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Ed.3(26-06-98)

INSTRUCTIONS MANUAL



SISTEMA DE CALIDAD ISO9001
QUALITY SYSTEM ISO9001

CUTTING AND WELDING ***TORCHES HANDLES***



BEFORE BEGINING WORK READ EVERY PARTS THIS MANUAL



1.- TECHNICAL CHARACTERISTICS

1 bar = 100 kPa = 14 psi.

WELDING AND CUTTING

The nominal pressures and consumptions for the different welding and cutting nozzle tips are given in the tables below.

MINOR TORCH

NOZZLE		THICKNESS	CUTTING		WELDING		
CUT.	WELD.	CUTTING WELDING.	GAS. (bar)	OXYGEN (bar)	GAS. Flow Rate	OXYGEN (bar)	GAS. (bar)
1		3-13	<0.6	1 - 2			
2		13-25	<0.6	2 - 3			
3		25-75	<0.6	3 - 4			
	1	0.4-0.8			50 L/h	1	<0.6
	2	0.8-1.5			70 L/h	1,5	<0.6
	3	1.5-3			100 L/h	2	<0.6
	4	3-4.5			150 L/h	2,5	<0.6
	5	4.5-6			200 L/h	3	<0.6

AGIL TORCH

NOZZLE		MIXER	THICKNESS	CUTTING		WELDING		
CUT.	WELD.	Nº	CUTTING WELDING.	ACET. (bar)	OXYGEN (bar)	ACET. Flow Rate	OXYGEN (bar)	ACET. (bar)
1			3-12	<0.6	1.5 - 2			
2			13-25	<0.6	2 - 3			
3			25-75	<0.6	3 - 4			
	0	1	0.5-1			70 L/h	1	<0.6
	1	1	1-2			100 L/h	1,5	<0.6
	2	1	2-4			200 L/h	2	<0.6
	3	2	4-8			400 L/h	2,5	<0.6
	4	2	8-13			600 L/h	3	<0.6

SENIOR TORCH

NOZZLE		MIXER	THICKNESS	CUTTING		WELDING		
CUT.	WELD.		CUTTING WELDING	ACET. (bar)	OXYGEN (bar)	ACET. Flow Rate	OXYGEN (bar)	ACET. (bar)
1			3-25	<0.6	1.5 - 3			
2			25-75	<0.6	3 - 4			
3			75-150	<0.6	4 - 4.5			
	0	1	0.5-1.5			150 L/h	1.5	<0.6
	1	1	1.5-6			250 L/h	2.0	<0.6
	2	1	6-10			500 L/h	2.5	<0.6
	3	2	10-20			700 L/h	3.5	<0.6
	4	2	20-26			1000	4	<0.6

UNIVERSAL TORCH

NOZZLE		LANCE	THICKNESS	CUT PRESSURES		WELDING PRESSURES		
CUT		WELDING	CUT, WELD mm.	ACET. (bar)	OXYGEN (bar)	METAL Ø mm.	OXYGEN (bar)	ACET. (bar)
OUTER	INNER	Nº						
1	1		3 - 12	<0,3	1 - 2			
2	2		15 - 25	<0,3	2 - 3			
3	3		25 - 30	<0,4	2,5 - 4			
3	4		30 - 50	<0,4	3,5 - 5			
3	5		50 - 100	<0,5	4 - 7			
4	6		100 - 150	<0,5	4,5 - 8			
4	7		150 - 200	<0,5	5,5 - 9			
4	8		200 - 300	<0,6	8 - 12			
		0	0,5 - 1			1	1 - 2	<0,2
		1	1 - 2			2	2 - 3	<0,2
		2	2 - 4			3	2,5 - 4	<0,2
		3	4 - 6			4	3,5 - 5	<0,4
		4	6 - 9			5	4 - 7	<0,4
		5	9 - 14			6	4,5 - 8	<0,4
		6	14 - 20			7	5,5 - 9	<0,45
		7	20 - 30			8	8 - 12	<0,5

OPTIMUS TORCH

CUTTING NOZZLE	THICKNESS	CUTTING PRESSURES	
Nº	mm.	FUEL GAS. (bar)	OXYGEN (bar)
1	4-9	<0.6	1.4-2.1
2	9-25	<0.6	2.1-2.8
3	25-50	<0.6	2.8-3.4
4	50-75	<0.6	3.4-4.0
5	75-150	<0.6	4.0-4.8
6	150-200	<0.6	4.8-5.4
7	200-300	<0.6	5.4-6.3

2.- USE AND TYPES OF GASES

MINOR TORCH: This torch is especially designed for cutting and welding by hand. The cutting capacity is 75 mm., being able to weld up to 6 mm. It uses Acetylene, Butane, Propane, Methane and Natural Gas with Oxygen gas. The gases are mixed by injector and mixer.

AGIL TORCH: This torch is especially designed for cutting and welding by hand. The cutting capacity is 75 mm., being able to weld up to 13 mm. It uses Acetylene gas with Oxygen gas. The gases are mixed by injector and mixer.

SENIOR TORCH: This torch is especially designed for cutting and welding by hand. The cutting capacity is 150 mm, being able to weld up to 26 mm. It uses Acetylene gas with Oxygen gas. The gases are mixed by injector and mixer.



UNIVERSAL TORCH: This torch is especially designed for cutting and welding by hand. The cutting capacity is 300 mm., being able to weld up to 30 mm. It uses Acetylene gas with Oxygen gas. The gases are mixed by injector and mixer.

OPTIMUS TORCH: This torch is especially designed for cutting by hand. The cutting capacity is 300 mm. It uses Acetylene, Propane, Methane and Natural Gas with Oxygen gas. The gases are mixed by injector and mixer.

3.- INSTRUCTIONS FOR USE

3.1 INSTRUCTIONS FOR THE CUTTING TORCH

1. Before beginning work, make sure that the gas supply installation and the adjustment and safety elements are in perfect conditions for use.
2. Make sure that the gas shutoff cocks on the torch and the supply installation are closed.
3. Connect the hoses to the torch and to the supply point. Make sure the coupling elements and the hoses are in good conditions in order to be connected. Check there are no leaks.
4. *MINOR, AGIL, SENIOR AND UNIVERSAL:* The cutter is coupled to the handle without a tool. It can be fastened perfectly well just by tightening the nut by hand, by means of a cone with two O-rings. Take care not to damage them, as this could give rise to gas flashbacks and backflow.
5. Fit the nozzle tip to be used and tighten with wrench so they fit correctly into the cutter head.
6. Open the supply system cocks and choose the pressures on the pressure regulators depending on the nozzle tip chosen. Open the oxygen adjustment cock on the handle and make sure the oxygen adjustment cock on the cutter is closed.
7. To turn the cutter nozzle tips on, open the fuel gas cock and apply a spark to the nozzle tip with a stone lighter. Never use the flame directly. Immediately open the cutter oxygen adjustment cock.
8. Once the nozzle tip has been lit, adjust the flame by using the cutter oxygen and fuel gas cocks.
9. To begin cutting, first heat the part to be cut and then use the auxiliary lever which lets the cutting oxygen come through. Keep the tip of the nozzle 4 or 5 mm. away from the part to be cut.

3.2.- INSTRUCTIONS FOR THE WELDER TORCH.

1. Before beginning work, make sure that the gas supply installation and the adjustment and safety elements are in perfect conditions for use.
2. Make sure that the gas shutoff cocks on the torch and on the supply installation are closed.
3. Connect the hoses to the torch and to the supply point. Make sure the coupling elements and the hoses are in perfect conditions in order to be connected. Check there are no leaks.
4. Choose the correct nozzle tip and fit it onto the nozzle with the correct injector.



5. Fit the assembly onto the handle by tightening the coupling nut by hand. Take care not to damage the O-rings, as this could give rise to gas flashbacks.
6. To light up the nozzle tips, open the supply installation cocks. Open the fuel gas cock on the torch and apply a spark with a stone lighter. Do not use the flame directly. Finally open the oxygen cock.
7. Adjust the flame until a neutral dart is obtained.
8. To turn off the torch first close the fuel gas adjustment cock and then the oxygen one.



NEVER TRY TO CONNECT ANY NOZZLE TIP OR DEVICE WHICH HAS NOT BEEN MANUFACTURED AND EXPRESSLY RECOMMENDED BY GALA SOL. IF OTHER NOZZLE TIPS ARE USED ACCIDENTS COULD OCCUR.

4.- SAFETY MEASURES

4.1.- SAFETY OF PEOPLE:

- Use protective goggles while working.
- Protective gloves and clothing, resistant to heat and incandescent particles must be used to prevent burns. The clothing must be free from oil and grease.
- Any fumes and gases given off during the cutting or welding work may be harmful. Make sure the working place is sufficiently ventilated, and if not, use auxiliary ventilation or aspiration means. Do not use oxygen currents or compressed air.
- Remember that oxygen in the presence of oil and grease produces violent explosions.

4.2.- SAFETY OF THE EQUIPMENT

- Check the state of the conduction hoses as well as their connections and connectors before being connected for use. They must be free from oil and grease and without dents, cuts and burns.
- Check the correct state of the conduction, adjustment and safety elements of the gas installation.
- Always use safety valves against flame and gas flashback.
- Keep any equipment or objects, which may be damaged or cause fire or explosions due to the sparks produced by the torch, far away from the working area.



4.3- RECOMMENDATIONS FOR AVOIDING FLASHBACKS

The flashback effect occurs when for some reason the flame enters the torch nozzle, producing a clapping noise similar to a gunshot. The flame may go out at that time or go into the torch, destroying it by heat if action is not quickly taken.

The reasons for possible flashbacks are:

- Incorrect place for mixing the gases.
- Unsuitable gas pressures.

Either of these two reasons may be caused by:

1. Incorrect use of gas pressures in the pressure regulators.
2. Obstruction or dirt in the nozzle tips producing gas pressure variations.
3. Tightening nut of the cutting nozzle tips not tight enough meaning the nozzle fits badly and the gas does not enter correctly.
4. Bad coupling of the nozzles in the handle as they are not tight enough or the O-rings are deteriorated.
5. Lighting the torch with the cocks open.
6. Drowning the flame on the fused material by cutting or welding. It may be difficult for the flame to stay alive and therefore the gases loose speed, giving rise to the flashback.
7. Excessive heating of the nozzle tip due to hard work or bad state of the nozzle tip. This gives rise to a change of the balance between the inflammation speed and the supply speed.

	"IN ORDER FOR FLASHBACKS NOT TO OCCUR PREVENT THE REASONS GIVEN ABOVE FROM APPEARING".
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	WARNING: "IT IS ESSENTIAL TO USE SAFETY VALVES AGAINST FLAME FLASHBACKS AND BACKFLOW".
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4.4- WHAT TO DO IN THE CASE OF FLASHBACKS

One knows when a flashback has occurred if the flame disappears from the nozzle tip and a bang is heard similar to a gun-shot. If the gas combustion continues inside the torch a typical whistling sound is heard and the area where the flame has stopped starts to overheat.

In any case, the following must be quickly done:

1. DO NOT LEAVE A TORCH WITH FLASHBACK OR THROW IT ONTO THE FLOOR.
2. DO NOT MOVE OR KNOCK THE TORCH TO TRY TO PUT THE FLASHBACK OUT, THIS COULD CAUSE GREATER DAMAGE.
3. IMMEDIATELY TURN OFF THE TORCH OXYGEN ADJUSTMENT COCK.
4. IMMEDIATELY CLOSE THE FUEL GAS ADJUSTMENT COCK.



5. WAIT UNTIL THE FLAME GOES OUT INSIDE THE TORCH AND THE WHISTLING NOISE DISAPPEARS.
6. COOL THE NOZZLE TIP AND THE TORCH.
7. CHECK THAT THE TORCH AND THE NOZZLES ARE IN GOOD CONDITIONS TO CONTINUE WORKING. IF IN DOUBT REQUEST IT TO BE CHECKED BY TECHNICALLY QUALIFIED PERSONNEL.

5.- WHAT TO DO IN THE CASE OF BREAKDOWNS

If, during operation, a flame appears in the nozzle tip seating area due to leaks, or the classical flashback noise is heard, tighten the nozzle tip by fastening the nut. If the problem does not disappear, request the equipment to be repaired.

If the flame continually goes out for no apparent reason or when the cutting oxygen level is activated, check that the pressures are correct for the nozzle tip being used. If the problem is not solved request the equipment to be repaired.

If leaks are observed in any part of the torch, request the equipment to be repaired immediately.

After a strong flame flashback the torch may have undergone serious damage. Check its state with care and if in doubt, request it to be checked.

To obtain a good cut with the torch, the correct nozzle tips must be used with the different pressures and they must be in good conditions. Avoid knocking the nozzles tips and clean them whenever necessary.

If lack of flow is observed in the nozzle tip and the pressures are correct, check the torch safety valves, as they may be blocked up.

6.- SERVICING AND MAINTENANCE

- From time to time watertightness and operation tests must be made on the torch by technically qualified personnel.
- Any repairs on the torch must be done by specialized personnel. Always request original parts with GALA SOL's guarantee.
- Dismount the nozzle tips from time to time and clean them with brushes. Check the state of the injector and clean away any particles which might block it up, taking care not to damage it.



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Ed.3(26-6-98)



CERTIFICADO DE GARANTIA

Modelo	Fecha de compra:
Referencia	
Num. serie	
SECCION Y LINEA DEL DEPTO. DUBOIT	

ESTE CERTIFICADO DE GARANTIA NO SERA VALIDO SI NO VA ACOMPAÑADO DE LA FACTURA DE COMPRA.

Modelo	Fecha de compra:
Referencia	
Num. serie	
SECCION Y LINEA DEL DEPTO. DUBOIT	

ESTA TARJETA DEBE SER REMITIDA A GALA GAR, S. A., EN EL PLAZO DE QUINCE DIAS A PARTIR DE LA FECHA DE COMPRA.

GARANTIA

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GALA GAR, S. A. garantiza el buen funcionamiento contra todo defecto de fabricación a partir de la fecha de compra (período de garantía) de:

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- Las máquinas de soldadura eléctrica manual semiprofesionales e industriales, pultidos, esmenadoras y lijadoras, durante 6 meses.
- Los aparatos de soldadura con llama, antorchas, de soldadura y accesorios, durante 3 meses.

Este Certificado de Garantía no se aplica a los componentes con una vida útil inferior al período de garantía, tales como consumibles, boquillas, toberas, etc.

Asimismo, no incluye la instalación ni la puesta en marcha, ni la limpieza o sustitución de filtros, fusibles y las cargas de refrigerante o aceite.

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