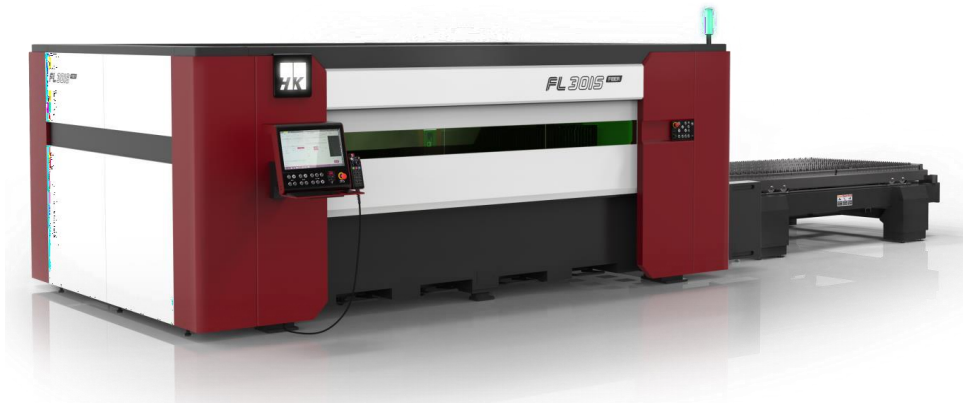




The largest laser cutting machine manufacturer
from Korea

HK FL3015 4kW FIBER LASER

FL3015 FIBER



Technical support by Alpha CNC Group Pty Ltd

21/2-4 Picrite Close, Pemulwuy NSW 2145

Phone: 02 96836117

Web: www.alphacnc.com.au



Felix Yan


Mobile: 0420 206 745

Email: felix_yan@alphacnc.com.au

All HK laser cutting machines come with **2** years warranty



CONTENTS

A graphic of a magnifying glass with a blue handle and frame, positioned on the left side of the table of contents. The lens of the magnifying glass is aligned with the first item, "1. Introduction".


1. Introduction
2. General Information
3. HK Technology
4. Line up
5. Reference
6. Specification



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1. INTRODUCTION

Our values are based on customer satisfaction. We hope to create long lasting relationships and share mutual success. Since HK's founding in 1990, HK has always pursued one single dream. It is "creating value through customer satisfaction". At the early stages of our business, the domestic laser industry was a barren wasteland, but HK did not succumb to it. Instead, HK concentrated on exclusive and independent R&D and customer service and thus has positioned itself as a leading company in the field of laser cutting technology. Unlike other companies during the IMF crisis, HK got active in exploring the overseas market and grew to be a global company. Customer success and value are important to HK's business model. Through realizing such values, HK makes an endless effort to be a company that can share its mutual success with customers. HK has already gone beyond being a simple manufacturer and has become a total solutions provider that can unfold a vision of productivity to the entire industry.



Our values are based on customer satisfaction. We hope to create long lasting relationships and share mutual success.

CEO of HK Co., Ltd. *Jay Kay*



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STUBBORN *HK*

Never interested in others than Laser Cutting System for 31 years

***HK* R&D**

Priority investment on R&D for advanced technology

HK as **MARKET LEADER** for 7 consecutive years

Market share of 31% in Korea in 2020

HK as **TREND SETTER**

New premium model of RS to be released in 1Q of 2021

***HK* BELONGS TO SOCIETY and FULFILLS CSR**

Annual Concert and Awards Scholarship to Youth

STABILITY & TRANSPARENCY of *HK*

Listed in Korean stock market KOSDAQ since 2000



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2. GENERAL INFORMATION

2.1 Global Networks



5

Overseas Corporations

Global

35

Dealers & Service Centers

Exports to over

30

Countries

Provides Service within

48

Hours



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2.2 HK Headquarter in South Korea

- Founded in 1990
- Dedicated to 2D laser cutting for 31 years
- 30,000m² facility, production capacity up to 35 machines/month
- 3000+ lasers installed worldwide
- Listed in Korean stock market KOSDAQ since 2000
- Market leader in Korea in 2020, for 7 consecutive years



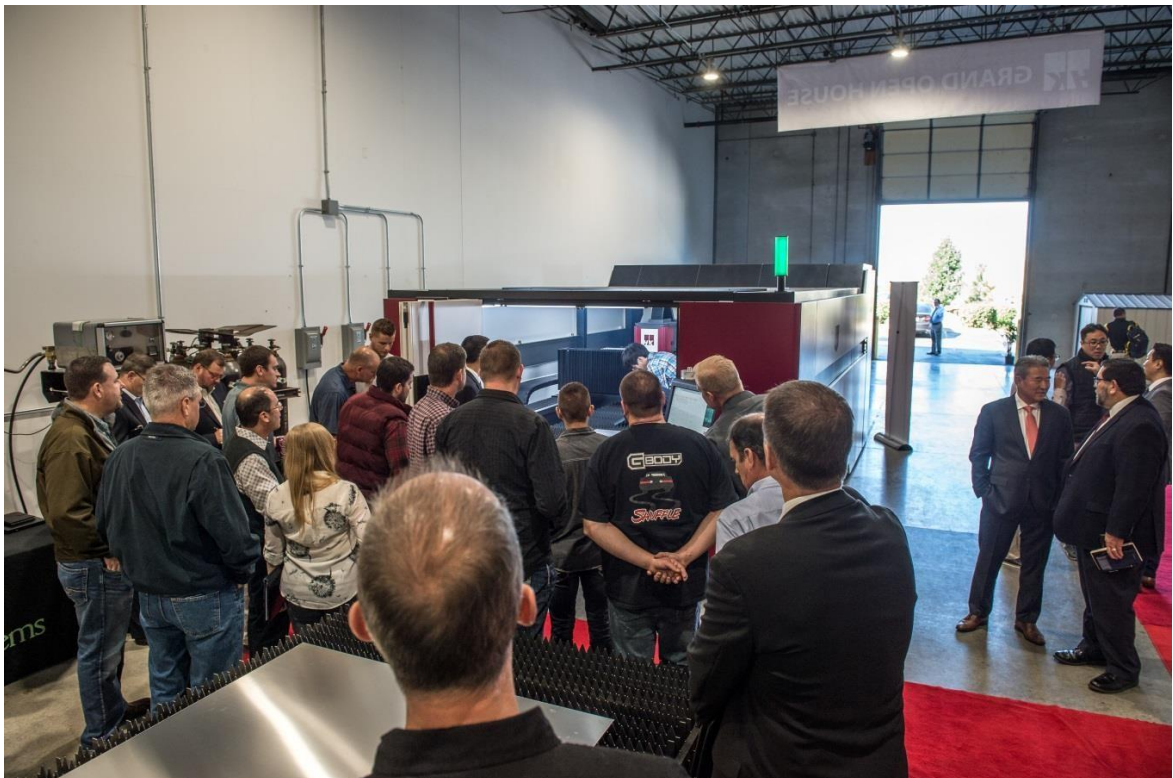


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2.3 HK USA in Chicago



- Established in 1998, 9,000m² facility (office, showroom, warehouse)
- 300+ lasers installed, 16 sales distributors in North America
- Service branches in NC, GA, CA

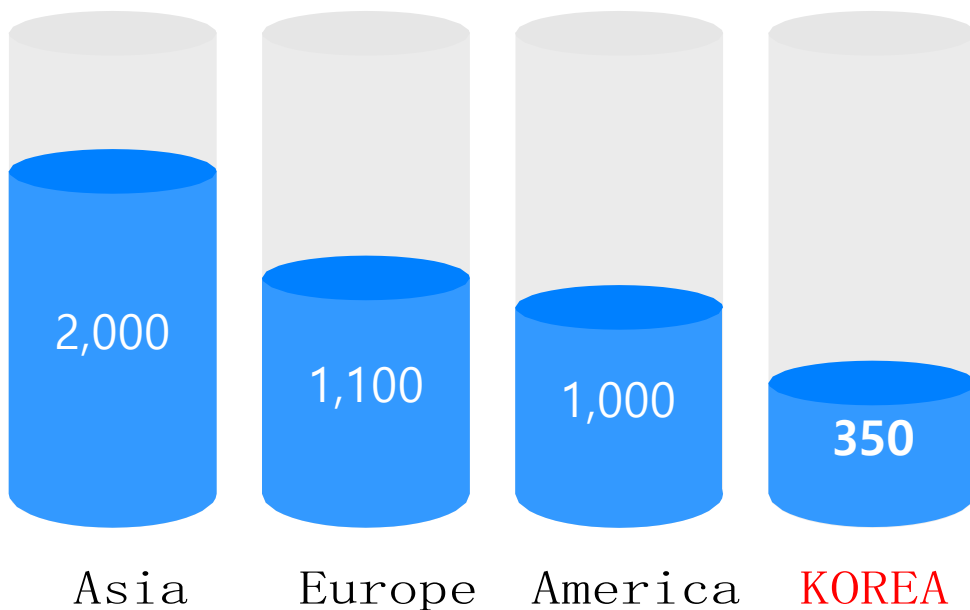




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2.4 Global Laser Market(over 2kW)

■ Global Market Size : **4,500** machines/year



- ✓ **KOREA** is one of the **BIGGEST** markets of Laser Cutting Machine all over the world
- ✓ In this BIG market of Korea, HK sold **110** machines in 2020
- ✓ **MARKET LEADER** for 7 consecutive years, leaving European brands way behind



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3. HK TECHNOLOGY

Low Pressure Cutting

Problem of High Pressure Cutting

- Using +15bar → High consumption of N2 at high cost
- Generated plasma causes roughness(bad cutting surface)

Solution

- Unique technology of HK
- Using 7bar
- Using Chamber Nozzle



Result

- Low Consumption of N2 → **Cost Saving up to 65%**
- Improved Roughness



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HK Low Pressure Cutting

Comparison in consumption and cost saving

N.	STS (T)	Speed (mm/min)	N2 Pressure (bar)	Nozzle size (Φ)	N2 Consumption (L/m)		
					Before (High Pressure)	After (Low Pressure)	Saved
1	6mm	12,000	5.5	3	104	42	59.6%
2	8mm	7,000	5.5	5	495	171	65.5%
3	10mm	5,000	5	5	693	261	62.3%
4	12mm	3600	7	5	1154	446	61.3%
5	15mm	2600	7	5	2813	1088	61.3%

Samples with low pressure cutting



STS 10mm



STS 15mm



STS 25mm



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VBPP - Variable Beam Parameter Product

Limit of Fiber Laser

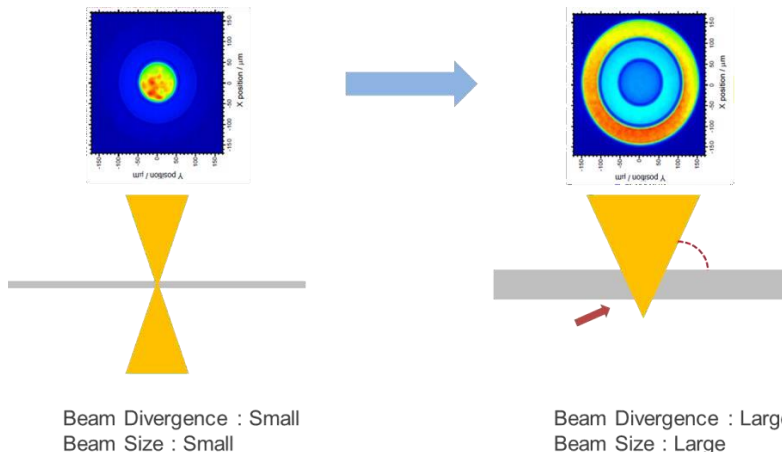
- Irregular Striation on Cutting Surface
- Poor Perpendicularity

Solution

- Re-design the Laser
- Change Beam Divergence Angle
- Create New Optic System with New Laser

Result

- Significantly improved cutting quality of mild steel +6mm
- CO₂-like quality in edge quality & roughness

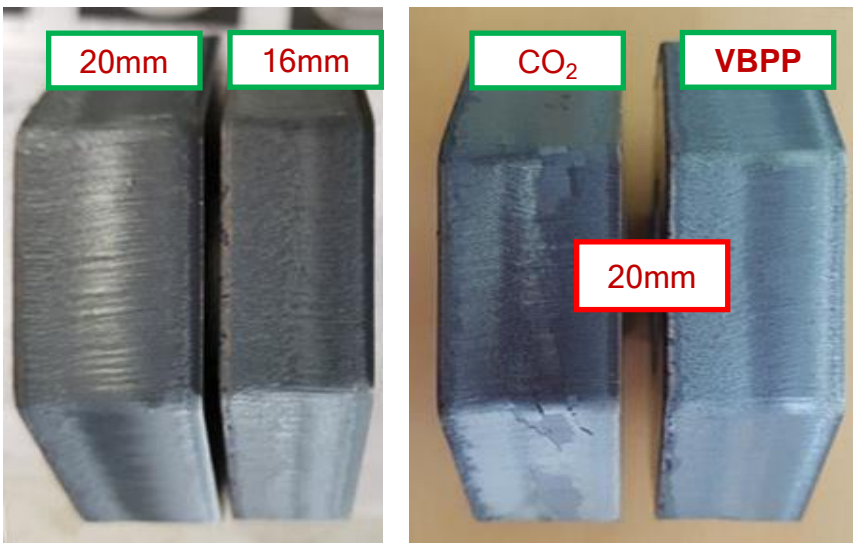




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VBPP - Variable Beam Parameter Product

VBPP samples & comparison



Content	Normal Fiber	Fiber with VBPP	CO ₂
	4kW		
Roughness	45μm	24μm	23μm
Perpendicularity	0.21mm	0.1mm	0.1mm



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Remote Service Center

No need to waste time waiting for engineer!!



- Reachable by messengers, SNS, phone, email for 24/7
- Senior engineers with over 20 years of field experience
- 92% out of total service cases were solved out through remote service in 2020



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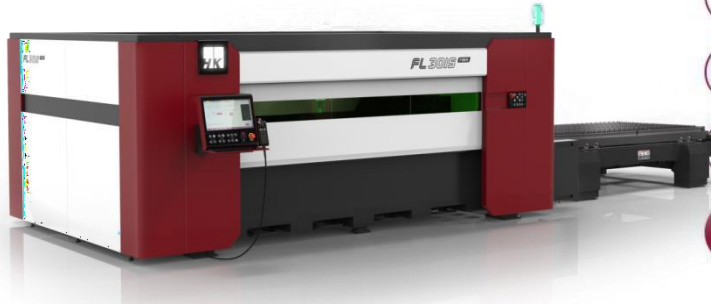


HK INSIGHT – Remote monitoring system



Remote monitoring of laser equipment System

한국어 ▾



HKGLOBAL



dbshin



....

로그인

Customers can check current condition, previous history and stats of various categories of the machine in real time with PC and Mobile.

HK Monitoring Team takes care of your machine together.



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HK INSIGHT – Remote monitoring system

- Easy access by PC and Mobile
- Show current condition and previous history of your machine
- Provide various stats

The image displays the HK INSIGHT remote monitoring system interface. On the left is a PC dashboard with a sidebar menu and several data visualization charts. On the right is a mobile app interface showing a machine status card and a pie chart. Callout boxes highlight key features:

- 장비의 일반 상태 (General equipment status)
- 작업 상태 및 진행률 (Job status and progress)
- 작업 이력 조회 (Job history search)
- 작업 통계 확인 (Job statistics check)
- 알람 발생 푸쉬 알림 (Alarm push notification)

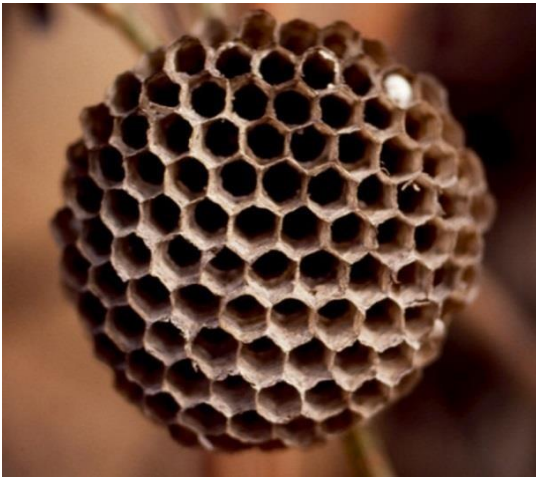
구분	종료작업수	중지작업수	시동자 정지	가계정정지	완료횟수	취소횟수	전체작업시간	전제가동시간	전제정지시간	평균작업시간	평균가동시간	평균정지시간
1	10	0	4	1	2	10	10.2	8.0	2.2	7.4	6.0	1.2
2	9	10	3	7	7	1	22.7	17.7	5.0	57.8	47.4	10.4
3	7	6	4	2	8	1	7.4	6.0	1.7	52.1	43.3	8.8
4	8	8	6	2	5	1	14.6	11.7	2.9	71.5	61.4	10.1
5	9	7	7	0	2	1	1.2	1.2	0.0	86.1	84.9	1.2
6	8	9	5	4	7	2	4	3.0	1.0	71.5	69.0	2.5
7	7	6	5	1	2	1	15	11.7	3.3	90.0	87.7	2.3
8	10	7	4	3	5	1	22	17.7	4.3	161.7	151.4	10.3

- Improving productivity and efficiency through data analysis
- Save time in service by referring to operational history
- Co-monitoring by HK Monitoring Team

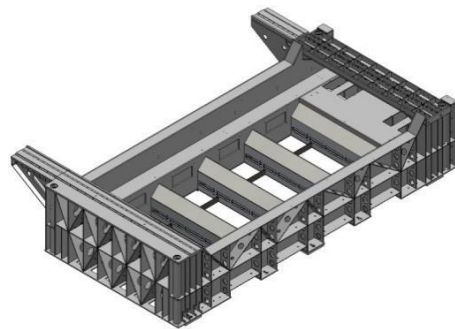
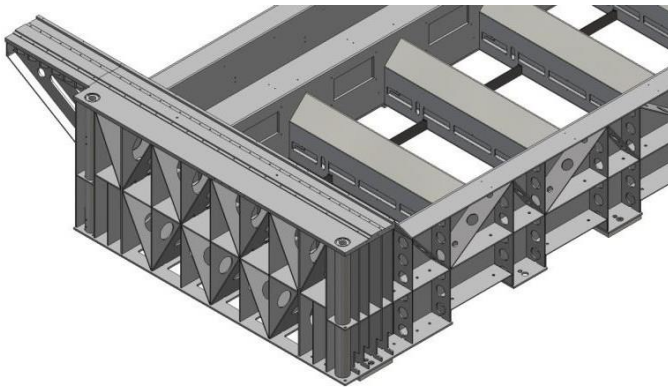


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 **Honeycomb Frame**



Light & Strong



Decreased deformation by 10 times to other brands



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All-in-one Cabinet



- Resonator, E-box and Chiller in one Cabinet
- Full air-conditioning system
- No need to install extra clean room



FL3015 4kW FIBER LASER

4. LINE UP

4.1 Fiber Laser Cutting System

4.1.1 FS FIBER Standard Series

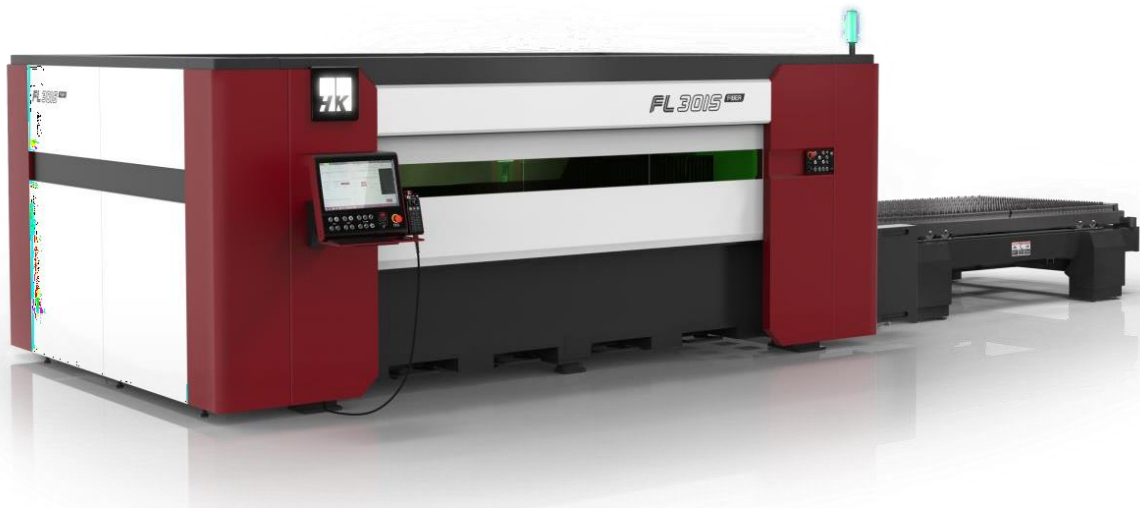


- Super-economical model with compact design
- Minimized space by mounting resonator and E-box onto the frame
- N₂ low-pressure cutting technology, cost saving 60%+
- State-of-the-art FIBER technology
- Ultra light & high stiffness Cutting Bridge
- 21.5" wide touch screen
- enlarge cutting capability up to 4M x 1.5M at minimum cost(FS4015)
- Maximizing productivity & material efficiency(FS4015)
- 3M x 1.5M, 4M x 1.5M
- Range : 3kW / 4kW / 6kW / 8kW



FL3015 4kW FIBER LASER

4.1.2 FL3015 FIBER



- High stiffness frame
- Automatic side door, easy approach to wide side
- N₂ low-pressure cutting technology, cost saving 60%+
- State-of-the-art FIBER technology
- Maximized cutting quality of thick MS/STS materials
- Pipe cutting function applicable(optional)
- Range : 3kW / 4kW / 6kW / 8kW / 10kW / 12kW



FL3015 4kW FIBER LASER

4.1.3 FS Oversized Series



- Premium oversize model
- High stiffness frame
- N2 low-pressure cutting technology, cost saving 60%+
- State-of-the-art FIBER technology
- 4M x 2M, 5M x 2M, 6M x 2.5M, 8M x 2.5M
- Range : 2kW / 3kW / 4kW / 6kW / 8kW / 10kW / 12kW



FL3015 4kW FIBER LASER

4.1.4 FO Gantry Series



- Large-format Gantry Laser
- 12/16/20M length x 2.5/3.5M span, single table
- Flying-optic cutting bridge with synchronized dual servo motor drive system
- 21.5" touch screen based on SIEMENS 840D controller
- Rack & pinion linear guide system
- Auto-focus cutting head
- Range : 4kW / 6kW / 8kW / 12kW



FL3015 4kW FIBER LASER

4.2 Automation System

4.2.1 Smart Cell



- System size : 8,300mm x 2,500mm x 2,500mm
- Automatic loading and unloading system
- Max. workable sheet size : 3,048mm X 1,524mm X 19mm
- Max. workable weight 690kg, Max. stackable weight : 3,000kg
- Cycle time : 60 sec.
- Loading by vacuum pad & unloading by forklifting



FL3015 4kW FIBER LASER

4.2.2 Smart Loader



- System size : 4,400mm x 1,770mm x 2,500mm
- Max. workable sheet size : 3,048mm X 1,524mm X 20mm
- Max. workable weight : 740kg
- Max. stackable weight : 3,000kg
- Cycle time : 48 sec.
- Loading by vacuum pad



FL3015 4kW FIBER LASER

4.2.3 Smart Tower



- System size : 9,800mm x 4,200mm x 5,000mm
- Max. workable sheet size : 3,048mm x 1,524mm x 20mm
- Up to 8 columns available, automatic sorting system
- Max. stackable weight : 2,700kg
- Cycle time : 60 sec.



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4.2.4 Smart Rack



- Space saving up to 10,000mm X 2,000mm
- Recommendable for factory with limited space



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5. REFERENCE

5.1 Major Local Reference

POSCO





FL3015 4kW FIBER LASER

5.2 Major Overseas Reference



RCF Kapurthala



上海电气
SHANGHAI ELECTRIC



U.S. AIR FORCE



THACO
TRUONG HAI AUTO

TAEHWA®



FL3015 4kW FIBER LASER

6. Specification

Features:

1. Fiber Resonator : NLIGHT 4.0kW
2. CNC Controller : Siemens 840D
3. Maximum cutting size of sheet/material : 3,048mm x 1,524mm
4. Fiber Cutting Head : Precitec
5. Scrap Tray Set
6. Shuttle Table System
7. Programmable Regulator(Max. 20 bar)
8. HMI screen : 21.5" infrared wide touch-screen
9. Cooling Chiller
10. Dust Collector
11. Network System
12. CAD/CAM Software
13. Consumable Parts Kit
14. Machine Installation & Training at customer's site



FL3015 4kW FIBER LASER

Specification:

Machine Part	
Max. Workpiece Size	3,048mm x 1,524mm
Max. Acceleration	2.0G
Max. FEED rate (X/Y simultaneously)	140 m/min
Max. FEED rate	42,000 mm/min
Positioning Accuracy	±0.1 mm/3,000 mm
Repeatability	±0.03 mm
Cutting Capacity *clean cut based	
Output Power	4.0 kW
MS	20mm
STS	12mm
AL	12mm
Copper	6mm
Brass	10mm
FIBER Resonator	
Type of Diode	Single Emitter Diode
Wavelength	1.07μm
Controlling System	
NC Memory / Hard Capacity	5 Mbytes / 240 Gbytes
Operating System	Windows 10 (USB, LAN Interface)



FL3015 4kW FIBER LASER

FL3015 LAYOUT

