

SYNCRONO



THE NEW LASER ERA



OVER ONE THOUSAND HOLES A MINUTE

A new species of laser machines is born and its name is SYNCRONO.

SYNCRONO is a radically new solution – two machines in one, a highly dynamic and ultra-lightweight head and a machine with a large work volume that move with perfect synchronicity and coordination to optimise processing times. The highest dynamics applied to the smallest masses – a rule that allows a combination of extreme performances, excellent cutting quality and reduced running costs. Special active compensation of masses and control algorithms govern the formation of movements smoothly and without vibrations.

The result is a machine that guarantees hitherto unthinkable processing times: 6 g acceleration allow more than 1000 holes to be made in a minute, double that of other laser machines available on the market.

This drastic reduction in production costs and times mark the dawning of a new era in laser machines.



SYNCRONO with TowerServer

WITH MAXIMUM QUALITY

A NEW BENCHMARK FOR LASER MACHINES

SYNCRONO has moved the horizons of laser cutting beyond the threshold of 1000 holes a minute.

“Virtuoso”, a showpiece produced by SYNCRONO with excellent quality and cycle times, represents the new challenge.

- Processes (on 1 mm thick steel):
- 2000 holes with Ø 2 mm, pitch 3 mm
- 494 slots/holes
- 103 different shapes
- 2 PRIMA INDUSTRIE logo cuts
- 2 SYNCRONO logo markings
- 1 complete saw blade contour (Ø 650 mm)
- a total of 2702 piercings.

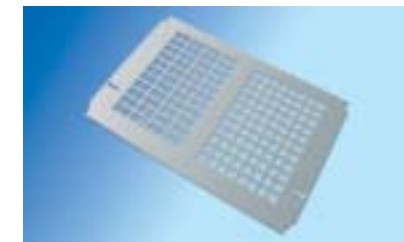
Cycle time: 335 s



SYNCRONO naturally performs best on thin sheet metal yet also cuts various materials (mild steel, stainless steel, aluminium, etc.) with considerable thicknesses fast and accurately.



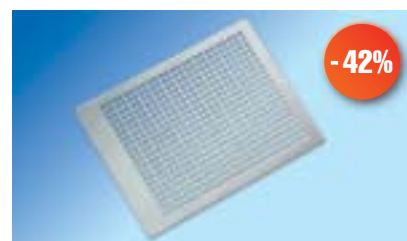
Cycle time: 26 s
Processes: 138
1 mm mild steel
Dimensions: 400 x 130 mm



Cycle time: 160 s
Processes: 531
1 mm mild steel
Dimensions: 290 x 190 mm



Cycle time: 145 s
12 mm carbon steel
Dimensions: Ø 160 mm



1034 holes/min
Benchmark: 600 holes/min
1 mm mild steel
Ø 2 mm – pitch 3 mm



Cycle time: 16 s
Benchmark: 21 s
1 mm mild steel
Dimensions: 250 x 250 mm



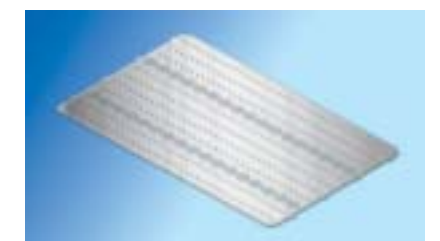
Cycle time: 13.4 s
Benchmark: 22 s
1 mm mild steel
Dimensions: 180 x 90 mm



Cycle time: 15 s
Processes: 27
Stainless steel 1 mm
Dimensions: 400 x 130 mm



Cycle time: 75 s
Processes: 363
1 mm mild steel
Dimensions: 950 x 620 mm



Cycle time: 170 s
Processes: 760
Aluminium 1 mm
Dimensions: 1250 x 600 mm

SYNCRONO REVOLUTIONISES PRODUCTION WITH UNBEATABLE CYCLE TIMES

TWO MACHINES IN ONE



Why SYNCRONO is a unique machine

- > It is by far the fastest machine on the market (acceleration over 6 g during cutting): considerably shorter cycle times with consequent reduction in production costs
- > Extreme speed and maximum cutting quality without concessions, i.e. without forfeiting one of the two performances to the advantage of the other
- > Uniform precision and cutting quality throughout the working range
- > Running costs reduced to a minimum thanks to the innovative architecture with fast-moving minimum masses
- > Vibration free to ensure maximum and lasting reliability, always with the highest performances
- > Based on PLATINO with the winning solutions of this machine that has been widely tried and tested by a vast range of clients who use it for production:
 - flying optics: speed and precision irrespective of the weight of the metal sheet being processed
 - reduced overall dimensions in factory and easy installation (foundations not required)
 - modularity: choice of large number of configurations and possible future expansion of system according to your production needs
 - application flexibility: cutting of various materials and thicknesses

FOR DOUBLE PERFORMANCES

THE SPECIFICATIONS OF A SURPRISING MACHINE

Two synchronised machines

An ultra-lightweight and super-fast head and a machine with a wide working range are coordinated by algorithms that automatically control the local axes of the head and the main axes of the machine. The local axes perform “micro” movements (holes, corners, small shapes, paths with frequent changes of direction), while the main axes carry out “macro” movements (contours, large shapes, etc.). The “micro” and “macro” movements are carried out simultaneously, like those of a human hand and arm when writing or playing on a keyboard. The numerical control, like the human brain, synchronises them in order to achieve continuous, smooth and fast movement.

Parallel kinematics

The focusing head has parallel kinematics and uses direct drives (> 6 g during cutting): SYNCRONO performs even the most complex paths with unrivalled cutting quality and dynamics.

Vibration free

An active anti-vibrations system prevents impulsive stress on the structure: extreme reliability.

Precision, always and everywhere

The optical path of the machine has constant length for precision and uniformity throughout the working range.

Compact, rigid and stable structure

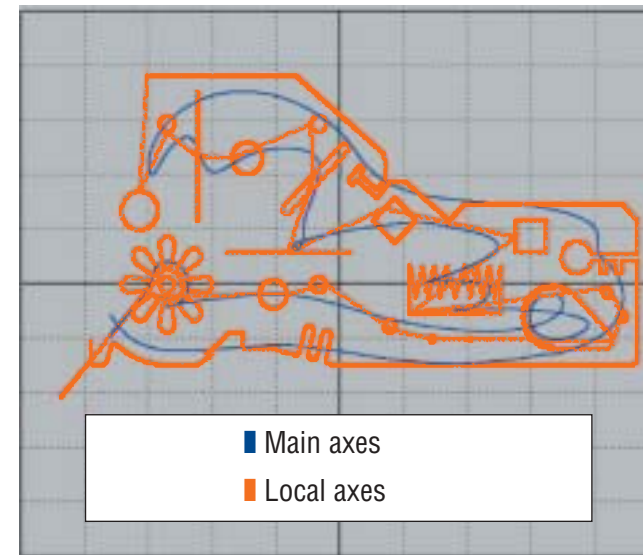
Machine, laser, CNC and electromechanical parts are integrated in a compact monolithic structure that is easy to transport and without foundations. Bed in synthetic granite and carriages in aluminium for high mechanical stability and rigidity.

Process safety and flexibility

Fast optics change from 5” to 7.5” for cutting thick materials.

Independent and programmable control of the focal position.

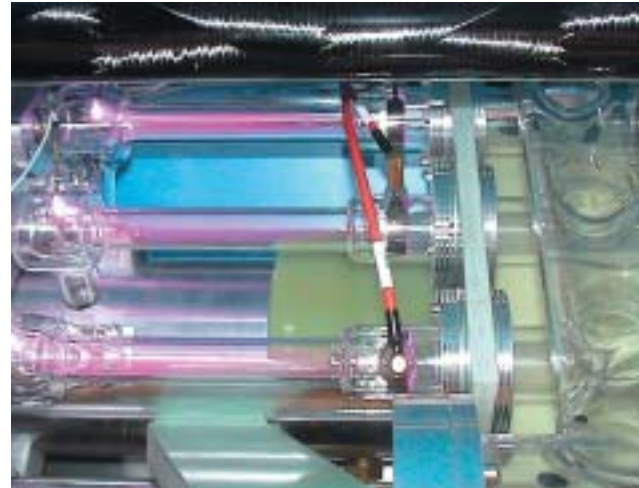
Active system for preventing impact of the head against the workpieces.



HIGH PRODUCTION CAPACITY

HIGH POWER, QUALITY AND EFFICIENCY

SYNCRONO is equipped with the lasers developed and produced at PRIMA INDUSTRIE: the fully tried-and-tested fast axial flow laser CP4000 or the new CV5000. The new generation of CV lasers allows high powers to be obtained with maximum efficiency thanks to the new components: magnetic support turbine, solid state high voltage power unit and servo-controlled gas mixing.



WORKTABLE AND PROTECTION CABIN

SYNCRONO is designed throughout for maximum efficiency:

- the table divided into segments for optimising fumes extraction and its pallet for holding 2D workpieces;
- scrap collection drawers with wheels for fast and easy movement;
- the cabin with large windows in polycarbonate for total safety and optimal visibility of the work area;
- the internal cabinet for holding frequently used tools and materials (lenses, tips, kits for optics cleaning and centring, handbooks, etc.) to reduce machine maintenance and set-up times.



SOLUTIONS FOR HIGH PRODUCTIVITY

- Automatic pallet changer for loading/unloading in masked time, a virtually essential option for such a fast machine;
- PrimaServer range of automated material handling and storage systems. The high modularity of these systems allows the system to be expanded also at a later date, as production needs increase, up to the fully automated production unit;
- PrimaServer Manager for controlling unmanned production;
- de-actuation device and automatic sending of e-mails on the status of the machine via CNC.



SIMPLY AND EFFICIENTLY

30 YEARS' EXPERIENCE AT YOUR SERVICE

Even the basic version of SYNCRONO has all the technological solutions produced through the vast experience of PRIMA INDUSTRIE in the area of laser machines.

These technologies enable extremely short cycle times and an excellent cutting quality to be obtained automatically:

- Laser Piercing Monitor (LPM);
- advanced restart functions;
- high-speed cutting with plasma formation;
- automatic management of technological parameters for small and complex profiles;
- microjoints;
- high-pressure cutting for a cutting edge free from oxidation and high speed;
- automatic detection of the metal sheet position for consequent adjustment of the program.



MAXIMUM USER-FRIENDLINESS

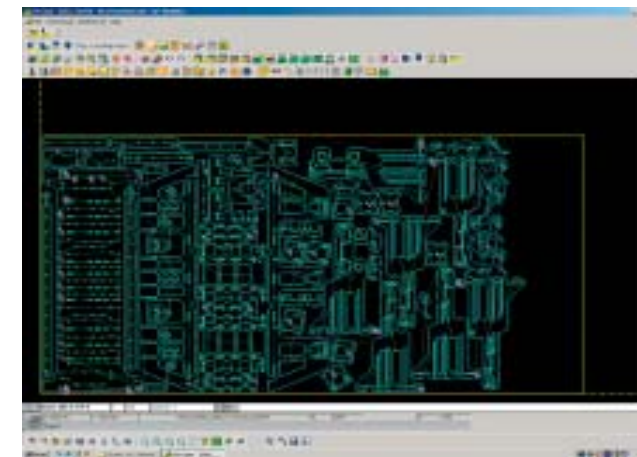
Programming SYNCRONO is extremely simple. The main axes and local axes are controlled fully automatically and "transparently" for the user.

The PRIMACH-20L CNC has an operator/machine interface with Web technology, Windows® 2000 operating system, LCD flat screen, touch-screen and trackball. The Easy Cut option enables fast programming directly on the machine.

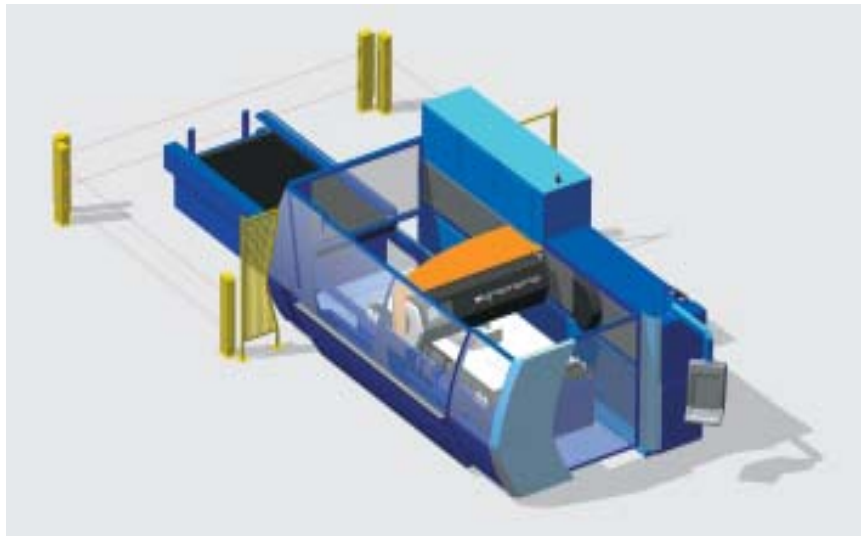
SYNCRONO can be programmed off-line with PICAM, CAD-CAM 2D software for fast and simple generation of the entire cutting program basing on mathematical models of the workpieces.

The parameters tables, the result of PRIMA INDUSTRIE's experience in a vast range of applications, allow a choice of the best parameters for every process. They are always on board the CNC and PICAM and offer easy customisation.

The production times and costs can also be optimised by using the Nesting and Common Cut modules.



Handling of sheets in masked time and unmanned production



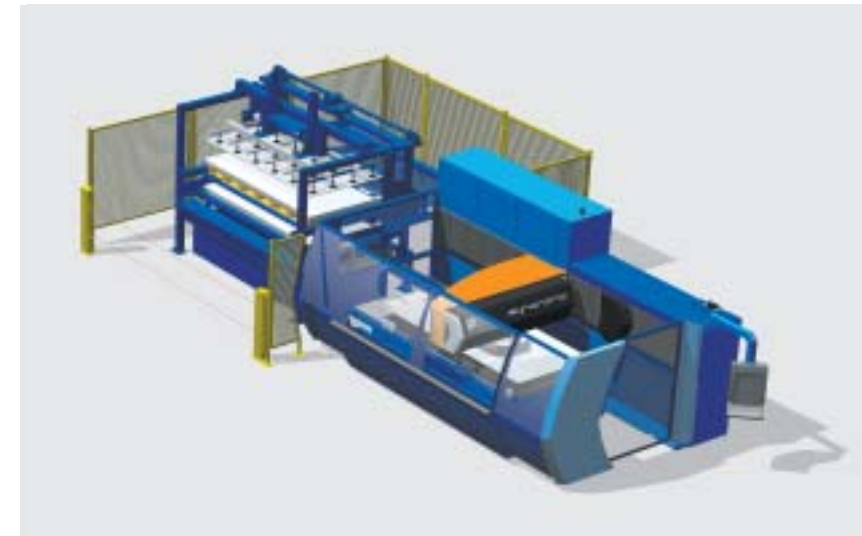
Automatic pallet changer

External loading/unloading station with second pallet

Manual loading and unloading of metal sheets

Automatic change of metal sheets in masked time

Overall dimensions (with protections):
12150 x 4400 x 2800 mm



CompactServer

Loading/unloading device for handling blank and processed sheets

Two-storey unit (one for the blank sheets and one for the processed sheets)

Single sheet separating and measuring systems and sheet reference

Controlled directly by the CNC

Extremely compact overall dimensions

Unmanned production

Overall dimensions (with protections):
12100 x 5450 x 3550 mm



TowerServer (one or more towers)

Loading/unloading device for handling blank and processed sheets

Tower unit with up to 15 storeys

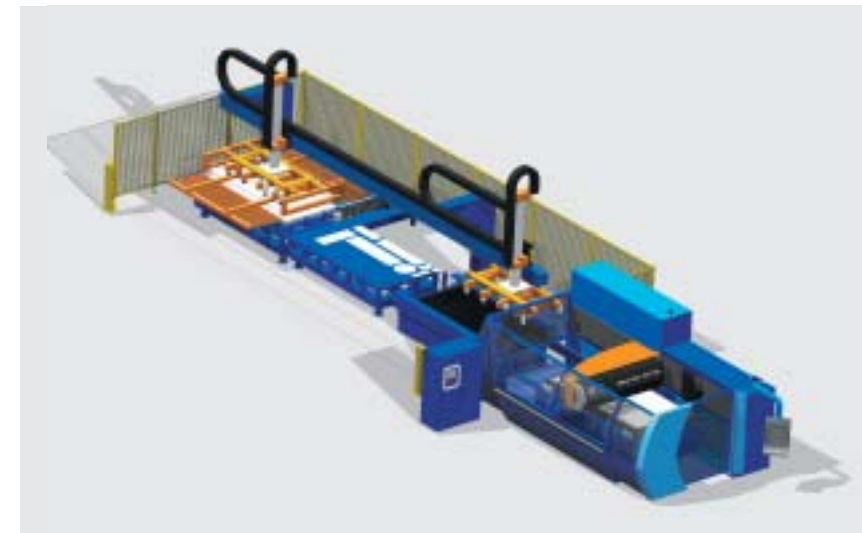
Elevator for loading and unloading the pallets on and off the tower

Single sheet separating and measuring systems and sheet reference

Unmanned production

Customizable with additional towers

Overall dimensions (with protections):
12500 x 9400 x 5200 mm



LaserServer with PrimaSorting

LaserServer for automatic loading/unloading of sheets

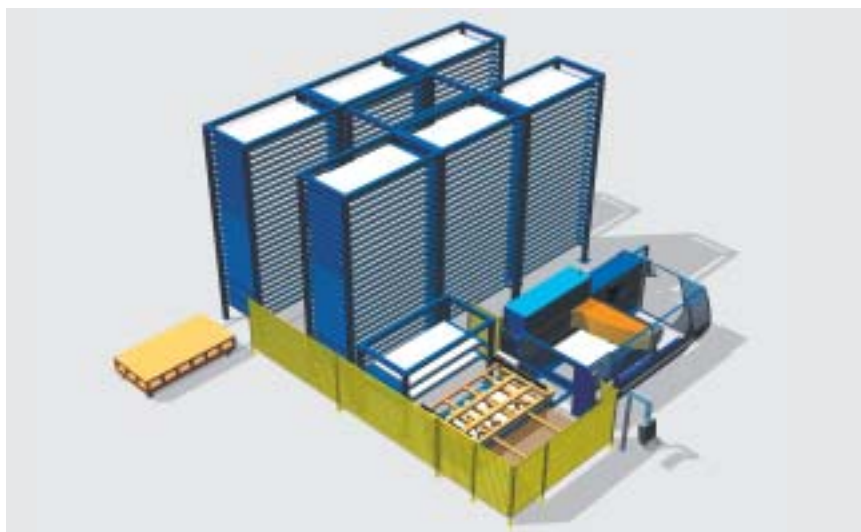
Three stations for loading sheets, unloading the skeletons and unloading finished parts

Sorting gripper for picking up and stacking finished parts

Automatic programming of sorting cycles

Overall dimensions (with protections):
20100 x 6950 x 4150 mm

Multi-tower and multi-machine solutions



Multi-tower solutions

The modularity of the PrimaServer systems also enables plant production capacity to be increased by stages

In addition to the automatic pallet changer, which represents the point of connection with the machine, the potential for configuration is endless

Overall dimensions (with protections):
15900 x 14450 x 5650 mm



Multi-machine solution

The PrimaServer systems can also link up several machines simultaneously

The PrimaServer Manager system, which controls unmanned production, ensures simplicity and efficiency also in complex systems with several machines and large warehouses

Overall dimensions (with protections):
12000 x 15200 x 4800 mm

SPECIFICATIONS

Strokes of main axes	X mm 3000	Y mm 1500	Z mm 130
Strokes of local axes	U mm 100		V mm 100
Speed of main axes (X, Y)	100 m/min (maximum combined speed 140 m/min)		
Speed of local axes (U, V)	150 m/min (maximum combined speed 210 m/min)		
Acceleration of main axes (X, Y)	0.8 g (single axis)		
Acceleration of local axes (U, V)	6 g (single axis)		
Axis resolution	0.001 mm		
Precision (*): <ul style="list-style-type: none"> • according to the standards VDI/DGQ 3441 • length of measuring: complete stroke (*) the precision of the part depends on its type, size and pre-treatment, and the conditions of application.	Positioning accuracy (Pa):		Repeatability (Ps):
Main axes (X, Y, Z)	0.03 mm		0.03 mm
Local axes (U, V)	0.02 mm		0.02 mm
Maximum overall dimensions (including the protection cabin, not including the water chiller, fumes extractor and photocells)	Length mm 7400	Width mm 3900	Height mm 2800
Weight (basic machine)	~12,000 kg		
Standard CO ₂ laser power ratings	4000 W - 5000 W		
Colours	Fixed parts: RAL 5012 - RAL 5001 blue Moving parts: RAL 2008 orange		

SYNCRONO
Discover the new laser era



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