

ALPHATOME

NEW :
optimised protection
and ergonomics

High-precision plasma arc cutting system.



ALPHATOME: high-precision



Air Liquide Welding offers you the first high-precision, plasma arc cutting machine equipped with an anti-dazzle device to protect the operator and the immediate environment from the effects of the electric arc used in plasma cutting. The machine also features a highly innovative fume extraction and dust recovery system

ALPHATOME

The machine blends in perfectly with its shop environment causing no visual discomfort. No special protective equipment (goggles or masks) is required for personnel and operators working at or near the machine.

■ Design

The machine is designed to offer all the characteristics required for machine tool operation:

- **high-precision guidance** along the X, Y and Z axes through the use of linear ball-race systems,
- **high-quality drive** guaranteed by the use of brushless motors,
- **tough** raceway with **rigid structure** perfectly suited to process constraints.

The cross beam is composed of two elements supporting the transverse guide rails to ensure **extremely precise torch positioning**. The two cross-beam elements are spaced to accommodate an optional servo-controlled bevelling unit.

ALPHATOME's overall design offers all the advantages required for plasma arc cutting:

- **effective trajectory control**
- **precise positioning to the nearest 0.1 mm**, measured at the height of the cutting job regardless of position (length or width),
- **perfect interactivity** between machine movements and process management.

ALPHATOME has been designed for easy integration in a workshop. Depending on the options selected, supply lines are installed on the right or left, while the position of the control console is determined by the conditions of use.



ALPHATOME is a single-torch system (twin-torch option available) intended for dry plasma arc cutting operations (no water vortex process) on non-alloy or low-alloy carbon steel, stainless steel or aluminium alloy plates with a maximum thickness of 50 mm. Machines with an effective width of 2 m,

2.5 m and 3 m are available, depending on your application. Modular elements (2 m or 3 m) are used to obtain a required effective length of up to 12 m.

This machine is controlled by the HPC DIGITAL PROCESS system and is used to control NERTAJET HP 125 or HP 300 cutting systems.

plasma arc cutting system

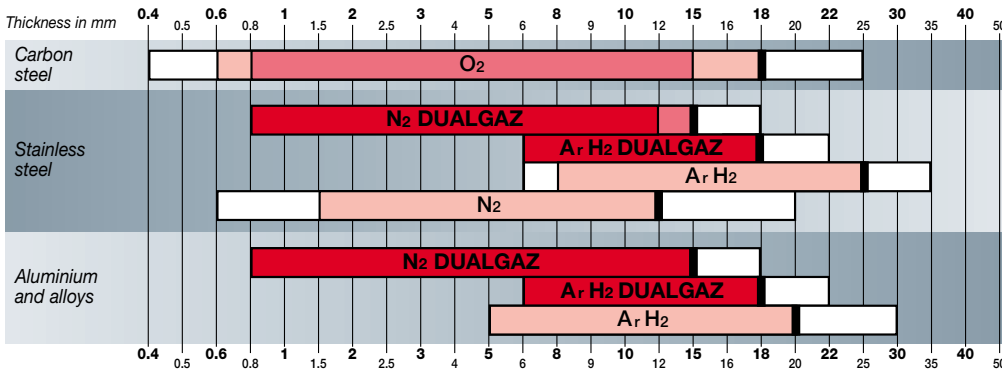
including, in particular, automatic slag tank cleaning. ALPHATOME is especially suited for industrial applications requiring high precision, quality cutting: metal cutting, pressure vessels, shipbuilding and railway construction, subcontracting, ventilation, steel plate cutting. The machine implements all the dry plasma arc cutting processes offered by NERTAJET HP 125 and HP 300 systems.

Examples of applications

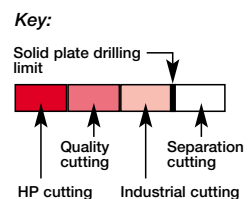
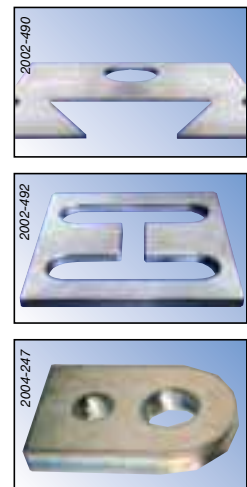
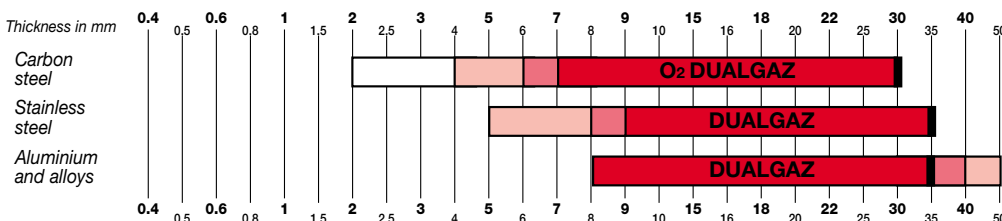


Possible applications of various NERTAJET HP systems (for further details, see our sales documentation, no. 1515-4111)

NERTAJET HP 125-OCF 150



NERTAJET HP 300-CPM 360



ALPHATOME: optimum protection



Precision is of increasing importance in high-quality plasma arc cutting. ALPHATOME uses the plasma process to cut and mark un-alloyed and low-alloy carbon steel, stainless steel, and aluminium alloy plates ranging from 0.5 mm to 50 mm in thickness.

■ Casing

Machine casing

The beam comes with a "casing" made up of the following main parts (depending on model):

- a front guard plate that lifts up – it is controlled from the control console,
- a fixed rear guard plate,
- two quick-opening side doors providing easy access to the torch(es) to replace wear parts,
- a protective plate at the front of the table equipped with two storage drawers.

This "beam casing" protection is designed to provide **visual shielding** against the plasma arc.

At any point during the process, the operator can lift the guard to view cutting progress.

Raceway casing

The raceway casing provides increased protection for operators and equipment. ALPHATOME is therefore a highly practical, attractive machine, guaranteeing optimum operating safety.

■ Cutting table

The cutting table is 920 mm high and is designed to accommodate steel plates up to 50 mm thick.

The spacing between the support plates can be adjusted according to the job. The table is also equipped with removable, easily accessible grating for retrieving small cut parts. The table is installed separately from the machine frame to prevent any interference with machine operation when positioning the plates.

Cutting fumes are captured by tanks placed under the table



(two per machine)

that move with the portal beam.

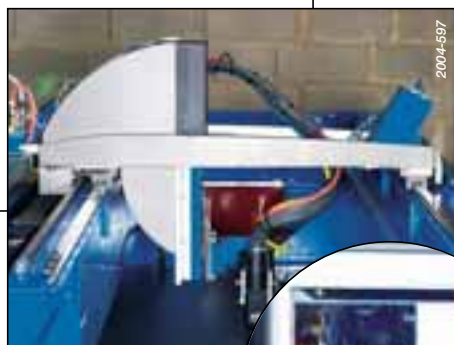
The tanks are also used to recover slag. They are guided under the table and a safety unit offers maximum protection against falling parts that might jam the mechanisms.

A hatch driven by a pneumatic cylinder can be opened for cleaning purposes and for emptying slag into containers at the end of the machine. Cleaning operations are managed by a manual or automatic sequence.

and major breakthroughs

ALPHATOME offers users the benefit of major breakthroughs in monitoring, control and protection.

- VISIOPROCESS, a system for displaying tool position in real time, interacting with the HPC DIGITAL PROCESS,
- unrestricted protection for workshops,
- a new suction and work-surface cleaning system.



The slag containers are designed to be removed easily to **simplify cleaning operations.** The fume capture system, optimised for the size of the machine, is restricted to the plasma torch operating area. This **limits the electrical power required and reduces heat loss.**

■ Remote control

A compact remote control option is proposed to make the operator's work easier. This option is designed to control the main machine operations so that the operator no longer needs to go back and forth between the control console and work area. Remote control also means added safety as it allows the machine to be switched off from a distance.

■ VISIOPROCESS

Unique !

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 positioning 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.

HPC DIGITAL PROCESS



This new control concept for plasma arc cutting machines has been specially developed for installation in modern machine shops at the leading edge of technology. It implements the latest progress in plasma arc cutting for all materials conducting electricity, non-alloy and low-alloy steel, stainless steel and light alloys.

HPC DIGITAL PROCESS runs on Windows 2000 installed on an industrial computer.

The system is composed of the following: numerical control, process control, man-machine interface, touch screen, control console for switching on and emergency shutdown.

■ Easy integration means:

- a tool that is perfectly suited to your various cutting jobs and specially designed to assist the operator,
- an easy-to-use plasma arc cutting machine,
- a modern, innovative and user-friendly design.

Air Liquide Welding HPC DIGITAL PROCESS concept will not only give you intuitive, interactive access to all of ALW's plasma process know-how, it will also allow you to integrate, save and transmit all your know-how to various users. The system is configured and structured for use by various members of your personnel, even those with no specialist knowledge of the plasma process.

■ Plasma open-ended beveling system

System rotation and tilting are entirely servo-controlled by the digital process controller which makes it possible to program a bevel angle change during a run. This light but rugged system guarantees excellent cutting results.



■ High-performance management

Quality cutting demands effective, fast control of trajectories and programs, as well as multi-task operation.

This function is performed by the numerical control part of the HPC DIGITAL PROCESS.



■ Scope

HPC DIGITAL PROCESS is used mainly on ALPHATOME machines and those in the PLASMATOME and PLASMATOME HP range, for controlling NERTAJET HP 125 and HP 300 plasma systems equipped with OCP 150 torches, depending on the processes concerned.

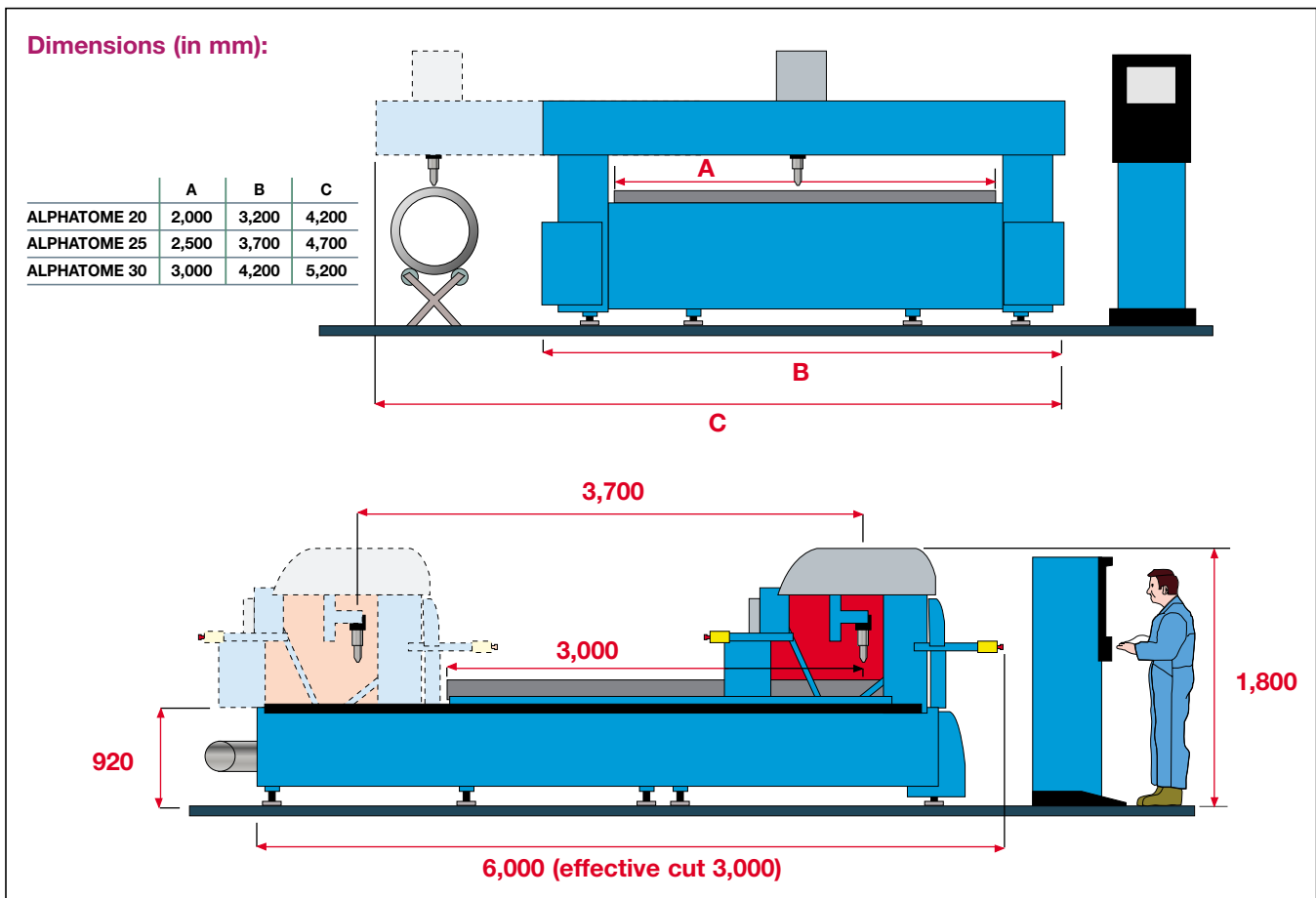
The HPC DIGITAL PROCESS will also be installed on machines from the OXYTOME and OXYTOME HPC range if equipped with a NERTAJET HP 125 and HP 300 plasma system.

In this case, the plasma is controlled in HPC DIGITAL PROCESS mode and oxycutting is carried out in a conventional mode. The HPC DIGITAL PROCESS system is of interest to all cutting machine users. The system is designed to store your parameters, assist your operators, facilitate use by personnel with no specific training, and increase the availability of your facilities.

For further details, see our sales documentation, no. 1515-4241.

Technical data

ALPHATOME is designed to meet the most complex metal cutting requirements. The options described below concern standard equipment that has been developed and industrialised over many years. The solutions presented have been tried and tested under real production conditions found on many of our customers' sites. They are proposed here to help you achieve even better performance at your plant.



Options :

- Integrated plasma marking with OCP 150 and CPM 360 optional,
- Separate plasma marking,
- Felt-pen marking,
- Pneumatic marking,
- Raceway and cutting table can be extended by adding 2 or 3 m modular elements,
- Supply lines can be installed on the right or left,
- Possibility of two identical or different plasma arc cutting systems (NERTAJET HP 125 + OCP 150 and/or NERTAJET HP 300 + CPM 360),
- Twin-torch operation; in this case, the second torch is also motor-driven along the X-axis. The spacing between the two torches is managed automatically by the HPC DIGITAL PROCESS,
- The beam can be extended for **cutting tubes** placed outside the raceway. This guarantees easy access and risk-free positioning,
- A **variable bevelling unit** for making 0 to 45° bevels in all directions.

Main characteristics	
High speed	22 m/min
Cutting speed	from 0 to 10 m/min
Number of torches	1 (2 as an option)
Transverse drive	1 motor per torch
Numerical control	HPC DIGITAL PROCESS
Raceway	2 m or 3 m modular elements
Cutting table	2 m or 3 m modular elements adapted to machine width
Suction tanks	included



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