Operation instructions • english
Gebrauchsanweisung • deutsch
Gebruiksaanwijzing • nederlands
Manuel d'utilisation • français

TTK 130
TTK 130F
TTK 160
TTK 160S

1927740E
TTK 220
TTK 220S
TTK 300W
TTK 350W
TTK 250WS

TTK

130
130F
160
160S

220
220S
300W
350W
250WS

KEMPPI
The Joy of Welding

CONTENTS

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.

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

In this document, for danger to life or injury the following symbol is used:

Read the warning texts carefully and follow the instructions. Please also study the Operation safety instructions and respect them when installing, operating and servicing the machine.

1.2. PRODUCT INTRODUCTION

TTK 130, TTK 130F, TTK 160, TTK 160S, TTK 220, TTK 220S, TTK 300W, TTK 350W and TTK 250WS are TIG welding torches designed for demanding use. They are suitable to be used e.g. with the Mastertig and Mastertig AC/DC welding machines.

1.2.1. Selection table for consumable parts TTK 130, TTK 130F, TTK 160S, TTK 300W, TTK 250WS

Normal gas nozzle equipment

Welding current							Size		9878013
DC [A]	AC [A]	Ø [mm (in)]							
5…80	5…50	1,0 (.040)	WC20 9873531 WZ8 9873520	7990635	7990640	7990660	3 4 5	 7990760 7990761	9878018 9878019 9878020
70…150	30…100	1,6 (1/16)	WC20 9873532 WZ8 9873521	7990636	7990641	7990661	4 5 6	7990760 7990761 7990762	9878019 9878020 9878021
130…250	80…150	2,4 (3/32)	WC20 9873533 WZ8 9873522	7990637	7990642	7990662	6 7	7990762 7990763	9878021 -

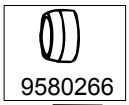
Gas lens equipment

Welding current							Size		9878013
DC [A	AC [A]	Ø [mm (in)]							
5…80	5…50	1,0 (.040)	WC20 9873531 WZ8 9873520	7990635	7990640	7990700	4 5	7990779 7990780	
70…150	30…100	1,6 (1/16)	WC20 9873532 WZ8 9873521	7990636	7990641	7990701	4 5 6	7990779 7990780 7990781	
130…250	80…150	2,4 (3/32)	WC20 9873533 WZ8 9873522	7990637	7990642	7990702	6 7	7990781 7990782	

*) Data in table are given only as a guide.

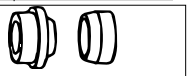
1.2.2. Selection table for consumable parts TTK 160, TTK 220, TTK 220S,TTK 350W

Normal gas nozzle equipment



Welding current							Size	9580266
DC [A]	AC [A]	Ø [mm (in)]						
5…80	5…50	1,0 (.040)	WC20	9873531	9876866	7990680	4	7990766
			WZ8	9873520			5	7990770
70…150	30…100	1,6 (1/16)	WC20	9873532	9876867	7990681	4	7990766
			WZ8	9873521			5	7990770
							6	7990771
130…250	80…150	2,4 (3/32)	WC20	9873533	9876868	7990682	6	7990771
			WZ8	9873522			7	7990772
220…350	120…210	3,2 (1/8)	WC20	9873534	9876869	7990683	7	7990772
			WZ8	9873523			8	7990773
							10	7990775
330…500	180…280	4,0 (5/32)	WC20	9873535	9876870	7990684	8	7990773
			WZ8	9873524			10	7990775
			W	9873505			12	7990776

Gas lens equipment



9876860+9580266

Welding current							Size	
DC [A]	AC [A]	Ø [mm (in)]						
5…80	5…50	1,0 (.040)	WC20	9873531	9876866	7990710	5	7990783
			WZ8	9873520				
70…150	30…100	1,6 (1/16)	WC20	9873532	9876867	7990711	5	7990783
			WZ8	9873521			6	7990784
130…250	80…150	2,4 (3/32)	WC20	9873533	9876868	7990712	6	7990784
			WZ8	9873522			7	7990785
220…350	120…210	3,2 (1/8)	WC20	9873534	9876869	7990713	7	7990785
			WZ8	9873523			8	7990786
							11	7990787
330…500	180…280	4,0 (5/32)	WC20	9873535	9876870	7990714	8	7990786
			WZ8	9873524				
			W	9873505			11	7990787

*) Data in table are given only as a guide.

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 defected cables without delay. Defected 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 defected cables. Do not put TIG-torch or welding cables on welding machine or on other electric equipment. Do not press TIG-torch 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.

2. INSTALLATION

2.1. CONNECTING TTK-TORCH

Connect torch (and extension parts) according to welding machine's operation instructions.

Tighten adaptors of torch carefully in order to avoid heating of adaptors, contact disturbances, mechanical damage and water or gas leakage.

⚠ **Check by connection of liquid hoses that there are no dirt, metal powder or other wastes.**
Wastes may cause blocking in liquid circulation, throughburning of torch or stopping or breaking of pump.

Connect liquid hoses of torch according to operation instruction of the cooling liquid circulation unit. (They are fastened to pipe chassis.) Fix liquid hoses (torch – cooling liquid circulation unit) 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.

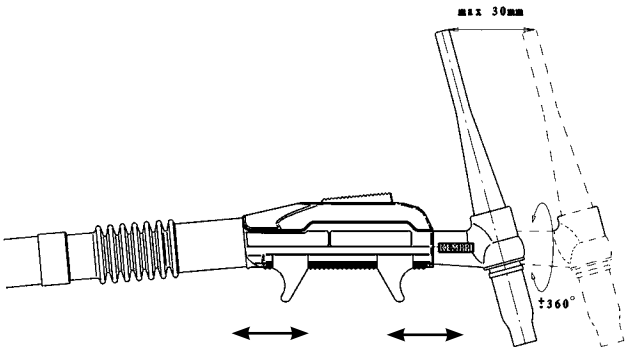
⚠ **If connections cross, cooling liquid is circulating in wrong direction in torch, and torch handle and neck body might be considerably heatened.**

2.2. SWITCH AND REGULATOR OPERATIONS

The TTK torches are equipped with ON/OFF switch. Operation of switch in 2-functions, 4-functions and Minilog positions is described in operation instructions of the welding machine.

2.3. ADJUSTMENT OF TORCH BODY AND GRIPS

You can draw the torch neck outwards from inside the handle in approx. 30 mm length in order to grow reach or to minimize heat radiation to welder's hand. You can also twist the torch body 360° in regard of the handle. Twisting of neck makes the length adjustment easier. Before starting to weld make sure that the parts being exposed to voltage at the back end of the neck body are not visible.



You can without tools move or twist grips on the lower surface of the handle into such position you like that you can get a steady hold on the torch. You can also easily remove one or both of the grips through the front end of the handle.

3. MAINTENANCE

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

Welding end

Check that…

- All insulations of welding end are undamaged and at their place.
- Gas nozzle is undamaged and suitable for work.
- Flow of shielding gas is free and even.
- Electrode is undamaged. Use electrode size and tip sharpening angle which is suitable for welding case. Make sharpening grinding lengthwise of electrode.
- Fastening parts of electrode are undamaged and electrode is fastened tightly at its place.

Torch cable

Check that…

- Insulations of handle and torch cable are undamaged.
- There are no sharp bends in torch cable.

Replace damaged parts immediately by new ones.

⚠ **Frequent bending of neck body of torch may cause damage of gas or liquid channels.**
Length adjustment of neck body doesn't work on bent neck.

4. OPERATION DISTURBANCES

4.1. THE MOST USUAL OPERATION DISTURBANCES ARE AS FOLLOWS:

Arc is not ignited:

- Cable is loose or there is a bad connection.
- Electrode of torch is highly oxidized (grey). Sharpen again lengthwise. Check that post gas time is long enough. Check ignition by using pre-gas e.g. by 4-function operation of torch.
- There are impurities in shielding gas (moisture, air).
- Protective hose or another insulation of torch is broken and ignition spark is "escaping" from elsewhere than from electrode of torch.
- Torch is wet.
- At low current is used too big or blunt electrode.

Gas shielding is bad (weld pool "is boiling", electrode will be oxidized)

- There are impurities in shielding gas (moisture, air).
- There are impurities in base material (rust, base coat, grease).
- On gas nozzle or housing of tightening bushing has stuck "spatter".
- Net of gas lens is damaged.
- There is too much draught at welding place.
- Note! With gas lens equipment you get a more balanced gas flow than with normal gas nozzle equipment.

5. ORDERING NUMBERS

	TTK 130	***TTK 130F***	***TTK 160***	***TTK 160S***
4m	627063004	627063104	627066004	627066204
8m	627063008	627063108	627066008	627066208
16m	627063016	627063116	627066016	627066216
	TTK 220	***TTK 220S***		
4m	627072004	627072304		
8m	627072008	627072308		
16m	627072016	627072316		
	TTK 300W	***TTK 350W***	***TTK 250WS***	
4m	627080504	627085504	627075704	
8m	627080508	627085508	627075708	
16m	627080516	627085516	627075716	

6. TECHNICAL DATA

	TTK 130	*TTK 130F*	*TTK 160*	*TTK 160S*
Loading capacity				
DC- 40% ED	130A	130A	160A	160A
100% ED	- - - - - -	- - -	- - -	
Electrode sizes to be used	ø 1,0…2,4	ø 1,0…2,4	ø 1,0…2,4	ø 1,0… 2,4
Voltage class	L	L	L	L
Cooling	Air	Air	Air	Air
Connection to TIG-unit				
Gas/current	R¼	R¼	R¼	R¼
Water/current	- - -	- - -	- - -	- - -
Water	- - -	- - -	- - -	- - -
Gas	- - -	- - -	- - -	- - -

	TTK 220	*TTK 220S*	*TTK 300W*	*TTK 350W*	*TTK 250WS*
Loading capacity					
DC- 40% ED	220A	220A	300A	350A	250A
100% ED	- - -	- - -	200A	250A	200A
Electrode sizes to be used	ø 1,0…3,2	ø 1,0…3,2	ø 1,0…2,4	ø 1,0…4,0	ø 1,0…4,0
Voltage class	L	L	L	L	L
Cooling	Air	Air	Liquid - min. 1 l/min In inlet: - max. 50 °C - min. 1 bar - max. 5 bar	Liquid - min. 1 l/min In inlet: - max. 50 °C - min. 1 bar - max. 5 bar	Liquid - min. 1 l/min In inlet: - max. 50 °C - min. 1 bar - max. 5 bar
Connection to TIG-unit					
Gas/current	R¼	R¼	- - -	- - -	- - -
Water/current	- - -	- - -	R3/8	R3/8	R3/8
Water	- - -	- - -	R3/8	R3/8	R3/8
Gas	- - -	- - -	R¼	R¼	R¼

Make sure that the torch being in your use is designed for max. welding current needed by you.

The torch meets the construction and safety requirements according to norm IEC 60974-7.

CE

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