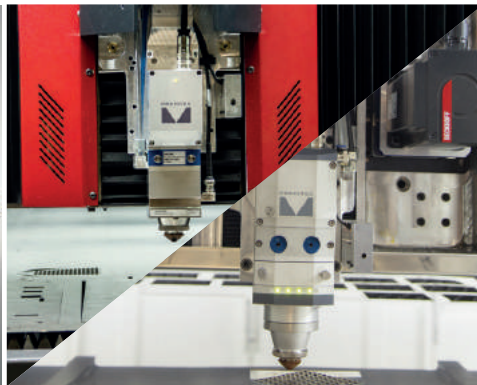
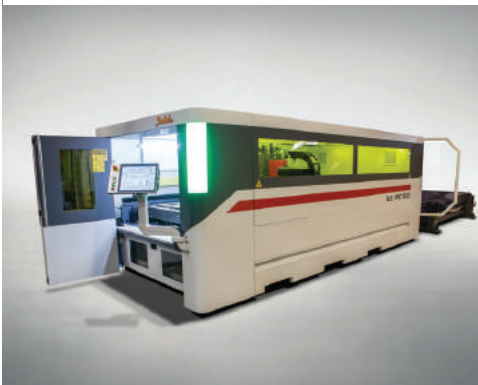


# BLE 1530 | PRO

Highly productive Extremely reliable.



Global powerhouse local solution provider.  
[baykal.com.tr](http://baykal.com.tr)

**Baykal**

Baykal





Baykal Machinery, which is one of the leading manufacturers regarding metal sheet processing machines since its establishment in 1950, has delivered its quality all over the world with its manufactured machines, press, shears and laser system.

Baykal Machinery with a production line of 70.000 m<sup>2</sup> total in three different factories has one of the largest machinery manufacturing facilities in Europe. Baykal Machinery with a total of 650 professional staff, including 80 engineers, perform all the manufacturing and assembly operations at its site by using advanced technology and modern production equipment for CNC machine in the computer-aided design environment.

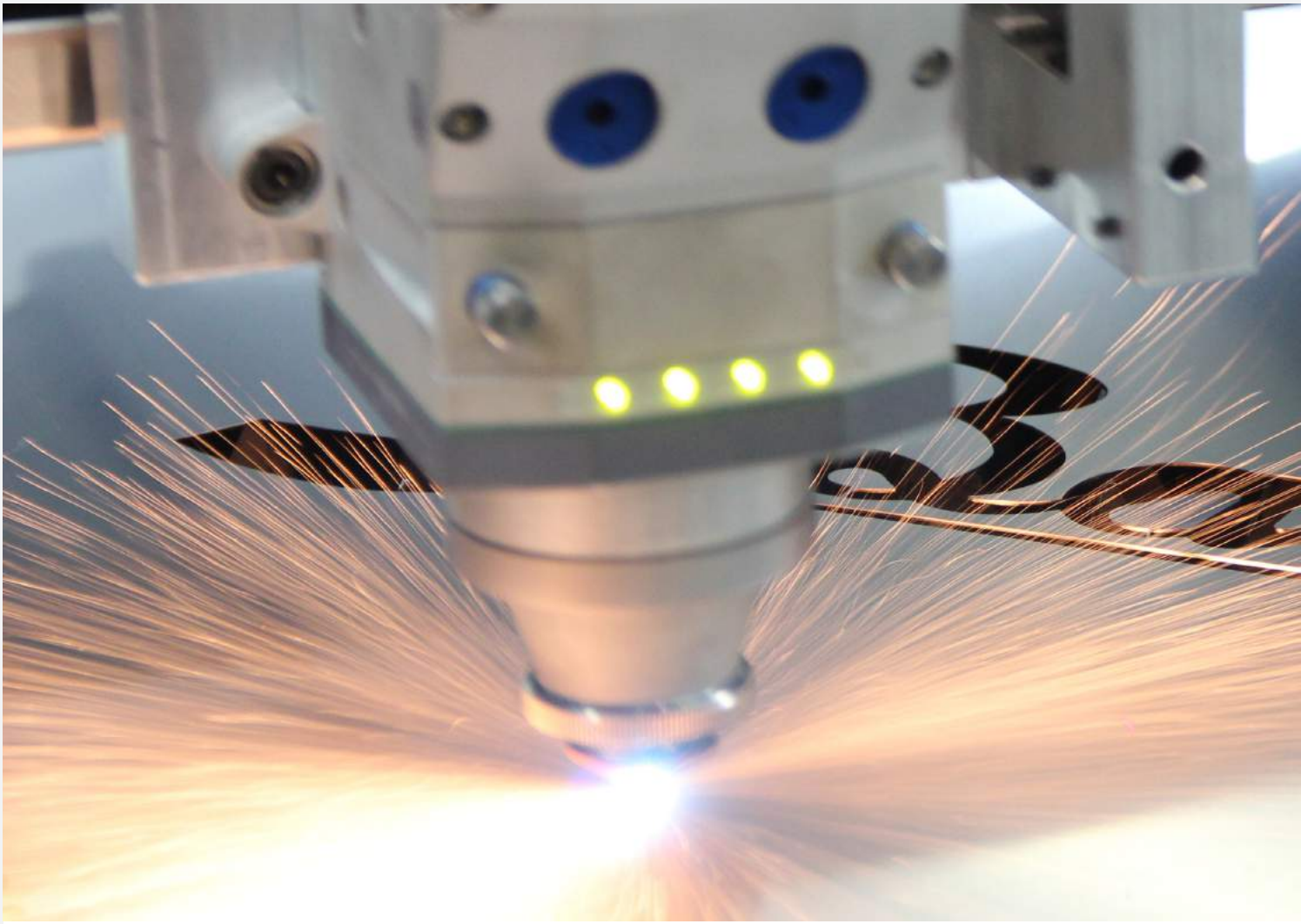
## More Than 70 Years High Experience

Baykal Machinery, which has the largest manufacturing facilities of Europe with a total of 70.000 square meters manufacturing area in three different factories, has been providing service for sheet metal processing machinery for 65 years with production capacity exceeding 5000 units annually.



Baykal Machinery owns the German TÜV certified ISO 9001 Quality Certificate and performs Turkish TSE documented and European Union CE marking production. Baykal Machinery, which has a sales network in almost all regions of the world extending from America to Australia, is progressing by constant improvement in its production quality and brand value in the last 40 years.

Baykal Machinery, which is a brand aware of its power and responsibility, will strengthen the position of “the machinery manufacturer, who has a corner in the industry” with the understanding of making no compromises in its quality.

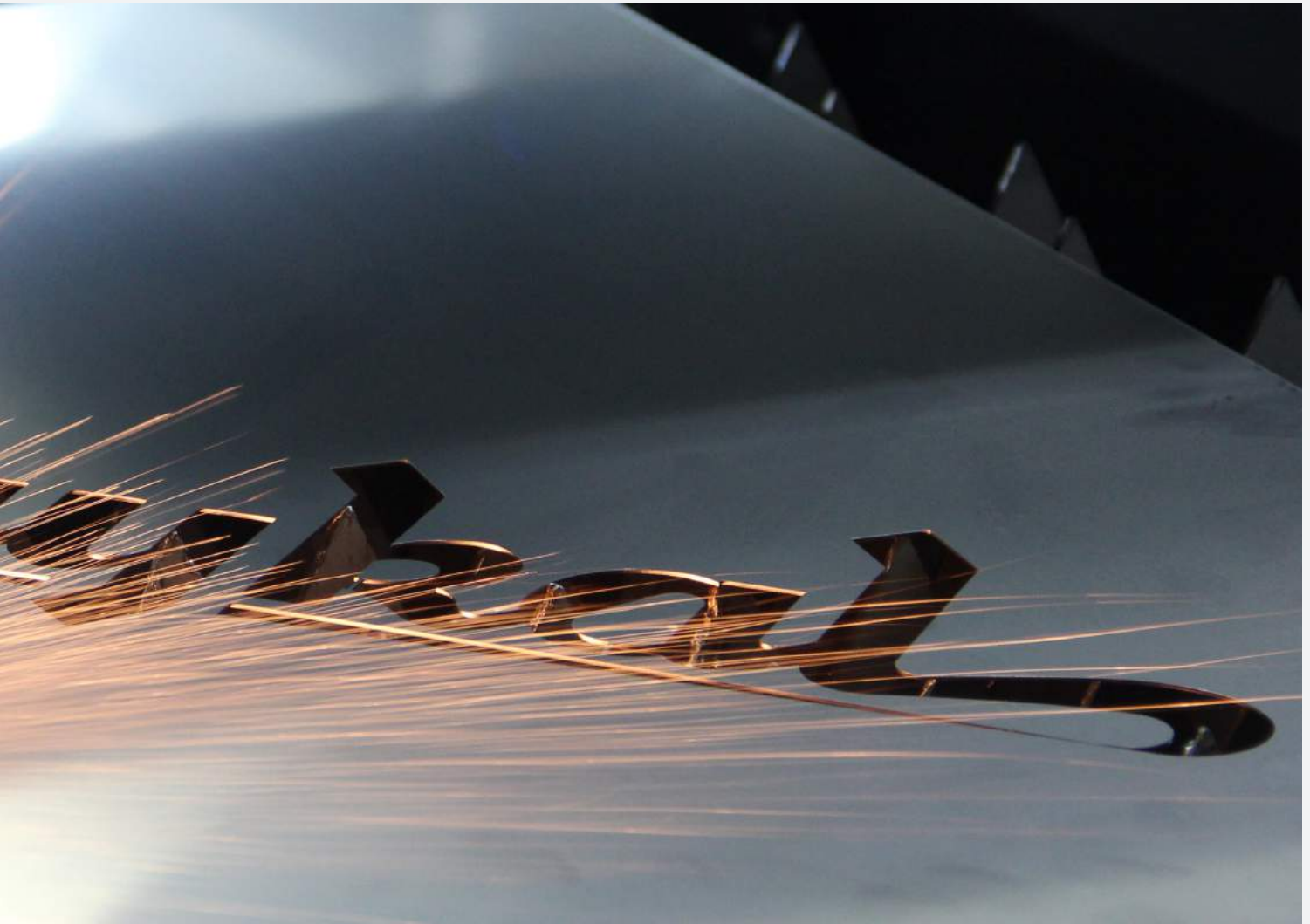


## Fiber Laser Technology

New BLE - Series uses two-dimensional drawings over the flat plate by moving the focused infrared light along the programmed pathways to cut. The system moves the laser light with fiber optic cable to the focuser cutting head, which moves on the fixed sheet metal. The cutting process occurs by melting the material in the area, where high-power laser light focused in very small diameters allows this to occur. Different gases are used to eject melted material from the surface of plate, according to type of materials. These gases exit from the nozzle, where the laser light exists and control the quality of process.

### *Unique features:*

- Precise and ease of processing both large and small size formats.
- High speed and high precision servo motion system.
- No repositioning of plate ensures optimum accuracy.
- Fiber optic laser delivery system.
- Simple operator interface and cutting database.
- CNC controlled hydraulic lift-up dual shuttle table.
- Easy accessible remote diagnostic functions.
- Long lens life because of lens protection.



## Impressive Cutting Solutions

New BLE - Series fiber laser cutting offers the best solution to the user for cutting quality, precision, high cutting speed and low cost in cutting of fine material. It is possible to obtain these features at very high cutting speeds. New BLE - Series makes it possible to cut big or special size plates and offers competitive performances against similar fiber laser cutting machines in the industry.

### *Benefits at a glance:*

- High speed low cutting cost in thin sheet metal cutting.
- Easy processing of copper titanium and brass.
- Lower cooling capacity requirements with reduced energy consumption, due to highly efficient fiber laser source.
- Perfect beam quality and long term power stability.
- Long cutting lens life, thanks to protective windows.
- More than 100.000 hours diode module life.
- Long life rigid machine design.
- Fibre delivery system significantly reduces consummables over the life of the system.

## The Best Fiber Laser For You

New BLE-Series offers the optimum solution for all your needs with economic investment and low operating costs. Besides, extraordinary robustness, it guarantees to get results in accuracy beyond your expectations via supply rigidity, which was created by using innovative concepts and designed as one piece.







- ***New Ergonomic Design***
- ***Low Investment and Training Cost***
- ***Simple Installation***

- ***Lesser Footprint***
- ***Easy Transportation***
- ***Quick Operation***

## High Capacity Utility

New BLE Series, is equipped with an accurately machined, highly dynamic bridge structure combined with precision rack and pinion technology. The high quality of system design and manufacture, ensures lower production costs and machine downtime for your company, whilst delivering the highest system capacity and greater return on investment.

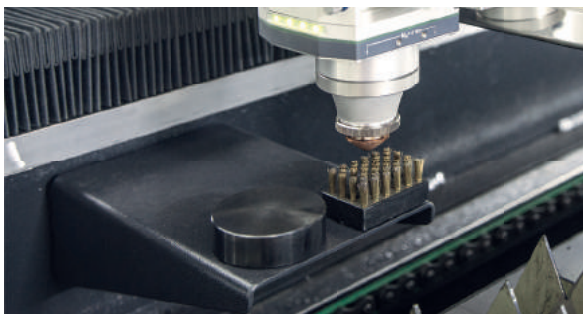


## Maximum productivity – High acceleration.

New BLE Series fiber laser cutting machine was designed as a bridge type, which is driven from both sides. Machine body, rigid and supply voltage are taken and offers high cutting accuracy and repeatability due to the very high precision machining of the structure.

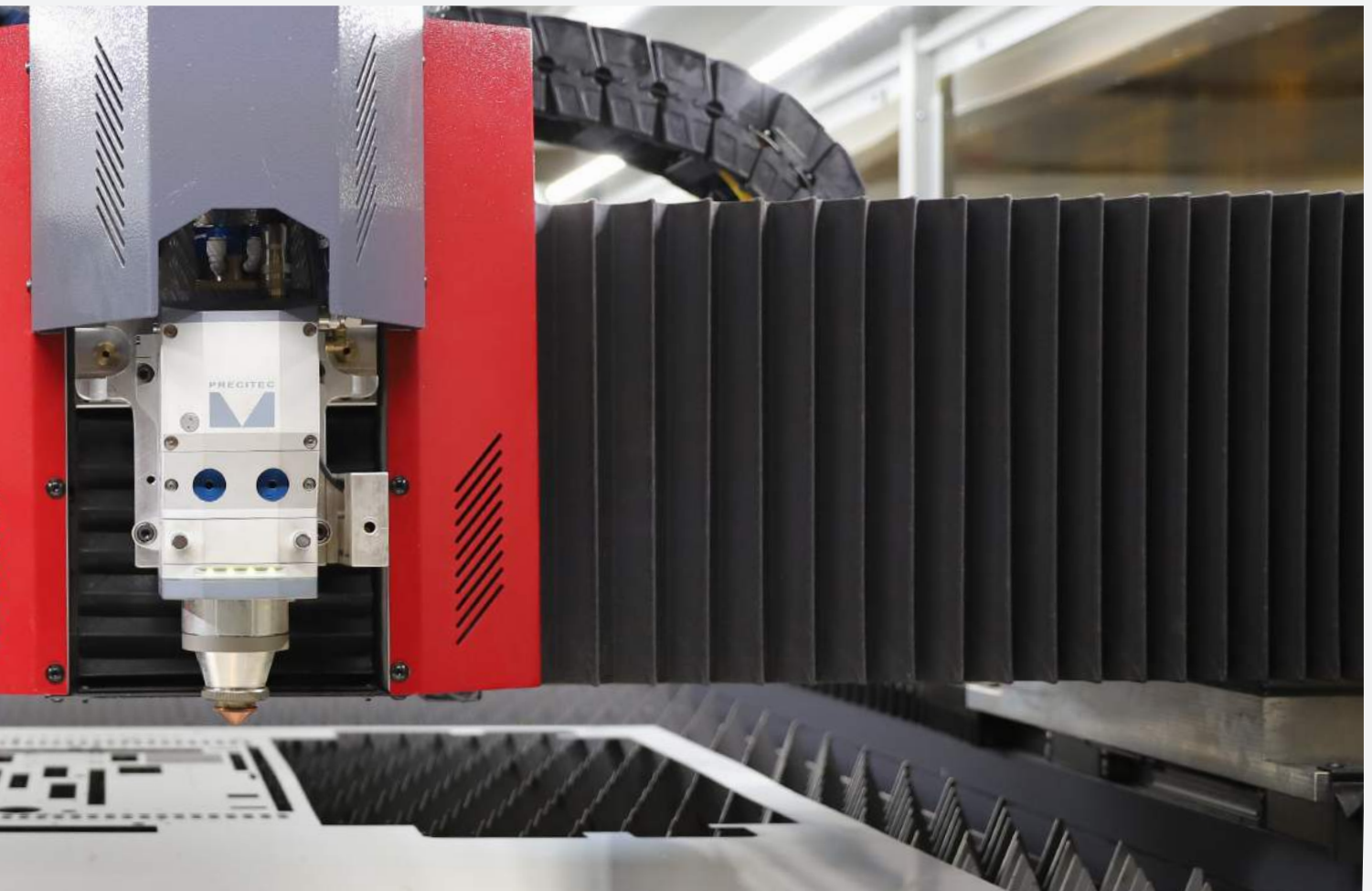
Besides extraordinary robustness, it provides vibration-free cutting due to the system rigidity, which was created by using innovative concepts and designed as one piece.

High acceleration offers more precision while processing especially small diameter holes and sharp corners at high speeds.



### *Automatic Nozzle Cleaning:*

New BLE Series carries out this process automatically according to the number of holes produced, which are determined by the CNC controlled nozzle cleaning and calibration feature. In this way, molten material that adheres to the nozzle end can be cleaned and thus cutting height of nozzle to the sheet plate can be kept constant. This directly affects the quality of cutting.



## High Performance and High Precision Rack and Pinion System

Machine motion system uses new generation high performance linear system with gear head, high performance rack and high performance class pinion.



The innovative High Performance assemblies are ideally suited and gantry sorted for high speed cutting systems which require performance and accuracy at the same time.

WITENSTEIN The new alpha rack and pinion drive systems are fast, smooth, accurate and trouble free, setting the pace in laser drive system design

### *Unique Features:*

- High acceleration at cutting feed rates
- Speed optimized axes
- Highly dynamic height following axis

# BECKHOFF

## Beckhoff Digital Compact Servo Drives AX5000

The AX5000 Servo Drive product line from Beckhoff sets new standards in drive performance.

Featuring integrated, high-speed control technology with a current control cycle of down to  $62.5 \mu\text{s}$ , the AX5000 drives support fast and highly dynamic positioning tasks. The drives utilise EtherCAT as a high-performance communication system, providing an ideal interface with PC-based control technology while supporting coupling with other fieldbus systems.

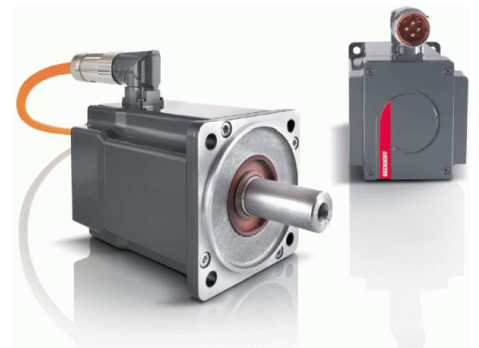


## Beckhoff AM8000 Servomotors

The AM8000 motors feature a low rotor moment of inertia and a very high overload capacity. Based on these technical data, the most dynamic applications can be realised. The windings of the AM8000 motors are implemented using salient pole-wound technology.

This gives rise to a high copper space factor. Due to the high slot space factor, high continuous torques can be attained. The fully potted stator provides for a thermally ideal transition of the winding to the housing. A further positive consequence of the is the mechanical protection of the winding wires against vibrations.

With the servomotors of the AM8000 series the feedback signals are sent directly along the conductor to the power supply so that the power and feedback systems are combined in a single motor connection cable. With the use of the One



Cable technology, the information is sent reliably and without interference through a digital interface. Since a cable and plug are omitted at both the motor and controller end, the component and commissioning costs are significantly reduced.

The I/O signals are wired in a decentralised way to fieldbus devices or centrally to the controller. The Beckhoff Bus Terminal ensures that control cabinets and terminal boxes are constructed more economically.

The Bus Terminal can be connected to the controller by connecting a Bus Coupler via the fieldbus as required



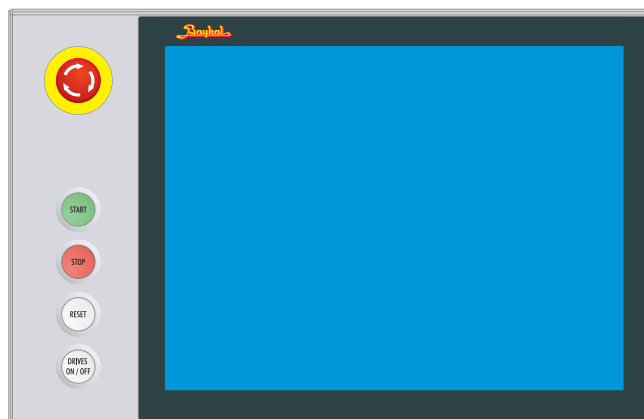
## Beckhoff Control Unit

The multi-touch panel series from Beckhoff offers the greatest possible flexibility: various display sizes, horizontal or vertical orientation, 4:3 or widescreen, built-in or IP 65 mounting arm panel.

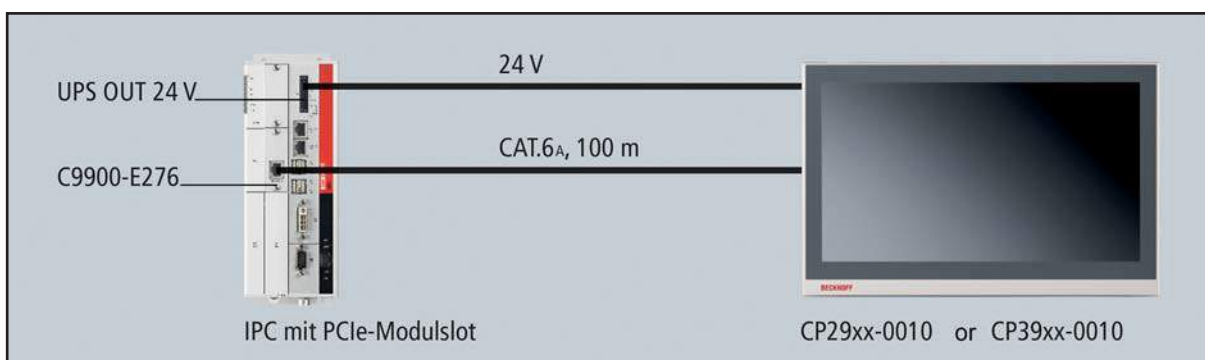
In addition, the panels are robust and industrially compatible thanks to the use of aluminium or stainless steel.

A narrow, circumferential metal impact protector reliably protects the touch screen surface or the display against mechanical destruction.

In addition, all-glass surface offers maximum resistance to environmental influences.



The Beckhoff multi-touch panels with projective capacitive touch screen (PCT) technology feature a high touch-point density, which enables accurate, safe and jerk-free operation even in minute steps. The front of the display is a glass pane with an anti-reflection coating; operation with thin work gloves (e.g. latex gloves) is also possible.



Five-finger touch and automation solutions with 2-hand operation are equally possible. Familiar functions from the world of smartphones and touchpads, such as zooming, scrolling, object turning, flicks etc. are now also usable for industrial applications with the multi-touch devices.

Single-touch mode can be set via the Windows operating system for applications where multi-touch is not required.

Beckhoff supplies the right Industrial PC for every application. High-quality components based on open standards and the rugged construction of the device housings mean that the Industrial PCs are ideally equipped for all control requirements.

# USER-FRIENDLY AND RELIABLE CONTROLLER

Baykal's Windows based 19" new Touch screen controller offers complete solution for any operators with very easy to use interface. It has a graphical user interface that allows any level of operators to simply and fully integrate with the new BLE fiber laser systems.

- Easy to use Baykal made HMI
- Allows to change parameters during cutting process
- One touch menu to reach all machine HMI pages
- Multi-touch part program graphic view
- Safety warnings and graphical diagnostic
- Automatic multiple sheet cutting process
- Extensive cutting parameters database
- Detects errors during cutting process
- Control of laser power on different materials
- Automatic sheet edge detection
- Easy to find every contour using graphic view
- Easy "Block Search" over graphic view



Part Program can be viewed as a graphic; operator can easily check parts before cutting process. Part Graphic can be panned (rotate, spin, reverse, swing) and zoomed.

Each contour block number can be viewed graphically and part program processing can be continued by touching desired block number.

Baykal HMI has an extended database for all kind of materials, this allows to control and change parameters while cutting process.



All cutting variables can be monitored by the operator while the cutting process.

Light curtain and the status of sensor can be monitored.

Operator can easily change the tables manually and automatically.





# LASER CUTTING HEADS

## Precitec Pro Cutter 2.0

The new ProCutter 2.0 generation impresses with its increased performance and new automation features. Faster, easier, more efficient, more enduring – this is how laser cutting is shaping up in the new generation, due to numerous developments.

One of the main reasons for this is the completely redesigned cutting gas flow. In addition, the reliability and power capability has been perfected – up to the maximum laser power of 15 kW. By default, the ability to exchange the nozzles automatically is now provided.

The compact design is maintained, together with the extensive sensor technology, which has been specifically expanded to ensure even safer operation.



## Precitec Light Cutter 2.0 Motorized

Whether for flatbed or bevel cutting systems: The cutting head LightCutter 2.0 is the perfect solution for efficient and cost-effective laser cutting. The new generation of our Light Cutter family is designed for cutting applications in the medium power range up to 4 kW and is characterized by a high cutting quality for all metals - especially mild steel, stainless steel and aluminum.



### *Efficient & Stable*

- Excellent value for money
- Very high cutting speed and optimal edge quality
- Sealed beam path
- temperature and plasma-resistant distance control
- Proven high performance optic

### *Flexible*

- Customized configurations for all applications
- Straight or angled versions
- Different fiber plugs (QBH, D)
- Motorized or manual focus adjustment

### *User friendly*

- Simple setting of focal position in lateral/vertical direction
- Rapid changing of protective glass cartridge (no tools required)
- Additional protective glass in collimation module sleek and sturdy design

100 mm	focal lengths (collimation)
125 mm 150 mm	focal lengths
0.12 at FC100	NAmax
130 x 69 mm	dimensions
from 4.0 kg	weight
-9 mm / +4 mm	vertical adjustment range
25 bar	max. cutting gas pressure

IPG's CUT laser series is developed specifically for demanding cutting applications. Supplied in the smallest form factor available on the market, lasers can be easily integrated within cutting machines. Lasers are packaged in a hermetically sealed cabinet containing an internal dryer, enabling the laser to be used in the harshest of production environments. IPG's CUT incorporates the latest IPG technical improvements including:

- Output Power 1, 2, 3 and 4 kW
- Excellent Beam Parameter Product
- Constant BPP over Entire Power Range
- Small Focus over Large Working Distance
- Wall-plug Efficiency >40%
- Super-compact Size
- Fiber Delivery 50, 100, 150  $\mu\text{m}$
- Internal Dehumidifier
- Modular 'Plug and Play' Design
- Rugged and Easy to Install
- Maintenance-free Operation
- Cost-effective Cutting System



## IPG YLR 1-3 kW Ytterbium Rack-mount Fiber Lasers

YLR Series Ytterbium Fiber Lasers offer a unique combination of output powers (1 kW to 3 kW), ideal beam quality (single-mode or multi-mode), flexible fiber delivery and high wallplug efficiency in near infrared spectral range (1010-1070 nm).

### Features:

- Output Power up to 2 kW
- Multi-mode Fiber Output
- Direct Modulation
- Output Power up to 3 kW
- Excellent Beam Parameter Product
- Constant BPP over Entire Power Range
- Small Focus over Large Working Distance
- Over 40% Wall-plug Efficiency
- Modulation up to 50 kHz
- Maintenance-free Operation
- Compact, Rugged and Easy to Install
- Smallest Volume to Power Ratio
- Wide Range of Beam Delivery Options





**Features:**

- Easy process set-up
- Failsafe processing of highly reflective materials
- Designed for harsh environmental conditions
- Unique service model
- Optional fiber-to-fiber coupler or beam switch

**nLIGHT ALTA High Power Fiber Lasers**

**Improved Cutting and Welding Performance:** By increasing the modulation rate to 50 kHz and decreasing the rise and fall times to less than 10  $\mu$ s, nLIGHT provides the most advanced fiber laser for rapid pierces during cutting and for processing of fine features with minimal heat affected zone.



**Back Reflection Isolation:** nLIGHT's novel back reflection isolation technology allows uninterrupted full power processing of highly reflective materials.

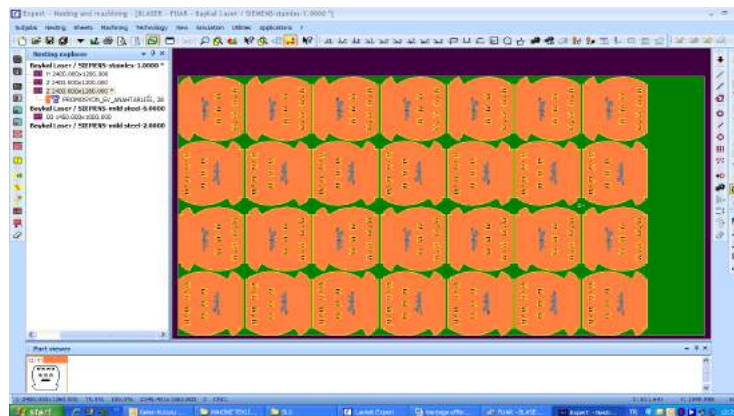
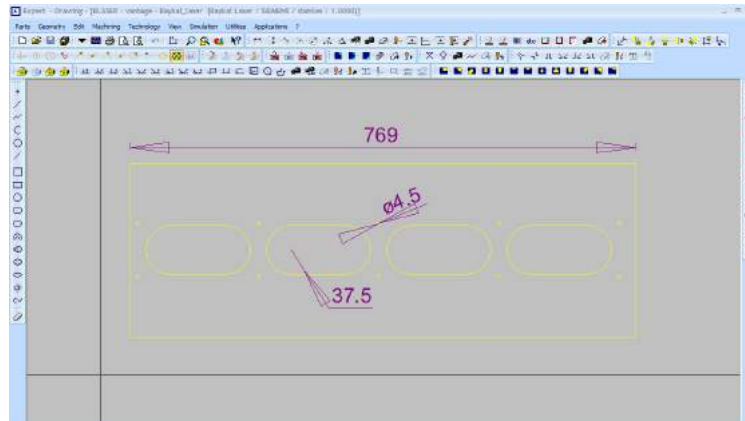
**Design-for-Service:** nLIGHT alta™ incorporates a unique, proprietary fiber laser architecture that enables tool integrators or end users to manage common field service events, resulting in higher machine uptime, lower cost of ownership and an improved customer experience.

The nLIGHT alta™ fiber laser platform is designed and manufactured in the U.S., leveraging nLIGHT's vertically integrated high brightness laser diode and fiber technologies, and is supported through a global sales and service network.

nLIGHT alta™ — the next generation of fiber lasers.

## LANTEK CAD/CAM SYSTEM:

LANTEK CAD/CAM: system is specially designed to automate the programming of sheet metal cutting machines. Lantek software's significant advance is meeting requirements of customers for managing sheet metal work process.



### The system will enable the user to carry out the following tasks:

- Import the parts to be cut in various ways (DXF format, ESSI format, etc.).
- Draw the parts with its user friendly drawing module.
- Import duct figures from other systems by means of ASCII files.
- Freely define the shape of the parts to be cut.
- Arrange all the parts generated on sheets manually or automatically and generate the cutting sequence for each one.
- Print standard or fully customized lists in order to provide estimates, VOB, frames list, delivery notes, workshop sheets, etc.
- Export the results to DXF format, ASCII tables, etc.
- Generate CNC programs automatically to transmit to the machines.

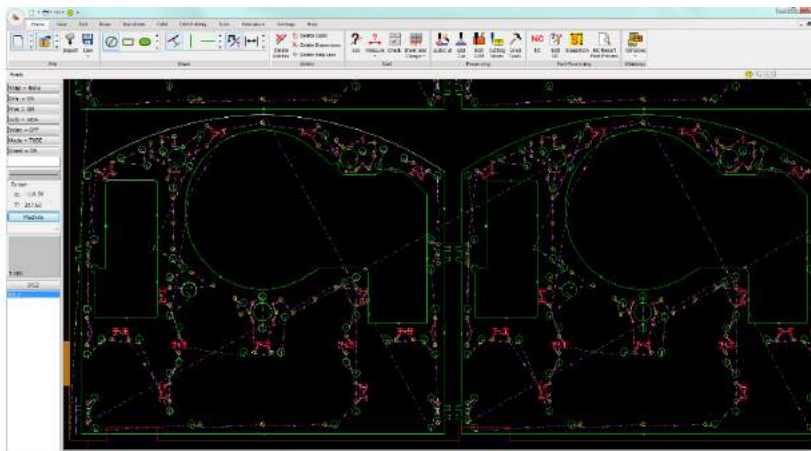
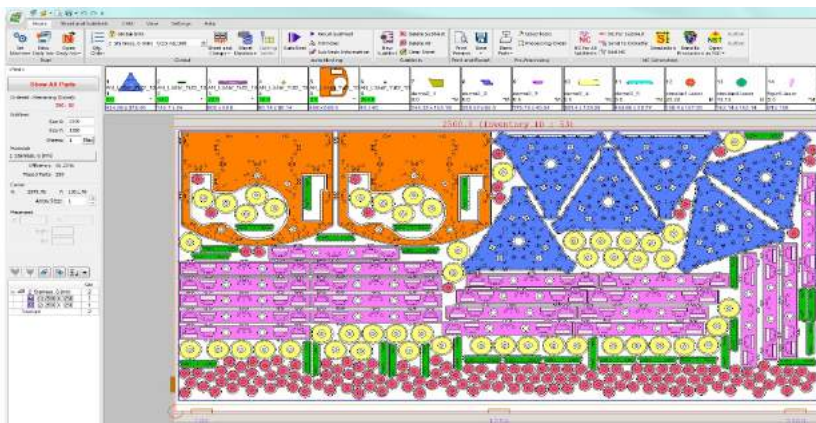


## Advanced CAD/CAM Solutions for the Sheet Metal Manufacturer

M E T A L I X

Metalix offers a full range of CAD/CAM capabilities for CNC punch, laser, plasma, flame and combination machines, including support for sorting and stacking devices attached to your machine.

Advanced technology combines design, automatic and manual processing, automatic nesting, efficient NC generation, graphic simulation, and machine communication (DNC).



**cncKad** is the only system that integrates CAD/CAM capabilities in the same module; geometry, dimensions, and technology (punching/cutting) are completely associative – when the geometry is modified, the dimensions and technology update automatically!

**cncKad** supports a wide range of machines and has a powerful solution for porting parts from one technology or machine type to another, such as from punch to laser.

**cncKad** is affordable and user-friendly, and comes complete with comprehensive documentation and support, for installation through to production.

## **GAS CONTROL AND DELIVERY SYSTEM**

Machine is equipped with automatic gas selection system. Depending on cutting process machine automatically select and adjust pressures of cutting and assist gases.



Low and High pressure Nitrogen, Oxygen and Air cutting and assist gas supply lines are all installed. The innovative SMC gas pressure control system combines the benefits of piezo actuators with precision engineering, electronics, and sensors.

Because of the high gas pressure stability, the SMC gas pressure control valve allows precise cutting edges in consistent quality to be achieved. At output pressures of up to 28 bar, even thick metal sheets can be cut efficiently and in best quality.

## **The Flexibility of Different Materials**

The New BLE Series can process a wide range of material such as Brass, Copper, Carbon Steel, Stainless Steel, Aluminium, Tool Steel and much more. Dependant on Laser Power available carbon steel up to 20 mm in thickness can be processed burr-free with good edge quality.

### **High Productivity for Optimized Costs Per Part**

For the first time ever, excellent cutting results can be guaranteed when cutting thick mild steel.

BLE Series fiber laser guarantees the highest part quality when cutting mild steel, even up to 20 mm thick. This special cutting system produces the highest quality cuts in thick stainless and mild steel. The smoothness and squareness of the cut edge are far superior to a standard cut. No finishing work is required.



## **FUME FILTRATION SYSTEM**

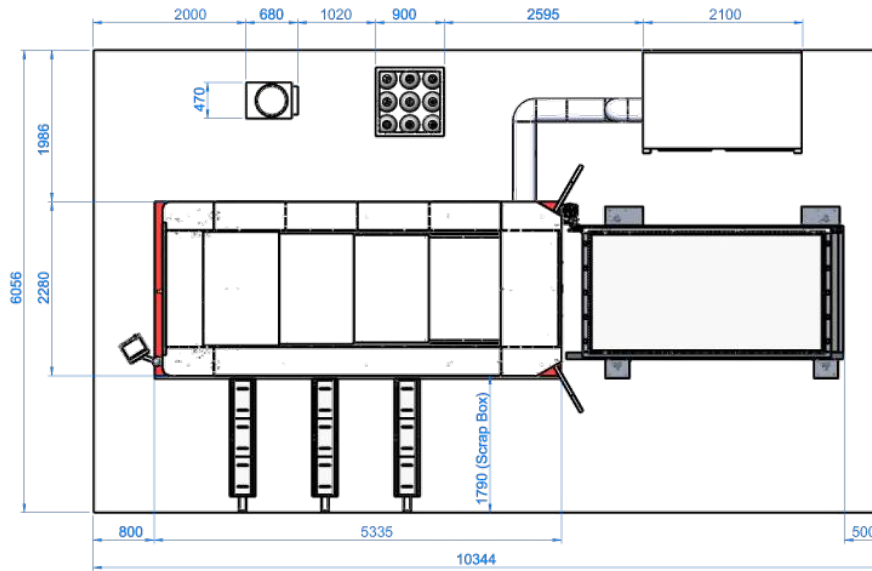
The indoors fumes and dust suction system is a self-cleaning type by mean of compressed air pulse. The dust air enters the filter chamber, in which the heaviest particles fall to the floor and the lighter ones are retained by the external surfaces of the filter cartridge.

The air cleaned as it passes into the cartridge, is sent to the plenum chamber at the top of the filter, through the extraction unit and out to the atmosphere.

An air pulse extraction system is fitted to provide fast, efficient cleaning of the cells.

The system generates a pressure front which runs through the interior of the cell, thus detaching the dust which falls to the floor of the chamber. The machine is equipped with the ducts for connection between the extraction chambers and the fumes and dust extraction circuit.





## TECHNICAL SPECIFICATIONS

MODEL	<b>BLE 1530 PRO</b>
Laser Power	1000, 2000, 3000, 4000, Watt
Cutting Head	Precitec Light Cutter (Optional Precitec Pro Cutter)
Focusing Lenses	150 mm
CNC Control Unit	Beckhoff 19" TFT - Windows 10
Servo Motors	Beckhoff
Rack and Pinion	WITTENSTEIN
Nesting Software	LANTEK Expert Cut II
X Axis ( Rack & Pinion )	3048 mm ( 120" )
Y Axis ( Rack & Pinion )	1524 mm ( 60" )
Z Axis ( Ball Screw )	100 mm ( 3.93" )
Rapid Traverse ( X and Y Axis )	110 m / min
Vector Speed	140 m / min
Acceleration	1.2G ( 12m / s <sup>2</sup> )
Feed Rate	Programmable up to 50 m/min
Absolute Positioning Accuracy	± 0.02 mm
Repeatability	± 0.02 mm
Transfer Table	Motorized - Automatic Exchange
Max. Load Capacity	1000 kg for each table
Automatic Nozzle Cleaning and Calibration	Standart
Fume Extractor	Optional 2500 m <sup>3</sup> / hour

\* Material cutting thickness is dependent on many factors including material specifications, condition and machine parameters. All specifications are subject to change.

MATERIAL TYPE	MAXIMUM CUTTING CAPACITY			
	1000 Watt	2000 Watt	3000 Watt	4000 Watt
Mild Steel	10 mm	16 mm	16 mm	20 mm
Stainless Steel	5 mm	8 mm	10 mm	12 mm
Aluminium	3 mm	6 mm	8 mm	10 mm
Copper	2 mm	4 mm	5 mm	6 mm
Brass	2 mm	4 mm	5 mm	6 mm

## We are Baykal.

Baykal Machinery continues to improve production process with modern production facilities, the latest technology in machinery, computer supported production control systems and qualified workforce.

Our management is implementing experience and innovative of for more than 65 years. Baykal Machinery has maintained being a leader as the first company, which completes computer supported production-management system integration.



This brochure includes photos and descriptions of machines with options that may not form part of the standard equipment supplied, but may be purchased at additional cost. Only our official quotation may be used for a full description of what forms our offer to you. Machine safety guarding may have been removed or partially opened for demonstration purposes in this document. Baykal Machinery reserves the right to make changes without notice to the products and or specifications shown in the brochure.

TS EN ISO 9001:2015 certificated.



Baykal

# Baykal

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