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1925040

WS
MIG

WELDSNAKE

WS35

WS30W, WS42W



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1. PREFACE

1.1. INTRODUCTION

Congratulations on having purchased this product. Properly installed Kemppi products should prove to be productive machines requiring maintenance at only regular intervals

This manual is arranged to give you a good understanding of the equipment and its safe operation. It also contains maintenance information and technical specifications. Read this manual from front to back before installing, operating or maintaining the equipment for the first time. For further information on Kemppi products please contact us or your nearest Kemppi distributor.

Please also study the Operation safety instructions and respect them when installing, operating and servicing the gun.

1.2. PRODUCT INTRODUCTION

KEMPPI WeldSnake WS extended length (6 m and 8 m) MIG/MAG guns for manual welding are designed for demanding professional use. They are compatible with Kemppi DL Teflon liners for welding 1.2 (1.6) AL and 1.0 - 1.2 SS wires. WS guns are suitable to be used with all MIG units equipped with Euro adapter.

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1.3. OPERATION SAFETY

Please study these Operation safety instructions and respect them when installing, operating and servicing the machine.

Welding arc and spatters

Welding arc hurts unprotected eyes. Be careful also with reflecting arc flash. Welding arc and spatter burn unprotected skin. Use safety gloves and protective clothing.

Danger for fire or explosion

Pay attention to fire safety regulations. Remove flammable or explosive materials from welding place. Always reserve sufficient fire-fighting equipment on welding place. Be prepared for hazards in special welding jobs, eg. for the danger of fire or explosion when welding container type work pieces. Note! Fire can break out from sparks even several hours after the welding work has been finished!

Mains voltage

Never take welding machine inside a work piece (eg. container or truck). Do not place welding machine on a wet surface. Always check cables before operating the machine. Change defect cables without delay. Defect cables may cause an injury or set out a fire. Connection cable must not be compressed, it must not touch sharp edges or hot work pieces.

Welding power circuit

Isolate yourself by using proper protective clothing, do not wear wet clothing. Never work on a wet surface or use defect cables. Do not put MIG-gun or welding cables on welding machine or on other electric equipment. Do not press MIG gun switch, if the gun is not directed towards a work piece.

Welding fumes

Take care that there is sufficient ventilation during welding. Take special safety precautions when welding metals which contain lead, cadmium, zinc, mercury or beryllium.



This equipment's electromagnetic compatibility (EMC) is designed for use in an industrial environment. Class A equipment is not intended for use in residential location where the electrical power is provided by the public low-voltage supply system.

2. CONNECTING THE GUN

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In delivery state internal connections of WS guns are made so that they are suitable to be used only with PROMIG and FEED wire feeders.

Do not use WS gun in any other wire feeder than PROMIG and FEED before you have changed internal connections of gun according to instructions in the following paragraph.

Do not use WS gun in other units than PROMIG and FEED before you are certain that RMT 10 gun control unit is not coupled to gun.

Mount the DL Teflon liner delivered with the gun according to the mounting instruction delivered with the liner. Before connecting the gun, make sure that its wire liner is according to recommendations for the welding wire in question (see the consumable parts sheet delivered with the gun).

Set the snap connector carefully at its place so that the control connectors will not get damaged. Tighten the snap connector carefully in order to avoid voltage losses. Loose connection will heat the gun and the feeder unit. Control the tightness of connection daily.

Connect liquid hoses of gun and interconnecting cable according to operation instruction of the wire feeder. Fix liquid hoses in such a way that those having red code always are connected to corresponding red counter connectors and the blue ones respectively to blue counter connectors. Check by connection of liquid and gas hoses that there are no dirt, metal powder or other wastes.

Make sure that the wire feeder is equipped with feed rolls and wire guide tubes recommended for the wire you use.

Before driving the wire into gun check that the wire end is straight in length of approx. 200 mm and the tip blunt (file if necessary). A sharp wire tip may damage wire liner and contact tip of gun.

Watch out for wire sticking out from welding end of gun. Do not direct the gun towards people or work piece but be careful that the wire comes freely out in the air.

3. USE OF WS GUN IN OTHER UNITS THAN PROMIG AND FEED

In WS guns, in addition to start operations also gun control and thermal protection operations are transmitted along control lines of snap connector. Therefore also internal connections of guns are in delivery state such that without any alternations guns are suitable to be used only with PROMIG and FEED wire feed units.

⚠ Use of WS guns in other MIG units without any alternation in connections may cause following error functions:

- Start is always switched on and wire comes out continuously, although the trigger is not pulled.
- Start does not operate, although you pull the trigger.

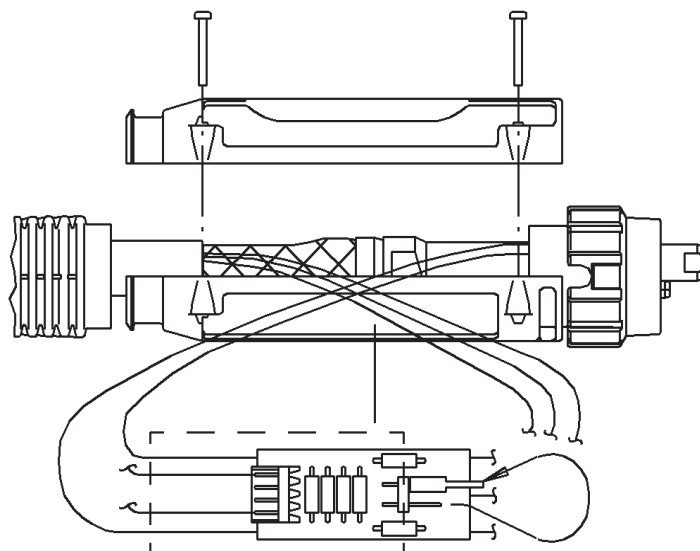
If RMT 10 gun control unit is coupled at its place, use of WS gun in other units than PROMIG or FEED may cause malfunction as described above, although you have changed internal coupling of gun.

3.1. CHANGE OF CONNECTION

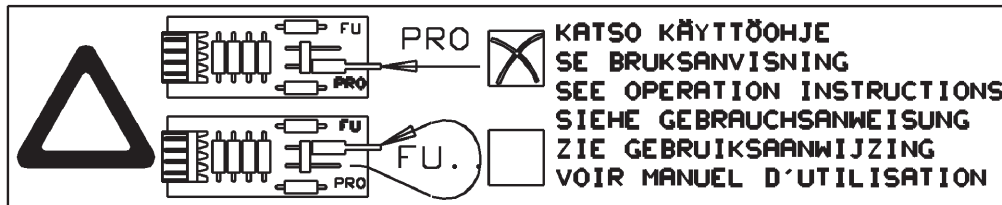
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Inside plastic protection of snap connector head of WS gun there is an electronics card, on which there is a shorting jumper for changing the connection.

- Release fastening screws (4 pcs) of cover of plastic protection for snap connector head.
- Lift cover approx. 50 mm from its place. Do not bend cooling liquid hoses.
- Take electronics card, inside insulating hose out from plastic protection.
- Draw insulating hose which is on the card carefully to direction of snap connector so much that the shorting jumper becomes visible. Handle wires of card and their connections carefully.
- In delivery state shorting jumper is mounted to connectors, next to which on card bottom there is a printed symbol text “PRO”. Draw shorting jumper off and mount it to another connector pair with symbol text “FU”.



- Draw the insulating hose back onto card.
- Mount card back to its original place. Control that clamber rings in wires remain the original way. Make sure that card will not get pressed when cover is fastened back to its place.
- Press cover of plastic protection back to its place. Make sure that cooling liquid hoses and their bending protections are placed inside plastic protection without any sharp bendings and that they will not get pressed.



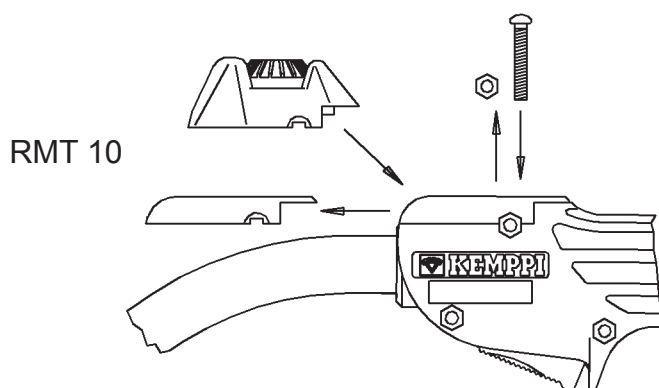
- Tighten tightening screws of cover at their places.
- Make a marking to sticker on cover that connection is changed into position “FU”.
- Gun is ready for use in other devices than PROMIG or FEED, e.g. in FU wire feeders of Multisystem.

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You can use WS gun with FU connection also in PROMIG and FEED but control and thermal protection operations will not operate.

4. MOUNTING THE GUN REGULATOR RMT 10

In handle of WS guns there is a place for gun regulator RMT 10 (6185475), which is available as accessory. With this regulator you can carry out with PROMIG and FEED regulation of welding power of synenergic MIG or pulsed



MIG welding, or select pre-programmed welding parameters according to your wishes. In delivery state there is a cover plate in place of gun regulator.

- Release fastening screw of cover plate.
- Release cover plate from handle by pushing it out from its guides. Under rear end of cover plate in handle you now see connector to which gun regulator is connected.

Check that on place of regulator, in connectors or in gun regulator RMT 10 there is no metal powder, dirt etc. Clean carefully if necessary.

- Push gun regulator RMT 10 onto guides, but not completely to the end.

Make sure that the connector on the handle side is in correct position and that connectors are correctly connected with each other. Push the regulator carefully to its place.

- Tighten the tightening screw.

5. USING THE GUN REGULATOR RMT 10

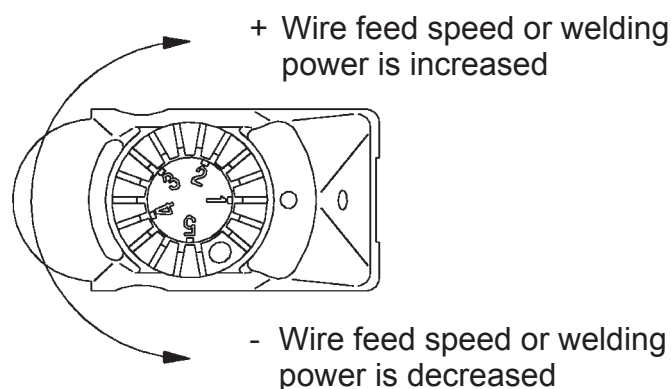
Depending on panel used in PROMIG (or FEED) wire feeder, with gun regulator RMT 10 you can regulate wire feed speed in MIG welding as well as welding power of synergic MIG or pulsed MIG welding. You can also select pre-programmed welding parameters from Selecto channels 1...5 according to your wishes. Selecting and regulating signals of Selecto channel are transmitted along start lines of gun through Euro adapter.

Gun regulator RMT 10 operates only with PROMIG and FEED wire feeders.

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5.1. REGULATION OF WIRE FEED SPEED AND WELDING POWER

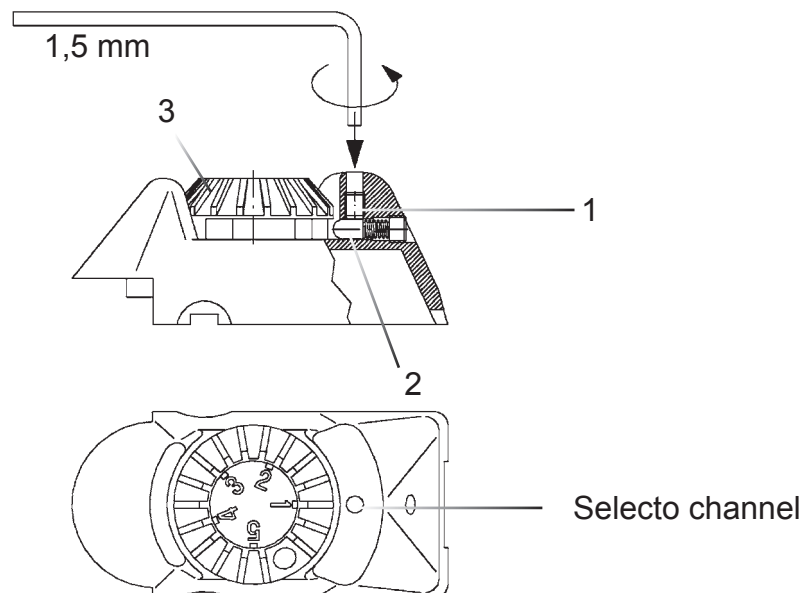
Regulation of wire feed speed for MIG welding and regulation of welding power for synergic MIG or pulsed MIG welding from RMT 10 as well as other relevant regulations, fine adjustment and selections are described in operation instructions for PROMIG and FEED wire feeder units.



5.2. SELECTION OF SELECTO CHANNEL

When you are using PROMIG wire feeder and panel with Selecto mode, you can select channels 1...5 also from PMT gun by using gun regulator RMT 10. Use of Selecto mode is described in operation instructions for PROMIG:

Positions 1...5 of potentiometer RMT 10 correspond to Selecto channels 1...5 (see sticker above potentiometer). In order to find correct position of potentiometer and to feel channel positions when turning the potentiometer, you should release



the spring-loaded ball of RMT 10. By tip of this ball on outer shell of potentiometer there are grooves corresponding to Selecto channels 1..5.

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- Loosen the hexagon socket head screw (1) until ball (2) is released and pressed against outer shell of potentiometer (3) (see from gap between regulator frame and potentiometer).

Restoring RMT 10 into normal state, where potentiometer positions corresponding to Selecto channels are not felt:

- Turn potentiometer (3) a little so that ball (2) is lifted off from groove on potentiometer shell corresponding to Selecto channel.
- Tighten the screw (1).

6. OPERATION OF THERMAL SHIELD

Inside plastic protection of snap connector head, WS / W guns have as extension for liquid-current cable a PTC thermal shield, which in PROMIG or FEED equipment switches off the welding when gun is overheated. Thermal shield is to prevent overheating of liquid-current cable and other parts of gun e.g. if cooling liquid for some reasons should not circulate in gun. When thermal shield switches off the welding, pilot lamp for thermal shield of PROMIG fire feed unit is lit. It is possible to continue welding when gun has cooled down enough.

- ⚠ Thermal shield operates only with PROMIG and FEED units. Thermal shield does not operate if internal connections of gun are changed into position FU.**

If thermal shield switches off the welding, it is likely that cooling liquid does not circulate in gun or that the flow is very weak. Do not continue welding until you have cleared up the reason for disturbance and repaired the fault.

Check the following:

- Cooling unit is running and has enough cooling liquid.
- Cooling liquid hoses of gun and interconnecting cable are correctly connected and they do not have any sharp bends.

7. USE AND MAINTENANCE

The amount of use and the working environment should be taken into consideration when planning the frequency of maintenance of MIG guns. Careful use and preventive maintenance will help to ensure trouble-free operation and long lifetime for the gun.

Due to high temperatures and wear, the welding end of MIG gun requires most maintenance but also condition of other parts should be checked regularly.

Welding end

- Remove welding spatter and check condition of insulations, contact tip and gas nozzle. Replace damaged and worn-out parts by new ones. Use only original Kemppi spare parts.
- Check condition of insulations. Replace damaged insulations immediately by new ones.
- Check that in the discharge holes for shielding gas there is not any spatter or dirt.
- Use the gun in a proper way.
 - Do not remove welding spatter by hammering the gun against the work piece!
 - Do not use sharp tools, because damaging of surfaces will increase stickening of spatter!
 - Do not bend neck body of gun or fasten the gun from neck body against bench etc., for it may cause destruction of the neck!
 - Do not use the gun as hammer!

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Gun cable

- Clean the wire liner when replacing wire reel, or more often.
- Check daily that insulations of handle and gun cable are undamaged.
- Check that there are no sharp bends in gun cable.

8. OPERATION DISTURBANCES

The most common operation disturbances are as follows:

Welding is stopped and pilot lamp of thermal shield of PROMIG unit is lit:

- Thermal shield of gun has stopped welding. Find the fault before you continue welding. Check especially connections of cooling liquid hoses (also in interconnecting cable).

Start does not operate although you pull the trigger, or start is always switched on, although you do not pull the trigger:

- Internal connection of gun is in position “PRO” although you are using gun in other wire feeder than PROMIG or FEED. Change connection according to instructions.
- RMT 10 gun control unit is coupled, although you use gun in other units than PROMIG or FEED. Detach gun control unit.

Welding wire does not run smoothly or wire is sticking in the wire liner (arc length varies, you can feel shaking in the handle):

- Wire liner is dirty or blocked-up. Clean with compressed air. Replace by a new wire liner if necessary.
- Wrong wire liner or contact tip. Make sure that the wire liner and contact tip are according to recommendations for the welding wire in question (see consumable parts sheet delivered with the gun).
- Contact tip has heated up too much. Check cooling liquid circulation.
- Contact face of contact tip is damaged due to spatter or sparking caused by impurities. Replace the contact tip by a new one.
- Gun cable has too sharp bends, straighten.
- Welding wire has a lot of dirt, rust or bends etc which increases friction and results in contact disturbances.
- Check operation of the wire feed unit. Check that drive roll size and type are suitable for wire in question. Check that drive roll pressure is not too low or too high.

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Gas shielding is bad (weld pool “is boiling”, arc is unstable):

- On inner face of gas nozzle or in contact tip and contact tip holder there is too much welding spatter; clean.
- In discharge hole for shielding gas there is spatter or other dirt; clean.
- There are impurities in shielding gas (moisture, air).
- There are impurities in base material (rust, base coat, grease).
- Pressure gathered in long gas hoses will cause a great flow of shielding gas at welding start, which may cause turbulence or mixing of air into shielding gas. The reason may also be a faulty or a faulty regulated relief valve, which lets too much pressure into gas hoses.
- Flow of shielding gas is too small or too big (causes turbulence). Use in short arc range a flow of 8 - 15 l/min, in hot arc range 10 - 20 l/min.
- Distance of gun to work piece is too long. Keep in short arc welding the gas nozzle at a distance of 10 - 15 mm and in hot arc welding at a distance of 15 - 30 mm to work piece.
- Angle of tilt of gun is too big.
- There is too much draught at welding place.

9. TECHNICAL DATA

Gun	Loading capacity Ar + CO ₂ (A)	Duty cycle (%)	Wire diameters (mm)	Type of cooling	Cooling data			
					Max. temp. in	Min. flow rate	Min. pressure (bar)	Max. pressure (bar)
WS 35	300	35	AL 1.2 SS 1.0	Air				
WS 30W	300	100	AL 1.2 (1.6) SS 1.0 - 1.2	Liquid	50	1	1	5
WS 42W	400	100	AL 1.2 (1.6) SS 1.0 - 1.2	Liquid	50	1	1	5

Connection to Mig unit: Euro adapter

Make sure that the gun in your use is designed for the max. welding current needed.

The guns meets the construction and safety requirements according to norm IEC / EN 60974-7.

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10. ORDERING NUMBERS

		Package contents			
Code	Filler wire	Basic gun	Wire liner	Contact tip	
6253516A12	AL 1.2	6253516 / WS 35 6M	4304100 / DL-teflon 0.8-1.6 AL 6m	9580124A / M8 1.2A	
6253516S10	SS 1.0	6253516 / WS 35 6M	4304120 / DL-teflon 0.8-1.0 SS 6m	9580123SS / M8 1.0SS	
6253046A12	AL 1.2 - 1.6	6253046 / WS 30W 6M	4304100 / DL-teflon 0.8-1.6AL 6m	9580124A / M8 1.2A	
6253046S10	SS 1.0	6253046 / WS 30W 6M	4304120 / DL-teflon 0.8-1.0SS 6m	9580123SS / M8 1.0SS	
6253046S12	SS 1.2	6253046 / WS 30W 6M	4304140 / DL-teflon 1.2-1.6SS 6m	9580124SS / M8 1.2SS	
6253048A12	AL 1.2 - 1.6	6253048 / WS 30W 8M	4304110 / DL-teflon 0.8-1.6AL 8m	9580124A / M8 1.2A	
6253048S10	SS 1.0	6253048 / WS 30W 8M	4304130 / DL-teflon 0.8-1.0SS 8m	9580123SS / M8 1.0SS	
6253048S12	SS 1.2	6253048 / WS 30W 8M	4304150 / DL-teflon 1.2-1.6SS 8m	9580124SS / M8 1.2SS	
6254206A12	AL 1.2 - 1.6	6254206 / WS 42W 6M	4304100 / DL-teflon 0.8-1.6AL 6m	9580124A / M8 1.2A	
6254206S10	SS 1.0	6254206 / WS 42W 6M	4304120 / DL-teflon 0.8-1.0SS 6m	9580123SS / M8 1.0SS	
6254206S12	SS 1.2	6254206 / WS 42W 6M	4304140 / DL-teflon 1.2-1.6SS 6m	9580124SS / M8 1.2SS	
6254208A12	AL 1.2 - 1.6	6254208 / WS 42W 8M	4304110 / DL-teflon 0.8-1.6AL 8m	9580124A / M8 1.2A	
6254208S10	SS 1.0	6254208 / WS 42W 8M	4304130 / DL-teflon 0.8-1.0SS 8m	9580123SS / M8 1.0SS	
6254208S12	SS 1.2	6254208 / WS 42W 8M	4304150 / DL-teflon 1.2-1.6SS 8m	9580124SS / M8 1.2SS	

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