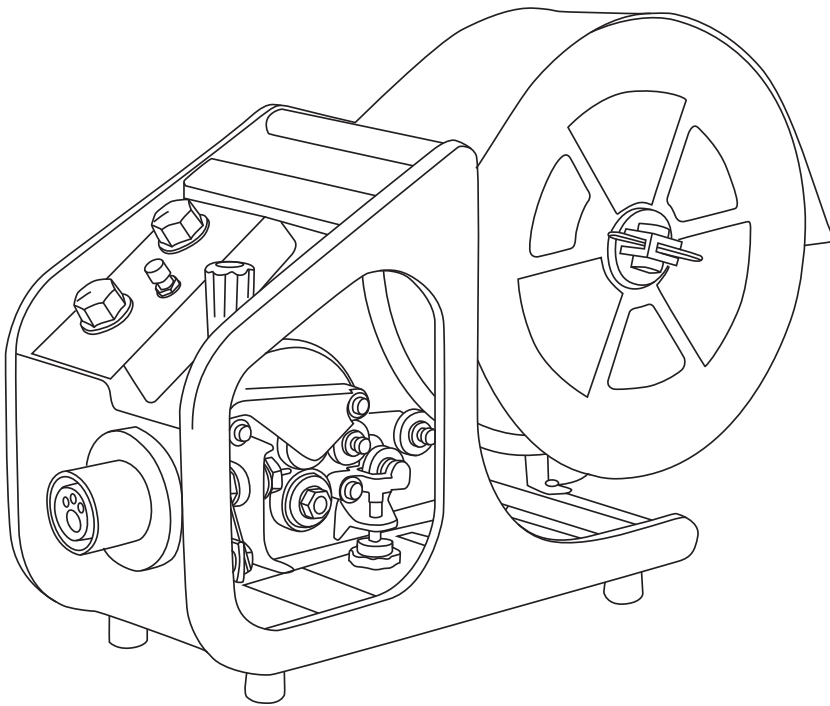


# HiFeed





# **OPERATING MANUAL**

**English**

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## 1.1 GENERAL

Congratulations on choosing the HiFeed wire feeder. Used correctly, Kemppi products can significantly increase the productivity of your welding, and provide years of economical service.

This operating manual contains important information on the use, maintenance and safety of your Kemppi product. The technical specifications of the device can be found at the end of the manual.

Please read the manual carefully before using the equipment for the first time. For your own safety and that of your working environment, pay particular attention to the safety instructions in the manual.

For more information on Kemppi products, contact Kemppi Oy, consult an authorised Kemppi dealer, or visit the Kemppi web site at [www.kemppi.com](http://www.kemppi.com).

The specifications presented in this manual are subject to change without prior notice.

*NOTE! Items in the manual that require particular attention in order to minimise damage and personal harm are indicated with this symbol. Read these sections carefully and follow their instructions.*

## 1.2 ABOUT HIFEED WIRE FEEDER

Kemppi's HiFeed wire feeder is designed to be used especially with Kemppi's HiArc power sources. They are inverter MIG/MAG welding power sources to be used in 3-phase mains power supply.

The HiArc power sources are equipped with semisynergic adjustment features. The HiArc chooses automatically arc dynamic setting according to your gas selection.

Enjoy welding with your Kemppi product!

## 1.3 GENERAL SAFETY INSTRUCTIONS

Kemppi welding equipments conform to international safety standards. Safety is an important issue in equipment design and manufacturing. Therefore, Kemppi welding solutions are unparalleled in safety. There are, however, always certain hazards involved in using welding equipment. Therefore, to ensure your personal safety and the safety of your working environment, carefully read the safety instructions below and respect them.

### Use of personal protective equipment

- The arc and its reflecting radiation damage unprotected eyes. Shield your eyes and face appropriately before you start welding or observe welding. As the welding current increases, the welding face screen lens darkness should also increase.
- Arc radiation and spatters burn unprotected skin. Always wear protective gloves, clothing and footwear when welding.
- Always wear hearing protection if the ambient noise level exceeds the allowable limit (e.g., 85 dB).

### General operating safety

- Exercise caution when handling parts heated during welding. For example, the tip of the welding torch or gun, and the end of the welding rod and the work piece. The temperature of items burn unprotected skin.
- Never wear any welding device on the shoulder during welding and never suspend it by the carrying strap during welding.
- Do not expose the machine to high temperatures, as this may cause damage.
- Keep intermediate and earth return cables as close to each other as possible throughout their length. Straighten any loops in the cables as this limits inductive effects on welding performance. This also minimizes your exposure to harmful magnetic fields, which may, for example, interfere with a pacemaker.
- Do not wrap the welding cables around your body.
- In environments classified as dangerous, only use S-marked welding equipments with a safe idle voltage level. These work environments include, for example, humid, hot or

small spaces, where the user may be directly exposed to the surrounding conductive materials.

- Do not use arc welding equipment for pipe thawing.

### **Spatter and fire safety**

- Welding is always classified as hot work, so pay particular attention to the fire safety regulations during welding and after it.
- Remember that fire can break out from sparks, even several hours after the welding work is completed.
- Protect the environment from welding spatter. Remove combustible materials, such as flammable liquid from the welding vicinity, and supply the welding site with adequate fire fighting equipment.
- In special welding jobs, be prepared for hazards such as fire or explosion when welding inside enclosed work spaces, such as tanks and vessels. Ensure you have authority to work.
- Never direct the sparks or cutting spray of a grinder toward the welding machine or flammable materials.
- Beware of hot objects or spatter falling on the machine when working above. Welding in flammable or explosive sites is absolutely forbidden.

### **General electric safety**

- Only connect the welding machine to an earthed electric network. Note the recommended mains fuse size.
- Do not take the welding machine inside a container, vehicle or similar work piece unless authorized to do so.
- Do not place the welding machine on a wet surface and do not work on a wet surface.
- Do not allow the mains cable to be directly exposed to water.
- Ensure cables or welding torches are not squashed by heavy objects and that they are not exposed to sharp edges or a hot work piece.
- Make sure that faulty and damaged welding torches are changed immediately as they may cause electrocution or fire.
- Remember that the cable, plugs and other electric devices may be installed or replaced only by an electrical contractor or engineer authorized to perform such operations.
- Turn off the welding machine when it is not in use.

### **Welding power circuit**

- Insulate yourself from the welding circuit by using dry and undamaged protective clothing.
- Never touch the work piece and welding rod, welding wire, welding electrode or contact tip at the same time.
- Do not put the welding torch or ground cable on the welding machine or other electric equipment.

### **Welding fumes**

- Ensure proper ventilation and avoid inhaling the fumes.
- Ensure a sufficient supply of fresh air, particularly in closed spaces. You can also ensure an adequate supply of clean breathing air by using a filtered fresh-air mask.
- Take extra precautions when working on metals or surface-treated materials containing, for example, lead, cadmium, zinc, mercury or beryllium.

### **Transportation, lifting and suspension**

- Pay attention to correct working position when lifting a heavy device – risk of injury to the back.
- Never pull or lift the machine by the welding torch or other cables. Always use the lifting points or handles designed for that purpose.
- Only use a transport unit designed for the equipment. Try to transport the machine in an upright position, if possible.
- Never lift a gas cylinder and the welding machine at the same time. There are separate provisions for gas cylinder transportation.
- Never use a welding machine when suspended unless the suspension device has been designed and approved for that particular purpose.

- Do not exceed the maximum allowable load of suspension beams or the transportation trolley of welding equipment. It is recommended that the wire coil be removed during lifting or transportation.

### **Environment**

- Welding equipment is not recommended for use in rain or snow – see manual. Protect the equipment against rain and strong sunlight. Always store the machine in a dry and clean space.
- Protect the machine from sand and dust during use and in storage. The recommended operating temperature range is -20 to +40 °C. The machine's operation efficiency decreases if used in temperatures in excess of 40 °C.
- Place the machine so that it is not exposed to hot surfaces, sparks or spatter.
- Make sure the airflow to and from the machine is unrestricted.
- Always use the machine in an upright position only.
- Arc welding equipments cause electromagnetic disturbance. To minimize the harmful effects, strictly use the equipment according to the operating manual and other recommendations.

### **Gas cylinders and regulators**

- Adhere to the instructions for handling gas cylinders and regulators.
- Make sure that gas bottles are used and stored in properly ventilated spaces.
- A leaking gas bottle may replace the breathable air, causing suffocation.
- Before use, make sure that the gas bottle contains gas suitable for the intended welding purpose.
- Always fix the gas bottle securely in an upright position, against a bottle wall rack or purpose-made bottle cart.
- Never move a gas bottle when the regulator or flow adjuster is in place. Replace the valve cover during transportation. Close the bottle valve after use.

### **Circuit diagram and spare part lists**

If the circuit diagram and the spare parts list are not included in delivery package, please inquire for them at your local Kemppi service representative. For more information, please visit [www.kemppi.com](http://www.kemppi.com).

### **Disclaimer**

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. Kemppi reserves the right to change the specification of the product described at any time without prior notice. Do not copy, record, reproduce or transmit the contents of this guide without prior permission from Kemppi.

## 1. MACHINE INTRODUCTION

### 1.1 BEFORE USE

The product is packed in cartons designed specifically for them. However, always make sure before use that the products have not been damaged during transportation.

Check also that you have received the components you ordered and the instruction manuals needed. Product packaging material is recyclable.

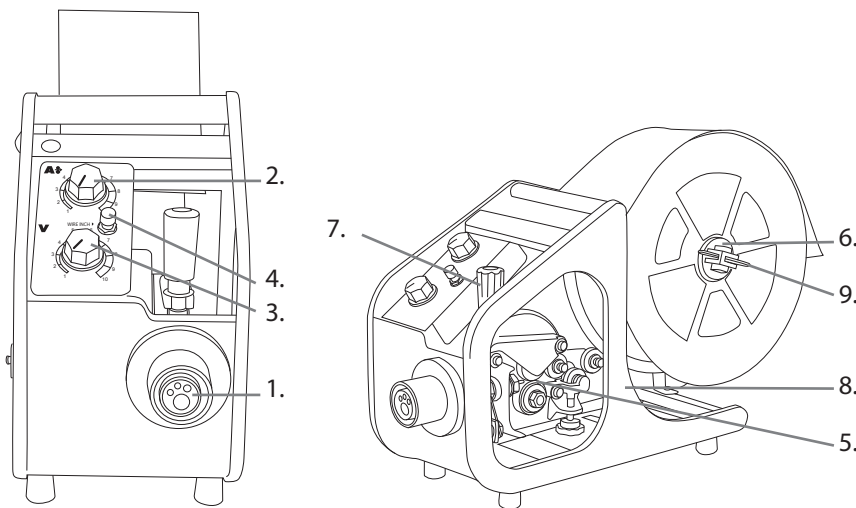
*NOTE! When moving the welding machine, always lift it from the handle, never pull it from the welding gun or other cables.*

#### Operating environment

This machine is suitable for both indoor and outdoor use. Always make sure that the air flow in the machine is unrestricted. The recommended operating temperature range is -20 °C...+40 °C.

Please read also the safety instructions concerning the operating environment earlier in this manual.

### 1.2 WIRE FEEDER FRONT AND SIDE VIEW



#### Front

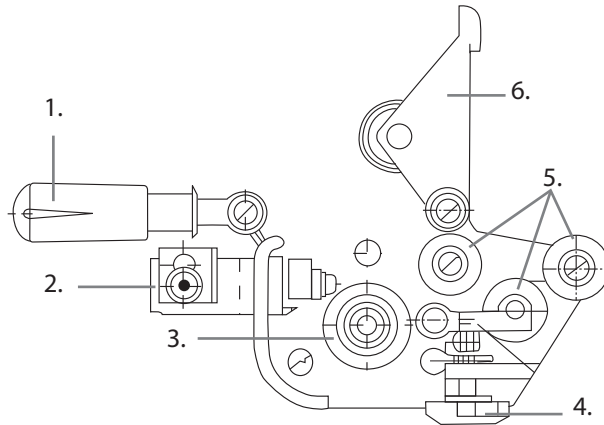
1. EURO connector for welding gun
2. Amperage/WFS control knob
3. Voltage control knob
4. Wire inch button

#### Side

5. Wire feed mechanism
6. Wire spool hub
7. Pressure adjustment arm
8. Shielding gas connector
9. Spool locking lever



### 1.3 WIRE FEED MECHANISM



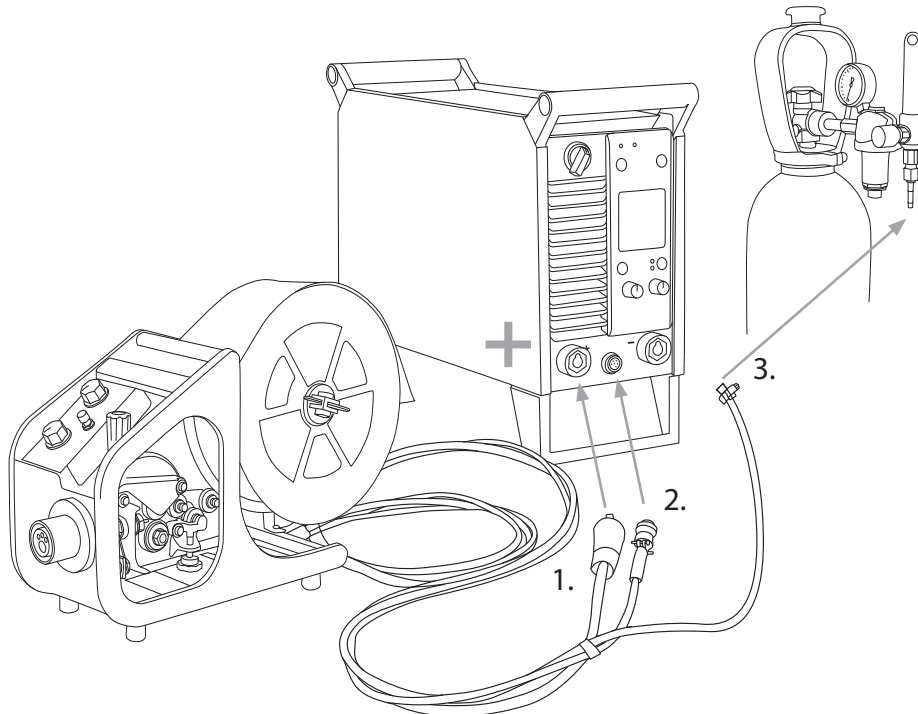
1. Pressure adjustment arm
2. Wire guide tube
3. Wire drive roll
4. Straightening rolls adjustment knob
5. Straightening rolls
6. Top feed roll holder

## 2. INSTALLATION

### 2.1 POWER SOURCE CONNECTION

The HiFeed wire feeder is recommended to be used with the HiArc power source, but it can be used with other power source brands as well.

To connect the wire feeder to the power source, do the following:



1. Attach the HiFeed wire feed unit power cable to the + connector of the HiArc power source. Hand tighten the connector with a clockwise push and twist action to lock.
2. Attach the HiFeed wire feed unit control cable plug to the control socket of the power source.

3. Connect the shielding gas hose to the gas bottle or to the shielding gas distribution system.

*NOTE! Normally the wire feeder should be connected to the plus pole. However, with some filler wires and shielding gases, you should connect the feeder to the minus pole, and the earth return cable to the plus pole..*

## 2.2 SHIELDING GAS CONNECTION

The shielding gas hose is fixed to the solenoid valve of the wire feeder.

Connect the other end of the gas hose to a gas cylinder's control valve or to the shielding gas distribution network at your worksite.

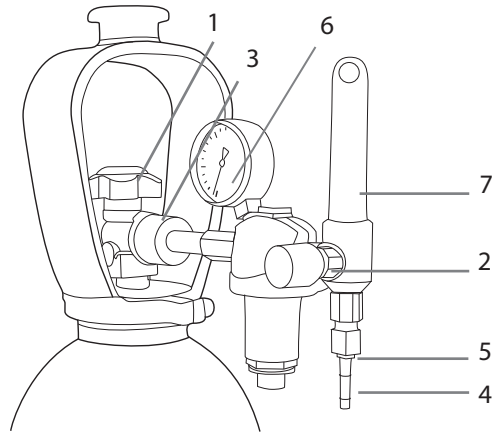
The thickness of the parent material, joint type and welding power define the required shielding gas flow rate.

*NOTE! Make sure that you are using the correct type of shielding gas for the welding application. When using pure CO<sub>2</sub> shielding gas, make sure you use a gas pre-heater. A 110V power supply is provided for CO<sub>2</sub> gas pre-heaters at the rear of the HiArc power source. See the HiArc M400i operating manual for further details.*

### To connect the shielding gas hose to a suitable regulator for MIG/MAG welding

1. Connect the shielding gas hose to the gas cylinder's control valve and tighten the connector (connector is not supplied in the package).
2. Adjust the shielding gas flow rate with the control valve screw.
3. Always close the cylinder valve after use.

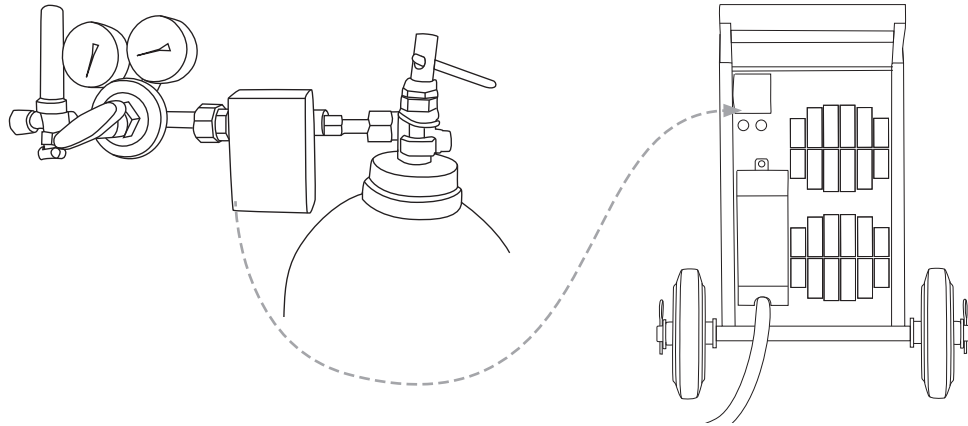
### Parts of the gas flow regulator



1. Gas bottle valve
2. Flow regulation screw
3. Connecting nut
4. Hose tail
5. Hose tail nut
6. Gas bottle pressure gauge
7. Shielding gas flow meter

### Connector for shielding gas heater

- When using CO<sub>2</sub> shielding gas, a 110V gas heater can be connected to the power supply located at the back of the HiArc power source. Please see the plug-in delivery package for usage and fitting instructions.



## 2.3 INSTALLING FILLER WIRE

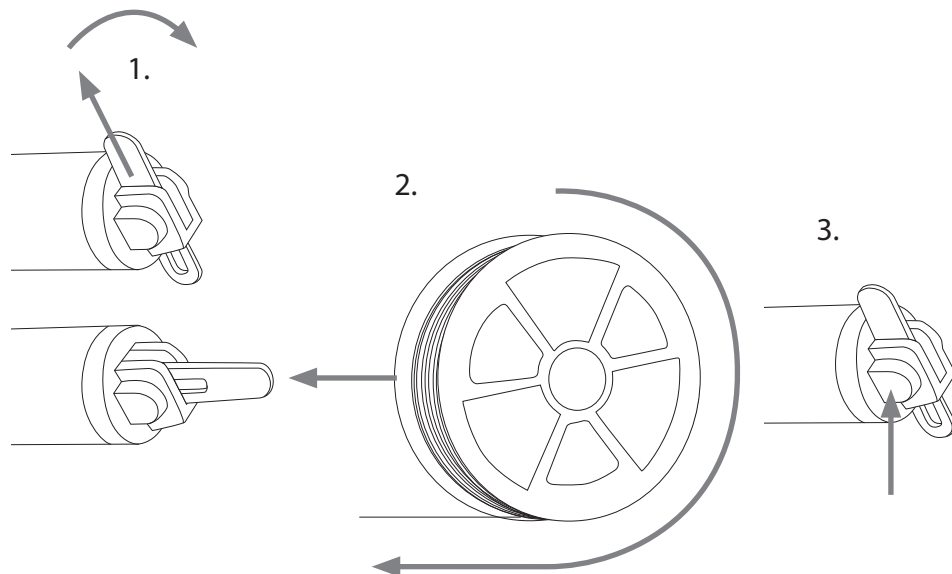
With HiFeed you can use 0.8 to 1.6 mm filler wires. The wire spool can be up to 300 mm in diameter and 105 mm in width.

When selecting a suitable filler wire, the material grade and alloy should suitably match the base material.

*NOTE!* When changing the filler wire, always check that the feed rolls, their groove shape and size and the wire liner inside the welding gun are suitable for the wire you are using. Also check that you are using right polarity for the filler wire.

### 2.3.1 Mounting the wire spool

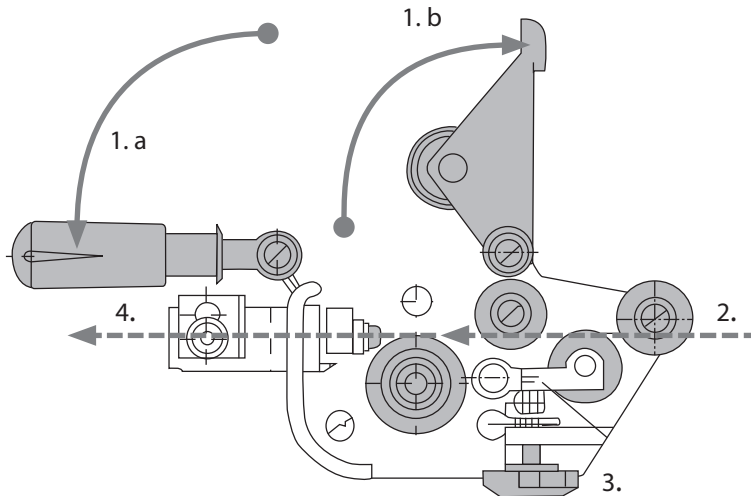
**To mount the wire spool:**



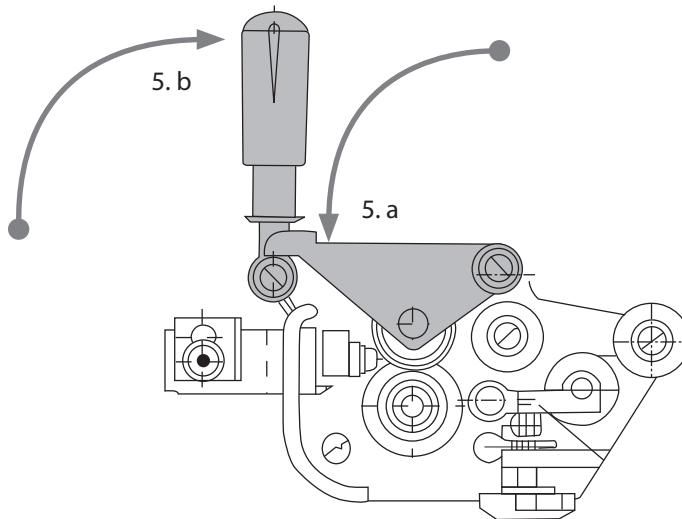
1. Turn the locking lever to the open position.
2. Check the rotating direction of the wire spool and push the spool into place, so that it rotates in the right direction.
3. Turn the locking lever to closed position and tighten the securing screw.

### 2.3.2 Feeding the welding wire

#### To feed the wire from the spool to the welding gun:

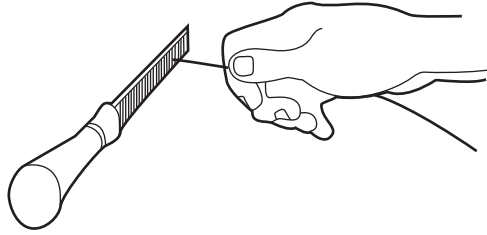


1. Open the pressure arm of the wire feed mechanism (a) and lift the top roll holder (b) to its up position.
2. Draw some loose wire from the spool and push it through the straightening rolls at the back of the mechanism. You can loosen the bottom straightening roll with the adjustment screw located below it.
3. Adjust the straightening rolls so that the wire is firmly fed into the drive roll.
4. Push the wire over the feed roll groove and through the front wire guide until it comes out from the Euro connector by about 150 mm.
5. Replace the top feed roll holder (a) over the wire and close the pressure arm (b).



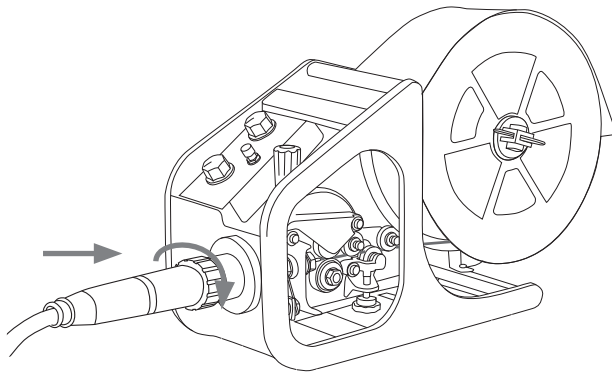
6. Cut away any deformed wire section and dress the sharp wire tip.

**NOTE!** Remember to remove the sharp cut tip of the filler wire before loading the wire to the welding gun, so preventing damage to the liner inside the welding gun cable. It will also improve feed quality and increase the service life of your gun liner.



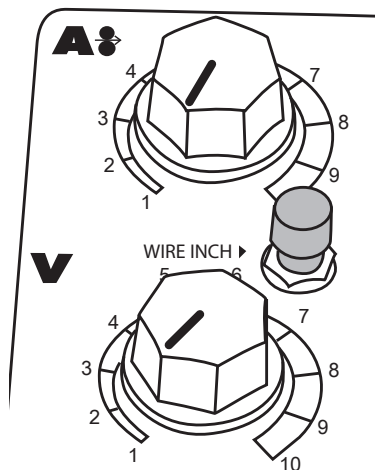
**NOTE!** When feeding the welding wire into the gun, be sure that you are not pointing the gun at anyone and that there isn't anything in front of the gun.

7. Connect the welding gun and tighten the collar.



Connect the welding gun cable to the Euro adapter socket located on the front of the machine and hand tighten only. Do not over tighten the collar.

8. Press the Wire inch button and allow the filler wire to feed through the gun cable to the contact tip.



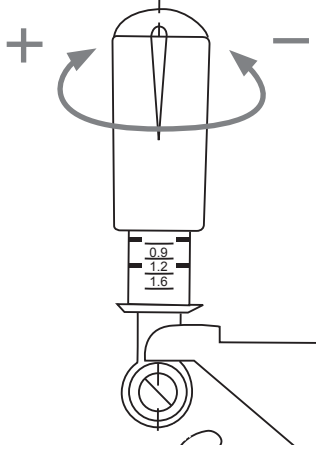
The welding gun leads the filler wire, shielding gas and electric current to the weld piece. When you press the welding gun trigger, shielding gas will flow and filler wire will begin to feed.

## 2.4 SETTING THE PRESSURE OF THE FEED ROLLS

To make filler wire run smoothly into the wire liner and to the welding gun you can adjust the pressure of the feed rolls of the wire feed mechanism.

**To increase the pressure** applied to the welding filler wire, turn the black pressure adjustment knob in a clockwise direction.

**To decrease the pressure** applied to the welding filler wire, turn the black pressure adjustment knob in an anti-clockwise direction.



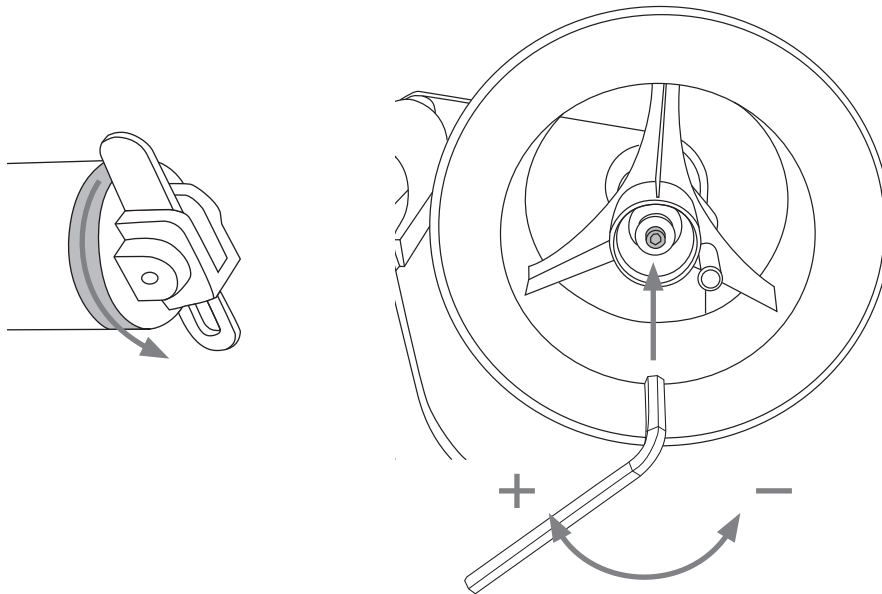
There is a graduation scale marked on the arm of the adjustment knob. The more pressure applied, the fewer number of graduation marks are visible.

For hard steel and stainless steel filler wires, make sure there is sufficient pressure applied, so avoiding filler wire slippage in the feed rolls.

*NOTE! Too much pressure may flatten the filler wire, damage its coating, cause friction and excessive wear to drive roll bearings and therefore reduced life.*

## 2.5 SETTING THE SPOOL BRAKE FORCE

To prevent the filler wire from uncoiling on overrun, following use at high wire feed speeds, you can adjust the braking force of the filler wire spool holder.



The spool brake adjustment screw is located inside the spool hub. To adjust the brake force, unscrew the spool locking mechanism on the tip of the wire spool hub.

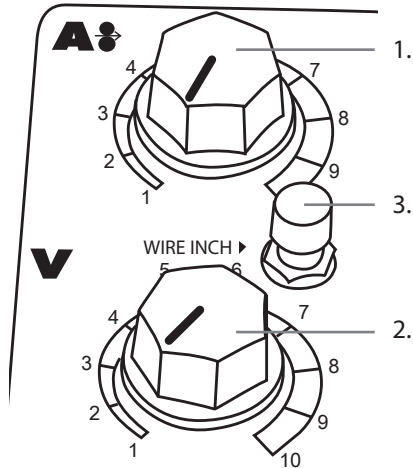
To increase the force turn the screw clockwise, and to decrease it, by turning the screw anticlockwise.

*NOTE! Do not over tighten, and reduce the pressure for light filler wire types.*

## 2.6 CHANGING THE FEED ROLLS

The drive roll has two different sized grooves in it. You can choose which groove to use by opening the drive roll securing screw and turning the drive roll the other way around. The size of the groove currently in use is facing outward.

## 3. CONTROLLING WELDING FUNCTIONS



1. Wire feed speed
2. Welding voltage
3. Wire inch

In the control panel you can adjust the welding wire feed speed (1) and welding voltage (2). With the Wire inch button you can feed the filler wire into the welding gun.

### 3.1 CONTROL PANEL FUNCTIONS IN BASIC OPERATION

**With the amperage knob (A)** you can adjust the welding current and the wire feed speed. The wire feed speed increases with the amperage level.

**With the voltage knob (V)** you can adjust the welding voltage level. The voltage level determines the arc length.

## 4. MAINTENANCE

### 4.1 REGULAR MAINTENANCE

Check regularly the electrical connections of the machine. Clean any oxidised connections, and tighten the loosened cable connections. Remove regularly any dust and filings from the wire conduit tip and feed rolls.

Do not try to open the motor and the reductor of the machine for repair or lubrication. They do not need maintenance.

*NOTE! Remember that the machine may be repaired only by an electrical contractor or installer authorised to perform such operations.*

### 4.2 DISPOSAL OF THE MACHINE



Do not dispose of electrical equipment with normal waste!

Electrical equipment that has reached the end of its life must be collected separately and taken to an appropriate environmentally responsible recycling facility.

The owner of the equipment is obliged to deliver a decommissioned unit to a regional collection centre, per the instructions of local authorities or a Kemppe representative. By applying this you will improve the environment and human health.

## 5. TECHNICAL DATA

HiFeed		
Operating voltage		24 V
Rated power		65 W
Output	60% ED	500 A
	100% ED	390 A
Feed mechanism		2-roll feed
Wire spool	max. $\emptyset$	300 mm
Feed roll	$\emptyset$	40 mm
Wire feed speed		0...18 m/min
Filler wires		0.8...1.6 mm
Gun connection		Euro
Operating temperature		-20 °C...+40 °C
Storage temperature		-40 °C...+60 °C
External dimensions	L x W x H	480 x 200 x 280 mm
Weight		9 kg



## 6. ORDERING CODES

<b>Wire feeder</b>	
HiFeed	6310100
<b>Wire feeder consumables</b>	
Intermediate cable set, 5 m	W005805
Pressure arm assembly	W004642
Pressure roller assembly	W004643
Euro adapter	W004648
Wire feeder roll 0.8 / 1.2 mm, factory setting	W004653
Wire feeder roll 1.2 / 1.6 mm	W004646
Wire guide tube 0.8 – 1.2 mm, factory setting	W006117
Wire guide tube 1.2 – 1.6 mm	W004644
Straightening roll assembly	W004647
Wire spool shaft	W004649
Gas pre-heater	6314010
<b>Welding guns</b>	
MMT 42, 3 m	6254213MMT
MMT 42, 4.5 m	6254214MMT
<b>Interconnection cables – optional extensions</b>	
HiArc 10-70-G	6310710
HiArc 15-70-G	6310715
HiArc 10-50-G	6310510
HiArc 15-50-G	6310515

## 7. WARRANTY POLICY

Kemppi Oy provides a warranty for products manufactured and sold by the company if defects in materials or workmanship occur. Warranty repairs are to be carried out only by an authorised Kemppi Service Agent. Packing, shipping, and insurance are at the orderer's expense.

The warranty starts on the date of purchase. Spoken promises not included in the terms of warranty are not binding on the warrantor.

### **Limitations of the warranty**

The following conditions are not covered under the terms of warranty: defects arising from normal wear and tear, non-compliance with operation and maintenance instructions, overloading, negligence, connection to incorrect or faulty supply voltage (including voltage surges outside equipment specifications), incorrect gas pressure, anomalies or failures in the electric network, transport or storage damage, and fire or damage due to forces of nature. This warranty does not cover direct or indirect travel costs, daily allowances, or accommodation related to warranty service.

The warranty does not cover welding torches and their consumables, feeder drive rolls, feeder guide tubes, and shielding gas regulator and CO<sub>2</sub> heater. Direct or indirect damage caused by a defective product is not covered under the warranty.

The warranty becomes void if modifications are made to the machine that are not approved by the manufacturer or if non-original spare parts are used in repairs. The warranty is also voided if repairs are carried out by a repair agent not authorised by Kemppi.

### **Undertaking warranty repairs**

Warranty defects must be reported to Kemppi or an authorised Kemppi Service Agent without delay.

Before a warranty repair is undertaken, the customer must present proof of warranty or otherwise prove the validity of the warranty in writing. The proof must indicate the date of purchase and the manufacturing number of the unit to be repaired. The parts replaced under the terms of this warranty remain the property of Kemppi and must be returned to Kemppi if requested.

After a warranty repair, the warranty of the machine or equipment, repaired or replaced, shall be continued to the end of the original warranty period.



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