

# Laser Cutting Machines

## ACE Laser 4020 1.5 R

**SKU : 141016**

The machines of the ACE Laser series offer a cutting system that sets new standards in price and performance. They are optimally designed for the cutting process and excellent part quality. The machines guarantee productivity, safety and reliability. Comprehensive standard equipment ensures efficiency and versatility. These properties make the ACE Laser the ideal choice for industrial laser cutting applications, from complex workpieces with a lot size of 1 to large series production in electronics, aerospace or the automotive industry.

- Rugged design with high quality components
- Complete cutting package including dust collector
- Comprehensive KNUTH service: design, setup, and maintenance



### TECHNICAL SPECS

#### WORKING AREA

Table dimensions	4000 mm x 2000 mm
Workpiece weight (max.)	1500 kg
Axis acceleration X- / Y-axis	10 m/s <sup>2</sup>
Axis acceleration Z axis	5 m/s <sup>2</sup>

#### TRAVELS

Travel X-axis	2020 mm
Travel Y-axis	4050 mm
Travel Z-axis	100 mm

#### RAPID FEED

Rapid feed	100 m/min
Change time at cutting table	12 sec - 17 sec

#### ACCURACIES

Positioning accuracy	0.03 mm/m
Repeatability	0.02 mm/m

#### LASER

Fiber laser	1500 W
Shaft length	1,08 ± 10% µm
Beam power max.	1500 W
Pulse frequency	50~5k Hz
Power consumption	5.3 kW
Supply voltage	AC 380V ± 10%, 50/60Hz, 3xL+N
Cutting capacity in structural steel	12 mm
Cutting capacity in stainless steel	4 mm
Cutting capacity in aluminum	3 mm

#### DRIVE CAPACITY

Machine drive capacity X-axis	1 kW
Machine drive capacity Y-axis	1.5 kW
Machine drive capacity Z-axis	0.4 kW

#### MEASURES AND WEIGHTS

Overall dimensions (length x width x height)	10.34 m x 4.28 m x 2.2 m
Weight	9000 kg



*Automatic exchange table system with light safe system*



*The frame is meticulously welded and thermal treated*



*High-quality cutter head with auto-focus made by the RayTools*



*Machine comes standard with a dust collector and filtration unit and has 99,997% filtration efficiency*



## PRODUCT DETAILS

- This state-of-the-art laser cutting system features a gantry-style construction with drives on both sides and a large working area of 3000 x 1500mm up to 6000 mm x 2000 mm that can accommodate most of the common plate sizes
- The Y axis portal features an aluminum die-cast construction with low weight and high rigidity for excellent dynamics
- Thermal treatment of the meticulously welded machine frame and all structural parts reliably eliminates production-related material stresses – ensuring long-lasting, precise alignment of all components. This ensures long-term and reproducible cutting edge accuracy and long machine life
- The precision linear guides require minimal maintenance and are designed for long-lasting precision and high cutting speeds
- High-precision rack-and-pinion gears on the Z and Y axis ensure superior and reliable positioning accuracy
- Powerful servo-motors on all axes
- For the safety of people and the environment, the cutting system is equipped with a machine housing and filter extraction system. Special protective glass windows make it possible to observe the cutting process
- An automatic shuttle table system minimizes production downtimes, since the table can be loaded and unloaded during the cutting process
- Perpendicularity or squareness tolerance for laser cutting acc. to DIN EN ISO 9013-1

### Control

- Easy operation with user-friendly optimized interface
- A technology database includes cutting parameters and pre-set cycles for various metals
- The efficient processing of all cutting jobs is further supported by user-friendly software for the selection of process parameters
- Solenoid and proportional valves regulate the gas pressures (set in the control) during the cutting process

### Cutting head

- High-quality cutter head made by Raytools with motorized focus position adjustment, integrated collision guard, and level control
- Maintenance-free beam guide is provided by a flexible fiberoptic cable and ensures a long tool life
- Cutting systems from 6 kW laser power are equipped with a laser cutting head from the manufacturer BOCI, which offer the same technology but are specially designed for high-performance cutting

### Laser Sources

- The ytterbium fiber laser provides 1000 to 6000 W beam power, is made by the renowned manufacturer, Raycus, and ensures maximum cut quality and productivity
- The maintenance-free laser source reduces maintenance and operating cost

### Laser cutting systems with more laser power upon request

## CONTROLS & SOFTWARE

### Complete system with CNC control (FSCUT2000)

### **CNC-Controller**

- Machine is equipped with a powerful CNC system with a large display and intuitive user interface
- The 2 installed video camera enable full visualization of the loading and cutting process
- A remote controller is delivered as standard for quicker and easier machine preparation
- Remote access possible through Ethernet

### **CypCut – Built-in Nesting and Cutting Software**

- Supports most common file extensions (Ai, DXF, PLT, LXD)
- Material library with many functions for storing the cutting parameters
- Automatic nesting with various options and patterns for minimum material loss
- Real time laser power adjustment
- Breakpoint memory which allows you to get positioned at any point of the process or temporarily stop and start from another point

## **STANDARD EQUIPMENT**

Complete system with CNC control (FSCUT2000)  
Ytterbium fiber laser by Raycus  
CypCut CAD/CAM Software  
CypNest offline software  
High pressure cutting head with automatic focus adjustment  
Full protective housing  
Automatic exchange table  
Dust collector and filtration unit  
Automatic gas console with electrovalves for Oxygen and Nitrogen  
Central lubrication system  
Recirculating water cooling system for the laser source  
Operator instructions

## **OPTIONAL EQUIPMENT**

- Refrigerated compressed air dryers, SKU : 251090
- Oxygen pressure reducer 200 bar/0-20bar infinitely variable, SKU : 254030
- Nitrogen pressure reducer 200 bar to 50 bar 1-stage, SKU : 254031
- Oxygen pressure reducer 300 bar/0-20bar, SKU : 254032
- Nitrogen pressure reducer 300 bar/0-50bar, SKU : 254033