Fibre laser

SUPERA

DERATECH

Description

The Supera is an double-drive gantry type flying optics laser cutting machine. It is designed to offer high dynamics during high-speed cutting of thin materials while having all the technology and know-how on board to produce stable and consistent parts in thicker material, where the maximum thickness is only limited by the output power of the laser. The machine can cut the sheets on two different height levels inside the machine, this allows the automatic shuttle table system to change very fast between tables since the tables do not need to make any vertical movement. The fully covered machine assures a perfectly eye-safe operation.

Bridge structure

Central in the design of the machine is the light-weight aluminum bridge which has been optimized to have an extreme high stiffness and allows the machine to reach very high dynamics without compromising the accuracy of the parts over the entire 1.5m span of the width of the working range. The compact design of the Z-axis offers an optimum weight distribution while keeping the access for the operator to the cutting head easy and straightforward. All critical parts are covered and well protected against dusts and smokes from the laser cutting process.

Transmission system

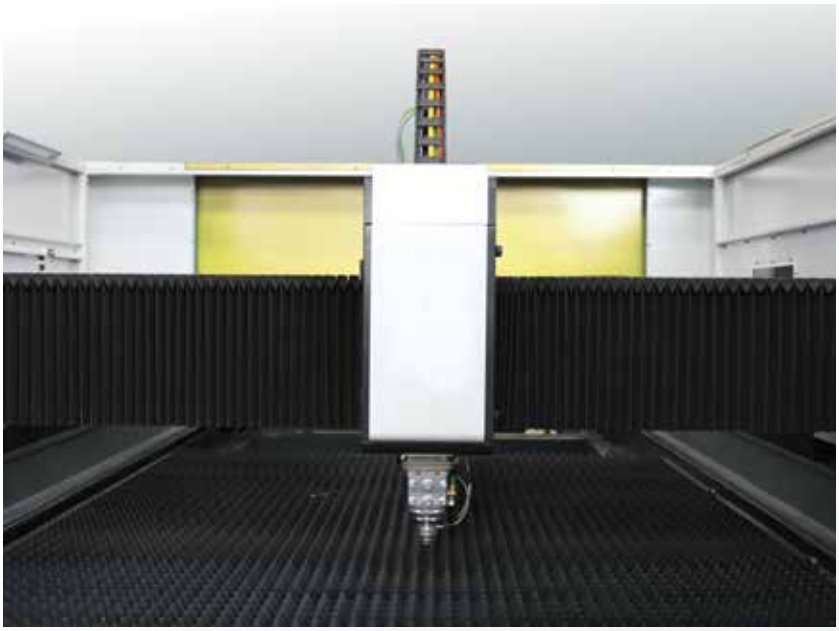
The powerful low-inertia servo motors with integrated gear-box provide the necessary torque to the high-precision rack and pinion drive system. This robust system offers the highest accelerations at maximum accuracy, no matter the length of the stroke of the axis in question. There is virtually no back-lash and the integrity and long life-time of the rack and pinion is guaranteed by an automatic central lubrication system providing a continuous lubricant to both the pinions of the X- and Y-axis transmission system and the carriages of the linear guides of the machine.

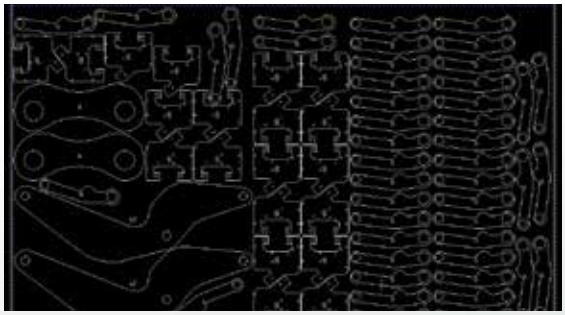
Cutting head

The Supera 3015 is equipped with a light-weight and robust cutting head for fiber-delivered laser sources (fiber laser, disk laser or direct diode laser) of maximum 2kW output power. The focus adjustment is motorized while the distance to the work-piece is maintained automatically and with extreme high dynamics by an integrated capacitive distance sensor. Even with irregular sheets, the laser cutting process parameters will be kept constant during the entire production. The auto-focus function allows minimum set-up time for the machine when changing the material and/or thickness to cut. The cutting lens is protected from the process spatters by a low-cost and easy to replace protective window.

Cutting gas system

Up to three types of assist gasses can be connected to the Supera 3015 machine. An automatic gas selection valve will supply the right gas for each application. The fast re-





action times of the servo valve and the short supply lines from the valve to the cutting head allow fast changes in gas pressure between piercing and cutting process without a need for any dwell times. This way, the extreme fast cutting gas supply system goes hand in hand with the high dynamics of the cutting head and machine movements and guarantees stable laser processing.

Control system

A powerful CNC lies at the heart of the Supera laser cutting performance. This allows extreme fast processing of all tasks and introduces virtually no dead-times in the production. All important laser components (servo drives, laser cutting head, capacitive distance sensor, laser source, laser pulse generator, cutting gas servo valve, etc.) are integrated in one single closed-loop control system mastering every single aspect of the laser cutting process at a microsecond-level cycle-time.

Suction unit

The working area under the cutting table of the Supera 3015 is divided into separate sections from where dust and smoke can be extracted efficiently. The air from the dust collector is guided through two channels inside the machine frame where a pneumatic system will make sure that only that area where the cutting head is processing will be extracted by the air flow from the external air filter unit. Scrap pieces and heavy dust will fall through the cutting tables into separate boxes that can easily be taken away from the side of the machine.

Shuttle table

The operation of the shuttle table is full-automatic and completely integrated with the safety light curtain system around it to protect the operator. The table change cycle time is extremely fast because the tables are not moving vertically at any time. The cutting tables come into the machine at different heights, well within reach of the long Z-axis stroke.

Electrical cabin

The electrical cabin is mounted in the front of the machine frame of the Supera 3015, allowing a quick installation of the machine and a very compact factory lay-out. The electrical cabinet is kept cool and dry with an air conditioner. All air, water and gas connections are easily accessible in a separate cabinet.

Programming software

The Supera 3015 is delivered with Lantek CAD/CAM software for nesting and programming.

Machine interface

The high-end machine interface screen shows all operation conditions of the machine together with the feedback values from the integrated process sensors. There is a fully graphical pre-view of the part programs.

- The machine has a robust and rigid design that guarantees repeatable high precision cutting results.
- Both the working tables move in and out of the machine simultaneously, decreasing dramatically the time of the table change cycle and increasing the productivity of the machine. New sheets get faster in and cut sheets get faster out of the machine.
- The machine features a completely closed cabin for laser radiation protection and offers safe and ergonomic operation.The large eye-safe windows allow an optimal overview of the entire working area of the machine.
- The light-weight aluminum bridge assures accurate cutting results even under high-dynamic axis movements.
- A long vertical stroke of the cutting head gives additional freedom in the cutting application: pre-formed sheets, tubes, profiles, etc. can easily be put on the cutting table and are in reach of the cutting head.
- The machine lay-out is symmetric when it comes to the maintenance access from the sides: either side can be put close to a wall while having all the necessary reach to maintenance points on the opposite side.
- Auto selection work gas (O2, N2, Air) system depend on marital and thickness goes hand in hand with the high dynamics of the cutting head and machine movements and guarantees stable laser processing.

MAIN FEATURE

SUPERA	3015	4020	6025
Cutting plate size	3000 X 1500mm	4000 X 2000mm	6000 X 2500mm
X axis stroke	3100mm	4050mm	6050mm
Y axis stroke	1600mm	2100mm	2525mm
Z axis stroke	295mm	295mm	295mm
XY axis positioning accuracy	±0.03mm/m	±0.03mm/m	±0.03mm/m
XY axis repeat positioning accuracy	0,02mm	0,02mm	0,02mm
Maximum speed of machine tool	130m/min	130m/min	130m/min
Maximum acceleration	1.2 G	1.2 G	1.2 G
Lazer power	2, 3, 4 Kw available	2, 3, 4 Kw available	2, 3, 4 Kw available

Please contact us for more product specifiactions.