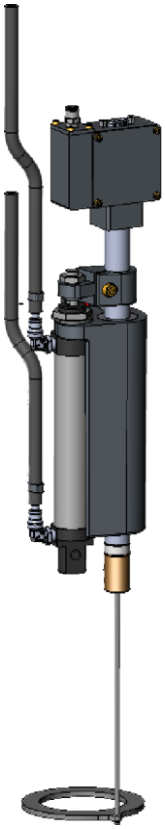
OXY SAFE PIERCING OPTION

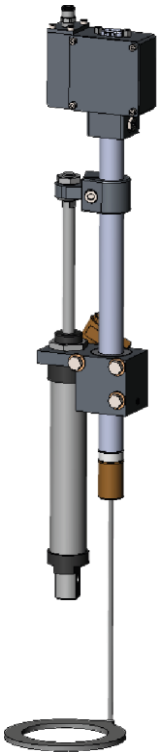
SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

INSTALLATION N°

P07085085NG => ESSENTIAL



P07085210NG => HPi



EDITION : EN
REVISION : E
DATE : 03-2024

Instructions for use

REF. : **8695 4187**

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

86954944 : **HPC DIGITAL PROCESS II**

86954995 : **HPC DIGITAL PROCESS III**

REVISIONS

REVISION B **08/19**

DESIGNATION	PAGE
To change logos	-

REVISION C **09/19**

DESIGNATION	PAGE
Update (TM472)	18 - 19

REVISION D **09/21**

DESIGNATION	PAGE
Add **HPCIII**	

REVISION E **03/24**

DESIGNATION	PAGE
Update	

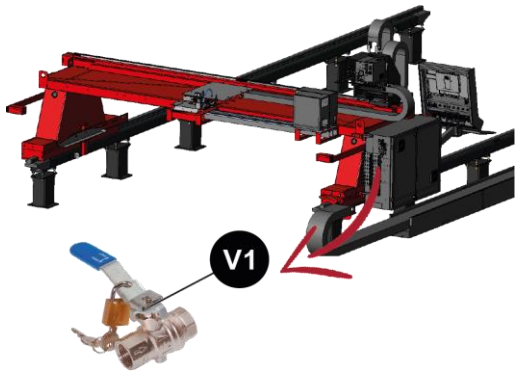
A - SAFETY INSTRUCTIONS

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.

Pneumatic locking out:

Pneumatic locking out is achieved by means of the disconnecting valve « **V1** ».



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 **Essential** flame cutting method (see instructions 86954985) and **HPi** (86954990). It may not be fitted on a VXK installation.

2 - COMPOSITION

The optional equipment includes:

- A probe ring
- A PCB for sensing acquisition
- The air pipes in the machine.
- The pneumatic directional valve and the associated piping in the machine.

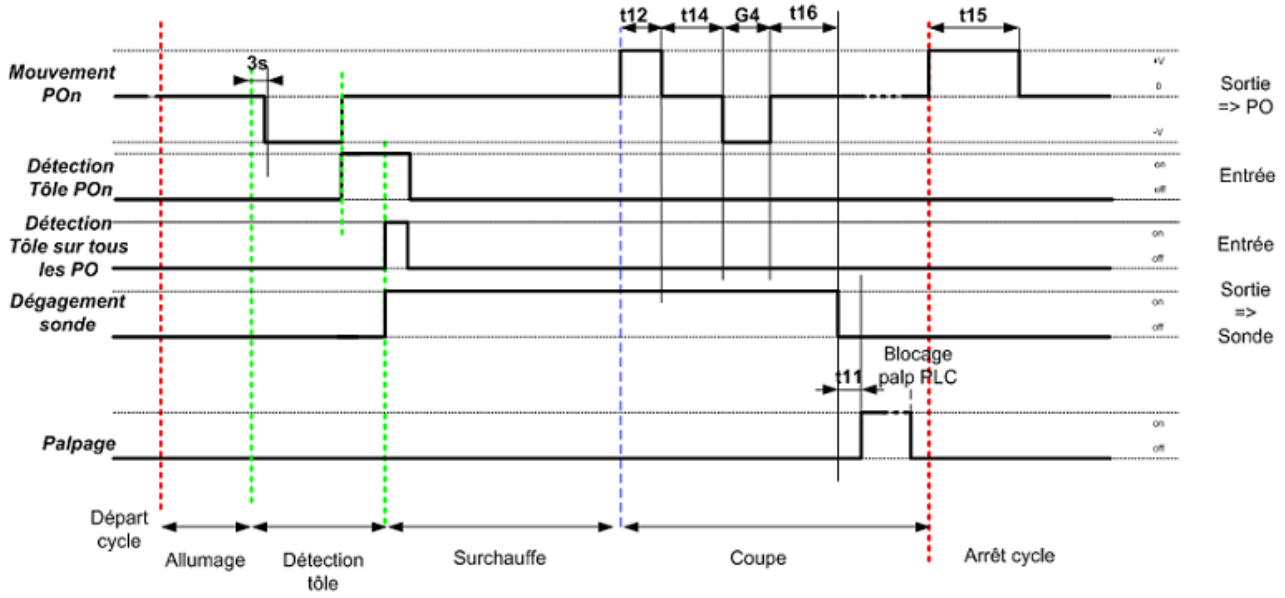
C - OPERATOR MANUAL

1 - CONTROLS

There are no specific controls for this option.

All the user interface controls are available in the instructions 86954944 or 86954995, in the sections relating to 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.

In manual mode (gas controls from the UI):

- 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.

Sheet edge mode

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.

Strike position:

The capacitive probe does not retract at the time of striking. In order to keep the probe from fouling very fast (after a few strikes), turn the strikes towards X+ so that the residues are removed towards the part where the probe is not present.

2 - ADJUSTMENTS

2.1 SENSING HEIGHT WHILE CUTTING

EUROTOME :
While cutting, it is possible to modify the height of each torch. To do so, use the buttons in the UI.
Please refer to the document :

- 86954944 => **HPC DIGITAL PROCESS II**
- 86954995 => **HPC DIGITAL PROCESS III**

OXYTOME :
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.

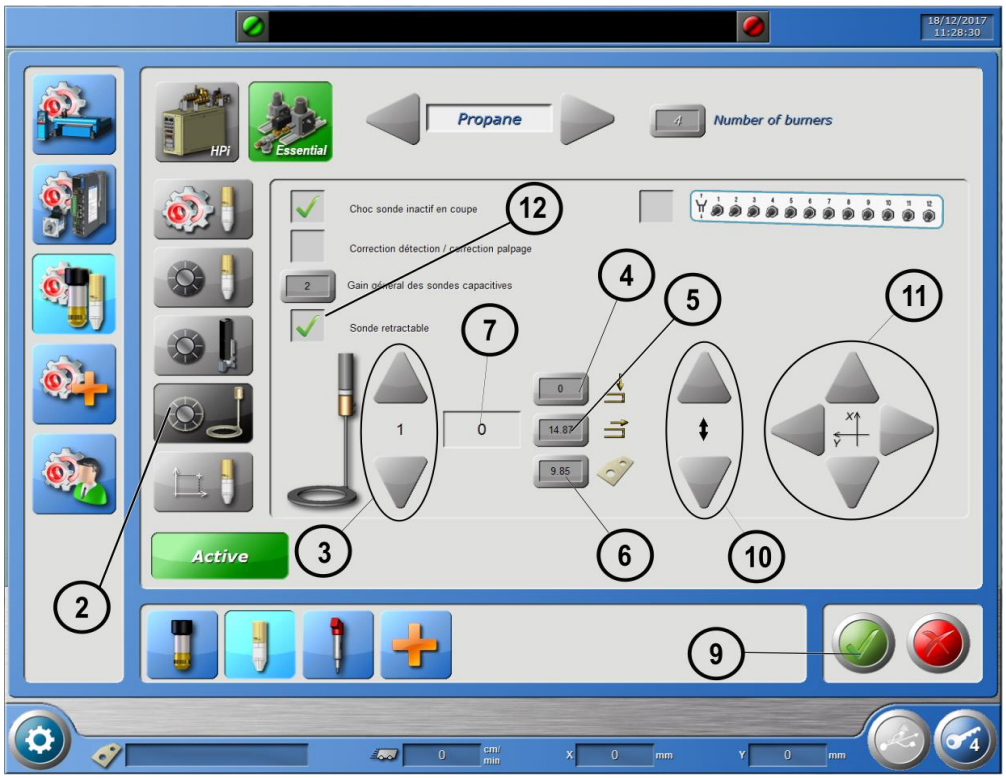
All height corrections can be reset in the Sensing band.

See the document 86954944 or 86954995 for more information about the UI.

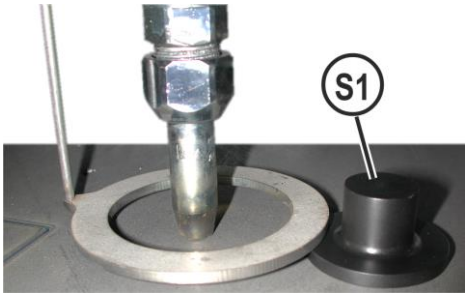
2.2 CALIBRATION => HPC DIGITAL PROCESS II

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 go to  , then  and 
- An adjustment screen will appear; press the third tab (**2**) to make the screen below appear:



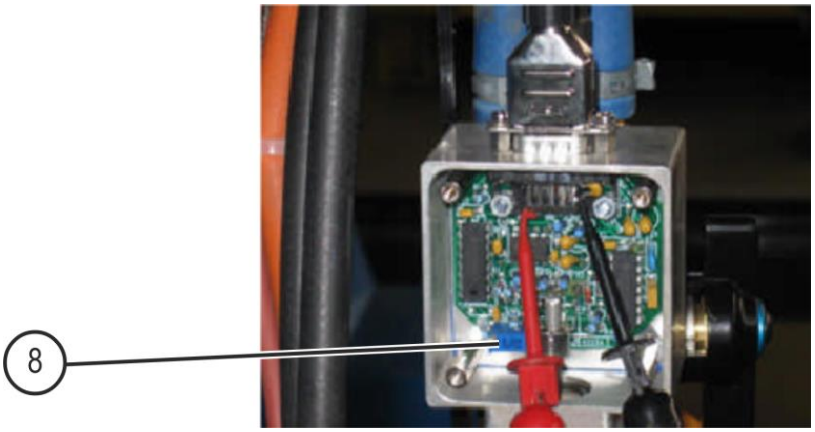
- Uncheck the checkbox “movable sensor” to avoid that the sensor get up on touch. Activate the emergency stop to validate the modification (**button 9**).
- Come back in the sensor setting screen ( , then  and ) and activate the machine power.
- Then select the number of the torch to adjust (**3**)
- **Buttons 10** allow to move up / down the tool holder at low speed. (**Buttons 10** are not available if the control can be done from the hardware panel).
- **Buttons 11** allow to move the machine. (**Buttons 11** are not available if the control can be done from the hardware panel).
-
- Put the nozzle in contact with the sheet using the buttons **T1** from the hardware panel if present, using **buttons 10** otherwise.



- 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

Set a 5 mm *(0,197")* 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 120 in that position (**7**).



- Press the button (**4**) ; the value of the probe is then displayed in the button. It corresponds to a detection height of 120 (**7**) (or a 50% setting or 5 mm *(0,197")*)
- Then, for the previous height of 5 mm *(0,197")*, set the torch 2 cm *(0,79")* inside the edge of the sheet. The value displayed is approximately 125.
- 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 105.
- Check the checkbox 12 if the option “movable sensor” is present.
- Lastly, use the emergency stop and validate the setup. (**9**)

For the other UI setup options:
Please refer to the document :

- 86954944 => **HPC DIGITAL PROCESS II**
- 86954995 => **HPC DIGITAL PROCESS III**

2.3 CALIBRATION => HPC DIGITAL PROCESS III

Please refer to the document :

- 86954995 => **HPC DIGITAL PROCESS III**

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 5 mg/m^3 *(0,0022 gr/ft^3)*
Water class	Class 3	Max. dew point under pressure –20 ^{0}C *(-4°F)*	
Total oil class	Class 5	Concentration 25 mg/m^3 *(0,011 gr/ft^3)*	
	Supply pressures	**Maximum pressures**	**Fully flow rates used m^3/h *(ft^3/min)***
	6 Bar *(87 PSI)*	8 Bar *(116 PSI)*	6 *(3,5 ft^3/min)*

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**.

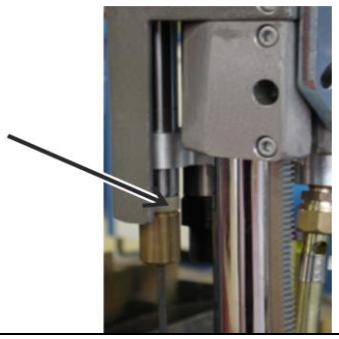
For the probe to work, the job must imperatively be connected to the machine mass.

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 *(0,197")* 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 *(4")*),
- nested closely
- with several torches set close to each other (e.g. 150 mm *(6")* - 500 mm *(20")*)
- 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.

Setting the cooling of the probe box:

The probe cooling is set by default at the factory to suit most conditions of use (Type A regulator open 2.5 turns [rep: A3]). Nevertheless, in the case of extreme use (high thickness cutting, high ambient temperature ...), it is advisable to open the Type A regulator with 4 turns.

Setting the speed of the probe movement:

The speed of the probe movement is set by default at the factory (Type B open regulators of 1.5 turns [rep: A4]). Depending on the number of sensors on the machine, it may be necessary to fine-tune the setting individually.

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 4985 or 8695 4990.

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.)

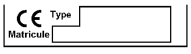
For items noted on the photos or sketches but not in the tables, send a copy of the page concerned, highlighting the particular mark.

For example:

✔	normally in stock
✘	not in stock
	on request

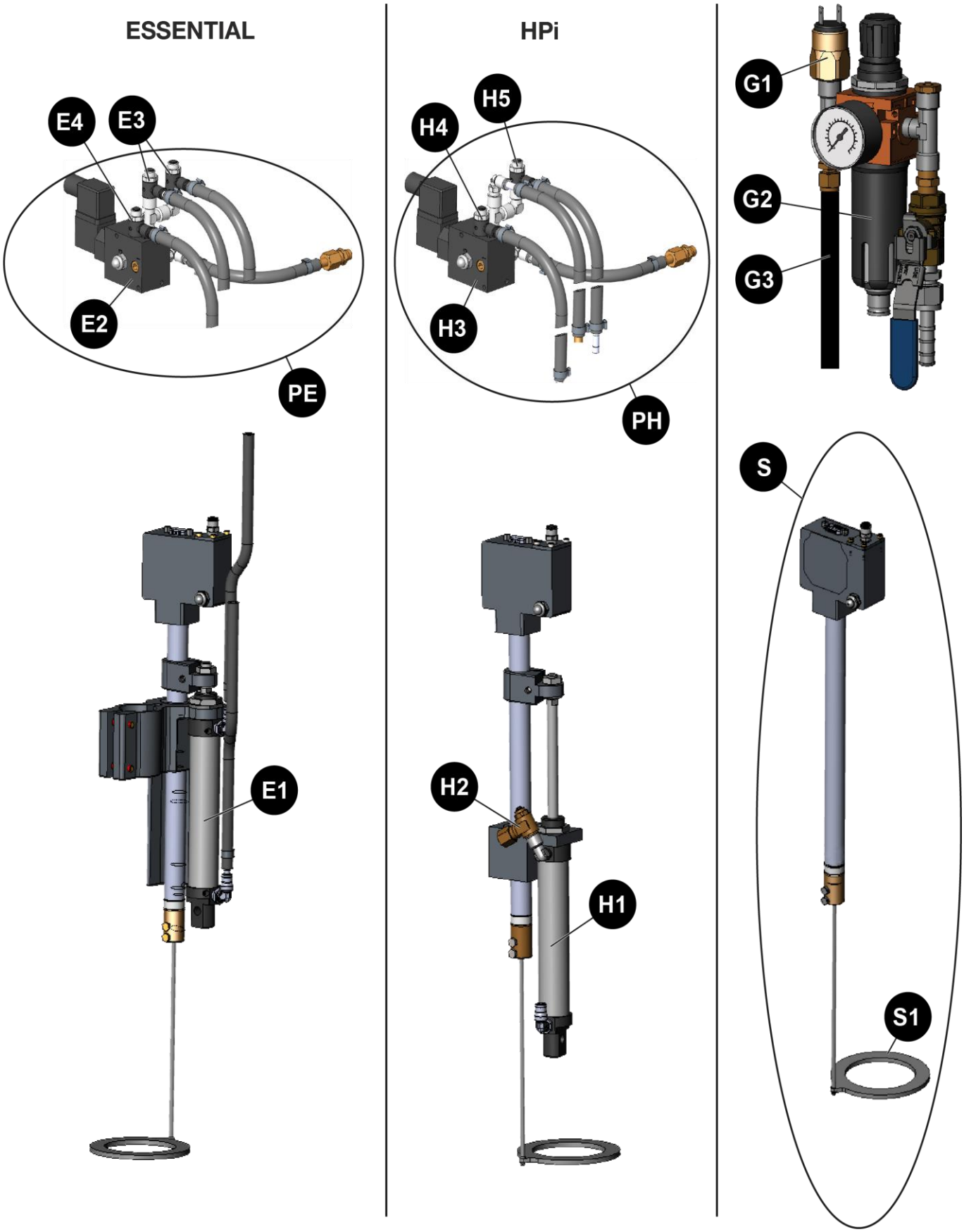
Item	Ref.	Stock	Order	Designation
E1	W000XXXXXX	✔		Machine interface board
G2	W000XXXXXX	✘		Flowmeter
A3	9357 XXXX			Silk-screen printed front panel

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



TYPE :

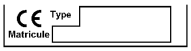
Number :


ESSENTIAL
HPi
E4
E3
E2
PE
H5
H4
H3
PH
G1
G2
G3
E1
H2
H1
S
S1

✔	normally in stock
✘	not in stock
	on request

Item	Ref.	Stock	Order	Designation
G1	W000365846	✔		Pressure sensor, 0-10 bar 1/4G *(SUCO VSE France : 0166-40703-2-027)*
G2	W000365982	✔		Regulator filter, 1/4G *(Metal Work : NEWDEAL 1225030)*
G3	W000010072	✔		Pipe, GN Ø6.3 - 20B - 40 m *(131 ft)* black
S	P07085086			Probe assembly
S1	W000139108	✔		Probe ring
	P07085085			Probing assembly « **ESSENTIAL** »
PE	P07085087			Probe pneumatic assembly « **ESSENTIAL** »
E1	W000139115	✔		Cylinder C25 AS100 *(Pneumax : 1260.25.100.AV)*
E2	W000374693	✘		4/2 1/8"directional valve + 24 V DC solenoid valve *(ASCO JOUCOMATIC : 26390002)*
E3	PC5902103			Flow regulator - Ø6 - 1/8 G *(PARKER HANNIFIN : 7010 06 10)*
E4	PC5902104			Flow regulator - Ø6 - 1/8 G *(PARKER HANNIFIN : 7011 06 10)*
	P07085210			Capacitive probe assembly « **MACH HPi** »
PH	P07085087			Probe pneumatic assembly « **MACH HPi** »
H1	W000139115	✔		Cylinder C25 AS100 *(Pneumax : 1260.25.100.AV)*
H2	PC5903005			Flow regulator - Ø8 - 1/8 G *(PARKER HANNIFIN : 7160 08 10)*
H3	W000374693	✘		4/2 1/8"directional valve + 24 V DC solenoid valve *(ASCO JOUCOMATIC : 26390002)*
H4	PC5902104			Flow regulator - Ø6 - 1/8 G *(PARKER HANNIFIN : 7011 06 10)*
H5	PC5902103			Flow regulator - Ø6 - 1/8 G *(PARKER HANNIFIN : 7010 06 10)*

➢ 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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