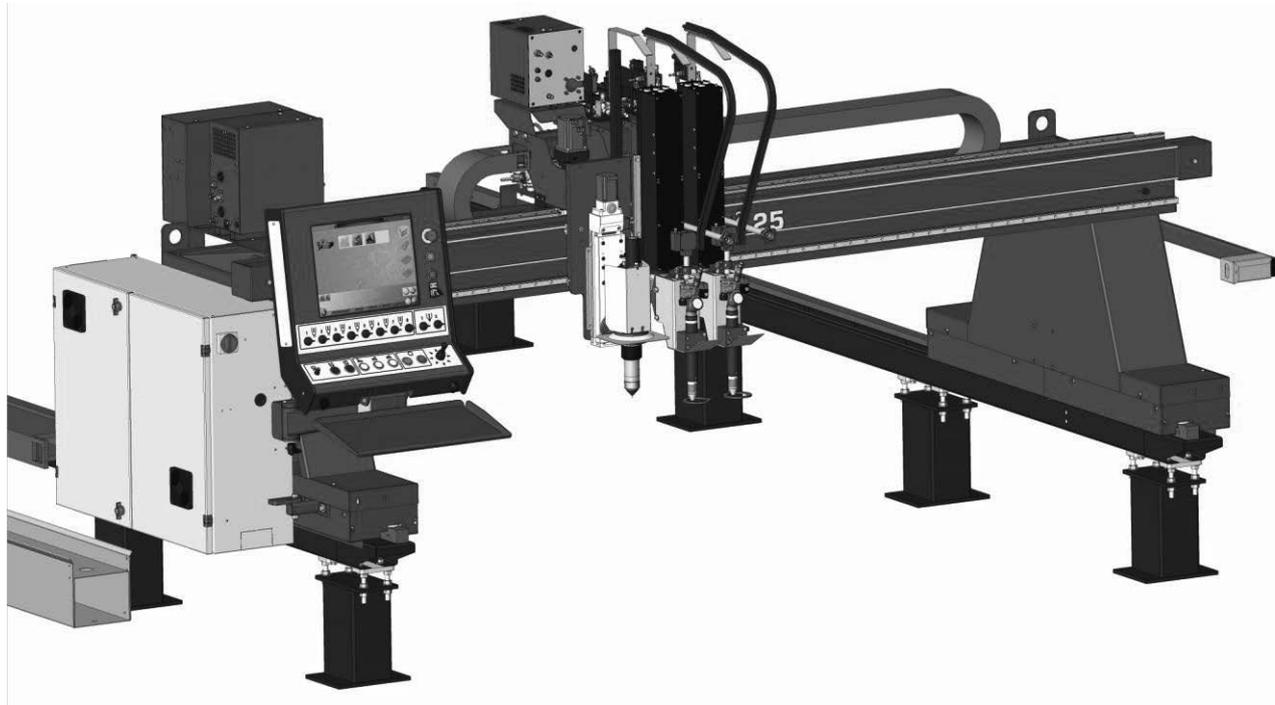


CUTTING MACHINE

OXYTOME²

PLASMATOME²

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE



EDITION : EN
REVISION : D
DATE : 03-2024

Instructions for use

REF : **8695 4186**

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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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

02/22

DESIGNATION	PAGE
Update + Addition HPCIII	

REVISION C

01/24

DESIGNATION	PAGE
Disconnecting valve added Modification of slinging	

REVISION D

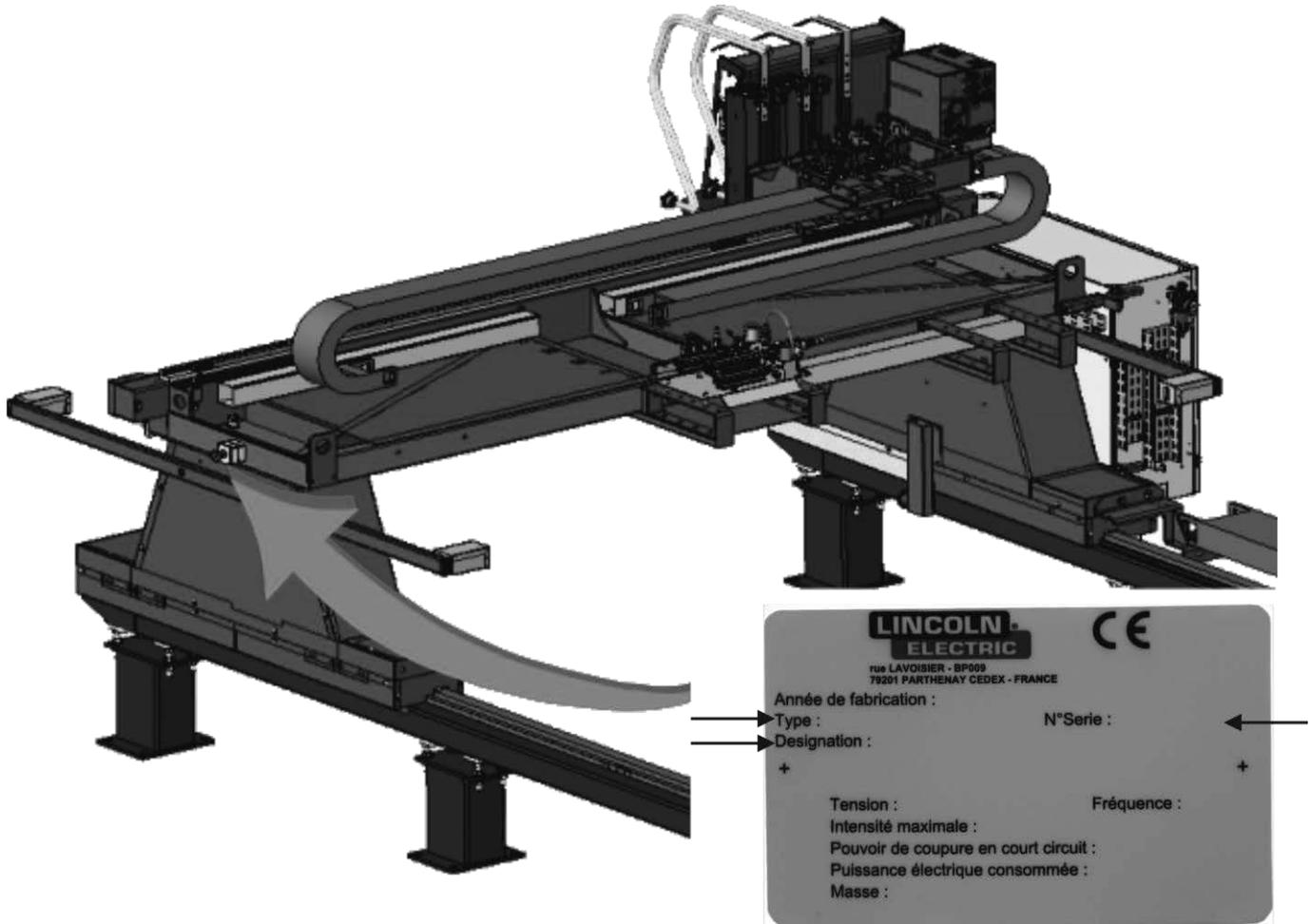
03/24

DESIGNATION	PAGE
Imperial measurements added	

No	MACHINE
P07080115 NG	OXYTOME ² /PLASMATOME ² HPC II T 15
P07080120 NG	OXYTOME ² /PLASMATOME ² HPC II T 20
P07080125 NG	OXYTOME ² /PLASMATOME ² HPC II T 25
P07080130 NG	OXYTOME ² /PLASMATOME ² HPC II T 30
P07080135 NG	OXYTOME ² /PLASMATOME ² HPC II T 35
P07080140 NG	OXYTOME ² /PLASMATOME ² HPC II T 40
P07080145 NG	OXYTOME ² /PLASMATOME ² HPC II T 45
P07080415 NG	OXYTOME ² /PLASMATOME ² HPC III T 15
P07080420 NG	OXYTOME ² /PLASMATOME ² HPC III T 20
P07080425 NG	OXYTOME ² /PLASMATOME ² HPC III T 25
P07080430 NG	OXYTOME ² /PLASMATOME ² HPC III T 30
P07080435 NG	OXYTOME ² /PLASMATOME ² HPC III T 35
P07080440 NG	OXYTOME ² /PLASMATOME ² HPC III T 40
P07080445 NG	OXYTOME ² /PLASMATOME ² HPC III T 45

A - IDENTIFICATION

Quote these informations in all correspondence.



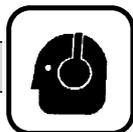
LINCOLN ELECTRIC **CE**
rue LAVOISIER - BP009
79201 PARTHENAY CEDEX - FRANCE

Année de fabrication : N°Serie :
Type :
Designation :
+ +

Tension : Fréquence :
Intensité maximale :
Pouvoir de coupure en court circuit :
Puissance électrique consommée :
Masse :

B - SAFETY INSTRUCTIONS

For general safety instructions, please refer to the specific manual supplied with the equipment.



1 - AIRBORNE NOISE

Please refer to the specific manual supplied with the equipment.

2 - PARTICULAR SAFETY INSTRUCTIONS



HANDLING

- For installation or maintenance operations, the operator must use the lifting eyes provided for that purpose and shown on the drawing.



CONDITIONS OF USE

- No object is to be placed on the rolling tracks.
- Do not climb on the cable drag chain.
- Before handling sheets, make sure that the safety of persons and property is protected.
- Before using the machine, make sure that all the guards are in place.
All guard covers must be screwed in.
Only authorised personnel may access electrical cabinets, which must have locking systems.
- No maintenance may be carried out on the machine when it is supplied with power.
- For any extended absence, the operator must shut off the supply of utilities (electricity and fluids).
- Before anyone starts working between the rolling tracks, make sure that the power supply to the machine has been switched off (locking an emergency stop button is sufficient).
- It is forbidden to switch on photoelectric cells protection device if somebody is between the cells and the beam.
- The lighting on the control panel must keep the user safe (500 lux on the control panel, 200 lux on the table).



STABILITY

- The machine must be anchored to the floor through the holes provided on the base or feet.



« No climbing on the structure of the machine other than on platforms or gangways designed for that purpose. To access equipment at heights, the user must use accessing means in accordance with the regulations, such as a safe mobile gangway, lift basket etc.



Clean the working area from time to time.



This machine may only be moved by its designer, namely **LINCOLN ELECTRIC**.



Never modify the machine.
The machine is **not** designed for anchoring lifting equipment.



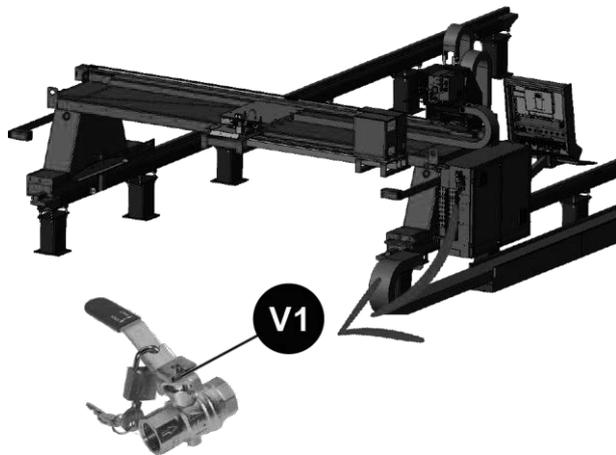
The use of Personal Protective Equipment (PPE) is **mandatory**.



Machine **maintenance** must be carried out **with all the energy supplies switched off**.
The disconnection and padlocking of all energy sources is **mandatory**.

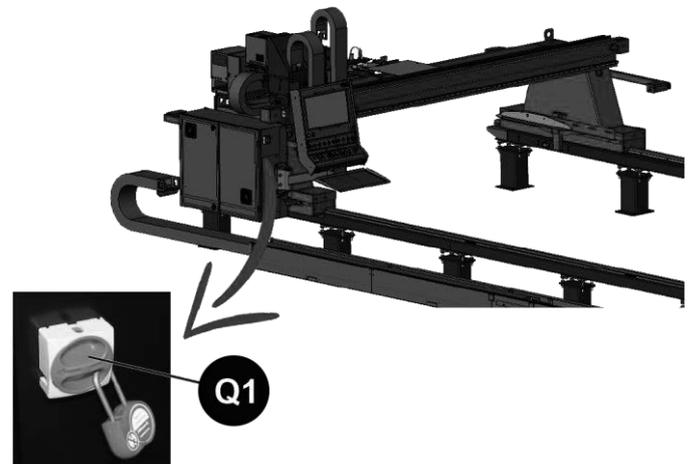
Pneumatic locking out:

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



Electrical locking out:

Electrical locking out is achieved by means of the disconnecter « Q1 ».





The emergency stop and safety lines must be interlocked and tested in accordance with the electricity diagram of the machine.



Mind the risk of electric shocks.
There is an outside power supply in the electrical cabinet that is not switched off with the main disconnecter.
That outside power supply is identifiable by orange wires and terminals.



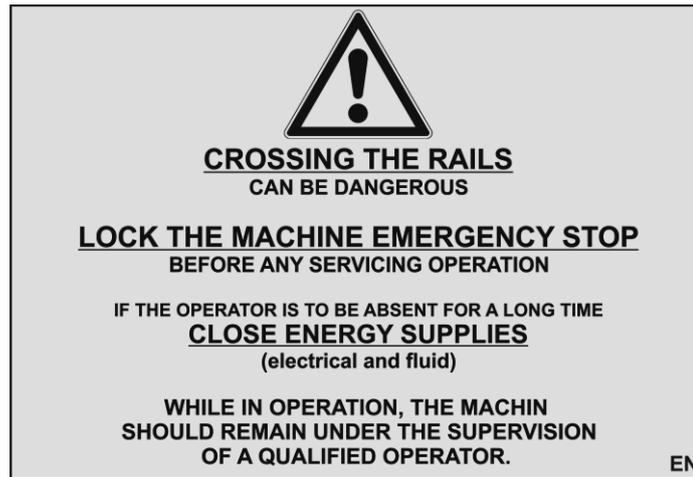
The variable drives of motors are powered with 230VAC.
Contact with electrical parts, including after the machine has been switched off, could lead to serious injury. After the machine has been switched off, wait for 10 minutes before starting to work on the variable drive (residual voltage above several hundred volts may be present for several minutes).



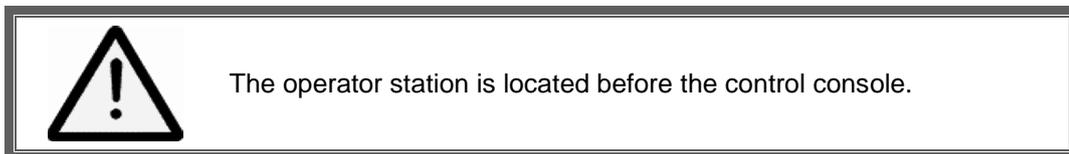
HANDLING OF PARTS

- The equipment for handling workpieces that have been or need to be cut is not part of the supply and is to be provided by the customer. The customer must therefore take protective measures appropriate for the equipment for handling the workpieces.
- ***IMPORTANT*** : While handling sheets to cut, take the necessary precautions to avoid impacts on the machine and the rolling tracks.
- Impacts on any of the elements can lead to squareness faults or the malfunctioning of the electrical shaft and therefore incorrect cutting of the workpieces.
- An accidental manoeuvre could restart the movement unintentionally.
- An operator entering in the area between the rolling tracks could be caught between the pieces and the machines.
- The machine must remain under the supervision of a trained operator when it is operating.

For safety reasons, please apply the label supplied in this folder near the machine control console.



3 - LAYOUT



The machine you have purchased can be hazardous if you do not take certain precautions for use.

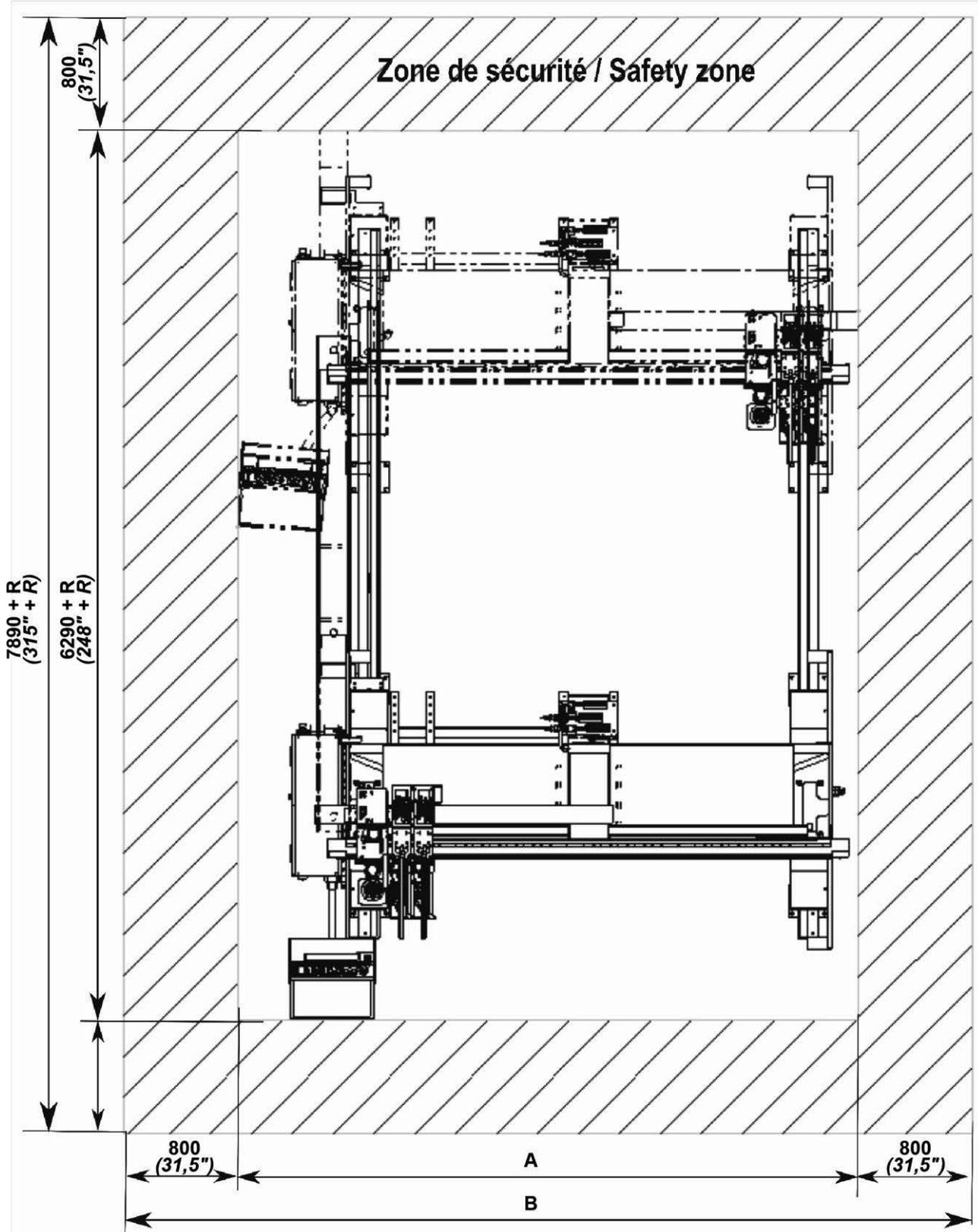
Make sure that no part of the machine can come within less than 500 mm (20") of an obstacle according to the safety standards NF EN 349.

IMPERATIVE : the operator passage way must be clear over a width of at least 800 mm (31,5") according to the safety standards NF EN 547-1-3(see Layout section).

The floor should be marked out as shown in the enclosed drawing.

While accessing the marked area, any person could be hit by the machine or the cable drag chain.

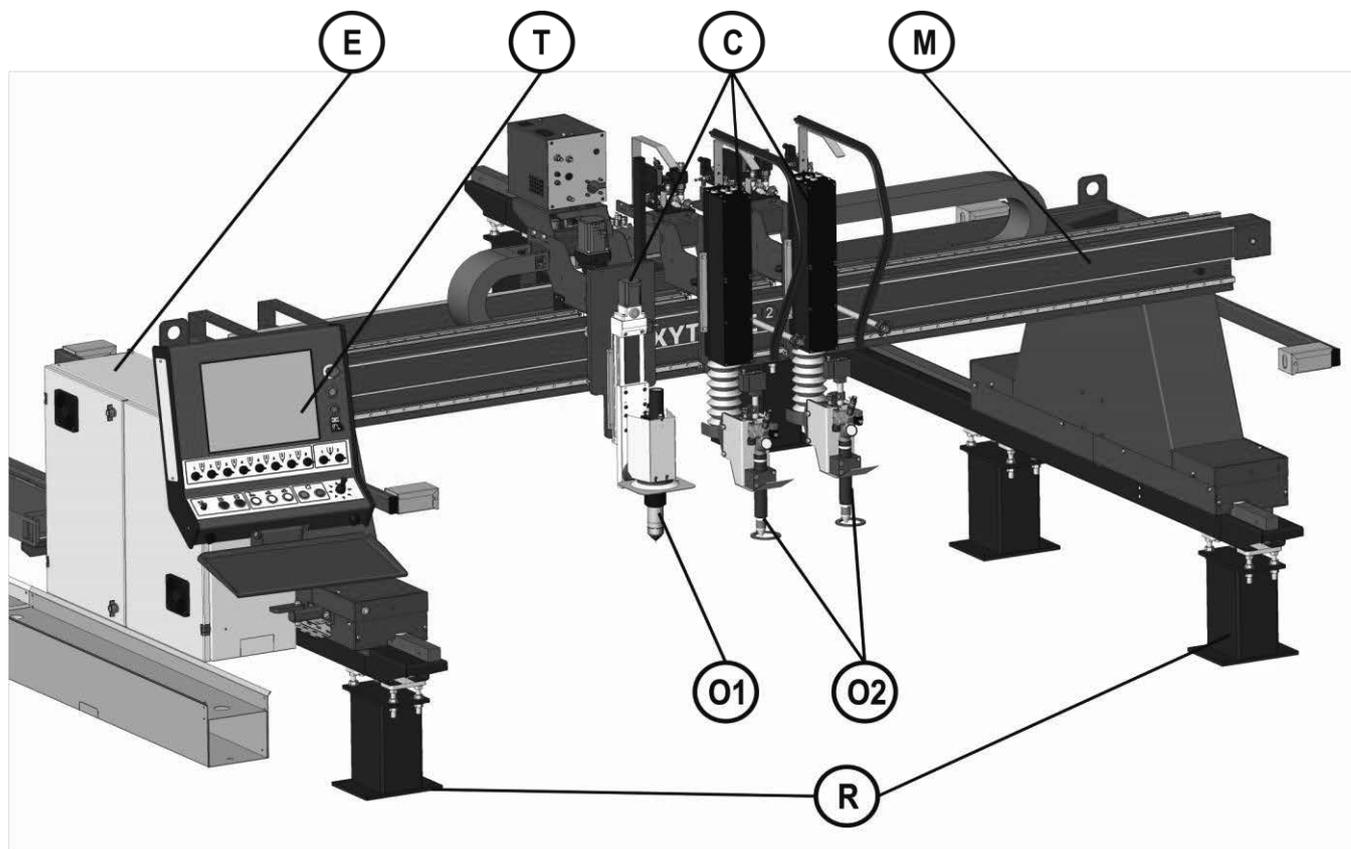
Size	A (mm)	B (mm)	R (optional)	
			n x 07081030NG	07081015NG
15	3360 (133")	4960 (196")	↓	↓
20	3860 (152")	5460 (215")	(2997 x n) (118" x n)	+ 1498,5 + 59"
25	4360 (172")	5960 (235")		
30	4860 (192")	6460 (255")		
35	5280 (208")	6880 (271")		
40	5860 (231")	7460 (294")		
45	6280 (248")	7880 (311")		



 Location given for an unequipped machine; for equipped machines, see the specific drawing supplied.

C - DESCRIPTION

1 - DESCRIPTION



M	Mechanical assembly
R	Rolling track
C	Tool carriage
T	Control panel
E	Electrical power system
O1	Plasma cutting tool
O2	Oxycutting tool

2 - GENERAL

These cutting machine ranges allow cutting of:

- 6 mm (1/4") to 300 mm (11,8") thick plates using **OXYCUTTING**
- from 0.5 mm (0,02") to 50 mm (2") thick plates using **PLASMA** cutting (depending on equipments)
- and 1500 mm (59") to 4000 mm (157") wide depending on the model.

The possible cutting length is 3350 mm (131,8") on the basic machine plus 3000 mm (118") or 1500 mm (59") per additional rolling track length.

These machines use **OXYCUTTING, PLASMA CUTTING, MARKING** with one or more heads depending on the versions.

- Oxygen cutting is done using the "**OXY Essential**" automatic gas management system, for thicknesses up to 200 mm (7,87") or "**OXY HPI**" for thicknesses up to 300 mm (11,8").
- Everything is controlled by computer.
- Plasma cutting equipment that is compatible with **OXYTOME II / PLASMATOME II** includes « **NERTAJET HPI** », « **FLEXCUT** » automatic plasma and « **FINELINE** ».
- Several external markers using the pneumatic or micro-percussion process or a pneumatic drill (marking) are also compatible (see corresponding instructions)

These pieces of equipment are intended for all industries that cut ferrous or non-ferrous electricity conducting materials.

The diversity of solutions proposed makes it possible to address the most varied applications:

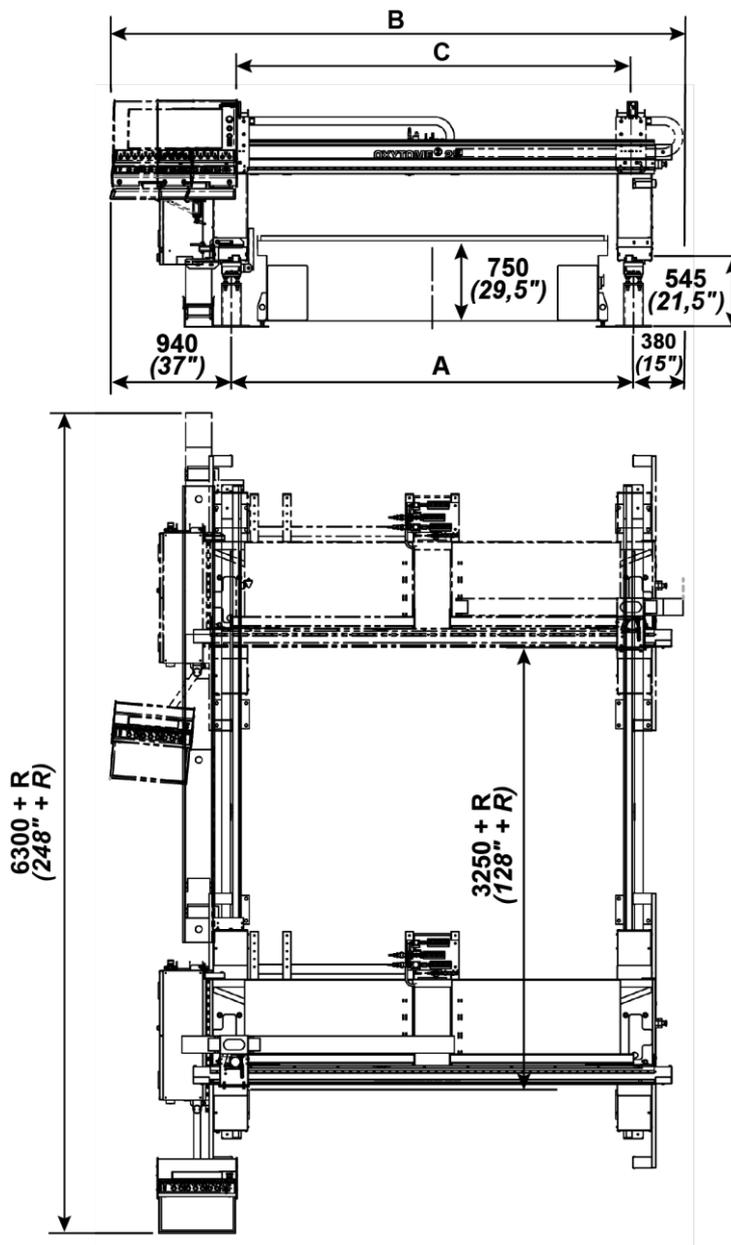
- Boiler making
- Ship building
- Fine metal work
- Training centres
- Farm and railway equipment
- Ventilation and refractory industries
- Public works equipment
- Etc. ...

These equipments are controlled by an **HPC DIGITAL PROCESS HPI**. The assembly that is thus made up allows the rational use of the machines and optimised management of the products to cut.

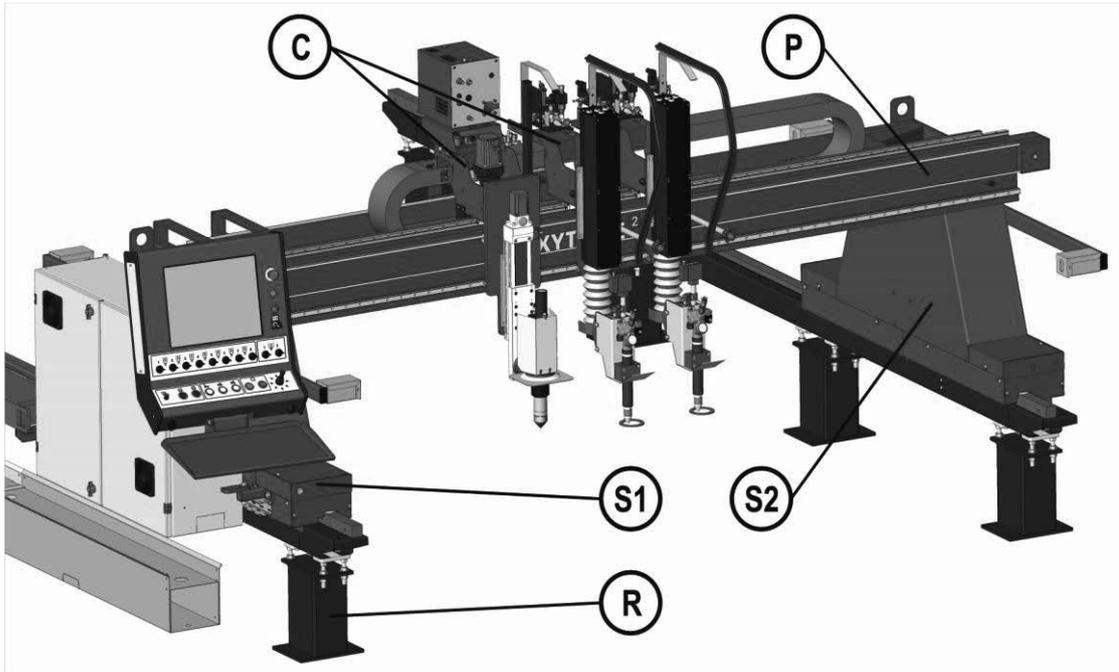
These machines are designed to combine ruggedness and high performance:

- High-inertia rolling track
- Driven by rack on the two axes
- Single or double power system depending on the application
- Centralised controls
- Large number of options

3 - MECHANICAL ASSEMBLY (Ref. M)



Size	A (mm)	B (mm)	C (mm)	R (optional)	
				n x 07081030NG	07081015NG
15	2080 (81,9")	3400 (133,9")	2040 (80,3")	↓ (2997 x n) (118" x n)	↓ 1498,5 + 59"
20	2580 (101,6")	3900 (153,5")	2540 (100")		
25	3080 (121,2")	4400 (173,2")	3040 (119,6")		
30	3580 (140,9")	4900 (192,9")	3540 (139,3")		
35	4080 (160,6")	5400 (212,6")	4040 (159")		
40	4580 (180,3")	5900 (232,3")	4540 (178,7")		
45	5080 (200")	6400 (252")	5040 (198,4")		

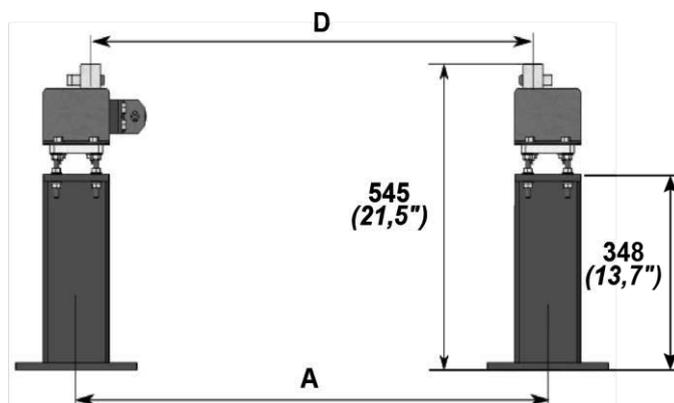


The main bed (**S1**) ensures the rolling and guiding of the machine on the rolling track (**R**). The beam (**P**) is fixed on this bed so that the axis of the tools is placed as close as possible to the axis of the guide rollers. The longitudinal drive motors are positioned inside the bed bases (**S1** and **S2**) for better protection. The beam (**P**) is made up of a high-inertia tube on which two guide rails are fixed. These rails support the tool carriages (**C**). The position of these rails is designed for improved carriage movement, while allowing guidance as close to the tool as possible. The transverse movement is provided by a powered carriage. It also drives the auxiliary carriages by means of a metal cable.

The high feed speed is 15 m/min (590"/min) (or 25m/min (984"/min) as an option)

The contouring and working speed is adjustable from 0.05 (1,97"/min) to 10 m/min (393"/min).

4 - ROLLING TRACK (Ref. R)



Size	A (mm)	D (mm)
15	2080 (81,9")	2015 (79,3")
20	2580 (101,6")	2515 (99")
25	3080 (121,2")	3015 (118,7")
30	3580 (140,9")	3515 (138,3")
35	4080 (160,6")	4015 (158")
40	4580 (180,3")	4515 (177,7")
45	5080 (200")	5015 (197,4")

This assembly is always made up of:

- 2 equipped rails
- Adjusting plates
- Supply chain support
- Supply chain

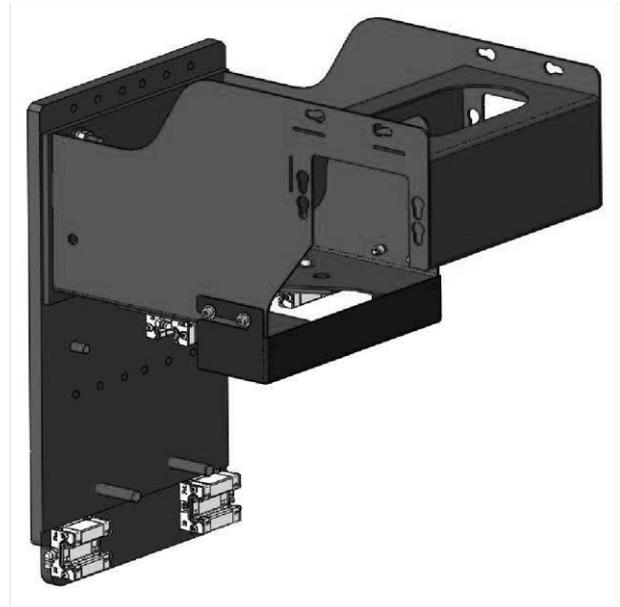
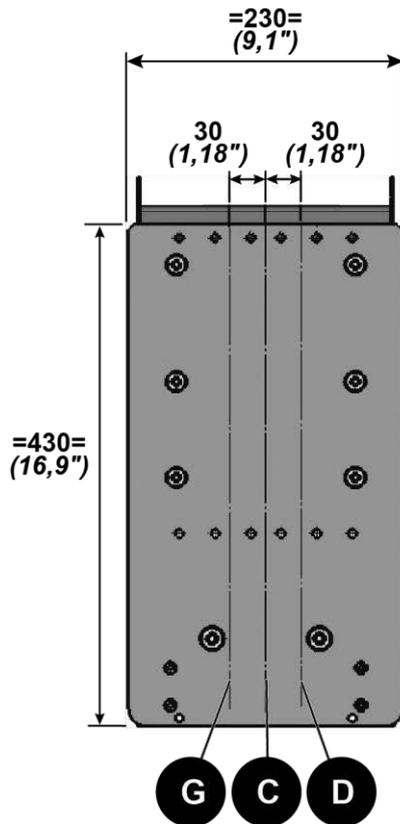
This rolling track has high inertia, making it highly stable. Each element (one on each side) is made up of a machined tube, on which a drawn part is fixed to guide the machine and support the drive rack or racks.

The rail assembly (5 m (196,9") long for the basic length) rests on adjustment plates, which are themselves placed on metal feet. The height of a rail mounted on its feet is 545 mm (21,5").

The assembly made up in this way is fixed to the floor, and alignment is made easier by the presence of adjusting plates. Safe movement is guaranteed by the presence of electrical and mechanical stops.

The rolling track also includes the chain support and supply chain assemblies. The chain is fixed under the rail support tube. These systems make it possible to supply the machine in optimum conditions by minimising the driving efforts, limiting wear and tear of the cables and pipes and guaranteeing the safety of operators. The installation of racks on the secondary rail makes it possible to work with two power systems.

5 - MASTER CARRIAGE (Ref. C)



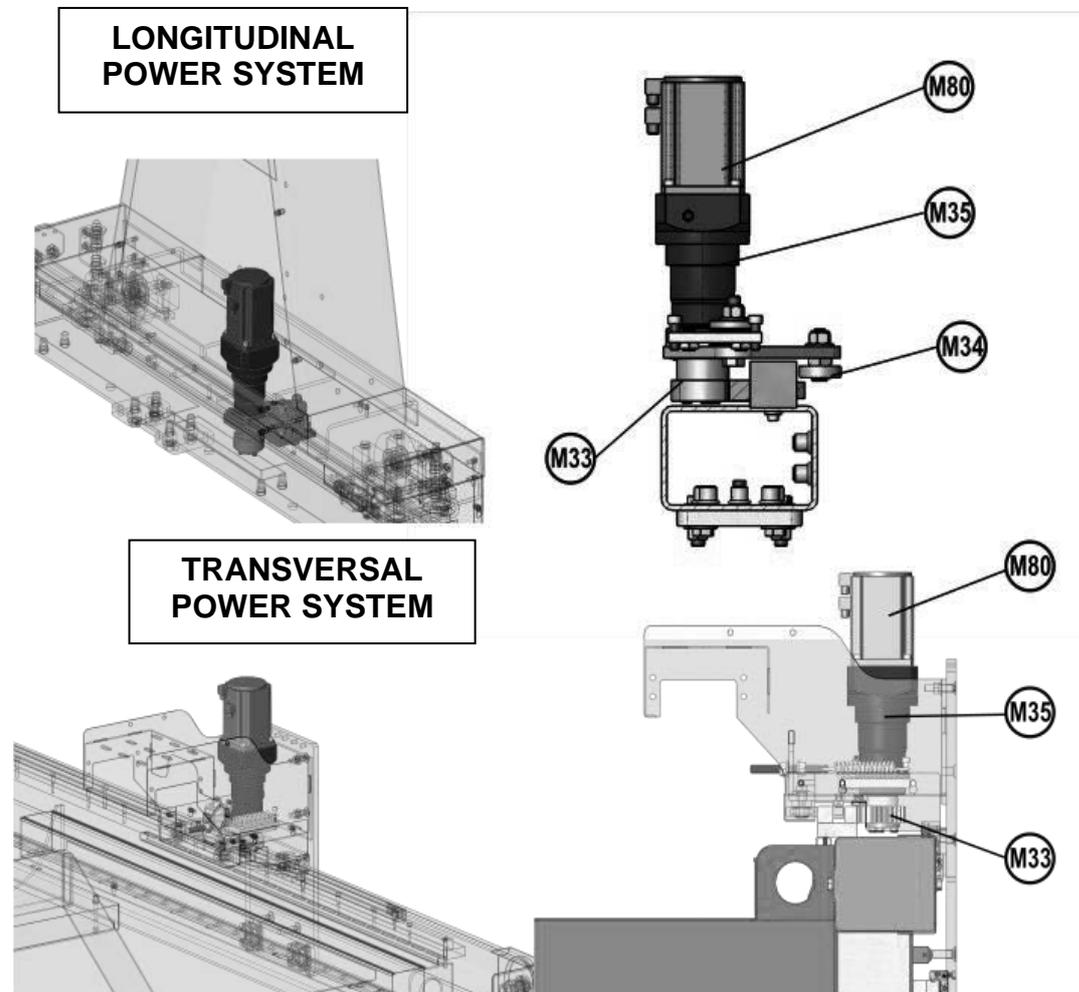
These carriages, made from aluminium plate with a mechanically-welded rear, are fitted with ball bearings to guide the carriage.

The powered carriage has the following functions:

- Supporting the transverse power system
 - Driving the auxiliary carriage.
 - Supporting one or more tools.
- (Depending on the version)

Standard tools can be fixed in three positions, **G**, **C** or **D**, depending on the customer's needs.

6 - POWER SYSTEM



Each assembly mainly includes:

- **M80** - BRUSHLESS motor
- **M35** - low-backlash gear reducer
- **M33** - drive pinion
- **M34** - companion roller that limits the play between pinion and rack

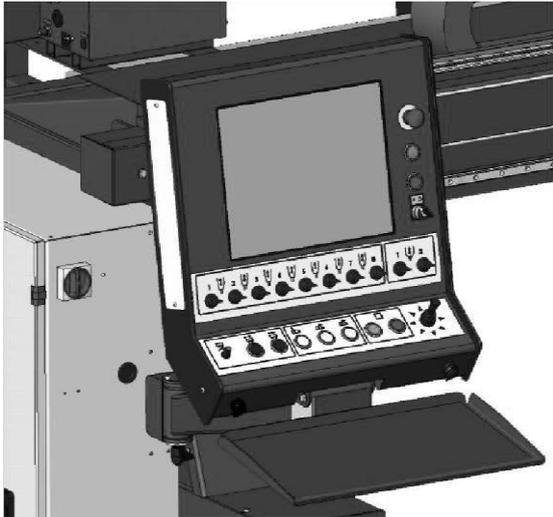
7 - CONTROL CONSOLE

The control console of this range includes the **HPC DIGITAL PROCESS HPI**, with all the controls required for starting up the machine and operating the cutting cycle.

Refer to the dedicated documentation:

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

HPC DIGITAL PROCESS II



HPC DIGITAL PROCESS III



8 - LIMIT OF SUPPLY



Not part of the machine (to be ordered separately):

- Mechanical, chemical and thermal protection for bundles:
 - from the chain support duct outlet up to the energy source
 - from the chain outlet up to the cutting power source (if plasma option).
- Regulatory devices to secure access to the cutting table
- The regulatory devices for safe movement on the cutting table

9 - OPTIONS

MARKERS

P07086030NG PNEUMATIC MARKER

P07086035NG WEN MARKER

Needs an air supply

P07086300NG MICRO-PERCUSSION MARKER

ELECTRICAL CABINET COOLING BY AIR VORTEX

P07086015NG

Recommended when the machine operates in an atmosphere above 35° (95°F).

Needs an air supply

CABINET AIR CONDITIONER 400W

P07086170NG

Is recommended when the machine operates in an atmosphere above 40° (104°F)

ELECTRICAL CABINET HEATING

P07086020 NG

Recommended when the machine operates in an atmosphere below 0°C (32°F) or with large temperature amplitudes.

AIR SUPPLY

P07086005NG

Needed in case of air vortex cooling, oxycutting height automatic regulation and marker.

POSITIONING LASER

P07086150NG - P07086155NG - P07086160NG - P07086089NG - P07086090NG

ISUM 86954197

INVERTER

P07086055NG - P07086155 (HPC DIGITAL PROCESS III)

ENS OPTIONAL TYRE DRILLING

P07086250NG

ENS LIGHT COLUMN + KLAXON

P07086205NG

ENS WORKSITE LIGHTING

P07086210NG

ANTI-COLLISION SYSTEM

P07086080NG

CAMERA

P07056000NG - P07086380 (HPC DIGITAL PROCESS III)

D - ASSEMBLY AND INSTALLATION

1 - CONDITIONS OF INSTALLATION

THE LAYOUT OF THE INSTALLATION MUST COMPLY WITH SAFETY STANDARD
NF EN 547 - 1 -3 TO ENSURE PERSONAL PROTECTION.



ELECTRICITY SUPPLY See layout drawing supplied

VERY IMPORTANT

The power cable (customer supply) must have a section suitable for the power rating of the installation.
The customer is responsible for protecting the power cable and the installation itself.
Such protection must be appropriate for the neutral point treatment of the electricity supply.
The information required for sizing the protection is provided on the identification plate of the installation.

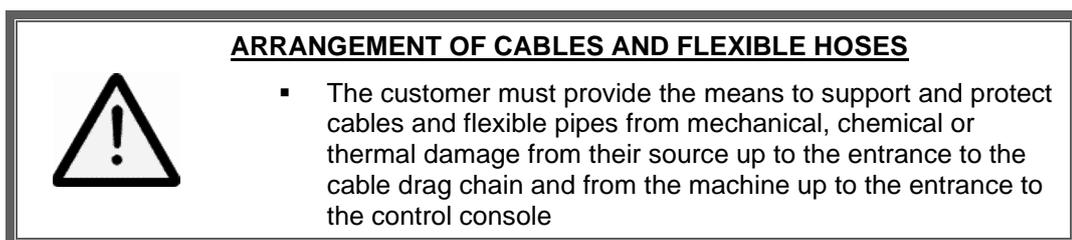
SUPPLY OF GAS See layout drawing supplied

PNEUMATIC SUPPLY see supply drawing provided

The user must provide a source of compressed air with a regulator that can supply the required flow and pressure. The air must be clean, de-oiled and degreased.

QUALITY CLASS: as per standard ISO 8573-1

Solid pollutant class	Class 3	Grain size 5µm	Mass concentration 5mg/m ³ (0,00226 gr/ft ³)
Water class	Class 3	Maximum dew point under pressure -20°C (-4°F)	
Total oil class	Class 5	Concentration 25 mg/m ³ (0,0113174 gr/ft ³)	



2 - PREPARING THE FLOOR

See layout drawing supplied

The machine's layout requires a stable ground, for example an industrial ground.

Concrete slab in a single stretch made at least 21 days before (standard BAEL 93), 200 mm (7,9") thick. The thickness of the slab and its reinforcement are given for guidance, and must be verified depending on the characteristics of the floor.

OR

Single concrete longitudinal member. 20 Mpa (2900 PSI) (350 kg/m³ (21,9 lb/ft³)) concrete with metal reinforcement.

Flatness over the entire site with additional travelling tracks ± 10 mm (0,4"). Concrete slab height difference: 30mm (1,18") (5mm/m (0,2"/ft) max).

3 - MOUNTING OR MOVING THE MACHINE

Contact **LINCOLN ELECTRIC** if you want to mount or move the machine

I - HANDLING THE MACHINE

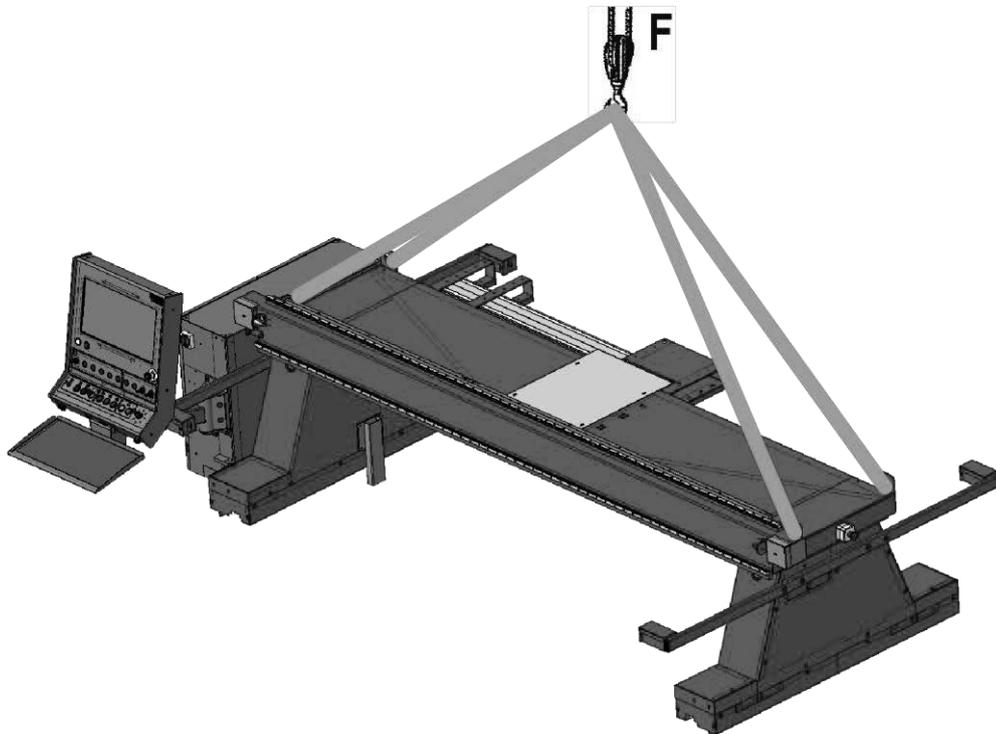
LIFTING THE MACHINE



Operator protection:
Helmet - Gloves - Safety shoes

The components of the installation may only be transported using the slinging points provided, with appropriate slinging equipment.

	15	20	25	30	35	40	45
F*	900daN (2023 lbf)	1000daN (2248 lbf)	1100daN (2473 lbf)	1200daN (2698 lbf)	1300daN (2923 lbf)	1400daN (3147 lbf)	1500daN (3372 lbf)



F* : Weight stated for an unequipped machine, with no process

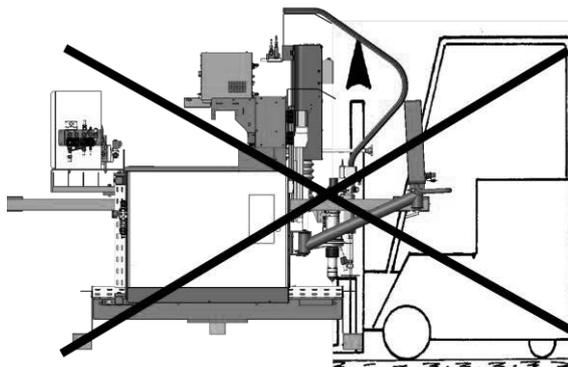


For machines equipped with a process, please refer to the slinging drawing supplied with your machine :

☛ 07080012 : Slinging drawing



Never use forklift, unless with the "Forklift Kit 07031090" option



Placing the machine on the rails

To be done only by **LINCOLN ELECTRIC** technician

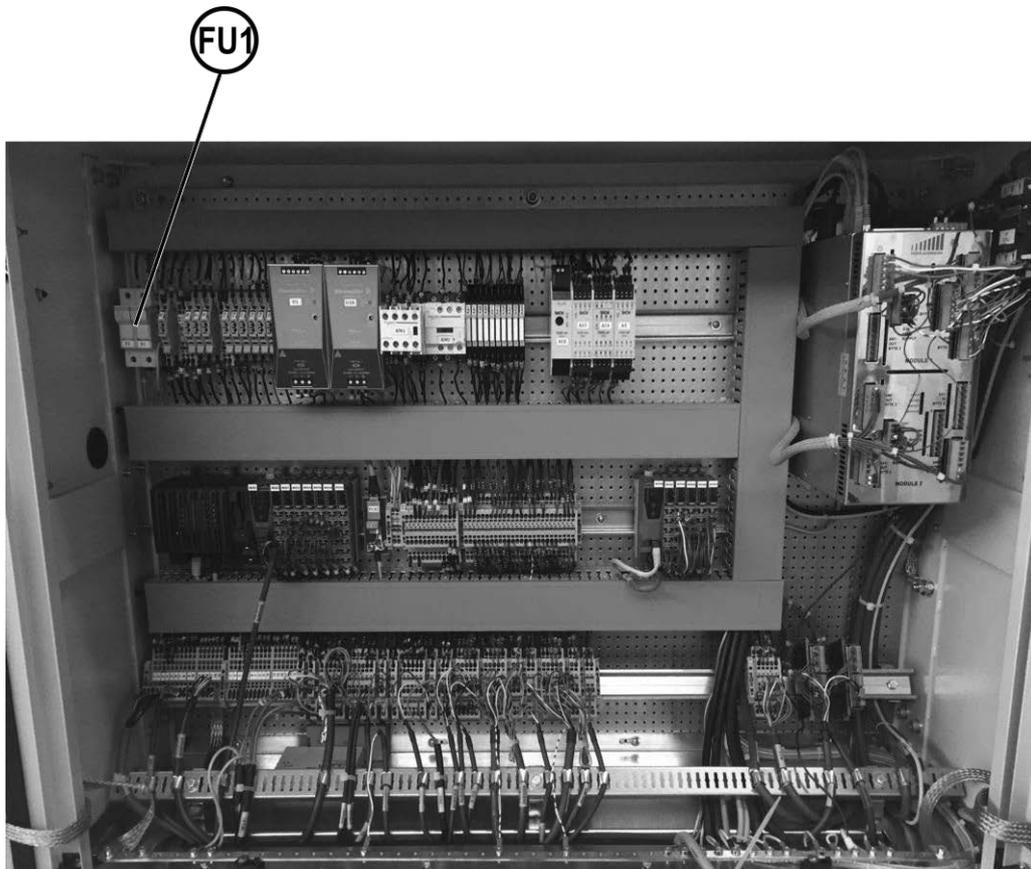
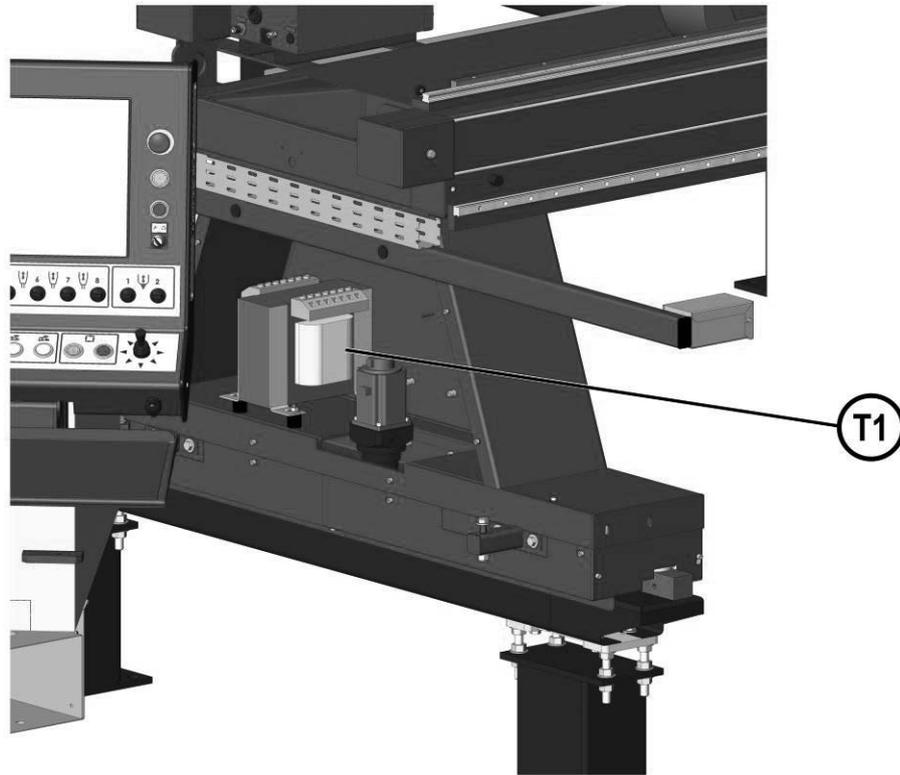
II - ELECTRICAL AND FLUIDIC CONNECTION

Please refer to the location and energy supply drawings supplied



YOUR MACHINE IS WIRED FOR A 400V NETWORK

- It may be connected to a 230V network providing the coupling on the transformer « T1 » placed in the main end carriage is changed, and the fuses « Ref.FU1 » are changed (10A for 400V coupling, 16A for 230V coupling).



E - OPERATOR MANUAL

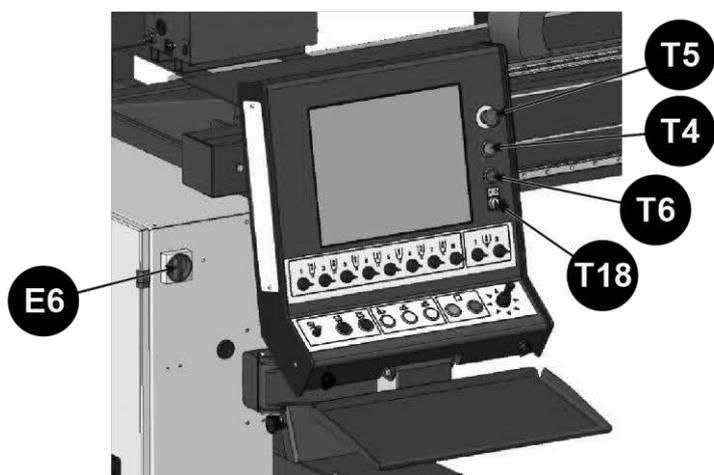
1 - SWITCHING ON THE MACHINE

- 1) Open the compressed air valve "V1".

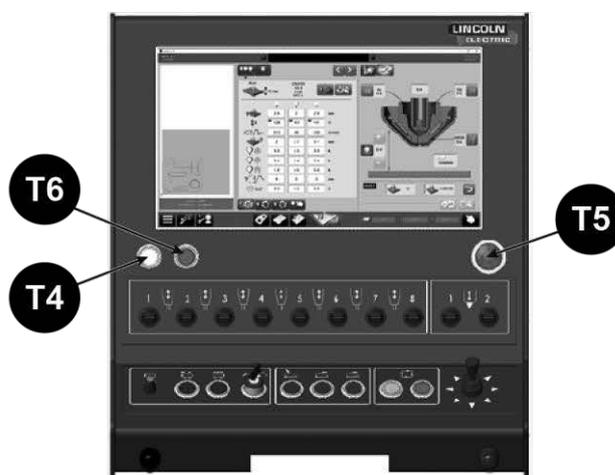


- 2) Power up the machine by moving the switch « E6 » to the position « I ».
- 3) Once the console started, press the button « T4 » to start up the machine. This button « T4 » will light up.
- 4) If the button does not light up, check that the emergency stops « T5 » and at the end of the beam are released.
- 5) If the « T4 » button is blinking, press the button to activate photoelectric cells protection device.
- 6) Button "T6" is used to cut off the power from the gantry (Note: the "T6" general shutdown button does not stop the suction).
- 7) With an optional plasma installation, switch on the cutting power source and the cooler (see corresponding instructions).

HPC DIGITAL PROCESS II



HPC DIGITAL PROCESS III



This machine operates with an HPC DIGITAL PROCESS II or HPC DIGITAL PROCESS III control system with a touch screen.

When the power is switched on, the HPC DIGITAL PROCESS II or HPC DIGITAL PROCESS III control system is initialised (about 1mn).

The machine is now ready to operate

2 - DRIVING THE MACHINE

The **HPC DIGITAL PROCESS II** or **HPC DIGITAL PROCESS III** allow you to manage cutting parameters depending on the machine and the material to cut associated with parts programs.

The workpiece programs are taken from standard shapes or imported from a CAD system

The combination of a workpiece program and cutting parameters constitutes a JOB which can be saved.

Each program and each job can be copied, edited or exported.

To cut out a workpiece, several possibilities are available:

- ◆ Select a JOB to produce a workpiece already made
- ◆ Select a program, then the material and the cutting
- ◆ Select a standard shape, enter its dimensions then the material and the cutting performance (to produce a new workpiece)

For more details about the use of HPC DIGITAL PROCESS HPI II control system, please refer to the instruction No 8695 4944 or click at the bottom right at any time for help about the current screen. Click

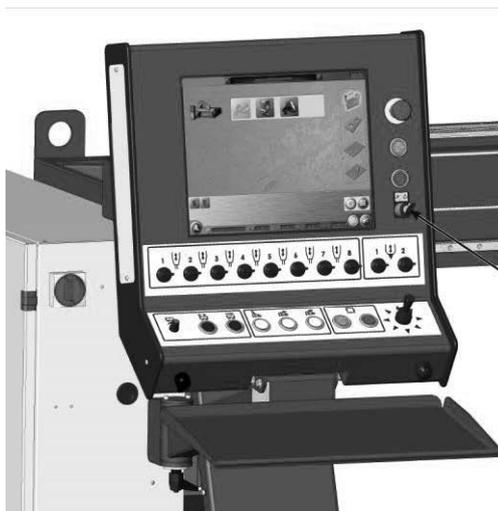


For more details about the use of HPC DIGITAL PROCESS HPI III control system, please refer to the instruction No 8695 4995 or click at the bottom right at any time for help about the current screen. Click



3 - CHANGING THE WEAR PARTS / TUNING THE PROCESS

HPC DIGITAL PROCESS II



HPC DIGITAL PROCESS III



- 1) Move the machine in a position where you can change wear parts / tune the process
- 2) Change the Key switch « **T18** » to maintenance mode position. This mode stops X and Y motors and allow to manually tune the process (without process stop by photoelectric cells protection devices)
- 3) Once the intervention done, change the key switch « **T18** » to cutting mode position

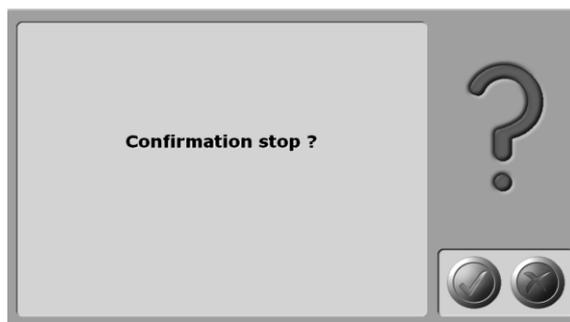
4 - STOPPING THE MACHINE

- **HPC DIGITAL PROCESS II**



Before switching off the power to the machine, it is imperative to stop the **HPC DIGITAL PROCESS HPI II**.

To stop the **HPC DIGITAL PROCESS** system press  then press  and validate.



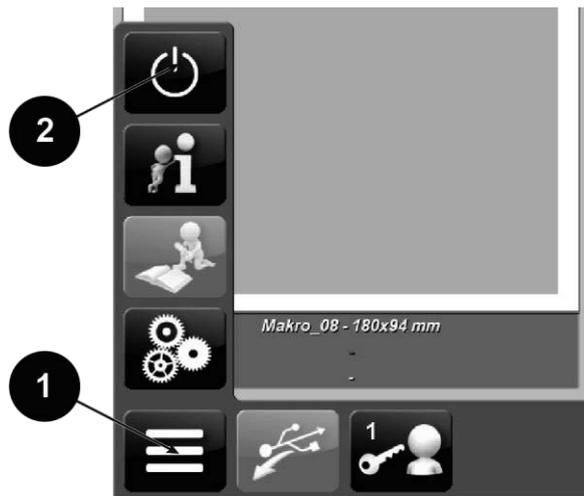
Power off the machine by turning the switch « **E6** » to the position « **0** ».

If the operator is away for an extended absence or if any work is done on the cutting tools, the utility supplies must absolutely be shut off

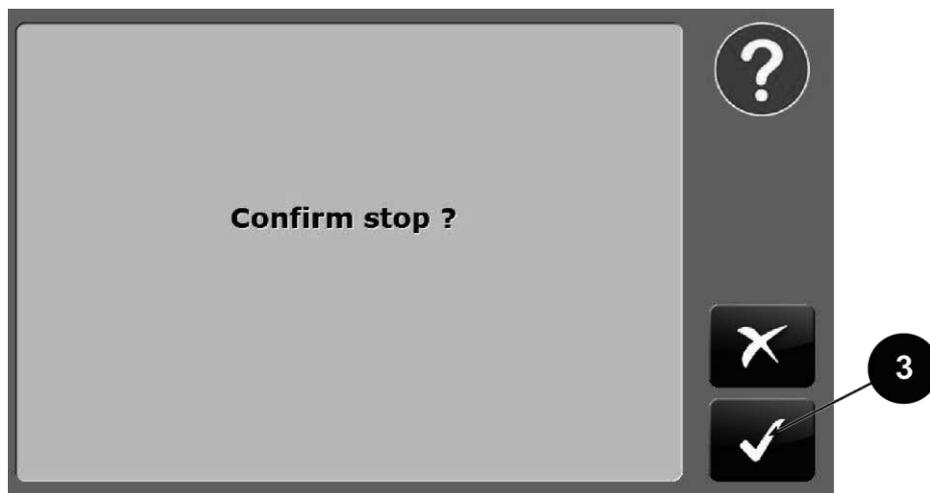
Caution! The rotary switch to the left of the console only isolates the gantry machine, but not the plasma cutting process.

- **HPC DIGITAL PROCESS III**

First press the emergency stop. Press the **button (1)**, and then the **button (2)**.



The window below will open :



Press the **button (3)** to confirm.
Wait for the NC system to shut down (black screen).

Switch off the power to the machine by turning the switch « **E6** » to the position « **0** ».

If the operator is away for an extended period of time or if any work is done on the cutting tools, the energy supplies must absolutely be shut off

Caution! The rotary switch on the electrical cabinet only isolates the gantry machine not the plasma cutting process.

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).

Also see the instructions of the different options for maintenance.



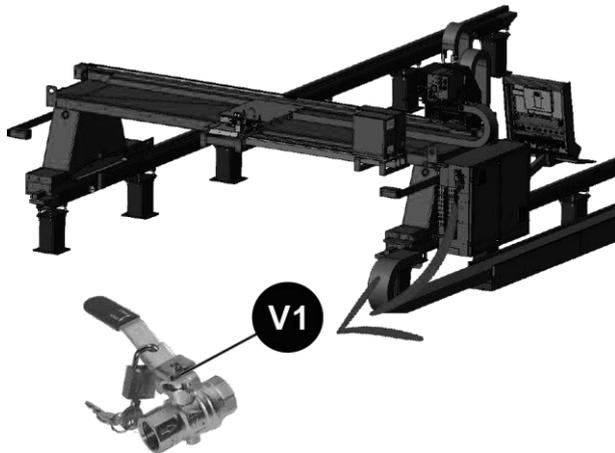
IMPORTANT: While handling sheets, take the necessary precautions to avoid impacts on the machine and the rolling tracks.
Impacts on any of the elements can lead to squareness faults or the malfunctioning of the electrical shaft and therefore incorrect cutting of the workpieces.



Before working on the machine, it is **MANDATORY** to lock out all the supplies of utilities to the machine (electricity, air, gas etc.).
Locking an emergency stop button is not sufficient.

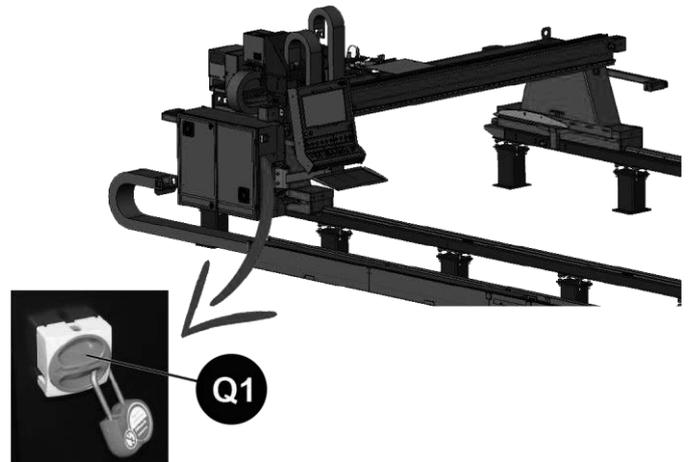
Pneumatic locking out:

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



Electrical locking out:

Electrical locking out is achieved by means of the disconnecter « Q1 ».



IMPORTANT: All work at heights (maintenance, troubleshooting etc.) on the machine must be carried out with appropriate personnel lifting equipment.

Weekly

Date of maintenance : / /	
	- Check the condition of the guard gussets of the torch holders: replace if necessary.
	- Brush the racks to remove any adhering material.
	<p>- Regularly clean all the rollers and rails:</p> <ul style="list-style-type: none"> ➤ end carriage rollers ➤ rolling track rails ➤ beam guiding rails. <p>Clean with a dry cloth or a cloth moistened with solvent, such as solvent naphtha or white spirit. (If necessary, spray Adermos 850 coating from Molydal on the surfaces of the guide rails and racks).</p>
	- Clean the machine overall, in order to remove dust (blowing and using dry dusters).
	- Check the pneumatic circuit (see following page).
	- See if the screen is dirty
	<p>Cleaning the screen:</p> <ul style="list-style-type: none"> - Switch off the power to the machine - Use window cleaner applied on a clean cloth or sponge. Never apply cleaner directly on the touch screen. Do not use alcohol (methyl, alcohol or isopropyl alcohol) or thinner, benzene or other strong solvent. Do not clean the screen with a cloth or a sponge which may scratch the surface

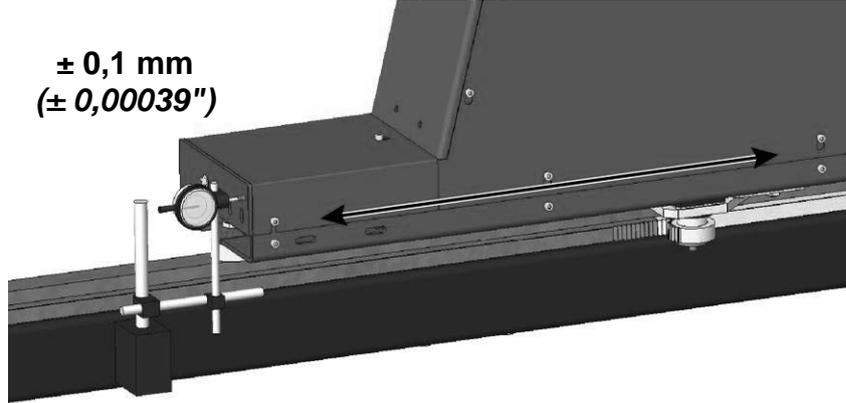
monthly

Date of maintenance : / /

- Check the proper working of the gas circuit: pressure gauge, pressure reducer valve, solenoid valve, valve, fittings etc.
NB: any piping with the slightest sign of fatigue, wear or damage must be replaced by an identical standardised pipe.
- Check the condition of all electrical cables, particularly close to the torches and the cable drag chain (change them if required).
- Check the adjustment of the rollers and companion rollers that guide the end carriage. They must be pressed, with the possibility to turn them by hand.

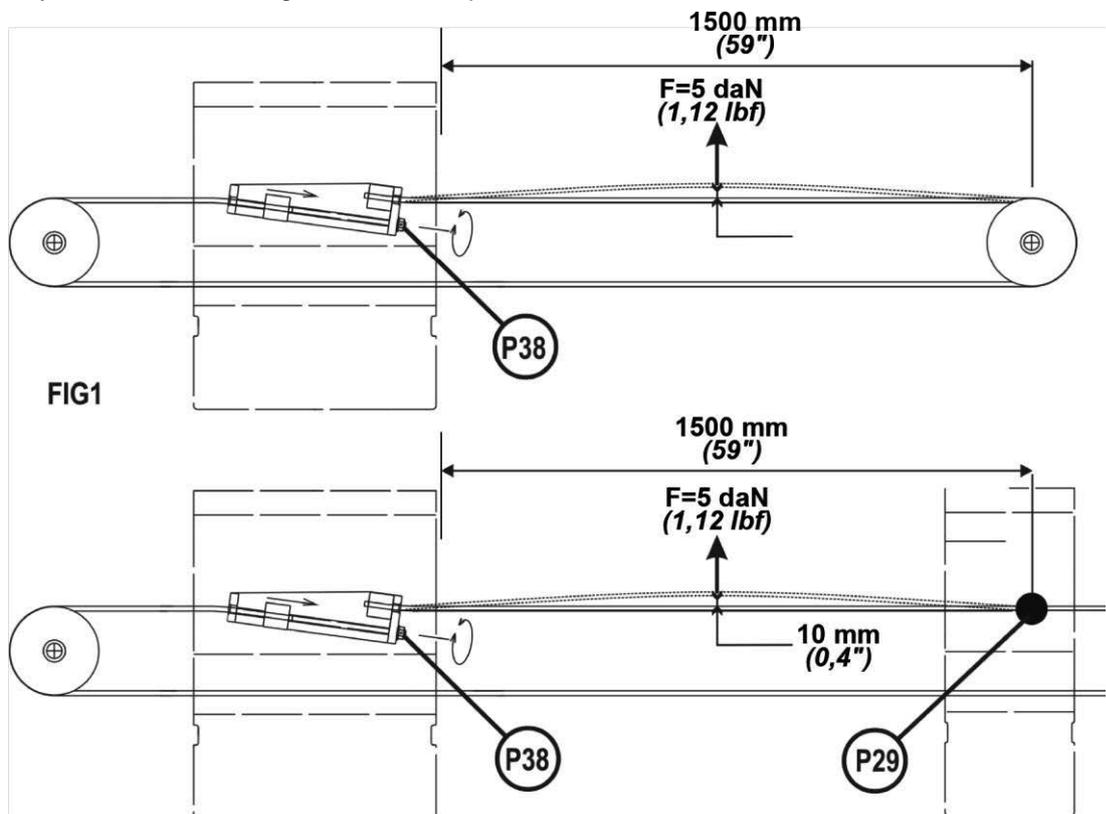


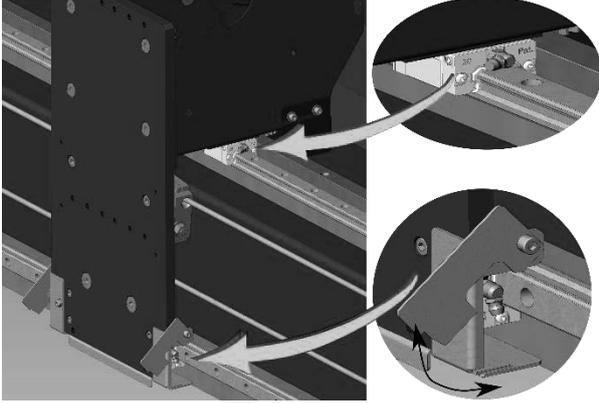
- Check the wear and tear of the drive pinions and racks.
Gap control (max 0.2 mm (0,0078") of gap)



No pinion tooth mark

- Check the tension of the drive cable of slave carriages (Fig.1). If the cable is worn or frayed, it must be changed as soon as possible.



	<p>- greasing 4 bearing guideways on each shield</p>  <p>We recommend you the use of lithium soap grease NLGI class = 2 (example : HPG type from WYNN'S, MOUWAN GREASE type from HAFA)</p> <p>Regrease bearing guideways at operating temperature by moving It is best to regrease several times by small amounts.</p>
	<p>NEVER GREASE :</p> <ul style="list-style-type: none"> ▪ The racks and drive pinions (spray ADERMOS 850) ▪ Longitudinal rails (spray ADERMOS 850) ▪ Gear reducer (greased for all life)
	<p><i>FILTER PNEUMATIC CIRCUIT</i></p> <p>To keep the filter maximally effective and prevent head loss, it must be cleaned regularly. Standard filters have a semiautomatic purge for clearing any build-up in the tank. Standard filters have a semiautomatic purge for clearing any build-up in the tank.</p> <p>That semiautomatic purge operates when the air is cut off in the upstream pipe.</p> <p>In the event of continuous operation, provide for a periodic manual manoeuvre of the purge.</p> <p>The filter must be cleaned whenever a visible concentration of impurities and/or excess pressure loss are observed</p> <p>Alcohol may be used for cleaning. Then blow the inside the filtering element.</p> <p>Before reassembly, apply 1000 bulles leak tester or soapy water on the thread. Never apply greasy material in any form (oil or grease).</p>

2 - TROUBLESHOOTING

Please refer to:

- ⇒ The electrical diagram supplied or,
- ⇒ The instructions of **HPC DIGITAL PROCESS II** (8695 4944) or **HPC DIGITAL PROCESS III** (8695 4995),
- ⇒ The instructions of the different options.

Control console faults

List of the most frequent alarms related to the machine, displayed on the control console :

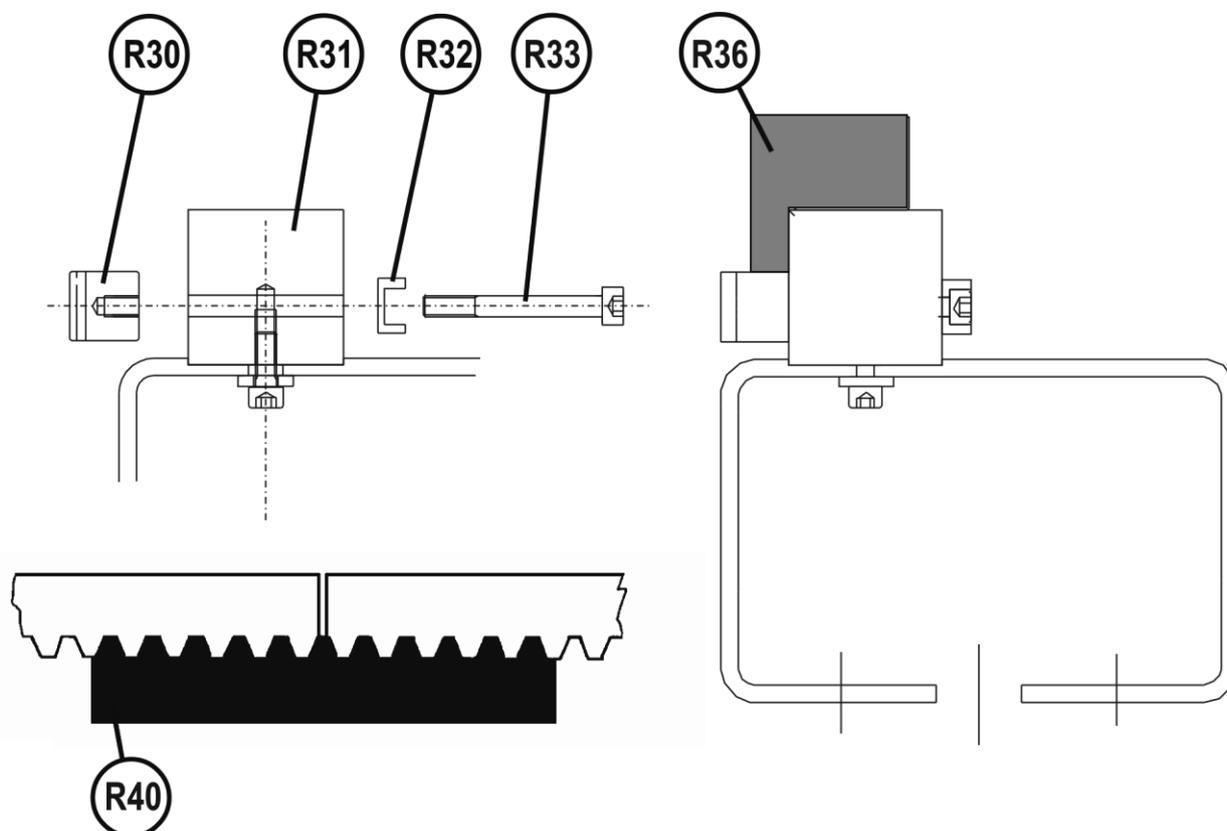
Fault	Probable causes	Potential remedies
29 : Axis limit reached	A position in the program exceeds the software limits defined for the machine.	Modify the program or the origin of the part program.
64 : Lag error axis (X, Y ou W). Lag exceeds the limit !	The axis position differs from his command of a too large value (due to a shock, for example)	Power off, put the portico in the correct position, then do the homing
98 : Collision hazard: negative radius or change of direction in block no. xx	Kerf compensation greater than part radius	Correct the program or kerf compensation.
199 : NC block incorrect. NC address error (X or Y) Only resetting is possible	A standard program has been started without defining its zero point.	Define the zero point of the program (see instructions 8695 4944)
207 : Collision hazard, change of direction in block no.	Kerf compensation greater than space between cuts	Correct the program or kerf compensation.
288 : No tool selected	The program is a standard shape and asks for tool selection by the UI	Select the tool before starting the program
960 : Axis (X or Y): Variable drive alert - Axis on positive limit!	The + electrical limit has been reached	Jog the axis to clear it in the opposite direction and clear the alarm.
961 : Axis (X or Y): Variable drive alert - Axis on negative limit!	The - electrical limit has been reached	Jog the axis to clear it in the opposite direction and clear the alarm.
1001 : E-stop circuit is open !	An emergency stop has been triggered	Re-engage the emergency stop buttons and start again.
1003 : The CNC is in E-Stop modee	The numerical control has experienced a serious error while operating	Check the additional errors and start again

Fault	Probable causes	Potential remedies
1004, 1005, 1006 : Drive for axis xx is not ready	The variable drive power supply is missing Ethercat problem	Check fuse F2 and the activation of KM2 upon starting up. Check the status of the LEDs on the variable drive. (on variable drive LM and T: 2 flashing green LEDs on LE variable drive: 1 flashing green LED).
1011 : Cycle stop because of head collision. Low jog mode. Limited speed of jog	Torch impact (plasma) or probe impact (oxycutting)	Jog the tool to clear and restart the program
1012 : Shut down the CNC is only possible after E-stop	The emergency stop must be active when the NC is off	Activate the emergency stop and shut down the machine
1014 : Put the machine in E-Stop mode	The emergency stop must be active when the machine setup is validated.	Activate the emergency stop before validating the setup, validate the setup and put the machine back into service
1015 : Station change error	A station change is requested while a program is active.	Reset the program before requesting a station change.
1022 : Air leakage fault	Low air pressure on the machine (not related to process gas).	Check that the disconnecting valve is open. Adjust the air pressure to the required pressure. Possibly adjust the air pressure switch.
1023 : Fault door opened	Case of Alphasome machines: the process access door has been left open.	Close the door.
1040 : Waiting for cycle start to begin homing	The machine has a homing setting activated by a cycle start	Press the Start Cycle button
1041 : Homing...	The machine zero point cycle is in progress.	Wait for the zero point cycle be completed.
1042 : Homing finished.	The machine zero point cycle is completed	Clear the warning
1053 à 1068 : The selected tool does not exist	The part program has requested a process that is not defined in the setup	Correct the part program (S code)
1069 : The selected process does not exist	The part program is requesting an unknown process	Correct the part program (S code)
1071 : No operating feedback from the filter	No operating feedback from the filter for more than 30 seconds, when a cut has been requested. Process stopped	Start up the extraction, and check if it is working correctly. Restart the program
01072 : Wait for extraction feedback	No operating feedback from the filter when a cut has been requested. Program paused (if not started) or stopped at the next cut.	Start up the extraction, and check if it is working correctly.
01073 : Key in process setting mode, movements not allowed	The process key is in setting mode.	Turn the key in cycle mode to allow movements.

Fault	Probable causes	Potential remedies
01074 : Safety curtain crossed, movements not allowed	Something has crossed a safety curtain.	Check that there are no hazards. Put the curtains back into service (blue button on console) to allow movements.
1151 : Waiting cycle start for new station	The job change request must be followed by a cycle start	Press the Start Cycle button
1152 : Waiting cycle start for rush program	The Rush request must be followed by a cycle start	Press the Start Cycle button
1154 : Wait for a cycle start for movement	The movement request (e.g. positioning laser) must be followed by a cycle start	Press the Start Cycle button

FASTENING THE RACKS ON THE EXTENSIONS

- 1) Unlock the racks fixed on the basic rack
- 2) Fix the new rack lengths « R30 » after the basic rack without locking them with the screws « R33 » and the parts « R32 ».
- 3) **TIP: to adjust the racks, start at the middle of the total length of the rolling track, and visually centre the first screw « R33 » in the line of the rail hole.**
- 4) Lock the racks after first adjusting the longitudinal position with the tool « R40 » and the height with the tool « R36 » (supplied in assembly kit 07081001).

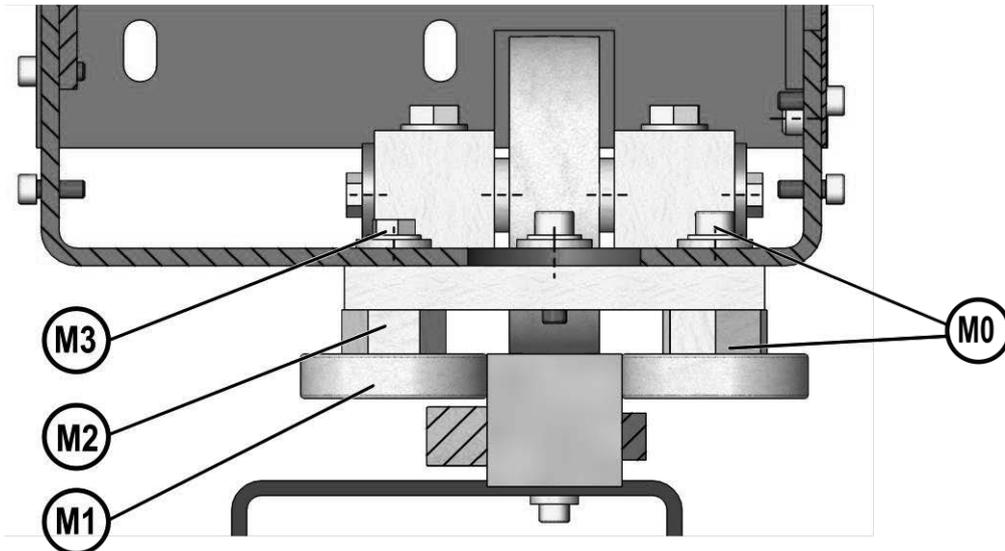


PINION, POWER SYSTEM

For changing the pinion or the power system, we recommend calling in an **LINCOLN ELECTRIC** technician or their representative.

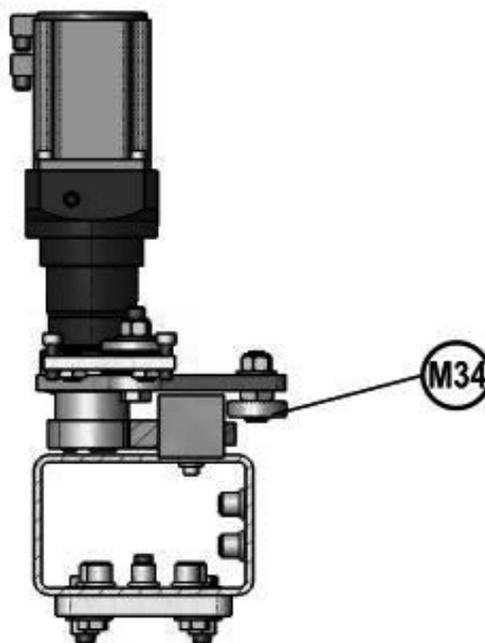
ADJUSTING THE GUIDE ROLLERS

- 1) Adjust the 2 outer guide rollers "M1" on the main end carriage by means of the eccentric axes "M2", (flat key 30), releasing the head screws H "M3", (key 13).
- 2) **DO NOT OVER TIGHTEN!** The rollers must be able to turn by hand.
- 3) Lock the 2 screws "M3"
- 4) Do not readjust the inner rollers "M0", they are factory set and painted.



ADJUSTING THE POWER SYSTEM GUIDE ROLLERS

- 1) Push the pinion into the rack at the back of the teeth.
- 2) Adjust the companion roller using the eccentric pin.
- 3) **DO NOT OVER-TIGHTEN!** The roller « M34 » must allow turning by hand.



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:

(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:

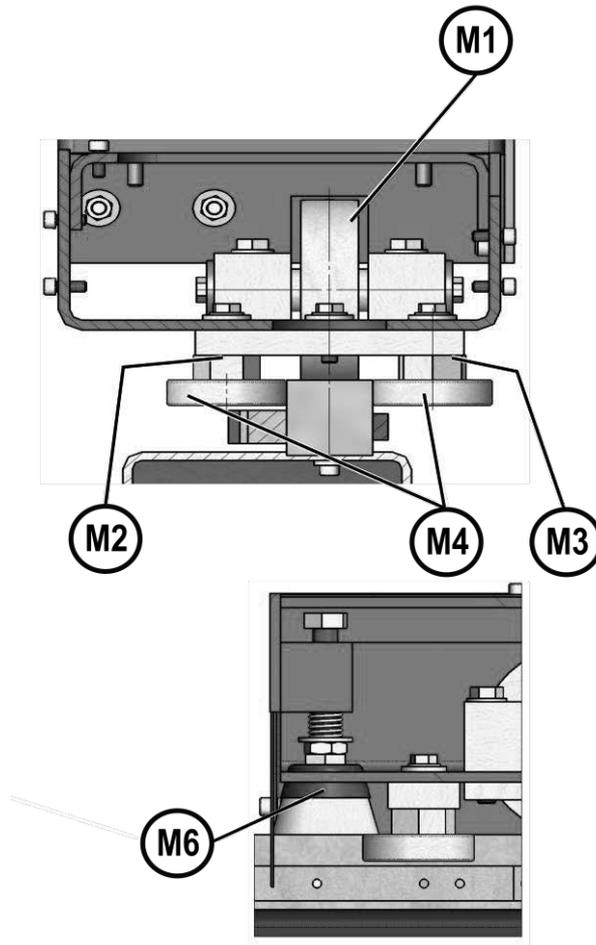
✓	normally in stock
✗	not in stock
	on request

Ref.	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.

CE Type <input type="text"/> Matricule <input type="text"/>	TYPE :
	Number :

END CARRIAGE



✓	normally in stock
✗	not in stock
	on request

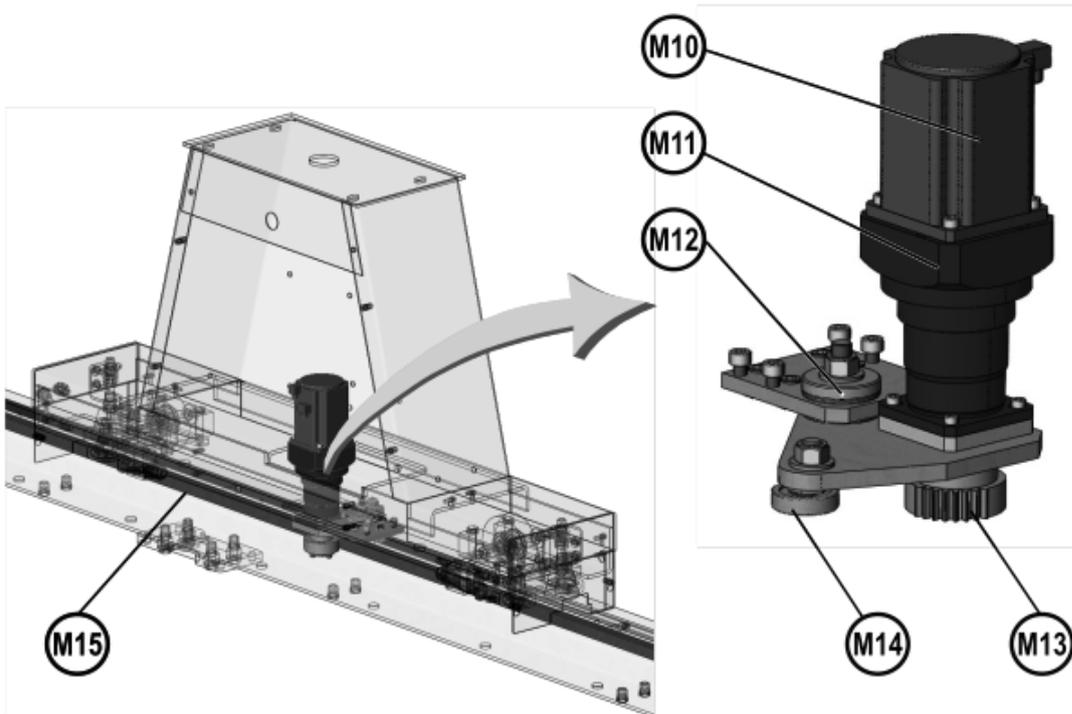
Ref.	Ref.	Stock	Order	Designation
M1	W000139036	✓		Equipped bearing roller
M2	W000401131	✗		Equipped eccentric guide roller
M3	W000401129	✗		Equipped guide roller
M4	W000400278	✗		Kit of 4 rollers
M6	W000400279	✓		Kit of 4 Ø60 brushes

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

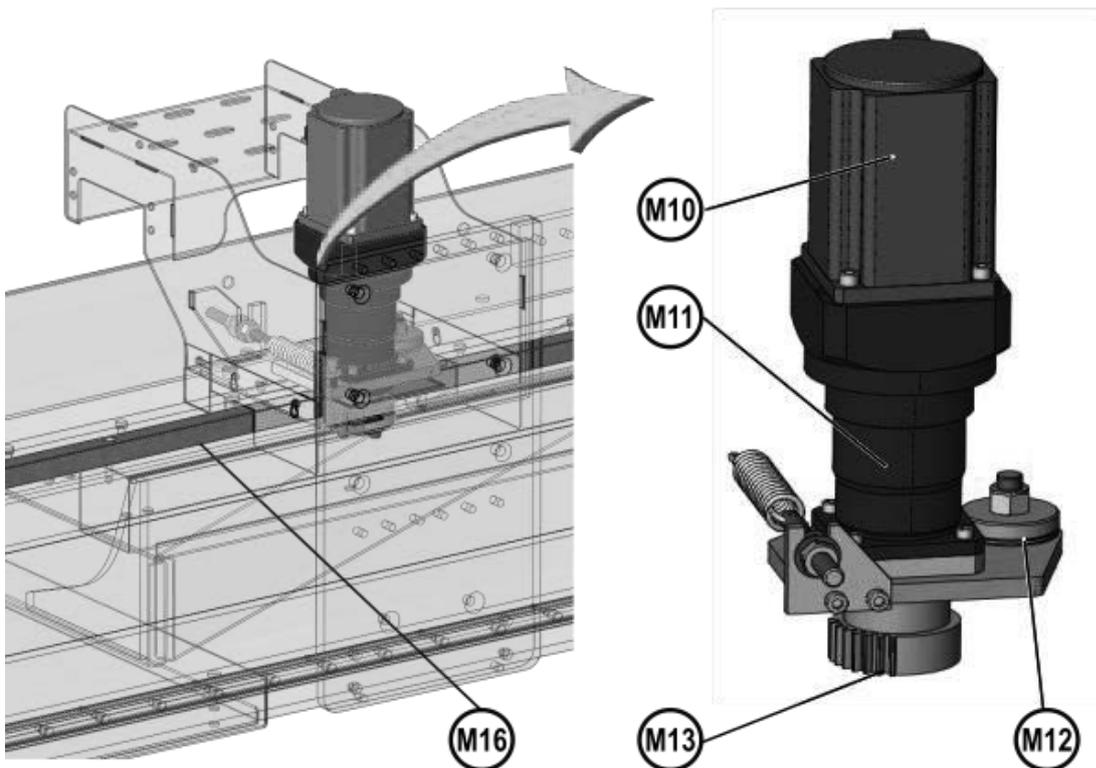
CE Type <input style="width: 80%;" type="text"/> Matricule <input style="width: 80%;" type="text"/>	→ →	TYPE : <input style="width: 95%;" type="text"/> Number : <input style="width: 95%;" type="text"/>
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POWER SYSTEMS

LONGITUDINAL POWER SYSTEM



TRANSVERSAL POWER SYSTEM



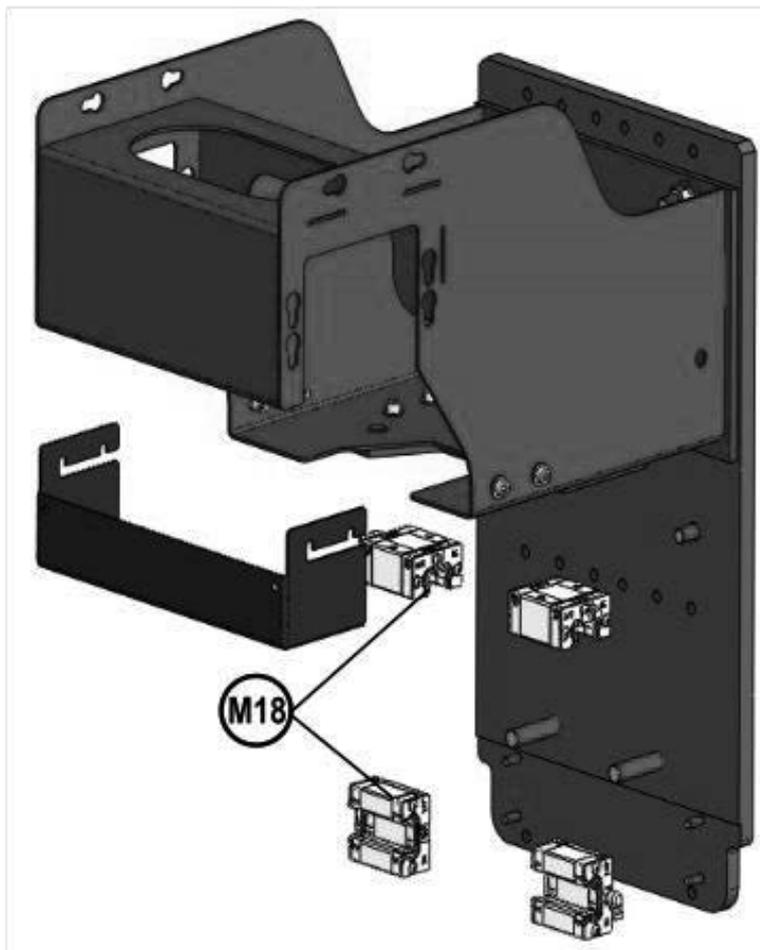
✓	normally in stock
✗	not in stock
	on request

Ref.	Ref.	Stock	Order	Designation
M10	W000402582	✓		SANYO R2AA 750W motor
M11	W000383969	✓		Reducer PLN70 I25 B5
M12	W000400283	✗		Needle thrust bearing kit (for one power system)
M13	W000400284	✓		Pinion Z=30 M2
M14	W000400285	✗		Companion roller kit (for two power systems)
M15	W000400292	✗		4.5 m (177") base 2000 mm (78,74") long rack (Qty 2 on main track + 2 on secondary track)
	W000400293	✗		3 m (118") extension 2000 mm (78,74") long rack (Qty 1 on main track + 1 on secondary track) 1000 mm (39,37") long rack (Qty 1 on main track + 1 on secondary track)
	W000400294	✗		1.5 m (59") extension 1500 mm (59") long rack (Qty 1 on main track + 1 on secondary track)
	W000400295	✗		Rack assembly kit
M16	W000400288	✗		T15 machine 2000 mm (78,74") long rack (Qty 1) 212 mm (8,35") long rack (Qty 1)
	W000400289	✗		T20 Machine 2000 mm (78,74") long rack (Qty 1) 710 mm (27,95") long rack (Qty 1)
	W000400290	✗		Machine T25 2000 mm (78,74") long rack (Qty 1) 1213 mm (47,76") long rack (Qty 1)
	W000400291	✗		T30 Machine 2000 mm (78,74") long rack (Qty 1) 1832 mm (72,13") long rack (Qty 1)
	W000400639	✗		T35 Machine 2000 mm (78,74") long rack (Qty 2) 212 mm (8,35") long rack (Qty 1)
	W000400289 + W000366563	✗		T40 Machine 2000 mm (78,74") long rack (Qty 2) 710 mm (27,95") long rack (Qty 1)
	W000400290 + W000366563	✗		Machine T45 2000 mm (78,74") long rack (Qty 2) 1213 mm (47,76") long rack (Qty 1)
	W000400286	✗		Spray ADERMOS 850 (to protect the racks and drive pinions)

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

	TYPE :
	Number :

TOOL CARRIAGE



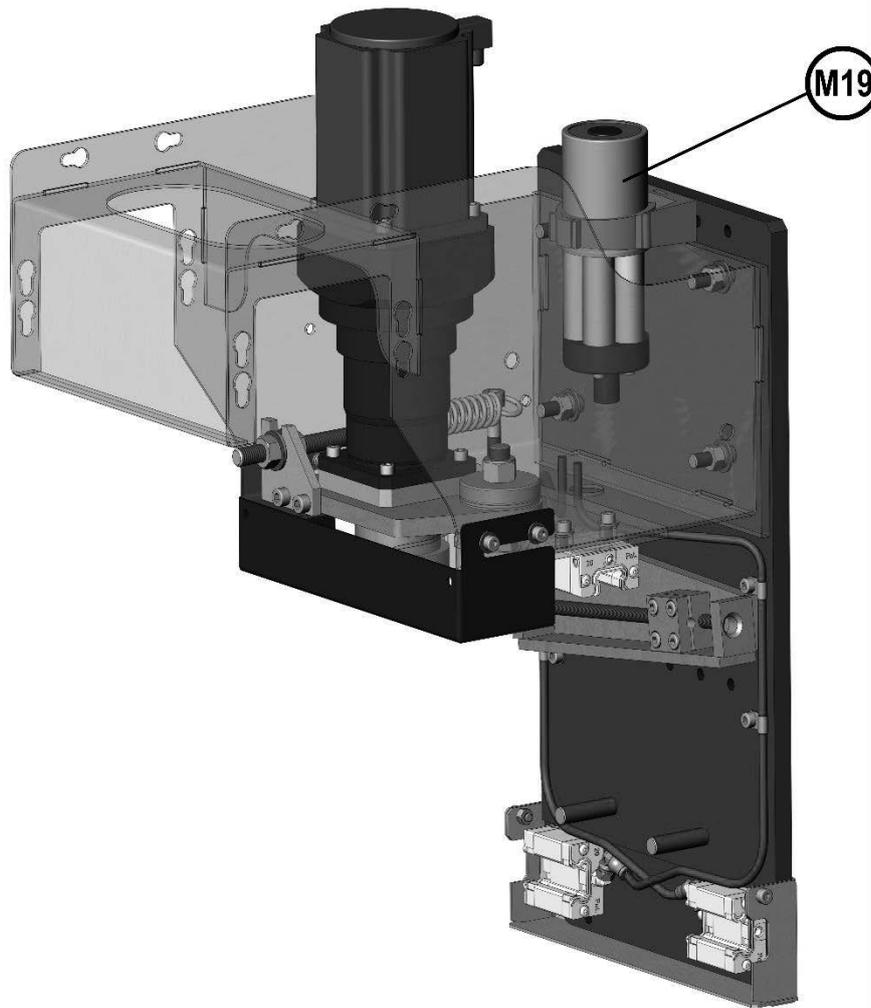
✓	normally in stock
✗	not in stock
	on request

Ref.	Ref.	Stock	Order	Designation
M18	W000400296	✗		Kit of 4 bearing guideways BXS20

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

	→	TYPE :
	→	Number :

OPTION LUBRICATION AUTO TOOL CARRIAGE



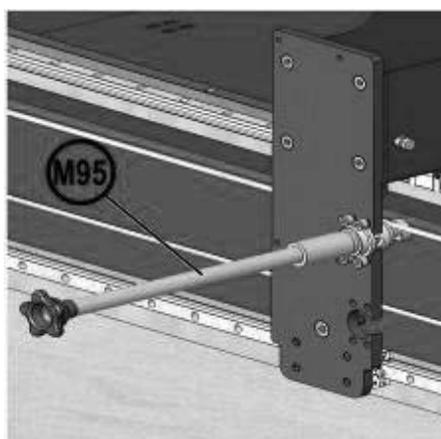
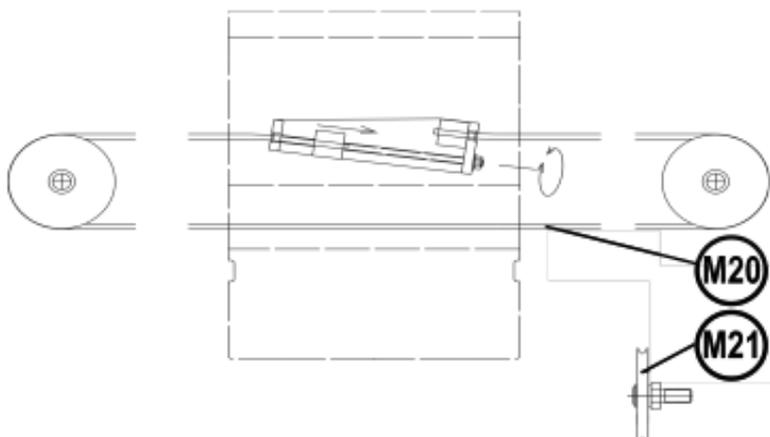
✓	normally in stock
✗	not in stock
	on request

Ref.	Ref.	Stock	Order	Designation
M19	W000403337	✗		AUTO MULTIPOINT LUBRICATION

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

	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">TYPE :</td> <td style="width: 50%;"></td> </tr> <tr> <td>Number :</td> <td></td> </tr> </table>	TYPE :		Number :	
TYPE :					
Number :					

SLAVE CARRIAGE DRIVE



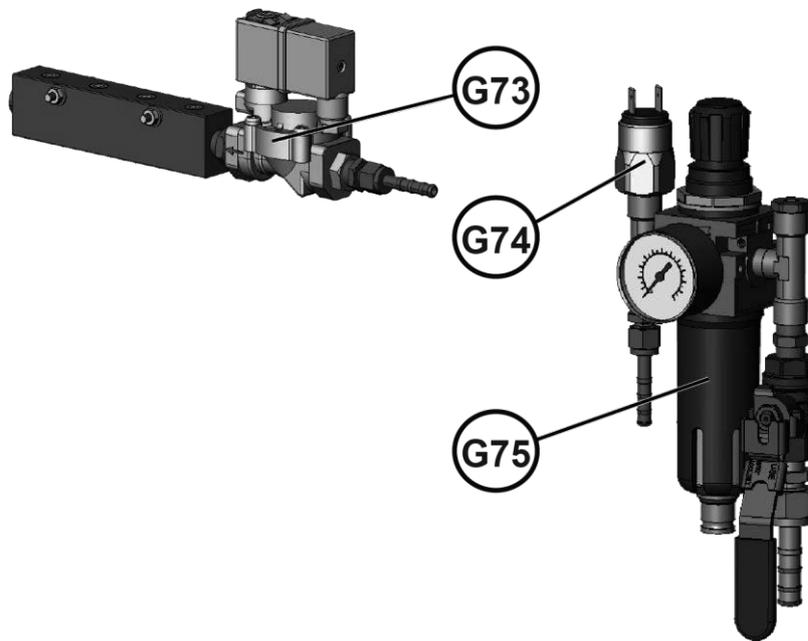
✓	normally in stock
✗	not in stock
	on request

Item	Ref.	Stock	Order	Designation
M20	W000400297	✗		Ø 6.3 mm (1/4") x 37 wire galvanised cable Length dependent on machine size
M21	W000400298	✗		Equipped cable tension pulley
M95	W000400299	✗		Cable tie.

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

CE Type <input type="text"/> Matricule <input type="text"/>	TYPE:
	Number:

PNEUMATIC EQUIPMENT



✓	normally in stock
✗	not in stock
	on request

Ref.	Ref.	Stock	Order	Designation
G75	W000365982	✓		Filter.
G74	W000365846	✓		Pressure switch
G73	W000137873	✓		E.V. 2/2.

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

		TYPE : _____ Number : _____
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CABLE DRAG CHAIN

✓	normally in stock
✗	not in stock
	on request

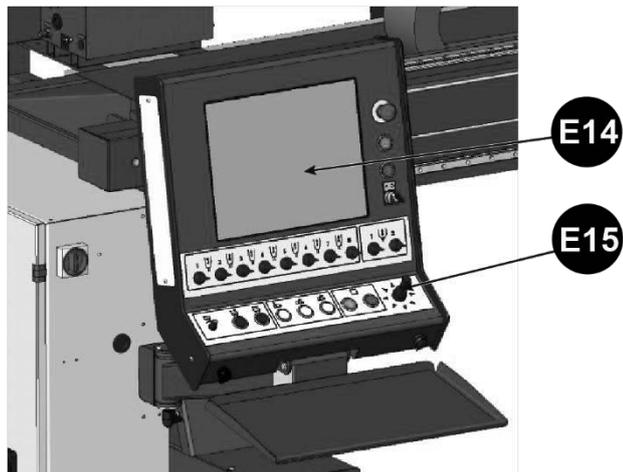
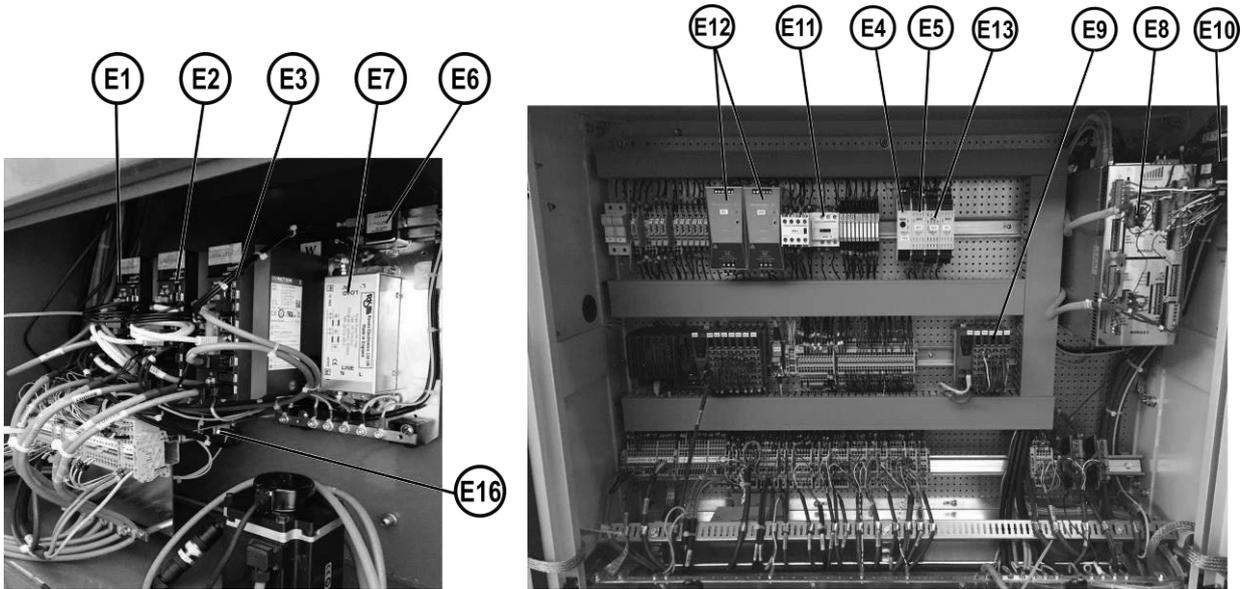
Ref.	Ref.	Stock	Order	Designation
				TRANSVERSAL
	W000400300	✗		Cable drag chain (1 m (39,37") long)
	W000400303	✗		Attachment kit
	W000400301	✗		Vertical divider (x10)
	W000400302	✗		Horizontal divider (x10)
				LONGITUDINAL
	W000402586	✗		Cable chain kit with dividers (length 1 m (39,37"))

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

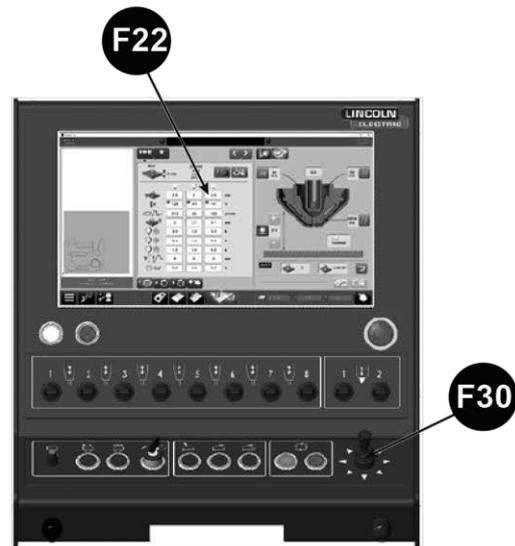
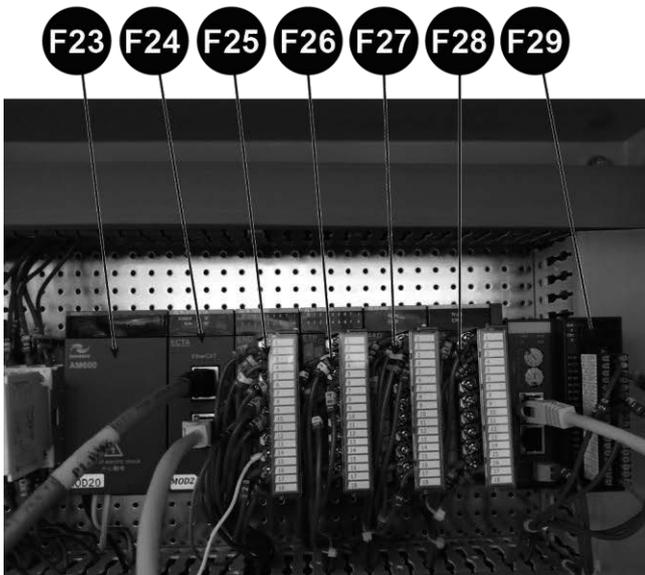
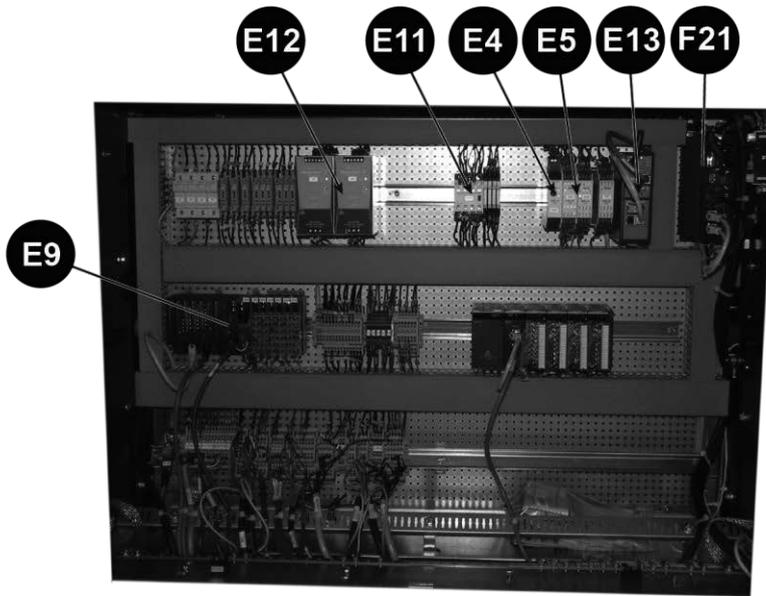
<div style="display: flex; align-items: center;"> <div style="font-size: 0.8em; margin-right: 5px;">CE</div> <div style="border: 1px solid black; padding: 2px; font-size: 0.7em;">Type</div> </div> <div style="display: flex; align-items: center; margin-top: 2px;"> <div style="font-size: 0.8em; margin-right: 5px;">Matricule</div> <div style="border: 1px solid black; width: 60px; height: 15px;"></div> </div>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">TYPE :</div> <div style="border: 1px solid black; padding: 2px;">Number :</div>
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ELECTRICAL EQUIPMENT

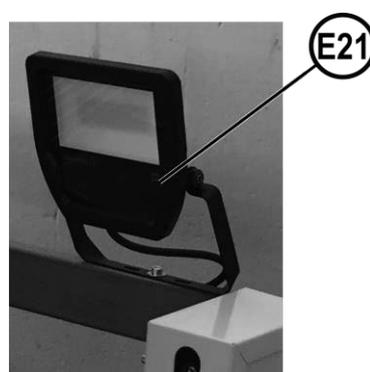
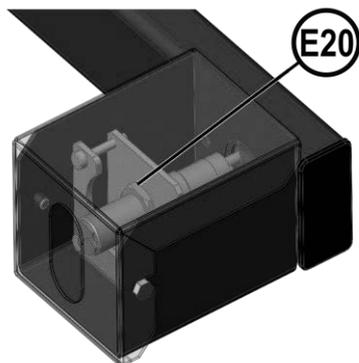
HPC DIGITAL PROCESS II



HPC DIGITAL PROCESS III



HPC DIGITAL PROCESS II and HPC DIGITAL PROCESS III



✓	normally in stock
✗	not in stock
	on request

Ref.	Ref.	Stock	Order	Designation	
E1 E2 E3	W000383980	✓		30A brushless variable drive	HPCII HPCIII
E4	W000400304	✗		Safety module, Flexisoft0	
		✗		Safety module memory and power supply	
E5	W000400305	✗		Safety module, Secure inputs/outputs	
E6	PC5608042			1A electrical filter	
E7	PC5608039			15A electrical filter	
E8	W000383976	✗		EL ETHERCAT CPU	HPCII
E9				Process inputs/outputs module+variable drives. Refer to the dedicated documentation	
E10	W000140748	✓		Sectioning switch, 3P 25A	HPCII HPCIII
E11	W000137792	✗		LC1D12B7 contactor	
	W000383974	✓		LADN40 additive contact	
E12	W000385169	✓		230V/24VDC/20A power supply	
E13	W000400306	✗		Safety module, Conventional inputs/outputs	HPCII
E14	W000400308	✓		19" touch screen + power supply	
E15	W000402585	✗		Manipulator - 8 positions	
E16	W000402584	✗		Braking resistor - 30 W 50	
E18	W000400309	✗		230+400V/24+24V - 4350VA transformer	
F21	AS-CS-07087071	✗		PA9000 CNC CPU + standard dongle	HPCIII
F22	AS-CS-C5703732	✓		16/9 touch screen + power supply	
F23	AS-CS-C5703329	✓		GL10 power supply module	
F24	AS-CS-C5703330	✓		GL10 EtherCAT module	
F25	AS-CS-C5703324	✓		GL10 16 digital inputs module	
F26	AS-CS-C5703325	✓		GL10 16 digital outputs module	
F27	AS-CS-C5703326	✓		GL10 4 analogue inputs module	
F28	AS-CS-C5703327	✓		GL10 4 analogue outputs module	
F29	AS-CS-C5703328	✓		GL10 2 encoders module	
F30	AS-CS-C5704398	✗		8 positions control	
E20	W000400307	✗		Emitting photocell + Receiving photocell	HPCII HPCIII
	W000400640	✗		Laser alignment cells	
E21	W000402598	✗		LED projector - 230V	

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

	TYPE :
	Number :

