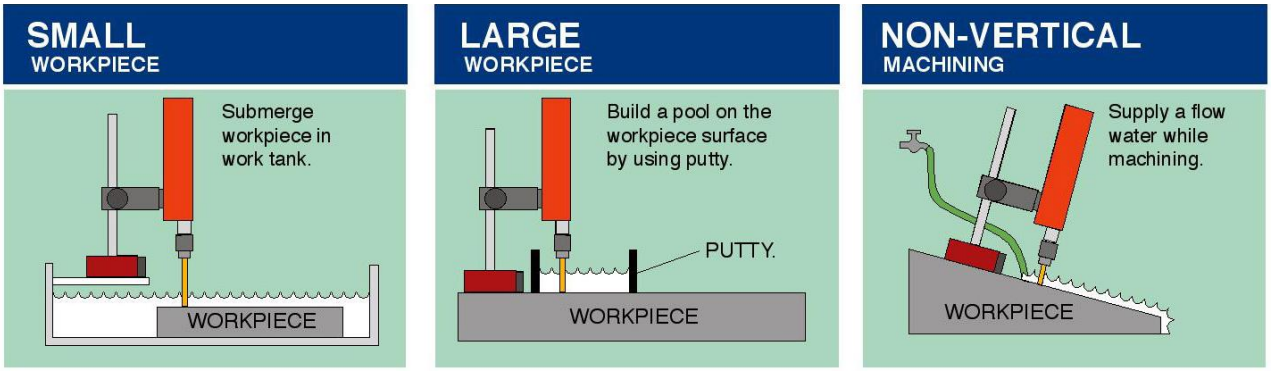

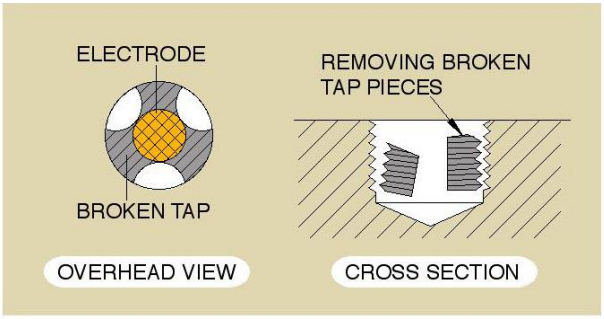

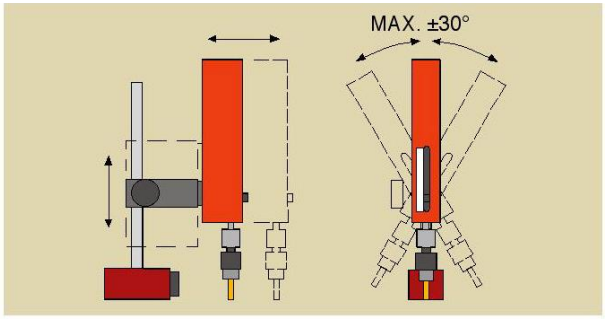

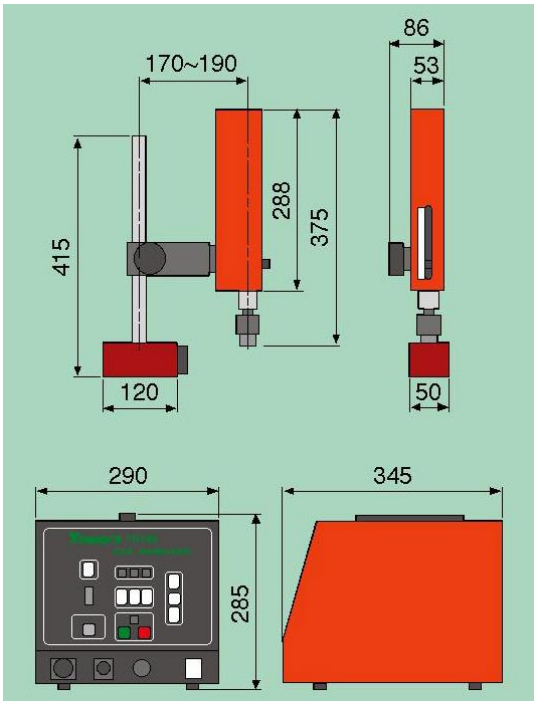

General information:
Generator weight: 16kg
Dimensions of the generator: 290x345x285mm
Weight of the working head: 6kg with magnetic stand
Dimensions of the working head: 53x70x415mm
Clamping capacity: to max diameter 6,5mm

Contents:
- Generator
- Working head with magnetic stand
- Putty
- Manual clamping head
- Basic set of small brass rods
- Magnetic stand with flexible plastic hose
- Inlet hose for liquid when using tube electrodes
- Set of sealing when using tube electrodes
- Rubber safety covers for working head

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Advantages:

- Lightweight, small, compact table top design.
- High speed and efficient, low operating costs.
- Easy to use, easy removal of broken taps or other tools.
- After sparking out the midpoint of the tap, or in case of big taps, one shoulder of the tap, it is possible to remove taps of standard sizes M2 - M30. If electrode is modified in a lathe, possible to remove even bigger taps. After you remove the rest of the tap from thread hole, the thread hole will stay undamaged.
- Uses ordinary tap water as a dielectric. The device can be used directly on the machinery without the need for an external clamped work piece. When used directly on the machine, it uses the coolant emulsion of the machine as a dielectric.
- Uses standard brass rods as electrodes. Ordinary copper rods can also be used.
- Easy to work with large work pieces.
- Removes taps easily without damaging the threads.
- Automatic feed into the Z axis to set the desired depth up to 100 mm.
- Depth adjustment (depth automatically stops at defined point).
- Selectable shutdown time for accidental short circuiting.
- Optional automatic extraction of the electrode from the hole for the set depth.
- Depth adjustment check indicator, short circuiting indicator, overheat indicator.
- Spark check indicator.
- Possible to use for hole drilling in EDM wire cutters.
- Possible to hole drilling into the sintered carbides (tungsten carbides), other heavily machinable steels and any conductive materials.

The most frequently used types of electrodes for EDM RBT1 - EDM device for removing broken taps and tools:

Note: Electrodes are not included in the packaging!

Brass rods:

BR050400	Brass rods D0,50 x 400mm
BR100400	Brass rods D1,00 x 400mm
BR150400	Brass rods D1,50 x 400mm
BR200400	Brass rods D2,00 x 400mm
BR250400	Brass rods D2,50 x 400mm
BR300400	Brass rods D3,00 x 400mm
BR350400	Brass rods D3,50 x 400mm
BR400400	Brass rods D4,00 x 400mm
BR450400	Brass rods D4,50 x 400mm
BR500400	Brass rods D5,00 x 400mm
BR550400	Brass rods D5,50 x 400mm
BR600400	Brass rods D6,00 x 400mm

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Tungsten rods – the cheapest and the most used diameters and lengths:

Note: Faster and have smaller electrode burning compared to brass and copper electrode

TR100175 Tungsten rods D1,00 x 175mm
TR160175 Tungsten rods D1,60 x 175mm
TR200175 Tungsten rods D2,00 x 175mm
TR240175 Tungsten rods D2,40 x 175mm
TR320175 Tungsten rods D3,20 x 175mm
TR400175 Tungsten rods D4,00 x 175mm
TR480175 Tungsten rods D4,80 x 175mm
TR640175 Tungsten rods D6,40 x 175mm

Brass tube electrodes:

370050 Brass tube electrodes 0,50x400mm single channel
370100 Brass tube electrodes 1,00x400mm single channel
370150 Brass tube electrodes 1,50x400mm single channel
370200 Brass tube electrodes 2,00x400mm single channel
370250 Brass tube electrodes 2,50x400mm single channel
370300 Brass tube electrodes 3,00x400mm single channel
370350 Brass tube electrodes 3,50x400mm single channel
370400 Brass tube electrodes 4,00x400mm single channel
370450 Brass tube electrodes 4,50x400mm single channel
370500 Brass tube electrodes 5,00x400mm single channel
370550 Brass tube electrodes 5,50x400mm single channel
370600 Brass tube electrodes 6,00x400mm single channel

Copper 6-edge rods with round shank:

	Item No.	Hexagon Size	Offset total	Clamping diameter	Hexagon Length	Total Length
	Cu6ER3-01	3 mm	- 0,1 mm	Ø6 mm	50mm	80mm
	Cu6ER4-01	4 mm	- 0,1 mm	Ø6 mm		
	Cu6ER5-02	5 mm	- 0,2 mm	Ø6 mm		
	Cu6ER6-02	6 mm	- 0,2 mm	Ø6 mm	100mm	130mm
	Cu6ER8-02	8 mm	- 0,2 mm	Ø6 mm		
	Cu6ER10-02	10 mm	- 0,2 mm	Ø6 mm		
	Cu6ER12-02	12 mm	- 0,2 mm	Ø6 mm		

Offset total -0,2mm for hexagon copper rods 5mm and bigger is suitable for CNC EDM die sinkers and EDM RBT1 EDM device for removing broken taps and tools.

Information about delivery of other diameters and lengths are available on request.

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Control panel of EDM RBT1 - EDM device for removing broken taps and tools.

1. Indicator of achieving the setting depth.
Lights up when working head reaches to the setting depth of sparking.

2. Button RETRACT.
After pushing the green LED lights up. When LED lights up, working head (30) returns to the basic position after reaching the setting depth of sparking.

3. LED indicator of electr. voltage.
Shows elec. voltage level during sparking.

4. Button ARC TIMER.
Pushing this button lights up adequate LED 2S, 6S, 10S.
In case of short circuit, the device switches off automatically in 2 second, 6 second, resp. in 10 seconds.
Default time is 6 seconds.

5. Thicker connector for sparking current (CSA 3-pin, female).
It has different grooves in different angles on the perimeter. It is no possible to connect plug from working head (30) incorrectly.

5. Thinner connector for control of working head motor (7-pin, female).
It has different grooves in different angles on the perimeter. It is no possible to connect plug from working head (30) incorrectly.

6. Button START
Pushing this button lights up sparking indicator (7) and device start sparking work. Do not touch the electrode, clamping chuck and also the workpiece near to sparking point. Danger of shock caused by electric current. When light up warning indicators (1, 14, 15), reset them first by pushing the STOP button (9), and after than start sparking by pushing the START button.

16. Buttons for setting of power level.
Pushing of buttons LO, MID, or HI lights up adequate LED, and enable to set up power level. According to chosen electrode diameter set up adequate power level as is indicated in the table on the device cover.
LO – low level (for electrode diameter up to Ø3,5mm).
MID – middle level (for electr. diam. from Ø4,0mm to Ø5,0mm)
HI – high level (for electrode over Ø5,0mm)
After adjusting of suitable power level and working head position setting start sparking by pushing the START button (6)

Generator cover

7. Sparking indicator
When lights up sparking indicator the device is into operation and sparks. Do not touch the electrode, clamping chuck and also the workpiece near to sparking point. Danger of shock caused by electric current. Electrode can be changed in clamping chuck (24), only if indicator does not light, resp. if the device is disconnected from power supply.

8. Sound indicator „buzzer".
Buzzer whistles when lights up indicator of achieving the setting depth (1), short circuit indicator (15), or overheating indicator (14). Buzzer also whistles when working head (30) returns to the basic upper position.

9. Button STOP
Stop sparking by pushing this button.

When lights up indicator of achieving the setting depth (1), short circuit indicator (15), or overheating indicator (14), reset them by pushing the STOP button.

10. Power switch
Pushing this switch into position I the switch lights up. Device is switched on and ready to work. Device must be connected to the mains 230V 50/60Hz.
Pushing this button into position 0, the switch turns off and device is switched off.

11. Move down button
Holding this button pushed the working head (30) is moving down and LED lights. When working head (30) reaches the level of adjusted depth the buzzer (8) whistles. As you move down, pay attention to the electrode collision with the workpiece.

12. Stop move button
Pushing this button stop move of working head (30) which is moving upwards. Working head moves upwards by pushing the move up button (13).

13. Move up button
Pushing this button the working head (30) moves up and LED lights up. Movement can be stopped by pushing the Stop move button (12). In maximum upper position of working head the buzzer (8) whistles.

14. Overheating indicator
During long time sparking may occurs the generator overheating. In this case, overheating indicator lights up and the machine stops work independently. Turn off the device at least 30 minutes and then resume work.

15. Short circuit indicator
Indicator lights up and buzzer (8) whistles in the case of short circuit of the electrode with the workpiece, for longer time than is setting with button ARC TIMER (4) (2sec., 6sek., or 10 sec.) Generator is automatically disconnected and the machine stops sparking. In case of short circuit, turn off the device and mechanically tear off adhered electrode.

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Working head of EDM RBT1 - EDM device for removing broken taps and tools.

17. Guide bar of working head
Ø20mm bar which is inserted into magnetic base (22). It is used for vertical movement when is working head adjusting over the sparking place.

18. Fastening screw of working head.
By loosening this screw allows easy movement of working head on guide bar (17). After setting of suitable position tighten the fastening screw to avoid unwanted move of working head on the bar. After releasing of this screw can be working head pulled out from guide bar and be clamped into suitable holder, e.g. to the machine spindle...

19. Block of clamping head fixing
It connects working head with guide bar. It also allows rotation of working head to set up an appropriate angle.

20. Thicker connector for sparking current (3-pin, male).
It has different grooves in different angles on the perimeter. It is no possible to connect plug into thicker socket on generator incorrectly.

21. Thinner connector for control of working head motor (7-pin, male).
It has different grooves in different angles on the perimeter. It is no possible to connect plug into thinner socket on generator incorrectly.

22. Magnetic base.
Turning the switch on the magnetic base into position OFF, magnetic force is disconnected and free movement of working head is enable. After setting of working head into suitable position switch magnetic force again - position ON, the base plate must be magnetically conductive.

23. Fitting for internal flushing hose
When sparking with tube electrodes especially into at greater depths, is useful to bring water or emulsion for flushing through the electrode. Insert suitable hose on fitting and bring the water (emulsion) under the slight pressure. Seal the tube electrode by appropriate sealing from delivered set.

24. Clamping chuck (- negative pole).
For clamping rods and tube electrodes from diameters Ø0,5 up to Ø6,5mm. Chuck is screwed into working head by left-handed thread. When using tube electrode screw the chuck down, insert the electrode through the chuck insert on top side of electrode appropriate seal from delivered set, and screw the chuck back.

25. Electrode
Use only electrodes from materials suitable generator. Use brass electrodes respectively you can use copper and tungsten electrodes. Choose appropriate electrode diameter and length to avoid the damaging of ready thread. Electrodes caused also side sparking. According to electrode diameter set up power level (16).

26. Clamp with + positive pole
Securely fasten the clamp with + positive pole on the workpiece or workpiece holder, to ensure electrical circuit before start of sparking. While the electrical circuit is not closed before the start and working head movement it may cause risk of electrode damage and also whole working head (30) damage.

27. Bolt with pointer for setting of working depth.
By gently loosening the bolt you may slide with pointer on the scale (28) to set up required working depth and again gently fasten the bolt. When setting up the working depth consider also electrode burning caused during sparking according to table on generator cover.

28. Scale for adjusting of working depth.
Set up the working depth is possible by pointer (27) in range up to 100mm. After reaching of the working depth device stop working, indicator (1) lights up and buzzer (8) whistles. If is button RETRACT (2) switched ON, the working head returns to basic position after reaching of the working depth.

29. Hexagon socket head screw for angle of working head setting. By loosening this screw you can rotate with working head and adjust required angle.

30. Working head
Before start of sparking connect both connectors (20) and (21) to the generator. Adjust suitable sparking position and required working depth. Securely fasten the working head to avoid oscillations during sparking. Connect the clamp with + positive pole (26) to ensure the electrical circuit. Ensure the best possible flushing of sparking place. After the start the device by itself directs and kept between the spark gap.