



L3



Adaptive fiber laser.

salvagnini

Laser from the Salvagnini perspective: experience and innovation that respect both humankind and the environment.

The result of lengthy experience in the field - Salvagnini was one of the first companies to invest in fiber technology - the L3 is a productive and versatile solution that offers reduced consumption and competitive operating costs as well as respecting both the environment and humankind and its work.



*Thanks to the Salvagnini cutting head with **single optics** and the **cutting parameters** developed for the L3, quality cutting can be achieved on a wide range of thicknesses, high cutting speeds can be obtained on protected or electro-galvanized materials, and processing can be carried out on highly reflective material. The TRADJUST functions of the proprietary controller, proposing a single cutting parameter for each material and thickness, regardless of the cutting profile, make it simple to use.*

Native flexible automation.

The technical solutions adopted allow different materials and thicknesses to be processed in sequence, without stopping production or requiring adjustment.

Smart cutting functions

The single optics head and the two cutting functions available, Standard and PowerCut, allow the operating mode best suited to the different production requirements to be chosen.

Lightweight structure

The further lightened airplane structure and the compact kinematic chain guarantee superior cutting dynamics.

Ease of use

The TRADJUST software automatically manages the cutting parameters, allowing for optimal modulation.

Intelligent modularity

The loading/unloading connections satisfy all automation needs: from stand-alone operation to automatic integration in flexible cells or in automatic factories offering lights-out production.

Competitive cost-per-part

Thanks to high cutting speeds and reduced costs per hour, the L3 enhances the competitiveness of those companies that choose it for 2D sheet cutting.

4.0 Integration

The OPS process software allows information to be exchanged in real time between the machine and the factory ERP or other technologies downstream for 4.0 production.



4.0 Solutions



Versatility



Productivity



Ease of use

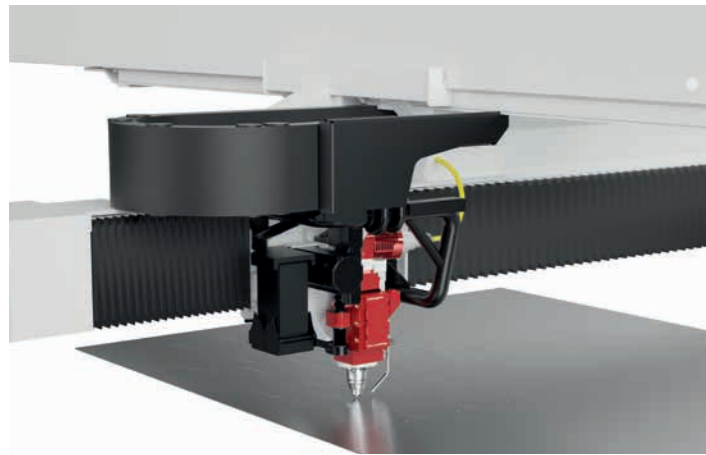


Reduced consumption

Distinctive features designed for modern and dynamic production.

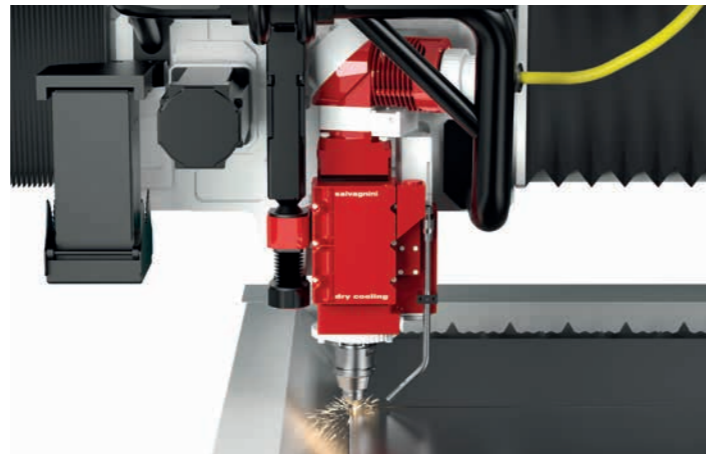
Airplane structure.

The load-bearing beam principle, with lightened airplane manipulator, patented by Salvagnini, guarantees an extremely rigid structure, as well as speed, precise positioning and wide and easy access to the whole work area.



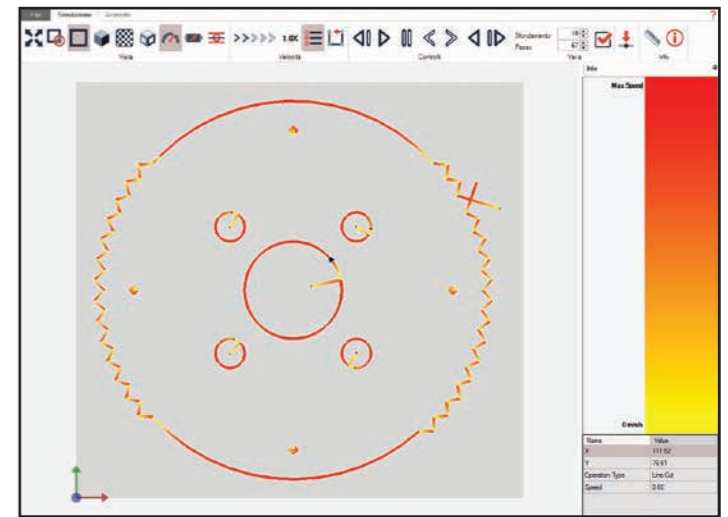
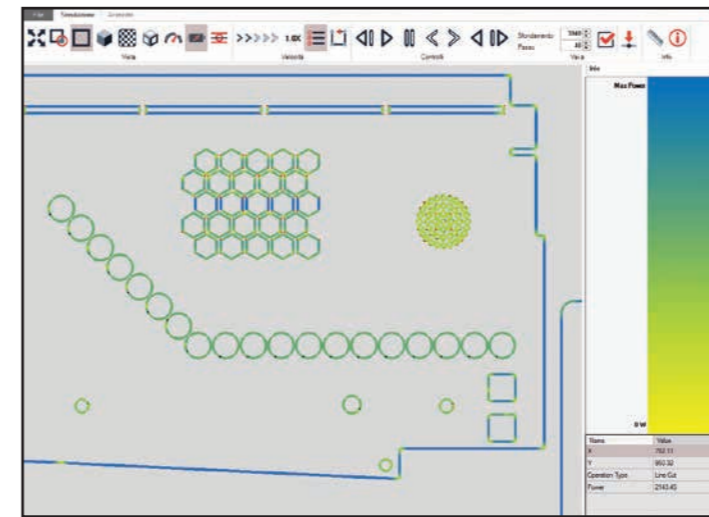
Salvagnini cutting head.

L3 systems have a single optics head that provides high quality cutting across the whole range of workable thicknesses, assuring rapid production changes by eliminating adjustment times. The patented **DRY COOLING** technology cools the optics without the use of gas or liquids, and offers real-time control of the lens temperature.



Our experience at your service...on the machine.

TRADJUST is the set of functions in the Salvagnini SiX controller that automatically modulate the cutting parameters in accordance with trajectories, speed and acceleration. This makes the L3 a simple system to use, because it has only one cutting parameter for each material and thickness, regardless of the dimensions of the cutting profile.



Electronic source and fiber-carried beam.

The laser beam generated and transported in fiber up to the cutting head guarantees:

- **Lower consumption**, thanks to the highly efficient source (40%).
- **Drastically reduced costs for maintenance and consumables**, thanks to the absence of an optical path.

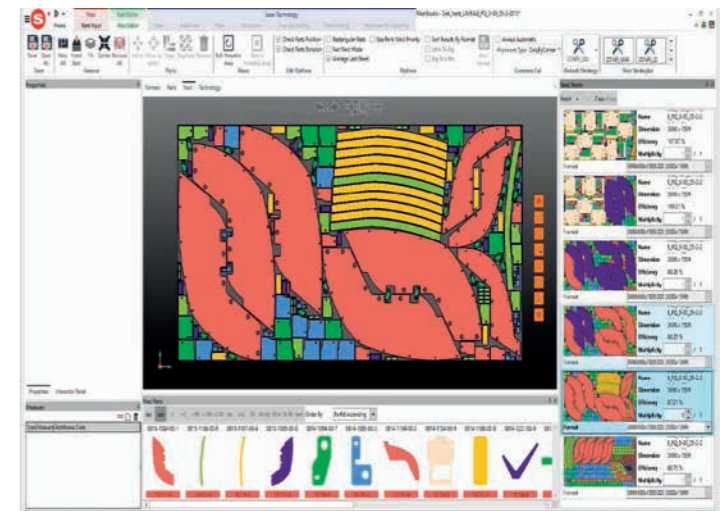
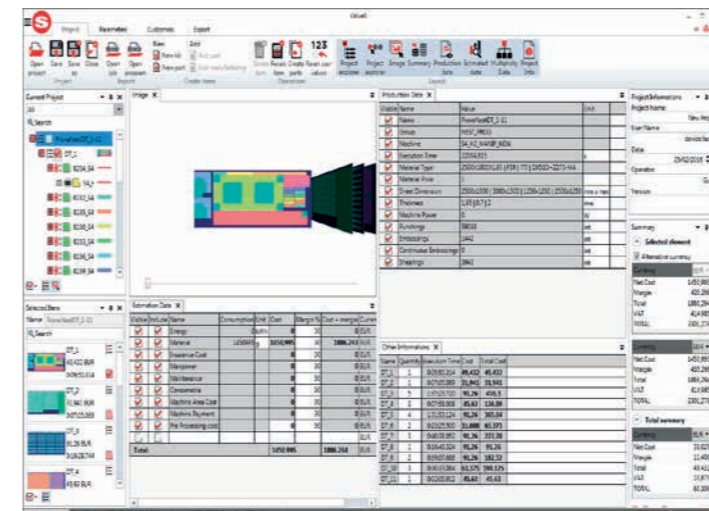
Adaptable cutting functions.

The L3 embeds two cutting functions, Standard and PowerCut, that allow the operating mode best suited to the different production requirements to be chosen.

Standard mode guarantees greater safety in unmanned manufacturing, while **PowerCut** offers reactivity and greater operational speed. Both can be easily activated using a toggle switch.

Our experience at your service...in the office.

The THTables integrated into the STREAMLASER programming software, offer large geometric and technological parameterization, dedicated to fiber, and allow for a robust, optimized program to be generated in the office.



Ergonomics and Safety.

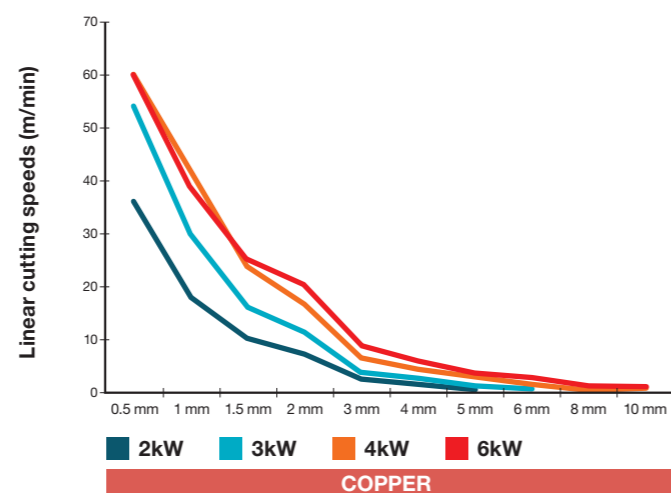
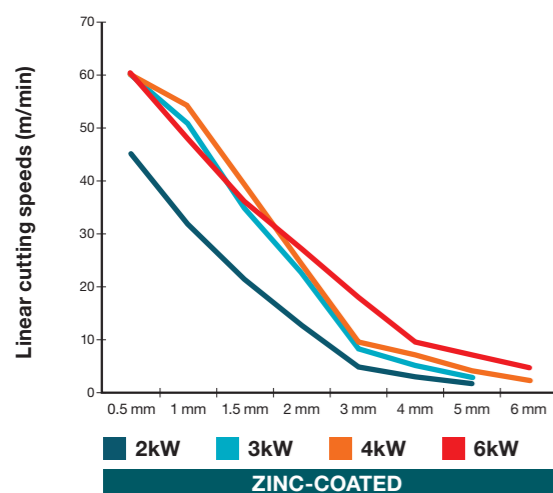
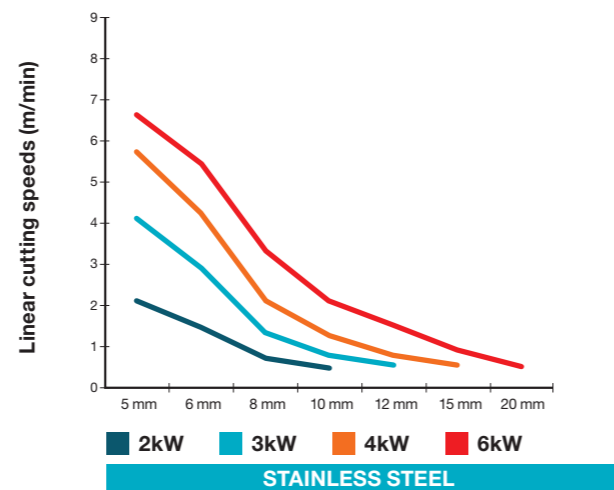
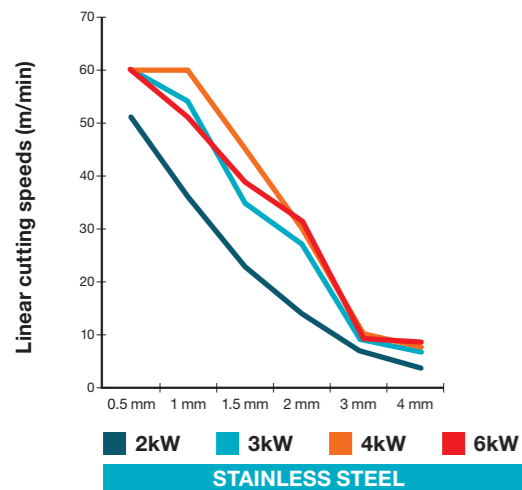
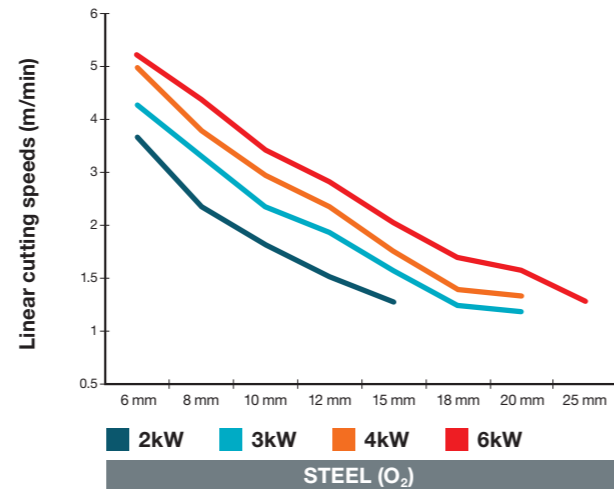
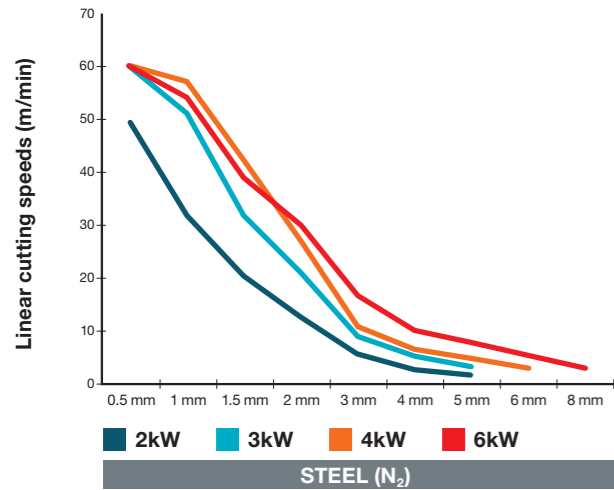
The large windows, approved for safe use with solid-state lasers, and the position of the control console, guarantee maximum visibility of both the cutting area and the pallet changer. The sliding doors on the long side grant easy access to the work area.



Technical data and performance features.

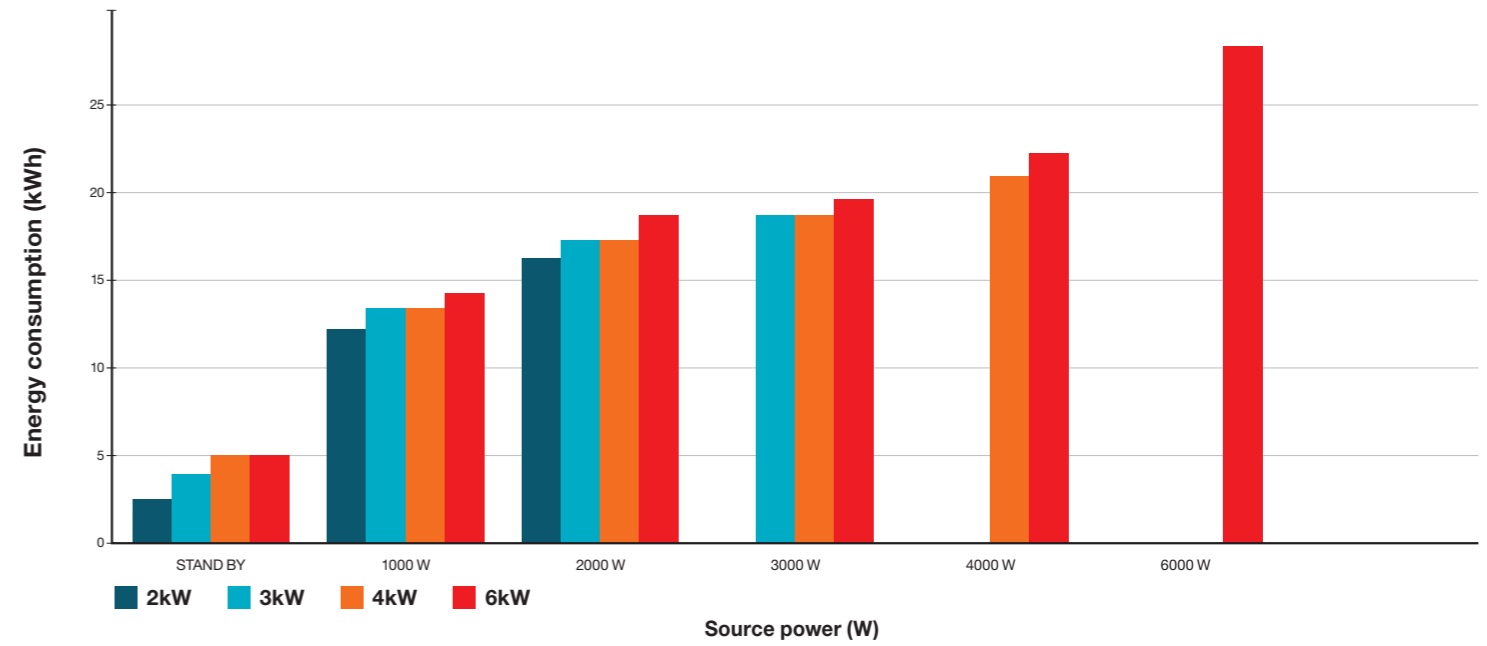
Cutting speed.

The fiber source and optics chain developed by Salvagnini generate a high power density laser beam which allows high-speed cutting (up to 60 m/min) on medium and thin materials, without sacrificing high quality when cutting thicker material.



Reduced consumption.

Consumption and warm-up times are practically eliminated with the fiber source.



MACHINE DATA

MACHINE DATA				
Working range	L3-30	L3-40	L3-4020	L3-6020
X Y worktable (mm)	3048 x 1524	4064 x 1524	4064 x 2032	6096 x 2032
Z axis stroke (mm)	100	100	100	100
Maximum positioning speed (m/min)	120	120	120	120 (in X), 100 (in Y)
Accuracy ¹				
Position accuracy Pa	0.08			
Average position range Ps	0.03			

FIBER LASER SOURCE				
Technical data	2000 W	3000 W	4000 W	6000 W
Cutting capacity (thicknesses)²				
Steel (S185JR, S235JR, RAEX 250 C LASER) (mm)	0.5 - 15	0.5 - 20	0.5 - 20	0.5 - 25
Stainless steel (AISI 304, X5CrNi18-10 1.4301) (mm)	0.5 - 10	0.5 - 12	0.5 - 15	0.5 - 20
Aluminium (Al 99.5 EN AW 1050A) (mm)	0.5 - 8	0.5 - 10	0.5 - 15	0.5 - 20
Copper (Cu-ETP CW004A H040 EN1652) (mm)	0.5 - 5	0.5 - 8	0.5 - 8	0.5 - 10
Brass (CuZn37 CW508L H055 EN1652) (mm)	0.5 - 5	0.5 - 6	0.5 - 8	0.5 - 8
Consumption³				
Maximum power consumption (kW)	16	18	21	28

¹ Measurement calculated according to VDI3441 on maximum axis lengths.

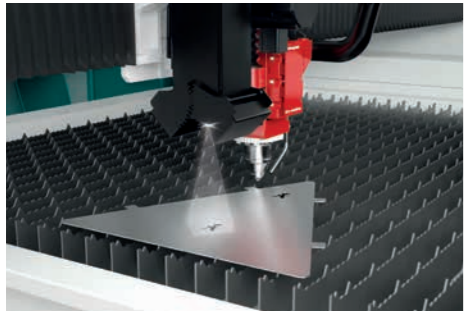
² Cutting quality on limit thicknesses depends on geometries required, material quality and system operating conditions. At limit values, burrs may be present on lower edge of cut.

³ Maximum consumption calculated at full power on a system in a standard configuration with a standard work cycle.

Smart solutions for optimized unmanned manufacturing.

AVS

The application of AVS artificial vision, integrated in STREAMLASER, allows rapid alignment with reference to the edges of the workpiece or to features already present on the sheet, without any restrictions on shape; it also allows offcuts to be recovered and used as starting sheets for new nests.



ANC

To increase autonomy during unmanned production, Salvagnini offers the optional ANC automatic nozzle change device, featuring a mobile nozzle-holder magazine. The nozzle replacement cycle is handled automatically and occurs during the pallet change cycle.



APC2

This is an evolved process sensor which in real time:

- controls the piercing phases, for faster and higher quality piercing;
- improves quality and reliability by checking the cutting process: in fact, should it detect anomalies, the machine will stop, re-modulate the parameters and then resume cutting.



ACUT

It is possible to cut up to 2mm even with suitably treated compressed air. The ACUT system is optional on the L3 and is fitted with an automatic pressure adjustment valve and an effective filtering system.



The software ecosystem.

STREAM defines the production process according to the best processing sequence, taking all variables, including production costs, into account, and starting with the model of the finished product.

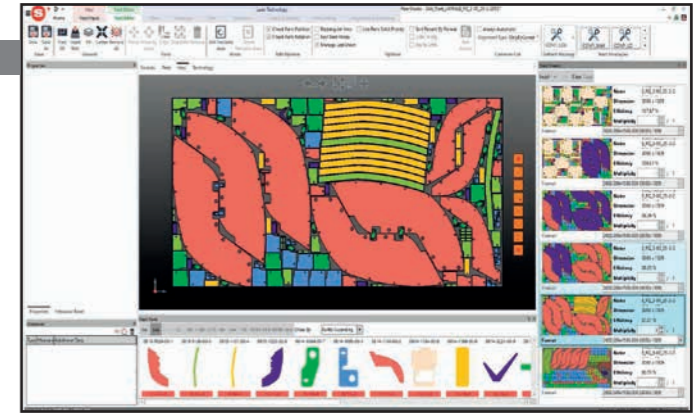
It is structured on three levels: **technical, production and business.**



TECHNICAL

STREAMLASER is the programming software for the generation of cutting programs. It consists of the following modules:

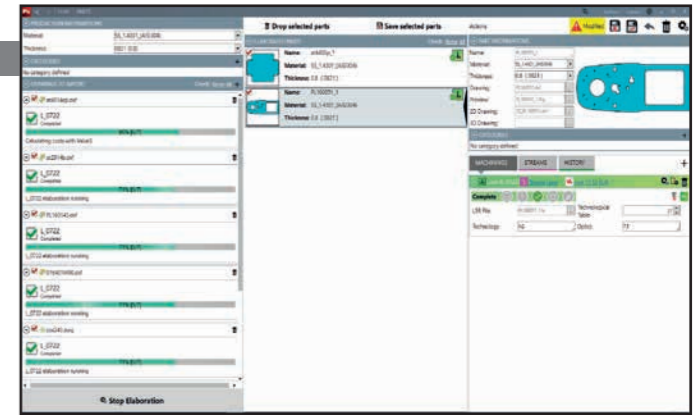
- CAM for the part: creates or allows for changes to be made to a 2D model and automatically defines lead-ins and cutting sequences.
- CAM for the sheet: calculates the processing path and movements between one processing and another, and decides the cutting tool, permitting manual interventions thanks to a powerful interactive editor.
- NESTING for automatically, semi-automatically or manually composing the sheets from the list of parts to be produced; it re-orders the lists generated so as to optimize production on systems equipped with an automatic store-tower.



PRODUCTION

The PARTS software manages the database of the entities that define the production flow for a part or group of parts by:

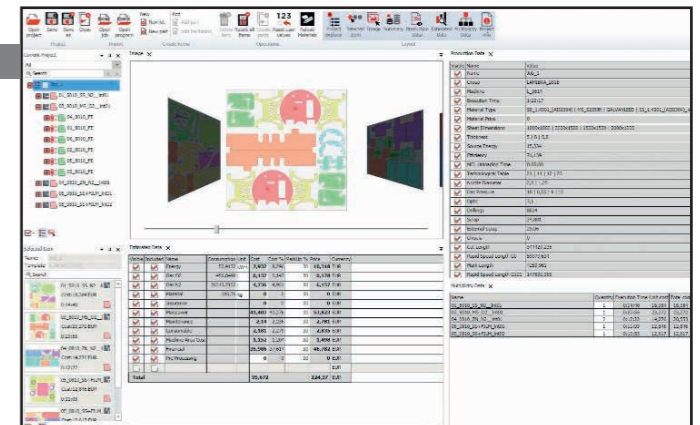
- classifying the parts according to common categories (size, material, thickness, etc.) or categories personalized by the customer (project, kit, etc.);
- defining one or more production flows for each of the parts to be made on Salvagnini systems;
- generating the programs for the technologies present in the production flow for the part to be made.



BUSINESS

VALUES is the software for estimating the production costs for a part in the production flow by:

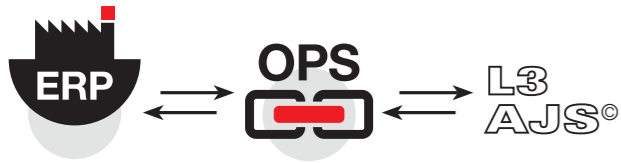
- providing the final cost of entire production batches, nests and single parts in a simple and efficient manner;
- managing the costs relating to electrical energy, manpower, materials and depreciation and automatically converting prices into the main currencies;
- taking into consideration the work carried out on Salvagnini or third-party systems (painting, welding, etc.).



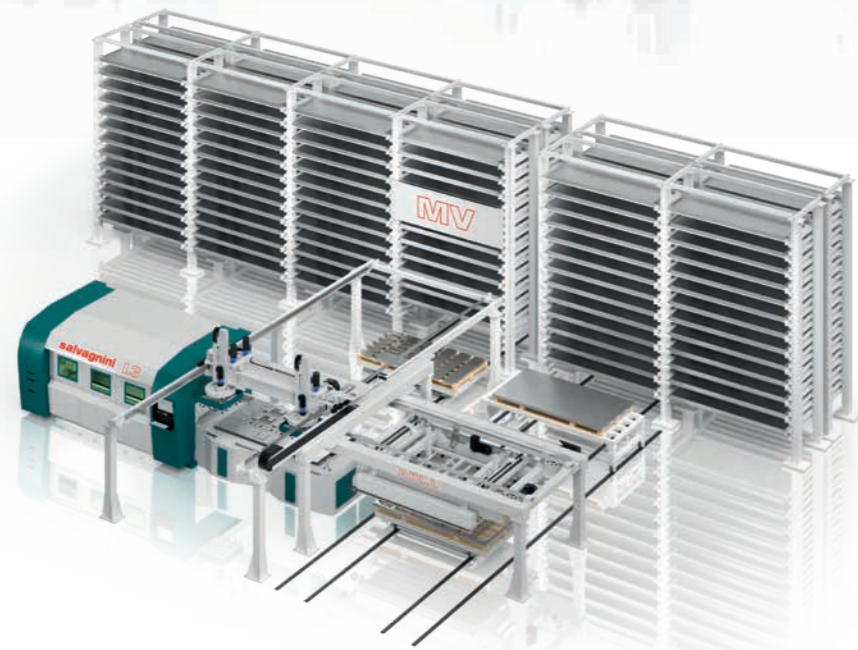
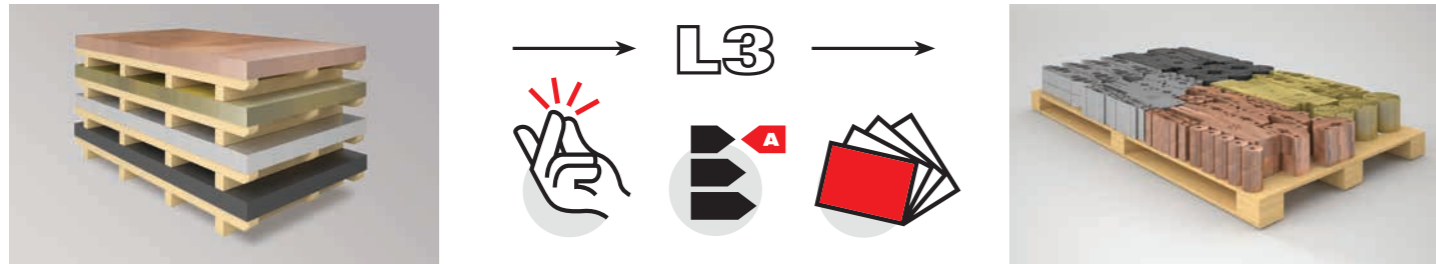
Continuous improvement.

The L3 laser is designed for the future, to evolve and meet the demands of ever-changing manufacturing trends and to be easily integrated with automatic manipulation devices in 4.0 factories.

Integrated communication and JIT-production.



Thanks to the proprietary software, the L3 laser can exchange information with the company ERP or communicate with other systems. For instance, machine programs can be created from production orders, and information on production can be returned automatically. In an FMC cell, on the other hand, where the laser is integrated with bending centers downstream, integration software allows production flows to be optimized between systems so as to increase productivity and reduce waste and waiting times.



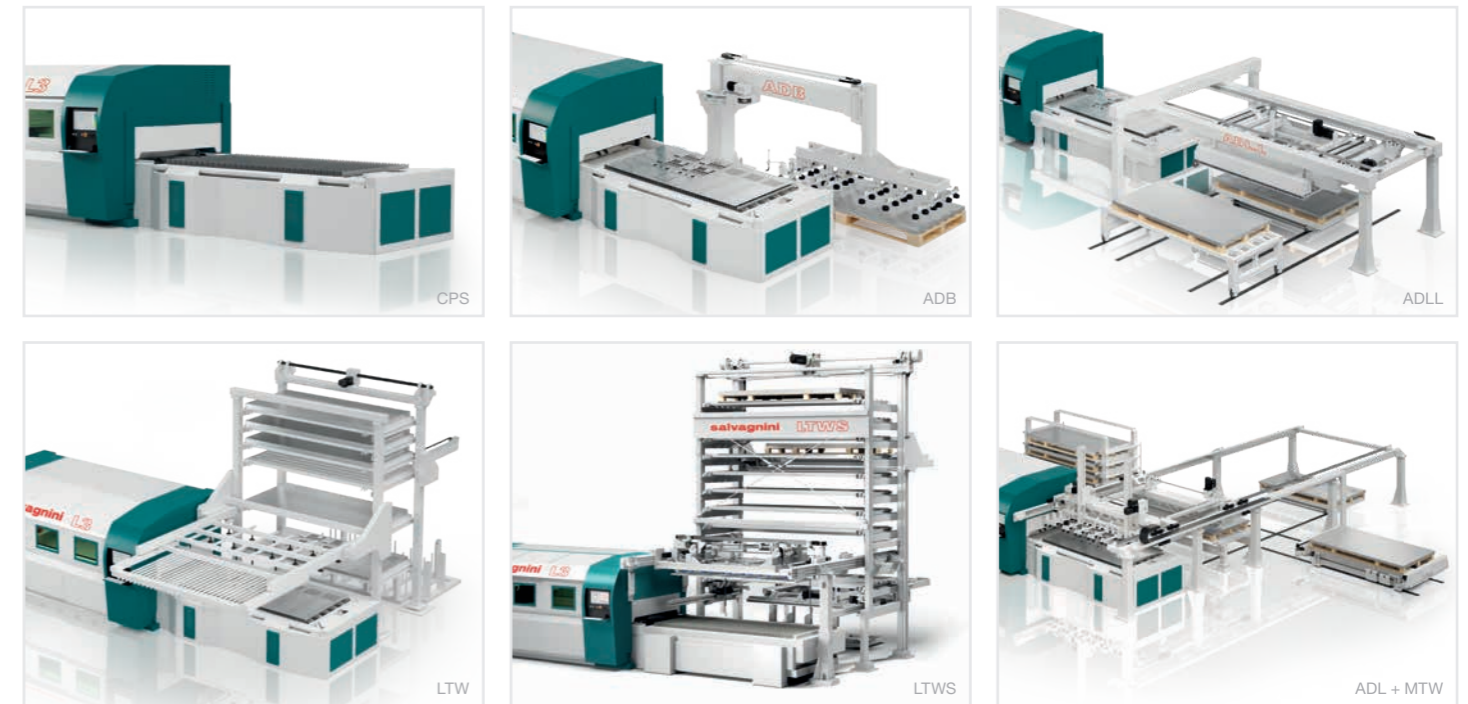
Adjustable automation catering to all production requirements.

The L3 can be set up in various ways for different loading and unloading requirements and machine models.

The L3 is supplied in a standard configuration with the **CP** pallet changer. The optional **CPS** alternative solution allows unmanned operation because, during the pallet exchange phase, the table with the processed sheet always travels beneath the table with the blank to be cut. Furthermore, the **ADB**, **ADL** and **ADLL** automatic loading connections are available to allow the blanks to be picked up automatically from a pack of sheets in masked time.

The **ADL** and **ADLL** allow not only sheet loading but also workpiece unloading to be automatized, eliminating the intermediate handling phases that are generally entrusted to the operator; furthermore, they can be integrated with compact or extended vertical pack store-towers (**MBT**, **MV**).

Automation can also include the **MTW** modular mini store-towers offering a wide variety of sheet storage positions and layout solutions, or the smaller **LTW**, **LTWC** and **LTWS** single-tower stores for unmanned loading, unloading and storage of material.



The **MCL** is the automatic solution for **unloading, separating and stacking**. It is equipped with two rotating manipulators, each of which is fitted with independent suction cups that work separately or simultaneously. Unique on the market, it is fully integrated with the machine control and software for maximum flexibility. It handles parts weighing up to 130 kg.

CHECKLIST

A unique investment on all fronts.

Adaptivity: *real-time control.*

The evolved control detects variations in both cutting and piercing and automatically responds with the appropriate actions.

Versatility: *selectable operating mode.*

The two cutting functions available allow the operating mode best suited to the different production requirements to be chosen.

Simplicity: *automatic parameter modulation.*

The system automatically modulates the cutting parameters as a function of changes in direction, speed and instantaneous acceleration.

Ergonomic design: *airplane structure.*

Thanks to its airplane design, the structure is rigid, yet still gives easy access to the entire worktable.

Configurability: *modular automation.*

A range of automatic handling devices designed for unmanned and optimized production at every stage of the process, are available.

Flexible automation: *accurate unmanned manufacturing.*

Applying AVS artificial vision and the automatic nozzle change system to the laser allows features already present on the sheet to be used as references and increases autonomy during unmanned production.

Conscious innovation addressing the application needs of today and tomorrow.

Refrigeration



HVAC



Catering



Metallic furniture



Lifts



Electrical industry





Laser cutting

L3 L5

Punching

S4Xe SL4

Panel forming

P1 P2lean P4

Bending

B3 ROBO*former*ER

Systems

AJS[®] FMS S4 + P4 FlexCell

Logistics

MTW MD MBT MV LTW