

ALE 030101

Production Proven 24/7
Fiber Laser
Light-weight Cutting Head

Key Features

- Extremely light weight with 3d printed materials
- Fiber laser: up to 4 kW with $NA \leq 0.15$
- Fiber receiver for all major laser OEMs
- Computer-controlled kerf width $\geq 10 \mu m$
- Cutting of various materials with programmable focus
- Capacitive surface following
- Crash protection
- High quality optics protected with a cover glass

Typical Applications

Automotive	Aerospace	Electronics
Medical Device	Art&Crafts	Manufacturing
Engineering	Plastics	and many more...



American Laser Enterprises, LLC has decades of combined experience in optical, electrical, and mechanical design of laser applications and systems. We pride ourselves on the ability to provide our clients with specialized services from application engineering and system prototyping to large quantity component production orders.

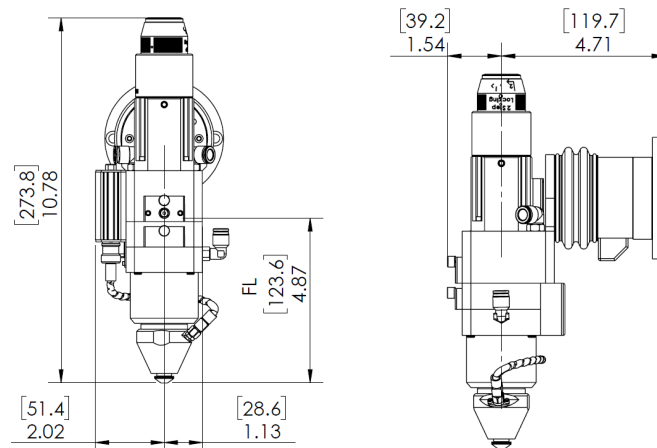
We offer a family of laser cutting heads designed to work with CO₂, Nd:YAG, and Fiber lasers. It has served a variety of industries, including automotive, aerospace, and defense. Our cutting heads come in various configurations, are versatile and fully customizable to your application.



Specifications

↳ Dimensions * (WxDxH)	10.8 x 2.15 x 6.25 (in) 274 x 80 x 159 (mm)
↳ Weight	~ 2.5-3 lb
↳ Laser Power	up to 4kW
↳ Laser Wavelength	650 - 1100 nm
↳ Focal Distance	75 to 200 mm
↳ Clear Aperture	20 mm
↳ Nozzle size	0.8 to 2 mm

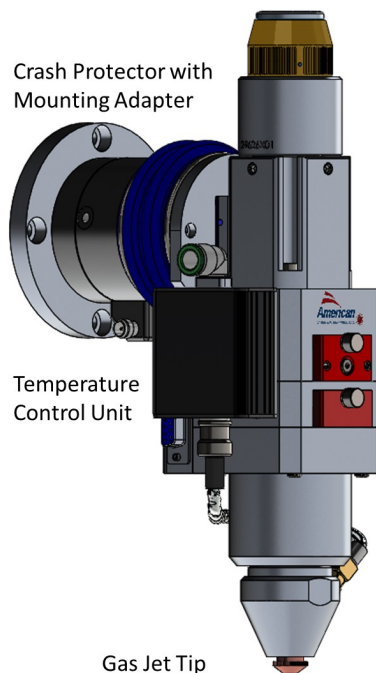
* outside dimensions depend on a configuration and are subject to change



CAD model is available for [download](#)

ALE 030101 is extremely lightweight. Designed with 3d-printed materials for high-speed robotic applications. Intelligent and intuitive to use fiber laser cutting head was developed for high performance cutting of a wide range of materials with a help of a programmable computer-controlled focus adjustment. Like all ALE laser processing heads, it is compatible with most OEM lasers. To prevent down-time and expensive maintenance, this processing head is equipped with temperature sensors that can shut the laser off in case of the optics damage. A pressure sensor allows a better control over the cutting process. Due to a modular design, this cutting head is highly customizable and can be trimmed to your needs.

Standard Features



Interchangeable LLK/QBH
Fiber Connector

Collimator with dynamic autofocus
(spot-size control) with XY-centering

Cartridge-style Focusing Lens and
Cover Glass equipped with T sensors

Coaxial Gas Assist with internal
Pressure Sensor

Height Sensor Body

Extremely lightweight (2.5-3 lb)

Water-cooling

Temperature and Pressure Sensors

Multiple Tips available

Modular Components

Connectors and Collimators Available

Configuration shown is standard but can be customized per customer's request. Please contact us for details.



ALE 071060 Height Sensor Controller Specifications



Capacitive Height Sensing Electronics

Non-Contact Focus Control

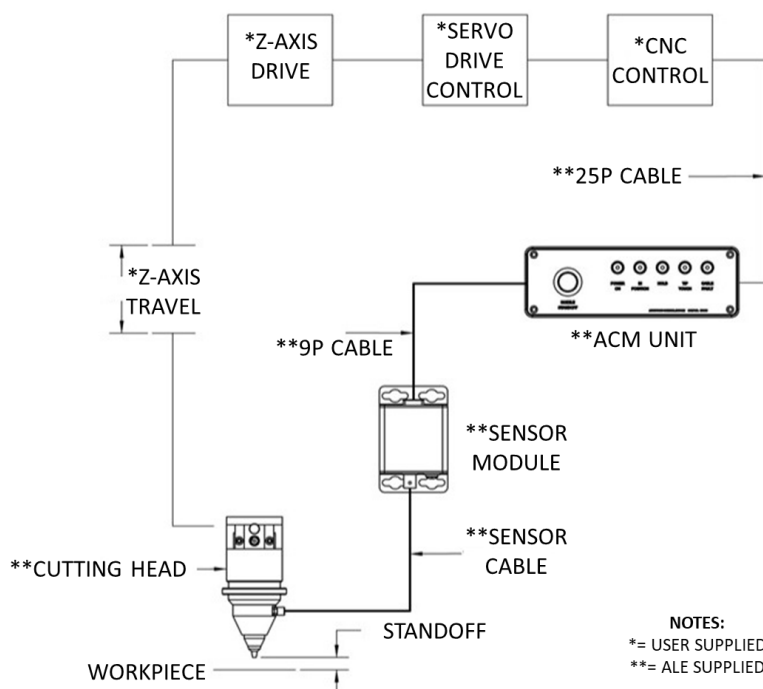
Programmable Stand-Off Control

Programmable 1-Point Calibration

Stand Alone or OEM Configuration

Analog Driver Signal -10V to +10V

Linear Distance Output 0 to +10V



ALE 080204 Auto-focusing Collimator Specifications

The collimator with a programmable auto-focus feature enables a dynamic spot-size control at the work-piece. This unit is based on a Physik Instrumente motion system and comes with the PI E-873 Q-Motion® Servo Controller.



12-mm travel range

4-nm resolution

Linear Encoder

Max 10 mm/s velocity

Sub-D connector to the controller

API for C / C++ / C# / VB.NET /
 MATLAB / Python, drivers for NI
 LabVIEW

