

Tungsten-Electrode-Grinder

Own Production

Model

TIG 10/175

For tungsten electrodes with diameter from 1,0 up to 5,0 mm (0.040-1/5")

Working Manual

CE



EP-PATENT 03 85 069



US-PATENT 5.001.868

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I. INTRODUCTION/PURPOSE

An important condition for the cutting and welding quality are precisely ground tungsten electrodes.

The longitudinal grinding obtained by the JA-tungsten-electrode-grinder with its exact conical form and angle substantially contributes to your welding and cutting parameter. By means of the diamond grinding disk a constantly high surface quality is reached.

This results into longer life of the electrodes and improved ignition quality as well as more stable arc.



The JA-tungsten-electrode-grinder 10/175 is easy to handle. For health reasons the grinder should not be operated without dust-absorbing. The operator should wear eye protection, respirator and a safety glove when touching the disk.

II. MOUNTING INSTRUCTION

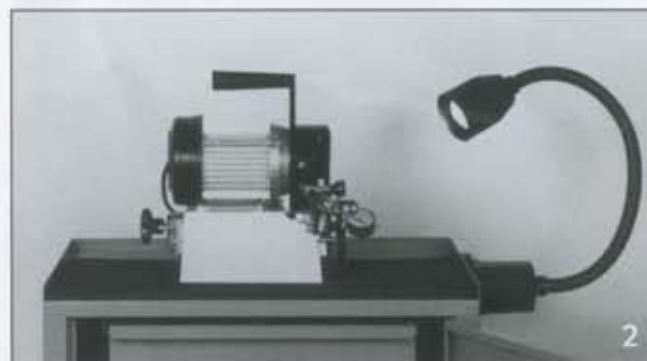
1. Set up the steel cupboard.
2. Fix the dust-absorbing hose to the nozzle behind the drawer in the interior of the cupboard.
3. Pull the cable of the vacuum-cleaner through of the airholes at the sides of the cupboard.
4. Put the vacuum-cleaner into the cupboard and fix the hose to it.
5. The main switch of the vacuum-cleaner has to be in position "II".
6. Put the rubber pad on top of the cupboard. Place the grinder with the hood on the dust-absorbing nozzle.

Please refer to picture 1.



7. Pull the cable of the grinder through one of the airholes at the sides of the cupboard and plug it into the electronic socket next to the main switch of the vacuum-cleaner.
8. Mount the magnetic lamp in your favourite position.

Please refer to picture 2.



III. OPERATING INSTRUCTION

1. Choosing the suitable diamond grinding disk

1.1 Available disks

- a) Grain 64 "very fine" for grinding 1,0 mm (0.040") and polishing
- b) Grain 76 "middling fine" for grinding 1,0-2,4 mm (0.040-3/32")
- c) Grain 126 "fine" for grinding 1,0-5,0 mm (0.040-1/5")
- d) Grain 151 "coarse" for rough-grinding

1.2 Changing the disk



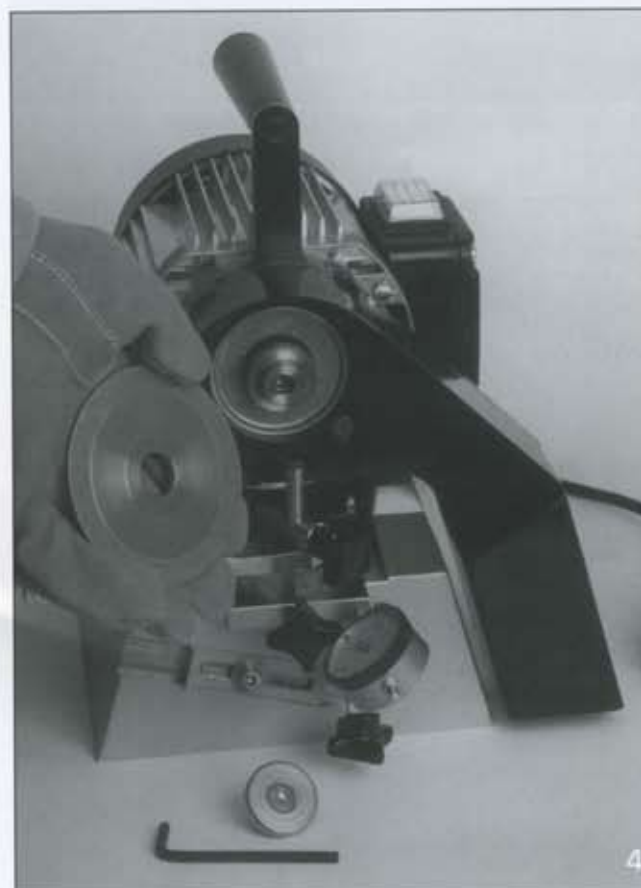
For safety reasons always pull the plug before touching the disk. Wear a safety glove when touching the disk.

- a) Move back the plate to its farrest position from the disk by turning the star knob on the back.
- b) Loosen disk by means of standardly delivered hollow screw tool.

Please refer to picture 3 + 4.



Change of the diamond disk:
Main switch is "0" = "off". Pull plug!



2. Choosing the direct support

(for the vertical adjustment)

- a) Choose the 35 mm – 1.38" long support for electrodes with lengths from 30-175 mm (1.18"-6.89") and a grinding angle of 15-90°.

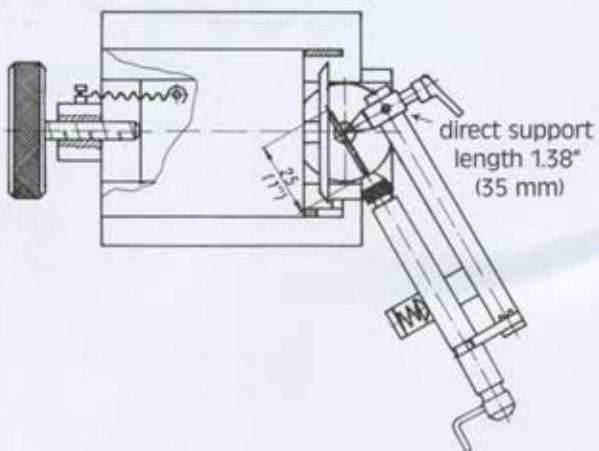
Please refer to picture 5 and sketch 1.

- b) Choose the 41 mm – 1.61" long support for short electrodes with lengths from 10 mm (0.4") and a grinding angle dependent on the diameter.

Please refer to picture 6 and sketch 2.

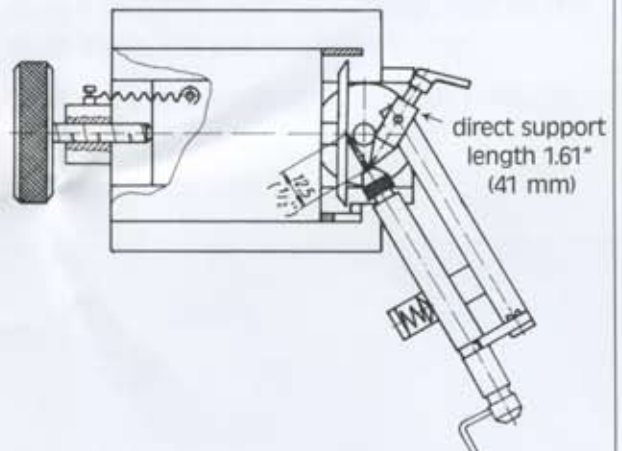


Sketch 1



Example
for tungsten electrodes from 30-175 mm (1.18"-6.89")

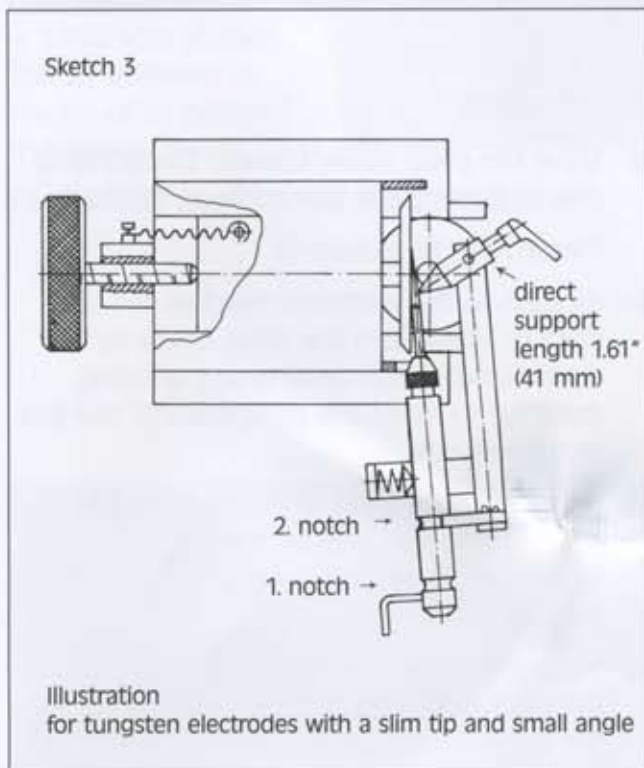
Sketch 2



Example
for short tungsten electrodes from 10 mm (0.4")

- c) Choose the 41 mm = 1.61" long support for grinding electrodes with extreme small angles (long tip). Therefore you need the second notch of the collet chuck with.

Please refer to sketch 3.



- d) The direct support has two notches. A small notch for electrode diameters of 1,0-2,4 mm (0.040" - 3/32"). A big notch for electrode diameters of 2,4-5,0 mm (3/32" - 1/5").

- e) The support has to be fixed in a position that the electrode is directed to the disk in its diamond coated area. During long-term operation the support can be shifted vertically to ensure an even use of the diamond disk.

3. Collet chucks

Collet chucks are available for electrode diameters from 1,0 up to 5,0 mm (0.040"-1/5").



The electrode has to be inserted into the collet chuck. Unscrew collet chuck nut to adjust the length of the tungsten electrode. The continuous adjustable front lay gauge ensures an exact and reproduceable result.

The remaining free length of the electrode should be 25 mm = 1" when grinding standard electrodes, and min. 10 mm = 0.4" when grinding very short electrodes.



Storage case for collet chucks

4. Fitting the collet chuck

- Move back the plate to its farest position from the grinding disk.
Please refer to Ill. 1.2.
- The collet chuck can only be fitted with fastened electrode inside.
- When fitting the collet chuck please make sure the pressing force is alright.

Note:

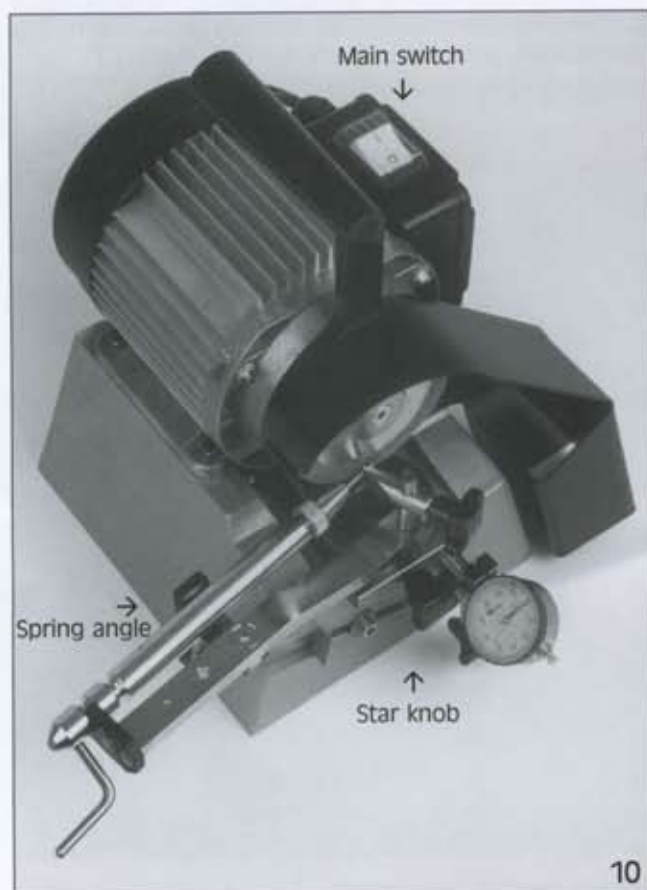
The smaller the electrode diameter, the lower the pressing force.

The pressing force can be adjusted by moving the spring angle slightly.

Please refer to picture 10.

- The grinding angle can be adjusted by choosing the right graduation (0°-180°) on the coiler plate which can be loosened or fastened by turning the star knob.

Please refer to picture 10.



5. Turning on the grinder



Put the main switch of the grinder into position "0" – off.

Please refer to picture 10.

Plug in the cable of the grinder. Put the main switch of the grinder into position "1" – on. Please note: The vacuum-cleaner will start operation at the same time.

Operator should wear eye protection and respirator!



6. Grinding

- Move the plate slowly towards the grinding disk by turning the star knob on the back.
Please refer to picture 11.
- As soon as the electrode touches the disk start to slowly turn the collet chuck by its crank handle. With progressing grinding continue to move the plate towards the disk simultaneously.
- In the finishing term of the grinding the collet chuck may only be turned very slowly to achieve an optimal *longitudinal grinding surface*.
- Having achieved the right electrode tip move back the plate and put the main switch of the grinder into position "0" – off. After the diamond disk has come to rest, you can take out the collet chuck .



Beware of hot tip!

7. Shortening and flat tip grinding

Before grinding used electrodes which are polluted with the reminders of welding material have to be shortened. Pollutions of the electrode reduce the service life of the diamond grinding disk and decrease its grinding capability.



Operator should wear eye protection and respirator!

- The electrode has to be notched at the demanded position. This is done by rotating it between the fingers whilst holding it against the rotating disk using the slot of the protection hood. Please refer to picture 12.
- The notched electrode is stuck into a fitting hole of the collet chuck bearing and can now be broken splitter-free.

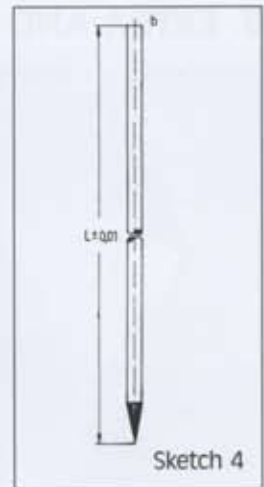


Please refer to picture 13.

The flat tip grinding of electrodes with an accuracy in length of $\pm 1/100$ mm (.0004") can be achieved by means of an optional measuring device.



Please refer to picture 14, 15 and sketch 4.



When grinding series of same electrodes the plate can be fixed at an optional bar. Please refer to picture 16.

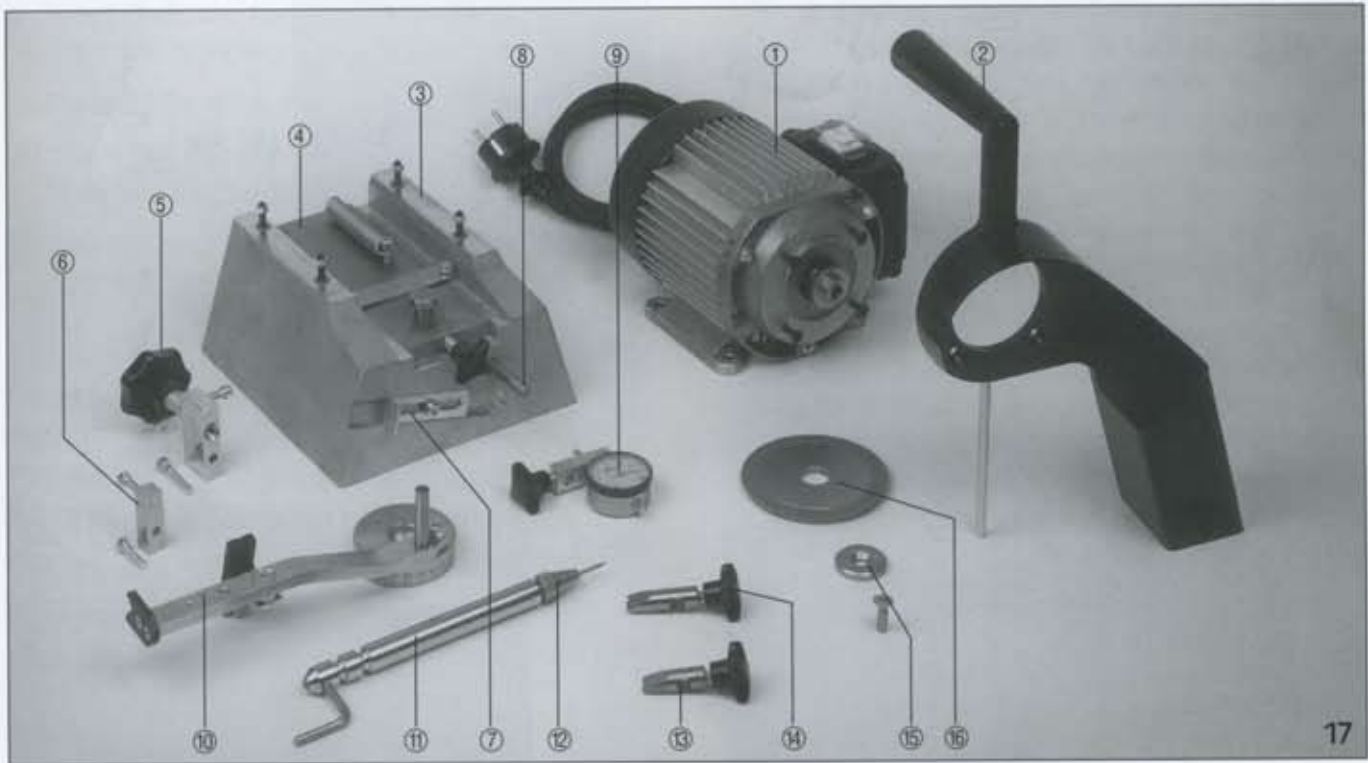


IV. TECHNICAL DATA

- Motor: 230 V ~, 50 Hz, 2800 r.p.m., 0,18 KW, protection degree IP 55 or 115 V ~, 50 Hz, 2720 r.p.m., 0,18 KW, protection degree IP 55
- Diamond disk: \varnothing 90 mm (3,54")
- Grinding range: Electrode diameter 1,0-5,0 mm (0,040-1/5")
Electrode length 10 up to 175 mm (0,4-7")
- Grinding angle: 0-90° infinitely variable
- Weight: 10,1 kg without cupboard
53 kg with cupboard and vacuum-cleaner

Made in Germany

V. EXTRA AND SPARE PARTS



- ① Motor 230 V ~ / 50 Hz, protection degree IP 55, cable length 1500 mm, plug, On/Off switch. Item-No. J 03 1 01 01
 Motor 115 V ~ / 50 Hz, protection degree IP 55, cable length 1500 mm, On/Off switch. Item-No. J 03 1 01 02
- ② Hood with handle and fixing screws
 Item-No. J 03 1 01 03
- ③ Motor base with motor fixing screws, suppression bar incl. fixing screws
 Item-No. J 03 1 01 04
- ④ Sliding carriage with suppresser bolt, tightening screw with star knob, tension spring and 2 fixing screws
 Item-No. J 03 1 01 05
- ⑤ Thrust bearing with tightening screw and star knob
 Item-No. J 03 1 01 06
- ⑥ Adjustable stop bracket with fixing screw, stop screw and check nut
 Item-No. J 03 1 01 07
- ⑦ Adjustable front lay gauge for the electrode length with fixing screw and washer
 Item-No. J 03 1 01 08
- ⑧ tang for measuring device
 Item-No. J 03 2 06 03
- ⑨ Complete measuring device incl. bearing
 Item-No. J 03 1 01 09
- ⑩ Complete bar, coiler plate with scale and spring angle
 Item-No. J 03 1 01 10
- ⑪ Diamond grinding disks with grains
 Collet chucks available for diameters:
 1,0 \varnothing mm (0,040"): Item-No. 90000158
 1,6 \varnothing mm (1/16"): Item-No. 90000159
 2,0 \varnothing mm (0,080"): Item-No. 90000160
 2,4 \varnothing mm (3/32"): Item-No. 90000161
 3,0 \varnothing mm (0,12"): Item-No. 90000161A
- 3,2 \varnothing mm (1/8"): Item-No. 90000162
 4,0 \varnothing mm (5/32"): Item-No. 90000163
 4,8 \varnothing mm (3/16"): Item-No. 90000164
 5,0 \varnothing mm (1/5"): Item-No. 90000165
- ⑫ Collet nuts available for diameters:
 1,0 \varnothing mm (0,040")-4,0 \varnothing mm (5/32")
 Item-No. 90000153
 4,8 \varnothing mm (3/16")-5,0 \varnothing mm (1/5")
 Item-No. 90048153
- ⑬ Direct support
 35 mm length (standard)
 Item-No. J 03 1 01 11
- ⑭ Direct support
 41 mm length (for short tungsten electrodes)
 Item-No. J 03 1 01 12
- ⑮ Flange pulley with fixing screw
 Item-No. J 03 1 01 13
- ⑯ Diamond grinding disks:
 Grain 64 "very fine"
 Item-No. 90064151
 Grain 76 "middling fine"
 Item-No. 90076151
 Grain 126 "fine"
 Item-No. 90126151
 Grain 151 "coarse"
 Item-No. 90151151

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