OPTIONAL HPi OXYCUTTING SENSING SYSTEM

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

INSTALLATION N° 0705 4649NG

EDITION : EN
REVISION : B
DATE : 02-2019

Instructions for use

REF. :**8695 4182**

Original instructions

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.

CONTENTS

INFORMATIONS

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.

REVISIONS

REVISION B **02/19**

DESIGNATION	PAGE
To change logos	

A - SAFETY INSTRUCTIONS

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

- The movement of the probe is driven by compressed air. As a result, the air supply must be switched off before starting work on the probe, to avoid any accidental movements.

- NEVER replace compressed air with another gas (oxygen, fuel). Risk of explosion or fire.

B - DESCRIPTION

This option allows:

- an automatic cycle to be carried out by detecting the steel sheet (stops tool-holder lowering)
- the distortions of the steel sheet to be followed during cutting
- the torch to be protected by stopping the machine in the event of impacts during a displacement when no cutting is in progress (torch impact)
- the probe and the pilot flame to be removed if the ignition option is installed

1 - SPECIFICATIONS

This option is designed to be interfaced with the HPI oxycutting process (see ISUM 8695 4180). It may not be fitted on a VXK installation.

2 - COMPOSITION

The optional equipment includes:

- A probe ring
- A PCB for sensing acquisition
- A pneumatic cylinder for raising/lowering the probe and pilot (if present)
- The pneumatic directional valve and the associated piping in the machine.

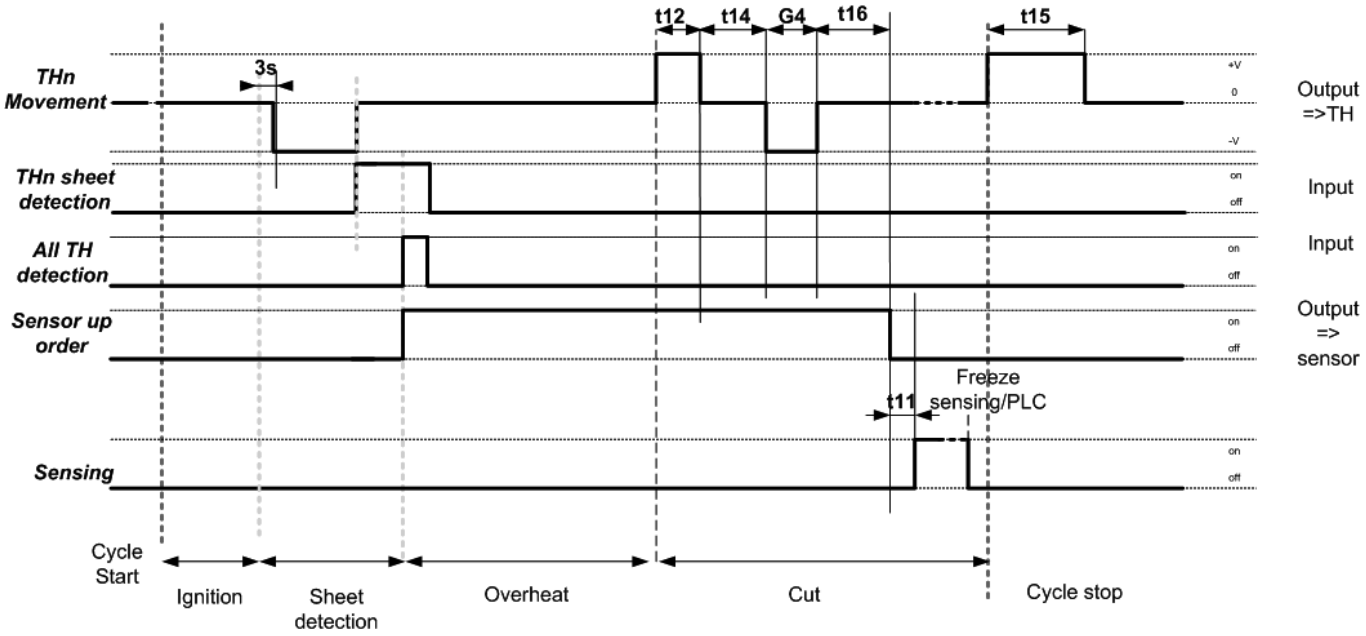
C - OPERATOR MANUAL

1 - CONTROLS

There are no specific controls for this option.

All the user interface controls are available in the instructions 8695 4948, in the sections relating to internal oxycutting.

The cycle is as follows when the program is executed:



The cycle is only active if the probe is declared for the torch.

Sheet detection is active even when sensing is disabled.

Sensing may be disabled or re-enabled at any time for a torch during the cutting.

<u>In manual mode (gas controls from the UI):</u>

- The probe goes down automatically upon starting up, so that the pilot is in the right position
- The probe goes back up at the start of overheating.
- Sensing during cutting is available from a UI control.

<u>Sheet edge mode</u>

For thick material, cutting starts from the edge of the sheet. The tool holder cycle is identical; however, special sheet-edge detection should be set in the process parameters.

2 - ADJUSTMENTS

2.1 SENSING HEIGHT WHILE CUTTING

While cutting, it is possible to modify the height of each torch. To do so, use the buttons in the area (T1) of the console.

These corrections are specific to each torch and are applied to subsequent cuts.

An adjustment in the setup (activated by default) makes it possible to apply the cutting height correction to the sensing height.

All height corrections can be reset in the Sensing band.

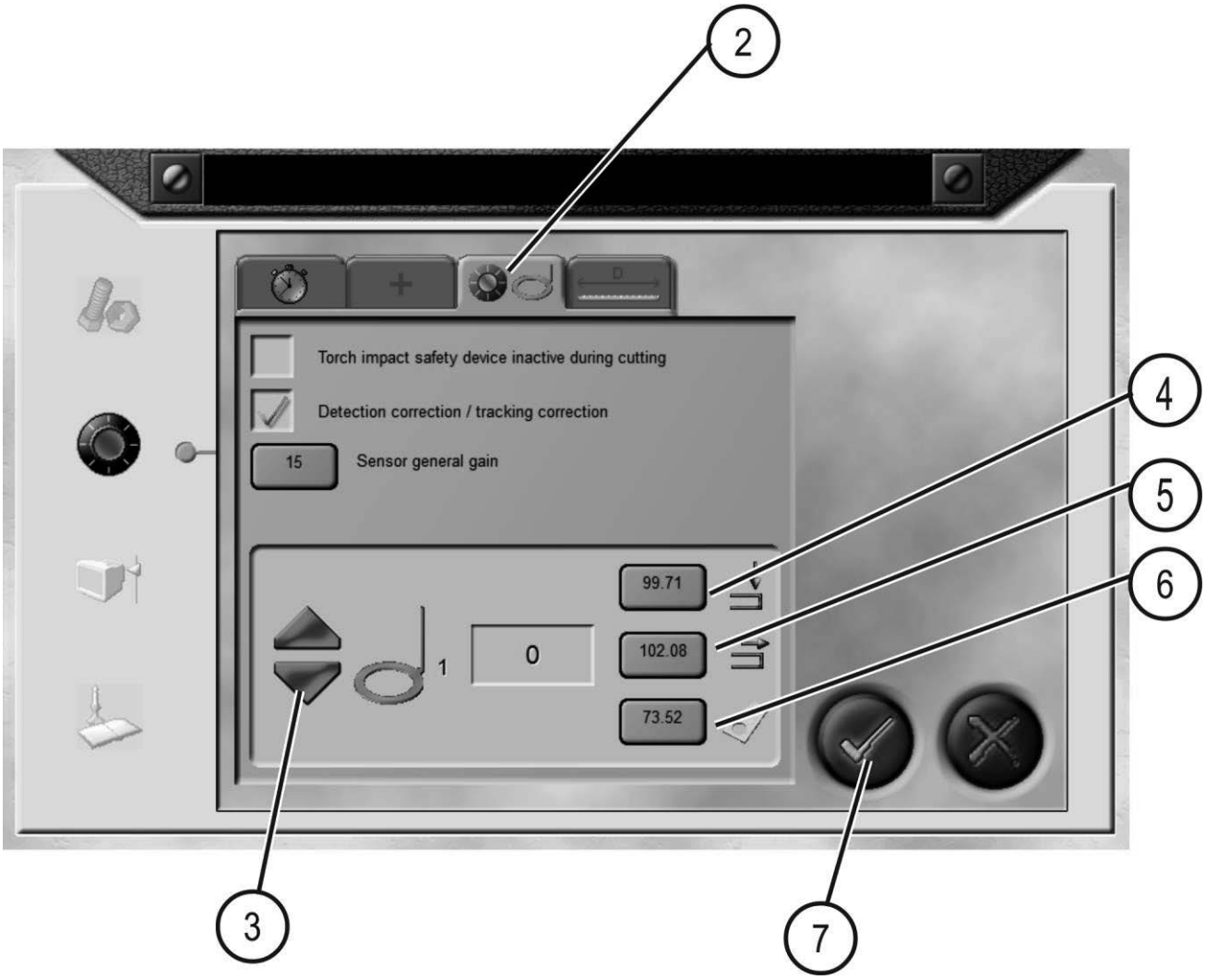
See the document 8695 4948 for more information about the UI.

2.2 CALIBRATION

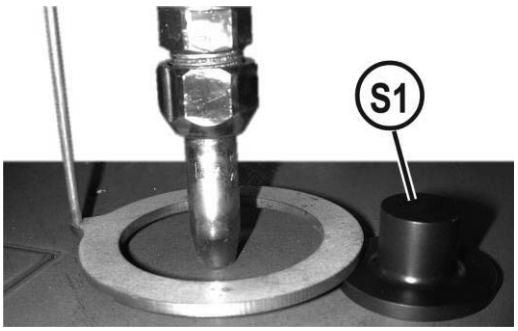
If the measurement of a probe has varied considerably over time in relation to the initial settings (see value for information on the following page), the probe can be recalibrated from the UI. Adjustment personnel must have electricity approval for such work.

- First of all, go to user level 2 (or above) of the UI
- Then, in the first tab, go to Setup, then Machine, then press Oxy (1) in the screen below:

- An adjustment screen will appear; press the third tab (2) to make the screen below appear:

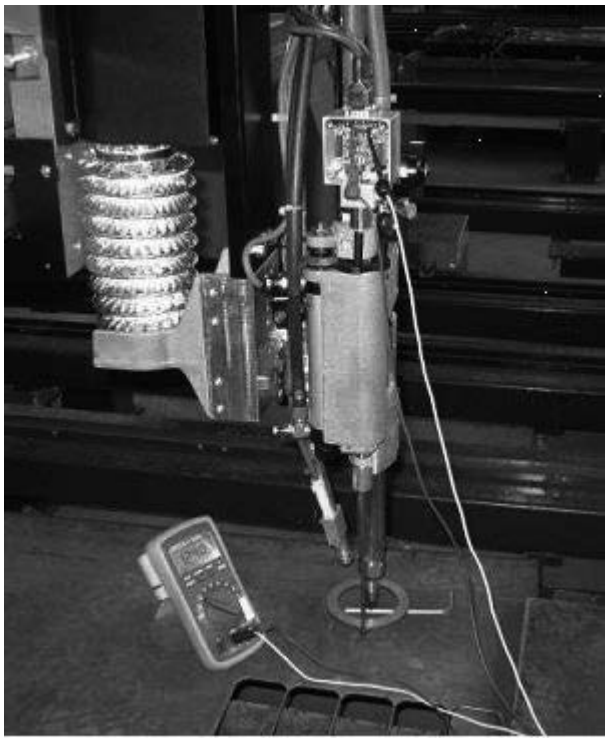


- Then select the number of the torch to adjust (3)
- Put the nozzle in contact with the sheet using the buttons T1, then press the emergency stop.

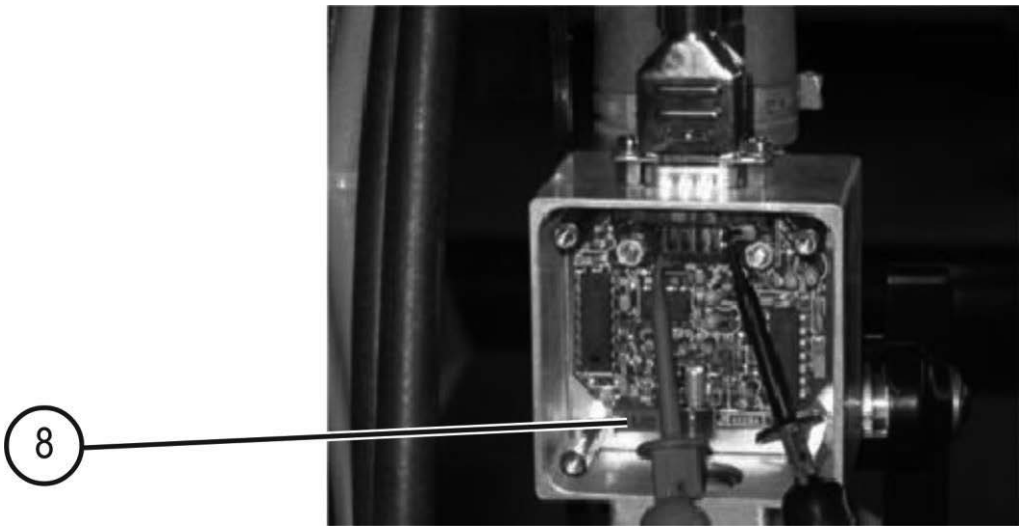


- Set the probe ring with the spacer S1 and mechanically adjust the probe to leave 5mm between the probe and the sheet, over the entire probe
- Switch the power back on.

Set a 5mm hex key under the nozzle, slowly lower the nozzle up to contact and remove the key.



- Open the probe housing and then set the potentiometer (8) (see below) to have 0V in that position; you can also look in the UI adjustment parameters, on the torch to adjust: 0V corresponds to the value 100.



- Press the button (4) ; the value of the probe is then displayed in the button. It corresponds to a detection height of 100 (or a 50% setting or 5mm)
- Then, for the previous height of 5mm, set the torch 2cm inside the edge of the sheet. The value displayed is approximately 105
- Press the sheet-edge detection button (5) for each tool holder. The value is then displayed in the button.
- Then set the torch to the probe impact height (touch the sheet, in slow speed) and press the Probe impact button (6). The value is then displayed on the button. It is generally less than 80.
- Lastly, use the emergency stop and validate the setup. (7)

For the other UI setup options, see the document 8695 4948.

D - MONTAGE-INSTALLATION

1 - CONDITIONS OF INSTALLATION

THE FOLLOWING CONDITIONS MUST BE COMPLIED WITH BEFORE INSTALLING THE EQUIPMENT

PNEUMATIC SUPPLY			
A compressed air source (cutting gas) equipped with a regulator capable of supplying the recommended flow rates and pressure must be provided. The air must be clean and free of oil and grease. AIR QUALITY CLASS: as per standard ISO 8573-1			
Solid pollutant class	Class 3	Particle size 5µm	Mass concentration 5mg/m^3
Water class	Class 3	Max. dew point under pressure –20^{0}C	
Total oil class	Class 5	Concentration 25 mg/m^3	
	Supply pressures	**Maximum pressures**	**Fully flow rates used m3/h**
	6 Bar	8 Bar	6

LAYOUT OF CABLES AND FLEXIBLE PIPES

⇒ The customer should provide the means for supporting and keeping away from mechanical, chemical, or thermal damage, the cables and flexible pipes from their source to the entry of the cable support chain.

Connect the compressed air pipe to the filter located on the side of the electric unit on G42

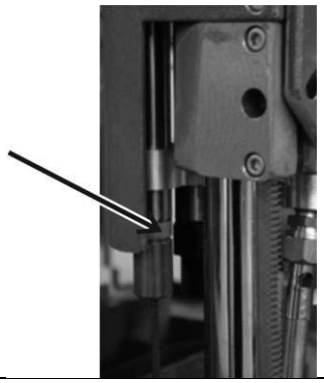
For the probe to work, the job must imperatively be connected to the machine mass.

E - 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)

DAILY		
		**WITH OPTIONAL CAPACITIVE PROBE** Clean the insulator. 
		Clean the probe foot everyday tapping it slightly to remove the slag.
		More frequent cleaning will be necessary when metal sheets with a protective coating are being cut.
		IN ANY CASE, cleaning is required as soon as the torch-holder starts to "sway"

DISMOUNTING

- Unscrew the side fixing screw of the ring-holder rod.

- Remove the ring and its rod from the sleeve.

CLEANING

- Put the ring upside down (rod downwards) on the edge of a flat surface (edge of a metal sheet to be cut for example) so that it lies flat.

- Hammer slightly the polluted surface of the ring with the rounded end of a small hammer in order to detach all the slag, without deteriorating the active surface of the ring.

- Rub the surface of the ring with the flat side of the hammer to remove the slag.

- Wipe the ring with a dry cloth.

REASSEMBLY

- As dismounting in reverse order.

- Make sure:

. to centre the ring properly in relation to the torch,

. to position the ring at the correct height
(5 mm above cutting nozzle)

. to check that the active face is parallel to the worksite.

For protection:

In order to decrease the frequency of and to facilitate cleaning, you may coat the active surface of the ring with an anti-adhesive agent

2 - TROUBLESHOOTING

Sensing is provided by a capacitive probe, which can be disturbed by the slag deposited there.

The first maintenance level is thus daily probe maintenance.

If probe measurements are incorrect following an impact or wear and tear, it can be recalibrated in the UI from the UI level 2. (see Adjustments section)

If the probe sends incongruous values, check the ground connection of the job and that the sheet is not insulated from the probe or job (plastic film etc.)

Adjusting the heating flame:

The size of the heating flame has an influence on the sensing height.
A long flame (more fuel) raises the sensing height.
A short flame (more oxygen) lowers the sensing height.

Sheet 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)
- If the cutting tool suddenly moves up and away from the sheet undergoing oxycutting, then the probable cause is that the sheet is being overheated excessively.

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.

WORKING WITH A WATER CONTAINER :

When the machine cuts parts that are immersed in water or at its surface (sheet in contact with water, generally when the presence of water disturbs the height measurement) sensing may not work due to the great change in the capacitive values that enable tracing.

Alarms:

If there is an alarm about sensing on the UI, please refer to the documentation 8695 4180

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.)

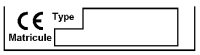
For items noted on the photos or sketches but not in the tables, send a copy of the page concerned, highlighting the particular mark.

For example:

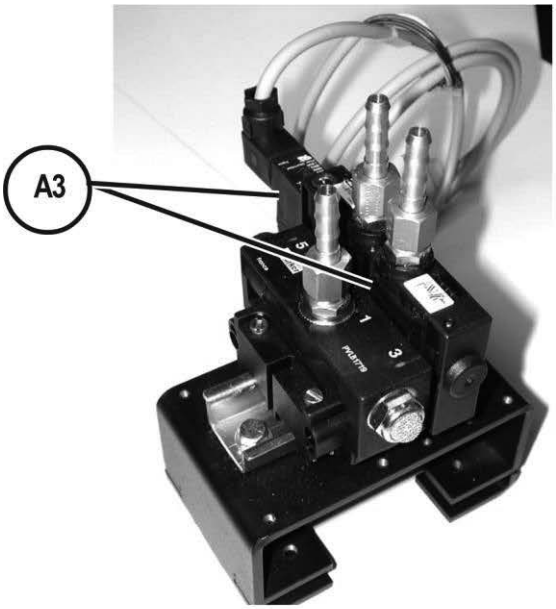
✔	normally in stock
✘	not in stock
	on request

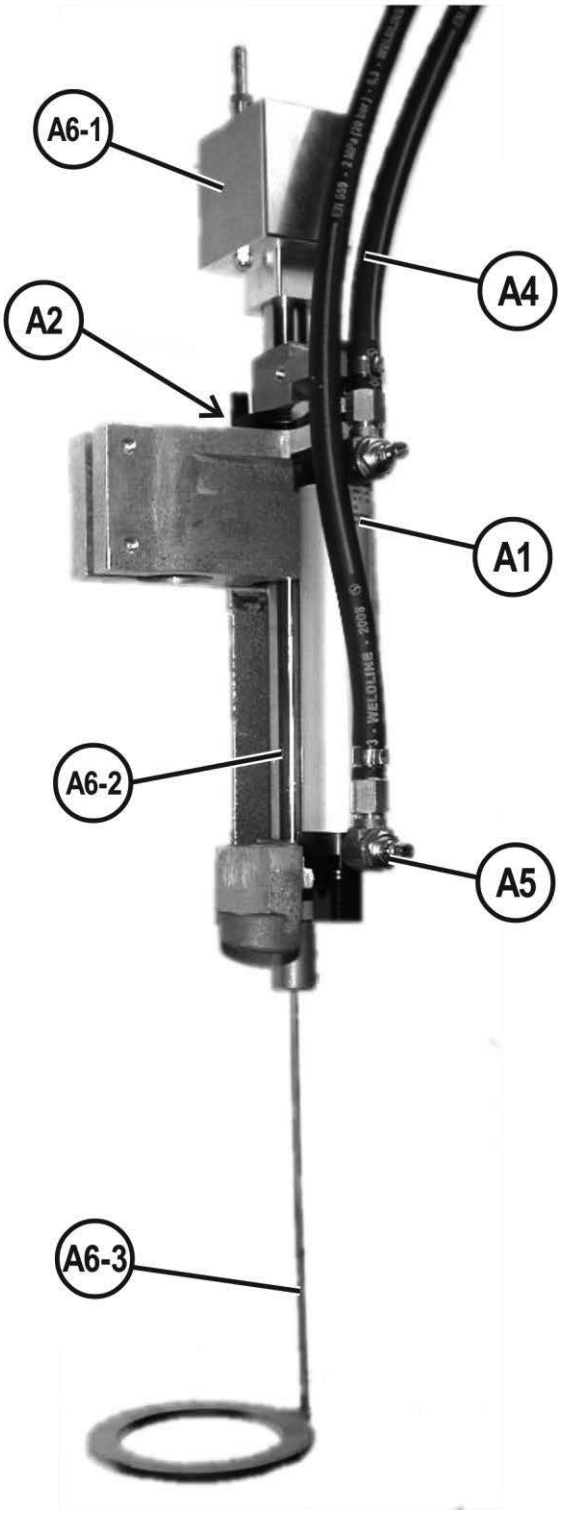
Item	Ref.	Stock	Order	Designation
1	W000XXXXXX	✔		Machine interface board
2	W000XXXXXX	✘		Flowmeter
3	9357 XXXX			Silk-screen printed front panel

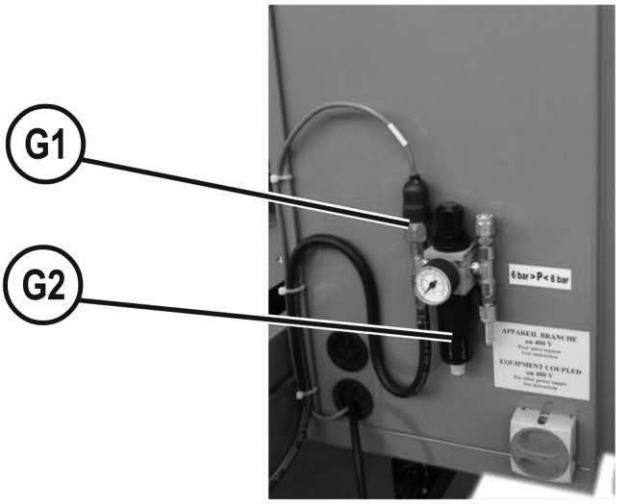
- For parts order, give the quantity required and put the number of your machine in the box below.



TYPE:
Number:


A3

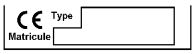

A6-1
A4
A2
A1
A6-2
A5
A6-3


G1
G2
6 bar > P < 8 bar

✔	normally in stock
✘	not in stock
	on request

Item	Ref.	Stock	Order	Designation
G1	W000365846	✔		Pressure switch
G2	W000365982	✔		Filter.
A1	W000139115	✔		C25 AS100 cylinder
A2	W000381946	✔		20/32x45 J ball bush
A3	W000366289	✔		5/2 1/8"directional valve + 24 V 50Hz solenoid valve
A4	W000010072	✔		Compressed air pipe/m
A5	.590 3005			Banjo coupling
A6	W000265268	✔		Probe assembly
A6-1	-			Housing
A6-2	-			Probe
A6-3	W000139108			Probe ring

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



TYPE :
Number:

Parts A6-1 and A6-2 (0703 4535) should not be separated.

PERSONAL NOTES

Lincoln Electric France S.A.S.
Avenue Franklin Roosevelt 76120 Le Grand Quevilly
76121 Le Grand Quevilly cedex
www.lincolnelectriceurope.com