HAKAS PLUSMIG® 2500

INSTRUCTIONS FOR USE • ENGLISH

HAKAS

CONTENTS

CONGRATULATIONS ON YOUR NEW HAKAS® -WELDING MACHINE

You have made an excellent choice by selecting a genuine, original HAKAS welding machine. HAKAS portable welding machines are designed for easy, trouble-free, and high-quality welding.

The first HAKAS welding machine was delivered to a customer in 1972. Since then, HAKAS has been known for its welding machines, which combine high-quality welds with excellent performance and durability.

Your HAKAS welding machine comes with the most comprehensive warranty on the market. Read through the warranty terms and register your warranty within 30 days of purchasing your welding machine. Our extensive service and dealer network is here to assist you and ensure your welding machine remains in top condition by providing the necessary maintenance and repairs. You can find your nearest service center on our website www.hakas.fi.

Read this user manual carefully. It guides you in the proper use of your welding machine and also highlights the risks associated with its use. We want to provide you with the best user experience for easy, trouble-free, and high-quality welding work. When used correctly, your new HAKAS welding machine will deliver high-quality welds for many years to come.

By choosing this HAKAS welding machine, we are confident that it will meet your welding needs, not only now but for many years to come.

User Manual

HAKAS PLUSNIG 2500

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www.hakas.fi

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Restrictions

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1. INTRODUCTION

1.1 General

You have made an excellent choice by selecting a genuine, original HAKAS welding machine. HAKAS welding machines are designed for simple, efficient, and high-quality welding work. When used correctly, your welding machine will provide reliable performance and high-quality results for many years.

This user manual contains important information, general instructions, and safety warnings regarding the use, operation, maintenance, and servicing of your new welding machine. Read this manual carefully before putting the equipment into operation and starting to weld.

The purpose of this manual is not to train the user as a welder, nor does it serve as a complete service manual. Instead, it is intended as a reference guide for trained and qualified users of welding equipment

NOTE
Familiarize yourself with this manual before using or maintaining your welding machine. After reading it, store it in a dry place near the machine for future reference. The manual must accompany the machine throughout its entire service life.

For more information about HAKAS® products, including compatible accessories, spare parts, and consumables for this welding machine, visit:

www.hakas.fi

To ensure long-term reliability and performance, use only genuine parts, accessories, and consumables from HAKAS ORIGINAL™. Full availability is listed on the website above.

1.2 Equipment Features

The HAKAS PLUSMIG 2500 is designed to make welding as simple and smooth as possible. The welding machine is intended for MIG/MAG welding of steel, aluminum, stainless steel, and acid-resistant steel with various material thicknesses. The HAKAS PLUSMIG 2500 welding machine is intended for use in a three-phase electrical network.

The HAKAS PLUSMIG 2500 is suitable for material thicknesses of 0.5–6.0 mm with filler wires that are 0.6–1.0 mm thick. The welding machine is factory-fitted with a feed roll for welding wires that are 0.8–1.0 mm thick. By turning the feed roll on the machine and changing the current nozzle, you can weld with all of the above-mentioned welding wire thicknesses. For thinner or thicker filler wire, the feed roll must be

replaced to match the wire's thickness. These accessory feed rolls are available directly from HAKAS dealers.

NOTE
Thicker wire is cost-effective and less prone to feeding problems. On the other hand, thin wire is better suited for thin materials.

NOTE
The welding machine must only be used for welding! It is prohibited to use the welding machine for any other purpose. Other uses may damage the machine or pose a hazard to the user.

1.3 Intended Use and Basic Welding

When used correctly, the HAKAS PLUSMIG 2500 welding machine delivers high-quality MIG welding results. In addition to the welding machine, the welding result is influenced by the welder's experience, the available power, the filler materials and accessories used, and the settings and adjustments made by the user on the machine. The settings and adjustments must be made correctly to achieve the desired welding result.

During welding, an arc is created between the workpiece and the welding electrode. To create the closed circuit that enables successful welding, a ground cable must be attached to the workpiece. The ground cable's attachment point must be clean for the arc to form and for the weld to be of high quality. The welding torch must be properly assembled, and wear parts must be replaced as needed to ensure successful welding and high-quality welds.

1.4 Main Components of the Welding Machine

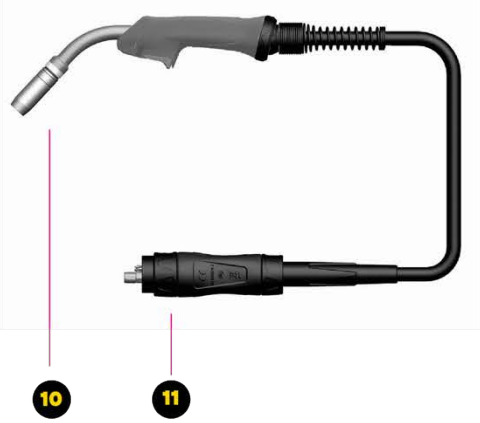
This section introduces the HAKAS PLUSMIG 2500 welding machine.

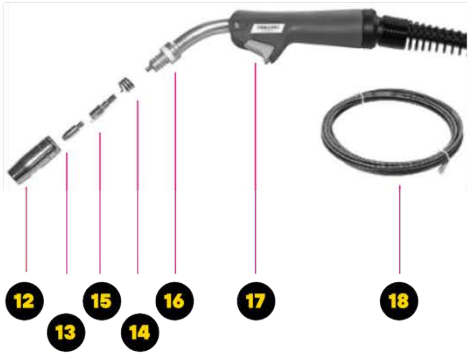
The illustrations mentioned in this section are used throughout the manual. Please note that the images are for reference only. The actual contents of the purchased welding machine package and the machine's appearance may differ from what is shown.

Always check the contents of the package upon purchase and report any missing items to the store where the machine was purchased.

FRONTPANEL

1. Indikatorlampa för överhettningsskydd
2. Display för svetsström
3. Reglage för svetsström
4. Anslutning för jordkabel
5. Display för svetsspänning
6. Trådmatningshastighet och hastighetsreglage
7. Reglage för mjukstart
8. Reglage för eftersvetsningstid
9. Eurokontakt för svetsbrännare





UTRUSTNING

10. MIG-brännare
11. EURO-kontakt
12. Gasmunstycke
13. Strömmunstycke
14. Låsfjäder för gasmunstycke
15. Strömdysans hållare
16. Brännarhals
17. Brännaravtryckare
18. Trådledare
19. Mattpress
20. DIX 50-kontakt
21. Stifthållare
22. Gasslang, klämma och snabbkoppling (ej på bilden)

2. SAFETY INSTRUCTIONS

2.1 Explanation of Notes and Warning Symbols

WARNING
Indicates sections of the manual that are particularly important for the effective operation, proper use, and proper maintenance of the welding machine

WARNING (image-related)
Used in conjunction with illustrations where safety-related aspects must be carefully considered.

NOTE
Indicates sections of the manual that are particularly important for the efficient operation, proper use, and proper maintenance of the welding machine.

2.2 Instructions for safe use of the unit

2.2.1 General safety instructions

WARNING
Follow these general safety instructions when using the welding machine:

Read this manual carefully before using the welding machine. Keep it in an easily accessible place—it must accompany the machine throughout its entire service life.

- If you need more detailed instructions than those provided here, contact the service department **at Wallius Welding Machines Ltd**.
- Never use a defective or damaged welding machine.
- Do not use the machine if it has been dropped or subjected to severe impacts. It must be inspected and approved by an authorized service center before further use.
- It is strictly prohibited to modify the welding machine's design without the manufacturer's permission. Unauthorized modifications void the product warranty.
- Use only original spare parts approved by the manufacturer for repairs and maintenance.
- A clean and organized work area is essential for safe operation. Always check the work area before starting work and eliminate any hazards.
- Do not weld near sensitive electronic equipment, as electromagnetic interference can cause malfunctions or damage.

2.2.2 Safety Instructions for Welding

Follow these safety instructions during operation:

Personal protective equipment

> Wear protective clothing that covers exposed skin. UV radiation from the welding arc can cause burns.
> Do not wear flammable clothing during welding work.
> Use protective gloves that insulate against heat and sparks.
> Use appropriate hearing protection and other necessary personal protective equipment (PPE).

General safety during work

> Handle hot workpieces and welding tools with care. Inform others in the vicinity of potential hazards.
> Ensure that everyone nearby is aware of the welding work and the associated risks.
> Never use the welding machine without the protective shields in place.
> Never point the welding electrode at yourself or others.

Electrical Safety

> If you receive an electric shock, immediately stop welding and disconnect the machine from the power supply.
> High currents can generate strong electromagnetic fields that may interfere with devices such as pacemakers.
> Always ensure that the welding equipment is electromagnetically compatible with other devices in the vicinity.

Eye and vision protection

> Always use a welding helmet with an appropriate shade (DIN 8–13).
> It is strictly prohibited to look directly at the arc without protection.
The arc can cause serious eye damage even at distances of up to 15 meters.
> Do not wear contact lenses while welding, as they may melt onto the eye due to heat exposure.
> Be aware of reflected light radiation from the arc.

Workplace Safety

> Shield the welding area using non-reflective barriers or work in a dedicated welding area whenever possible.
> Welding fumes may contain hazardous substances. Protect yourself by using:
> fume extraction systems
> ventilated welding masks
> appropriate protective clothing

> Do not inhale welding fumes or welding gases.
> Weld only clean, untreated, and stainless materials to minimize harmful emissions.
> Ensure adequate ventilation or use appropriate respiratory protection.
> Never use oxygen for ventilation.

Fire and Explosion Safety

> Keep children and unauthorized persons away from the work area.
> Follow all local fire safety regulations for hot work.
> Ensure that fire extinguishing equipment is readily available.
> Remove flammable materials from the welding area whenever possible.
> Be aware that heat transfer through materials can create hidden fire hazards.
> Sparks, molten metal, and hot surfaces can ignite nearby materials.
> Never weld near flammable or explosive substances.
> Avoid welding in enclosed or confined spaces unless appropriate safety measures and supervision are in place.
> Welding containers that have held flammable liquids poses a high risk of explosion and must be handled with extreme caution.

Placement and Handling of the Machine

> Place the welding machine on a stable, level surface.
> Ensure that the ventilation openings are not blocked.
> If the airflow is blocked, it can cause overheating and equipment failure.
> Do not use the machine on surfaces with a slope of more than 10°.

Electrical installation and grounding

> The welding machine is an electrical device. Moisture, damaged cables, or mechanical defects can cause electric shock.
> Ensure that all electrical connections comply with applicable regulations.
> The power cord has a **yellow-green protective conductor** that must always be connected to a protective ground.
> **Never connect the protective conductor to a live circuit.**
> After installation, check that the grounding is working properly.

Safety for Cables and Equipment

> Protect the cables from sharp edges and falling objects.
> Repair damaged cables immediately.
> Never move the machine by pulling on the cables.
> Keep cables clear and tangle-free—do not wrap them around metal objects, as this can cause inductive interference.

Safety in damp conditions and storage

> Do not use the machine in wet or damp environments.

> Store the machine in a dry environment.
> If the machine gets wet (e.g., from rain or condensation), let it dry completely before using it.

Operational Safety

> Always use the welding machine under supervision.
> Turn off and unplug the machine when not in use.
> Prevent foreign objects from entering the machine—they can cause damage or serious hazards.

3. PREPARATIONS BEFORE USE

3.1 Unpacking and Inspection

Carefully remove the welding machine and all included accessories from the shipping packaging.

At the same time, inspect the machine to ensure it has not been damaged during transport.

If damage is detected:

> Contact the carrier immediately
> File a damage report without delay

NOTE
Under no circumstances should a damaged welding machine be connected to the power grid.

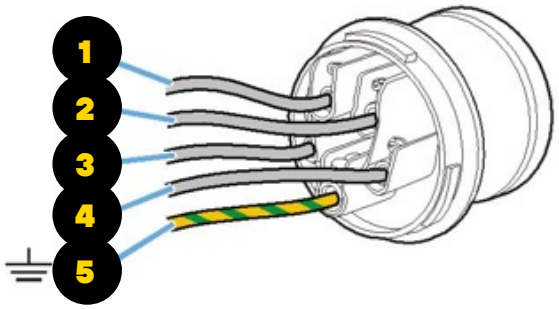
If the contents of the delivery do not match your order, contact the supplier or distributor of the unit.

3.2 Connection to the power grid

The welding machine is supplied as standard with a 3-phase connection to a 400 V network (50 Hz). When connecting the phase wires to the 3-phase outlet, the phase sequence does not matter.
The ground wire has yellow-green insulation. Always connect the plug to a grounded outlet.

In the adjacent image

1 = L2
2 = L3
3 = L1
4 = N
5 = protective earth conductor



NOTE
Always check that the supply voltage is correct before connecting the welding machine.

WARNING
The protective conductor insulation is yellow-green.
Electrical connections must only be made by a qualified electrician.

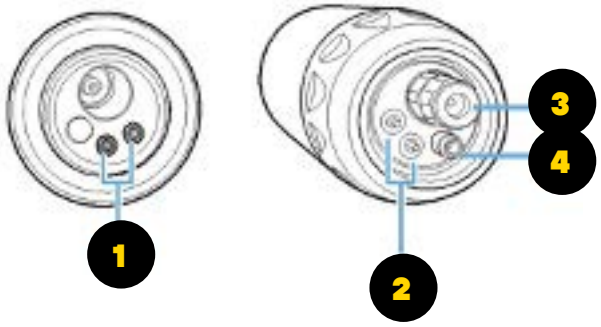
WARNING
Incorrect electrical connections can result in serious injury or death.

3.3 Installation of accessories

1. Connect the welding torch's EURO quick connector (male) to the welding machine's EURO quick connector (female) on the front panel.

NOTE
Before beginning installation, check that the contact surfaces on the welding torch quick connector and the welding machine quick connector are intact and clean.

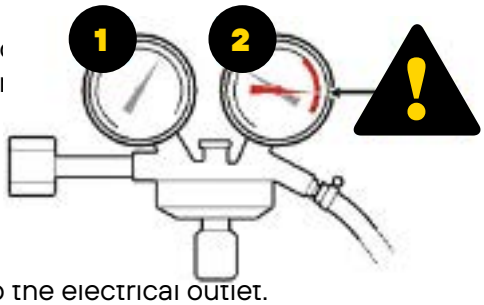
Shown in the image below
1. Contact sleeves
2. Contact pins
3. End clamping nut
4. Gas connection



2. Tighten the welding torch's connection to the machine by hand until it is secure. A loose connection can damage both the welding machine and the welding torch.
3. Lift the shielding gas cylinder into the welding machine's cylinder holder and secure the shielding gas cylinder chain.
4. Remove any protective caps and lock nuts from the shielding gas cylinder valve.
5. Connect the pressure regulator/flow meter to the shielding gas cylinder valve.
6. Run the gas supply hose from the flow meter to the welding machine.
7. Attach the gas hose to the flow meter and tighten the hose clamp on the hose connection. Check that the gas hose clamp is securely fastened to the side of the welding machine.
8. Carefully open the valve on the shielding gas cylinder. At the same time, keep an eye on the flow meter on the gas supply hose.
9. Set the correct gas flow using the screw on the pressure regulator.
10. Check that the hose connections are secure by closing the valve on the shielding gas cylinder. If the pressure on the gas cylinder's pressure gauge begins to drop immediately, even though the welding machine's solenoid valve is closed, there is a leak somewhere.

WARNING
If the pressure regulator is defective, immediately close the valve on the shielding gas cylinder and release the pressure. It is dangerous to remove the gauge and hoses while they are under pressure.

Here is an illustrative image of the flow regulat
1. Pressure gauge on the shielding gas cylinde
2. Flow meter for the gas supply hose

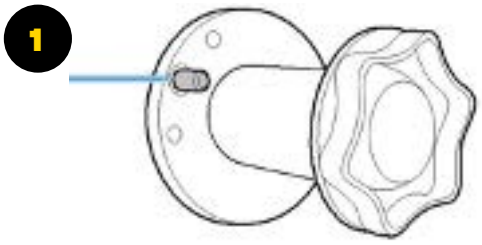


11. Plug the welding machine's power cord into the electrical outlet.
12. Turn on the power to the welding machine using the power switch. The power switch is located on the machine's rear panel.
13. Press the welding torch trigger; the welder will emit a clicking sound, the wire feed rolls will start spinning, and the gas will begin to flow.
14. Keep the welding torch trigger pressed and adjust the gas flow using the screw on the pressure regulator.
15. The gas requirement is between 6 and 18 l/min. When you release the trigger on the welding torch, the wire feed rolls stop and the shielding gas flow ceases.

3.4. Installing the filler wire reel

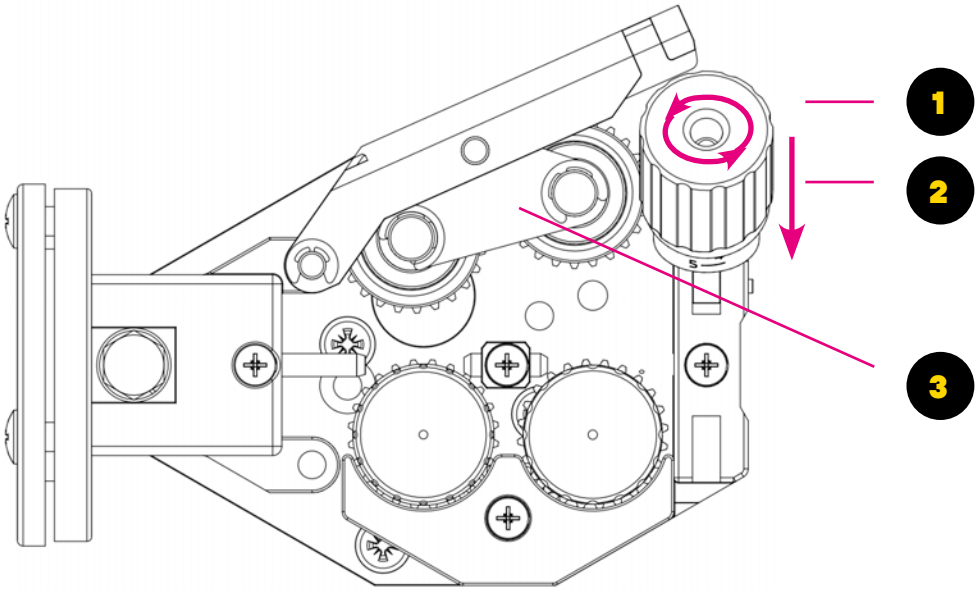
1. Make sure the power switch (located on the machine's rear panel) is in position 0 (OFF).
2. Select a wire suitable for the welding job.
3. Place the wire spool on the wire spool shaft in the welding machine. The wire spool's locking pin must fit into (item one (1) in the image below) the wire spool's locking hole.

3.1. If you are using a 5 kg wire spool, place the additional spool holder (accessory: part number 131940070) on the spool shaft.



3.4. Inserting the wire into the wire feeder

1. Loosen the pressure roll clamp by turning the pressure roll clamp clockwise (item 1 in the image below).
2. Pull the clamp toward you (item 2 in the image below) so that the clamp moves away from the upper part of the pressure arm that locks the pressure roll, thereby releasing the pressure roll (item 3 in the image below).



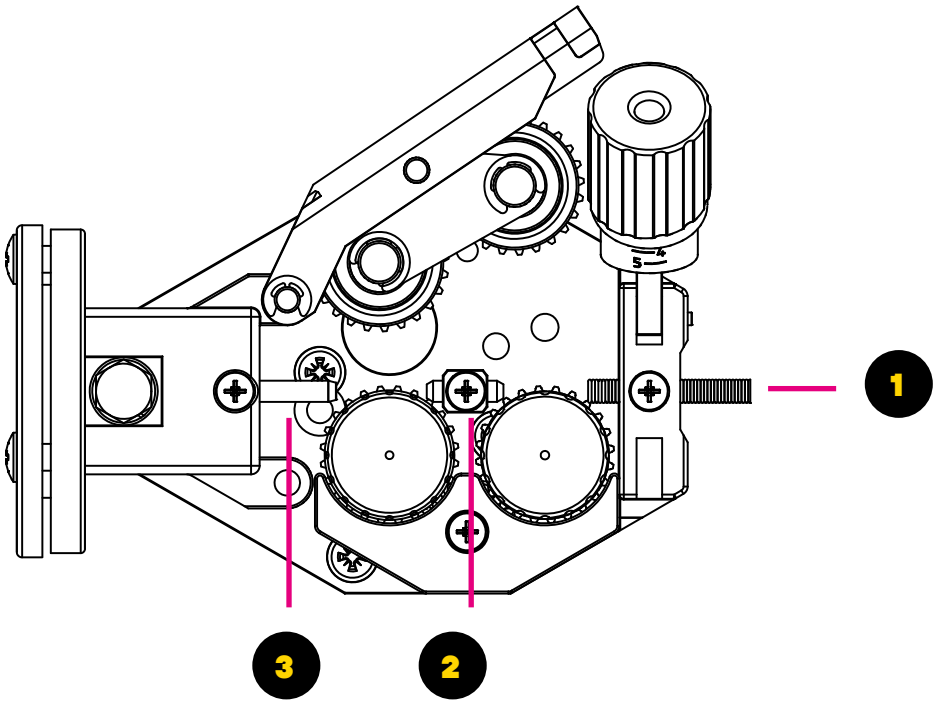
3. Cut the wire. Straighten it out to a length of approximately 15 cm.

WARNING
When you grab the end of the wire from the spool, do not let go of the wire. If you do not hold the wire, the spool will start to unwind and the end of the wire could hit your eye, for example.

4. Check that the feed roll fits the wire. The wire diameter is stamped on the feed roll. The feed rolls supplied with the machine are double-sided, with grooves on each side designed for wire of different thicknesses. Make sure the feed roll is facing the correct direction for the wire to be used. If necessary, obtain a wire feed roll with a suitable groove as an accessory for the wire thickness and material being used.

NOTE
The material to be welded, the welding wire, and the shape and size of the groove in the wire feed roll used must be compatible for the wire feed to function without disruption. HAKAS wire feed rolls suitable for various materials are available from dealers.

5. Round off the wire end with a file. A sharp wire end damages the wire guide.
6. Feed the welding wire through the wire guide's guide spiral (item 1 in the image below) and the core tube (item 2 in the image below) to the capillary tube (item 3 in the image below), which guides the wire to the EURO connector (6).
7. Continue to hold the wire with your other hand. Press down on the pressure roll's pressure arm (item 1 in the image) so that the pressure roll's gear meshes with the drive roll's gear.



8. Once the pressure arm is lowered, release the wire. Slide the tensioner over the pressure arm to lock the pressure rolls.
9. Remove the gas and thread nozzles from the torch.

NOTE
It is optional whether you remove the gas and wire nozzles at this stage. You can also continue without removing them.

10. Start the welding machine by turning the power switch (located on the machine's rear panel) to position I (ON).
11. Press the torch trigger until the wire has passed through the wire guide and is visible in the nozzle.

WARNING
Be careful with the wire end coming out of the torch.

NOTE
If the wire does not enter the torch, tighten the clamping screw on the pressure rolls.

12. Always keep the welding torch cable as straight as possible when inserting the welding wire into the welding torch.

NOTE
The plastic wire guides can be easily damaged if the welding torch cable is not straight during installation.

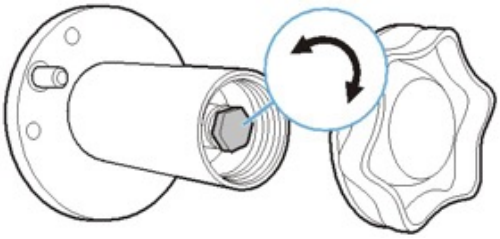
13. If you have removed the power and gas nozzles, put them back in place. Tighten the power nozzle with a suitable wrench.

NOTE
Always remove and install the gas nozzle by turning it clockwise. Turning it counterclockwise may damage the gas nozzle's locking spring.

WARNING
Be careful of hot parts!

NOTE
If you remove the torch while it is hot, the threads may be damaged.

14. Cut the wire about 10–15 mm beyond the gas nozzle.
15. Adjust the pressure on the feed rolls to the appropriate setting by either tightening or loosening the adjustment screw that presses against the pressure spring. The pressure should be as low as possible without hindering the wire feed.
16. Adjust the wire reel brake by turning the adjustment nut located on the wire reel shaft. The brake is tightened when you turn the adjustment nut clockwise and loosened when you turn it counterclockwise.



NOTE

The wire reel brake is correctly adjusted when there is no slack in the wire when the wire feed stops. If the wire reel brake is too tight, the wire feed becomes uneven. The wire can get caught between the wires on the reel and cause feeding problems.

17. Set the wire speed control on the welder's front panel to the minimum setting.
18. Check that the hoses are securely attached.
19. Carefully open the gas cylinder valve and monitor the gauge indicating the gas flow. Adjust the gas flow to suit the welding.

4. OPERATION

4.1 Starting the Welding Operation

Start MIG welding as follows:

1. Attach the ground cable to the workpiece to be welded.
2. Turn the welding voltage knob on the front panel of the welding machine to select the welding voltage. For example, select position 3.

WARNING
Never turn the welding voltage knob while the arc is on.

3. Set the wire feed speed using the stepless wire feed control on the front panel of the welding machine. The wire feed scale is in m/min.
4. Open the valve on the shielding gas cylinder.

WARNING
If the pressure regulator is defective, immediately close the valve on the shielding gas cylinder and release the pressure through the welding torch. It is dangerous to remove the gauge and hoses while under pressure.

5. Position the welding torch tip at the welding distance, perpendicular, approximately 8–15 mm from the workpiece.
6. Press the welding torch trigger.
7. Adjust the wire feed speed during welding using the stepless wire feed control until the arc burns evenly. You will then hear the sizzling sound typical of short-arc welding; the weld joint will be of good quality, and there will be only a few spatters and sparks. When welding at higher voltages, it is possible to use the hot arc range, in which case the wire feed is adjusted so that the arc burns evenly and almost no sparks are produced.

NOTE
When using different shielding gases (mixed gas, CO_2, etc.), the relationship between wire feed and welding voltage changes. In this case, the optimal value for each gas and wire can be determined through trial and error.

NOTE
Argon ~100% is only suitable for welding aluminum.

NOTE
When welding thin steel pieces at low voltage and the weld must be of high quality and have a good appearance, it is recommended to use mixed gases as the shielding gas.

NOTE
The cooling fan is thermostat-controlled and starts automatically after a few minutes of continuous welding. The fan stops automatically when the machine has cooled down.

NOTE
The CO2 flow meter is not compatible with mixed gas cylinders

5. TROUBLESHOOTING

The table below lists common problems that may occur during welding, along with possible causes and recommended actions.
If you cannot resolve the problem using the information here, contact:

> An authorized service center
> Your welding equipment dealer
> Or a qualified electrician

Troubleshooting Table

SYMPTOM	ERROR	SOLUTION
The welding machine does not start or does not work.	Phase or neutral is missing.	Check: 1. whether the fuse has blown 2. whether there is a loose connection in the outlet or plug 3. whether the power cord is disconnected. Replace the fuse if necessary. Contact a licensed electrician if necessary.
	The ground wire has a poor connection.	Check for paint, rust, or other contaminants on the section to be welded. Clean if necessary. Check the connection of the ground cable or ground clamp, as well as the condition of the ground clamp. If necessary, contact a licensed electrician.
The weld joint is lumpy and uneven.	The cable connection is loose, e.g., in the power plug.	The cable connection must be tightened. Contact a licensed electrician.
The weld seam is uneven.	The phase or neutral is missing.	Correct the fault according to the instructions under “The

SYMPTOM	ERROR	SOLUTION
		welding machine does not start or does not work" at .
	The welding parameters are set incorrectly.	Check the set welding parameters (the ratio between welding voltage and wire feed speed) and adjust the welding parameters if necessary.
	There is too little shielding gas or the wrong type of shielding gas.	Check the type of shielding gas you are using. Change it if necessary.
	The polarity is incorrect.	Check that the welding polarity is correct for the welding material being used (e.g., filler welding requires a change in polarity). Change the polarity if necessary.
Only small sparks are visible at the wire tip.	The welding torch's main power cable is broken.	Replace the welding torch with a new one.
The wire feed is uneven.	The power nozzle is worn.	Replace the current nozzle (remember to tighten the current nozzle with a wrench).
	The wire guide is dirty or defective.	Replace the defective wire guide with a new one.
	The welding voltage is too high relative to the wire feed.	Check the wire diameter setting using the SP control, increase the wire feed rate, or reduce the welding voltage. Set the correct pressure using the feed roll tensioners.

SYMPTOM	ERROR	SOLUTION
	The pressure of the feed rollers is too high or too low.	Replace the feed rolls with new ones.
	The feed rollers are dirty or worn.	
The wire is getting stuck in the nozzle.	The feed rollers' pressure is too low.	Cut the wire at the feed roll and pull the wire away from the multifunction cable. Adjust the tension on the tensioner to a higher setting.
	The power nozzle is defective.	Replace the power nozzle with a new one.
	The voltage is too high in relation to the wire feed.	Reduce the tension. Check the wire diameter setting.
	The wire guide is dirty or defective.	Replace the wire guide with a new one.
Welding causes a lot of spatter.	The welding parameters are set incorrectly.	Select new welding parameters.
	The welding nozzle is worn.	Replace the welding nozzle.
	The base material contains rust or other contaminants.	Remove rust with a wire brush or by grinding. Remove paint by grinding. Remove oil and other contaminants, e.g., with suitable chemicals and cleaning agents or by hot washing.
	The wrong gas is being used (e.g., pure argon is not suitable for steel).	Use the correct gas grade.
	Chosen polarity is wrong.	Switch the polarity.

SYMPTOM	ERROR	SOLUTION
	The ground cable connection is poor.	Troubleshoot the problem according to the instructions under the symptom “The welding machine does not start or does not work” at .
The weld joint is porous.	The shielding gas has run out or there is not enough gas.	Replace the gas cylinder or increase the gas flow rate (l/min).
	The gas nozzle is clogged with spatter.	Clean the gas nozzle.
	The gas flow is uneven.	Clean the gas nozzle and gas flow openings in the torch neck of spatter.
	The threads of the current nozzle have clogged the gas inlet channels.	If necessary, depending on the welding torch, replace either the entire torch neck or the ceramic gas distributor with a new one.
		Wrong type of flow nozzle.
		Use a different type of nozzle.
	The workpiece to be welded is wet, oily, rusty, etc.	Clean the object to be welded of contaminants.
	The wind is blowing the shielding gas away.	The welding site is too windy. Move to a more sheltered location.
	The part to be welded is wet.	Clean the object to be welded of dirt.
	The seals on the multifunction cable are damaged.	Replace the gaskets and the O-ring on the gas connection.

6. MAINTENANCE

6.1 General

HAKAS welding machines are designed to be reliable and of high quality. All electromechanical devices, such as welding machines, require regular maintenance to function flawlessly and safely. When maintaining the device, consider its frequency of use and environmental conditions.

If you use the device properly and maintain it regularly, you can avoid unnecessary malfunctions. It is recommended to perform a through-and-through maintenance check on the device every six months. The electrical connections of all electromechanical units can become loose and oxidized when used under varying conditions. An authorized HAKAS service provider will perform all maintenance and repair works.

NOTE
The welding machine must only be serviced by a **qualified professional** who is familiar with its operation and use.

Warranty service may only be performed by an **authorized HAKAS service provider**. A list of authorized service centers is available at hakas website.

6.2 Daily Maintenance

Perform the following checks regularly:

> Inspect the machine for visible damage
> Check that the ground cable connections are secure
> Check that the connections to the electrode cables are secure
> Keep the machine clean and dry
> Prevent the accumulation of metal dust inside the unit
> Ensure that the power cable and welding cables are intact

WARNING
Stop using the machine immediately if:
> the power cord is damaged
> the welding cables show signs of wear or deterioration

If the maintenance procedures described in this manual are insufficient, contact HAKAS service.

6.3 Cleaning

6.3.1. Cleaning the wire guide

When replacing the filler wire spool, it is recommended to clean the wire guide, for example with compressed air.

1. Remove the torch from the machine and loosen the nut on the end clamp (see image on page 15, step 3).
2. Carefully pull the wire guide out of the torch cable.
3. Blow dry compressed air into the wire guide from the wire feed end of the cable in the direction of the wire.
4. Do not use cleaning chemicals.
5. Push the wire guide back into the torch cable. Make sure it does not kink. Tighten the end clamp nut.
6. Replace worn torch parts and the gas nozzle

6.3.2. Cleaning the gas nozzle

The gas nozzle becomes contaminated by spatter during welding.

1. Carefully remove the spatter residue by scraping with a suitable tool.

NOTE
Splatter adheres more easily to a scratched gas nozzle.

2. Spray a nozzle protectant on the front edge of the gas nozzle, which will make it easier to remove spatter the next time.

NOTE
Always spray the protective agent from the side of the nozzle, never directly from the front. Keep the welding torch nozzle pointing downward so that the protective agent does not clog the gas openings.

6.2.3. Cleaning the Power Supply Unit

The power supply unit should be cleaned every six months to maximum a one year depending on the frequency of its use. Cleaning should be performed by an authorized service center.

1. The power supply unit is cleaned annually by either vacuuming it or gently blowing compressed air into it.
2. At the same time, check all the welding machine's cable connections.

NOTE
The power cord must be disconnected from the mains.

6.3. Replacement of Wear Parts

The welding machine's wear parts should be replaced as needed. The welding equipment's wear parts include

- parts for the welding torch
- parts for the grounding cable
- wire feed rolls
- other wear parts related to wire feeding
- flow meters, and
- rolls for the welding machine

NOTE
Wear parts must be replaced even during the warranty period at the owner's own expense.

6.4. Inspection of the wire feeder

Check and, if necessary, replace the wire feed rolls.

The cause of uneven wire feeding is usually a defective, clogged, or worn wire guide, which must also be replaced from time to time.

NOTE
Rusty or dirty welding wire clogs the wire guide.

6.5. Disposal of the unit

Do not dispose of the machine in household waste. Electrical and electronic equipment that is no longer in use must be taken to an authorized waste collection facility designated for this purpose.

The owner is required to take the discarded appliance to a regional collection point designated by the authorities.

Think of the environment!

7. STORAGE

7.1. Storing the machine

The welding machine is an electrical device that must be stored in a dry environment. Store the machine in a location where it is protected from impacts and other mechanical stresses.

7.2. Storage of filler materials

Always store the filler material rolls in a dry area with a consistent temperature.

NOTE
Do not use oil or other corrosion inhibitors to protect the wire spool, as oil, dust, and other contaminants will clog the wire feed and cause porosity in the weld.

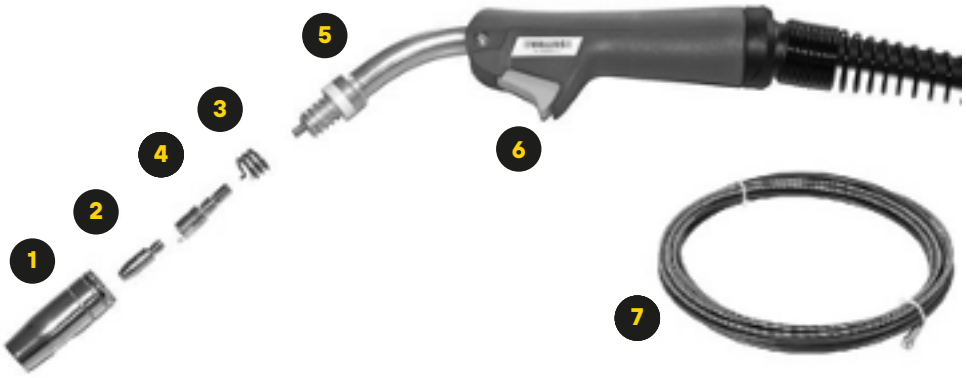
If necessary, remove the filler wire from the machine and store it in a dry place.

8. TECHNICAL DATA

HAKAS PLUSMIG 2500 TECHNICAL DATA	
Welding current range (A min/max)	20 A/16 V – 250 A/26.5 V
Maximum welding current	250 A
Duty cycle (40 °C) 60% ED	225 A/25 V
Duty cycle (40 °C) 100% ED	190 A/23.5 V
Open-circuit voltage	35 V
Voltage range	17–35 V
Voltage steps	7
Induction ranges	1
Cooling	Fan cooling/thermostat
Control panel	Knobs and switches, V and A meters (LCD), fine adjustments
Adjustment of afterburn time	Yes
Adjustment of wire start acceleration	Yes
Wire feed unit	Metal, 4-drive wire feed, 30 mm feed roll
Wire feed speed	0–18 m/min
Max. wire spool	18 kg/300 mm
Filler material diameter (mm)	0.6–1.2 mm (solid Fe wire), 0.6–1.2 mm (SS), 0.8–1.2 mm (Al)
Connection voltage	3-phase 400 V (+/- 10%)
Rated power 35%	8.1 kVA
Rated power 100%	6.1 kVA
Supply current Imax	11.8 A
Supply current (Ieff)	6.9 A
Fuse size	16 A, slow-blow
Idle power	12 W
Power factor	0.96
Efficiency ED 100%	85%
Temperature class	H

EMC class	A
Enclosure class	IP23S
Operating temperature	-20...+40 °C
Storage temperature	-40...+55 °C
Width/height/length	435/780/815 mm
Weight	78 kg

9. HAKAS EWT 2500 e3 Welding Torch



Osa	Tuotenumero	Kuvaus
	881530000	HAKAS EWT 1500 MIG e3
	881540000	HAKAS EWT 1500 MIG e4
	882530000	HAKAS EWT 2500 MIG e3
	882530004	HAKAS EWT 2500 MIG e3 CT (erityisesti alumiinin hitsaukseen)
	882540000	HAKAS EWT 2500 MIG e4
	882550000	HAKAS EWT 2500 MIG e5
*	881509990	HAKAS ORIGINAL MIG KIT 1500
**	882509990	HAKAS ORIGINAL MIG KIT 2500
1	881501892	HAKAS ORIGINAL kaasusuutin 1500 MIG 2 kpl
1	882501892	HAKAS ORIGINAL kaasusuutin 2500 MIG 2 kpl
2	881509906	HAKAS ORIGINAL E-Cu virtasuutin M6 6x25 STD 0,6 mm 3 kpl
2	881509908	HAKAS ORIGINAL E-Cu virtasuutin M6 6x25 STD 0,8 mm 3 kpl
2	882509906	HAKAS ORIGINAL E-Cu virtasuutin M6 8x28 FAT 0,6 mm 3 kpl
2	882509908	HAKAS ORIGINAL E-Cu virtasuutin M6 8x28 FAT 0,8 mm 3 kpl
2	882509910	HAKAS ORIGINAL E-Cu virtasuutin M6 8x28 FAT 1,0 mm 3 kpl
4	881501830	HAKAS ORIGINAL virtasuuttimen pidin M6 1500 MIG
4	882501830	HAKAS ORIGINAL virtasuuttimen pidin M6 2500 MIG
3	881501070	HAKAS ORIGINAL lukitusjousi 1500 MIG
3	882501070	HAKAS ORIGINAL lukitusjousi 2500 MIG
5	881501010	Polttimen kaula EWT 1500, sis. 881501830
5	882501010	Polttimen kaula EWT 2500, sis. 881501070
6	881500050	Polttimen liipaisin EWT
7	881501930	HAKAS ORIGINAL langanjohdin 0,6-0,9 mm 3 m sininen
7	881501940	HAKAS ORIGINAL langanjohdin 0,6-0,9 mm 4 m sininen
7	884041930	HAKAS ORIGINAL langanjohdin hiiliteflon 0,6-0,9 mm 3 m
7	884041940	HAKAS ORIGINAL langanjohdin hiiliteflon 0,6-0,9 mm 4 m
7	882501930	HAKAS ORIGINAL langanjohdin 1,0-1,2 mm 3 m punainen
7	882501940	HAKAS ORIGINAL langanjohdin 1,0-1,2 mm 4 m punainen
7	882501950	HAKAS ORIGINAL langanjohdin 1,0-1,2 mm 5 m punainen
7	884051930	HAKAS ORIGINAL langanjohdin hiiliteflon 1,0-1,2 mm 3 m
7	884051940	HAKAS ORIGINAL langanjohdin hiiliteflon 1,0-1,2 mm 4 m
	081451941	Hiilenpidin kuumakiristykseen
	081750100	Hiili kuumakiristykseen

* HAKAS ORIGINAL MIG KIT 1500:
Kaasusuutin 1 kpl; virtasuutin 0,6 mm STD 2 kpl, virtasuutin 0,8 mm STD 2 kpl, virtasuutin 1,0 mm FAT 1 kpl ja lukitusjousi 1 kpl

** HAKAS ORIGINAL MIG KIT 2500:
Kaasusuutin 1 kpl, virtasuutin 0,6 mm FAT 2 kpl, virtasuutin 0,8 mm FAT 2 kpl, virtasuutin 1,0 mm FAT 1 kpl, virtasuuttimen pidin 1 kpl ja lukitusjousi 1 kpl

10. WARRANTY AND CONTACT INFORMATION

Wallius Hitsauskoneet Oy provides a warranty for HAKAS welding machines that covers defects resulting from the product's materials or manufacturing defects. The warranty does not cover indirect damages.

More detailed information about the warranty period and warranty terms can be found in the warranty document included with the machine and at www.hakas.fi. Please read the warranty terms carefully before you start using the machine.

Wear parts of the welding machine, such as parts for the welding torch, parts for the ground cable, wire feed rolls, other wear parts for the wire feeder, flow meters, and the welding machine's wheels, must be replaced at regular intervals at the owner's expense.

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