ELEN™
THE FUTURE IN A BEAM

AZSCAN SERIES
FLEXISCAN SERIES

AZSCAN S20 / S35 / S50 / HR70 / HRTRIPLE
FLEXISCAN M220 / M230

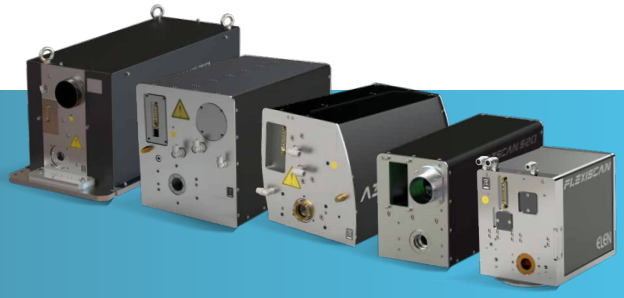
High-performance
2 & 3-Axis Scan Heads

Experience Rooted in Passion

AZSCAN and FLEXISCAN series are designed, developed, and manufactured in El.En.'s Italian facilities.
For over 40 years, El.En. has passionately committed itself to achieving the highest levels of engineering and reliability, creating devices with advanced technological capabilities.
In addition to scan heads, El.En. also develops laser sources and galvanometric components for a perfect integration.
With more than 4000 industrial installations, El.En. has been chosen to achieve exceptional performance in a wide range of industries.
Embrace the precision, innovation, and expertise of El.En.'s laser solutions, empowering your industrial applications with cutting-edge technology.

Total control for maximum performance

The AZSCAN is a compact and versatile series of integrated 3-axis scan heads designed for CO_2 laser systems, also suitable for high-power laser applications. The scan heads are equipped with high-performance mirrors (SiC & Be) and DSP digital drivers (with self-tuning capability) to provide the highest level of accuracy and dynamic performance with low settling time. The scan heads incorporate a Z linear motor axis for accurate real-time laser beam focusing, ensuring optimal engraving spot quality thanks to optical optimized multilens objective. High torque and precision galvanometers provide high acceleration and speed all over the field of view with the highest stability. The high performance mirrors of the scanning heads provide high stiffness while minimizing the moment of inertia, allowing for faster and more accurate mirror movements.



Key features

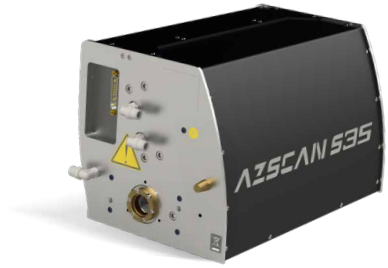
- High performance mirrors
- On-the-fly processing capability
- Small spot
- Fast Z-axis
- High accuracy & high dynamic performances
- Wide selection of working areas
- DSP galvo drivers

Seamless integration

The AZSCAN and FLEXISCAN series versatility enables seamless integration into a wide range of systems, providing flexibility to adapt to different power requirements and diverse operational scenarios.
The two scan heads series enable a comprehensive integration of El.En.'s cutting-edge technologies within the same system: laser sources, scan heads and dedicated software control are designed to operate together synergistically.
This versatile and harmonized integrability empowers customers or integrators with enhanced efficiency, productivity and performance across various applications and industries.
Moreover, the AZSCAN and FLEXISCAN series ensure compatibility with components other than those from El.En., offering added convenience for integration into existing setups.
Each model has been accurately engineered to deliver exceptional performance and reliability. Whether it's precision cutting, engraving, or marking, these scan heads provide the versatility for a wide range of applications.

Introducing the 3-Axis Scan Heads series

AZSCAN S20 with 20mm mirrors, for working areas from 100x100 to 300x300mm, with CO_2 laser powers up to 900W, is the most compact, cost effective but fast solution for paper engraving, coding, flexible packaging and industrial laser cleaning.



AZSCAN S35 with 35mm mirrors, for working areas from 150x150 to 800x800mm, with CO_2 laser powers up to 1000W, is the most versatile, compact and cost effective solution, for paper engraving and cutting, fabrics decoration, flexible packaging and industrial laser cleaning.

AZSCAN S50 with 50mm mirrors, for working areas from 300x300 to 1000x1000mm and CO_2 laser powers up to 1500W stands for it small spot size. Its advanced 3-axis architecture features a fully integrated dynamic focusing system that actively maintains optimal spot quality and energy consistency across the entire field, maximizing performance and reliability even at the edges of large working areas. AZSCAN S50 is the perfect choice for high-demand applications such as digital converting, packaging, paper, textiles and plastics processing, as well as large-area marking. Engineered for OEM integration, it delivers superior precision, process stability and adaptability for next-generation industrial laser systems.

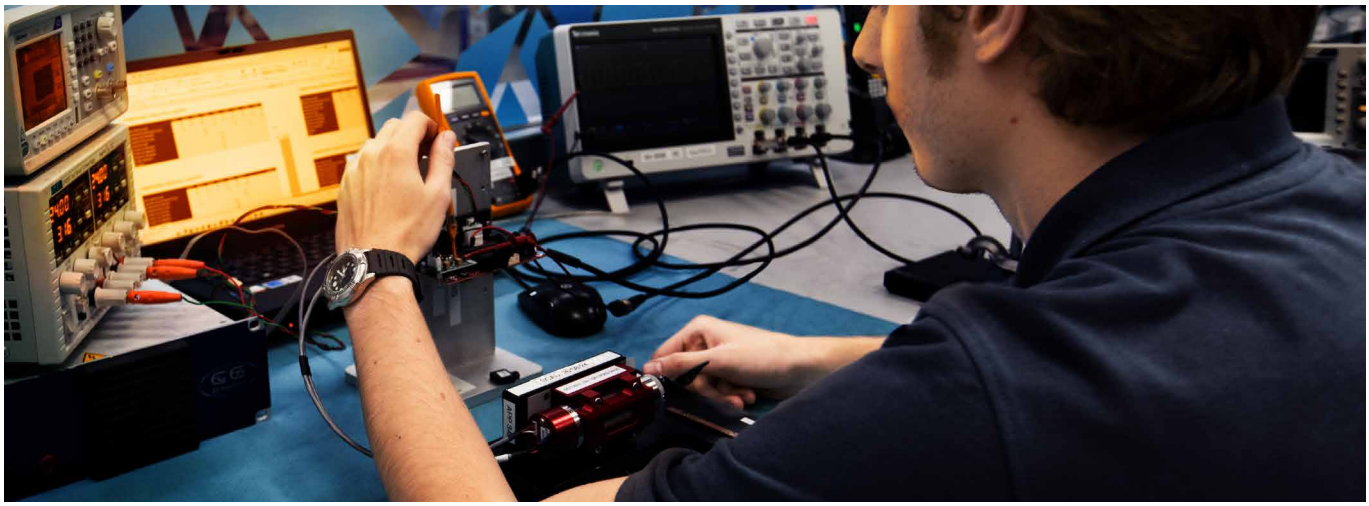
AZSCAN HR70 with 70mm mirrors for working areas up to 1800x1800mm with CO_2 laser powers up to 2500W, for high resolution & dynamics for ultimate control and precision. It is the perfect choice for fast-cutting on thin materials and heavy-duty operations on marble, granite, and similar materials. With its exceptional capabilities, AZSCAN HR70 empowers laser wood marking, cardboard and corrugated board cutting for packaging, fabrics decoration, marble engraving, and much more.

AZSCAN HRTRIPLE is an integrated modular solution, housing three high-resolution scan heads with 70mm mirrors. Each scan heads can be individually adjusted to deliver maximum quality across the 800x400mm working area. Compatible with CO_2 lasers up to 2500W per module, it ensures exceptional performance for state of the art digital converting applications. AZSCAN HRTRIPLE is the unique solution on the market for top speed applications in a modular and compact design.

Introducing the 2-Axis Scan Heads series

FLEXISCAN M220/M230

The FLEXISCAN Series is the 2-axis deflection unit equipped with SiC mirrors and compatible with off-the-shelf f-theta lenses.
Available with 20 or 30mm high performance mirrors and for most common wavelengths, it is the first choice to ensure seamless integration and optimal performance for every application.



VOYAGER & PARSEC CONTROL UNITS

Voyager Control Unit and the new generation Parsec platform are digital devices designed to manage galvo-scanning units and laser modulation. The integrated 32-bit controller ensures real-time and highly accurate control of galvo systems during laser processes. These control platforms include Ethernet, Encoder and I/O inputs for direct interfacing with PLC or CNC devices. The full encoder compatibility and the high-performance real-time capability enable an effective and deterministic on-the-fly laser processing for inline production. Both the platforms are available in rack standard box and the new Parsec unit also in compact DIN Omega rail version.

SMART SCANNER

Smart Scanner DLL is the software library interface to our control units, communicating via TCP/IP protocol, making it easily integrable into client's software. With Smart Scanner, users can send system configuration parameters, marking patterns, and dynamic marking process parameters, such as laser speed and power, to the Control Unit. The library is the complete way to control and operate with Voyager & Parsec Control Units, managing all the system's potentiality.

VOYAGER MANAGER & PARSEC STUDIO

Voyager Manager and its evolution, Parsec Studio, are the calibration softwares for El.En. scanning systems with a user friendly interface for a quick setup of all parameters during system integration.
The softwares include diagnostic and testing tools and the possibility to import and process user files.

XY2-100 COMMUNICATION PROTOCOL

For systems employing proprietary or third-party control units, all our scan heads can be optionally driven via the industry-standard XY2-100 digital interface by means of a compact in-house designed external converter module.

Applications

The AZSCAN and FLEXISCAN series are versatile and can be utilized in various applications, including advanced remote processing, cutting and engraving of plastics, wood, leather, fabrics and many other materials, digital converting for the packaging industry, high-speed cutting of paper and cardboard, label kiss-cutting and laser cleaning for the automotive industry. With their adaptability and capabilities, the two series prove to be a reliable choice for a wide range of industries, enhancing productivity and offering excellent laser processing in diverse applications.


Leather

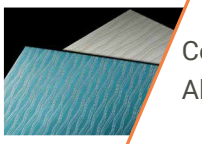

Paper / Label


Abrasive Materials


Cardboard & Corrugated

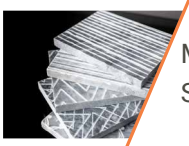

Food


Plastic Film


Ceramic & Alumina


Fabrics & Denim


Plastics


Marble & Stone

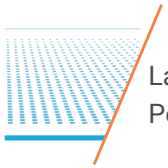

Glass & Quartz


Wood & Derivatives

Processing


Laser Cleaning


Laser Cutting

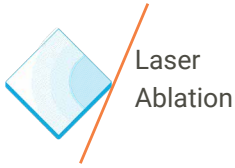

Laser Micro Perforation


Laser Marking


Laser Drilling


Laser Kiss-Cutting


Laser Welding


Laser Ablation

FLEXISCAN M220 / M230

AZSCAN S20

AZSCAN S35

Laser Specifications

Model	FLEXISCAN M220	FLEXISCAN M230	AZSCAN S20
Description	2-axis scan head	2-axis scan head	3-axis scan head
Available working area (mm)(1)	from 50x50 to 300x300	from 50x50 to 300x300	from 100x100 to 300x300
Working distance (mm)	depending on f-theta	depending on f-theta	depending on working area
Wavelength (µm)(2)	10.6 ±0.4	10.6 ±0.4	10.6 ±0.4
Dimensions (mm)	220x148x203	245x160x203	419x201x152
Weight (kg)	6	6,5	8,5

Optical & Electrical specifications

Mirror aperture (mm)	20	30	20
Spot diameter 1/e² (µm)(3)	depending on f-theta	depending on f-theta	depending on working area and distance
Input Aperture (mm)	20	30	24
Max laser beam diameter at scanner input (1/e²) (mm)	depending on f-theta	depending on f-theta	12
Typical scan angle (optical) (rad)	±0.35	±0.35	±0.35
Deflection unit step response time (µs)(4)	370	550	370
Deflection unit tracking error (µs)(5)	450	600	450
Max scanning speed (rad/s)(6)	55	21	55
Max laser power (W)(7)	1500	1500	1500
Power supply (Vdc)	±24	±24	±24

(1) Customizable objectives for additional working areas upon request
(2) Other wavelengths available on request: i.e. 10.2/9.3µm & 1064nm
(3) Maximum spot diameter over the working field calculated with M^2=1 input beam
(4) 10%-90% @1% of full scale
(5) Full scale 20Hz triangle wave
(6) The effective scanning speed can be limited by acceleration and deceleration profiles, particularly in short segments or complex geometries.
(7) max laser power 2500W upon request
(*) i.e. for working area 300x300 mm, working distance is 412 mm, spot diameter 1/e² is 320 µm
(**) i.e. for working area 600x600mm, with working distance 824 mm and beam diameter at scanner input 12mm (1/e²), spot diameter (1/e²) is 355µm (in the centre of the working field with M^2=1);
(***) i.e. for working area 1800x1800 mm, working distance is 2473 mm, spot diameter 1/e² is 830 µm

AZSCAN S50

AZSCAN HR70

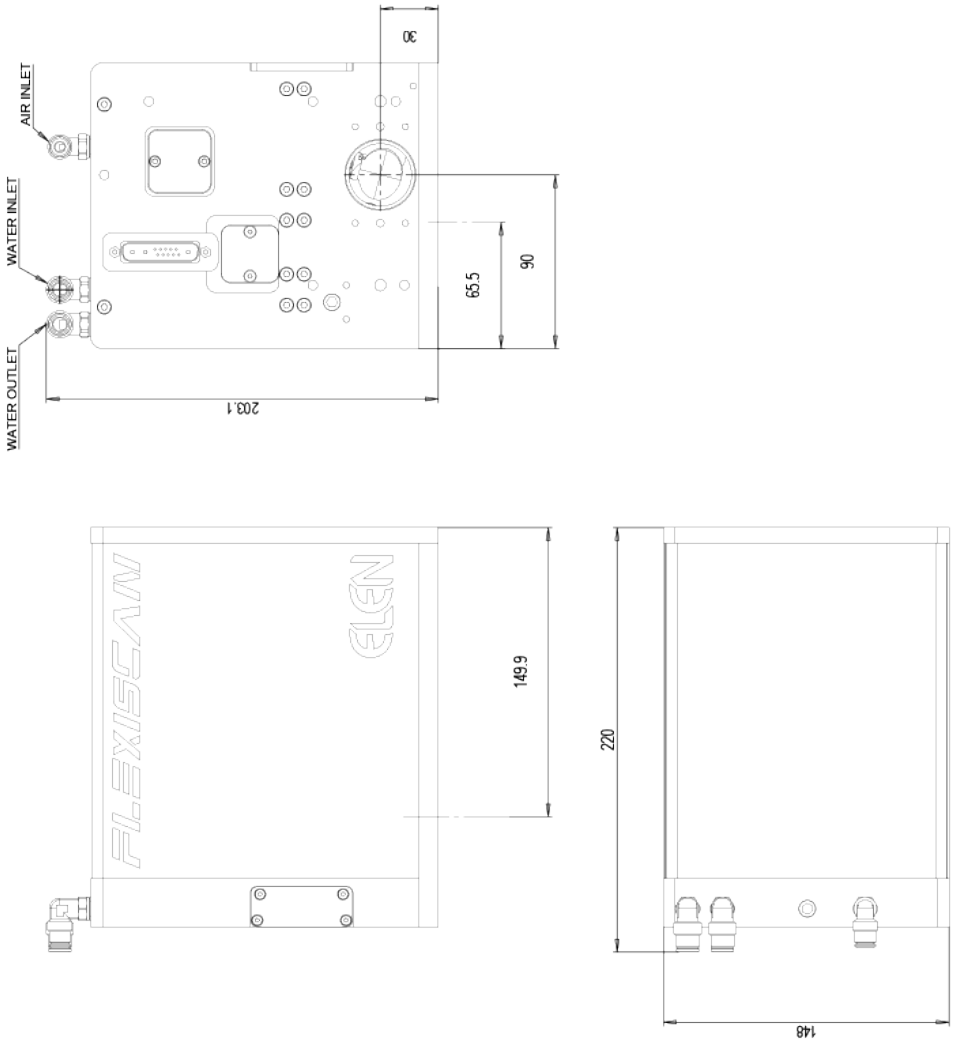
AZSCAN HRTRIPLE

AZSCAN S35	AZSCAN S50	AZSCAN HR70	AZSCAN HRTRIPLE
3-axis scan head	3-axis scan head	3-axis scan head	3-axis triple scan head
from 150x150 to 1600x1600	from 300x300 to 1000x1000	from 400x400 to 1800x1800	770x390
depending on working area (*)	depending on working area (**)	depending on working area (***)	535
10.6 ±0.4	10.6 ±0.4	10.6 ±0.4	10.6 ±0.4
382x220x222	411x248x271	750x345x382	750x805x387
10,5	17,5	46,5	110

30	50	66	66
depending on working area and distance (*)	depending on working area and distance (**)	depending on working area and distance (***)	260
24	24	24	24
12	12	12	12
±0.35	±0.35	±0.35	±0.35
550	1000	1400	1400
600	840	1000	1000
21	20	19	19
1500	1500	1500	1500
±24	±24	±24	±24

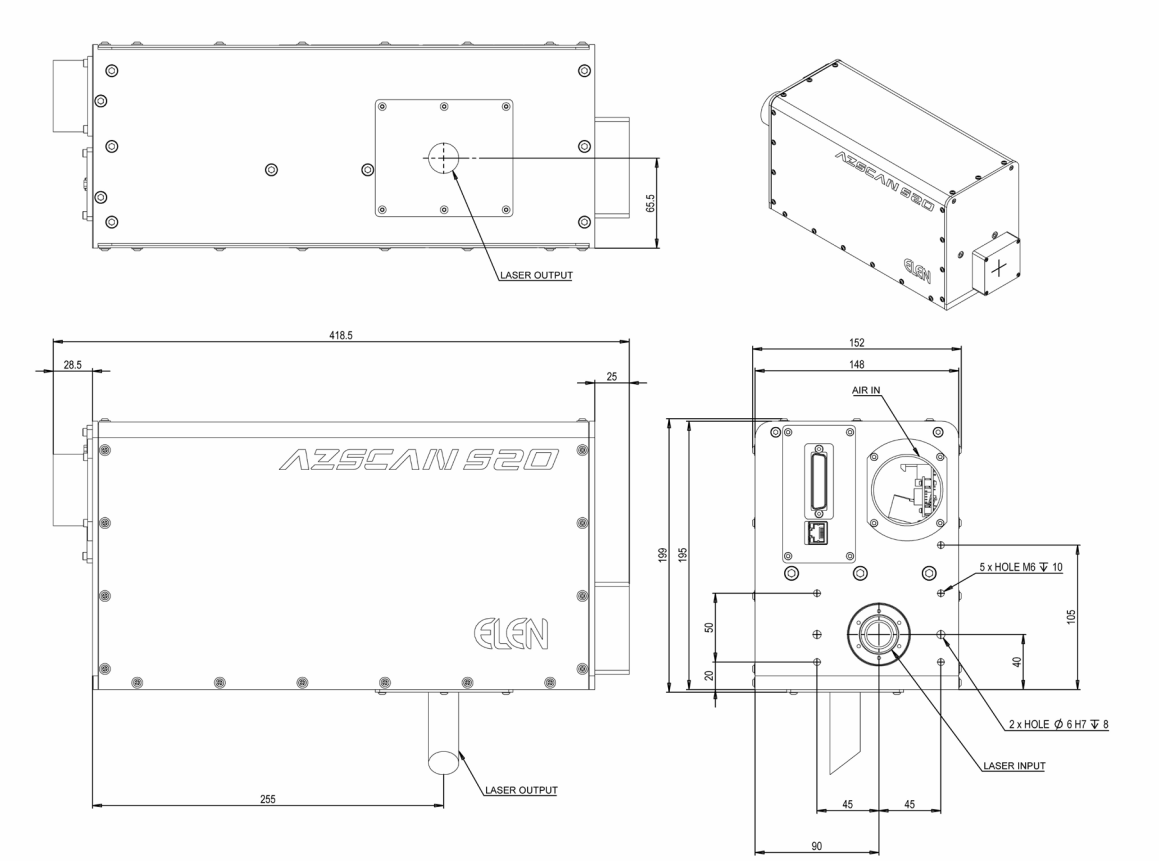
Technical Drawings 2-Axis Scan Heads series*

FLEXISCAN M220 / M230



Technical Drawings 3-Axis Scan Heads series*

AZSCAN S20



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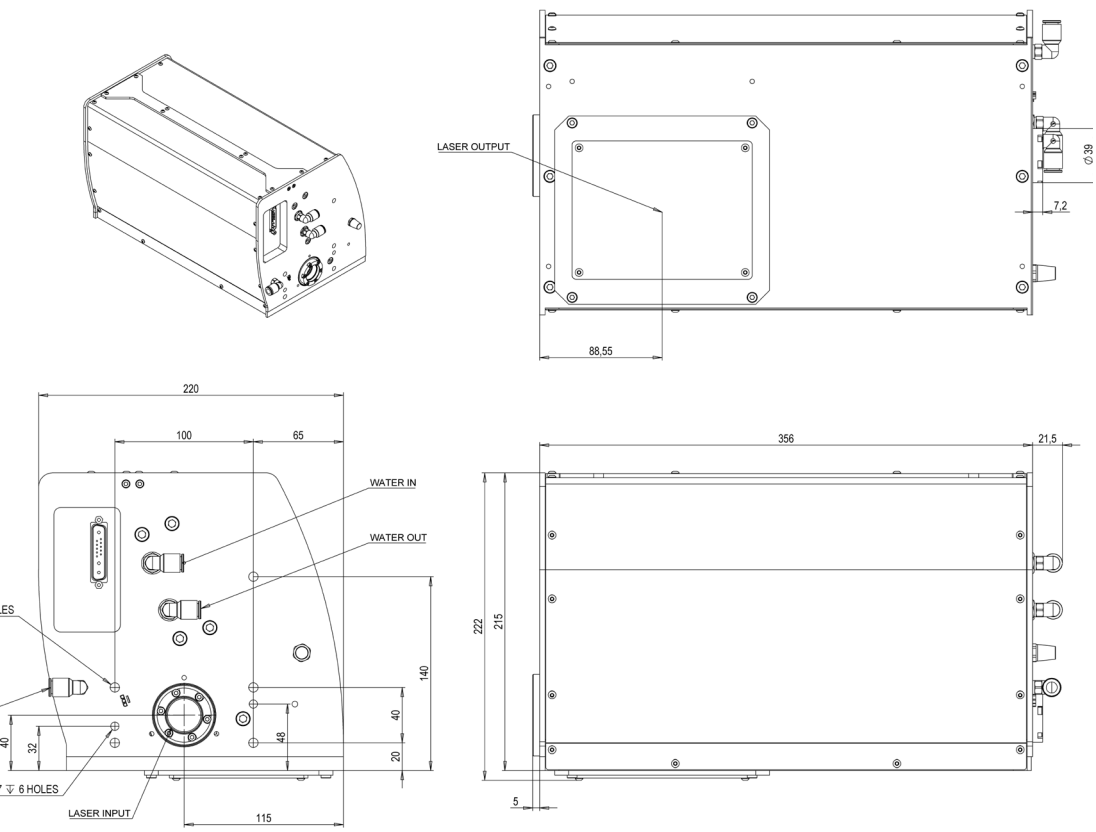
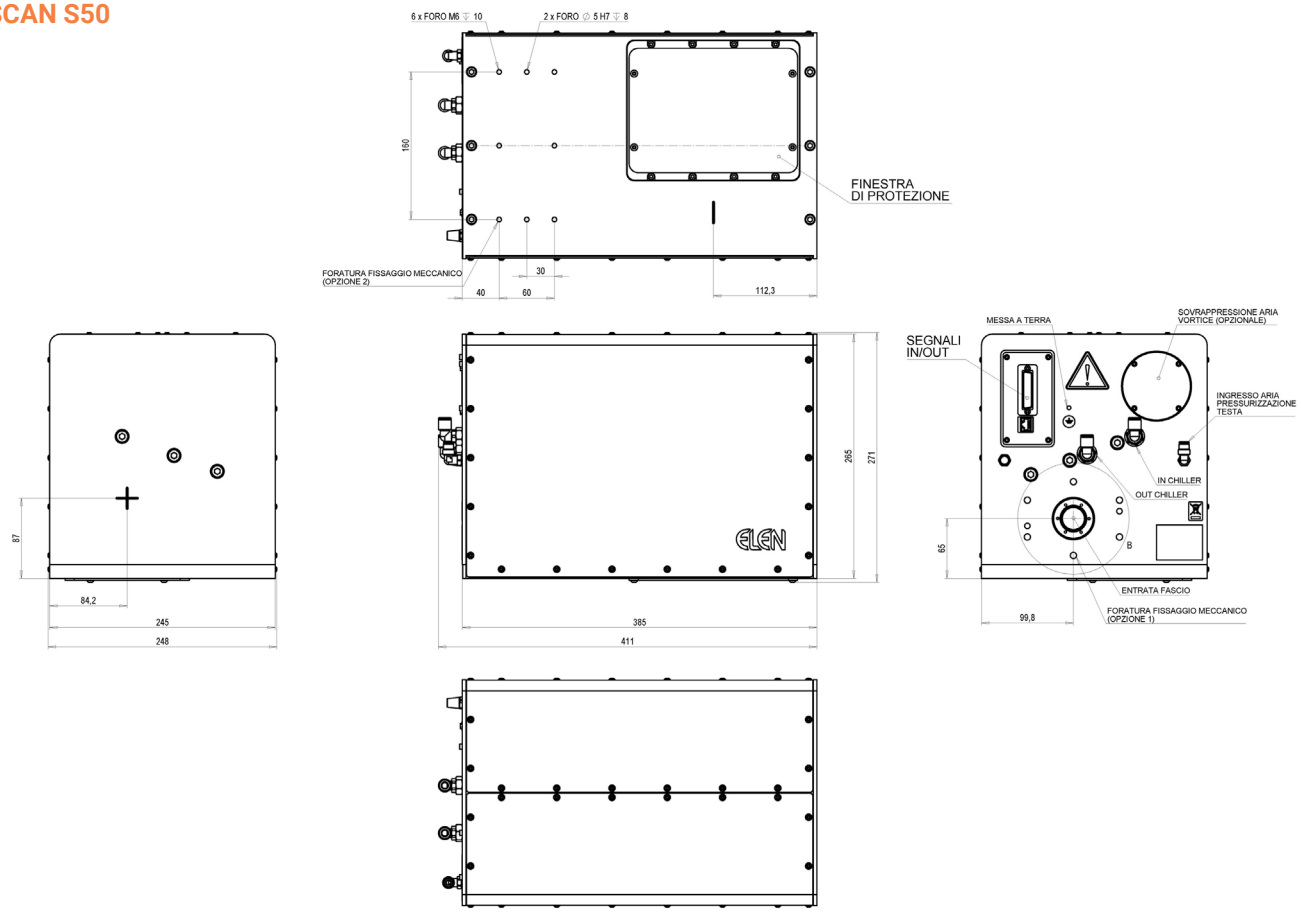
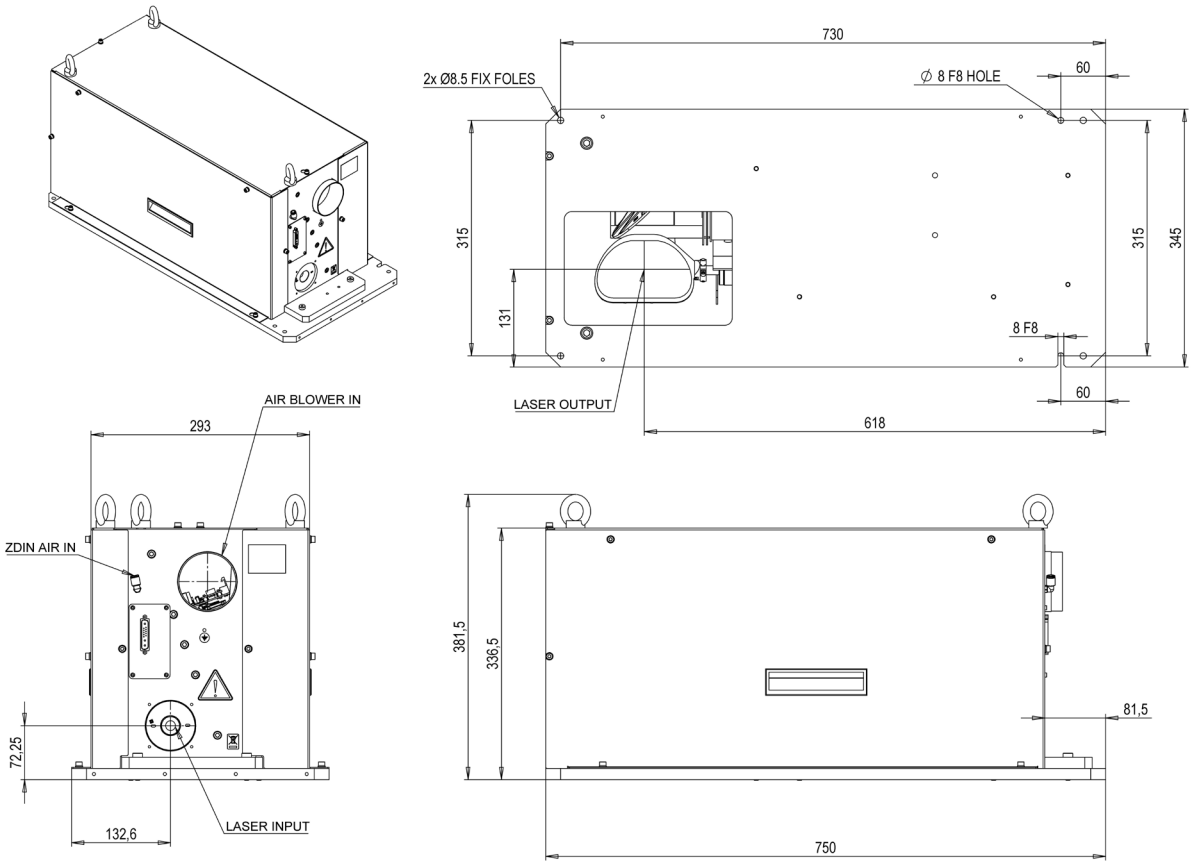


Technical Drawings 3-Axis Scan Heads series*

AZSCAN S50



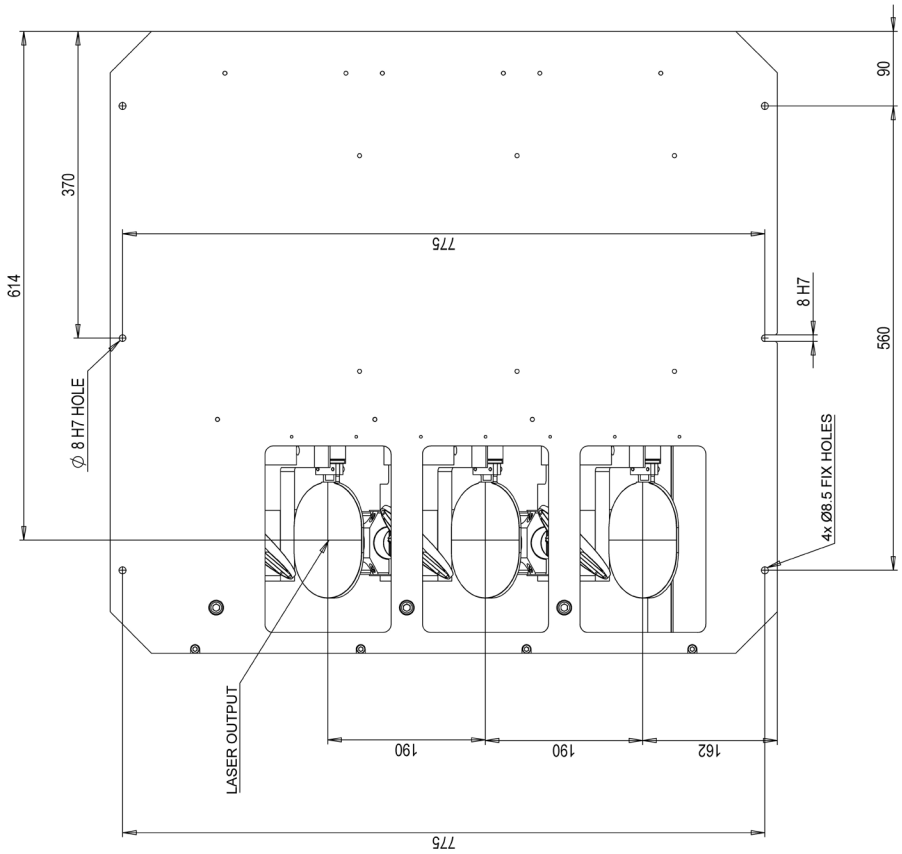
AZSCAN HR70

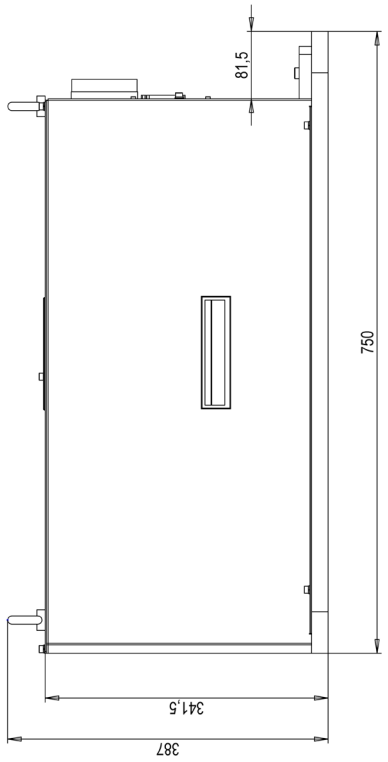


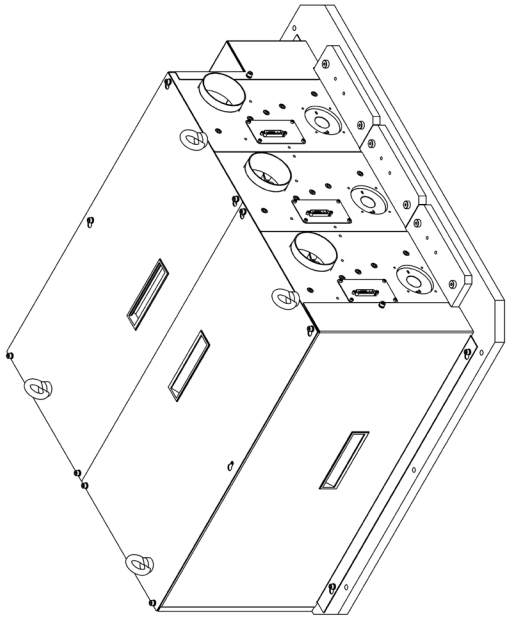
*Drowings not to scale

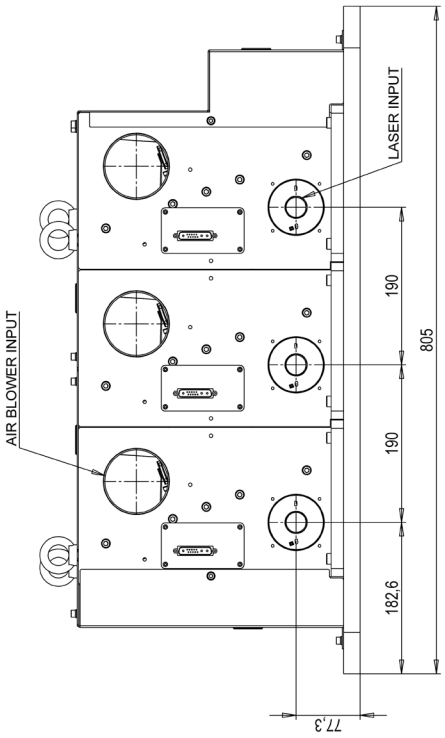
Technical Drawings 3-Axis Scan Heads series*

AZSCAN HRTRIPLE









*Drowings not to scale

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Discover more about
Laser Scan Heads Series

SCAN ME

DANGER - INVISIBLE LASER RADIATION
AVOID SKIN AND EYES EXPOSURE
TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT

MAX CONTINUOUS POWER:	1700W
MAX PULSED POWER:	6000W
WAVELENGTH:	10.6µm
PULSE DURATION:	from 2ms to c.w.

VISIBLE LASER RADIATION - AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
LASER DIODE (aiming source): 4mW @ 635nm
Classified by IEC 60825-1:2014