



STATIONARY GRINDER for tungsten electrodes



D91



User's manual



WELDING EQUIPMENT SUITABLE FOR TODAY'S NEEDS

Thank you for purchasing our product!

You have made a right choice. Plasma welding and welding processes are carried out in difficult conditions that expose welding equipment to extreme tests of its strength. Only high quality equipment can ensure required reliability and performance during realization of the above-mentioned processes. SPARTUS® products are characterized by precisely such features: they are primarily reliable and durable, but they are also versatile. We listen carefully to clients' needs. Therefore, our offer covers such a wide assortment of products. Thank you very much for your trust in our company. We would like to invite you to familiarize yourself with the remaining products and offer at www.spartus.info or directly at a local distributor of SPARTUS® products.

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IMPORTANT!

Before using this product, read the instruction manual in its entirety, with understanding. Keep the instructions for quick reference to it if necessary. Pay special attention to safety instructions provided for your protection. In the event of any points of misunderstanding instructions, contact your supplier or supervisor.

1. SAFETY RULES



Information in this manual on the safe use of the provided equipment does not release the operator from following safety regulations in force on site.

In addition, the operator should have an information on the necessary safeguards as defined in relevant national and international standards and regulations.

It is forbidden to use the equipment without previous reading of this manual.

! *This symbol is dedicated for tips not using of which may be dangerous to life or health. These tips should be used while keeping special caution in these situations. These tips should be given to all users of the device.*

1.1 INTENDED USE

Stationery grinder for tungsten electrodes SPARTUS® D91 is dedicated for grinding (sharpening) of tungsten electrode tip (non-consumable electrode), use for TIG welding procedure.

! *It is **forbidden** to grind tungsten electrodes with thorium without first connecting the extractor and separating the dust with proper filtration. The dust generated as the result of the grinding of thorium electrodes is highly harmful to health and life of the operator.*

*It is **forbidden** to use the device for improper purposes!*

1.2 SAFETY USE

Before each use check the condition of the device and additional accessories. It is forbidden to use damaged or technically inoperable device. Used and damaged parts must be replaced with original spare parts.

! *Breaking the safety rules may lead to the risk of losing health or life!*

1.2.1 Grinding wheel shuttle rotation movement

The grinding wheel rotational speed reaches 5000 rpm. During the grinding, splinters and impurities that can form in the eye may appear. High temperature can be produced due to strong friction forces. The rotating wheel of the grinder can pose a risk to the operator's hands and fingers.

In order to prevent hazards mentioned above and other risks that accompany the grinding process, the following rules must be followed:

- it is absolutely forbidden to use the device when the protective cover is removed or damaged,
- it is forbidden to put hands or fingers inside the grinding chamber when the device is connected to the electricity supply,
- sharpened electrode always should be secured by a clamp. Clamp should be carefully tighten.

1.2.2 Noise load

The device itself emits a low level of noise. However, during the grinding (sharpening) of tungsten electrode, the level of noise increases. Excessive noise can cause permanent damage to hearing.

In order to prevent threats mentioned above, following rules must be followed:

- use appropriate hearing protectors,
- people in the vicinity should be informed about the dangers of exposure to excessive noise. People in the work zone must wear appropriate hearing protection.

1.2.3 Risk of electric shock

The unit is powered from single-phase network 230V +/- 10%. Like all device supplied with electricity network, the grinder may cause risk of electric shock to the operator. Electrical shock from the electricity network can result in permanent damage to health or loss of life.

In order to prevent threats mentioned above, following rules must be followed:

- it is forbidden to use when the power cord, plug or cover is damaged,
- do not touch electrical components of the device under voltage,
- take special care when using the device in small rooms or in areas with increased air humidity,
- avoid contact with water.

1.3 ENVIRONMENTAL CONDITIONS

Conditions during the operation, storage and transport

Ambient temperature during operation -10°C ÷ +40°C

Relative air humidity
50% in +40°C
90% in +20°C


Ambient air
free from excessive amounts of dust, acids,
corrosive gases

Maximum slope of the surface
no more than 10°

Ambient temperature
during transportation and storage -20°C ÷ +55°C

2. EC DECLARATION OF CONFORMITY

We hereby declare that the subject-matter of the declaration mentioned above complies with the relevant requirements of EU harmonization legislation: Machinery Directive 2006/42/EC.

Product is marked with CE sign .

This declaration applies only to the machine in the state in which it was on the market and does not include components added by the end-user or subsequent actions carried out by it.

3. GENERAL DESCRIPTION

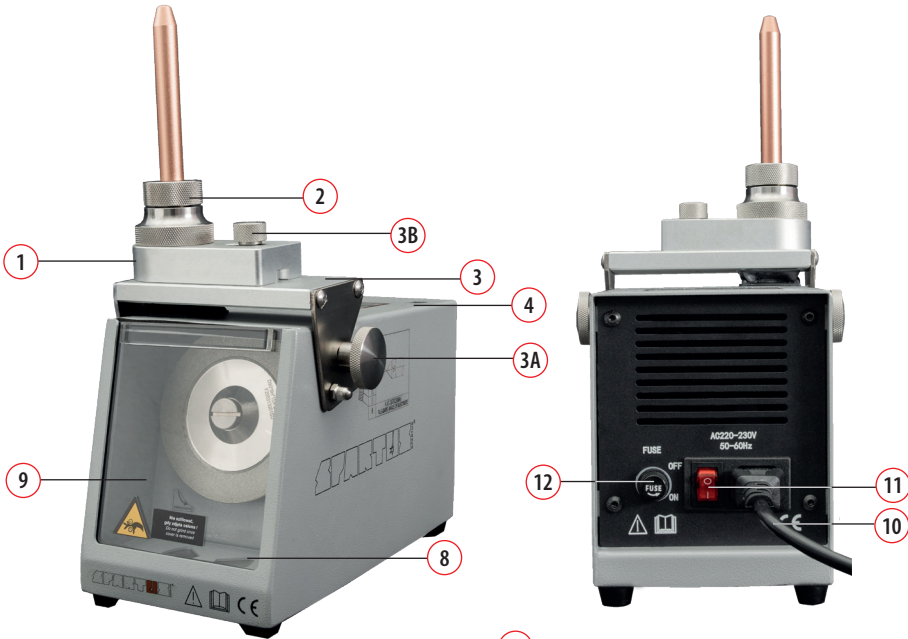
The D91 grinder enables precise and efficient sharpening of the tungsten electrode tip according to the technological requirements. Electrodes sharpened with Spartus® grinder present, among other things, an extended service life and allow easier arc welding.

The grinder enables sharpening of electrodes with diameters of 1.6 to 4.8mm at an angle from 10° to 60°. Built-in depth checker allows to select the right depth of sharpening and ensures repeatability of the process. Ability to displacement the electrode with regard to the surface of the grinding wheel significantly increases the life of the blade – which results in lower operating costs. Standard grinder is equipped with a clamping sleeve for electrodes with a diameter of 2.4mm and a basic grinding wheel. It is possible to purchase clamping sleeves for other diameters and diamond wheels.

4. TECHNICAL SPECIFICATIONS

Input	~1 x 230V ± 10% 50 / 60 Hz
Electric motor power [W]	20
Grinding angle [°]	10 – 60
Rotational speed [obr/min]	5 000
Diameter of electrodes [mm]	1.6 / 2.0 / 2.4 / 3.0 / 3.2 / 4.0 / 4.8
Grinding wheel diameter [mm]	90
Max speed of electrodes grinding [pcs/min]	2
Dimensions [mm]	230 x 170 x 200
Vibration level [m/s ²]	< 4
Noise level [dB(A)]	< 60
Grinder weight [kg]	4

5. DEVICE CONSTRUCTION



- ① Supply channel
- ② Electrode holder with clamp
- ③ Platform with possibility to adjust the position of the electrode with regard to the grinding wheel
- ③A Adjusting the angle of the electrode sharpening
- ③B Adjusting of the electrode position with regard to the grinding wheel
- ④ Depth checker
- ⑤ Grinding wheel
- ⑥ Wheel tightening screw
- ⑦ Grinding chamber
- ⑧ Moveable cover plate
- ⑨ Grinding chamber cover
- ⑩ Network cable with power plug
- ⑪ ON/OFF switch
- ⑫ Fuse

6. INSTALLATION AND USE

! *Situations and threats that may cause direct danger during use of the device.
Precautions to be taken by the operator in order to avoid hazards!*

Health-impaired materials that electrodes are made of!

- Tungsten electrodes can contain harmful materials. Follow the manufacturer's instructions and recommendations! In case of doubt concerning the composition of tungsten electrodes contact the manufacturer / supplier of electrodes.

Activation with an electrode applied to the grinding wheel!

Launching and commissioning of the device with an electrode applied to the grinding wheel may cause twist of the electrode and damage the grinding wheel, the equipment and personal injury! During the launching, the electrode must not adhere to the surface of the grinding wheel. Check the electrode position before switching on.

Open supply channel!

During the grinding procedure splinters and dust which can fall into the eye or be released into the air can get through a supply channel.

Prior to switching on the device, place the electrode holder in the supply channel. Keep in mind that the end of the grounded electrode should not touch the grinding wheel.

After turning off, wait until the grinding wheel has completely stopped before pulling out the electrode holder from supply channel.

Improper claim!

Using of improper electrode claim can cause loosening of the electrode, which could result in damage to the device or the operator's health.

Only original and suitable electrode clamps should be used.

Too much clamping force between electrode and grinding wheel!

Using too much clamping force on grinding wheel can cause overheating and an annealing of electrode. Annealed electrode may be unusable or damage the device.

Do not use too much clamping force between electrode and grinding wheel!

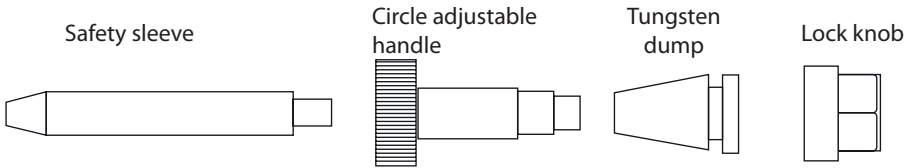
Rotate the electrode evenly over the grinding wheel during sharpening!

! *Before each use make sure that all components are properly installed and technically functional.
It is **forbidden** to use the device if it is technically inoperable!*

! *The unit is powered from single-phase network 230V. **RISK OF ELECTRIC SHOCK.** Connect to a single-phase network with the parameters indicated in the technical documentation. Check the status of plug and power supply lines. Replace the damaged power supply line or plug with a new one!*

6.1.1 Preparing electrodes for sharpening

Special clamping sleeves, which match the electrode diameter are used for mounting the electrode in the holder.



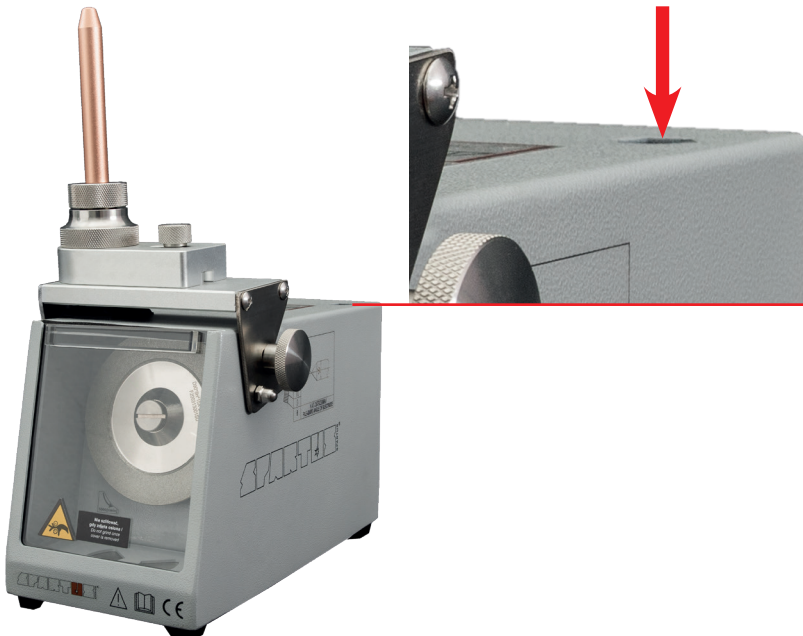
Tungsten electrode assembly in the holder:

1. Choose the appropriate electrode clamp (clamping sleeve).
2. Place electrode in the clamp.
3. Screw the clamp into the electrode holder.
4. Tighten the fixing nut.

6.1.2 Electrode sharpening depth check

To determine the optimum depth of sharpening of the electrode, use a special depth checker that is located on the side of the cover.

1. Loosen the electrode nut fixing.
2. Place electrode holder with the electrode inside depth checker holder.
3. Loosen locking screw on depth checker holder.

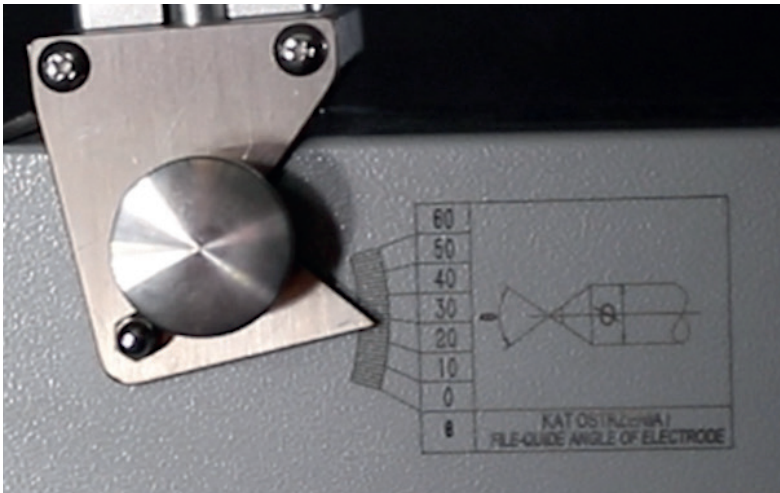


6.1.3 Adjusting the angle of the electrode sharpening

! Before adjusting the sharpening angle, make sure the grinder is off and the switch is in the OFF position!

To adjust sharpening angle:

1. Adjust the sharpening angle (loosening screws fixing the platform, setting angle values, securing screws fixing the platform).
2. Place claim with the electrode inside the supply channel **1**.
3. Check if contact of the end of the electrode and grinding wheel is suitable.
4. Pull off claim with the electrode from the supply channel.



i In order to prolong the life of the grinding wheel, it is advisable to adjust the position of the electrode regard to the grinding wheel with use of a special platform with a lock **3B**.

6.1.4 Sharpening of electrode

! Take appropriate precautions when sharpening. Use personal protective measures!

1. Check if the switch **11** is in the „OFF” position.
2. Connect the device to the power supply network with specifications that meet the technical requirements.
3. Prepare electrode for sharpening (see 6.1.1 and 6.1.2).
4. Set the angle of electrode sharpening (see 6.1.3).

5. Put the claim with the electrode inside the supply channel.
6. Check once again if the contact of electrode and grinding is suitable.
7. Lift the electrode holder gently so that the electrodes do not come into contact with the surface of the grinding wheel and the feed channel is closed.
8. Switch on the grinder using the switch (11).
9. Slowly and evenly rotate the electrode holder, thus sharpening end of the electrode.
10. The sharpening process is terminated after reaching the electrode holder stop.
11. Gently lift the electrode holder so that there is no contact between the electrode and the wheel.
12. Switch of the grinder.
13. When the wheel is stopped, the handle can be removed from the supply channel.
14. Put off the electrode from holder.

7. MAINTENANCE



Disconnect the grinder from the power source and set the switch to OFF before performing any maintenance work.

7.1 CLEANING



Grinding dust! When cleaning the grinding dust can get into the eyes. Remnants of grinding dust can enter the bloodstream through superficial skin damage. Use safety goggles and gloves.

1. Make sure the grinder is disconnected from the power supply.
2. Remove the grinding chamber cover (9).
3. Clean the surface of the grinding wheel from remaining grinding dust.
4. Remove the dust container (8) and dispose of the dust.
6. Install the grinding chamber cover (9).

7.2 Grinding wheel replacement

1. Clean the grinding chamber (see 7.1).
2. Unscrew the fixing screw (6).
3. Replace grinding wheel.
4. Secure the wheel with fixing screw (6).
5. Install the dust container.
6. Install the grinding chamber cover.

8. TROUBLESHOOTING

The end of the tungsten electrode after the grinding is overheated.	Too much clamping force between electrode and grinding wheel.
Uneven grinding of the electrode.	Incorrect tungsten electrode grinding technique. The grinding wheel is worn out.
The tungsten electrode falls out of the electrode holder.	Improper or worn out tungsten electrode clamp.
The tungsten electrode rotates in the clamp while grinding.	Improper or worn out tungsten electrode clamp.
End of the electrode is not sharp enough – the electrode is not sharpened.	Too low grinding depth.

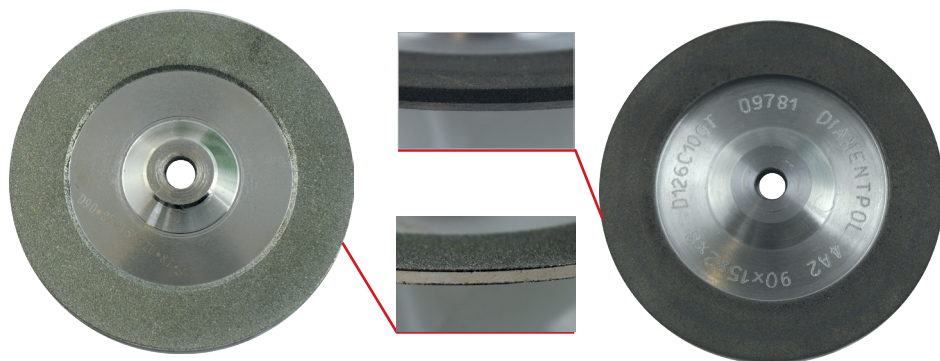
9. SPARE PARTS

CLAMPING SLEEVE



CODE OF PRODUCT	SP147-00-116	SP147-00-120	SP147-00-124	SP147-00-132	SP147-00-140	SP147-00-148
Diameter [mm]	1.6	2.0	2.4	3.2	4.0	4.8

WHEELS



STANDARD	
CODE OF PRODUCT	SP147-00-010

DIAMOND	
CODE OF PRODUCT	SP147-00-011



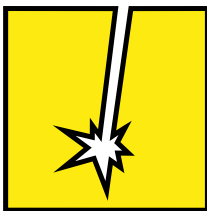
EASY

Simple solutions and an attractive price – these are the features of SPARTUS® Easy series devices. Our equipment has been designed with ease of use and ergonomics at work in mind.

A masterly combination of high quality production, excellent parameters and ergonomics – these are features of the SPARTUS® Master series of devices, which were created with demanding welding jobs in mind.



MASTER



PRO

Precision, functionality, excellent parameters and resistance to high workloads – these are the features of the SPARTUS® Pro industrial series of devices. This series consists of specialised solutions which will satisfy even the most demanding users.



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