A solution for every application

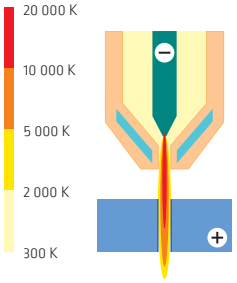
WELD-TEC
SCHWEISS- UND SCHNEIDTECHNIK GMBH

Plasma cutting

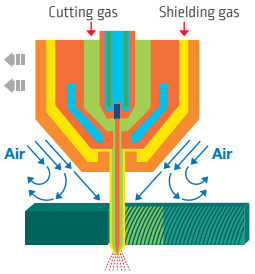
The plasma cutting process, as used in the cutting of electrically conductive metals, utilizes this electrically conductive gas to transfer energy from an electrical power source through a plasma cutting torch to the material being cut.

The basic plasma arc cutting system consists of a power supply, an arc starting circuit and a torch. These system components provide the electrical energy, ionization capability and process control that is necessary to produce high quality, highly productive cuts on a variety of different materials (carbon steel, stainless steel, aluminum, copper.) and thicknesses (from 0.5 to 220 mm).

Plates, round tubes, H or U beam, Channels, HSS tubes, angles....
Plasma, oxycutting, bevels, straight cuts, High quality Holes,
high quality plasma marking, tube cutting with bevel...

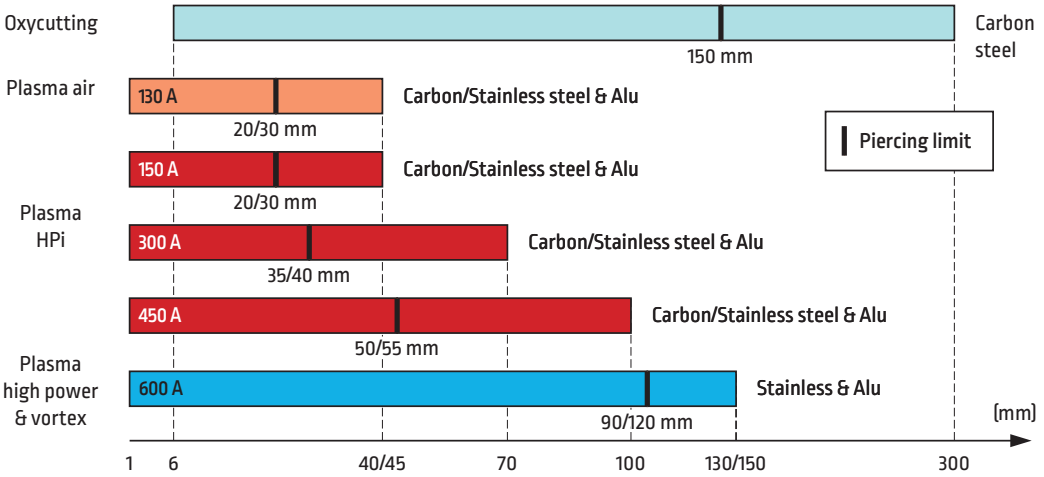


Principle of the plasma cutting process



High Technology
DUAL GAS: double gas injection

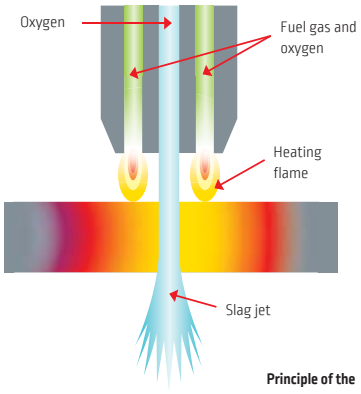
Thickness range



Flame cutting

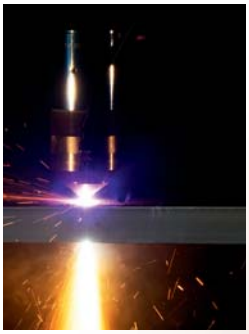
The oxyfuel process is the most widely applied industrial thermal cutting process. It can cut thicknesses from 3 mm to more than 1000 mm. The equipment is low cost and can be used manually or mechanised. There are several fuel gas and nozzle design options that can significantly enhance performance in terms of cut quality and cutting speed.

A mixture of oxygen and the fuel gas is used to preheat the metal to its "ignition" temperature which, for steel, is around 1150 °C (bright red heat) but well below its melting point. A jet of pure oxygen is then directed into the preheated area instigating a vigorous exothermic chemical reaction between the oxygen and the metal to form iron oxide or slag. The oxygen jet blows away the slag enabling the jet to pierce through the material and continue to cut through the material.

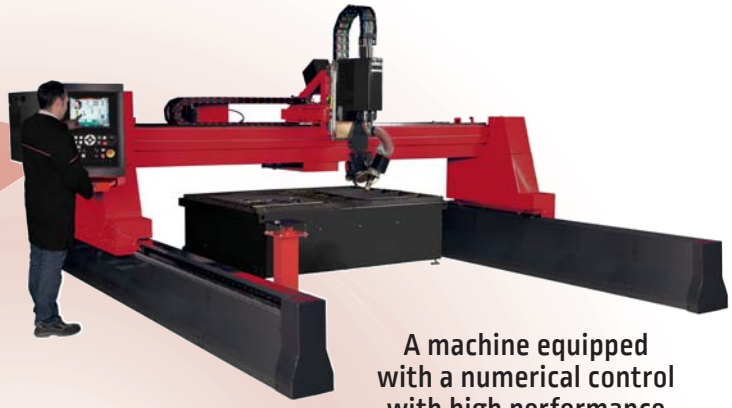


Principle of the oxyfuel process

TOTAL SOLUTION PROVIDER



Advance cutting process
and improved data base parameters



A machine equipped
with a numerical control
with high performance

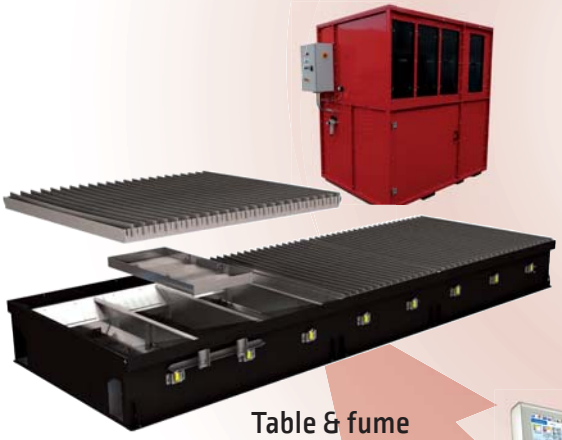
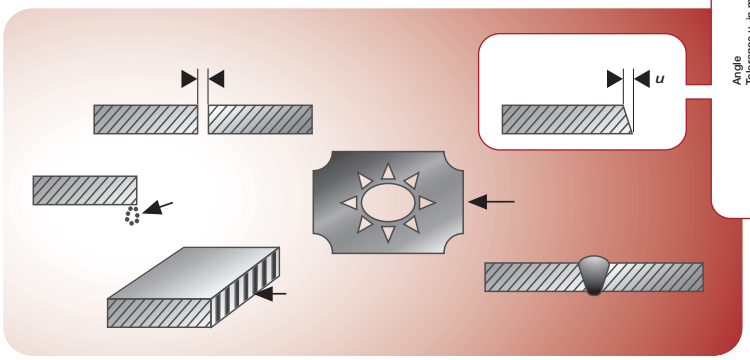


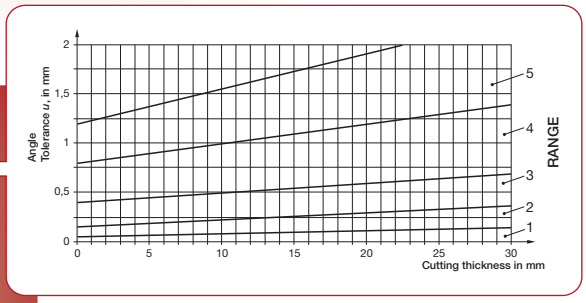
Table & fume
extraction

Efficient software
and post processor

Technician with
cutting expertise

ISO 9013: Main cutting quality criteria





Various features can be evaluated to understand the cutting quality.
EN standard ISO 9013 retains mainly three:

- Geometric accuracy,
- Roughness surface,
- Angle / concentricity.

This last criteria determines, based on the thickness, the perpendicularity tolerance in five classifications (ranges 1 to 5).

HPi Plasma cutting complies with EN 1090 infrastructure manufacturing standard.

CE
EN 1090
COMPLIANT

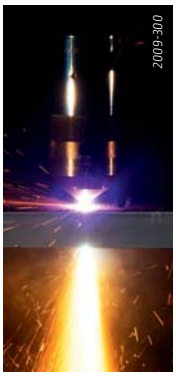
It sets the requirements for the execution of steel structures to ensure appropriate levels of mechanical resistance, stability, service ability and durability.

Thermal cutting and particularly plasma cutting HPi is identified as a process that can be used in the realization of steel structure: cuts & bolt holes

PLASMA CUTTING RANGE

High accuracy and productivity CPM 400

NERTAJET HPi



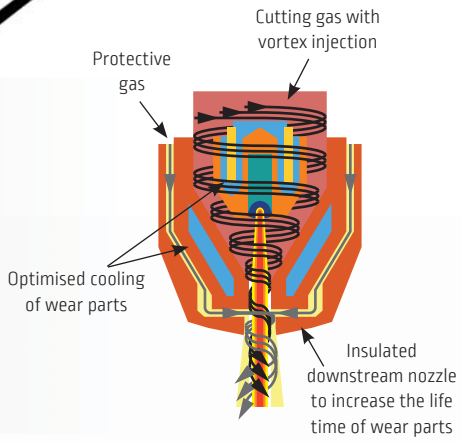
NERTAJET HPi - 150 A
NERTAJET HPi - 300 A
NERTAJET HPi - 450 A

Dry plasma cutting with CPM400

The CPM400 torch has been specifically designed to process steels, stainless steel and aluminium with dry HP cuts up to 400A.

Its dual flux technology gives it various advantages:

- Cut with reduced angles.
- Marking with high quality.
- Protection of cut faces for greater weldability.
- Longer life time of its wear materials.



Industrial plasma LC 125M

FLEXCUT 125

Processes

Plasma Cutting, Gouging and Marking

LOW OPERATION COSTS

BEST AIR CUTTING AND MARKING PERFORMANCE

EASY TO SET UP

EASY TO USE

Heavy power CPM 600Wi

NERTAJET HPi

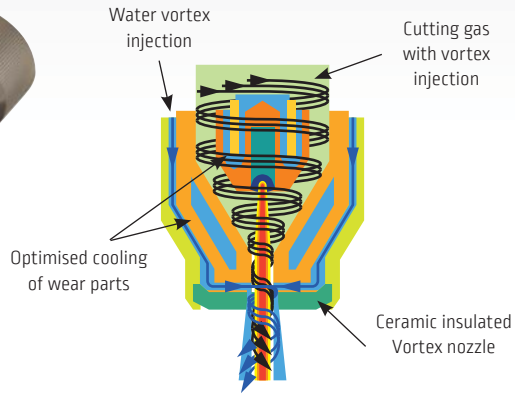
NERTAJET HPi - 600 A

Water vortex plasma cutting with CPM600wi

The CPM600wi torch is designed to process stainless steel and aluminium with HP water vortex cuts up to 600 A.

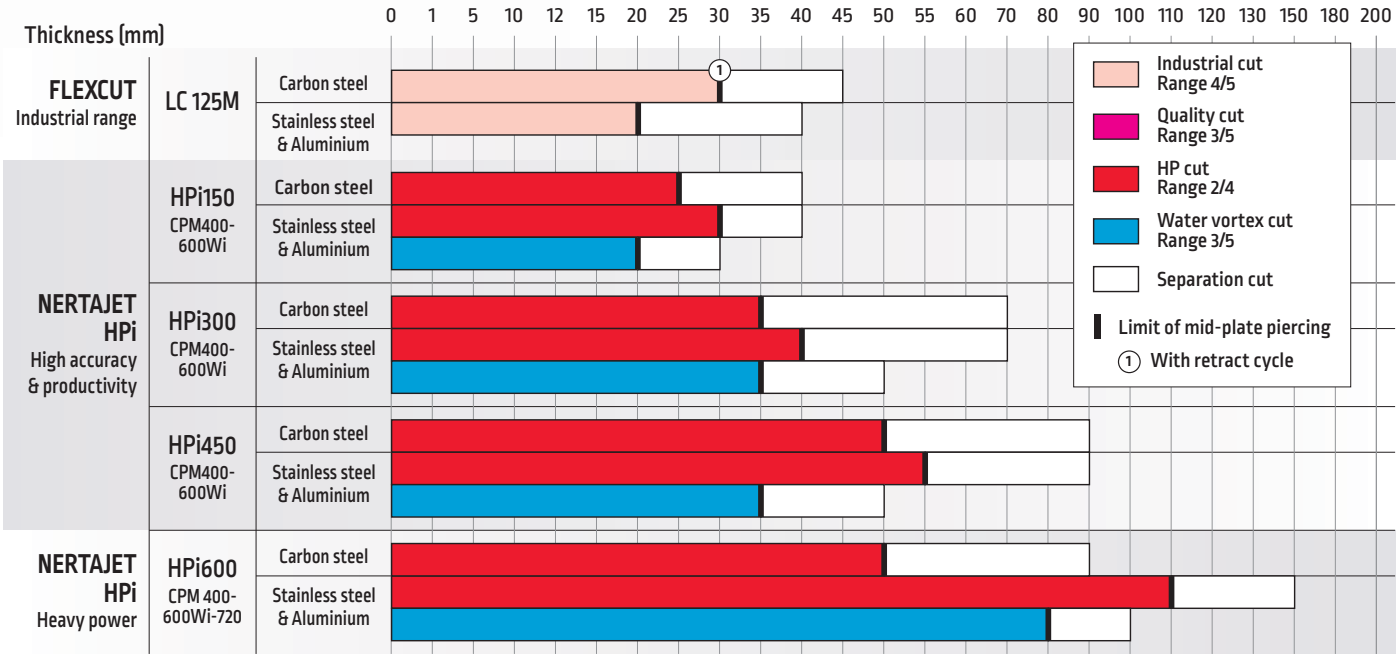
Its dual water VORTEX flux gives it various advantages:

- Work on water or immersed, thereby reducing inconveniences in terms of noise and light below normal tolerance thresholds,
- Wide operating range: from 1 to 90 mm,
- Cut with reduced angles,
- Protection of cut faces for greater weldability,
- The cutting area affected from a thermal point of view and deformation of the pieces is considerable reduced,
- The cost for use on stainless steel or aluminium is extremely competitive: good cutting speed, cost of fluids, life time of wear parts, even very powerful ones...



Power

Thickness range* of the Lincoln Electric automatic plasma cutting installations



** Indicative values*

FLEXCUT 125

125A Powerful, 100% Air Plasma

Make the cut in the big game

Low Operating Costs

Keeping costs under control is important to any efficient plasma cutting operation. The FlexCut 125 ensures up to six times longer consumable life and maintains faster cut speeds - both of which deliver higher productivity over less time. The completed cut is virtually dross-free, which means less secondary processing.

Best Cutting and Marking Performance

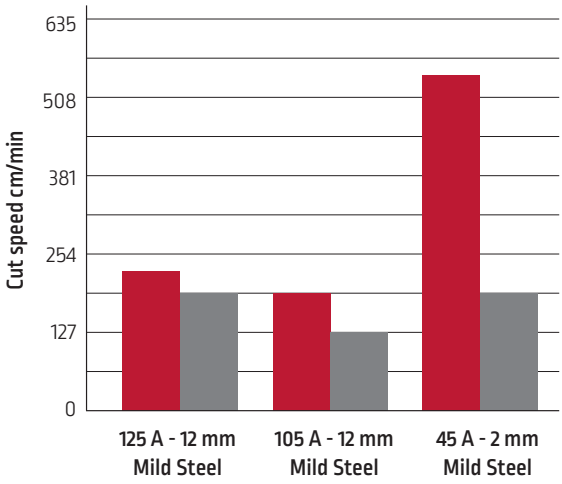
The FlexCut 125 is designed to deliver on all fronts as the only machine in it's class that allows you to plasma mark. Whether you are piercing up to 30 mm* mild steel material in a mechanized cutting application, or cutting expanded metal, you can count on less edge bevel and superior edge quality compared to competing cutting systems.

Easy to Set, Easy to Use

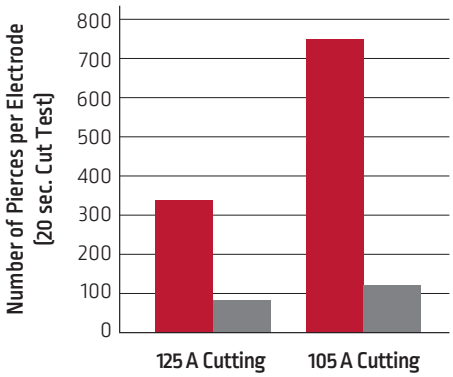
The sooner your plasma cutting operation can get started, the more productive it will be. The FlexCut 125 plasma cutter requires very little time or effort to get down to the business of cutting. Controls are simple, which makes setup easy, and you can get a consistent and reliable arc without needing to rely on high-frequency start systems. The simple user interface provides a means to configure output pressure based on torch length.

** With retract cycle*

CUT SPEED COMPARAISON



ELECTRODE LIFE COMPARAISON



FLEXCUT 125 - SPECIFICATIONS

Input Power Voltage/Phase/Hertz	380/460/575
Rated Output: Current / Voltage / Duty Cycle	125A/175V/100%
Input Current @ Rated Output	3PH/100% 40/40//40/33/28
Output Range	3PH / 20-125A
Air Pressure Required	6.2 to 8.3 Bar
Air Flow Rate	260 l/min at 6.2 Bar
H x W x D (mm)	526 x 311 x 648
Net Weight (kg)	53.5

NERTAJET HPi

NERTAJET HPi is the evolution of the traditional plasma process representing an alternative to laser cutting:

2014-391_ret

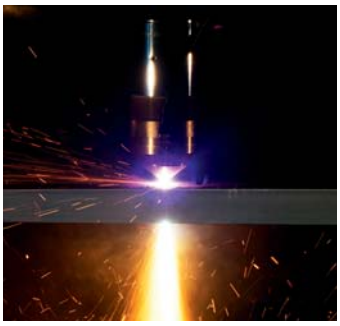

2014-396


2014-399

Quality:

This cutting tool is used to obtain the following:

- Dimensional and geometrical accuracy of the pieces cut on a wide range of materials.
- Quality of the surface of the cut faces (roughness far below than that of a laser).
- A cut angle (range 2 to 4 in accordance with ISO 9013).
- Holes with a remarkable straightness on carbon steel with **HOLE MASTER**.
- Cuts with no adhering slag.
- Quality maintained thanks to the optimized life time and wear compensation function **CDHC** of plasma components.



Productivity:

- Possibility of adjusting the electrical power in relation to the desired speed for each thickness.
- Possibility of combining several NERTAJET HPi plasma installations.
- Possibility of combining several speed ranges on the same geometry with the HPC DIGITAL PROCESS control.
- Possibility of combining cutting and marking operations.
- Possibility of automatically managing the adjustment of cutting parameters.
- Possibility of using the **CYCLE BOOST** and **INSTANT MARKING** functions, thereby reducing the marking and cutting time.

Operating costs:

With NERTAJET HPi systems, everything contributes to obtain an economical cutting price:

- Extended life time for wear parts,
- Low gas consumption unlike a laser,
- High cutting speed associated with the advanced **CYCLE BOOST** and **INSTANT MARKING** functions,
- Cutting with several NERTAJET HPi plasma systems (e.g. dual torch).

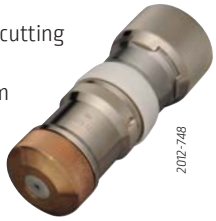

2014-398

Here are the plasma torch nose-pieces used with NERTAJET HPi:


2012-751

CPM400: for HP dry cutting on steel, stainless steel and aluminium up to 400A @ 100%.

CPMwi: for high power dry cutting or water vortex cutting on stainless steel or aluminium up to 600A @100%.
Allows cuts up to 150mm.


2012-748

“Easy Wear Parts Storage” dispenser:

For a simplified management of wear parts and an accurate follow-up of your stock levels.

This visual storage tool is alsoused to prevent any risk of assembly errors for wear parts.

2012-759

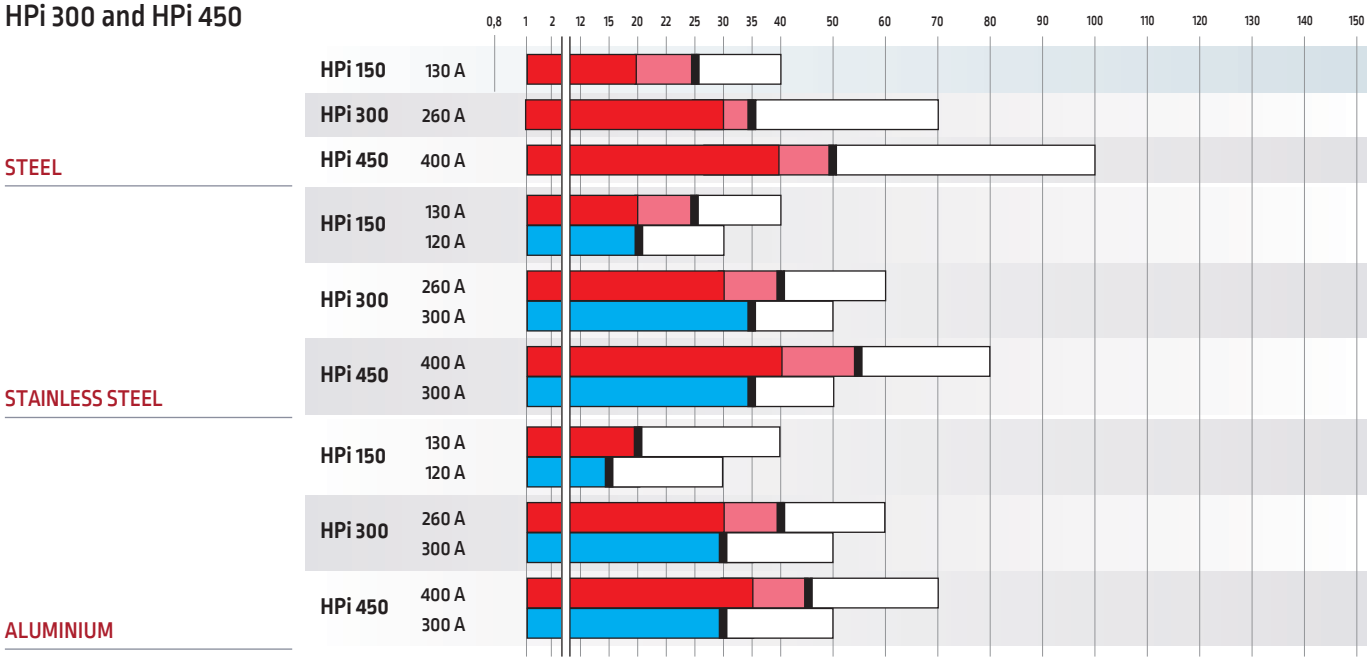
NERTAJET HPi

Fully automatic gas console plasma installation NERTAJET HPi

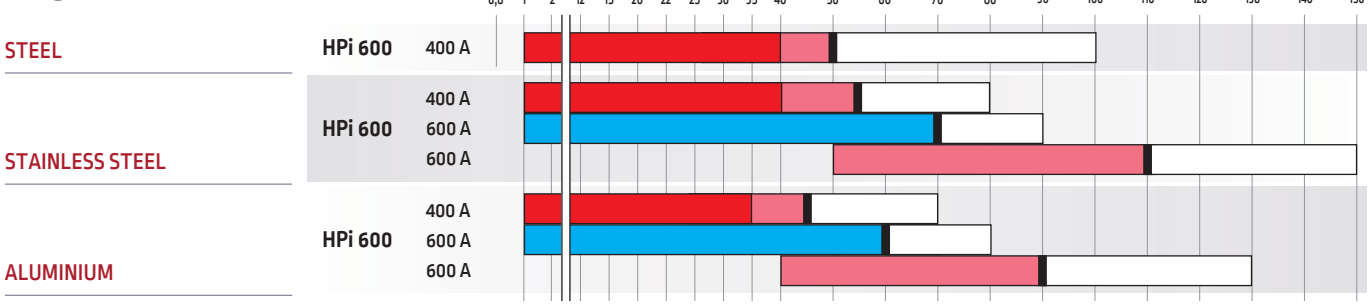
HPi150 or HPi300

HPi450 or HPi600

Range of thicknesses for HPi 150, HPi 300 and HPi 450



Range of thicknesses for HPi600



Key

- **HPi cut** — With few or no flashes, Full mid-plate striking
- **HPi cut** — With just a few flashes, Full mid-plate striking
- **HPi Water Vortex** — Full mid-plate striking
- Limit of mid-plate piercing
- **Separating cut** — Sheet metal edge striking

Processes use with NERTAJET HPi:

- Cutting: O2/Air, O2/O2 , N2/Air, N2/N2, N2H2(5%)/N2, ArH2(35%)/N2, N2/WATER
- Marking: Ar/Air, Ar/N2

NERTAJET HPi system components

- Plasma power source NERTAJET HPi150 & HPi300.
- Autonomous cooling unit FRIOJET 300i or FRIOJET 720.
- Automatic console gas BRGi: managing automatically up to 6 different gas.
- Torch connection console BRTi.
- Numerical tool holder THDi integrating choc sensor. 160mm or 350mm - 15m/min.
- Automatic cycle CA4 interconnected with numerical CNC HPC or HPC2.
- Set of leads adaptable for all machines sizes.

Digital control system:

- **HPC1 or HPC2:** Numerical control fitted on a number of LINCOLN ELECTRIC machines. It manages the whole of the cutting machine: from the trajectory to the process. The fact of having a user friendly nature and being easy to use make it a unique tool acclaimed on the thermal plasma cutting market.
- **TeacHPi:** Its autonomous interface is used to control the HPi plasma system, with it's cycle box. They are interconnectable with a wide variety of machines, robotized systems or mechanizations.

Main characteristics

Power supply	HP150			HP300		
Three-phase power supply (+:- 10%)	230 V	400 V	440 V	230 V	400 V	440 V
Absorbed current	101.2 A	64.3 A	55.2 A	101.2 A	64.3 A	108.7
Cos PHI	0.93	0.85	0.9	0.93	0.85	0.92
Frequency	50/60 Hz					
Duty factor	100% @ 40 °C 150 A - 230 V			100% @ 40 °C 300 A - 230 V		
Protection rating	IP21S					

To calculate the electrical consumption of HP450 or HP600, add the features of HP150 to those of HP300 or multiply by 2 those of HP300.

Data	FRIOJET 300i	FRIOJET 720
Primary Supply 50/60 Hz (+/- 10%)	1 x 230 V	3 x 400 V
Absorbe current	11.6 A	8.8 A
Liquid flow	0.33 m³/h	0.67 m³/h

CPM400

Max. flow (l/min)	HP150	HP300	HP450	HP600
Argon (Ar)	7	11	11	11
Oxygen (O_2)	20	28	40	40
Air (N_2O_2)	40	130	130	130
Nitrogen (N_2)	92	110	110	110
Nitrogen/Hydrogen (N_2H_2 - 5%)	17	17	17	17
Argon/Hydrogen (ArH_2 - 35%)	40	49	49	49

CPM600Wi

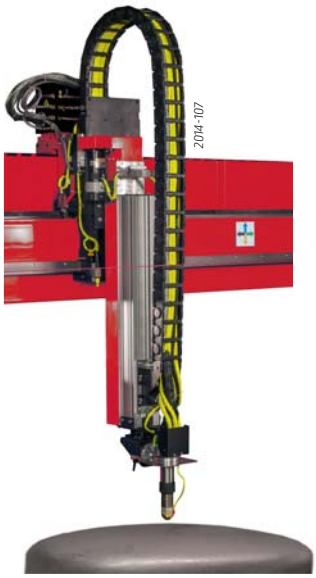
Max. flow (l/min)	HP150	HP300	HP450	HP600
Argon (Ar)	25	26	26	30
Nitrogen (N_2)	31	45	45	70
Water	1.5	2	2	2

Gas supply pressure: 9,0 bar.
In the case of **VORTEX**, add **demineralised water** (supply at 4 bar)

Special equipment

Torch holder 800

This tool holder 800 mm travel can cut on dished ends with a plasma torch in straight position. Its robust design gives it great rigidity even when the tool holder is fully deployed.

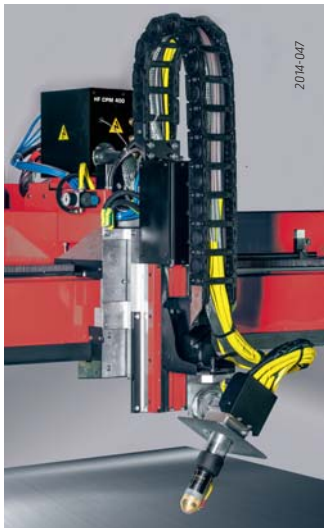


Plasma bevelling following X and/or Y axis

For bevels with a HP plasma torch following X and/or Y axis of the machine. This option can be provided in two configuration:

- Straight bevel cut following X,
- Straight bevel cut following X & Y.

Those 2 options are equipped of a graduated sector to facilitate the angle torch adjustment. A rotation bloc is added to be able to do bevels following the two axes with the second version of the option.



OXYCUTTING RANGE

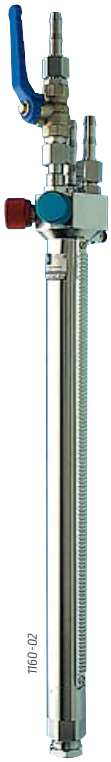
A large range of oxyfuel cutting torches with performance and flexibility

For oxycutting of non or low alloyed steels from 3 to 300 mm, Lincoln Electric offers a full range of oxyfuel cutting torches: OXYCUT G1, OXYCUT MACH, MACH HP or MACH HPi to install on semi automatic machines (gantry machines) or fully automatic machines (gantry machines type OXYTOME HPC).

According to your needs, you will choose, mixing nozzles with the OXYCUT G1, and cutting torches internal mixing with high speed and high quality with OXYCUT MACH, MACH HP or MACH HPi.

OXYCUT MACH HP

- Cutting capacity 6 to 300 mm.
- Productivity.
- Cutting quality.
- Fitting of consumables without tools: easy & quick.
- Lifetime.
- Piercing up to 150 mm.



OXYCUT G1

- Cutting capacity. from 3 to 300 mm.
- Torch in short or long version.
- Robustness.
- According to the price level and the quality needed, possibility to use nozzles from manual torch.

OXYCUT MACH OXY

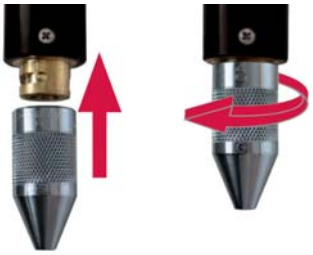
- Cutting capacity from 6 to 300 mm.
- Cutting quality.
- Robustness.
- Easy to use.

OXYCUT MACH HPi

- Internal ignition.
- Cutting capacity 6 to 300 mm.
- Productivity.
- Cutting quality.
- Fitting of consumables without tools: easy & quick.
- Lifetime.
- Piercing up to 150 mm.

MACH HP & MACH HPi

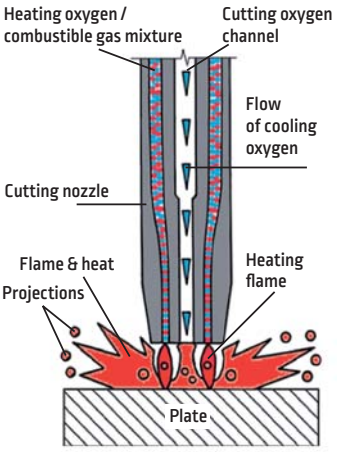
Tool free nozzle change



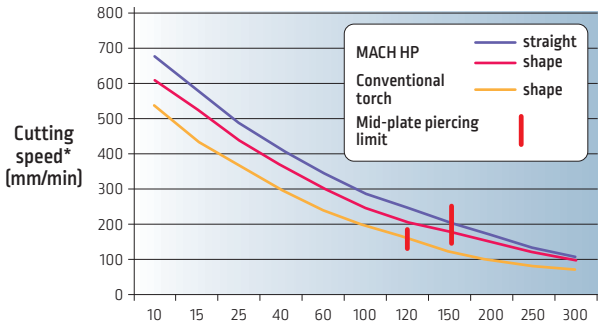
Thickness 6 to 300 mm

High speed cutting nozzles

System OxyCOOL



Type of cut

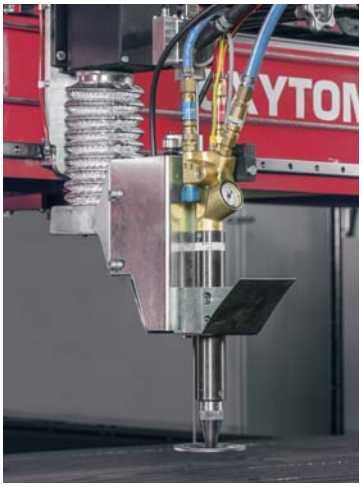


** average speed multi-gas*

Systems of gas regulation fully controlled by HPC 2 with full automatic cycle:

		OXY Essential	OXY HPi
Number of torches		4 (1 module of 4)	12 (up to 3 modules of 4)
Gas regulation		Automatic gas	
Maximum thickness: Cutting / Piercing		200 / 150 mm	300 / 150 mm
Tool holders	150 mm stroke	Yes	
	250 mm stroke	-	Yes
	Cable chain	-	Yes
	Speed	2 m/min	2,5 m/min
Oxy torches	MACH OXY	✓	
	MACH HP	✓	
	MACH HPi	✓	
Fixed electric ignitor*		Option	-
OXY SAFE PIERCING Including choc sensor (Probe detection) (igniter* and retractable probe)		Option	Standard
Beveling tool with tilting nozzle**		✓	
Strip cutting tool**		✓	
VXK cutting tool		1	2

** : integrated ignitor with MACH HPi / ** : use without capacitive probe & automatic ignition*



EQUIPMENT FOR OXYFUEL PROCESS

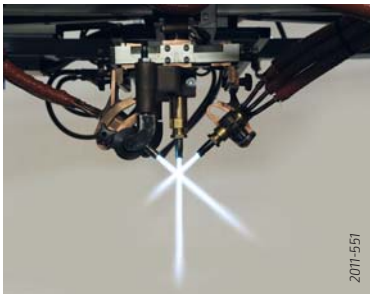
Bevel tool for oxyfuel torch

This tool easy to install and use gives the possibility to realize different kind of simple bevel following a straight line: standard V bevel or tapered bevel (bevel over 45° cut on plate edge)

Tapered bevel (bevel over than 45°)

This tool is well adapted to realize tapered bevel on plate edge with or without the assistance of a mechanical sensor to follow the distortion of the plate.

Bevelling block V X K



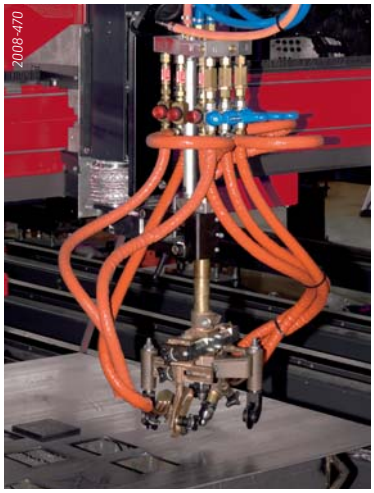
For bevels parallel to the axes using mechanical sensors.

It allow to work on thicknesses up to 70 mm.

The system is equipped with 3 short oxyfuel torches and give the possibility to realize V, Y, X and K bevels.

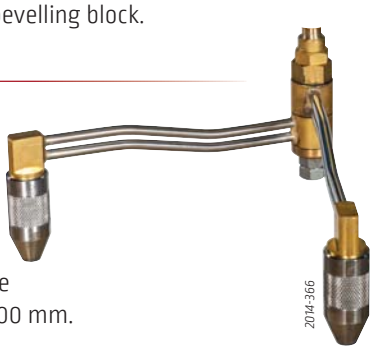
Each side oxyfuel torches can be adjust following an angle from 10 to 45°.

The two robust rollers of the mechanical sensor are cooling by compressed air. In option, the VXK can be fit on electrical tool holder with a quick mechanical exchanger. It gives the possibility to workwith a standard straight cutting torch or with a VXK bevelling block.



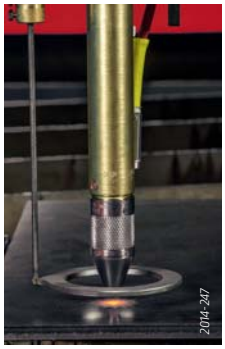
Strip cutting systems

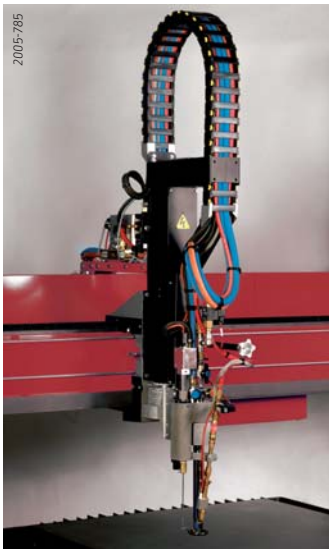
Tools to realize strip cutting. Two systems are available:
One system to fit directly on the oxy-fuel torch.
The system use two set of nozzles.
The distance between each other is adjusted by opening more or less the tool. Distance between the 2 nozzles: from 40 to 400 mm.



Set capacitive sensor/automatic ignition for OXY torch with OXY SAFE PIERCING

Proposed in the basic version on OXYTOME 2, OXYTOME RS HPi, OXYTOME TWIN HPi and in option on EUROTOME 2, this unique system on the market, allows to retract during phases of piercing both the sensor and the igniter. OXY SAFE PIERCING authorizes mid plate piercing up to 150 mm thickness in automatic cycle without any disassembly of the probe or the igniter.




2005-785

Torch holder PO 150 for oxyfuel

Torch holder 150 mm travel, robust and specially designed for the implementation of thermal processes.
Also available in 250 mm travel.


2014-059

High temperature torch holder

It is especially adapted for cutting very thick material in flame cutting.
Its robust design enables it to support the high temperatures found on flame cutting applications up to 900 mm thick.

HPC Automatic indexing

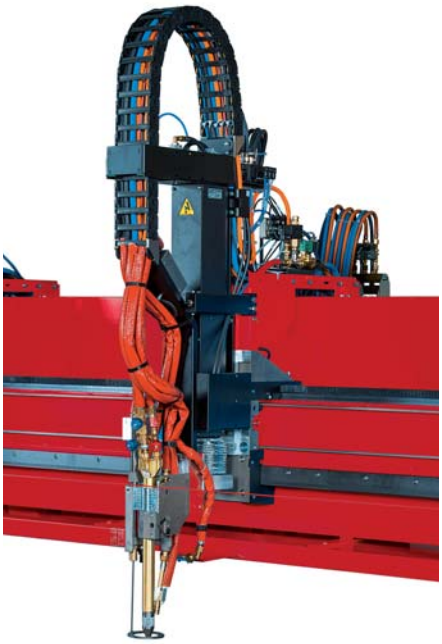
Numerical automatic adjustment of the distance between two or many cutting tools. This option can be managed automatically with the nesting software. Inside a same program, different distances can be adjusted between the torches depending the parts sizes to cut. This option is mainly used with oxy-fuel process. Possibility to use it from 2 to 8 torches. This option is fully managed by HPC thanks to a very nice control interface.


2014-204

Machine thermal protection

The machine can be equiped with different thermal protection able to work in the more hostile condition especially when customer cut with oxyfuel process with many tools or on very big thicknesses.


2016-490


2015-545

Electric clamping

System to clamp slave(s) tool(s) holder(s) from the CNC console or on the tool holder. It is possible for example to deselect slaves tool holders and to park them directly from the CNC console.
Maximum 2 tool Holders. For more, use automatic indexing.

CUTTING MACHINES RANGE

A wide range from the simple mechanised carriage to fully automatised large capacity machines, from torch for straight cut to the 3D plasma cutting tool.

The complete offer of Lincoln Electric can answer to all your cutting needs with oxycutting and/or plasma process.

The various tools and options will enable you to produce parts with shapes, with or without bevel for occasional use or intensive production, on small or large format sheet metal.

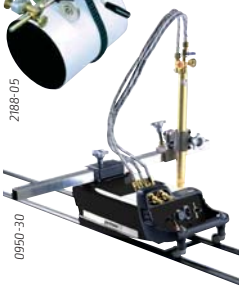
OXY/PLASMATOME 2 HPi

EUROTOME 2

2016-318

TAGLIATUBI, and PYROTOME SE


2188-05


0950-30

PYROTOME CNC


2015-486

TORCHMATE

EASYTOME

2015-483

Examples of equipment and options:

- CNC HPC digital process,
- NERTAJET BEVEL HPi,
- Cutting of tube,
- Numerical drilling unit,
- Micro-percussion marker,
- etc...


2007-489


2015-679


2012-581


2012-570


2011-173


2010-282

OXY/PLASMATOME HPi RS & Twin

CYBERTOME

ALPHATOME 2 HPi

OPTITOME 2 HPi

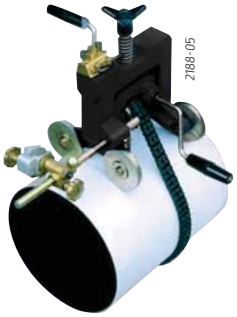
Main characteristics, equipment and options

MACHINES	Transversal stroke													Useful longitudinal stroke	PLASMA (maximal number)			OXY (maximal number)		Main technological options			Table	
	1 m	1.5 m	2 m	2.5 m	3 m	3.5 m	4 m	4.5 m	5 m	5.5 m	6 m	6.5 m	...12 m		Air	HPi	High Power	Manual	Auto	Tube	NERTAJET BEVEL HPi	Drilling unit2.5	Dry	Water
PYROTOME CNC														3	1	-	-	1	-	-	-	-	X	X
TORCHMATE														2.5	1	-	-	-	-	-	-	-	-	X
EASYTOME														1.5 to 4	1	-	-	-	-	X	-	-	X	-
OPTITOME 2														1 to 6	1	1 (300 A)	-	1	-	X	-	-	X	-
ALPHATOME 2														3 to 24	-	2	-	-	-	X	-	-	X	X
EUROTOME 2														3 to 15	2	1	-	-	4	X	-	-	X	X
OXY/PLASMATOME 2 HPi														3 to ...	2			-	6	X	-	-	X	X
OXY/PLASMATOME RS HPi														3 to ...	2			-	8	X	-	-	X	X
OXY/PLASMATOME TWIN HPi														3 to 24	2			-	3	X	X	X	X	X
CYBERTOME														3 to ...	2			-	12	X	X	X	X	X

Portable carriages TAGLIATUBI & PYROTOME SE

Two pratical and functional carriages for ancillary cutting jobs in the workshop and on site.

TAGLIATUBI



The TAGLIATUBI carriage allows the mechanised oxycutting of tubes with outside diameter vayring from 6" (150 mm) to 48" (1 200 mm) and having a thickness from 5 to 50 mm.

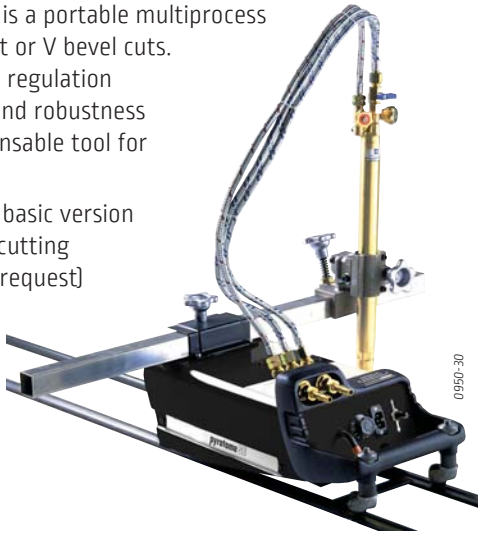
It is adapted for the execution of cuts:

- Straight and with bevel +/- 45° with one oxyfuel torch,
- X and Y bevel when the machine is equipped with two torches and its additional accessories (in option).

PYROTOME SE, the carriage on rails

The PYROTOME SE is a portable multiprocess carriage for straight or V bevel cuts. Its electronic speed regulation (10 to 125 cm/min) and robustness make it the indispensable tool for intensive use.

The PYROTOME SE basic version is equipped for oxycutting (plasma cutting on request)



PYROTOME CNC

PYROTOME CNC is a small mechanised machine integrating a digital controller for cutting on metal sheets format of 1 000 x 2 000 mm or 1 500 x 3 000 mm.
The programming is carried out from a library of standard shapes integrated in the digital controller or from the nesting software (in option). Equipped with one oxycutting torch or one plasma air installation, PYROTOME CNC is simple to implement, versatile, rugged and economical.

Version		1020
Cutting width (mm)		1 000
Cutting length (mm)		2 000
Total width (mm) *		1 400
Total length (mm) *		2 500
Total height (mm) *		500
machine Weight (kg) * Excluding table		85
Traverse Speed		6 m/min
Cut capacity / piercing capacity	FLEXCUT 125	40 mm / 20 mm
	OXYCUT G1	80 mm / 30 mm

** Excluding safety zone & cutting table*

EUROTOME 2

Thermal cutting machine: easy to use, versatile and cost-effective

EUROTOME 2: a rugged mechanical machine design which brings together all the necessary qualities for the implementation of oxycutting, plasma and marking processes.

Equipped with the HPC 2 numerical control with an high quality 19" touchscreen, the EUROTOME 2 fits to all fabrication needs from the lowest thickness (0.5 mm) to the most important with all processes (oxyflame cutting and/or plasma).

Its concept is versatility, **EUROTOME 2 can be equipped with various tools**: 1 to 4 oxyfuel torches managed by OXY Essential, a plasma installation (FLEXCUT 125 CE or NERTAJETHPi), a marking tool and a VXK bevelling tool.

The various sizes of beam width (sizes 15, 20, 25, 30 & 35) and length of railway (original rail effective travel 3 m can be extended with 3 m or 1.5 m modules).

Main technical characteristics:

- Travel speed 15 m/min with double motorisation,
- Brushless motorisation ensuring accuracy and fluidity of movement,
- Separate table on the machine frame,
- Managed by HPC 2 digital process.

2016-318

"A la carte" version	15	20	25	30	35
Cutting width (mm)	1500	2000	2500	3000	3500
Cutting length (mm)	3050+R				
Total width (mm) *	3300	3800	4300	4800	5300
Total length (mm) *	3600	4100	4600	5100	5600
R = additional rail by modules of 3 m or 1.5 m					

** excluding safety zone and equipments (plasma power source, filter, etc...)*

Compatible with standard EN ISO 17916: 2016

	Plasma process	OXY process
Number	2	up to 4
Type	FLEXCUT 125 CE NERTAJET HPi 150 or 300	**OXY Essential with:** OXYCUT MACH OXY MACH HP MACH HPi
Main options		
Pneumatic marker, straight bevelling block VXK, tube cutting, automatic igniter, capacitive sensor, cabinet cooling by vortex, positioning laser.		

OXYTOME 2 & PLASMATOME 2 HPi

Thermal cutting machine completely automated, robust, versatile and efficient

The OXYTOME 2 / PLASMATOME 2 HPi range integrates all the features required to implement the plasma and/or oxycutting process. These machines are suitable for all trades using plasma and oxycutting. Their concept is versatility and a wide choice:

Plasma installations:

- From NERTAJET HPi 150 to 600 A in single torch or bi-torch.
- FLEXCUT 125 CE in single or bi-torch.

Oxy installations:

- Full automatic management of oxyfuel process thanks to OXY Essential or OXY HPi systems depending thickness capacity needs.

Applications:

- Cut from 0.5 to 300 mm thickness low alloy steels or non-alloy steels,
- 150 mm thickness stainless steel,
- 130 mm thickness light alloys.

Uses:

- Dry plasma cutting to immersed plasma cutting, cut of tubes.

Main technical characteristics:

- Travel speed 15 m/min,
- Double motorisation in base version,
- HPC 2 digital process: management and control fully automated for plasma and oxycutting process,
- **OXYTOME 2 HPi** can receive up to 6 tools (6 OXY or 4 OXY and 2 plasma),
- **PLASMATOME 2 HPi** can receive up to 2 plasma installations.

"A la carte" version	15	20	25	30	35	40	45
Cutting width (mm)	2065	2565	3065	3565	4065	4565	5065
Cutting length (mm)	3350+R						
Total width (mm) *	3500	4000	4500	5000	5500	6000	6500
Total length (mm) *	4996+R						
R = additional rail by modules of 3 m or 1.5 m / useful travel 30 m maxi.							

** excluding safety zone and equipments (plasma power source, filter, etc...)*

	Plasma process	OXY process
Number	up to 2	up to 6
	6 tools maxi	
Type	NERTAJET HPi 150 NERTAJET HPi 300 NERTAJET HPi 450 NERTAJET HPi 600	OXY Essential or OXY HPi with: OXYCUT MACH OXY MACH HP MACH HPi
Main options		
Cut of tube, micro percussion marker, laser positioning, 4th axis, automatic indexing, straight bevelling block VXK, camera, aerial cable chains.		

OXYTOME & PLASMATOME RS HPi

Medium and large format machines for thermal cutting. Robust, versatile and efficient for intensive use.

The OXYTOME / PLASMATOME RS range integrates all the features required to implement the plasma and/or oxycutting process. These machines of medium and large format are suitable for all trades requiring intensive production. In semi automatic version or fully automated they implement versatile applications:

Plasma installations:

- From NERTAJET HPi 150 to 600 A in single torch or bi-torch.

Oxy installations:

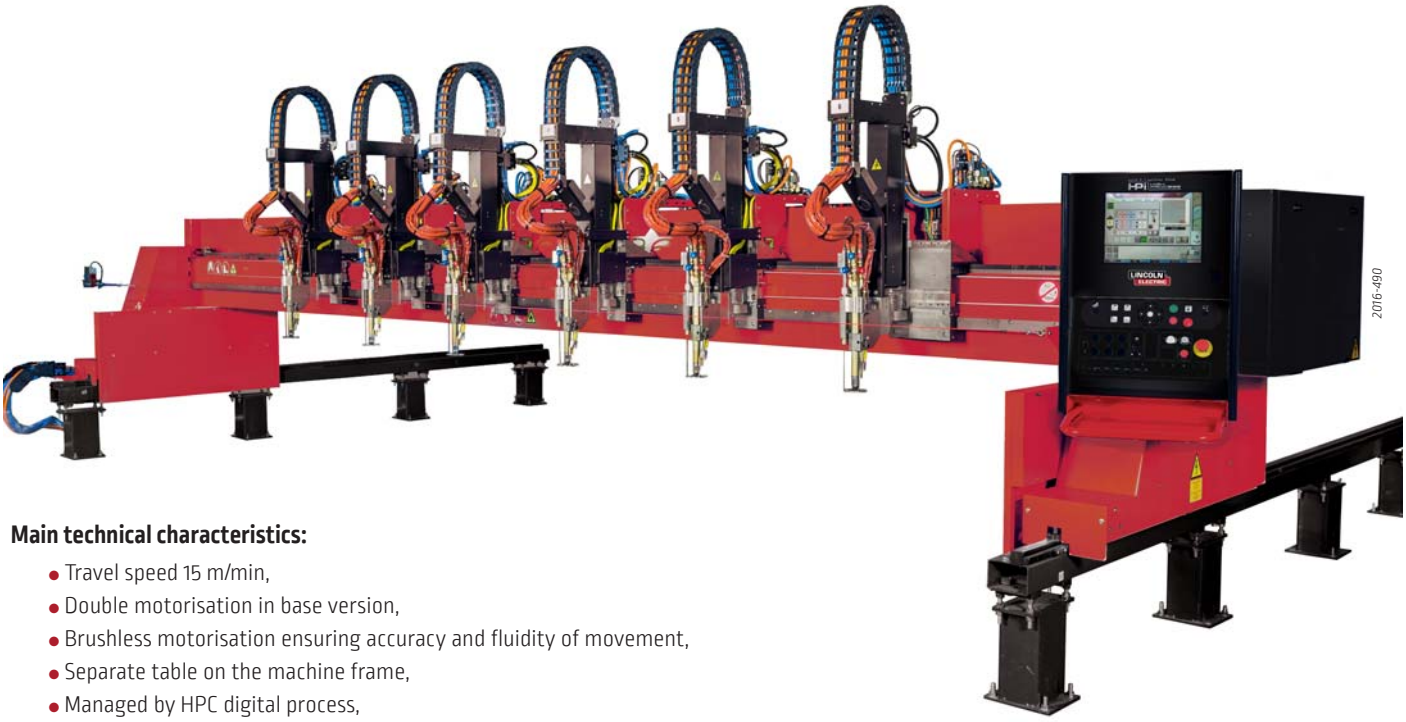
- Full automatic management of oxyfuel process thanks to OXY HPi system.

Applications:

- Cut from 0.5 to 300 mm thickness low alloy steels or non-alloy steels,
- 150 mm thickness stainless steel,
- 130 mm thickness light alloys.

Uses:

- Dry plasma cutting to immersed plasma cutting with or without automatised bevelling.



Main technical characteristics:

- Travel speed 15 m/min,
- Double motorisation in base version,
- Brushless motorisation ensuring accuracy and fluidity of movement,
- Separate table on the machine frame,
- Managed by HPC digital process,
- **OXYTOME RS** can receive up to 8 tools (8 OXY or 6 OXY and 2 plasma),
- **PLASMATOME RS** can receive up to 2 plasma installations,
- **With version HPC digital process** management and control fully automated for plasma and oxycutting process.

"A la carte" version	30	35	40	45	50	55
Cutting width (mm)	3425	3925	4425	4925	5425	5925
Cutting length (mm)	3050+R					
Total width (mm) *	4920	5420	5920	6420	6920	7420
Total length (mm) *	4715+R					
R = additional rail by modules of 3 m or 1.5 m / useful travel 30 m maxi.						

** excluding safety zone and equipments (plasma power source, filter, etc...)*

	Plasma process	OXY process
Number	up to 2	up to 8
	8 tools maxi	
Type	NERTAJET HPi 150 NERTAJET HPi 300 NERTAJET HPi 450 NERTAJET HPi 600	**OXY HPi with:** OXYCUT MACH OXY MACH HP
Main options		
Cut of tube, micro percussion marker, laser positioning, 4th axis, automatic indexing, straight bevelling block VXK, camera, aerial cable chains.		

OXYTOME & PLASMATOME TWIN HPi

Robust high-precision machines in medium and large format for thermal cutting with fully automated control.

The OXYTOME / PLASMATOME TWIN HPi range is proposed in medium and large format. It fits all trades for the lowest thicknesses (0.5 mm) to the largest accessible for plasma and / or oxycutting.

Its linear guideline systems fully protected, double beam concept, fluidity of movement and dynamism make a machine specially designed for plasma or OXY HPi cutting at intensive use.

It is perfectly adapted to implement bevelling applications with plasma HPi all automated.

Combined with one or more torches, it provides versatility cutting applications and cuts of high quality: the HPi Lincoln Electric quality.

Full automatic management of oxyfuel process thanks to OXY HPi system.

Main technical characteristics:

- Travel speed 15 m/min,
- Double motorisation in base version,
- Brushless motorisation ensuring accuracy and fluidity of movement,
- HPC digital process: management and control fully automated for plasma and oxycutting process,
- **OXYTOME TWIN HPi** can receive up to 4 tools,
- **PLASMATOME TWIN HPi** can receive up to 2 plasma installations,
- Double beam transverse with roller bearing,
- Rails with roller bearing fully protected on longitudinal axis,
- Motor gearboxes with play adjustment.

"A la carte" version	30	35	40	45	50
Cutting width (mm)	3425	3925	4425	4925	5425
Cutting length (mm)	4535+R				
Total width (mm) *	4920	5420	5920	6420	6920
Total length (mm) *	6200+R				
R = additional rail by modules of 2 m or 3 m / useful travel 24 m maxi.					

** excluding safety zone and equipments (plasma power source, filter, etc...)*

	Plasma process	OXY process
Number	up to 2	up to 3
	4 tools maxi	
Type	NERTAJET HPi 150 NERTAJET HPi 300 NERTAJET HPi 450 NERTAJET HPi 600	**OXY HPi with:** OXYCUT MACH OXY MACH HP
Main options		
NERTAJET BEVEL HPi, cut of tube, micro percussion marker, laser positioning, 4th axis, automatic indexing, straight bevelling block VXK, camera, aerial cable chains, drilling unit.		

CYBERTOME

Machine for large and extra large widths metal sheets with on-board operator for intensive use in the harshest environments. Robust, versatile and efficient.

The CYBERTOME range combines all the qualities necessary for the implementation of the plasma process and/or oxycutting high capacity. These machines, available in large and extra large formats, are adapted to all applications ranging from thin material (0.5mm) to the largest accessible for plasma and / or oxycutting. In semi automatic version or fully automated they implement versatile applications:

Plasma installations:

- From NERTAJET HPi 150 to 600 A in single torch or bi-torch.

Oxy installations:

- Full automatic management of oxyfuel process thanks to OXY HPi system.

Applications:

- Cut from 0.5 to 300 mm thickness low alloy steels or non-alloy steels,
- 150 mm thickness stainless steel and 130 mm thickness light alloys.

Uses:

- Dry plasma cutting to immersed plasma cutting with or without automatised bevelling.

The CYBERTOME may receive:

- HPC digital process allowing management and control fully automated for plasma and oxycutting process,
- Automatic indexing of tools,
- Differents marking tools for traceability,
- Automatic plasma bevelling unit,
- Oxycutting VXK bevelling unit,
- Cut of tube,
- Thermal protection (heat shields and cooling machine) for cutting very thick.

Main technical characteristics:

- Travel speed 15 m/min or 30 m/min,
- Double motorisation in base version,
- Brushless motorisation ensuring accuracy and fluidity of movement,
- managed by HPC digital process.

"A la carte" version	40	50	60	70	80	90	...120
Cutting width (mm)	4000	5000	6000	7000	8000	9000	12000
Cutting length (mm)	3000+R						
Total width (mm) *	6500	7500	8500	9500	10500	11500	14500
Total length (mm) *	6000+R						
Total height (mm) *	2640						

Other dimensions on request

R = additional rail by modules of 6 m - 3 m or 1.5 m

** excluding safety zone and equipments (plasma power source, filter, etc...)*

	Plasma process	OXY process
Number	up to 2	up to 12
	12 tools maxi	
Type	NERTAJET HPi 150 NERTAJET HPi 300 NERTAJET HPi 450 NERTAJET HPi 600	**OXY HPi with:** OXYCUT MACH OXY MACH HP

Main options
NERTAJET BEVEL HPi, cut of tube, micro percussion marker, laser positioning, 4th axis, automatic indexing, straight bevelling block VXK, camera, aerial cable chains, drilling unit.

NERTAJET BEVEL HPi

NERTAJET BEVEL HPi is an efficient tool for all cuts that require particular preparation for welding, or any other applications requiring bevels. It thus makes it possible to make V, Y, X and K bevels in a large range of thicknesses and materials.

Precise and robust

- "Machined robot wrist" technology offering:
  - High positioning accuracy: 3 axes are used to ensure the inclination and orientation of the torch.
- High robustness with low sensitivity to shocks:
  - High mechanical conception robustness base on rotation axis,
  - The bottom of the arm is quite far from the plate and tilting parts,
  - Multi-directionnal choc sensor with large clearance.
- Fully controlled by digital control HPC BEVEL EtherCAT.
- EtherCAT motorization with absolute encoders.
- Compatible with NERTAJET HPi 300 & 450.

AC System integrated intelligent database

- Integrated in the numerical control, AC System automatically corrects the paths to compensate the angular and dimensional deviations generated by the plasma cutting process.
- Allows even when the requested chamfer is not known, to obtain a proposal of parameters defined by extrapolation of the existing data,
- The intuitive & user-friendly IHM gives quick and easy access to the database to refine or create new operating points.

Function CDHC (Cutting Digital Height Control)

- Allows control of torch height during cutting phases. It is particularly important for the respect of the dimensions of the parts and the quality of realization of the chamfers.
- Automatically adjusts the torch position to always be at optimal height to generate the best cutting quality.
- Automatically compensates the wear of plasma consumables especially the electrode. Without this compensation, the dimensions of the chamfered parts would derive of several millimeters.

Advanced features NERTAJET HPi

- Cycle Boost and Instant Marking: to increase productivity.
- Hole Master HPi to increase cutting quality.
- Twin Detect for cutting on dished end.

Function TSB (Trajectory Strategy for Bevel)

- Optimized cutting strategy for a excellent dimensional result.
- Optimized learning cycle for accurate acquisition of sheet position.
- Specific torch orientation cycle for multi-pass chamfers for optimum dimensional results.

	PLASMATOME / OXYTOME RS or TWIN	CYBERTOME
NERTAJET BEVEL HPi 300 or 450	✓	✓

Type of bevel	V, Y, X and K Dimensional and angular accuracy according to ISO 9013
Rotation axis	+/ 455° 30 rpm/min
Tilt torch	+/- 52° 40 tr/min Allows cutting angles of up to 50°
Z axis slide	250 mm 5 m/min
Options	Tube cutting, cuts on dished end, Z axis slide of 800 mm, mechanical sensor for evolutive chamfering on standard plates

OPTIONS

Pneumatic drill unit

Pneumatic drill system:

This option is a pneumatic drilling mounted on a pneumatic slide equipped with ball bearing rails giving it rigidity and precision. It can be use to produce holes or centering holes.

Main characteristics:

- Capacity diameter for carbon steel: 8 mm,
- Capacity diameter for aluminium: 10 mm,
- Feed force: 350 N,
- Max power: 0.22 kW, - speed: 1100 rpm,
- Maximum stroke: 80 mm,
- Max air flow: less than 6 l/s,
- Standard drill chuck.

2014-223

Numerical drilling unit

Drilling unit can be fitted on cutting machine to combine drilling, thermal cutting and marking in one operation:

- Sheet metal press system,
- Tool length measure system,
- Automatic tool exchanger.

Fully interfaced with the HPC DIGITAL PROCESS System, the management of the drilling unit is simple and user friendly.

Fully automatic management of the drilling unit. Simple and user friendly database of parameters for drilling unit. This database (spindle speed, rotated speed, ...) can be updated by the operator depending on the tool used. Minimum and maximum sheet metal thickness depends on the application and cutting machine.

Material could be drilled: carbon, stainless steel and aluminium.

	Technical characteristic
Drill diameters	up to 30 mm
Tool type	ISO 40
Max. spindle motor power	up to 20 kW
Automatic tool exchanger	up to 30 tools
Machine compatible	OXYTOME / PLASMATOME TWIN HPi CYBERTOME

Tube cutting

This option has been developed to meet many cutting applications on round tube from small to large diameter. Thanks to its software interfaces, the machine is able to cut different types of geometry on tube: stitching, cod mouth, separation cut, straight or evolutive bevel etc...

The option is composed of a cabinet control interconnected to the HPC DIGITAL PROCESS, of a motorised headstock with fume extraction duct and an adjustable positioning system according to the diameters of tubes. The positioning of the tube offers many advantages including that the cut piece remains in position after cutting thus avoiding potential risk to safety or damage.

Main technical characteristics:

- With standard motorised headstock:
  - Diameter 400 mm*,
  - Lenght up to 6 m,
  - Weight maxi of tube: 550 kg,
  - Speed maxi: 30 rpm.
- Central fumes extraction,
- Tube positioning by cross rotators or tube rotators,
- Others dimensions on request,
- NERTAJET BEVEL HPi in option.

** Other diameter on demand*

2nd numerised transversal axis

Automatic adjustment of the distance between cutting tools done with two CNC axes.
This option can be managed automatically with the nesting software. Inside a same program, different distances can be adjusted between the two torches depending the parts sizes to cut.

This option is mainly used with plasma system but can also be adapted with oxy-fuel process. This option is fully mana a very nice control interface.

OPTIONS

Cooling systems

Electrical cabinet cooler vortex system

Cooling done by vortex effect with air pressurized. It cools the electrical cabinet and limit the introduction of dusts due to the over pressure. Designed to work in hostile environment.

Air cooling system for electrical cabinet

Air Cooling system with heat exchanger reducing drastically the temperature inside the electrical cabinet. Designed to work in countries where temperature reach 50 °C and more.

Operator visual protection

Curtain easy to adjust to protect the operator against the plasma electric arc.

Voltage inverter

This option is developed to protect the CNC or the machine against the fluctuation and hazard on the voltage supply. It can be propose in two version:

- One able to protect the CNC,
- One able to protect the machine & CNC *.

** oxyfuel process wil be cover but flot the plasma*

Cutting table lighting

Lighting of the cutting table with 2 leds projectors place on each side of the machine.

Gas driven single point automatic lubricators

The units are supplied ready-to-use connected to ball bearing transversal carriages and filled with lubricants. Tool-free activation and time-setting allow easy and accurate adjustment of lubrication flow.

Flexible dispense rate from 1 to 12 months.

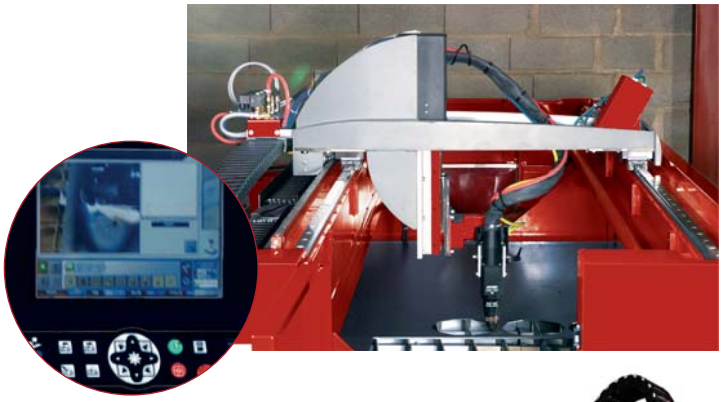
Stoppable or adjustable if required.

It's simplified the maintenance of the machine and increase life time of the ball bearing carriages.

Positioning

Visioprocess

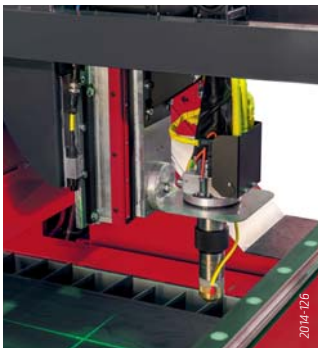
A camera is used to display the torch position on a control screen.
The monitored area is about 250 mm in diameter and promotes correct positionning before and during cutting. The device also monitors the arc.
The operator can control cutting operations and position the torch no matter where the control console is located.
The camera is protected by an anti-dazzle device to protect it from the effects of the plasma arc. The operator can choose between a monochrome or colour display.



Positioning

Positioning laser with greencross

Controlled by the interface of the HPC, this tool helps the operator to position the machine to start cutting program or make the alignment of the sheet metal.



Laser to detect the position of the plate

This option is a laser for automatically positioning a cutting program according to the position of the sheet. It works following one axis.

Markers

Pneumatic marking

For punching and engraving plates.

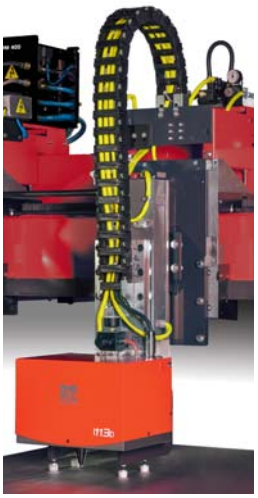
The depth of marking is controlled by varying the compressed air pressure and the speed. Recommended for use on plates thicker than 15 mm.

Wen marker

This pneumatic vibrator engraves sheet metal by slightly scoring the surface finish. Well adapted for thin and medium thicknesses.

Micro-percussion marking

It allows a fast and accurate marking.
This system can carry out several lines marking with small characters (less than 10 mm).
To perform the marking, the micro marker box is automatically positioned above the sheet metal. Then it drives a pen following its 2 axes dedicated to draw characters and mark the sheet with the desired power (marking depth).



Felt marking

This marker uses a felt tip which has been especially selected for its strength.

It operates by gravity and does not alter the surface finish of the material. It is intended for use on galvanized steels, aluminium, stainless and black prepainted steels, depending on the quality of their surface finish.

HPC DIGITAL PROCESS 2

The most intuitive and efficient numerical control on the market.

It fully manages the cutting machine, from the trajectory to the processes.

The ergonomics of the HMI and its large 19" touch screen make it a user-friendly and easy-to-use tool.

In particular, it includes all the important functions suited to the thermal cutting business such as: Cutting recovery menu, parametric shapes, sheet metal alignment, test menus, automatic adjustment of parameters...

The features of HPC 2:

- 50 Parametric Forms,
- Parts directory programmed on external software,
- ISO code editor,
- Scale, rotation, symmetry,
- Choice origin program,
- Management of sheet metal works,
- Sheet metal alignment assistance tool,
- SMART DATA BASE for "intelligent" plasma and flame cutting processes,
- Controls of processes,
- Dynamic visualization of the part and tracking of the trajectory in real time,
- Program recovery menu: forward/backward on trajectory, offset for restart of the off-trajectory cut, zoom,
- Complete setup for machine configuration: Tools, Options, Languages,
- Option: Tube cutting, 2nd digitized transverse axis, NERTAJET BEVEL HPi, digital drilling, automatic indexing, visio-process, laser positioning or measurement...
- 17 Languages available.

Hardware & Communication:

- Robust industrial computer,
- SSD hard drive with large capacity,
- Windows 7,
- Real-time trajectory management system,
- ETERCAT bus management,
- 19" industrial touch screen,
- USB, NETWORK & TELESERVICE.

How works the automatic adjustment of processes on HPC DIGITAL PROCESS ?

Phase 1 :

After selecting the program, the operator chooses the material to be cut.

Phase 2 :

HPC provides one or more solutions adapted to the application.

Phase 3 :

After accepting the proposal, the setting of each parameter is done automatically.

Phase 4 :

When the tool (plasma torch or oxyfuel torch) is equipped with consumables recommended, the machine is ready to cut.

You have chosen to use the data base of HPC or to create your own data base.

JOB function gives you the possibility of attaching this process management to a program loaded and selected in the numerical controller.

This combination can be stored by the JOB function and then used by any operator.

Advanced or Essential control panel:

The Advanced swivel console is equipped with a joystick, ergonomic manual controls and a maintenance mode to simplify the use of the machine. It can be found in particular on the OXYTOME 2 and PLASMATOME 2 range. Also available as a fixed console version with ALPHATOME 2.

The Essential swivel Desk is fully touch-sensitive and is equipped with a maintenance mode that simplifies the use of the machine. It is found in particular on the EUROTOME 2 range. Also available in fixed console with OPTITOME 2.

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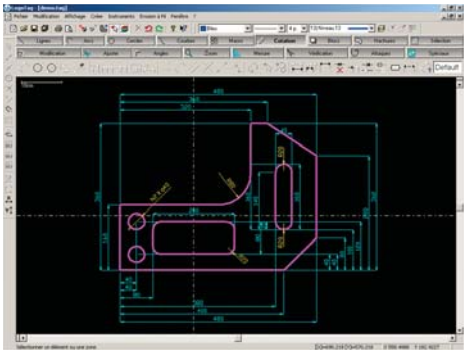
Software MAGICNEST JUNIOR for HPC

Module design and programming installed on digital HPC command to:

- Import all type of program (dxf, dwg, dstv...), - create customized drawing,
- Use a database of standards forms complementary than the HPC propose in standard,
- Customize its own standard forms (optional), - create a machine program,
- Apply technology for chamfering (optional).

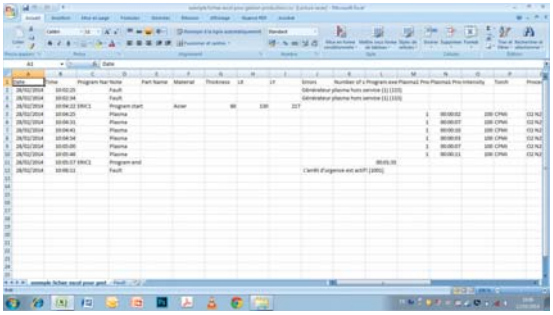


Production monitoring on HPC

Module dedicated for production monitoring. The HPC saves all the actions done during production. Those files can be edited with Excel or can be automatically analyzed by CAD/CAM software.
Those files data can be saved on a USB key or directly on a customer directory if the CNC is connected on his network.

Data available:

- Number of cutting, - time of cutting,
- Material and process chosen,
- CNC default,
- Failed cut part...

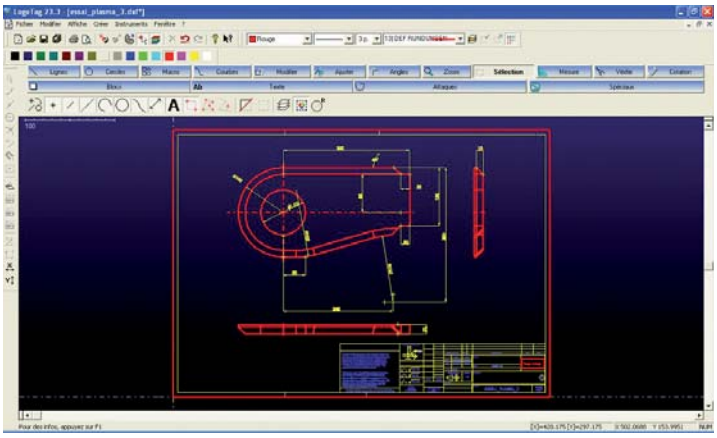


CUTTING SOFTWARE

A well adapted computerized help increases the automation and the return on investment of machines fitted with the CNC. Lincoln Electric can supply software specially designed for thermal cutting CAD, pressure vessel shapes developed flat, interleaving, plate stock control, communication, translation of external files and files produced by other CAD systems (DXF, DWG, DSTV...).

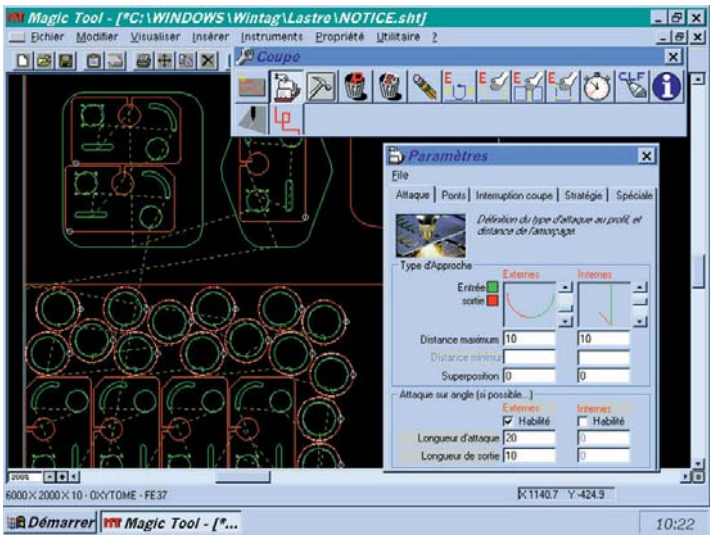
MAGICNEST Software range

Four products that run with the latest Windows operating systems to enable to prepare and control thermal cutting production.
The software is designed to be intuitive, simple and user-friendly, while offering powerful and effective functions.



MAGICNEST JUNIOR

Principally designed for small sized cutting machines, MAGICNEST JUNIOR is an intuitive and easy-to-use CAD software that integrates 2D designing tools. Its cutting technology, simulation modules complement the product for the fuss-free control of the machine.
It can also read and modify all types of drawing - DXF, DWG, DSTV etc.
The serial transmission module WINRS completes the functionalities of the product.



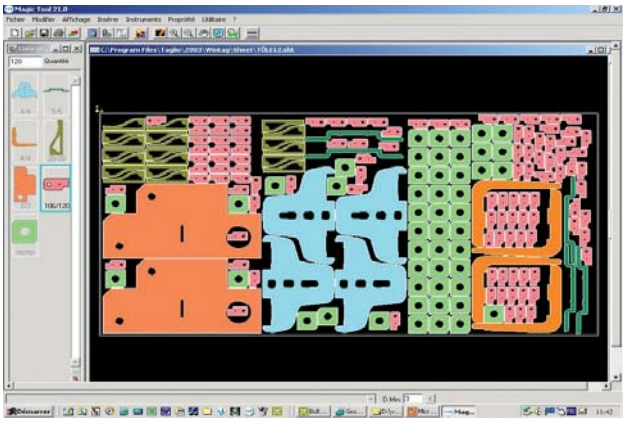
MAGICNEST 01 (manual nesting)

MAGICNEST 01 includes MAGICNEST JUNIOR and a nesting module that allows to manage quotes, orders, sheet stock and piece nesting. Its database makes it possible to obtain accurate quotes in a very short time, offer the manual cutting strategy, save know-how and generate machine programs. Its many tools - multiple-torch cutting, junctions, bridges, will enable you to fully control production and retain simplicity and intuitiveness of use.

MAGICNEST 10 (automatic nesting)

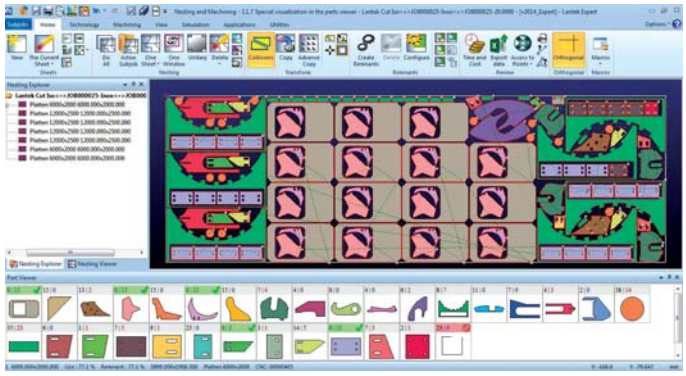
This is the top end version of MAGICNEST 01 for thermal cutting machine. MAGICNEST 10 ensure automatically the following operations:

- Nesting pieces using the best strategy for maximising material savings,
- IT application of the cutting technology, multiple-torch cutting, - cutting entry/exit, bridges, micro-junctions, common cutting, scrap recovery,
- Tool path and machine program.



MAGICNEST EXPERT PLUS

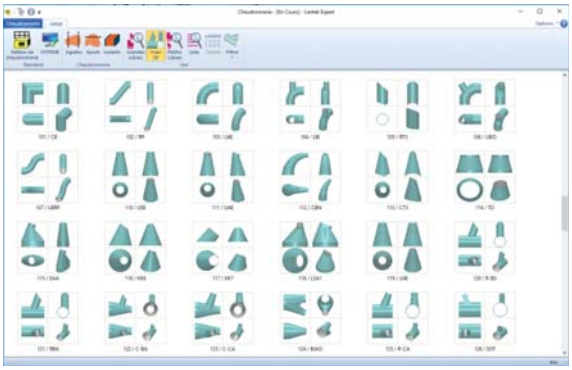
This is the best and complete version for machine with option bevel, indexing or piercing. Drawing and nesting functions are similar to MAGICNEST 10. With bevel option, MAGICNEST EXPERT PLUS control open-ended bevelling units that use plasma technology. It may be used for all types of bevel - V ,Y, X and K - in multiple pass processes. Possibility to include duct module and special marking (SIC marking or inkjet) in option.

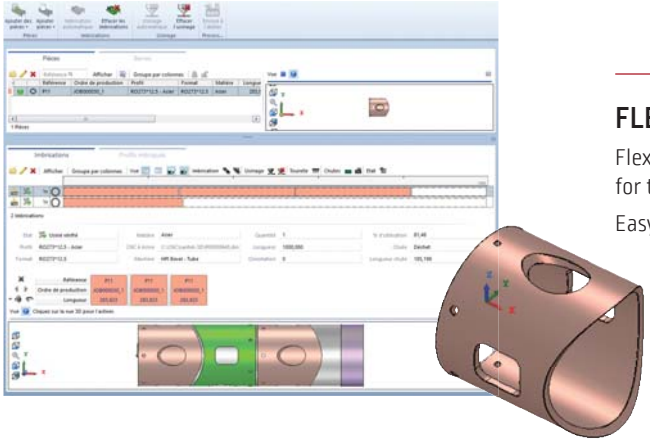


DUCT

Duct is a powerful module of MAGICNEST Expert Plus for calculating DUCT figures. Duct is designed in such a way that the user only has to follow the simple steps prompted by the system.

User simply has to select the figure to be developed, enter the required dimensions, and the figure will automatically be developed.





FLEX 3D

Flex3d Tubes is a member of the MAGICNEST Expert Plus family of products for the design and cutting of tubes.

Easy, flexible design Flex3D Tubes gives a real vision of the result on the screen.

It displays the exact tube and simulates in 3D.

Flex3D Tubes allows 3D design in an intuitive and simple way:

It gives the result that the user will obtain when cutting the profile on the machine.

EXTRACTION TABLES

Extraction tables for dry cutting

The extraction tables with air extraction offers unrivalled efficiency in terms of fume extraction thanks to its unique system of transverse extraction ducts.

Robustly designed in one-piece or modular form, the table is divided over its length into multiple sections, extraction taking place across the full width of the table on the module in operation only.

Mechanical or pneumatic flaps actuated by the displacement of the machine provide suction under the sheet at the place of cutting only.

This principle of operation guarantees optimum extraction, irrespective of the size of the sheet being cut, while maintaining a modest extraction air-flow rate.

Technical characteristics:

- Transverse duct extraction system,
- Division into 0.75 meter sections over the length of the table,
- Removable slag boxes,
- Removable workpiece supporting frame with flat irons (section 100 x 6 mm) and wire mesh grid (50 x 50 x 5 mm),
- Maximum capacity: sheet up to 300 mm thick.

Variable water level tables

Variable water level tables are specifically intended for immersed plasma cutting.

This procedure limits pollution by solid or gaseous matter and gives protection against audible and visual stress.

It improves accuracy of cutting while limiting distortions caused by heating of the workpiece.

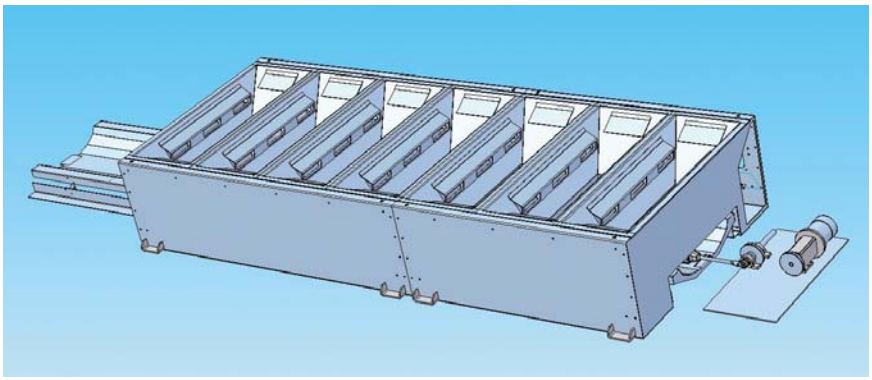
Technical characteristics:

- Modular construction in lengths of 1.5, 1.75 and 2 m,
- Width: on request,
- Pivoting workpiece support frame.

Extraction tables for dry cutting

Table with slag automatic outfeed

The table has at its base a vibrating belt automatically recovering slag and possibly very small cut pieces.
The automatic cleaning system significantly extends the maintenance table maximizing cutting time.



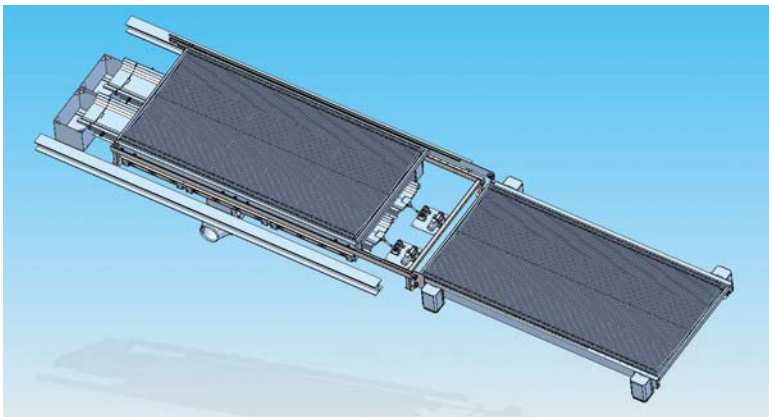
Technical characteristics:

- Transverse duct extraction system, monobloc or modular design,
- Division into 0,6 meter sections over the length of the table,
- Vibrating system recuperator of slag,
- Removable workpiece supporting frame with flat irons (section 150 x 6 mm),
- Maximum capacity: sheet up to 120 mm thick. (more on request),
- Length on request
- Standard width : 1.5 - 2 - 2.5 m.

Palletisable table

The palletisation system allows loading and unloading of sheets to cut out of the cutting area.

The preparation of sheets to cut is performed in masked time without risks for the operator.



Technical characteristics:

- Cut area design : monobloc or modular,
- Division into 0.6 meter sections,
- Standard length : 3 m (more on request,
- Standard width : 1.5 - 2 - 2.5 m,
- Maximum capacity : 1900 kg/m^2,
- Mini height : 1 000 mm (installation without civil works),
- 2 carriages support sheet (electrical movement) with flat irons section 150 x 6 mm,
- 1 hydraulic elevator support for carriages palletisation,
- Option : slag automatic outfeed.

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