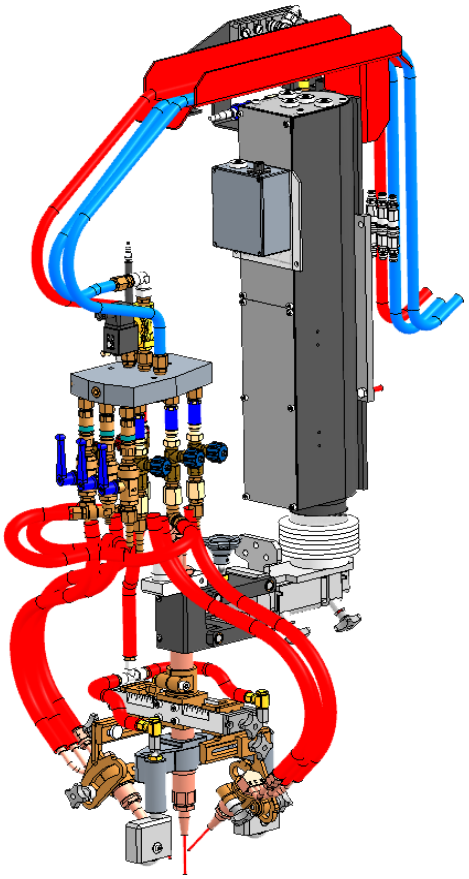
STRAIGHT BEVELLING BLOCK

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

INSTALLATION N° P07085070NG



EDITION : EN
REVISION : B
DATE : 12-2023

Instructions for use

REF : **8695 4673**

Original instructions

LINCOLN ELECTRIC

Thank for the trust you have expressed by purchasing this equipment, which will give you full satisfaction if you follow its instructions for use and maintenance.

Its design, component specifications and workmanship comply with applicable European directives.

Please refer to the enclosed CE declaration to identify the directives applicable to it.

The manufacturer will not be held responsible where items not recommended by themselves are associated with this product.

For your safety,there follows a non-restrictive list of recommendations or requirements, many of which appear in the employment code.

Finally we would ask you kindly to inform your supplier of any error which you may find in this instruction manual.

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DISPLAYS AND PRESSURE GAUGES

The measuring devices or displays for voltage, current, speed, pressure, etc., whether analog or digital, should be considered as indicators

For operating instructions, adjustments, troubleshooting and spare parts see safety instructions for use and maintenance

ISEE N° : 8695 7050 : Safety instructions

REVISIONS

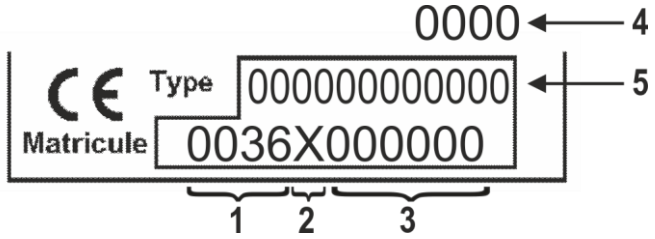
REVISION B 12/23

DESIGNATION	PAGE
Update	

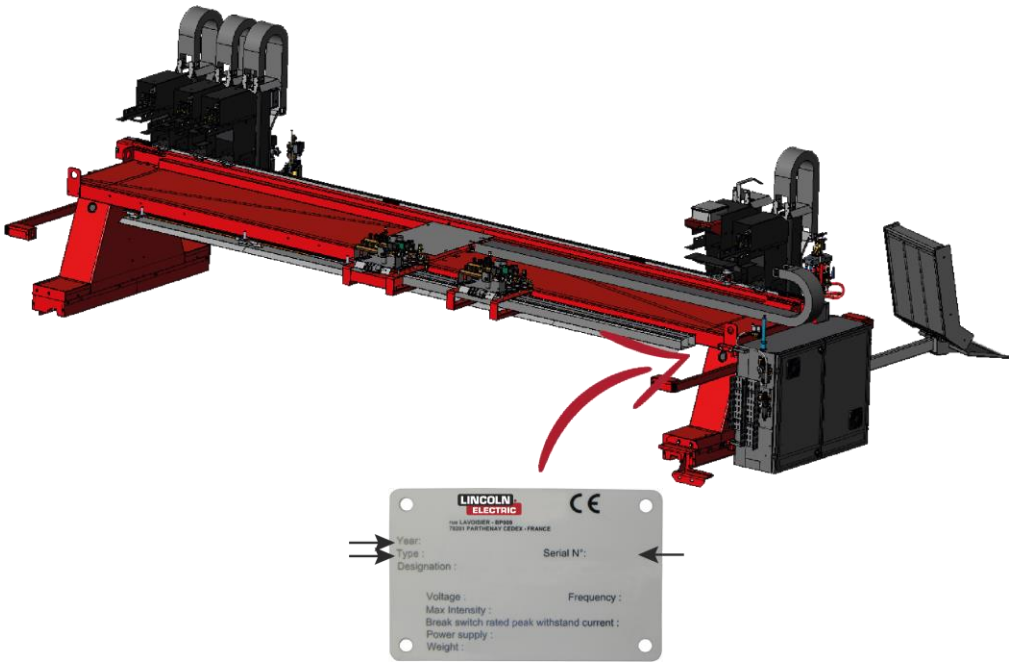
A - IDENTIFICATION

Please enter the number of your equipment in the following box

Quote this information in all correspondence.



1	Manufacturing factory code	**4**	Year manufactured
2	Manufacturing year code	**5**	Product type
3	Product serial no.		



B - SAFETY INSTRUCTIONS

1 - GENERAL SAFETY INSTRUCTIONS

Before using the process, make sure you read the manual, particularly the general safety instructions and those specific to this process.

The machine must be operated by a person trained in its use and hazards.

For general safety instructions, please refer to the specific manual supplied with the equipment, reference 8695 7050

Special security instructions are also recommended in the documentation of the options or the extraction table.

2 - AIRBORNE NOISE

1 - Measurement Site Qualification

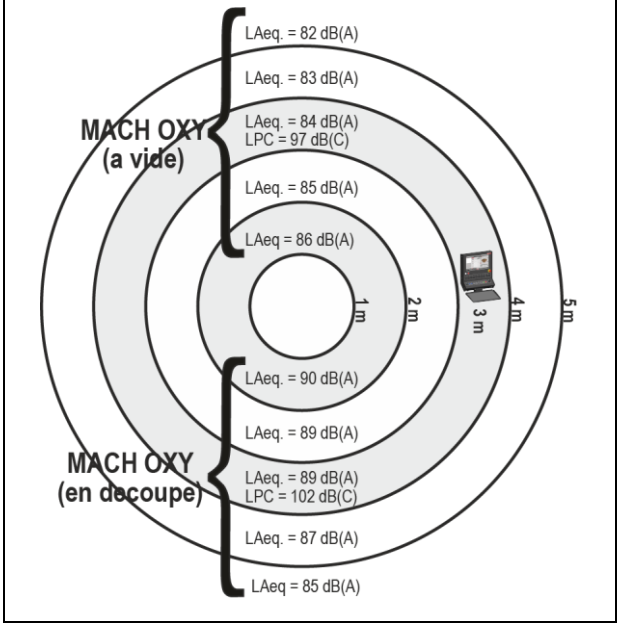
The machine was tested in the
Lincoln Electric ZI rue Lavoisier, BP009
79200 PARTHENAY FRANCE.
central assembly building

This site has been qualified by APAVE (Nord Ouest)
5 rue de la Johardière
44800 Saint Herblain FRANCE

This qualification was the subject of Report n°12296847/2

2 - Measurements

MACH OXY



The use of a helmet is required with a noise level above 80dB, for the operator and for persons located nearby.

The noise generated by the process can cover external sound warnings.

3 - ELECTRICAL SAFETY

Any work on the cabinet must be carried out by approved personnel. The emergency stop does not shut down the power supply of the manifold box.

The remainder of the flame cutting installation is powered with 24VDC. The igniter manages high voltage at low intensity.

4 - USE OF PERSONAL PROTECTIVE EQUIPMENT

In the operating phase, and also in the adjustment phase, appropriate personal protection is required (see document 8695 7050 for more details).

Standard EN 169 requires the use of shade 7 dark glass for the outputs from this process.

5 - INSTRUCTIONS FOR THE USE OF GAS

See section 3, Safe use of gas of the document 8695 7050, particularly the use of oxygen, propane and acetylene.

Oxygen is an oxidant; it activates combustion.
Acetylene is corrosive to copper: do not use brass with more than 70% copper content
Fuel gases are particularly flammable materials

The machine is not designed for operating in an explosive atmosphere.

By definition, fuels are highly flammable. The machine does not generate ATEX zones in normal use or in the event of potential fuel leaks, if the conditions of installation, maintenance use and checking are followed. However, such potential leaks can be involved in the overall calculation of ATEX zoning of a plant or workshop. Upon request, we can supply the characteristics of our machine for such rating.

All our fittings and valves are placed in the open air. To avoid hazards, it is thus indispensable for the machine to be installed in a large and well ventilated workshop, and the sheet to cut must necessarily be placed on a extraction table that removes burnt gas and also unburnt fuel gas that may be present in the vicinity of the torches.
When the machine is not in use, the gas supplies must be shut

We have used the following hypotheses for the calculation of ATEX zoning:

- The machine may not be used in workshops with a volume less than 2000m^3
- The maximum gas supply pressure data stated in these instructions must be followed
- The machine may not be used in workshops with air renewal less than 6/hour
- The checking of leaks from valves and fittings is required every month.

If these conditions are not met, please contact us.

For cutting/welding workshops, a minimum air renewal rate of 15/hour is recommended.

6 - CONDITIONS FOR USE

The installation is designed to operate with an appropriate extraction table (please call us for rating). Regularly check the effectiveness of the extraction.
Under the standard EN ISO 15012-4 , the following speeds are required for oxycutting in respect of the table:

- 1m/s for thicknesses below 100mm
- 1.2m/s for thicknesses between 100 and 200mm
- 1.4m/s for thicknesses greater than 200 mm

The installation is designed to operate with only one type of fuel gas. Please contact us for all gas type changes.

The installation is designed for cutting steel. Take particular precautions for the cutting of other materials (painted steel, film-wrapped steel etc.) indicated by the manufacturer of the material.

No smoking and no disposing of debris or any combustible material in the cutting table or on the sheet.

For example, if oil is used on the sheet, it must not be combustible.

Adjust the method so that any impurities from the process are not thrown more than two metres around the torch.

The installation is designed to operate under the monitoring of an operator.

The installation is designed for working at an ambient temperature from 0 to 35°C. The machine is designed for operating inside a workshop. If the machine must operate outside these conditions, please contact us.

Switch off the energy to the machine before maintenance.

7 - RISK OF HEATING

When the machine cuts pieces:

- that are small (e.g. where one dimension is less than 100 mm),

- nested closely,

- with several torches set close to each other (e.g. 150 - 500 mm)

The sheet temperature may rise (above 300°C for instance). As a result, the mechanical systems located near and above the oxycutting nozzles may be exposed to high temperatures and be damaged rapidly (components, pipes, wires).

Heating of parts also disrupts sensing, and thus adversely affects the cutting quality.

THE SOLUTION MAY CONSIST IN :

- modifying the cutting program to distance the succession of cuts while cutting the pieces,
- and/or using a cutting table with fume extraction so as to carry away as many calories as possible from the bottom of the sheet (so as to avoid the rise of calories above the sheet).

If these measures do not deliver the expected result, the customer should ask for assistance from the manufacturer.

C - DESCRIPTION

1 - GENERAL

This tool is used for making bevelled cuts using a VXK torch unit.
It is interchangeable with a simple torch. The change is made rapidly with quick action couplings.

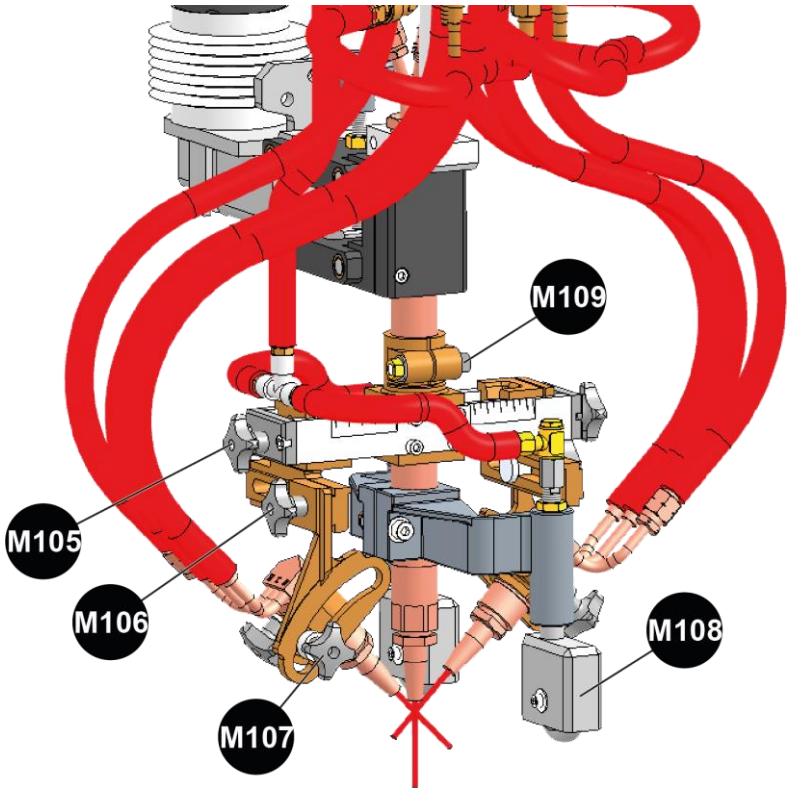
A support that is to be fixed on the outside of the machine is used to store the version (VXK or simple torch) that is not in use.

The assembly is mounted at the end of the PO150 or PO250 tool holder, which moves the VXK down in place on the plate.
A mechanical tracking system with a parallelogram and wheels enables it to track the plate.
The lower part with the wheels and torches and can turn over 90° to cut along the X or Y axis.

The torches used are of the G1 type.

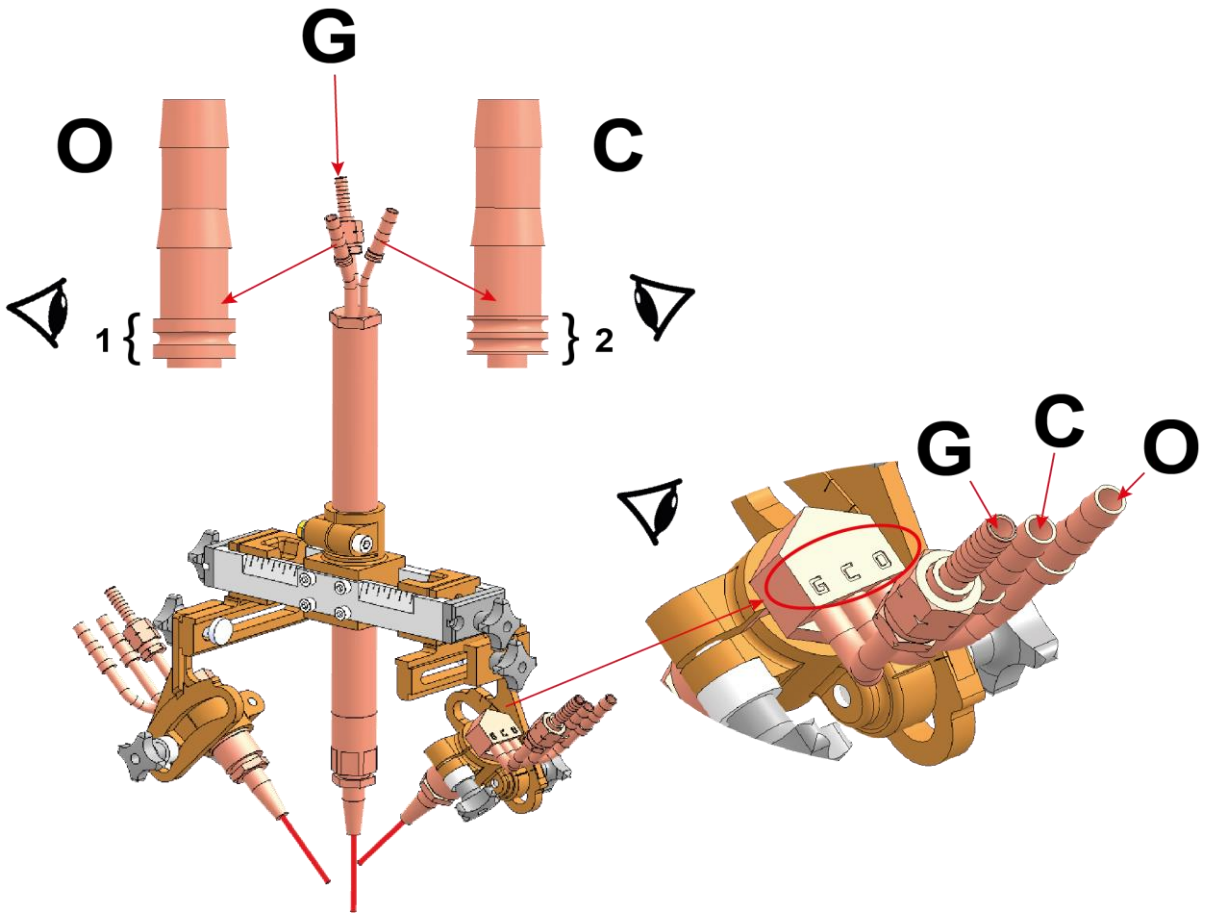
2 - POSITIONING THE TORCHES

The two outer torches can be adjusted in relation to the central torch, which has a fixed position.



M105	Bevel width adjustment
M106	Adjustment of offset from central torch
M107	Bevel angle adjustment
M108	Support wheels on cut plate
M109	90° unit rotation

3 - MARKING OF TORCHES



Item	Désignation
G	Fuel gas
C	Heating oxygen
O	Cutting oxygen

4 - CUTTING CAPACITIES

	OXY PROCESS	
	HPi	ESSENTIAL
STRAIGHT CUTTING (1 torch)	300 mm	200 mm
Y OR X BEVEL (2 torches at 45°)	60 mm	60 mm
K BEVEL (2 torches at 45° + 1 straight)	60 mm	40 mm

A bevel is always engaged at the end of the plate on a straight edge.

D - MONTAGE INSTALLATION

1 - CONDITIONS OF INSTALLATION

Also see the conditions for installing the machine and options in the associated documentation.

THE FOLLOWING CONDITIONS MUST BE COMPLIED WITH BEFORE INSTALLING THE EQUIPMENT

1.1 FLUIDS POWER SUPPLY

Provide the gas sources (cylinders, cylinder racks, evaporators etc.) below, each fitted with a regulator that can provide the recommended output and pressure values and a stop valve in case of arrival by pipe. Do not install gases other than those defined in this manual (risk of leaks).

Never exceed the maximum pressure specified for the supply to the installation

Starting up the gas sources

Please refer to the section:

"CYLINDER CHANGE PROCEDURE"

of the safety booklet 8695 7050

If the sensing option is present, see the specifications for compressed air in the document 8695 4987 "Essential Sensing Option"

The customer must supply and install a device for isolating each source of energy (electricity, air, gas and water). The devices must be clearly identified. They must be of the locking type, with three ways if possible as regards gas.

Oxy Essential installation

GAS SUPPLY								
The client should provide and install an isolating device on each source. These devices must be clearly identified and lockable..				The client should provide one Oxygen source fitted with a regulator capable of delivering the recommended flowrates and pressures. **Maximum Pressure 9 Bar for oxygen.** Oxygen purity must be at least 99,5%.				
Gas				Supply at the entry to the machine				
Use			Nature	P in bars +/-10%	Max. output in m³ / h for X torches			
					1	2	3	
G1	Cutting		Oxygen	8	17	30	26	
	Heating	Oxidants	Oxygen					
		Fuel	Acetylene	1.3	1	1.4	1.3	
			Propane	1.8	1.1	1.7	2.4	

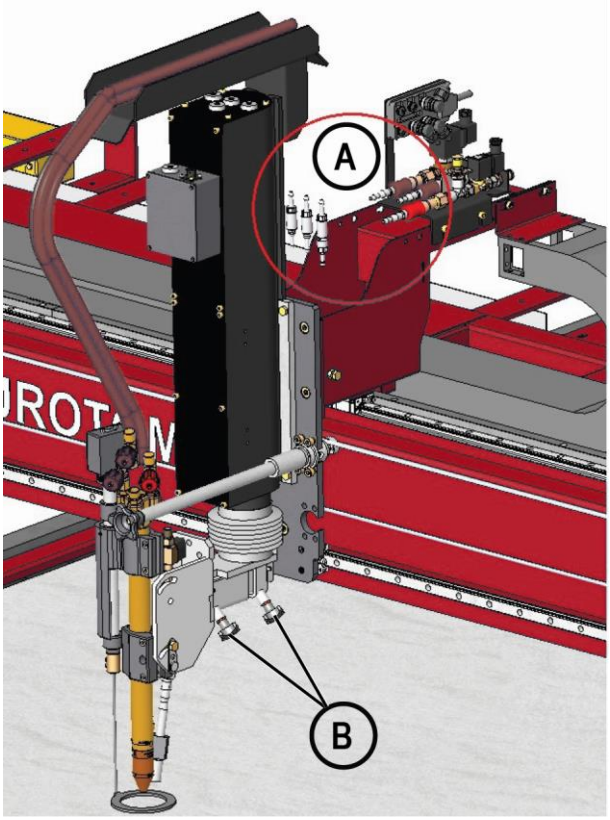
Oxy HPI² installation

GAS SUPPLY								
The client should provide and install an isolating device on each source. These devices must be clearly identified and lockable..				The client should provide one Oxygen source fitted with a regulator capable of delivering the recommended flowrates and pressures. **Maximum Pressure 13 bar for cutting oxygen, 8 Bar for heating oxygen.** Oxygen purity must be at least 99,5%.				
Gas				Supply at the entry to the machine				
Use			Nature	P in bars +/-10%	Max. output in m³ / h for X torches			
					1	2	3	
G1	Cutting		Oxygen	11.8	32	32	36	
	Heating	Oxidants	Oxygen	8	3.5	6	10	
		Fuel	Acetylene	3	0.8	0.8	1.3	
			Propane	1.8	0.9	1.7	2.5	

2 - INSTALLATION

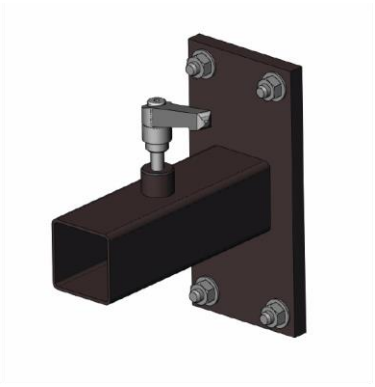
REMOVE THE TORCH:

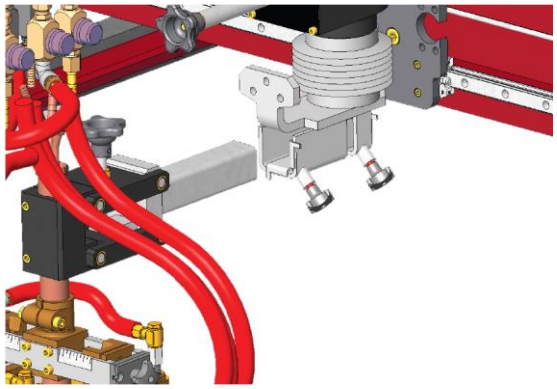
- Switch off the power to the machine and shut the air and gas supply valves
- Disconnect the fittings and the quick action connectors (A) located behind the tool holder
- Loosen the 2 nuts (B)
- Take off the torch and its support



PUTTING THE VXK BEVELLER IN PLACE:

- Take the VXK off its wall bracket and insert it in the lower fastening of the tool holder





- Tighten the 2 nuts (B)
- Place the pipes and cables in the channel above the tool holder.
- Make sure that none of the pipes is bent.
- Connect all the quick action couplings

E - OPERATOR MANUAL

1 - OPERATOR CONTROLS

1.1 UI CONTROLS

All the user interface controls are available in the documentation **HPC DIGITAL PROCESS** in the sections relating to oxycutting.

Please refer to the document:

- **86954948 : HPC DIGITAL PROCESS HPi**
- **86954944 : HPC DIGITAL PROCESS II**
- **86954995 : HPC DIGITAL PROCESS III**

The tracking function and the ignition function cannot be used with VXK. The probe must be deactivated.

1.2 TORCH MOVEMENT CONTROLS

At any time (except if there is a fault or if the torch is not selected), the height of each torch can be modified in slow speed. To do so, use the buttons in the UI in the sections relating to oxycutting, or use the buttons in the area (T1) of the console.

Please refer to the document:

- **86954948 : HPC DIGITAL PROCESS HPi**
- **86954944 : HPC DIGITAL PROCESS II**
- **86954995 : HPC DIGITAL PROCESS III**

HPC DIGITAL PROCESS II

HPC DIGITAL PROCESS III

2 - ADJUSTMENTS

2.1 PROCESS PARAMETER ADJUSTMENT

Process parameters can be adjusted from the UI in the sections relating to oxycutting.

Please refer to the document:

- **86954948 : HPC DIGITAL PROCESS HPi**
- **86954944 : HPC DIGITAL PROCESS II**
- **86954995 : HPC DIGITAL PROCESS III**

The torches have valves for adjusting the heating flame. See the torch documentation.

The torches are adjusted as follows:

- Open the heating O2 valve fully
- Open the Fuel open valve to approximately a quarter turn
- After the flame is ignited, adjust only the fuel valve to obtain a 'neutral' flame.

The part program particularities (size and location of striking, cutting quality etc.) also influence cutting quality. The post-processor must comply with the recommendations of **LINCOLN ELECTRIC**.

2.2 TOOL HOLDER HEIGHT

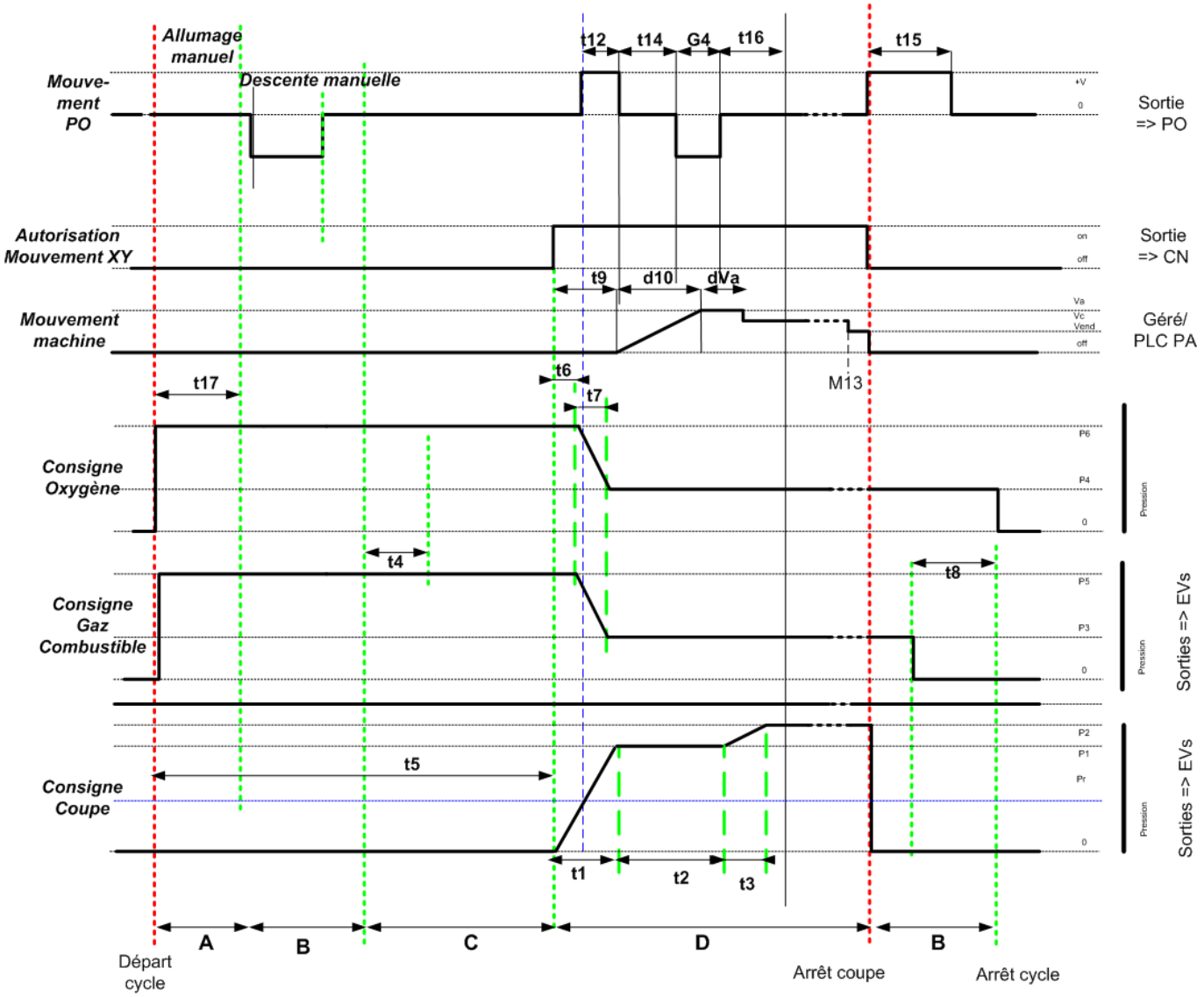
See specific documentation of tool holder

3 - GAS SUPPLY CHANGE

When the gas supply is changed (cylinder change, for example), we recommend the following:

- Shut the cylinder to change
- For the heating oxygen and fuel, make the torch operate for heating till the low-pressure alarm appears
- For cutting oxygen, use the manual cutting gas test control till the pressure in the pipe is low.
- Press the emergency stop button
- Change the cylinder in accordance with the supplier's recommendations.
- Check that there is no dust or pollution, particularly on the oxygen line (risk of ignition)
- Check that there is no leak after each cylinder change.

4 - CYCLE



Above is a cycle for a machine with the ignition and sensing options deactivated

A	Ignition phase
B	Heating phase; torch down to drilling height
C	Overheating phase: sheet piercing. This stage does not exist with sheet-edge starts.
D	Cutting stage: the cutting pressure increases gradually (no step in the case of sheet edge) and it moves from overheating pressure to heating pressure. Then the XY movement starts.

At the end of the cut, if the program is not completed, heating resumes up to the next strike (B). At the end of the part program, the torch goes out.

F - MAINTENANCE

1 - SERVICING

- So that the machine continues to provide good service for as long as possible, a certain minimum of care and maintenance is necessary
- The frequency of this maintenance work is given on the basis of the production of one work station per day. Maintenance should be more frequent if production is greater.

Your maintenance department may photocopy these pages so that it can follow up maintenance dates and operations (tick as appropriate)

Monthly		
Date of maintenance : / /		
		- Check that the gas circuit operates properly: pressure gauge, pressure regulator, electrovalve, valve, couplings, etc. Note : any piping showing the slightest signs of fatigue, wear, damage, should be replaced by a standard identical pipe.
		- Check the condition of all the electrical cables, especially near the torches and in the cable support chain (change them if required). Check that electrical wires are tightened.
		***FILTRE CIRCUIT GAZ*** Dust in the filters reduce the available output and can lead to explosions. Clean the filter with non-greasy degreasing agent**.** Read the safety data sheet carefully and take all the steps indicated Dry well afterwards. Before reassembly, apply either “1000 bulles” leak detector or soapy water on the plug thread. **Never use a greasy substance (such as oil or grease).**

We recommend replacing the pipes
- at the first sign of fatigue, wear and tear or damage
- no later than after every 3 years by the user in case of heavy-duty use,
- no later than after every 5 years in all other cases.

We recommend replacing the flame arrester non-returns:
- As soon as flame return occurs
- No later than after three years of use.

Caution:

Follow the rules below if a pipe or valves are replaced:

- **Use the spare parts recommended in this documentation.**
- **The pipes are standardised (colour, composition); they must be replaced by identical pipes. Gas pipes MAY NOT BE REPAIRED.**
- **The fittings must be changed, as they may be damaged while changing the pipes.**
- **Fittings must be degreased and cleaned of dust before assembly: risk of explosion.**
- **To change a valve on the unit, first take the line off its support, then take the valve off the line.**
- **Olive type fittings are screwed on directly.**
- **Adhesive must be applied on other fittings and valves. The adhesive must be compatible with oxygen. Risk of explosion.**
- **If acetylene is being used, tighten the fittings to standardised torque according to the diameter (please contact us). Risk of leaks and fire.**
- **The pipes in the cable drag chains many not be under strain, as that could lead to premature wear.**
- **A leak test (e.g. with 1000 bulles bubble leakage tester) must be carried out after each repair operation. Risk of explosion.**

Caution:

Whenever a flame arrester non-return is faulty, it must be replaced. No cutting without anti-return. Risk of explosion and fire.

2 - TROUBLESHOOTING

2.1 Electrical problems

Reminder: all work is to be carried out by approved and trained personnel

See the description of faults in the oxy cutting instructions.

Please refer to the document:

- **86954985: Essential oxy cutting**
- **86954990: HPi² oxy cutting**

2.2 Explanation of alarms

See the description of alarms in the oxy cutting instructions.

Please refer to the document:

- **86954985: Essential oxy cutting**
- **86954990: HPi² oxy cutting**

2.3 Other faults

Fault	Probable causes	Possible remedies
The tool-holder does not move	The torch has not been selected Lower limit switch (UI alarm) Probe impact (UI alarm) Upper limit switch (no alarm)	Select the torch manually Correct the fault and set the tool holder position if required. Correct the fault and clear the alarm Correct the fault and set the tool holder position if required.
Two torches cannot be selected	The two torches are not identical (type, probe)	Select two identical torches
Cutting cannot be started	Lack of extraction or ineffective extraction Air pressure too low	Start/clean the extraction before cutting Open the air valve or start the compressor
Cutting is not correct	Several possible causes.	Refer to the process training manual
Loss of gas pressure from a torch	Head loss due to non-return Cylinder empty	Change the non-return above the torch. Change the cylinder

3 - SPARE PARTS

How to order

The photos or sketches identify nearly every part in a machine or an installation

The descriptive tables include 3 kinds of items:

- **those normally held in stock:** ✔
- **articles not held in stock:** ✘
- **those available on request: no marks**

(For these, we recommend that you send us a copy of the page with the list of parts duly completed. Please specify in the Order column the number of parts desired and indicate the type and the serial number of your equipment.)

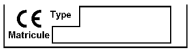
For items noted on the photos or sketches but not in the tables, send a copy of the page concerned, highlighting the particular mark.

For example:

✔	normally in stock
✘	not in stock
	on request

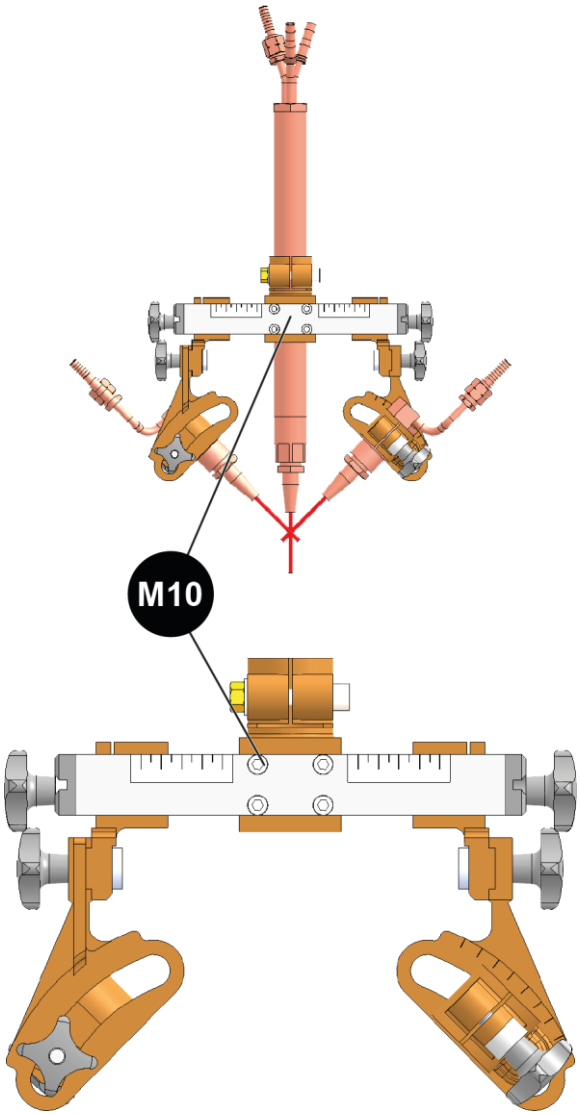
Item	Ref.	Stock	Order	Designation
1	W000XXXXXX	✔		Machine interface board
2	W000XXXXXX	✘		Flowmeter
3	9357 XXXX			Silk-screen printed front panel

- For parts order, give the quantity required and put the number of your machine in the box below.



TYPE :
Number:

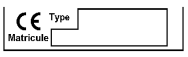
3.1 - TORCH ADJUSTMENTS



✔	normally in stock
✘	not in stock
	on request

Item	Ref.	Stock	Order	Designation
M10	P06931010			Straight bevelling block assembly

➢ For parts order, give the quantity required and put the number of your machine in the box below.



TYPE:
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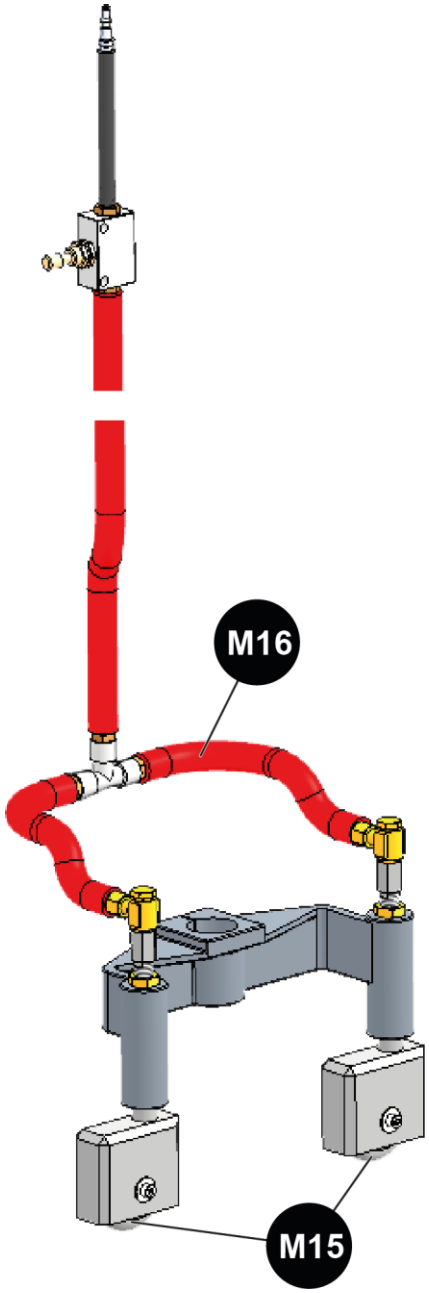
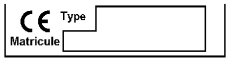
3.2 TRAKING ROLLERS



✔	normally in stock
✘	not in stock
	on request

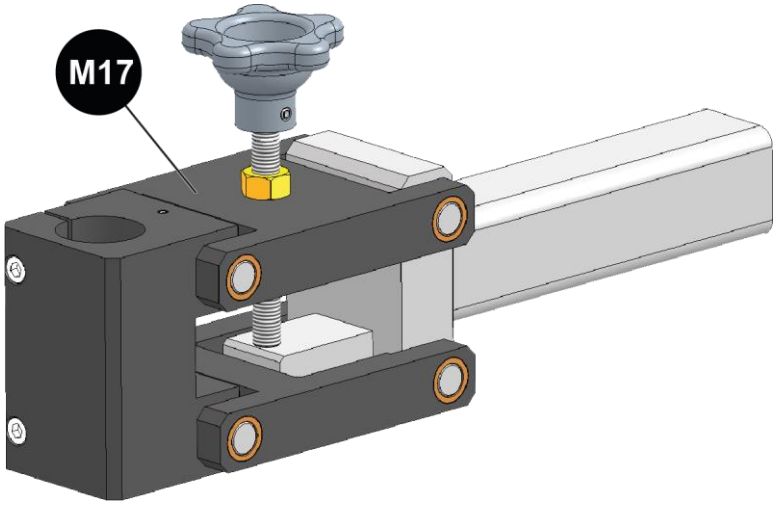
Item	Ref.	Stock	Order	Designation
M15	W000400422			Roller assembly
M16	W000400423			Roller cooling assembly

➢ For parts order, give the quantity required and put the number of your machine in the box below.



TYPE:
Number:

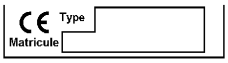
3.3 - MECHANICAL TRACKING



✔	normally in stock
✘	not in stock
	on request

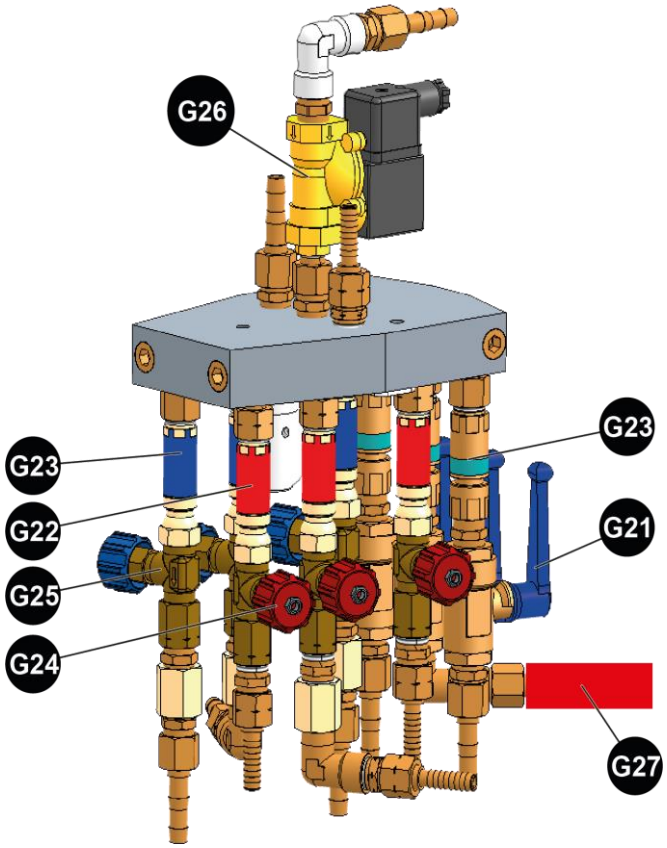
Item	Ref.	Stock	Order	Designation
M17	W000400424			Mechanical tracking assembly

➢ For parts order, give the quantity required and put the number of your machine in the box below.



TYPE:
Number:

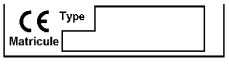
3.4 - GAS SUPPLY



✔	normally in stock
✘	not in stock
	on request

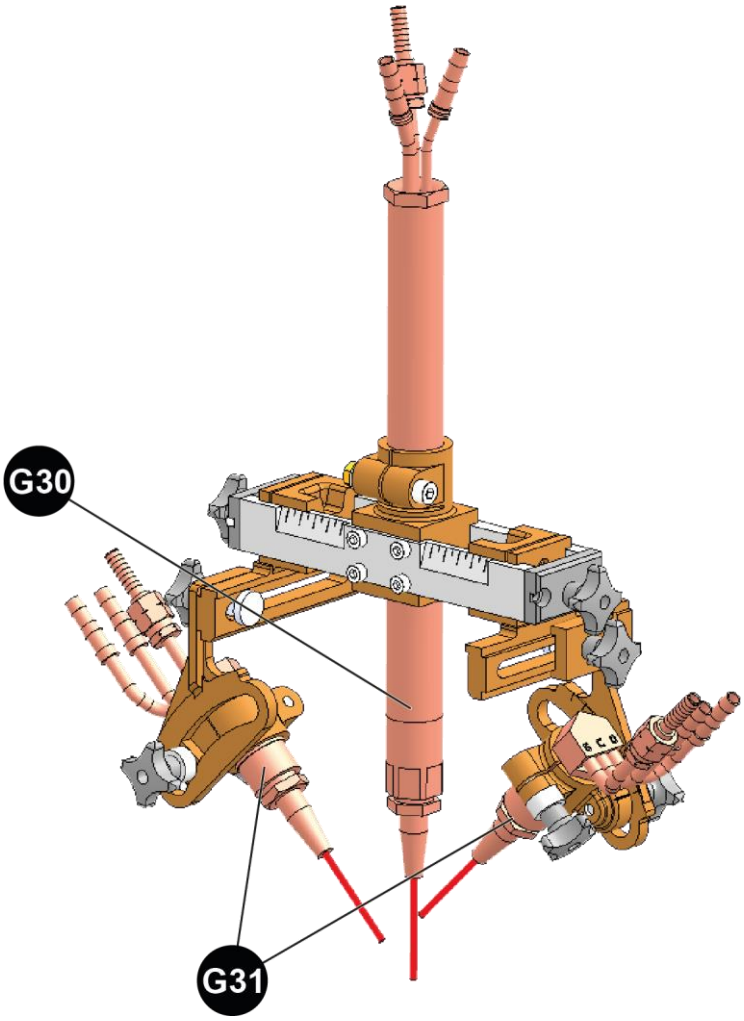
Item	Ref.	Stock	Order	Designation
G20	W000374692			O2 cutting ARPF HP MACH
G21	W000277208			Pipe valve blue, DF 12X17
G22	W000290913			FBA FG 3-8 MG 3-8 FG
G23	W000290626			FBA 662 BLW O 35MC SPS IN G3-8
G24	W000373220			Gas valve, 3/8”
G25	W000373218			Oxygen valve, 3/8”
G26	W000381940			Solenoid valve, 3/8” 3/8” oxygen
	W000400425			Solenoid valve electrical bundle
G27	W000400426			Protective sleeve (6 m)

➢ For parts order, give the quantity required and put the number of your machine in the box below.



TYPE:
Number:

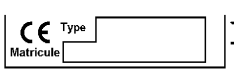
3.5 - TORCHES



✔	normally in stock
✘	not in stock
	on request

Item	Ref.	Stock	Order	Designation
G30	P07021805			Short torch
G31	P07021817			Long torch

➢ For parts order, give the quantity required and put the number of your machine in the box below.



TYPE:
Number:

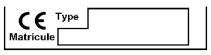
3.6 - CONSUMABLE SUPPLIES

G1 nozzles

✔	normally in stock
✘	not in stock
	on request

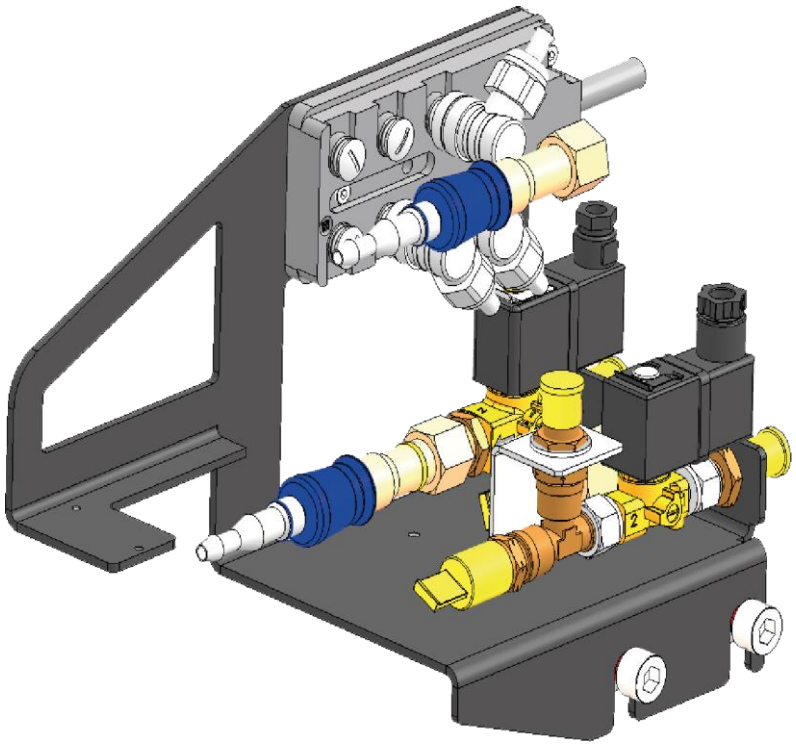
Item	Ref.	Stock	Order	Designation
	AS-CW-A-1586			G1 special VXK A - size 10/10 - Thickness 10-25
	AS-CW-A-1587			G1 special VXK A - size 12/10 - Thickness 25-50
	AS-CW-A-1588			G1 special VXK A - size 16/10 - Thickness 50-80
	AS-CW-A-1589			G1 special VXK A - size 20/10 - Thickness 80-120

- For parts order, give the quantity required and put the number of your machine in the box below.



TYPE :
Number :

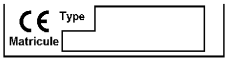
3.7 - QUICK ACTION COUPLINGS FOR TORCHES (in the case of the « quick change » option)



✔	normally in stock
✘	not in stock
	on request

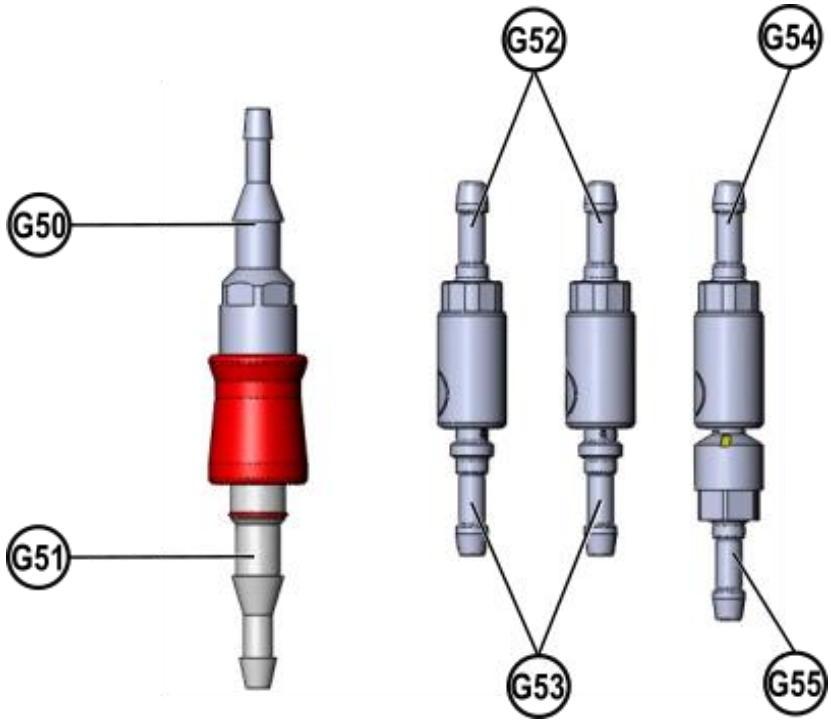
Item	Ref.	Stock	Order	Designation
G40	W000011010			Coupler, QC F OX G3/8
G41	W000011004			Coupler, QC M OX 6.3 -10
G42	W000011011			Coupler, QC F GC G3/8
G43	W000011005			Coupler, QC M GC 6.3 -10

➢ For parts order, give the quantity required and put the number of your machine in the box below.



TYPE:
Number:

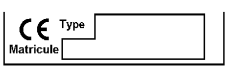
3.8 - QUICK ACTION COUPLINGS FOR PROBE AND IGNITOR (in the case of the « quick change » option)



✔	normally in stock
✘	not in stock
	on request

Item	Ref.	Stock	Order	Designation
				Ignitor
G50	W000011002			Coupler, QC F GC 6.3 -10
G51	W000011005			Coupler, QC M GC 6.3 -10
	W000400427			Ignitor electrical bundle
	W000401119			Pilot flame electrical bundle
				Probe cylinder
G52	W000401124			Fitting, RBE 03.1806/DOWN
G53	W000401126			Fitting, RBE 03.6806/DOWN
G54	W000401127			Fitting, RBE 03.1806.0 YELLOW/UP
G55	W000401128			Fitting, RBE 03.6806.0 YELLOW/UP
	W000401123			Probe electrical bundle
				Probe cooling
G52	W000401124			Fitting, RBE 03.1806
G53	W000401126			Fitting, RBE 03.6806

➢ For parts order, give the quantity required and put the number of your machine in the box below.



TYPE:

Number:

PERSONAL NOTES

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