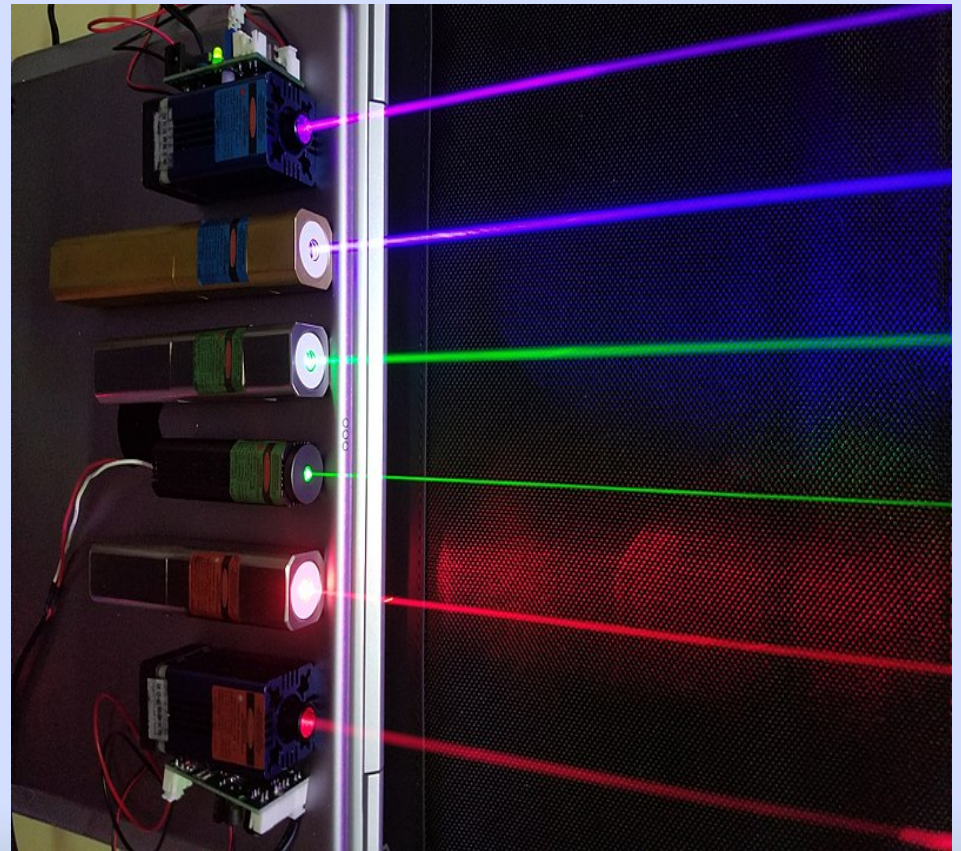


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What is **LASER**?

- **L**ight
- **A**mplification by
- **S**timulated
- **E**mission of
- **R**adiation



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- A device that generates an intense beam of coherent monochromatic light by stimulated emission of photons from excited atoms.
- Laser beams can travel vast distances without dispersion and can carry enormous amounts of energy (100 million watts per sq. cm and more)
- Different types of lasers are used for purposes as diverse as CD/DVD writing and reading, communications, land mapping, **metal cutting and welding**, surgery, and anti-missile defence.

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What is Fiber laser

- Fiber technology utilizes a solid gain medium. The “seed laser” (Pumped Diodes) produces the laser beam.
- It is then amplified within a glass fiber. With a wavelength of only **1064Nm** (1.064 micrometers) with extremely small spot size
- The light is guided due to the total internal reflection in a single mode optical fiber are called fiber lasers.
- Its leaser beam is up to 100 times smaller compared to the CO₂
- Hence ideal for cutting reflective metal material. This is one of the main advantages of Fiber compared to CO₂.
-

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Total Internal Reflection in single
Module optical Fiber Laser



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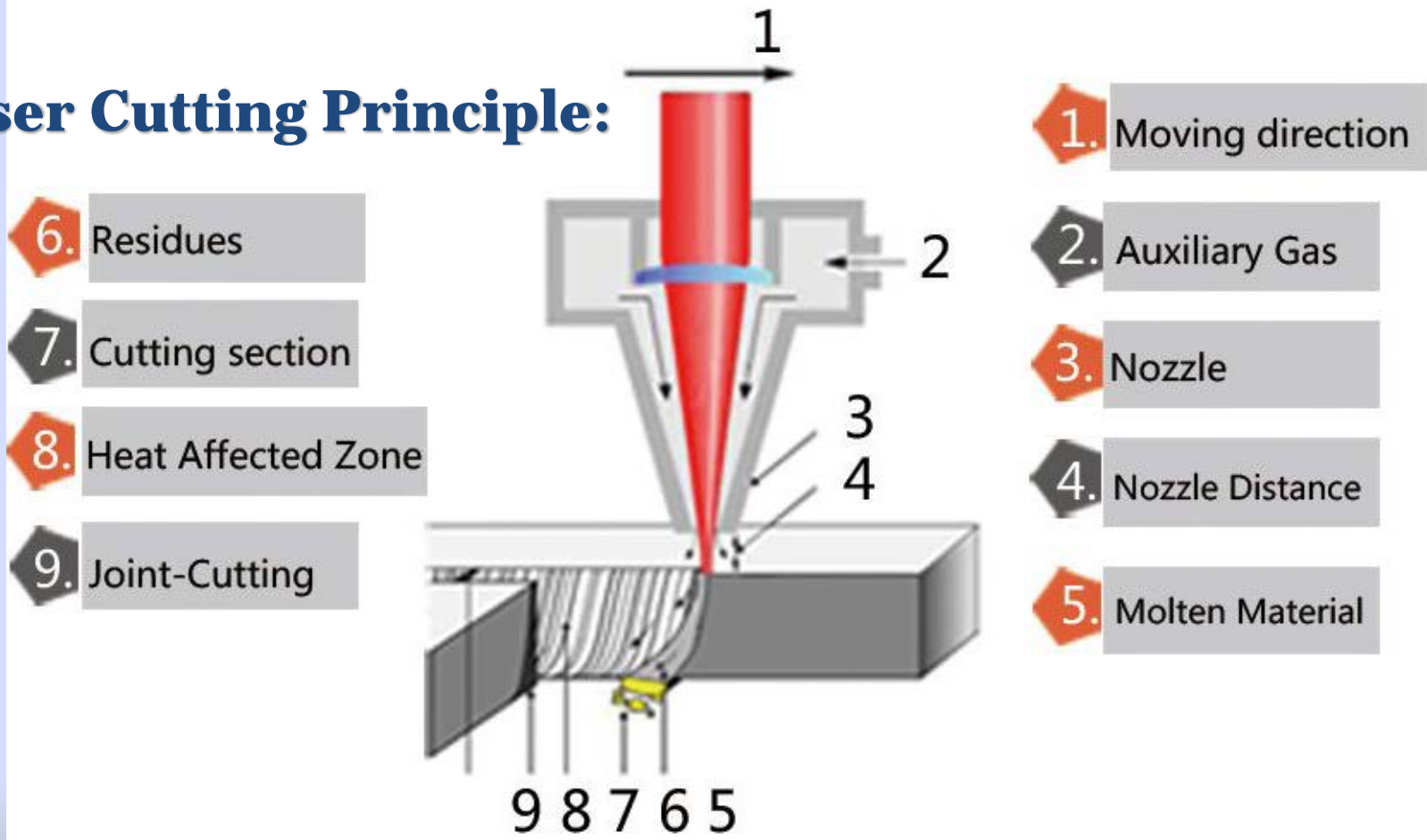


- **Laser cutting** is a technology that uses laser to cut materials, used for industrial manufacturing applications,
- Laser cutting works by directing the output of a high-power laser most commonly through optics.
- The laser optics and [CNC](#) (computer numerical control.) are used to direct the material or the laser beam generated.
- A commercial laser for cutting materials involved a motion control system to follow a CNC or [G-code](#) of the pattern to be cut onto the material.
- The focused laser beam is directed at the material, which then either melts, burns or is blown away by a jet of gas, leaving an edge with a high-quality surface finish.
- Industrial laser cutters are used to cut flat-sheet material as well as structural and piping materials.
- Typical Fiber Laser Used for Cutting is with a wave Length of 1064nm

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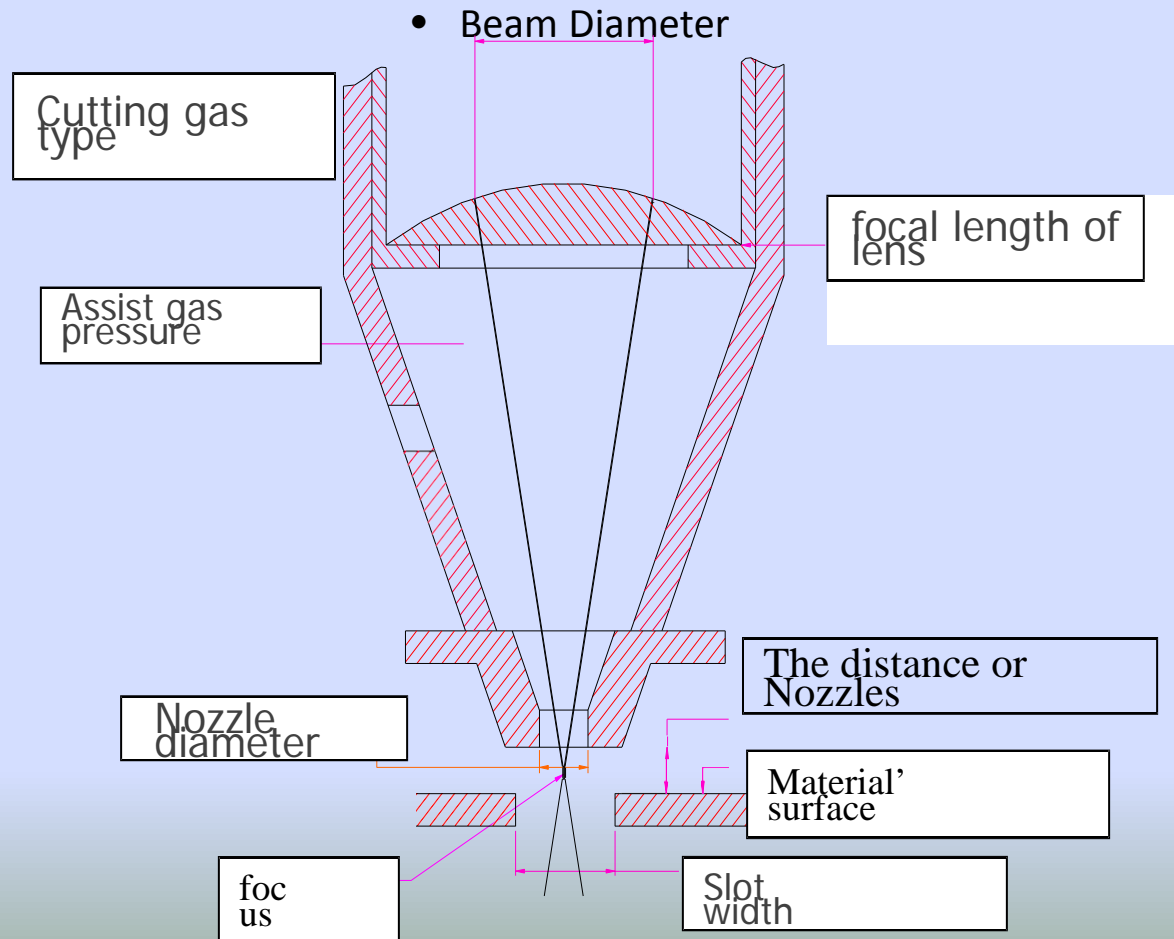
Laser Cutting Principle:



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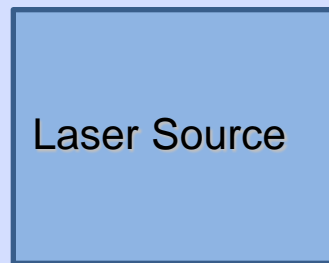
Various process parameters associated with cutting as shown below.



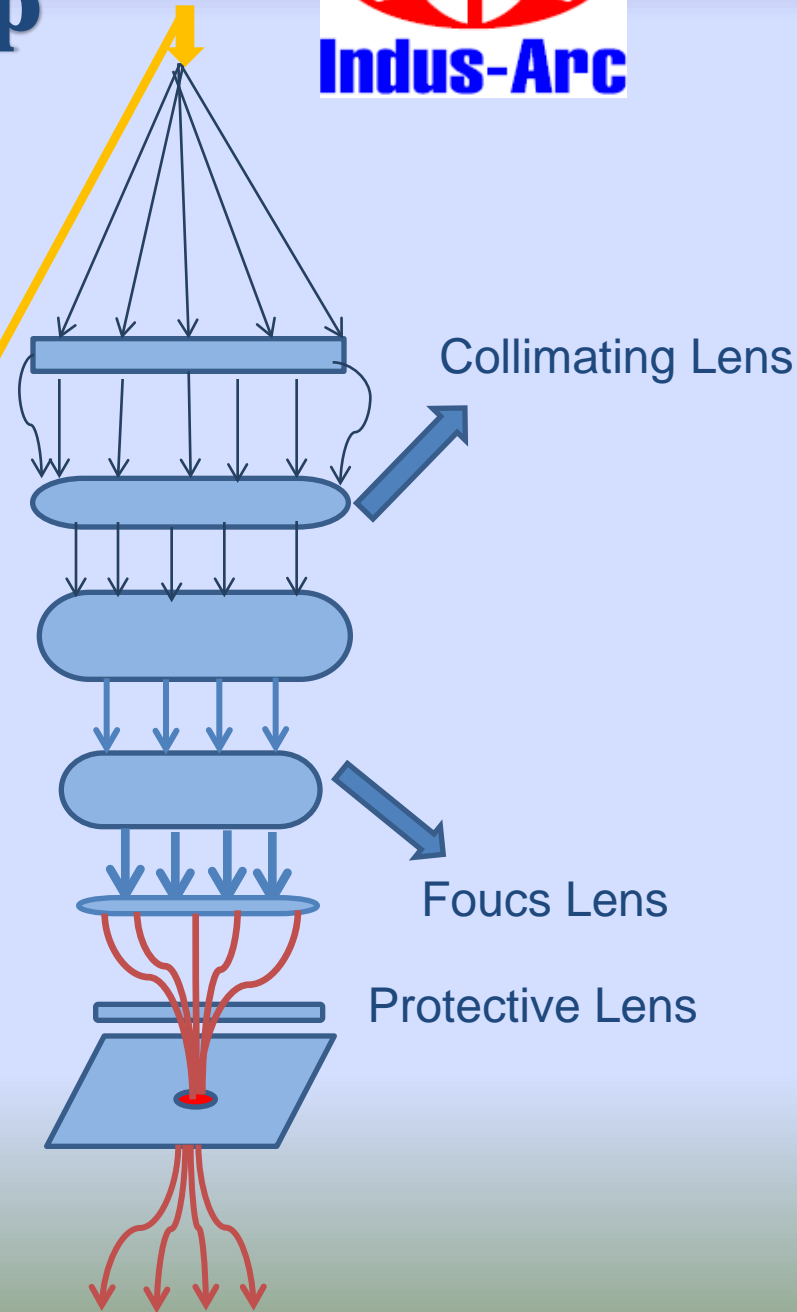
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- Core optical technology
- More powerful and stable laser beam
- Higher cutting speed and thickness.



Fiber



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- Indus Arc Turbo-Sharp 3015 EXT Laser Cutting System

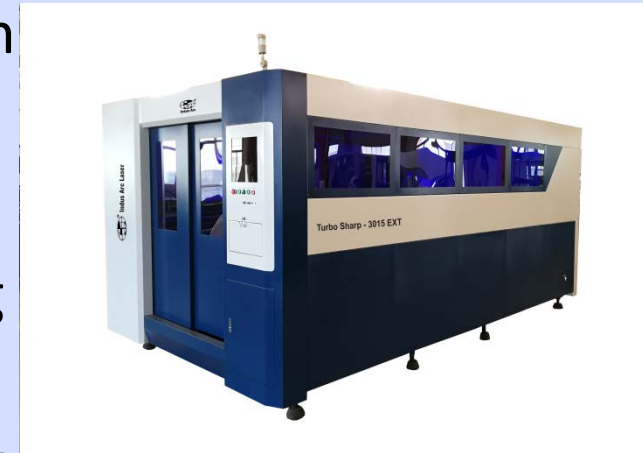




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Features of Turbo-Sharp 3015 EXT

- Standard Cutting Table Size: 1500 X3000mm
- Automatic Pallet Changer easy Loading & unloading of Cutting Sheets and saves time
- CYPCUT Laser CNC control System & cutting Software
- Automatic focus control cutting head from RayTool, Switzerland.
- Support : DXF, PLT, AL, NC etc.



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Features of Turbo-Sharp 3015 EXT

- Fiber laser source from 500W to 3000W
- Structure: Gantry, Double drive Y axis
- Heavy Duty alloy beam (X axis) to provide High dynamic performance.
- X,& Y axis adopts high quality Rack & Pinion drive and LM Guide ways
- Adapts Powerful Yaskawa Servo Motors from Japan
- Reduction gear, ensuring life and precision for a long time.
- The system is equipped with section dust collector to improve the working environment.
- The cutting table is divided into several sections. During the cutting process, only the ducts directly beneath the cutting head are open for fume extraction.
- The ducts in the other sections remain closed to improve dust collection.



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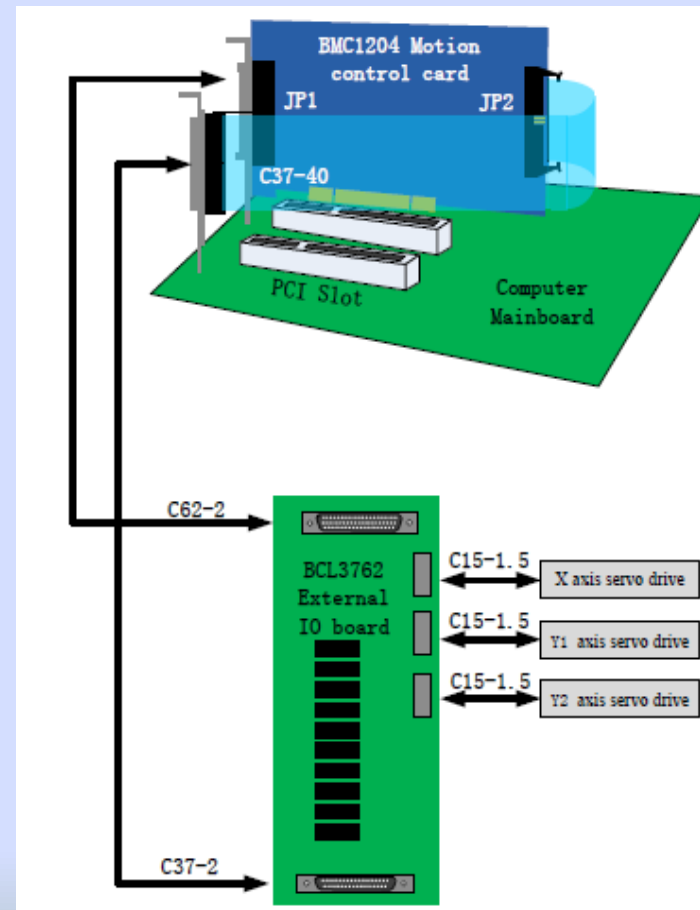
Technical Parameters of the Machine:

Equipment model	Turbo-Sharp 3015 EXT
Laser type	Fiber laser
Laser Transfer media	Fiber
Laser wavelength	1064 nm
Laser Power	500 to 3000W
Beam quality	$<0.373\text{mrad}$
Effective cutting range	1500*3000mm
Axial positioning accuracy	$\leq\pm 0.02\text{mm/m}$
Repositioning Accuracy	$\leq\pm 0.02\text{mm/m}$
Cutting Speed	$\leq 45\text{m/min}$ (Depends on material & thickness)
Rapid Speed	100 m/min
Workbench maximum weight	5800KG
Rated parameters of power supply	3 Phase AC 415V 50Hz
Equipment electric power	10-30KW
Total power protection class	IP54

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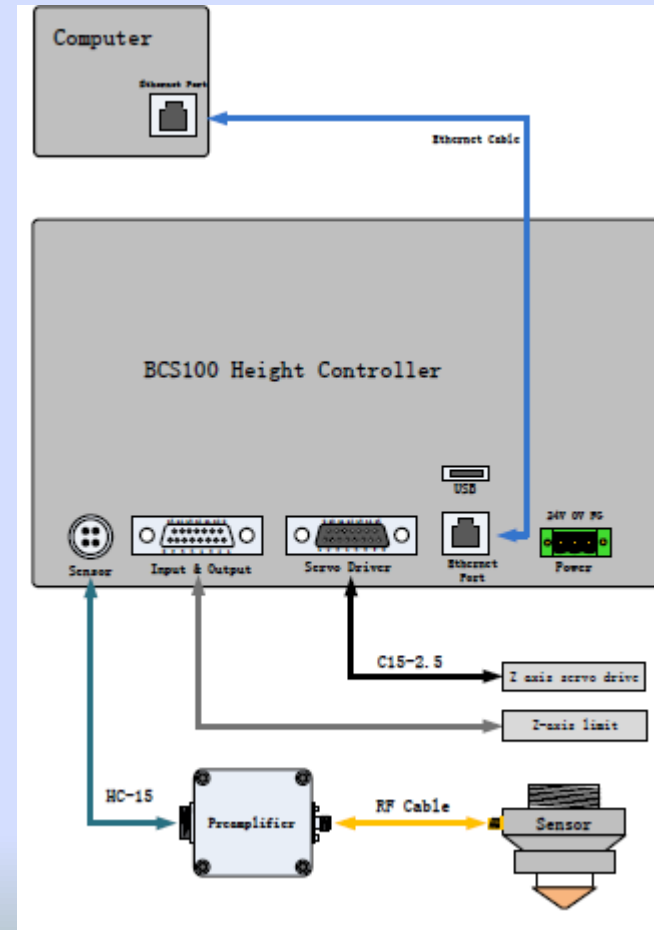
- Advanced CNC Control & Software Systems.
- Support different form of file format, DXF, PLT NC etc.
- Full function Nesting.



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- Advanced Auto Cutting height Control.
- Ensures uniform Cutting height even in deformed /bend sheets.

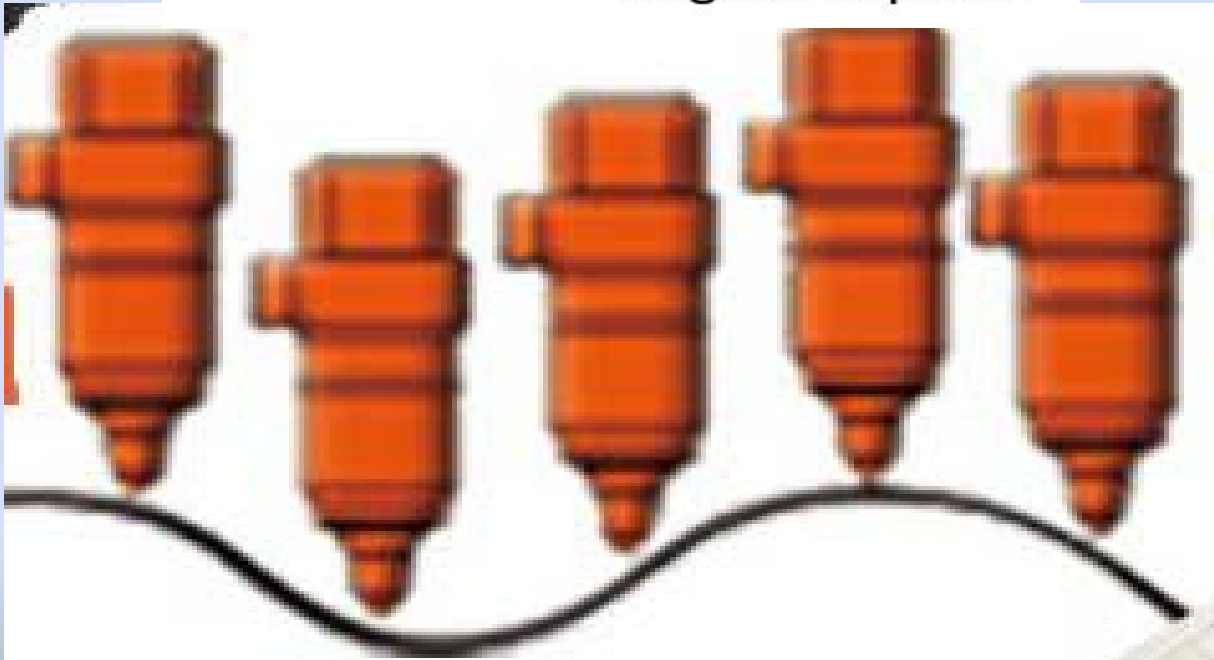


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Auto-following
laser head

Automatically adjust the focal
distance according to the bump
degree of plate



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Cutting Samples



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