



L SERIES

LINEAR MOTOR



CUTLITE PENTA

DEVELOPMENT
OF HIGH-TECH LASER
METAL-CUTTING

INDUSTRIAL
DIVISION OF

ELEN

GROUP

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THE COMPANY

Cutlite Penta was founded in 1992 as the industrial division of El.En. S.p.A., with the goal of designing and manufacturing advanced laser systems for cutting plastic and wood materials, using CO₂ laser sources developed and produced in-house by the Group. Over the years, the El.En. Group has experienced steady growth, strengthening its presence in both the industrial and medical sectors internationally, and today has become one of the leading Italian players in the field of laser technologies.

Cutlite Penta embodies the industrial expertise of the Group, with production and commercial sites strategically located worldwide. Its extensive experience in the sector, combined with a deep understanding of metal laser cutting processes, has enabled the company to establish itself as a benchmark for the most demanding customers.

Driven by a vision focused on technological innovation and internal control of the entire production cycle—from design to the creation of key system components—Cutlite Penta is consolidating its role as a global leader in the industrial laser cutting sector.

MISSION

Cutlite Penta has always aimed to develop systems that ensure high productivity and quality while keeping operating costs low, allowing its customers to remain highly competitive. Cutlite Penta's R&D department, constantly working on the evolution of the cutting head, proprietary CNC, and front-end software, ensures that Cutlite Penta systems remain state-of-the-art. Flexibility and speed, combined with ease of use and ease of learning, are hallmarks of this new generation of systems, positioning our customers at the forefront of their markets.

OUR NUMBERS

850

employees

80.000 m²

of production areas

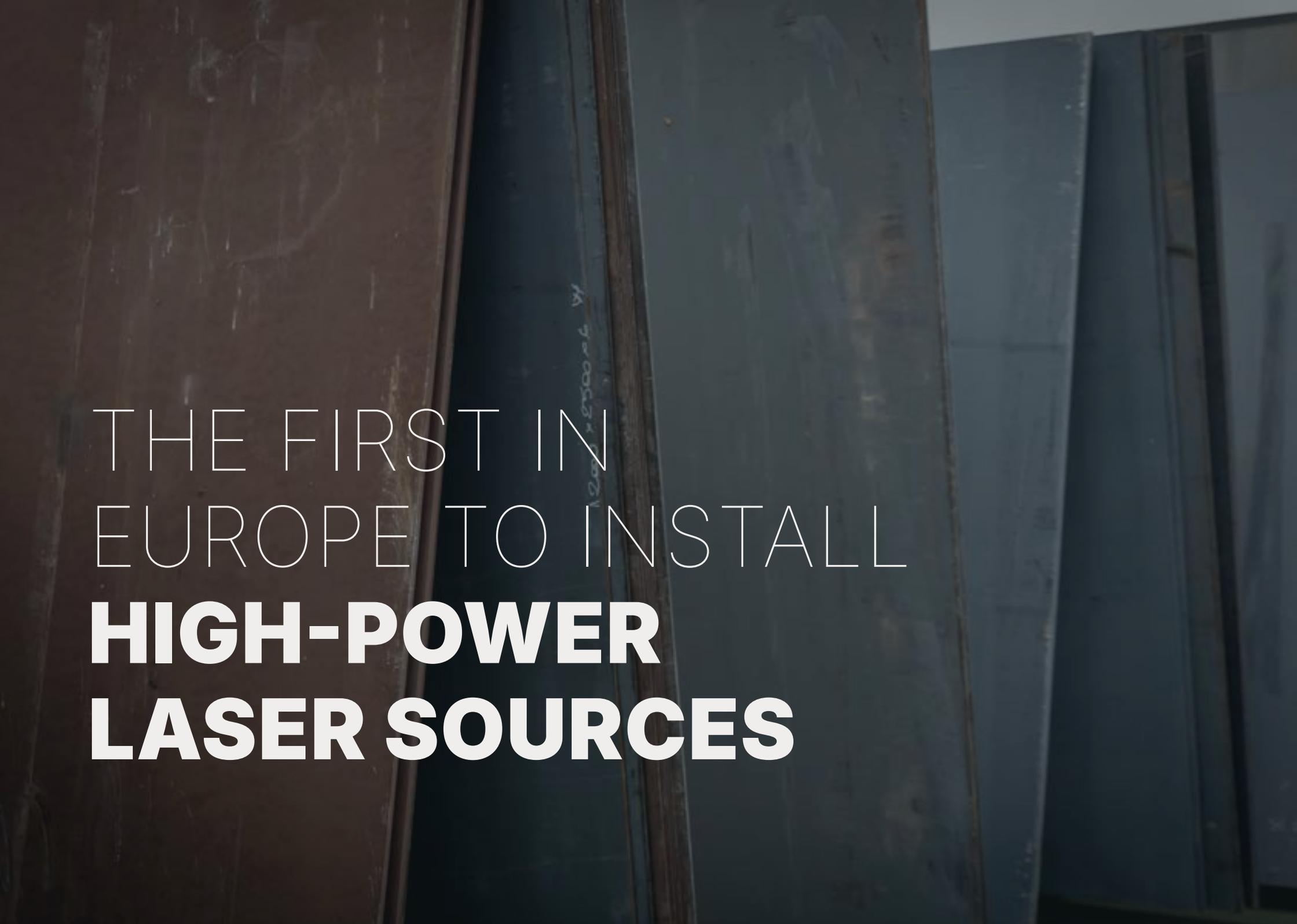
HISTORIC EXPERIENCE AND **KNOW-HOW AT YOUR SERVICE**



Strong from the decades-long experience in laser cutting that started with the CO₂ sources of the EI.En. group, we have transferred and perfected this advanced and transversal know-how to the field of FIBER LASER TECHNOLOGY.

The results that Cutlite Penta has achieved so far have led it to establish itself in the fiber laser

market, and to form solid partnerships with the main source producers for this technology, particularly thanks to the one with the American IPG Photonics, a leading company in the sector, which has the best and most up-to-date fiber laser sources, which allow it to offer high-quality machines and to be the first to introduce ever-increasing power systems.



THE FIRST IN
EUROPE TO INSTALL
**HIGH-POWER
LASER SOURCES**

TRANSVERSAL TECHNOLOGY

ON ALL OUR MODELS

FLY CUT

Proprietary technology for fly cutting.

LINEAR MOTORS

Linear motor movement on PLUS and LME.

ABSOLUTE INDUCTIVE ENCODERS

Axis positioning guaranteed at all times and low maintenance requirements.

CUTTING HEAD

Proprietary technology produced internally capable of managing high power during intensive use.

SMART MANAGER PLUS

Proprietary machine management software identical on all models.

SMART COMPOSER

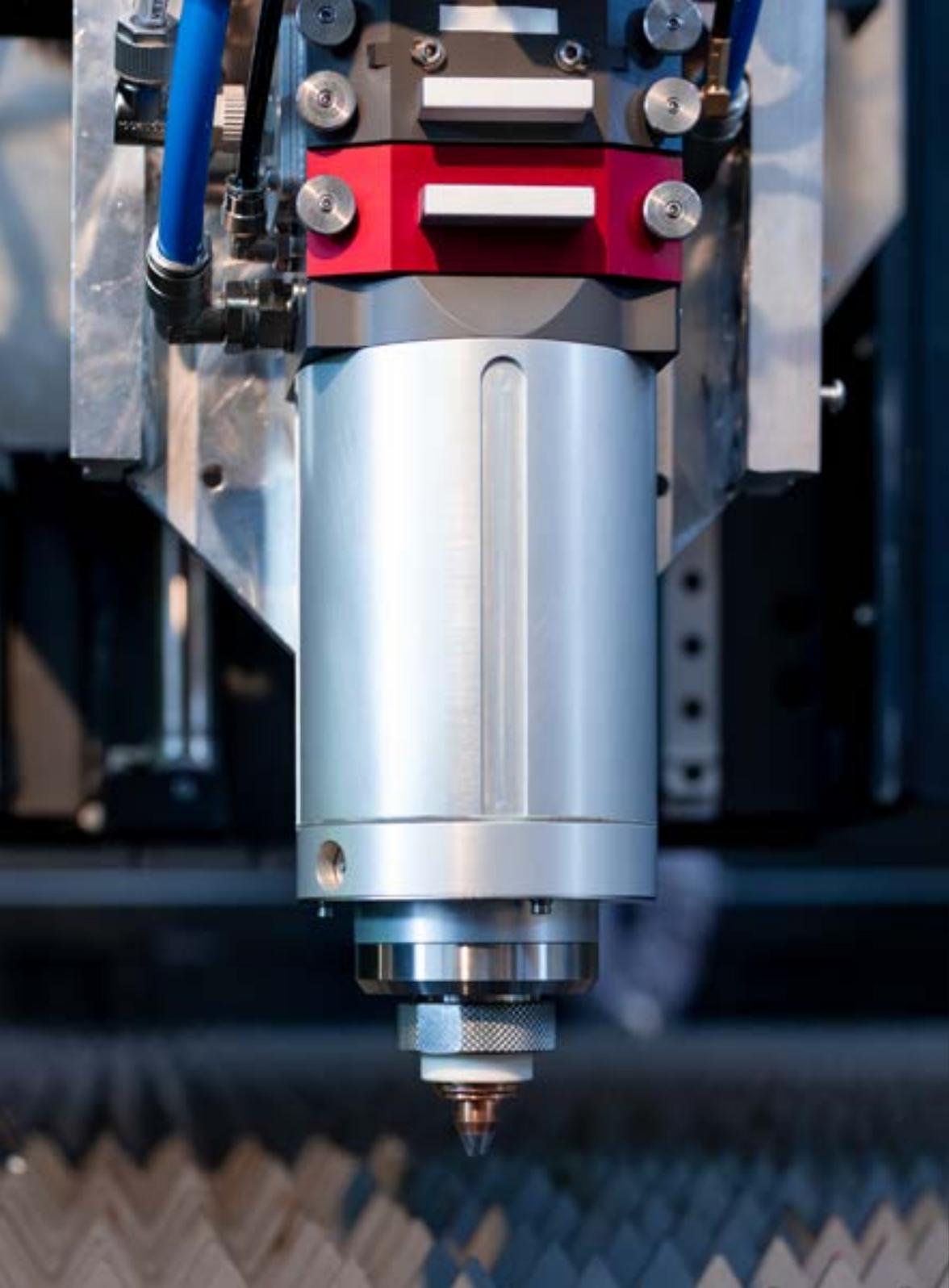
Integrated CAD/CAM on all systems.

RASTER MODULE

Software and hardware module for reproducing images on the metal sheet.

SMART FSM

Hardware and software combination developed by our R&D department to more efficiently mix cutting gases in real time and reduce consumption.



ACHIEVABLE PERFORMANCE WITH A 30 kW SOURCE

16 MM OF STAINLESS STEEL WITH CUTTING
SPEED OF 8 METERS/MINUTE

20 MM OF STAINLESS STEEL WITH CUTTING
SPEED OF 5 METERS/MINUTE

30 MM OF STAINLESS STEEL WITH CUTTING
SPEED OF 700 MM/MINUTE

50 MM OF STAINLESS STEEL WITH CUTTING
SPEED OF 170 MM/MINUTE

20 MM HARDOX® WITH CUTTING SPEED OF
5,5 METERS/MINUTE

50 MM IRON WITH CUTTING SPEED OF 800
MM/MINUTE

EVO HEAD

The **PLUS EVO, PLUS BEVEL, FAST and LME systems** use the **EVO 3 cutting head**, entirely designed by our Cutlite Penta research and development department.

The essential design of the EVO, **optimized to minimize maintenance requirements**, stands out starting from the optical mechanism, which is completely sealed to guarantee its longevity: inside, an automatic focalization mechanism, allows through the use of an adaptive mirror the lenses to remain stationary, favoring their cooling by liquid through a dedicated circuit, while a collimator mirror allows to adjust and maintain the centering of the laser beam.

The provided **capacitive sensor** then preserves the cutting quality by maintaining the nozzle at a constant distance from the metal sheet surface.

The **compact and modular configuration** of the EVO cutting head is characterized by the simplicity of its consumables, such as the glass placed to protect the optics, which, inserted in a manually extractable drawer, is easy to replace, the nozzles, which thanks to their geometries derived from Cutlite Penta's experience, contribute to further decrease the consumption of technical gases while maintaining excellent quality cutting results, and the ceramic, on which these are mounted, which in turn constitutes a physical device to protect the head in case of mechanical impact.

The EVO system finds itself competitively on the market also regarding the cutting gas consumption, thanks to the compact Smart Flexible Software Mix system introduced by Cutlite Penta and its tested cutting parameters present within the databases provided with the machines.

The latest version of the cutting head that Cutlite Penta installs on its **entire range of flat machines** is available in different focal configurations depending

on customer needs and has been validated for use up to 60kW of laser power and 25 bar of technical gas pressure.

STRENGTHS

- Contact-less preservation of real-time calibration through an integrated capacitive sensor
- Automatic management of contact and impact errors
- Focal range from 150 mm to 300 mm
- Proprietary design validated up to 60kW
- Technical gas control up to 25 bar
- Orderly connections and wiring concentrated in the upper part of the system
- Easily replaceable protective glass and ceramic

LINEAR MOTOR SYSTEMS

- **PLUS** EVO
- **PLUS** BEVEL
- **FAST**
- **LME**



PLUS

EVO

WORKING AREA UP TO
16500x3500 mm

POWER UP TO
60 kW



- + Fast
- + Efficient
- + Productive

PLUS EVO

The range of **PLUS** laser systems is the result of the experience that Cutlite Penta has accumulated thanks to its continuous commitment to precision and innovation. Designed and built to fully reflect our highest standards, this family of systems combines superior quality, high productivity and low operating costs, ensuring impeccable results and unparalleled reliability, continuing to redefine the limits of what the market expects from fiber laser cutting technology, particularly with regard to the thicknesses treated and the expected return on investment.

The quality of movement is ensured by the best linear motors available on the market, which combined with the fiber laser source and a robust structure, built with high quality materials, guarantee the longevity of the PLUS system with constant performance over time: Cutlite Penta knows well that to withstand the daily demands of industrial production, the value of a laser cutting machine is measured starting from its reliability, for this it lays the foundations of its flagship model. The peculiar characteristics of the PLUS range by Cutlite Penta, allow it to obtain unmatched cutting results from a qualitative point of view, especially as the thickness increases, for all the most used materials, from carbon steel to stainless steel, maintaining these results constant over time, and now, thanks to a further lightening of **the gantry the PLUS EVO returns even better dynamic performances compared to previous versions.**

Cutting head

The EVO cutting head that Cutlite Penta has designed and assembles within its own facilities stands out for performance and reliability, reduces technical gas consumption and supports prolonged periods of intensive use, and on the PLUS model is available with bevel option up to +/-50°.

Laser source

Fiber laser sources allow great versatility and allow cutting multiple types of metals. High efficiency, excellent beam quality and low energy absorption are its peculiar characteristics. The source is contained in a conditioned and sealed **NEMA 12** cabinet so that it can operate even in hostile environments. Such a degree of reliability guarantees extremely reduced maintenance costs.

Structure and movement

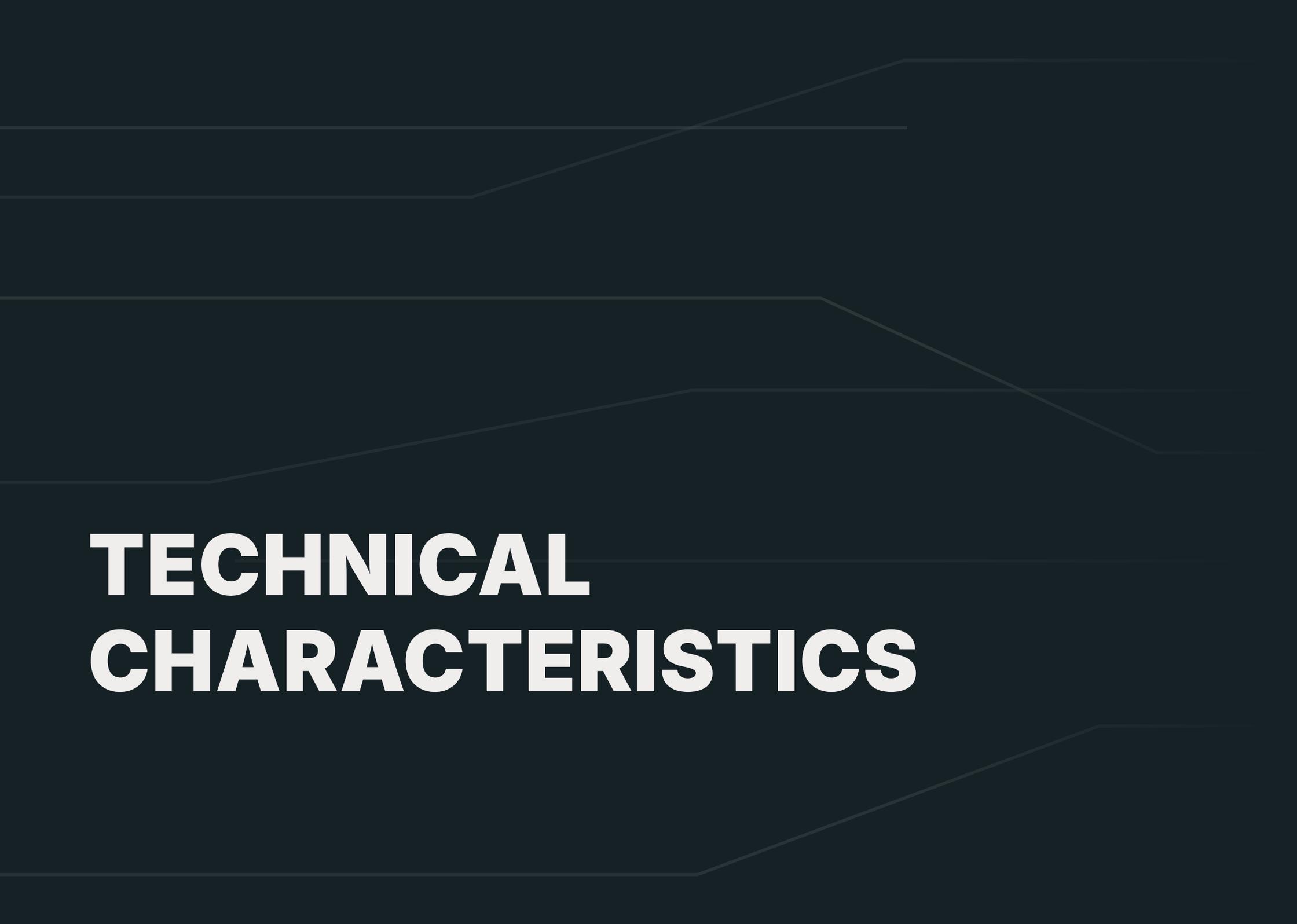
The base is an **electro-welded steel structure**, thermally stabilized, which is then machined to receive the high-precision guides and linear motors. The supports on which the steel beam rests are made of cast aluminium alloy. In the latest EVO version, the steel beam is even stiffer and lighter and is driven by linear motors with absolute inductive encoders to achieve even higher dynamic performance.

Scrap recovery

The area below the work surface is divided into **modular sections** of about 500 mm each, which collect the scraps channeling them towards the relative collection systems positioned under the structure. Each section is equipped with two suction mouths.

Work surface

The work surface consists of a **replaceable support grid**. The same laser machine can be used to produce this grid using a pre-installed program in the numerical control.

The background features several thin, light-colored lines that create a sense of depth and movement. These lines are arranged in a way that suggests a 3D perspective, with some lines receding into the distance and others appearing to be in the foreground. The overall effect is clean and modern.

TECHNICAL CHARACTERISTICS

STRENGTHS

- EVO head internally designed to maximize the potential of fiber lasers, **up to 60kW**, ensuring excellent cutting quality;
- **Robust and even lighter structure** that ensures long life and constant performance over time, thanks to excellent mechanical characteristics;
- **Remarkable ROI** (Return On Investment) due to its high efficiency and reduced maintenance costs;
- Possibility to **choose between different configurations**, allowing flexible adaptation of the system to best meet the specific production needs of each customer.

Our systems derive the greatest benefit currently available from fiber laser technology, combining efficiency and effectiveness with extreme ease of installation and maintenance, considerable savings in terms of space, great reliability and a high performance level deriving from the perfect integration of each component.

MODEL	WORKING AREA
4525	4500x2500mm
6520	6500x2000mm
6525	6500x2500mm
6530	6500x3000mm
8020	8000x2000mm
8025	8000x2500mm
8030	8000x3000mm
9030	9000x3000mm
12030	12000x3000mm
13030	13000x3000mm
14025	14000x2500mm
14030	14000x3000mm
15020	15000x2000mm
15030	15000x3000mm
16535	16500x3500mm

LASER POWER
2.000 W
3.000 W
4.000 W
6.000 W
8.000 W
12.000 W
15.000 W
20.000 W
30.000 W
40.000 W
50.000 W
60.000 W

Z-AXIS

Variable Z axis stroke according to needs.

HIGH DYNAMIC PERFORMANCE LINEAR MOTORS.

CUTLITE PENTA has as its strength the possibility of following, in some cases, the needs of the client by increasing the dimensions of the system according to requests.

HARDWARE SOLUTIONS



AUTOMATIC NOZZLE CHANGE

The automatic nozzle change is an option that allows the machine to automatically replace the cutting head's nozzle without operator assistance.



TWO-LEVEL TABLE CHANGE

The two-level table change allows in about 15 seconds to replace the work bench, almost totally masking loading and unloading times.



AUTOMATION

The various automation options allow optimization of work phases, significantly masking loading and unloading times.



CAMERA

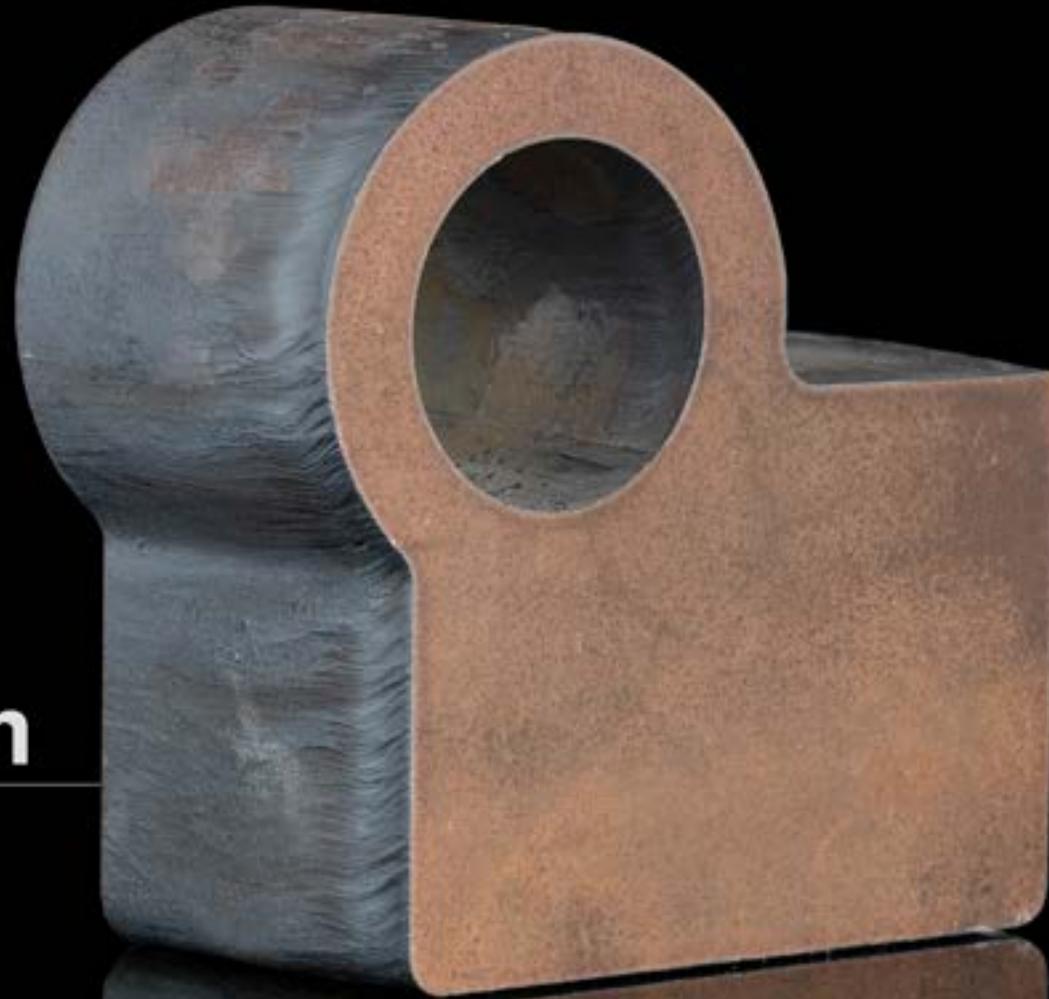
It is a position camera that allows remote control and viewing of the machine's work.



LIFT PALLET CHANGE

This option allows optimization of processing times, reducing the sheet metal loading and unloading times.

100 mm



Mild Steel 100 mm

PLUS **BEVEL**

WORKING AREA UP TO
16500x3500 mm

POWER UP TO
60 kW



PLUS BEVEL

BEVEL cutting is the process of cutting a piece with an edge not perpendicular to the surface of the material. It is mainly performed to increase the area available for a stronger and safer weld. There are different types of inclined cutting, which are usually indicated by a nomenclature consisting of Latin alphabet letters that most approximate the geometry of the bevel cut seen in cross section.

The PLUS BEVEL system, which uses the same EVO 3 head, **can perform all types of inclined cutting** most commonly requested by those considering this type of application, namely V (positive and negative), Y (positive and negative), X and K up to an angle of 50° without penalizing the quality of flat cutting. Synchronized in real time by Cutlite Penta's exclusive numerical control software, the movement of the axes is smooth and uninterrupted, ensuring continuity to the cutting process.

Cutting head

Cutlite Penta maintains the proprietary **EVO** cutting head also on the PLUS BEVEL model, which stands out for performance and reliability reducing technical gas consumption and supporting prolonged periods of intensive use.

Laser source

Fiber laser sources allow great versatility and allow **cutting multiple types of metals**. High efficiency, excellent beam quality and low energy absorption are its peculiar characteristics. The source is contained in a conditioned and sealed **NEMA 12** cabinet so that it can operate even in hostile environments. Such a degree of reliability guarantees extremely reduced maintenance costs.

Structure and movement

The base is an **electro-welded steel structure**, thermally stabilized, which is then machined to receive high-precision guides and linear motors. The supports on which the steel beam rests are made of cast aluminium alloy, in this way the cart architecture, moved by linear motors **with absolute inductive encoders**, is light and resistant, suitable to host the motors for the B and C axes returning a fluid operation and a bevel application up to +/-50°.

Scrap recovery

The area below the work surface is divided into modular sections of about 500 mm each, which collect the scraps channeling them towards the relative collection systems positioned under the structure. Each section is equipped with two suction mouths.

Work surface

The work surface consists of a replaceable support grid. The same laser machine can be used to produce this grid using a pre-installed program in the numerical control.

The **PLUS BEVEL** systems combine high performance, versatility, and high efficiency. The linear motor movement together with the bevel configuration up to 50° allows for the execution of a multitude of operations while maintaining cutting quality and productivity.

STRENGTHS

- Fluid and continuous movement **up to +/- 50° inclination**;
- Real-time **contact-less calibration** via integrated capacitive sensor;
- **Automatic management** of contact errors and impacts;
- **Focal range from 150 to 300 mm**;
- Technical **gas control** up to 25 bar;
- Proprietary design validated **up to 60kW**;
- Orderly **connections and wiring concentrated** in the upper part of the system;
- Easily replaceable **protective glass and ceramic**.

MODEL	WORKING AREA	BEVEL WORKING AREA
4525	4500x2500mm	4000x2000mm
6520	6500x2000mm	6000x1500mm
6525	6500x2500mm	6000x2500mm
6530	6500x3000mm	6500x2500mm
8020	8000x2000mm	7500x1500mm
8025	8000x2500mm	7500x2000mm
8030	8000x3000mm	7500x2500mm
9030	9000x3000mm	8500x2500mm
12030	12000x3000mm	11500x2500mm
13030	13000x3000mm	12500x2500mm
14025	14000x2500mm	13500x2000mm
14030	14000x3000mm	13500x2500mm
15020	15000x2000mm	14500x1500mm
15030	15000x3000mm	14500x2500mm
16535	16500x3500mm	16000x3000mm

LASER POWER
2.000 W
3.000 W
4.000 W
6.000 W
8.000 W
12.000 W
15.000 W
20.000 W
30.000 W
40.000 W
50.000 W
60.000 W

Z-AXIS

Variable Z axis stroke according to needs.

HIGH DYNAMIC PERFORMANCE LINEAR MOTORS

CUTLITE PENTA has as its strength the possibility of following, in some cases, the needs of the client by increasing the dimensions of the system according to requests.



FAST

WORKING AREA UP TO
6000x2000 mm

POWER UP TO
30 kW



FAST

Cutlite Penta presents FAST, its new and revolutionary laser machine model, designed and tested to achieve **high movement speed during the cutting of medium and low thicknesses without compromising quality**, even on complex geometries. FAST stands out for **exceptional jerk, accelerations and speeds**, a result that derives from the application of Cutlite Penta's decades of experience in the internal design of each component of its laser systems for research and development activities devoted to achieving fast movement and high dynamics, rapid and snappy, but rigid and reliable.

The FAST model features a completely redesigned gantry to minimize weight, while preserving the rigidity necessary for a stable and replicable cutting process. The **base** has been reworked **with 100mm thick sides and a lowered center of gravity** in order to obtain a very low ratio between the mass of moving components and that of static parts placed horizontally inside the structure to optimize their dynamic performance, to perform movements with very high jerk, so as to maintain high speeds and accelerations during the entire cutting process without compromising geometries in direction changes or producing vibrations.

Structure and movement

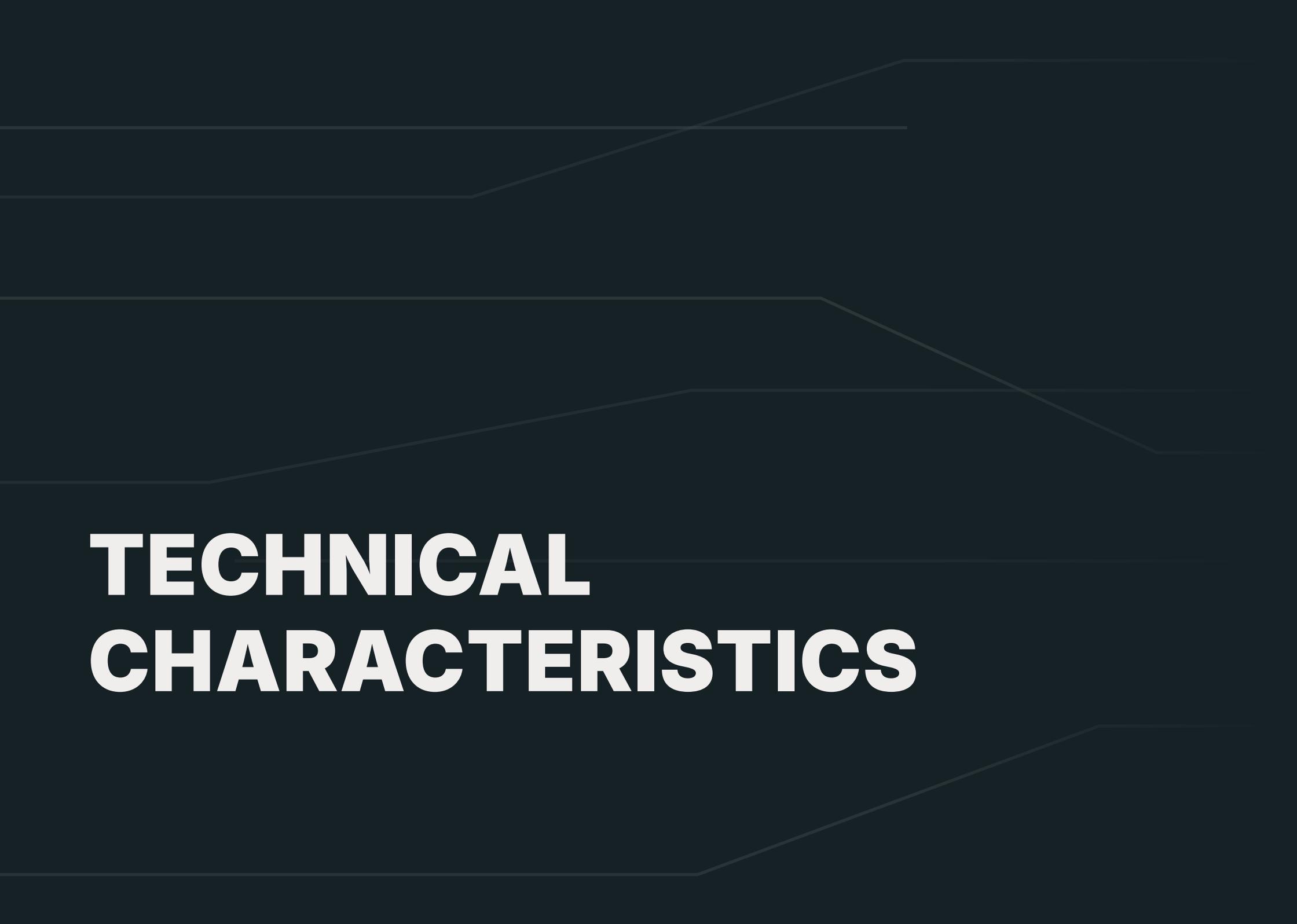
The combination of a particularly rigid and light gantry with a robust and massive structure, with 100mm thick sides, **returns a very low ratio between moving masses and static masses**, allowing to obtain a very high jerk and thus take advantage of the performance of linear motors without the rapid accelerations and sudden direction changes of the head affecting the cutting quality or its geometric accuracy.

Cutting head

FAST mounts the proprietary Cutlite Penta head in its **EVO version**, appreciated for its reliability even in the face of using high laser powers allowing extraordinary cutting performance in thin thicknesses, without giving up the ability to cut larger thicknesses.

Power/speed laser source

The experience accumulated over time and the technical foundations of Cutlite Penta, combined with the use of high-power sources, allow the FAST model not only to cut large thicknesses but also to **obtain high speeds and excellent cutting quality** on medium and thin ones. The source, which stands out for high efficiency, excellent beam quality and low energy absorption, is contained in a conditioned and sealed **NEMA 12** cabinet so that it can operate even in hostile environments. The high reliability of these sources also contributes to reducing maintenance costs.

The background features several thin, light-colored lines that create a sense of depth and movement. These lines are arranged in a way that suggests a three-dimensional space, with some lines appearing to recede into the distance while others appear to move towards the viewer. The overall effect is clean and modern.

TECHNICAL CHARACTERISTICS

STRENGTHS

- Agile and compact **Made in Italy solution** that optimizes dynamic performance thanks to Cutlite Penta cutting technology and high-efficiency linear motors;
- **Quick and nimble movement**, due to the low ratio between the mass of static parts and mobile components, to maintain high speeds throughout the process;
- **CAD CAM software integrated** on board the machine;
- **EVO cutting head.**

MODEL	WORKING AREA
3015	3000x1500mm
4020	4000x2000mm
6020	6000x2000mm

LASER POWER
6.000 W
8.000 W
12.000 W
15.000 W
20.000 W
30.000 W

CUTLITE PENTA has as its strength the possibility of following, in some cases, the needs of the client by increasing the dimensions of the system according to requests.

LME

WORKING AREA UP TO
8000x2500 mm

POWER UP TO
30 kW



LME

The **LME** laser system model combines the ability to produce at a high-quality level with high efficiency and very low operating costs. Born to meet the needs of small and medium-sized carpentry, which had for long been demanding compact machines that maintained cutting quality, accuracy and precision.

LME is Cutlite Penta's answer to satisfy this request: it maintains the linear motor architecture and the "all in one" characteristic of its older sister PLUS, the same EVO cutting head, the same CNC numerical control, the operating software Smart Manager Plus and the exclusive Smart Composer software, which makes it possible to design and program on board the machine. All this makes the LME laser system one of the most versatile and reliable available in the mid-range market.

Versatile and accessible linear motor solution

The LME is the only model in its category to mount linear motors and absolute encoders, which allow for high levels of reliability and low maintenance requirements. The attention to quality, and the concreteness that distinguishes the entire Cutlite Penta range, translate into a multiplicity of applications and a rapid return on investment, unmatched in the reference market.

Cutting head

The EVO cutting head that Cutlite Penta has designed and assembles within its own facilities stands out for performance and reliability, reduces technical gas consumption and supports prolonged periods of intensive use.

Laser source

Fiber laser sources up to **30kW** ensure great versatility in metal cutting. The source, which stands out for high efficiency, excellent beam quality and low energy absorption, is contained in a conditioned and sealed **NEMA 12** cabinet so that it can operate even in hostile environments. The high reliability of these sources also contributes to reducing maintenance costs.

Structure and movement

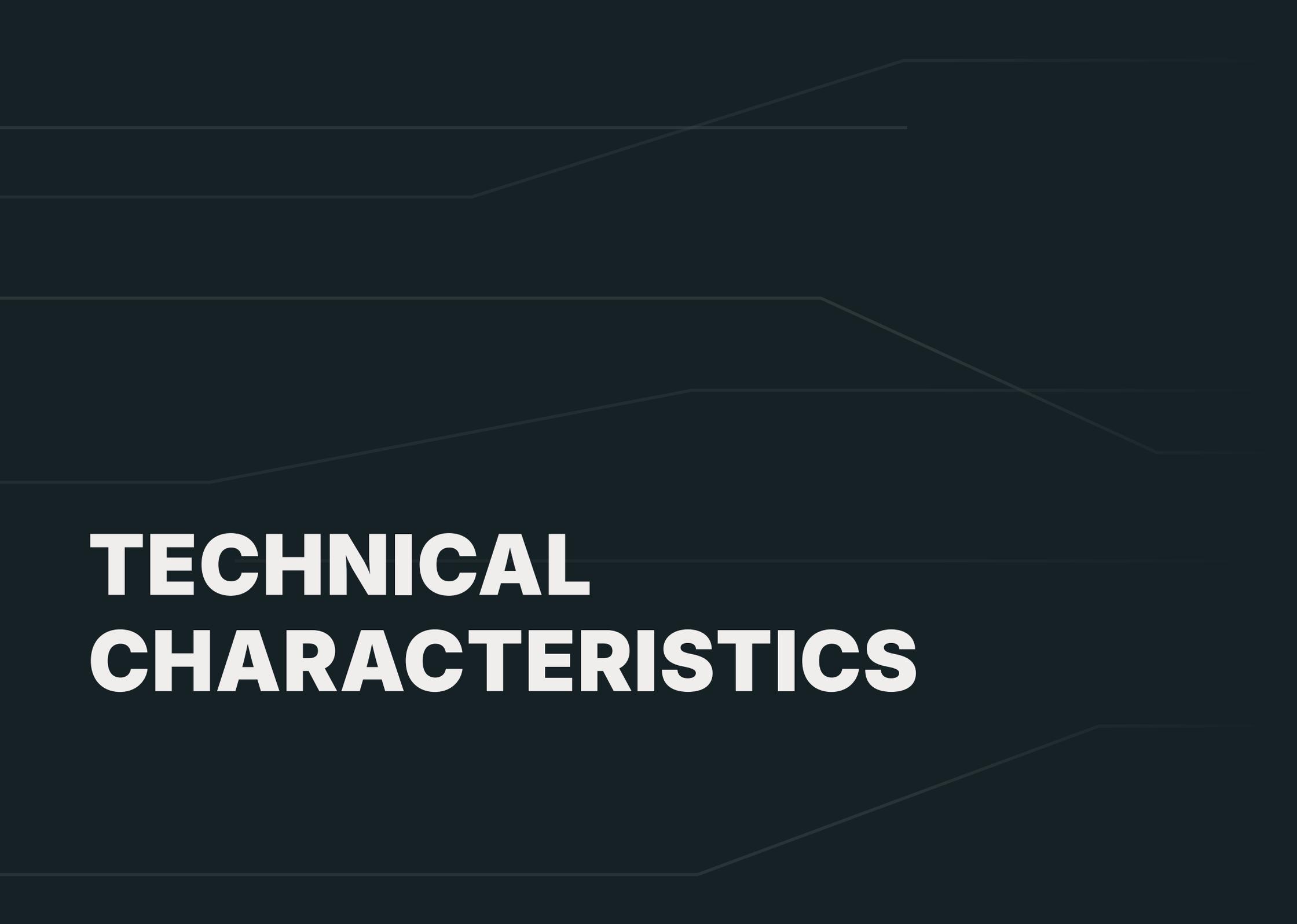
The base structure is made of electro-welded steel and machined to receive high-precision guides for linear motors, while the gantry mechanism is composed of a rigid and light steel beam. This configuration constitutes a resistant and durable apparatus, characterized by excellent movement dynamics for an introductory model to linear motor systems.

Scrap recovery

The area below the work surface is divided into modular sections of about 500mm each that collect the scraps by channeling them towards the relative collection systems positioned under the structure. Each pair of sections is equipped with a fume suction mouth.

Work surface

The work surface consists of a replaceable support grid. The same laser machine can be used to produce this grid using a pre-installed program in the numerical control.

The background features several thin, light-colored lines that create a sense of depth and movement. These lines are arranged in a way that suggests a 3D perspective, with some lines receding into the distance and others appearing to be in the foreground. The overall effect is clean and modern.

TECHNICAL CHARACTERISTICS

STRENGTHS

- **Concentration of technology:** linear motors, absolute inductive encoders, process sensors and autofocus head in a reduced footprint;
- **All-in-one configuration:** electrical panels, laser source, control panel all integrated, for a simple and quick installation: in two days the machine is ready to start production at the customer's site;
- **CAD CAM software integrated** on board the machine;
- **EVO cutting head.**

MODEL	WORKING AREA
1010	1000x1000mm
1020	1000x2000mm
1515	1500x1500mm
3015	3000x1500mm
4015	4000x1500mm
4020	4000x2000mm
6020	6000x2000mm
6025	6000x2500mm
7020	7000x2000mm

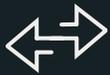
LASER POWER
2.000 W
3.000 W
4.000 W
6.000 W
8.000 W
12.000 W
15.000 W
20.000 W
30.000 W
LINEAR MOTORS
One of CUTLITE PENTA 's main strengths is its flexibility in meeting customer requirements, including the possibility of enlarging the system to meet specific needs.

HARDWARE SOLUTIONS



AUTOMATIC NOZZLE CHANGE

The automatic nozzle change is an option that allows the machine to automatically replace the cutting head nozzle without operator assistance.



TWO-LEVEL TABLE CHANGE

The two-level table change allows in about 15 seconds to replace the work bench, almost totally masking loading and unloading times.



CAMERA

It is a position camera that allows remote control and viewing of the machine's work.



MANUAL EXTRACTION TABLE

Manual extraction bench for loading and unloading materials to be processed.

LME 4020

201900
20000

LME 5015



2D SOFTWARE SYSTEMS

- SMART MANAGER PLUS
- SMART COMPOSER

```
..._mod.use_z = True

... at the end -add back the de
..._ob.select= 1
..._ob.select=1
...context.scene.objects.active = modifier
...selected" + str(modifier_ob)) # mod
..._ob.select = 0
...context.selected_objects[0]
...objects[one.name].select = 1

print("please select exactly two object

OPERATOR CLASSES -----

...operator):
...error to the selected object""
...x"
...x"
```

Our **PLUS** and **LME** systems are compatible
with the main **CAD/Cam** software on the market.

SMART MANAGER PLUS

The PLUS machine control system consists of a **numerical control** unit and **Smart Manager Plus**, an innovative software for machine management and supervision. With Internet access, the system can be monitored via **remote assistance using TeamViewer**. Smart Manager Plus takes advantage of the potential of Cutlite Penta cutting systems, ensuring maximum performance and intuitive management. The customizable interface and integrated database facilitate daily use and integration with external applications via SQL. The **3D graphic viewer** and interconnection features with **Industry 4.0** complete the picture of this cutting-edge software.

Job Report: automatically stores data and details of each production cycle and information useful for verifying programming efficiency.

Work resumption: allows recovery of operations interrupted due to force majeure or priority changes.

Preview: allows quick verification of selected operations, sheet size verification, and cutting simulation, also estimating execution time.

Cutting technology database: manages cutting parameters and organizes data in intuitive and easily consultable tables.

N.U.R.B.S.: allows managing fourth-degree curves in their primitive form (splines).

Box Nester: used for manual preparation of composite operations, with positioning in bounding boxes.

Automatic sheet edge acquisition: automatic recognition of sheet position and adaptation of the part program with millimeter accuracy, without needing to move the sheet.

Scheduling: manages cutting parameters and organizes data in intuitive and easily consultable tables.

Cutting Lost: automatic recognition and restart in case of cutting loss.

Smart Focus: ultra-rapid autofocus for positioning during cutting.

Auto Power Off: automatic machine shutdown system.

Synchronous release function: optimizes releases based on the distance of operations by moving the vertical axis synchronously with the X-Y plane axes.

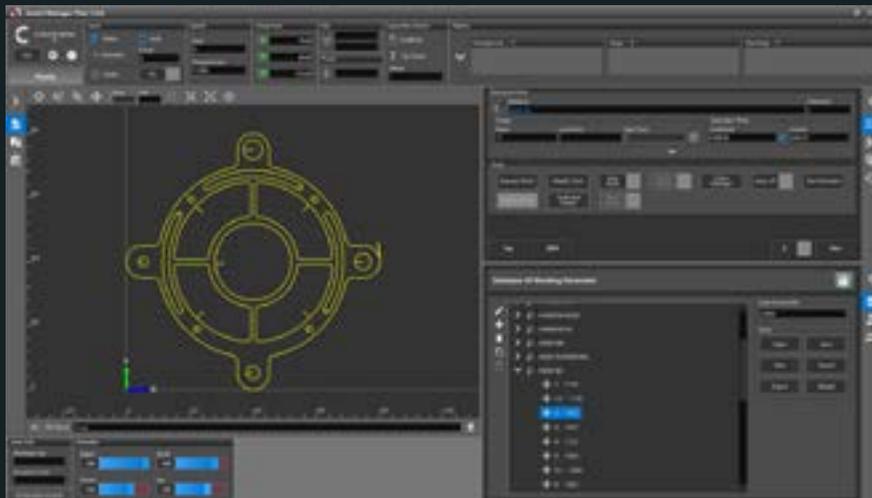
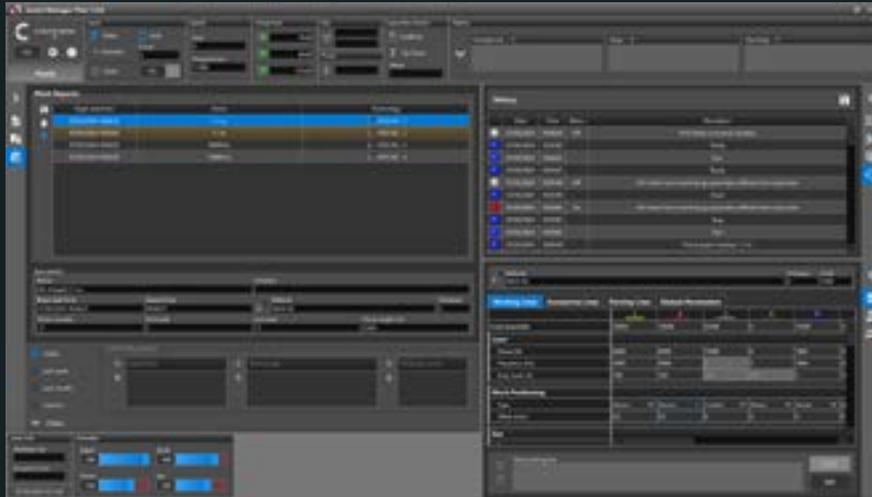
Loading and unloading systems interface: a module to interface with the loading/unloading devices and the sheet metal storage.

Interface with management systems and MES: used for monitoring operating states and machine production according to the Industry 4.0 model.

Fly Cut: to perform fly cutting operations with Fly-Piercing capability, without interrupting the axis movement.

SMART COMPOSER

The new revolutionary software by Cutlite Penta interfaces directly with the **Smart Manager PLUS** software.



Images Software Smart Manager Plus

Geometric entities: to manage, move, rotate, scale, and mirror geometric objects. Allows splitting, breaking, and modifying entities, and creating corners with a click.

Profile verification: tools are available for the testing of imported profiles. In particular, invalid, duplicate or open elements can be checked. Node optimisation and reduction.

Automatic nesting: intelligent placement of parts and shapes on the sheet metal directly on board the machine, to reduce time and material waste.

Raster images: to create high-definition raster images.

Fiducial markers: to manage plan alignment using markers and camera.

Commission management: supports operations with different materials and thicknesses, modifies quantities and descriptions, allows multi-level automatic nesting.

Micro-joints: manual or automatic addition of micro-junctions, lead-ins, and lead-outs.

Cutting sequence: for efficient calculation of cutting order, automatic recognition and sequencing of internal and external paths, minimizing sheet metal heating.

Fly cut: can manage fly cutting to quickly execute paths with inline profiles.

SmartComposer camera: to see the cutting plan in real-time and capture a photo of the current plan, to be used for manual placement of nearby parts.

Simulator: the integrated NC file simulator, with a quote calculation module, which acquires speed parameters, material costs per kg, and hourly costs from the machine.

AUTOMATION

- LOADING-UNLOADING SYSTEMS
- AUTOMATIC STORAGES

DCS **DFS**



LOADING-UNLOADING SYSTEMS

A RANGE OF
CONFIGURATIONS



LOADING-UNLOADING SYSTEMS

CUTLITE PENTA IS ABLE TO INTERNALLY MANUFACTURE SYSTEMS OF LOADING AND UNLOADING, IN-LINE OR 90°, COMBINED WITH **VERTICAL STORAGES** THAT INTERACT DIRECTLY WITH OUR LASER SYSTEMS.

LOADING AND UNLOADING SYSTEM

Our loading and unloading system consists of a suction cup hoist mounted on a carriage, which moves from the loading station to the table of the laser. Equipped with two electric feedback axes controlled by absolute transducers, the lifter provides vertical movement for gripping, displacement and control of the metal sheet. The unit is complete with air blowers and wire brushes.

Above the outer table of the laser cutting machine a fork unloader with wide vertical travel is installed. The forks, guided by two axes controlled by absolute transducers, allow the lifting and introduction into the laser table. A third motor makes it possible to move the entire system "out of the way", ensuring a working area free and safe from suspended loads during manual loading. Upon request, it is possible to cover the forks with scratch-resistant material.

TECHNICAL DESCRIPTION OF THE SYSTEM

The loading and unloading structure is positioned above the changing laser pallet at 90° or in line with the pallet changer itself. The carpentry structure is solid and modular, capable of adapting to specific requirements.

It has a fixed shelf on which to place virgin material and a motorized shuttle, whose parking area is located above the shelf of the material to be cut.

The shuttle picks up the material and brings it to the work surface by means of suction cups. On top of the shuttle, rests the tray of the cut material; during the process of depositing the metal sheet on the work surface, the cut material previously picked up is discharged in the upper tray. At the end of the operation, the shuttle returns to the parking area.

CSCP - 90°

Standard thickness 25 mm (special applications up to 30 mm thickness).

For structural and heavy carpentry productions.

For production areas requiring **perpendicular** positioning to the pallet changer.

Operational flexibility also with thick materials.

Maximum capacity: Sheets 8000x2500 mm.

CSCP - IN LINE

Standard thickness 25 mm (special applications up to 30 mm thickness).

For medium-format laser machines, with the structure aligned with the pallet changer.

The entire system can be moved "**out of the way**" for manual operations and use of the overhead crane for heavier loads.

Maximum capacity: Sheets 8000x2500 mm.

IN LINE OR 90° CONFIGURATION (depending on customer needs)

CSCP 3015

Sheets up to 900 kg.

Axes controlled by absolute transducers.

Ideal for workshops with limited space but high production demands.

Maximum capacity:

Sheets 3000x1500 mm, thickness 25 mm.

CSCP 4020

Sheets up to 1600 kg.

Advanced safety system with double-beam photoelectric barriers.

Maximum capacity:

Sheets 4000x2000 mm, thickness 25 mm.

CSCP 6020

Sheets up to 2400 kg.

Heavy carpentry and large-scale production.

For intensive industrial productions.

Maximum capacity:

Sheets 6000x2000 mm, thickness 25 mm.

CSCP 8025

Sheets up to 3950 kg.

Laser scanner for automatic reading of unloading height.

For high-end industrial productions.

Maximum capacity:

Sheets 8000x2500 mm, thickness 25 mm.

CSCP 6025

Sheets up to 2950 kg.

Allows 24/7 operation with minimal manual intervention.

Maximum capacity:

Sheets 6000x2500 mm, thickness 25 mm

Common Features

Safety: Equipped with IP55 class 4 photoelectric barriers, safety doors, and perimeter fencing.

Control: Central panel with Smart Manager touchscreen terminal for complete management of all functions.

Options: Forks coated with scratch-resistant material available on request for all models.





STORAGE SYSTEMS

Our **Automatic Storage System** are compact, versatile, and fully integrated with cutting machines, representing a concrete solution to increase **productivity**, reduce **handling times**, and improve the **efficiency** of laser systems.

KS - SUPER COMPACT

The **compact** solution for those with limited space.

Reduces waiting times and optimizes production flow.

Storage System configured as a **single** or **double tower** of containers (**UdC**), installed above the laser machine pallet changer, combining both automation and material storage in UdCs on the tower.

Automated group with suction cups for picking virgin sheets and combs for collecting cut sheets.

Ideal for:

- **Limited space**
- **Job-order processing**
- **Cutting lists with multiple different materials**

LS - STORAGE SYSTEM WITH 90° LOADER

For plants where the layout is developed at **90°** to the pallet changer, minimizing material handling.

Single or **double tower** structure for storage and a connected loading/unloading device with two work levels. During the cycle, the virgin sheet is picked and moved via suction cups above the laser table, while the finished sheet is simultaneously unloaded by forks into the corresponding UdC.

Ideal for:

- **High-volume production**
- **Maximum efficiency**

CS - COMPACT

High automation with a **compact structure**.

The system consists of a Storage System, **single** or **double tower**, with UdCs for storing virgin and cut material, connected to a loading/unloading unit mounted on a self-supporting frame connected to the tower and equipped with motorized rails for sliding UdCs containing the work material. Movement of UdC sheets is via two **motorized rails**.

Suction cups pick up the virgin sheet and place it on the table, while combs handle recovery of the processed material.

Ideal for:

- **Optimizing flow without sacrificing space**

Supervision Software (common to all)

Each system is managed by dedicated **Supervision Software** installed on the main console, allowing the operator to control all **loading, unloading, and inventory** management operations simply and immediately.

The intuitive interface enables:

- **Quick material selection**
- **Weight control**
- **Inventory management**
- **Complete traceability**





LASER SOURCES

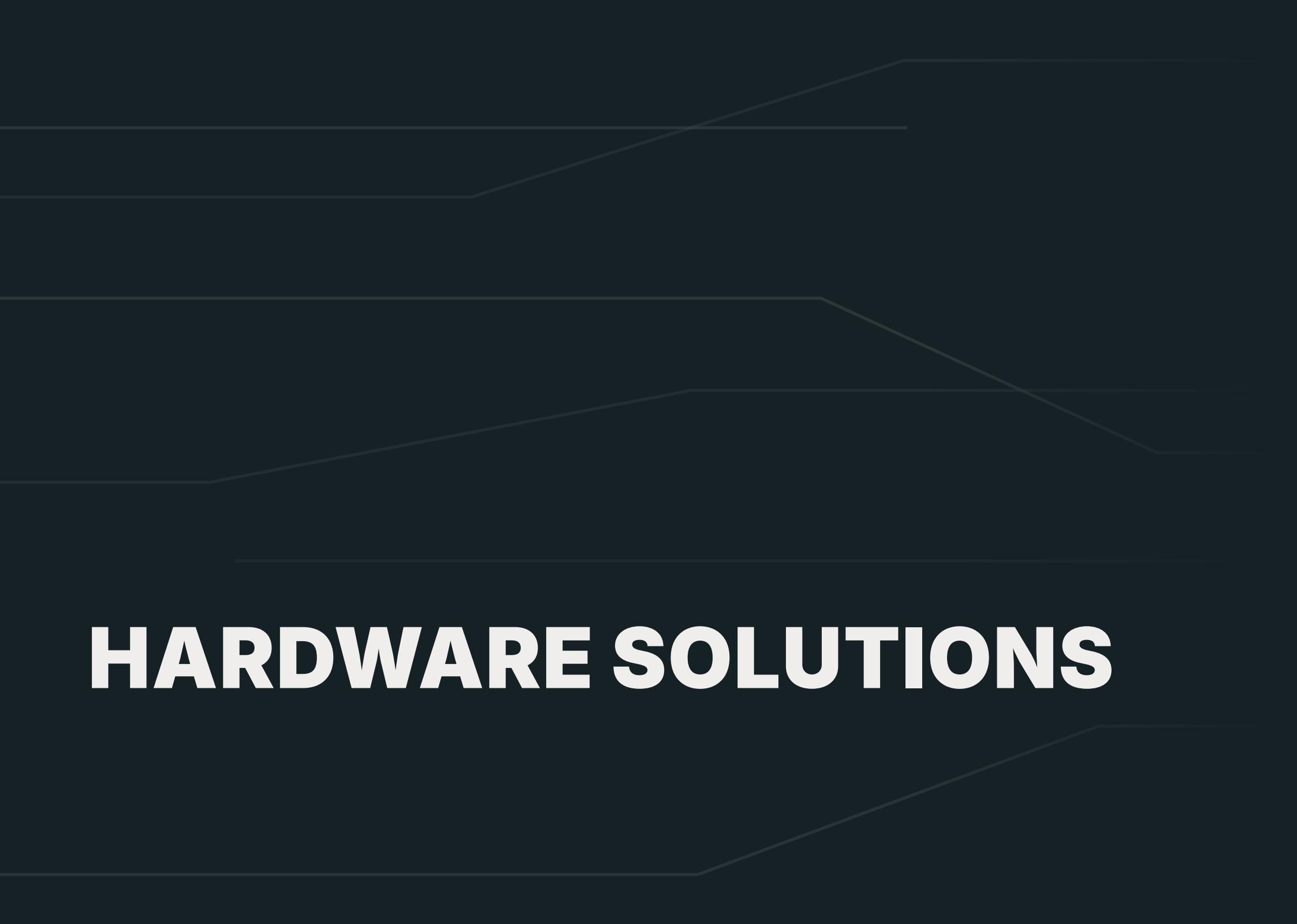
IPG FIBER LASER



With the development of the EVO series, Cutlite Penta's control over its cutting head, from the design phase to its manufacture, has established itself in the marketplace as a synonym for performance, reliability and versatility, arousing the interest of leading fiber laser cutting source manufacturers, with whom it has over time built a synergistic relationship that ensures agility and variety for its offerings in the marketplace.

Specificly, for years Cutlite Penta has maintained a partnership with **IPG Photonics**, a leading company founded in 1991 in Russia by physicist Valentin P. Gapontsev, Ph.D, a pioneer in fiber laser cutting applications. Since 2006 IPG has been listed on the NASDAQ Global Select Market under the ticker IPGP. In 1992 the company began to focus on the **development of lasers** and **high-power fiber** amplifiers and established its headquarters in the U.S. in 1998. In 2000, IPG invested in new high-capacity facilities in the U.S. to manufacture its own diode pumps, an important component of its fiber lasers and amplifiers.

The advent of the optical fiber in cutting technology has produced a revolutionary impact on laser manufacturing. From the simplicity and elegance of the fiber laser spring **efficiency**, compactness, robustness and low operating costs, thus leading its enormous success in the marketplace.

The background features several thin, light-colored lines that create a sense of depth and movement. These lines are mostly horizontal but have various angles and slopes, some rising and some falling, creating a layered, architectural feel. The lines are positioned in the upper and lower portions of the frame, framing the central text.

HARDWARE SOLUTIONS

HARDWARE SOLUTIONS



AUTOMATIC NOZZLE CHANGE

Automatic nozzle change is an option that allows the machine to automatically change the cutting head nozzle without operator assistance.



CAMERA

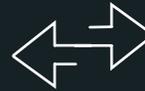
This is a position camera that allows remote control and viewing of the machine's work.

HARDWARE SOLUTIONS



LIFT PALLET CHANGE

This option allows optimization of processing times, reducing the sheet metal loading and unloading times.



TWO-LEVEL TABLE CHANGE

The two-level table change allows in about 15 seconds to replace the work bench, almost totally masking loading and unloading times.

HARDWARE SOLUTIONS



AUTOMATION

Various automation options allow optimization of work steps, significantly masking loading and unloading times.



MANUAL EXTRACTION BENCH

Manual extraction bench for loading/unloading materials to be processed.



| Hardox® 80 mm



| *Hardox® 80 mm* | *Steel 50 mm* | *Sandblasted iron 35 mm* | *Galvanised steel 5 mm*



| Iron 30 mm



| Steel 50 mm



| Steel 50 mm



| *Steel 50 mm*



| Hardox® 20 mm



80 mm

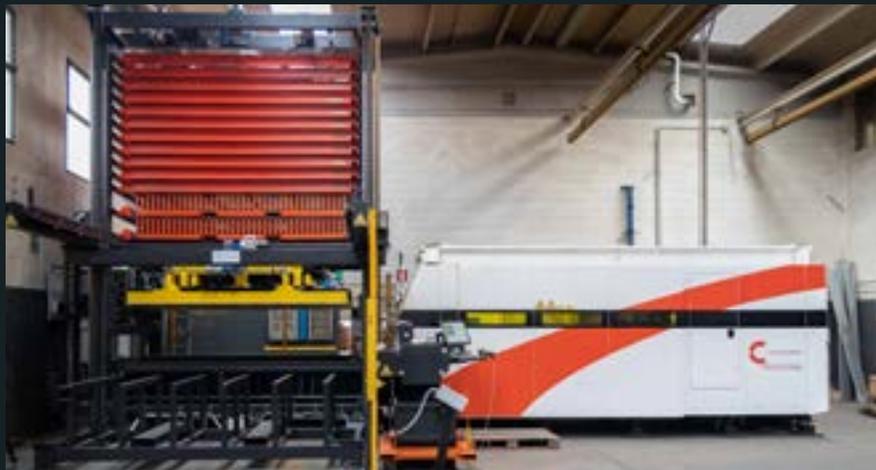
| Steel 80 mm



PLUS 20 kW 15000x3000mm



PLUS 30 kW 15000x2000mm



PLUS - DCS



LME - DCS

ENGLISH



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