



EMBEDDED SOFTWARE



REAL-TIME PROCESSING



NON-FERROUS METALS

OVERVIEW

The Scanning Optic S03 integrates up to two independently controllable laser modules in a single wobbling optic, controlling and adapting the energy distribution on a material spatially and temporally, through a real time embedded control card SdLED® and the information coming from high-speed IR and visual cameras.

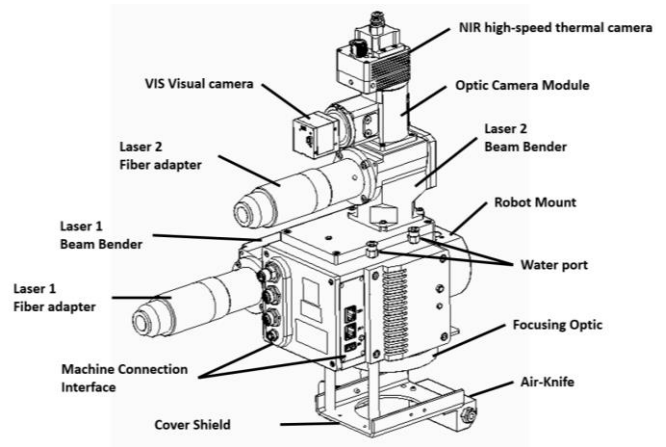
The modular multi-laser approach provides a new level of cost-effective flexibility for applications, combining different wavelengths and modes (CW, pulsed), better adapting the laser processing features to material and application requirements. The result makes possible to overcome current limitations in joining dissimilar highly reflective materials, such as aluminum and copper.

Compared to static laser optics, material processing with real-time adaptive wobble techniques results in a superior processing capability. The Scanning Optic S03 is designed for ease integration with robots and gantry machines to guide the beam on a part contour.

APPLICATIONS

Laser material processing applications, such as:

- Laser welding of material including high reflective metals
- Surface treatment
- Laser processing of coatings



Scanning Optic S03

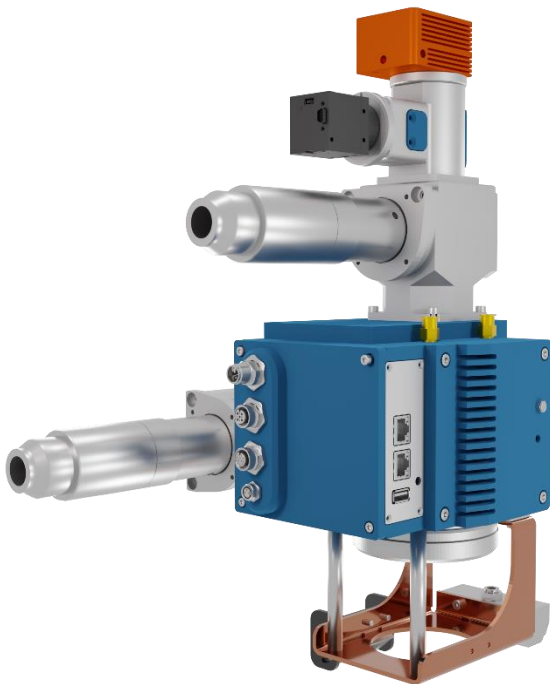
DESCRIPTION

The Scanning Optic S03 developed by EXOM Engineering is a high-power laser beam deflection unit for material processing, designed to work with laser sources in different wavelegnths.

It integrates a real-time embedded control card SdLED®, with machine vision capabilities and implemented FPGA algorithms.

The Scanning Optic S03 is divided into modules, allowing the user to set-up a customized laser head based on standard optical solutions.

1. Scan module main body
2. Laser beam bender module
3. Camera module
4. Focus module

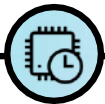


Scanning Optic S03

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TECHNICAL DATA

- Compatible with QBH and QD fiber couplers up to 4kW.
- Fiber collimators from 60 mm – 100 mm
- Standard focusing lenses at 250 mm and 350 mm (other lenses on request)
- Available with either straight-through laser beam path or 90° beam bender module
- Temperature monitored mirrors
- Quick and easy access to the cover slide
- Cross flow air knife and copper protective shield
- Optional integrated VIS and NIR cameras and IR-pyrometers for process monitoring
- The optics integrated SdLED® control card with DYLABESH process control and monitoring software
- Optional integration of HPS (Hybrid Processing Systema), a GPU module for machine vision and material processing with powerful AI (Artificial Intelligence) algorithms for real time in-line quality control

KEY FEATURES OF PROCESSING HEAD

Power Rating	Up to 4kW (laser 1) and up to 2kW (laser 2)
Clear aperture	20 mm (laser 1), 18 mm (laser 2)
Mirror Sweep Angle	800 mrad (45.8°)
Resolution	65536 steps
Drift Measured Over 8 Hours	<24 µrad
Positioning accuracy (250 mm FL)	6 µm
Working area (250 mm FL)	35mm2 x 35 mm2
Collimator focal lens	60 mm, 83 mm, 100 mm
Focusing optics diameter 76,2mm	250mm, 350mm (other lenses on request)
Air knife	Air curtain for cover lens protection
Fiber Connector	QD (LLK-D, LCA), QBH (HLC-8)
Weight	~12Kg
Options	Off-Axis illumination LED or laser, robot arm mount

Also available with IR-Optics (infrared range extended optics) for high resolution temperature measurement

FOR FURTHER INFORMATION PLEASE DO NOT HESITATE TO CONTACT US!

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