Haas F1 Team

FIBER LASER CUTTING MACHINES

3 kW and 6 kW Models with Haas Support

FIBER LASERS WITH HAAS SUPPORT

The Haas Fiber lasers are engineered for high-speed, high-precision performance, across varying materials and thicknesses. The system utilizes low-inertia servomotors and a rigid frame, enabling precise positional control. The auto-focusing laser head continuously monitors the cut, and makes adjustments to ensure optimal quality. Cut with confidence, knowing that your fiber laser comes backed with the outstanding support Haas is known for.

The Benefits of a Fiber Laser:

1. **Lower Operating Costs:** Fiber lasers are up to three times more energy efficient than other laser systems.

2. **Minimal Maintenance:** The solid-state design eliminates complex mirrors, bellows, and optical alignment common with CO^2 systems, translating to less downtime and maintenance.

3. **Higher Beam Quality:** The short wavelength is better absorbed by metals, leading to faster cutting speeds, especially on thin-gauge materials.

PRODUCTION READY

Our fiber lasers are ready for partial automation right out of the box. A large bed and a dual-shuttle system allow raw material or finished parts to be loaded and unloaded on one table, while the other table is in the machine and cutting, enabling near continuous operation.

Dual-Shuttle Tables

Table Size	60" x 120" (1524 x 3048mm)
Table Change Time	~25 seconds
Max weight.	2425 lb (1100 kg)

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3 OR 6 KILOWATTS?

Choosing the Right Fiber Laser

Determining which fiber laser is right for your operation is straightforward: Besides your budget, it all comes down to your production volume and material requirements.

Choose the 3 kW if: You are a smaller machine shop, a startup, or your production is primarily focused on thin to medium-thickness materials at lower volumes.

Choose the 6 kW if: You are running high-volume production and need to process a wider array of material thicknesses quickly.

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Key Reasons to upgrade to the 6 kW

These are the key performance differences to keep in mind when comparing the two Haas Fiber Lasers:

1. **Significantly Faster Cutting Speed:** The 6 kW cuts approximately 1.5x to 2.5x faster than the 3 kW. This translates to an estimated 30% to 60% shorter cutting times on average, dramatically boosting your daily production capacity.

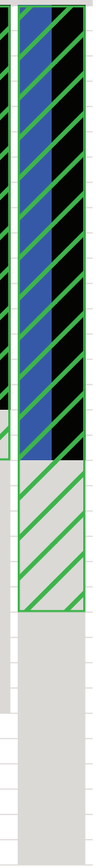
2. **Greater Maximum Material Thickness & Range:** The higher power of the 6 kW allows you to process a broader spectrum of jobs, cutting metal sheets that can be up to 50% thicker than what the 3 kW can handle.

3. **Enhanced Edge Quality and Stability:** With 6 kW of power, the laser is under less strain when cutting medium to thick materials. This allows it to maintain superior cutting stability and achieve better edge quality at high speeds.

4. **Greater Cutting Flexibility:** The 6 kW laser can cut everything the 3 kW can, and more, making the 6 kW inherently more versatile and future-proof.

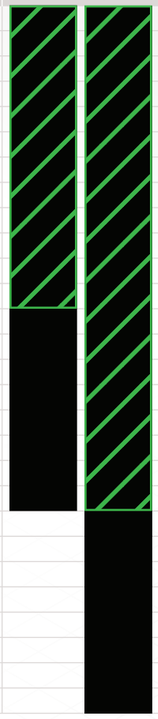
Carbon Steel

Ga	In	mm
20	0.036	0.912
19	0.0418	1.062
18	0.049	1.214
17	0.054	1.367
16	0.060	1.519
15	0.067	1.709
14	0.075	1.897
13	0.090	2.278
12	0.105	2.657
11	0.120	3.038
10	0.135	3.416
9	0.150	3.797
8	0.164	4.176
7	0.179	4.554
6	0.194	4.935
5	0.209	5.314
4	0.224	5.695
3	0.239	6.073
	0.276	7
	0.315	8
	0.354	9
	0.394	10
	0.433	11
	0.472	12
	0.512	13
	0.551	14
	0.591	15
	0.630	16
	0.669	17
	0.709	18
	0.748	19
	0.787	20
	0.827	21
	0.866	22



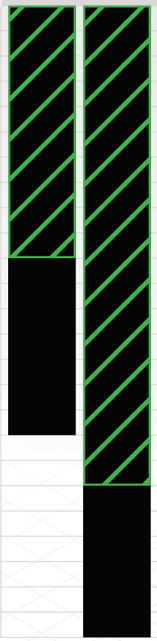
Stainless Steel

Ga	In	mm
20	0.038	0.950
19	0.044	1.100
18	0.050	1.270
17	0.056	1.400
16	0.063	1.590
15	0.070	1.800
14	0.078	1.980
13	0.094	2.40
12	0.109	2.780
11	0.125	3.180
10	0.141	3.570
9	0.156	3.970
8	0.172	4.370
7	0.186	4.760
	0.197	5
	0.236	6
	0.276	7
	0.315	8
	0.354	9
	0.394	10
	0.433	11
	0.472	12
	0.512	13
	0.551	14
	0.591	15
	0.630	16
	0.669	17
	0.709	18



Aluminum Alloy

Ga	In	mm
20	0.032	0.810
19	0.036	0.910
18	0.040	1.020
17	0.045	1.100
16	0.050	1.290
15	0.057	1.709
14	0.064	1.897
13	0.072	2.278
12	0.081	2.657
11	0.091	3.038
10	0.102	3.416
9	0.114	3.797
8	0.129	4.176
7	0.144	4.554
6	0.162	4.100
	0.197	5
	0.236	6
	0.276	7
	0.315	8
	0.354	9
	0.394	10
	0.433	11
	0.472	12
	0.512	13
	0.551	14



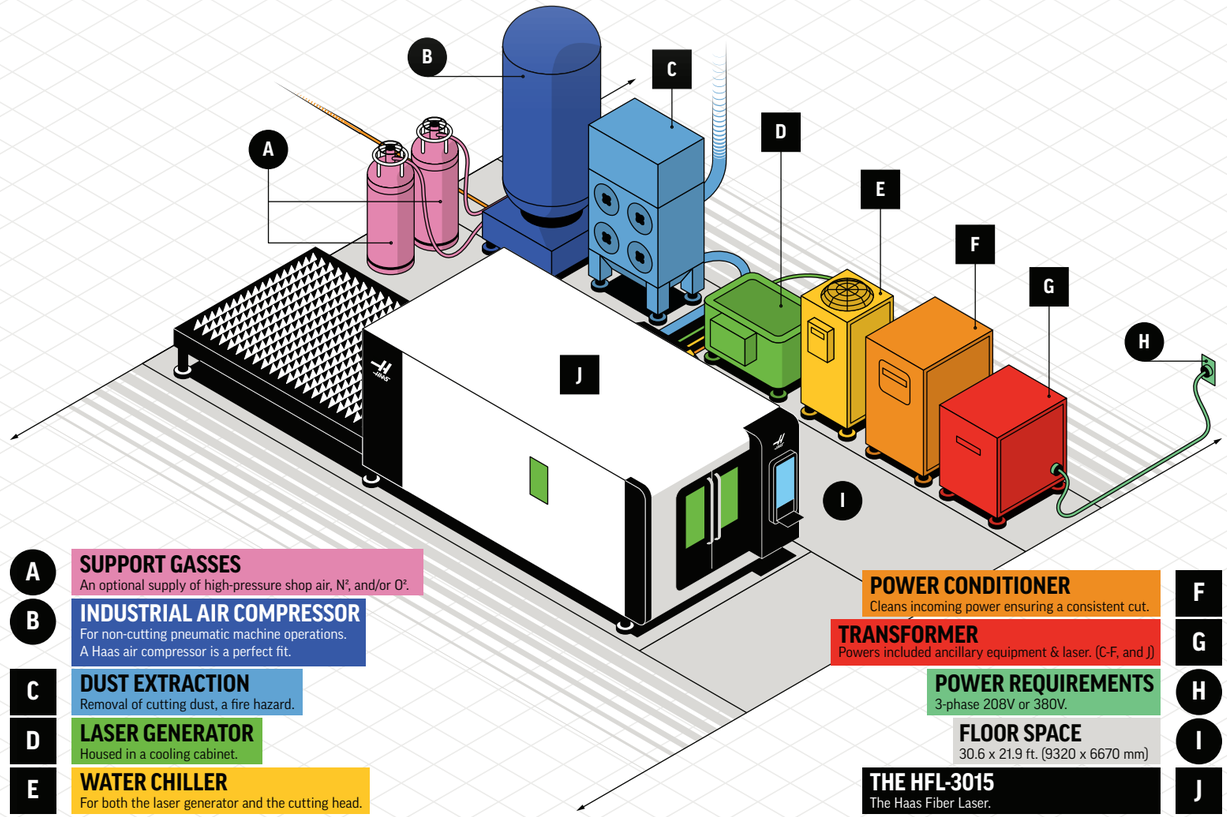
CUTTING SPECS

We have rigorously tested our laser systems across three of the most common materials to provide a dependable performance benchmark. However, it is crucial to understand that industrial lasers are highly sensitive to environmental factors, such as temperature and humidity, and may require fine-tuning upon installation to achieve peak performance.

Please use the cutting chart to the left as a primary guide for selecting the optimal laser for your needs. For the best cut quality, efficiency, and longest component lifespan, ensure the majority of your production work falls within the “Ideal System Cutting Range” as indicated.

The Haas Fiber Laser System

Haas Fiber Lasers are complete production cells, and are much larger than a mill or lathe system. The Haas fiber laser relies on several included auxiliary units to function, and will require additional support systems.



Laser Specs

	3 kW	6 kW
Travels (X,Y,Z)	60.236 x 120.079 x 8.661 in (1530 x 3050 x 220 mm)	
X/Y Positioning Accuracy	+/- 0.002 in (+/- 0.05 mm)	
Edge Detection Accuracy	+/- 0.5 deg	
X/Y Repeatability	+/- 0.0008 in (+/- 0.02 mm)	
X/Y Axis Max Speed	3937 ipm (100 m/min)	
Z-Axis Max Speed	2362 ipm (60 m/min)	
Max Synchronous Speed	5118 ipm (130 m/min)	
Max Synchronous Acceleration	1.2 G	

Electrical Requirements

	3 kW	6 kW
Machine Power	36.1 hp (26.9 kW)	57 hp (42.5 kW)
Dust Collector Power	7.38 hp (5.5 kW)	10.1 hp (7.5 kW)
Power req. @208v	90 A	139 A
Power req. @380v	49 A	76 A

Support Gasses Overview

The gas used to assist the laser beam is critical, as it directly determines the quality, speed, and maximum thickness of the cut, as well as the overall operating cost. The choice of gas hinges on the material being processed and the desired final edge quality.

Ideal System Cutting Range

Nitrogen

Nitrogen provides the cleanest cuts. Cut edges are burr-free and have no oxidation, minimizing post-processing. Nitrogen requires high pressure and high volume, leading to higher operating costs, and may require larger, more sophisticated gas delivery systems.

Requires:	230 psi (15.9 bar) 53 cfm (1.5 m³/min)

Shop Air

Shop air has the lowest operating cost. Shop air is readily available, and just needs to be filtered and dried. Unless you already have one you will need to purchase a high-powered, industrial, air compressor and dryer in order to reach the required operating pressure for cutting.

Requires:	290 psi (20 bar) 46 cfm (1.3 m³/min)

Oxygen

Oxygen is for heavy duty cutting, Especially on materials like thick carbon steel. It creates an exothermic reaction that significantly boosts the cutting power, while being fairly cost-effective. Cuts made with oxygen are oxidized and will require significant post-processing.

Requires:	145 psi (10 bar) 46 cfm (1.3 m³/min)

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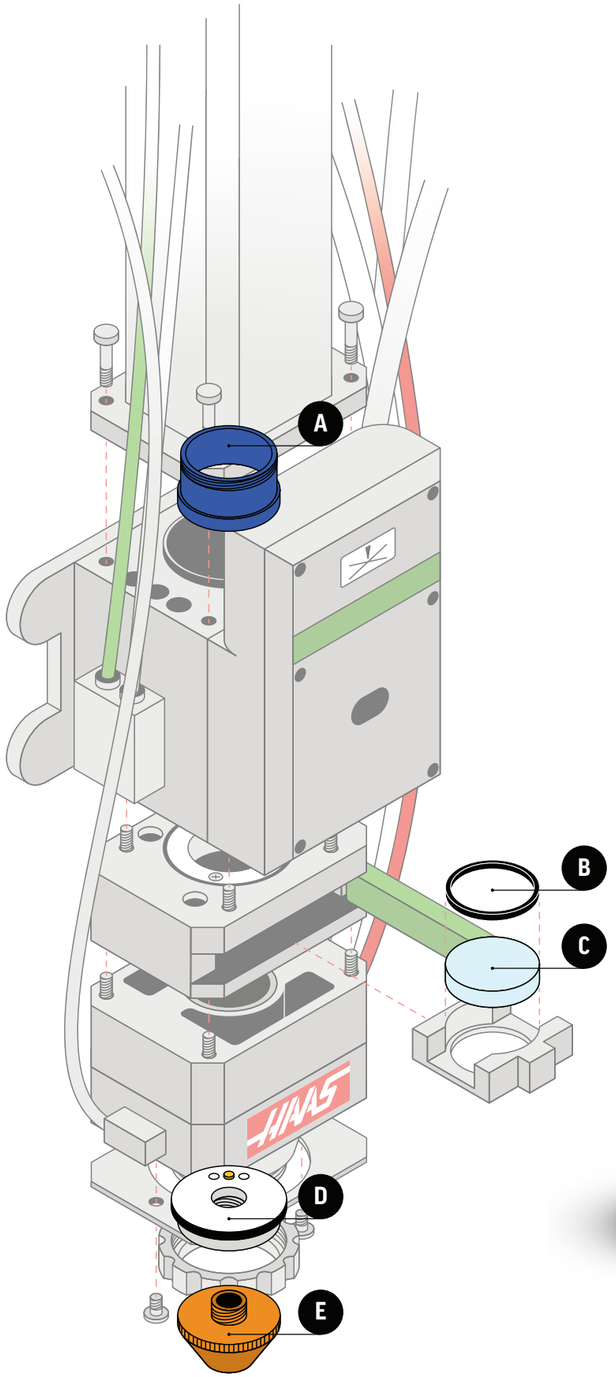
FIBER LASER UPKEEP

Running your fiber laser demands precision. While a fiber laser requires minimal new tooling, the machine will still experience wear and tear. A select number of critical components must be replaced by the user. You can save time by fabricating elements like bed slats in-house, but other elements, like optics and nozzles, will need to be purchased. Everything you need to keep your Haas fiber laser running at peak efficiency is available from HaasTooling.com, along with all the complementary shop equipment and tooling required to finish the job.

Laser Consumables

Consumable Name	Service time	Part number(s)
A - Focusing Lenses	1-2pcs/year	09-1021 (3 kW) 09-1190 (6 kW)
B - Seal Ring	45-50 days	09-0996
C - Protection Lens	1-2pcs/week	09-0994, 09-0995 (3 kW) 09-1168, 09-1169 (6 kW)
D - Ceramic Ring	3-4pcs/year	09-1015 (3 kW) 09-1188 (6 kW)
E - Nozzles	3-5pcs/month	09-0997 - 09-1014, (3 kW) 09-0996 - 09-1014, (3 kW)

*Under a normal use case. Depending on your run times and materials you may need to replace various elements more or less often.



*Not to scale. Layout is for reference only, refer to official technical documents for fiber laser maintenance and repair.

A POWERFUL ALL-IN-ONE SOFTWARE

CypCutE takes the headache out of modern CNC laser control by combining deep operational power with an exceptionally user-friendly interface. It stands as the premier choice for both rigorous high-volume industrial use and intricate, high-precision custom jobs.

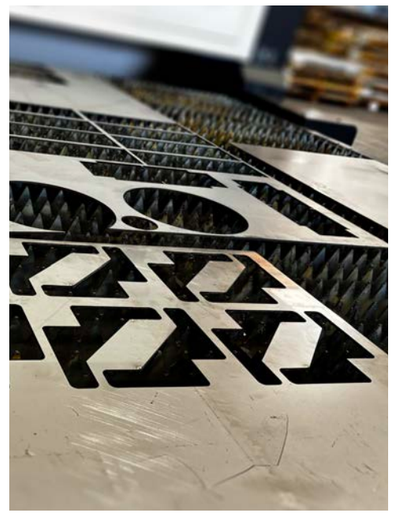
The software is built for integration, supporting direct import of popular vector file types such as DXF, AI, PLT, and Gerber. Operators can quickly and precisely plan their cut sequencing and nesting, set specific parameters for pierce delays, power, and speed for various materials, and begin cutting immediately, maintaining full command over every aspect of the process.

Total Control

Whether you're cutting aluminum, stainless steel, carbon steel, or something else, your Haas fiber laser comes with the parameter customizations you need.

Camera Monitoring

Internal and external cameras allow you to monitor the cutting bay and the second pallet, from the control screen, maximizing safe operation.



Nesting

Manually or automatically arrange multiple parts on a sheet to minimize waste. Then utilize manual or photo-based remnant reuse to make the most of leftover material.

LOCAL SERVICE & SUPPORT

Haas Automation is the largest machine tool builder in the United States, supplying a wide range of quality, high-value products to machine shops and manufacturers around the world, including CNC machines, tooling, workholding, and shop support equipment. Haas products are sold, serviced, and supported through a network of more than 170 locally owned and operated Haas Factory Outlets, in more than 60 countries. Haas Factory Outlets (HFOs) provide the best sales, service, and support in the machine tool industry.

HAAS TOOLING.COM

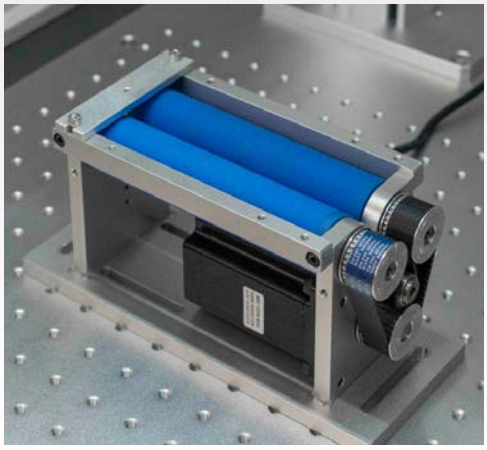
LASER MARKING

HL-50E & HL-50E-XT

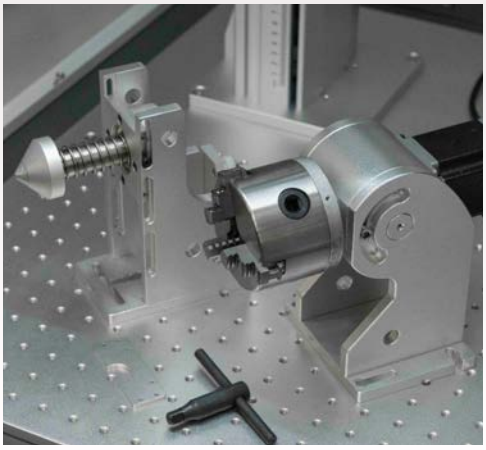
The Haas HL-50E SERIES LASER MARKERS are fully enclosed, infrared fiber laser marking machines that combine advanced photonics and fiber optic technology to offer precise laser marking capabilities to your shop.

Rotary Fixtures For Laser Markers

These laser rotary fixtures are designed for hassle-free installation on Haas Laser Marking Machines, thanks to the standard 4-pin aviation plug. This connection allows for quick plug-and-play setup, eliminating complex wiring or additional configuration steps. Simply enable the rotary function within LightBurn, connect the plug, and you're ready to start marking!



32mm Ø Rubber Roller, Laser Rotary Fixture 09-0924



80mm 3-Jaw Scroll Chuck, Laser Rotary Fixture 09-0923

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