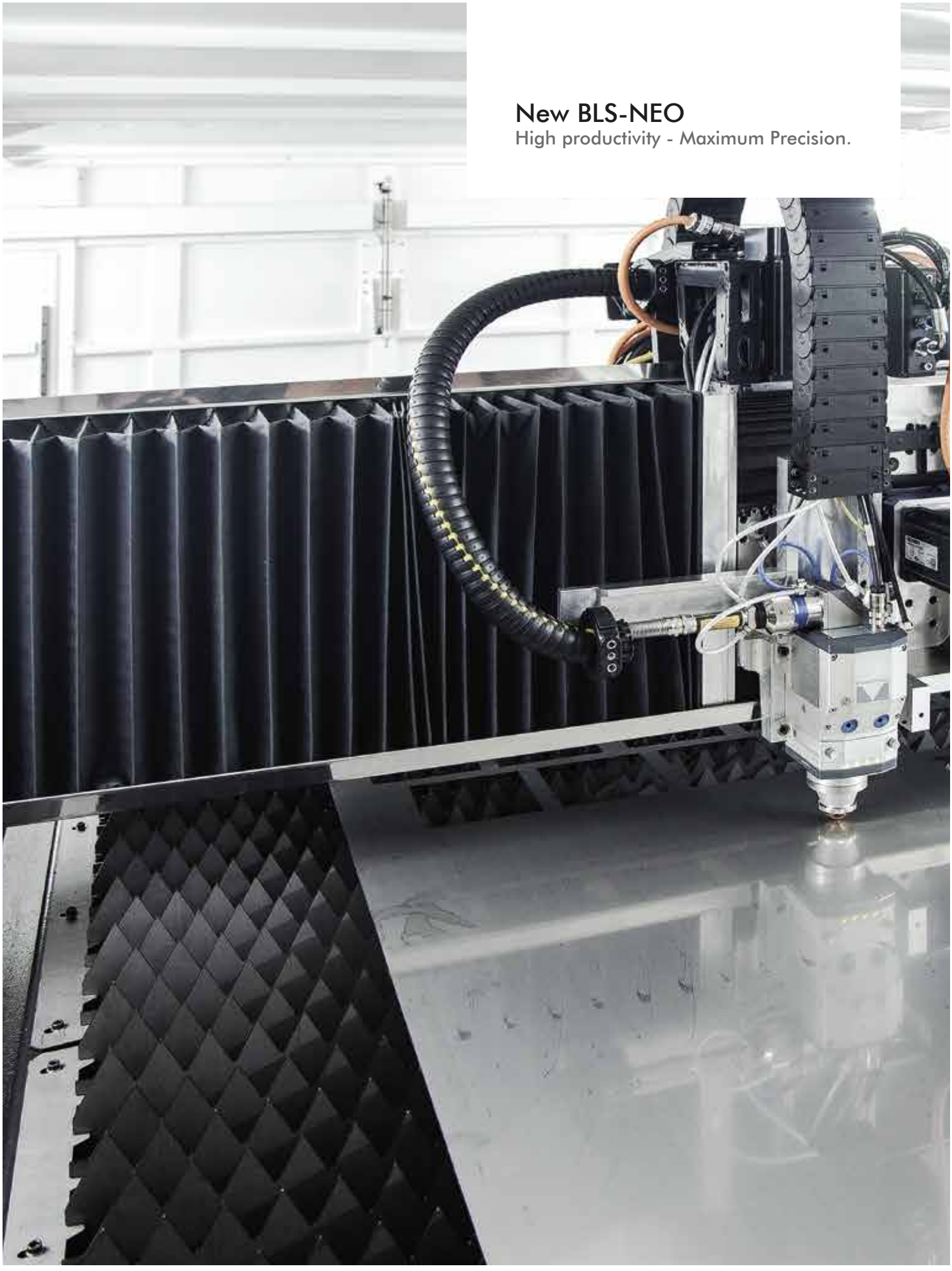
Global powerhouse local solution provider.
baykal.com.tr

Baykal
MACHINE TOOLS

New BLS-NEO

High productivity - Maximum Precision.



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 m² 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.

65 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 it's 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 BLS-NEO fiber laser cutting machine 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.

Cost-efficient manufacturing.

New BLS-NEO can be used with perfect precision that is provided by rack and pinion movement and also operates with a greater speed as compared to CO^2 lasers. In addition, this laser technology offers low costs compared to a CO^2 laser which is brought about by fiber technology.

Impressive cutting solutions.

New BLS-NEO 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 BLS-NEO 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 fibre 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.

Unique features:

- Low investment and operating costs.
- The most cost-efficient solution for every requirement.
- Very easy to operate.
- Quick and easy installation.

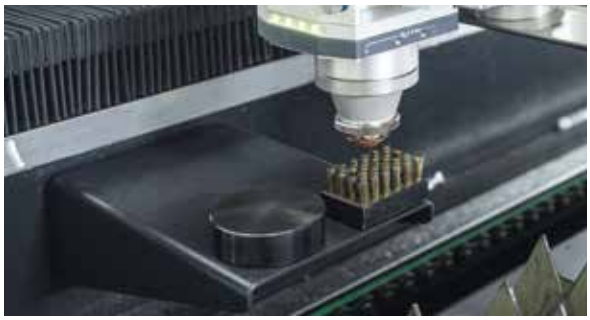
The best fiber laser for you.

New BLS-NEO 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.

Maximum productivity – High acceleration.

New BLS-NEO 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 BLS-NEO 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 capacity utility.

New BLS-NEO, 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.

High performance and high precision rack and pinion system.

New BLS-NEO axis motion system uses new generation high precision and high performance rack and pinion system. This system is ideal for high speed and acceleration; also it is ideal for high cutting speeds, which require performance and accuracy.

Unique features:

- High cut speed.
- High axis optimization.
- Dynamic axis movements.
- Easy to maintain.
- Low energy consumption.
- No need of laser maintenance.
- Automatic cleaning.

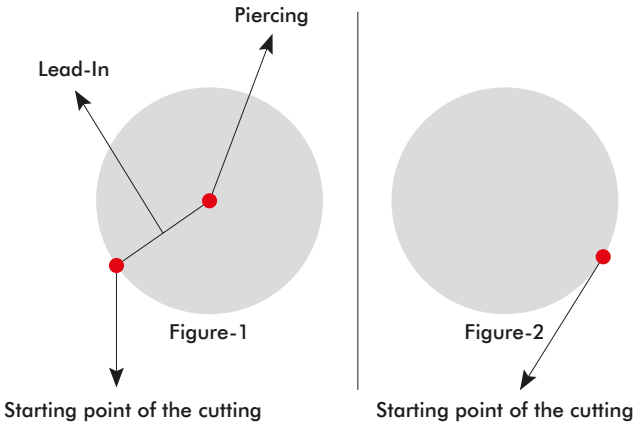
Everything is under control in the first entry.

No-pierce is a faster cutting entry process for some materials. The principle is simply to penetrate the material on the actual contour path as quickly as possible using the highest level of acceptable power.

The average laser power always remains under the foaming limit to prevent uncontrolled burning of material due to the No-Pierce. Consequently, the entrance holes are obtained by preventing the formation of craters.

Time savings compared to conventional piercing can be greater that 50% in thicker materials with the No-pierce option. Total plate processing time is shortened significantly when there are a large number of pieces required.

- Cutting with Piercing and Lead-In. (Figure-1)
- Cutting with No-Piercing and No-Lead-In. (Figure-2)

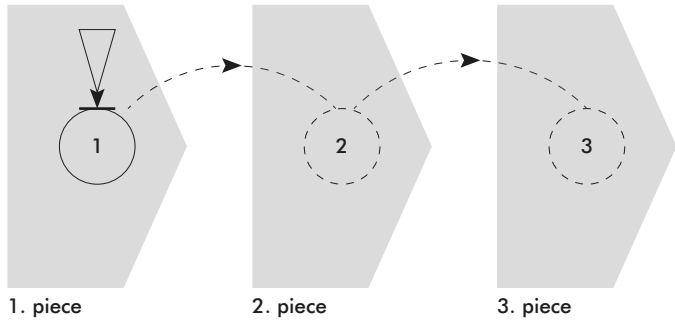


Fly-Cut: Faster processing – High acceleration.

In thin sheet processing with high numbers of holes or penetrations, we recommend you use Fly-Cut technology. The advantage of Fly-Cut technology in thin sheet cutting, i.e. materials up to 1.5mm in thickness is such that you can process material up to 50% faster than conventional piercing routines. This strategy utilises the systems high acceleration in combination with ultra high speed beam switching which allows processing of circular and equilateral penetrations on the fly, with almost uninterupted movement through the contour path.

Unique features:

- High speed beam switching at fixed height with precise positioning accuracy produces very high speed uninterrupted profiling with minimal axis stopping or deceleration.
- The blasting of right-angled separated contours, which are located on plane, to avoid corner processing.
- Speed is reduced in only a very small number of changes in direction.



High level protection.

All fiber laser system enclosures in compliance with CE rules. Thus people, who are working around machines are, protected from laser reflections. This protection is needed on all fiber lasers due to the fiber beam.

Low cost, ergonomic design, flexible processing.

New BLS-NEO is moving the 2D plate cutting to the new levels. Large-sized plates, can be processed in high speeds accurately now.

The machine is available in models from 1500 mm x 3000 mm to 3000 mm x 15.000 mm due to the modular structure of New BLS-NEO. High efficiency can be improved with double-tray loading and unloading systems.

Efficient in all aspects.

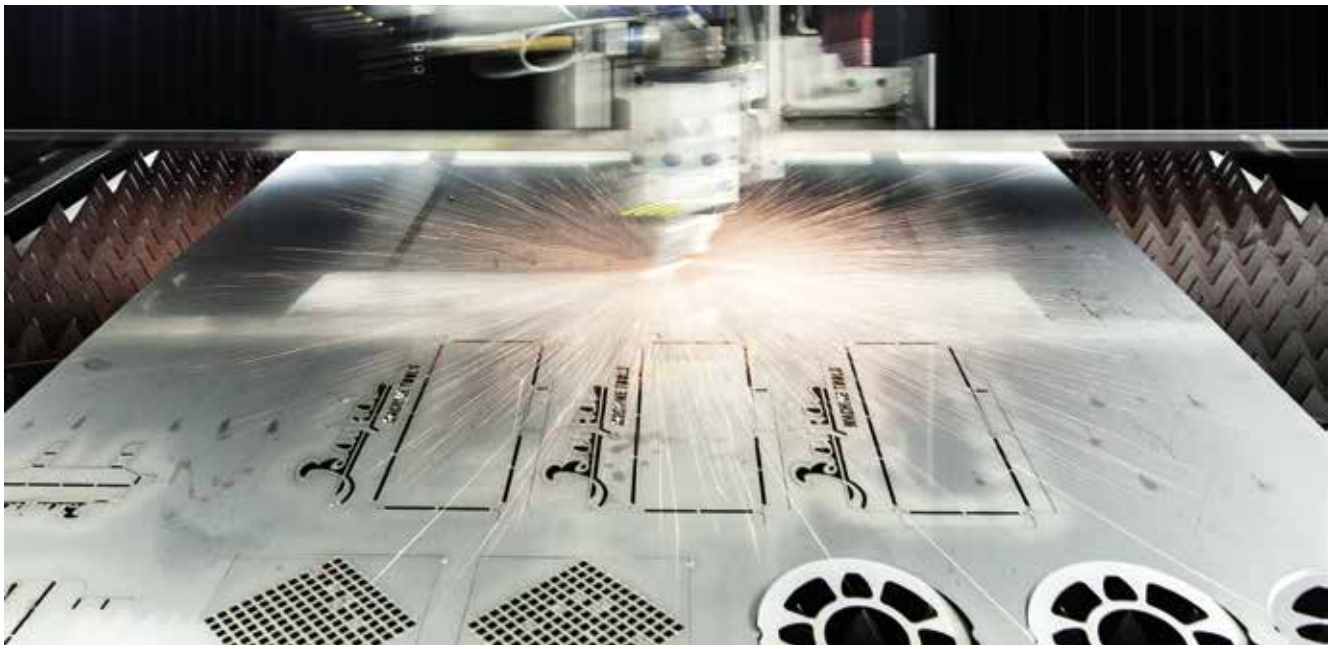
If you want to cut sheet metal up to 4 mm thickness, the New BLS-NEO makes it possible with high speed cutting. You can reach up to 50 m/min cutting speed. This capability can save you time and money while maximizing your production.

High pressure – Perfect contour.

If you are working with stainless steel and aluminum we recommend you use high pressure nitrogen cutting. Cutting with nitrogen at a maximum 25 bar cutting gas pressure will remove the material quickly. It guarantees not only fast cutting but clean cutting without any oxidation no matter how thick your material is.

Auto focusing.

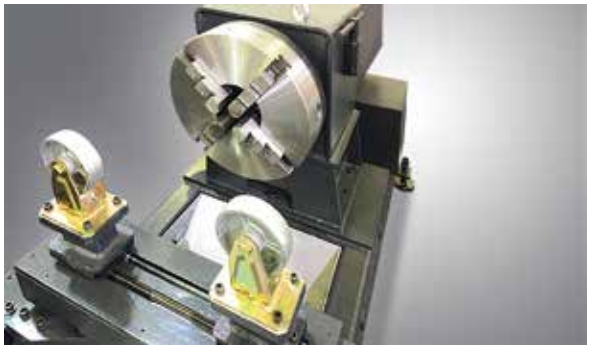
BLS-NEO is now available with a fully CNC Data Base controlled Focal Height positioning system. This system allows accurate, fast and stable in-process control of the focal point. It adjusts automatically according to the selected material from the Database. With full ability to handle varying focal positions throughout the process based on material thickness and pierce routines. It provides automatic motorized lens system, which is adjusted from machine controller and thus providing best cutting results. So you will save time without having to adjust it manually.



2-in-1 on a single machine.

The BLS-NEO can be optioned with high sensitivity tube cutting technology in New BLS-NEO. You will add dimensions dimension to your working processes with tube cutting technology.

It is possible to process square, round or corner profiles in a flexible manner with New BLS-NEO. Tube cutting apparatus with holder and rotator help your work-flow process. New BLS-NEO fiber laser tube cutting machine offers excellent performance with flexible size dimensions and cutting technology without compromising on quality.



Tube cutting – Holder and rotator.

Tube cutting apparatus, which is specifically inserted into New BLS-NEO, offers great advantage to you in your cutting processes. The CNC controlled chuck is fully syncronised with the axis movement to provide seamless part cutting through complex contours and geometry. All you need is to prepare the profile and to press START button.

Do not waste time to start cutting.

New BLS-NEO comes into prominence with not only the efficiency and compactness, but also due to the highly integrated Material Data Base features along with processing features such as Auto focal control, provides for minimal setup and job change over time. The level of process automation offered to the user guarantees simple usage and functionality. All you need is to begin cutting immediately.

Unique features:

- Ideal for large and long steel cutting.
- High speed linear drives.
- Rapid discharge of scrap with conveyor system.
- Quick and easy installation.

Flexible machine dimensions.

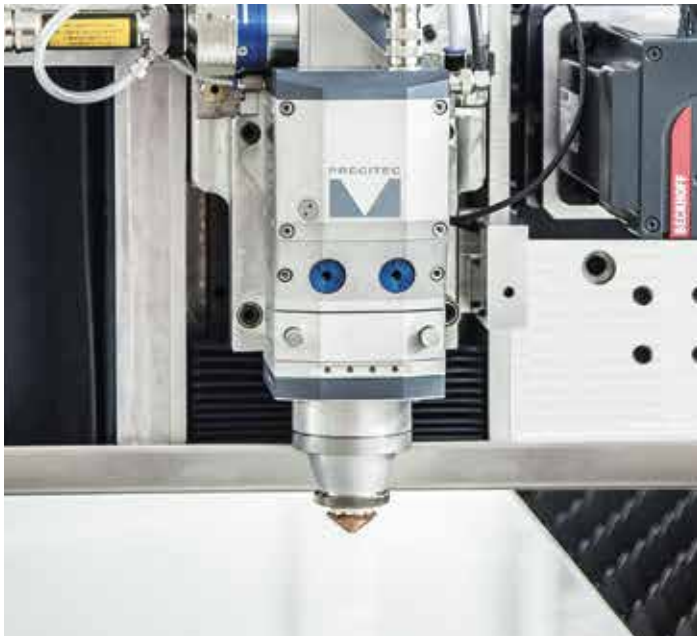
Baykal offers solutions to ensure every possible advantage for your production. From the standard 3 meter to our amazing 15 meter cutting bed systems such as our BLS-F we can cater for all your cutting needs from the smallest of parts to the largest. Your production processes can be further enhanced by utilising our linear drive system options providing the highest level of performance. All systems can be optimised further if required with addition of our conveyor systems allowing easy dross, scrap and small part removal.

User-friendly and reliable controller.

The multi-touch panel series from Beckhoff offers the greatest possible flexibility. 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.

The cutting head for every task.

Dynamic laser cutting machines require lightweight, intelligent cutting heads. Even installed in the smallest possible space, the ProCutter offers a fully-integrated sensor system that monitors the cutting process and provides the user with relevant information. The head ensures that each component can be reproducibly manufactured at a high standard of quality.



Unique features:

- Lightweight and slim design created for fast acceleration and cutting speed.
- Motorized focus position adjustment for automatic machine setup and piercing work.
- Drift-free, fast-reacting distance measurement.
- Permanent protective window monitoring.
- Straight and angled design versions adapted to the machine concept.
- Completely dustproof beam path with protective windows.
- LED operating status display.
- Display of operating parameters via Bluetooth® and interface for machine control.
- Pressure monitoring in the nozzle area (gas cutting) and in the head.

Choose the best for your business processes.

You can optionally select HP SSL 1.5 "M or LightCutter cutting head for thin sheet metal cutting in New BLS-NEO. Stainless steel and aluminum can be cut with the best cutting quality to a gauge of 5 mm, mild steel to 10 mm. HP SSL 1.5 "M and LightCutter cutting head is recommended for 500 W, 1 kW and 2 kW BLS-NEO.

HP SSL 1.5 "M cutting head.

LightCutter cutting head.

The flexibility of different materials.

The New BLS-NEO 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.

Perfect combination.

High technology laser quality components, which has proved its quality worldwide, are used in New BLS-NEO. Machine offers confidence to the user with high cutting quality and extensive spare part supply. New BLS-NEO is a unique harmony of the perfect combination.

High productivity and flexibility.

Fiber lasers produce a beam in 1070 nm wavelength, which is an excellent light quality for laser cutting. Wavelength, high power capacity, good light quality, a wide range of cutting, stable power output and small focus thickness provide optimal laser light for many cutting applications.

Unique features:

- Extremely reliable.
- High efficiency and flexibility.
- Minimum operating expenses.
- Simple and safe operation.
- Low power consumption.
- Modular design with ergonomic use of space.
- Long operating life.

Chiller: Water cooler.

It helps to cool components between the laser unit and cutting head. It works with a water-based cooler. It collects heated water in the cutting head and laser unit with recirculation and cools water up to 22° and sends it back again to the cutting head and laser unit.

Unique features:

- Extremely reliable.
- Easy integration.
- Simple and safe operation.
- Modular design with ergonomic use of space.
- Long operating life.

Perfect and safe extraction.

The fume and dust extraction system is a self-cleaning type by means 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 is 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.

Unique features:

- Provides a healthy working environment by absorbing small particles and smoke generated during cutting.
- For higher extraction performance BLS-Neo systems are fitted with CNC controlled zoned fume extraction. Providing maximum performance to where ever the cutting head may be on the bed.

Compact, easy to operate, reliable and precise.

New BLS-NEO offers lower capital investment with lower operating costs. In addition, it offers the best solution with its compact structure to customers, who have a lack of space. New BLS-NEO impresses you with a unique cutting quality within the first minute of cutting process.

Unique features:

- Fast loading and unloading.
- Optional flexible shuttle table sizes.
- High-position control.
- Continuous cutting with moving shuttle table.

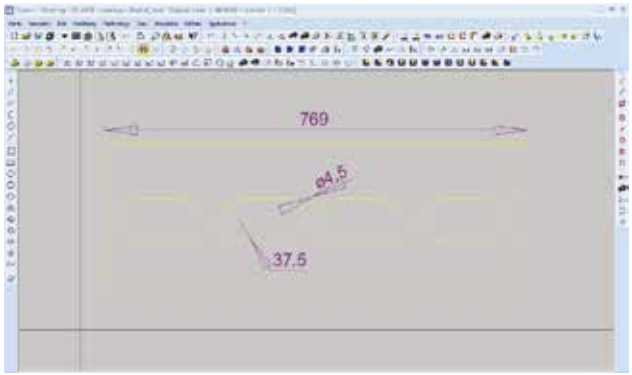
Continuous cutting solutions.

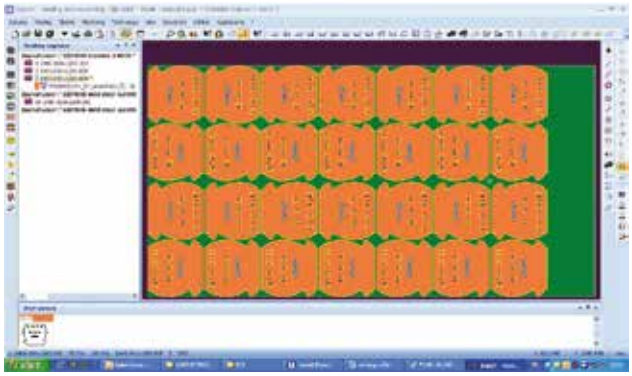
New BLS-NEO has a double cutting table, which has automatic action that hydraulically moves up and down. Loading and unloading time has minimal effect on cutting process of machine and unloading process can be done during cutting process. So, the production time can be considerably reduced.

Flexible – Perfect software.

Expert Cut is CAD/CAM system, which was designed specifically to automate the programming of sheet metal cutting machines (oxy-cut, plasma, laser, water jet). It is the product of 20 years experience in close cooperation with manufacturers and users. It perfectly combines the machine technology with programming and management requirements of customers.

Lantek Expert Cut has a design, which is sufficient for users to follow the steps that system shows. System provides easy and efficient working capability for users via this software.





Unique features:

- Easy to learn. Tutorial guide.
- All the options of Lantek Expert are fully integrated in one single program: designing a part, importing, nesting (automatic or manual), generating the cut (automatic or manual), generating the CNC etc. will be achieved from the same program without switching.
- Production Management Processes: Lantek Expert is ready for connection to production management systems (ERP) by means of automatic processes.
- Teamwork: Available for operation as a stand alone productivity cell, or as part of a network system.
- Part Management and sheet store with open databases: All part info is saved and organized in databases so that users can easily locate the part and sheet required. The remnant automatically generated by the system is saved in the sheet inventory like any other sheet metal and can be used for future jobs.
- Large library of parametric parts.
- Calculation of real time and cost: Lantek Expert calculates cutting time and cost of the entire sheet. Taking into account the number of piercings, the cut length, the mark length, the material costs, the hourly machine rate, the cost of consumables are based on the machine data.
- 2D design. Lantek Expert includes advanced options for geometry and editing.
- 3D design. Unfolding. (Optional). Lantek Flex3D is a 3D design module which enables to design three dimensional parts and then unfold them automatically. The result is a part unfolded in 2D, which goes directly to the Lantek Expert database, ready for machining.
- HVAC and DUCT (Optional). Lantek Expert has a module for calculating HVAC and DUCT parts. An extensive library of figures is available.

CAD design.

The drawing module provides for a strong and capable base to make 2D dimensional part drawing. This module offers a wide range of technical drawing skills to the user. There are 10 different ways of drawing even a simple circle. It can easily perform special applications, which are ready for complex shaped parts as sheet metal manufacturing based CAD module.

The most efficient production.

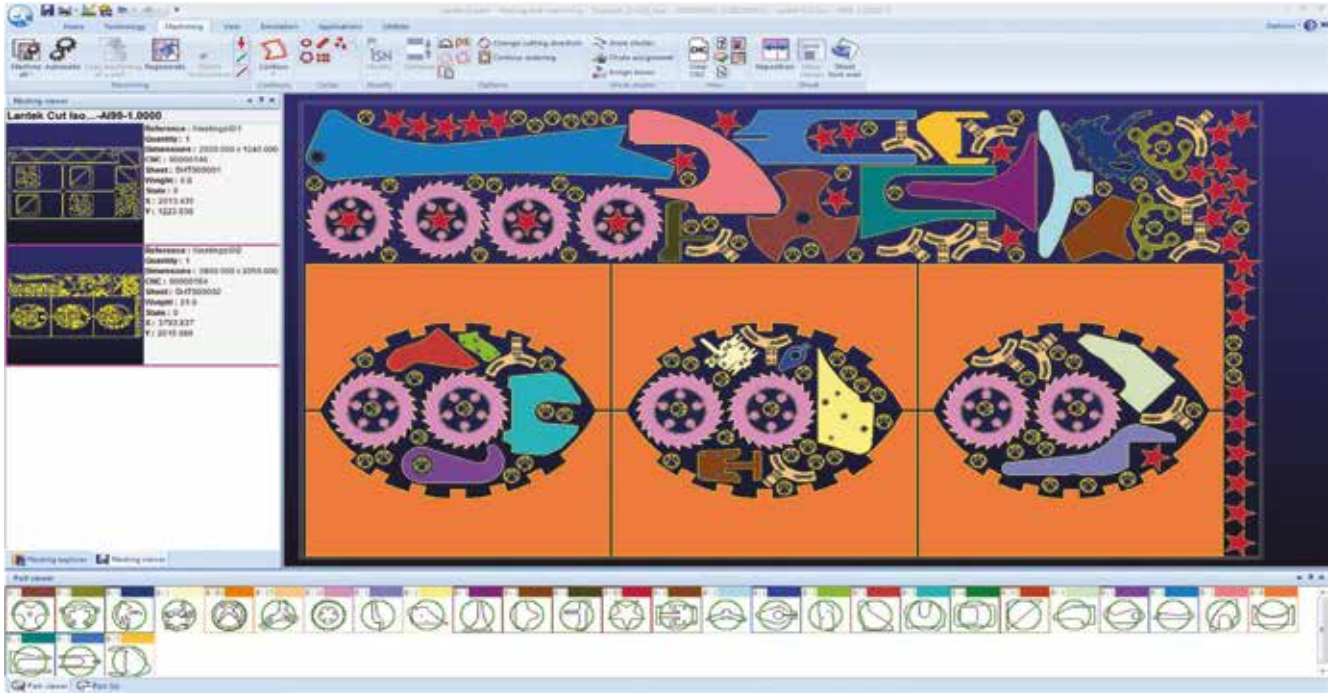
This module provides accurate and efficient placement on the plate and guarantees the most appropriate processing order.

Automatic nesting.

- Perfect flexibility and maximum performance of manual and automatic nesting.
- Perfect combination of automatic and semi-automatic nesting process with powerful manual placement process such as copy, move, rotate, align, etc.
- Lantek Expert automatically nest the parts on the plate in the best possible way.
- Also, Lantek Expert can nest easily on remnants or dropouts. Borders can be defined for remnants, as for the plates.

High technology.

- Lantek Expert Cut makes it possible to configure and manage the entry exist types for different internal and external contours.
- Common cutting can be done between different parts or between two parts with micro connection and pre-cutting.
- Detects errors in the design and processing.
- Lantek Expert Cut has features of automatic entry-exit for any kind of machine, manual and automatic cutting, cutting copy, customized configuration of the machine and separate post processing for each machine.



Customized to meet your individual needs.

The BLS-NEO can be optioned to any level to suit your needs. You will get more efficiency and more time while making more efficient cuttings with the choice of 500 W, 1 kW, 2 kW, 3 kW, 4 kW and 6 kW resonators. In addition you can also reduce production costs by benefiting from automation solutions.

Type	Maximum cutting capacity				
	1 kW	2 kW	3 kW	4 kW	6 kW
Mild steel	12 mm	15 mm	18 mm	20 mm	25 mm
Stainless steel	4 mm	8 mm	10 mm	12 mm	20 mm
Aluminyum	3 mm	6 mm	8 mm	12 mm	20 mm
Copper	2 mm	3 mm	4 mm	6 mm	8 mm
Brass	2 mm	3 mm	4 mm	4 mm	8 mm

New BLS-NEO: Standard equipment.

- High performance and high accuracy rack and pinion system.
- Beckhoff CNC.
- Motion system 1525 x 3050 x 100mm
- 2 kW fiber laser.
- Water chiller.
- Fiber optic beam delivery system.
- Windows 7 operating system.
- 360 degree rotating ergonomic machine control panel.
- 19″ TFT color monitor.
- 260 GB Program data storage.
- Transfer tables (dual palette) hydraulic lift (integrated drive system).
- Programmable high pressure air / Nitrogen gas selection 1.. 25 bar.
- Advanced precitec cutting head (with air cross blast).
- 125″, 150″, 175″ and 200″ lenses.
- Lens protective window.
- Auto nozzle cleaning and calibration.
- Standard fume extraction system.
- Parts debris drawers.
- Lantek CAD/CAM system.
- In built safety systems (light guards & full enclosure as standard).
- CE Compliance.

Type	Width	Length	Height	Cutting Width	Cutting Length
	mm	mm	mm	mm	mm
BLS-NEO 3015	6550	10500	2250	1500	3000
BLS-NEO 4020	7050	12500	2250	2000	4000
BLS-NEO 6020	7050	16500	2250	2000	6000
BLS-NEO 4030	8050	12500	2250	3000	4000
BLS-NEO 6030	8050	16500	2250	3000	6000
BLS-NEO 8030	8050	20500	2250	3000	8000

Model	BLS-NEO 3015 / 2kW
CNC Control Unit	Beckhoff CNC
X axis (Rack & Pinion)	3000 mm
Y axis (Rack & Pinion)	1500 mm
Z axis (Ball Screw)	100 mm
Work piece dimensions	1525 x 3050 mm
Rapid traverse (X and Y axis)	105 m/min
Acceleration	1.5G (15m/s2) / 3G with linear drive
Vector speed	148 m/min
Absolute positioning accuracy	± 0.08 mm
Repeatability (X and Y axis)	± 0.03 mm
Feed rate	Programmable up to 50 m/min. Actual feedrate depends on material and thickness.
Programmable assist gases	Closed loop CNC control of the following gases
	Air 0-6 Bar Oxygen 0-6 Bar High Pressure (Typically Nitrogen) 0-25 Bar
Focusing lenses	125”, 150”, 175” and 200” lenses.
Transfer table	Motorized - Automatic Exchange
Max. load capacity	2450 kg
Fume extractor	4000 m3/hour
Laser power	2 kW

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 64 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 9001:2008 certificated.

Organize Sanayi Bölgesi, Lacivert Cad. 2.Sk. 1/A 16140 Nilüfer, Bursa / TURKEY
T: +90 224 294 77 00 - F: +90 224 243 12 86 - **baykal@baykal.com.tr**

facebook.com/baykalmachine twitter.com/baykalmachine youtube.com/baykalmakine instagram/baykalmachinery

Baykal
MACHINE TOOLS