

Bradma[®]

Automating The Future

LASER MARKING SOLUTIONS



Forbes & Company Limited

INDUSTRIES WE SERVE



MANUFACTURING & SALES NETWORK

AURANGABAD

Chikalthana

- Carbon Steel Taps
- Dies
- Solid Carbide Tools
- High Speed Steel Taps



WALUJ

- Spring Washers
- Advance Marking Systems
- Industrial Automation



CHANDIVALI (MUMBAI)

- High Speed Steel Taps
- Tungsten Carbide Rotary Burrs

★	7 Sales Offices, 36 Sales & App Engg.
●	14 Resident Engineers

CONTENT



13

PORTABLE INTEGRATIVE FIBER LASER MARKING MACHINE



14

PORTABLE FIBER LASER MARKING MACHINE



15

HANDHELD FIBER LASER MARKING MACHINE



16

DESKTOP FIBER LASER MARKING MACHINE



17

MOPA SERIES LASER MARKING MACHINE



18

WHOLE SEALED FIBER LASER MARKING MACHINE



19

FIBER LASER FLY MARKING MACHINE



22

PORTABLE CO₂ LASER MARKING MACHINE



23

NON-METAL CO₂ LASER MARKING MACHINE



24

CO₂ FLY LASER MARKING MACHINE



25

LARGE SIZE CO₂ LASER MARKING MACHINE



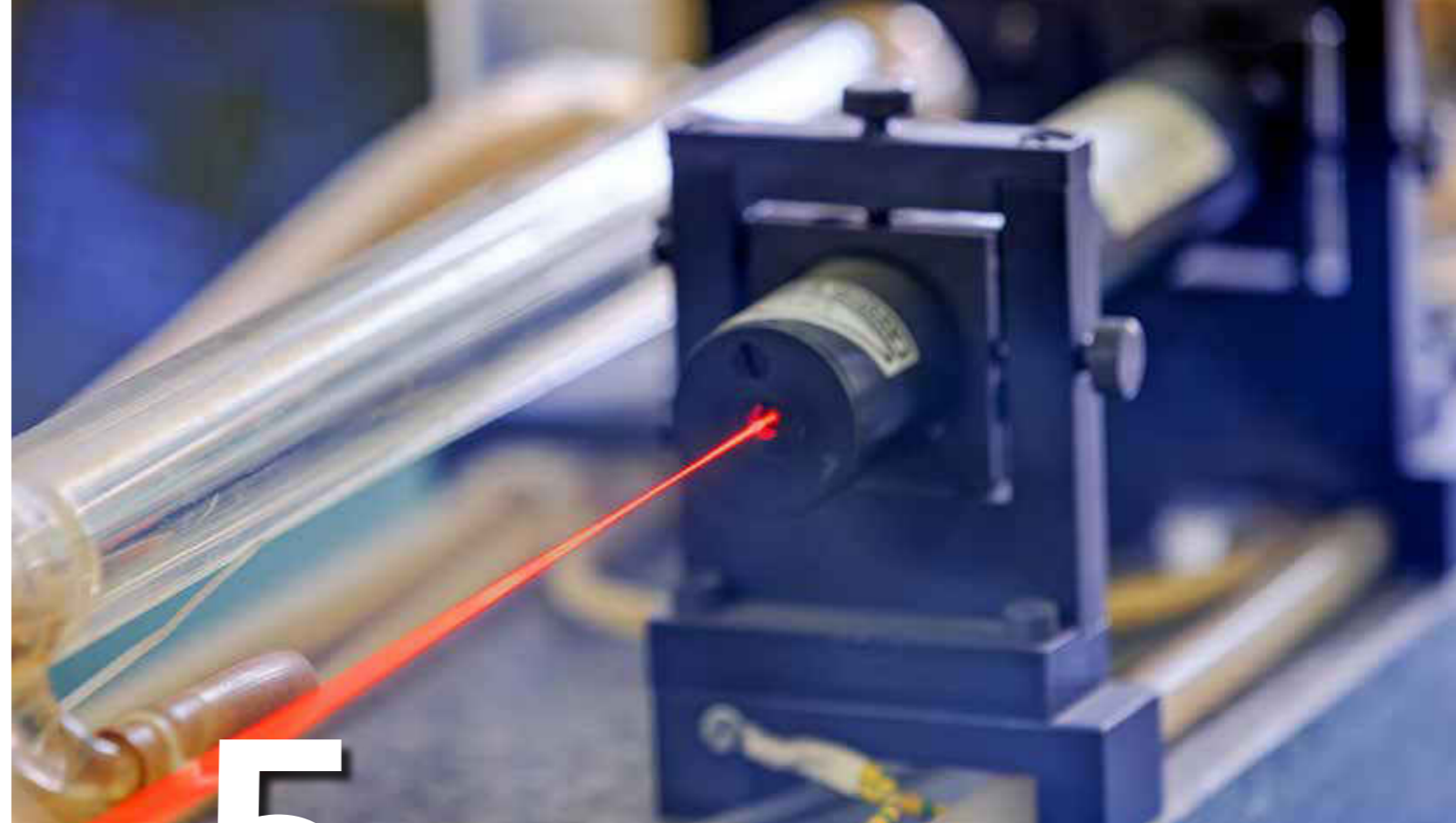
26

UV LASER MARKING MACHINE



27

JEWELRY LASER MARKING MACHINE



5 Simple Things, Why Bradma?

SIMPLE PLANNING

At the outset of a marking process, there are many questions. We find the right answer to every one of them. Not only do we have a large selection of lasers, we also supplement your projects from conception to realization with a full range of services and service packages, such as our Laser Application Centres with their industry-specific application experience or our practical on-site service.

SIMPLE INTEGRATION

With Bradma's wealth of experience, you do not have to make compromises with Lasers. Whether you are interested in precisely defined user interfaces, embedding lasers in production processes, linking databases, or other technical features, we provide you with advice and support to help you integrate your new laser marker into production. The goal is to install it with a minimum of fuss and put in place workflows with minimal interruption.

SIMPLE PROGRAMMING

Only a short training is needed instead of extended software studies. Whether inscribing, inserting variables, or drawing, Bradma software solutions help you to use the full potential of your machine quickly and easily. With our no-fuss easy to use programming and a wide variety of features, inscription files are adapted to your individual requirements and needs.

SIMPLE OPERATION

All Bradma lasers are simple, safe, precise, and easy to learn how to operate. The reason for this is their intuitive operating concept. While its numerous features are designed to meet the full range of everyday requirements, application remains simple, and additional control mechanisms ensure ease of operation.

REAP THE BENEFITS, IT'S AS SIMPLE AS THAT

Bradma makes highly profitable laser marking easier than ever before. With a flexible variety of applications and reliable service support from Bradma, you are ideally equipped for all your future needs. And last, but not least, the high quality pays dividends with consistent use, making it an extremely sound investment

Benefits of Laser Marking

- Economical, due to high processing speeds.
- High quality and reliability.
- High flexibility and individualization.
- Permanent traceability.
- Material processing that is gentle on the part.

A Quick and Flexible Route to Perfect Results.

Laser marking is the method of choice for those looking to create precise, permanent markings – even in difficult-to-access areas – using a fast, flexible process. Innovative solutions from Bradma make programming easy and enable you to inscribe information on workpieces as part of your production setup. The permanence of laser markings ensures optimum traceability. Moreover, there are several advantages to non-contact marking, such as environmental compatibility, low material stress, and low costs due to the absence of tool wear.

Marking Processes and Materials.

In laser marking, the laser beam interacts with the material in different ways, which produces changes in the material surface. Typical marking processes are engraving, ablating, and annealing metals as well as colouring, ablating, and foaming plastics. The laser also has several advantages when marking labels, ceramics, glass, silicon, and inorganic materials. In principle, it is possible to laser mark any material. Bradma lasers create every kind of marking, from functional, technical inscription to fine ornamentation. In addition to marking, however, Bradma lasers are also used for creating functional layers, cleaning surfaces, and structuring

Bradma Laser Application Centres.

Perfection is standard at Bradma. Our service starts before you have even decided to purchase a Bradma laser. We have application laboratories at Aurangabad, Maharashtra, India, with highly qualified engineers and state-of-the-art demo lasers. Just send us sample parts and your specific requirements, such as what markings you want, your quality specifications, etc., along with how much time you have available for the process. We will get to work on it for you. We carry out tests with lasers from our diverse product range and offer you a selection of possible marking qualities and processing times, along with the corresponding process parameters. You can compare the alternatives at your leisure and choose the combination that is best for you. In addition to application tests and process development, we also offer machine demonstrations in our application centre.

Your Marking Project with Bradma

You Supply

Sample parts

A description of the markings
(logo, test, data matrix, etc)

Constaints

(process duration, parts handling manufacturing environment, etc)

We Calculate

Optimum marking time

Different qualities for you to choose from

The best laser and/or workstation

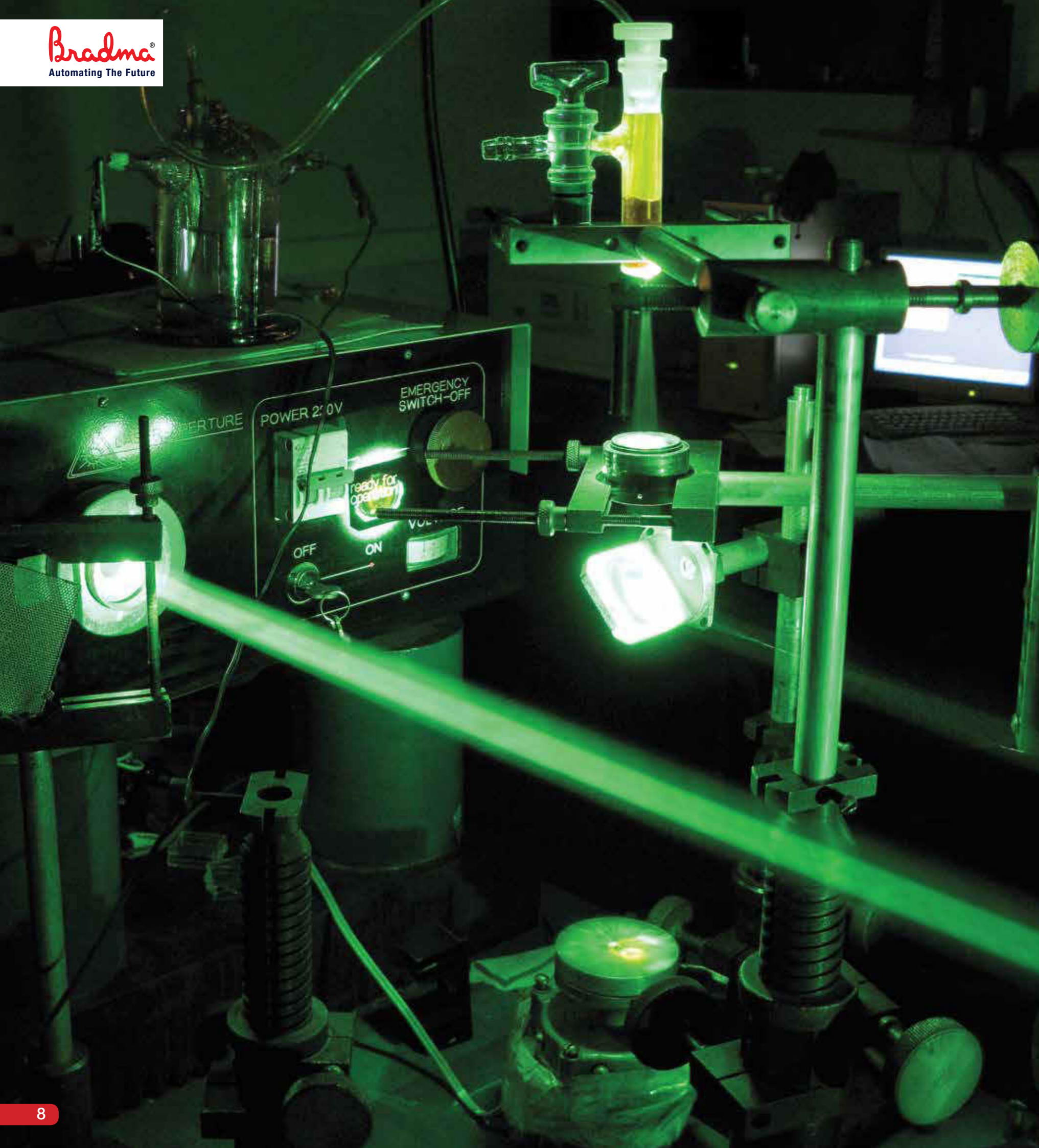
Ideal process parameters
(marking process, wavelength, performance parameters, etc)

We also offer

Personal participation
in laser tests for fine tuning of results according to your particular needs

Installation

Training, maintenance contracts, service



FIBER LASER MARKING

The high quality, durable and flexible BFL-Series fiber lasers from Bradma are most suitable for wide range of applications. The state-of-the-art design of the laser with high speed digital galvo scanner and worktable allows variety of applications to accommodate. BFL-Series lasers are designed for high resolution and high speed marking applications. We emerge to accept the challenge of cycle time. The robust mechanical and optical design of the BFL-Series Lasers without any chiller enables operations in industrial environments where shock, vibration and dust are concerned. The BFL-series lasers are completely air cooled, very compact, easily integrated and require negligible maintenance. The salient feature of BFL-Series lasers is they can be used effectively for the Fly-Marking-Applications (FMA) and support for high volume applications. The BFL-Series offers distinct advantages over other solid state lasers due to its superior beam quality, providing smaller focused spot sizes and a longer working depth of field than competing lasers. The BFL-Series lasers provides the strength to tackle metals such as Stainless Steel, Cobalt, and Titanium, as well as provides the high marking speeds required for Fly-Marking-Applications (FMA). It also has the ability to do fine detail work, marking delicate materials like plastics, foils, and labels. It produces superb annealed marks that stand up to the harshest of tests, high resolution 2D codes.

The BFL-Series Lasers adopt cooling system, Compact Machine dimensions, High quality light beam, stable equipment performance, Consumable free, long using time, lifetime maintenance free, The latest international design, reliable structure, low power consumption, without high voltage so that no need large water cooling system, High quality laser beam, closed to the ideal beam, USB output control, optical scanning mirror, high laser repetition frequency, high speed without distortion.

- High electro-optic conversion efficiency
- Low power consumption, stability laser output
- High quality beam, consumable free, small machine dimension
- smaller output laser beam, finer marking line. Suitable high precision marking.

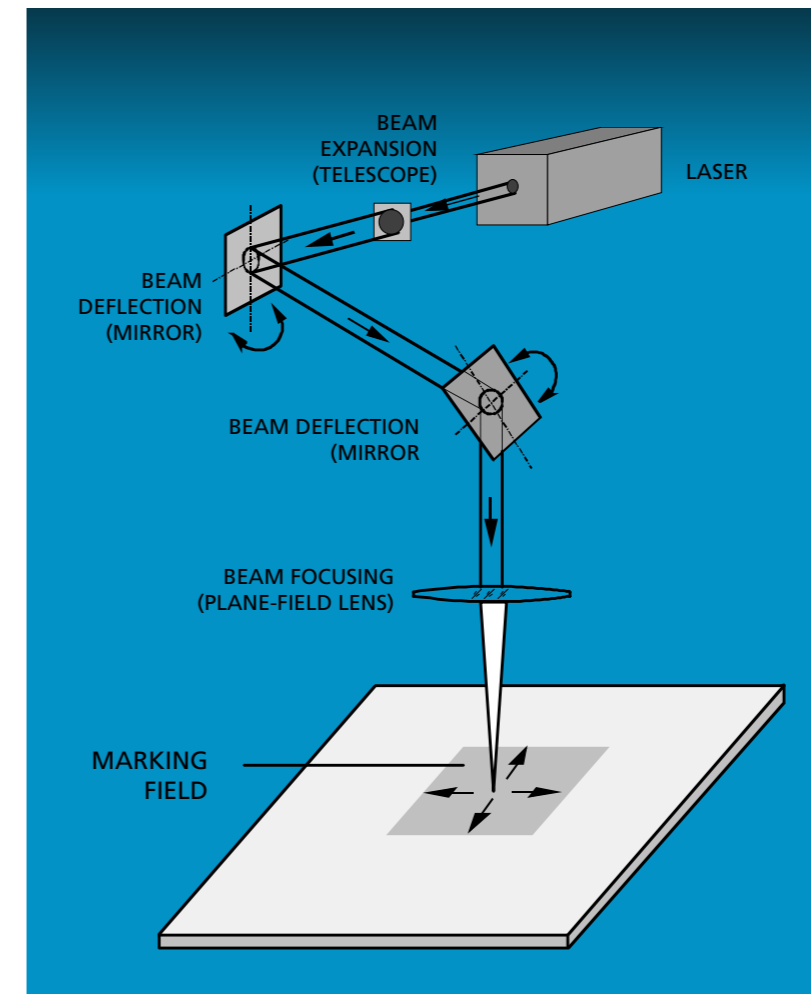
It is widely used in electronic components, hardware industry, electronic components, daily consumer goods, sensors, auto parts, 3C electronics, artwork, precision apparatus, craft, medical machinery, high-low electric, bath industry, battery industry, IT industry etc.

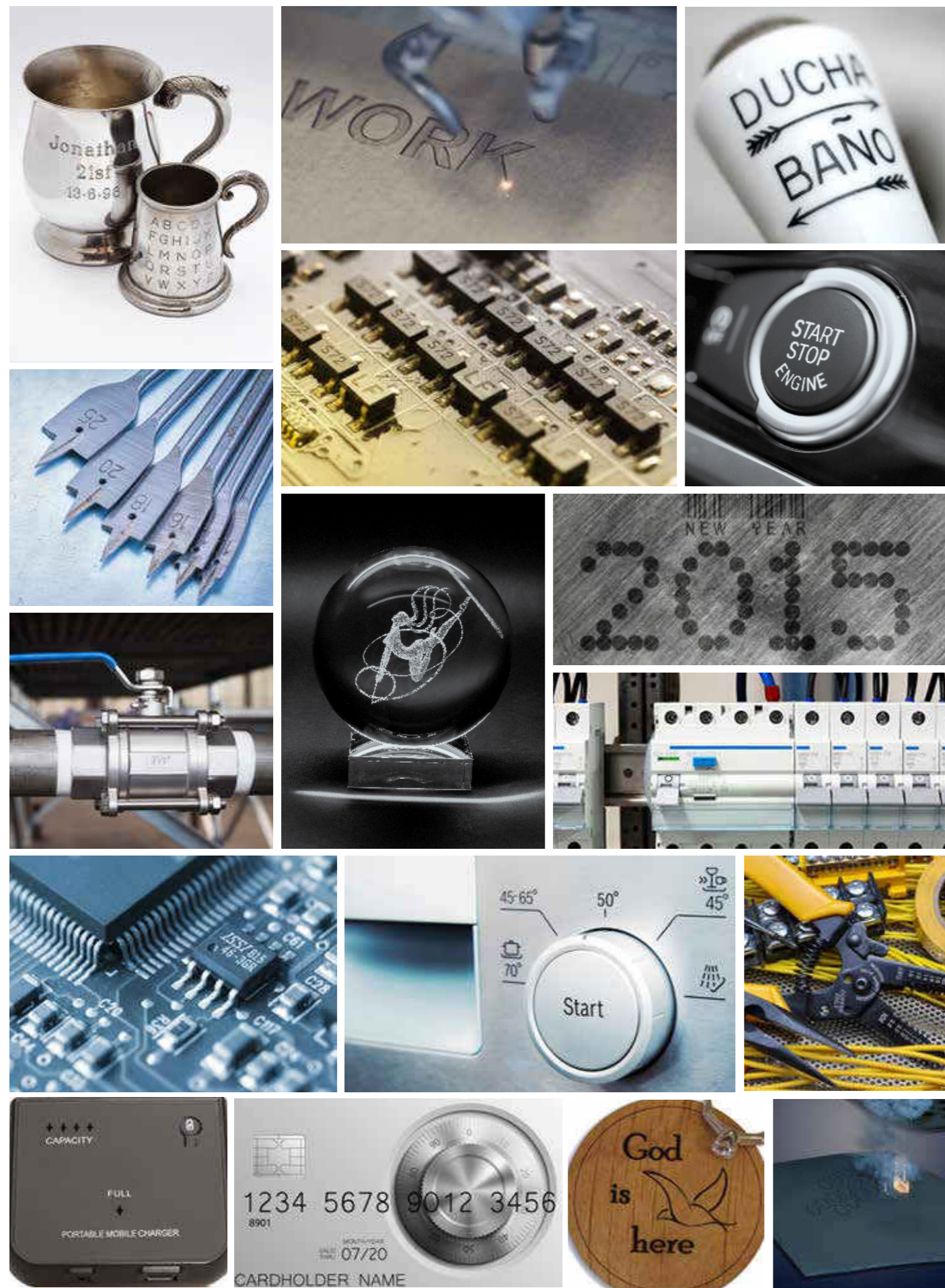
FIBER LASER SPECIFICATION

Item	Type Model	Small spot	Standard	Wide area	
		BFL-20	BFL-30	BFL-50	
Work Distance		179mm(±0.8mm)	252mm(±1mm)	420mm(±2mm)	
Marking Field		110mmx110mm	150mmx150mm	300mmx300mm	
Scanning Speed Max		7000mm/sec			
Line Speed Max		120m/min			
Average Output		20W			
Ambient Temperature		0 to +40°C (No condensasion or frost)			
Ambient Humidity		35 To 85% RH (No condensation or frost)			
Marking Method		Galvanometer scanning method			
Marking Laser		Ytterbium pulsed fiber=1064nm,Laser class 4			
Guide Laser		Semiconductor = 660nm,Laser class 2;1mW			
Array of Character		Straight line, proportional arced			
Type of Character		Capital & small haracters,numerals,symbols,true type fonts,user defined fonts.			
Bar Codes/2D Codes		CODE39,CODE128,ITF25,EAN,UPC,PDF417,MICROQR,QRCODE,DATA MATRIX.			
Logos Graphics		DXF,BMP,HPGL,JPEG,AI*,SVG.			
Cooling Method		Air cooling			
Supply Voltage		90 To 264VAC, 50 Hz-5A			
Power Cosumption		200W			
Inputs		Remote, Encoder, Emergency, Trigger.			
Outputs		Power supply (+24V),remote,marking ready,marking busy,marking complete,error.			
Communication Ports		RS 232,DIGITAL I/Os,Ethernet.			
Marking Condition		Static & marking on the fly.			
Function		Arc Marking. Current Date Time Marking. Expiry Date Marking. Logos Marking. Bold Marking. Batch Marking.	I/O Monitor. Common Character Setting. Rotory Marking. Auto Z Adjustment. Font Selection.	Guide Laser. Power Speed Setting Per Line/Logo File. Serial Data Processing & Marking. Multilayered Marking. Back Up.	Various Processing Function. Dual Pointer. Marking Time Measurement. Marking on Moving Objects.
Weight of Head		11Kg			
Head Dimension		L - 621 mm, W - 96 mm, H - 109 mm			
Controller Weight		25 Kg			
Controller Dimension		L - 450 mm, W - 380 mm, H - 209 mm			

ELEMENTS & CONCEPT

WORKPIECE





PORTABLE INTEGRATIVE LASER MARKING MACHINE



The BRADMA BFL50 is the latest laser in a family of maintenance free Q-switched Ytterbium fiber lasers specifically designed for marking applications with average power levels from 10-50W. These lasers deliver a high power laser beam directly to the marking head via a flexible metal sheathed fiber optic cable. The fiber based optical design and rugged mechanical design allows these markers to operate in an industrial environment where shock, vibration and dust are a concern. The BFL-Series fiber marker's unique design allows the overall package to be very small and modular for ease of integration into a variety of industrial applications. The BFL-Series Laser Marking Systems offers a best in class 100,000 hour MTBF reliability with no water cooling requirements, and only single phase 110/220VAC power requirements.

PARAMETER

The average output power	10W/20W/30W/50W
Laser wavelength	1064nm
Beam Quality	M2:1.5
Frequency	20KHz-80KHz
Repetitive accuracy	0.005mm
Min Linear Width	0.01mm
Marking Depth	0.01-0.2mm
Max Speed	7000mm/s
Standard marking	100*100mm
The optional scope of marking	70*70mm/175*175mm
Consumed power	<500W
Power Supply	220V/50Hz/15A
Cooling system	Air cooling
Compter	Laptop or Professional industrial computer, 19-inch LCD Monitor, WIN7 System

SALIENT FEATURES

Air cooling, portable unit, easy to move equipment, high reliability, no consumables long life working, maintenance free. The international latest most reliable structure, small size. Low power consumption, no high voltage so no need larger water cooled system. Close to the ideal beam, USB interface, output control, optical scanning system, high laser repetition rate, high speed without distortion.

PORTABLE FIBER LASER MARKING MACHINE

In BFL-Series lasers, portable markers are also available. These are designed to operate in the harshest of environments. It will be able to maintain a peak performance for many thousands of hours of maintenance-free operation. Performance of this laser allows the user to tailor its operation for maximum results in the final mark.



SALIENT FEATURES

Air cooling, portable design, easy to move equipment, divided type machine (Head and Controller), high reliability, no consumables, long life working, maintenance free, Most reliable structure, small size, low power consumption, no high-voltage so no need large water cooled system. Close to the ideal beam, USB interface, output control, optical scanning system, high laser repetition rate, high speed without distortion.

PARAMETER

The average output power	10W/20W/30W/50W
Laser wavelength	1064nm
Beam Quality	M2:1.5
Frequency	20KHz-80KHz
Repetitive accuracy	0.005mm
Min Linear Width	0.01mm
Marking Depth	0.01-0.2mm
Max Speed	7000mm/s
Standard marking	100*100mm
The optional scope of marking	70x70mm/175x175mm
Consumed power	<500W
Power Supply	220V/50Hz/15A
Cooling system	Air cooling
Compter	Laptop or Professional industrial computer, 19-inch LCD Monitor, WIN7 System

SALIENT FEATURES

Air cooling, portable design, easy to move equipment, divided type machine, high reliability, no consumables, long life working, and maintenance free. Imported Germany IPG fiber laser, the international latest, most reliable structure, small size, low power consumption, no high voltage so no need large water cooled system. Close to the ideal beam, USB interface, output control, optical scanning system, high laser repetition rate, high speed without distortion.

HANDHELD FIBER LASER MARKING MACHINE

Handheld Fixed focal length can mark on big/heavy/unmovable objects, just put the head on the surface. It can also be applied to mark on small material.



PARAMETER

The average output power	10W/20W/30W/50W
Laser wavelength	1064nm
Beam Quality	M2:1.5
Frequency	20KHz-80KHz
Repetitive accuracy	0.005mm
Min Linear Width	0.01mm
Marking Depth	0.01-0.2mm
Max Speed	7000mm/s
Standard marking	100*100mm
The optional scope of marking	70x70mm/175x175mm
Consumed power	<500W
Power Supply	220V/50Hz/15A
Cooling system	Air cooling
Compter	Laptop or Professional industrial computer, 19-inch LCD Monitor, WIN7 System



DESKTOP FIBER LASER MARKING MACHINE

Bradma BFL-series laser markers utilize an enhancement of YAG technology called FAYb (Fiber Amplified Ytterbium). These fiber lasers provide several advantages over traditional Nd:YAG systems, such as a better beam quality, smaller housing dimensions, a significantly longer lifetime and lower fixed costs because FAYb systems consume much less power and get by with simple air cooling. Bradma BFL-series laser markers can mark nearly all metals using the laser processes of engraving or black marking (annealing). Using the laser processes of internal foaming, carbonization (colour change) or bleaching, resins can be marked with outstanding quality

PARAMETER	
The average output power	10W/20W/30W/50W
Laser wavelength	1064nm
Beam Quality	M2:1.5
Frequency	20KHz-80KHz
Repetitive accuracy	0.005mm
Min Linear Width	0.01mm
Marking Depth	0.01-0.2mm
Max Speed	7000mm/s
Standard marking	100*100mm
The optional scope of marking	70x70mm/175x175mm
Consumed power	<500W
Power Supply	220V/50Hz/15A
Cooling system	Air cooling
Compter	Laptop or Professional industrial computer, 19-inch LCD Monitor, WIN7 System

SALIENT FEATURES

Air cooling perfect output beam quality high precision and fast speed highly stable performance long term working time, maintenance free, low power consumption, on high voltage so no need large water cooled system. Close to the ideal beam, USB interface, output control optical scanning system, high laser repetition rate high speed without distortion.

MOPA SERIES LASER MARKING MACHINE

The speciality of BFL Series lasers is especially high pulse frequencies – a key factor for obtaining high processing speeds. An additional requirement for an accelerated marking process is the highly dynamic scanner modules, which are integrated as standard in the fiber lasers. Thanks to the software-controlled focal point adjustment, you can mark stepped parts in a single operation, without having to mechanically, move them. Thanks to MOPA (master-oscillator fiber power amplifier) technology, you can adjust the pulse durations of the 5000 series ideally to the particular application. There is no dependency between frequency and pulse duration. This makes it possible to mark even heat-sensitive parts perfectly.

SALIENT FEATURES

International latest design, repeat frequency range from 1KHz to 1000KHz, can mark most material, high reliability, no consumables, long life working, maintenance free, international latest, most reliable structure small size low power consumption no high voltage so no need large water cooled system. Close to the ideal beam, USB interface output control, optical scanning system, high laser repetition rate high speed without distortion.



PARAMETER	
The average output power	10W/20W/30W/50W
Laser wavelength	1064nm
Beam Quality	M2:1.5
Frequency	20KHz-80KHz
Repetitive accuracy	±0.0001mm
Min Linear Width	0.01mm
Marking Depth	0.01-0.3mm
Max Speed	7000mm/s
Standard marking	110*110mm
The optional scope of marking	300x300mm/175x175mm
Consumed power	<500W
Power Supply	220V/50Hz/15A
Cooling system	Air cooling
Compter	Laptop or Professional industrial computer, 19-inch LCD Monitor, WIN7 System
Machine Size	920X700X950

WHOLE SEALED FIBER LASER MARKING MACHINE

Bradma offers a wide variety of commercially available Class 1 and Class 4 laser marker enclosure styles and sizes. When the situation demands it, our experienced custom engineering staff can design one to fit the specific needs of your application. Bradma can provide a complete solution to your laser marking requirements with parts handling accessories such as X/Y tables, rotary fixtures, rotary tables and manual and automated Z-axis.

SALIENT FEATURES

Air cooling, high reliability, no consumables, long life working, maintenance free. The international latest, most reliable structure, small size, low power consumption no high voltage so no need large water cooled system. close to the ideal beam, USB interface, output control, optical scanning system high laser repetition rate, high speed without distortion.



PARAMETER	
The average output power	10W/20W/30W/50W
Laser wavelength	1064nm
Beam Quality	M2:1.5
Frequency	20KHz-80KHz
Repetitive accuracy	0.005mm
Min Linear Width	0.01mm
Marking Depth	0.01-0.2mm
Max Speed	7000mm/s
Standard marking	100*100mm
The optional scope of marking	70x70mm/175x175mm
Consumed power	<500W
Power Supply	220V/50Hz/15A
Cooling system	Air cooling
Compter	Laptop or Professional industrial computer, 19-inch LCD Monitor, WIN7 System
Machine Size	1000X720X1560mm



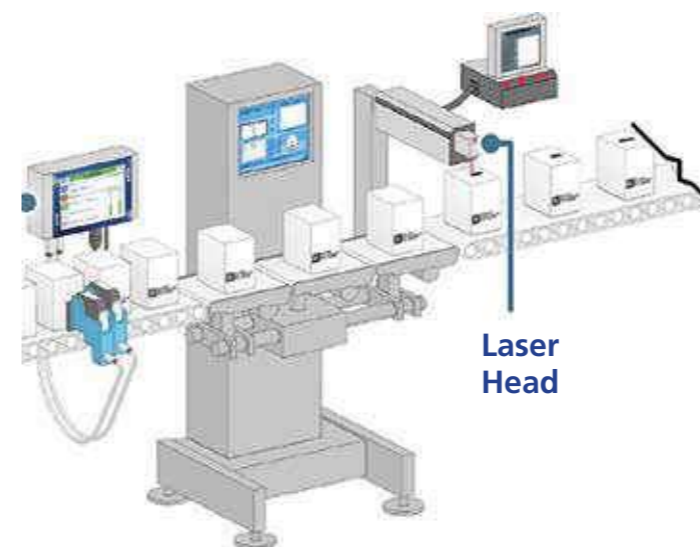
FIBER LASER FLY MARKING MACHINE

BFL10FLY/20FLY/30FLY/50FLY

SALIENT FEATURES

Flying laser marking machine is the product packaging for various industries online coding and development and design of high tech product. Machine use the fiber laser source, it has high electro optical conversion rate, stable performance can continuously work long hours. It has high speed galvanometer scanning system the focus mode laser marking machine

- Has strong text layout and graphics processing functions, can automatically generate a lot numbers and serial number.
- The flexibility to modify the software functions, continuously adjustable.
- High speed, high precision.



PARAMETER	
Model	BFL10FLY/20FLY/30FLY/50FLY
Laser power	10W/20W/30W/50W
Pulsed power	20KHz-80KHz
Laser wavelength	1064nm
Marking range	110x110m, 175x175mm, 300x300mm
Minimum line width	0.01mm
Minimum character	0.01-0.5mm
Marking speed	<_7000mm/s
Marking depth	<_1mm
Repeatability	+0.0001mm
Maximum line speed	70m/min
Marking the number rows	<8lines
Character type	characters, numbers, symbols
Power	AC220V+_10%,50Hz/15A
Cooling	Air cooling

CO₂ LASER MARKING MACHINES

The Bradma CO-Series Laser Markers, available with standard power levels at 10W, 30W and 60W and are excellent choices for high duty cycle applications on plastic, rubber, wood, paper, anodized metal and label marking applications. They are perfect for Fly-Marking-Applications (FMA) as well as stationary marking. Their RF-excited CO₂ tube assures a long life cycle as well with virtually maintenance free operation. Due to their compact size and modular construction, the CO-Series markers can go almost any place they are needed on the plant floor.

Bradma CO₂ laser marking machine adopts the High Quality CO₂ RF laser generator, high speed laser galvo scanner system and professional marking software, fast speed, performance and long continuous working by adjusting the laser output power, control the depth of the laser as well as materials for surface marking, engraving and cutting depth on products is conducted, can greatly enriched the expressive appearance of the product, provide for the majority of users the ideal new high-tech laser processing equipment.

- America RF metal laser generator, useful life 20,000 hours
- High speed galvo scanner, fast speed, high precision, stable function
- Full set imported optic lenses, low consumption, good focus performance
- Automatic number jump and counting function

PORTABLE CO₂ LASER MARKING MACHINE

BCL10P

SALIENT FEATURES

Bradma BCL series laser marking machine adopts advance RF metal laser tube and high speed laser scanning system. Using software control system and computer interface for the development of intelligent modules of a new type of laser marking equipment. The system is high marking accuracy fast speed highly stable performance long term working time which can be applied for mass production of online processing.

PARAMETER	
Model	BCL10P
Laser tube	10W RF metal laser tube
Laser output power	10W
Laser wavelength	10.64nm
Standard engraving range	110mmx110mm
Optional engraving range	175mm x 175mm,300mm x 300mm
Minimal Linear Width	0.05mm
pulse frequency	<20KHz
Electricity demand	Single phase AC 90-250V/50Hz 5A
Marking speed	7000mm/s
cooling system	Air cooling
Marking Depth	<_2mm
Electrical Power consumption	500W

NON-METAL CO₂ LASER MARKING MACHINE

BCL10/30/60/100

SALIENT FEATURES

Advanced machine technology, simple operation, with high-speed marking vibration lens, photoelectric conversion efficiency of high marking speed the effect is not deformed and meticulous precision, full-enclosed optical system designed, low failure rate, maintenance-free, low processing costs supporting 24 hours of working. It adopts high speed galvanometer and optical spares, so it has stable performance.

PARAMETER	
Model	BCL10/30/60/100
Laser tube	10W/30W/60W/100W
Laser output power	10W/30W/60W/100W
Laser wavelength	10.64mm
Standard engraving range	110mmx110mm
Optional engraving range	175mm x 175mm . 300mm x 300mm
Minimal Linear Width	0.05mm
Pulse frequency	<20KHz
Electricity demand	Single-phase AC 90-250V/50Hz 5A
Marking speed	7000mm/s
cooling system	Air cooling
Repeat positioning accuracy	+_0.01mm
Marking depth	<_2mm



CO₂ FLY LASER MARKING MACHINE

BCL10LFY/30FLY/60FLY/100FLY

SALIENT FEATURES

Bradma BCL Series laser marking machine adopts America's advanced RF metal laser tube and high-speed laser scanning system. Using software control system and computer interface for the development of intelligent modules of a new type of laser marking equipment. The machine characteristics are as below: Small size, powerful function, low power consumption, long life marking, stable and perfect marking quality support. Low maintenance-free



PARAMETER	
Model	BCL10LFY/30FLY/60FLY/100FLY
Laser tube	10W/30W/60W/100W
Output power	10W/30W/60W/100W
Laser wavelength	10.64nm
Standard range	110mm x 100mm
Optional range	70*70mm/175*175mm/300*300mm
Minimal linear Width	0.05mm
Pulse frequency	<_20Khz
Electricity demand	Single-phase AC 90-250V/50Hz 5A
Marking speed	7000mm/s
cooling system	Air cooling
Repeat positioning accuracy	+_0.01mm
Marking depth	<_2mm

LARGE SIZE CO₂ LASER MARKING MACHINE

BCL180LGP/BCL275LGP

SALIENT FEATURES

Imported 180W/275W metal RF Tubes. The laser power and engraving speed is adjustable, saving energy most. Totally enclosed laser optical system, no any running costs and maintenance, available to use after installment. The imported metal RF laser tube is equipped with high laser power, excellent laser spot, stable laser production and working lifetime max.20000 hours. The laser tube gases can be restored. American CTI 3D dynamic galvanometer, one scanning area can reach 1500*1500mm.3D dynamic galvanometer control system and automatic up-down Z-axis can make sure to get the best effects, foot switch is easy to operate. The extractor on back and bottom can make sure good venting & blotter effects, as well as Eco-friendly disposal method. High speed performance for cutting and engraving, increasing efficiency 20% than same types. Water cooling system, professional industrial constant temperature cycles to guarantee more stable running and lower power consumption.

PARAMETER	
Model	BCL180LGP/BCL275LGP
Marking Area	800x800mm 800x1200mm
Laser power	180W/275W
Marking speed	<_7000mm/s
Power Consumption	<_5 kWh
Laser wavelength	10.64nm
Laser Frequency	20kHz-200kHz
Scanner	CTI America
Repetition precision	0.01mm
Min. character size	0.3mm
System Support	WIN 7/WIN 8
Output Compatibility	Auto CAD, Photoshop, CorelDRAW etc
File Formats	PLT, DXF, BMP, JPG, AL etc
Power supply	110V-380V/50Hz-60Hz
Cooling Way	Circulation of water cooling





UV LASER MARKING MACHINE

BUVL03/BUV05/BUV07

SALIENT FEATURES

UV laser marking machine has mini laser spot ,small heat affected zone, so it can be used in hyperfine marking ,special material marking, it is the first choice for customers who requires high quality marking effect and special material application.

UV laser marking machine has some advantages ,for example perfect laser beam ,small laser spot, small heat affected zone, no material burnt problem. High marking speed, high efficiency, stable performance, low electricity consumption.

PARAMETER	
Model	BUVL03/BUV05/BUV07
Laser Power	3W/5W/7W
Laser output power	>_3W
Pulse width	<_18ns
Frequency of laser	0-100kHz
Standard marking range	100mm x 100mm
Repeating precision	+_0.005mm
Minimal linear width	<_0.01mm
Marking speed	7000mm/s
Electrical power	220V
cooling system	Air cooling



JEWELRY LASER MARKING MACHINE

BL150J/200J

SALIENT FEATURES

- The energy, pulse width, frequency and light spot size can be adjusted in a large range to realize different welding effects. The parameters are adjusted by the lever in the seal cavity, which is simple and highly efficient.
- Ceramic converging cavity is imported from the Britain. It is corrosion resistant and high temperature resistant with 8-10 years' service life. The life of xenon lamp is more than 8 million times.
- Most advanced light shielding system eliminates the irritation to eyes by laser during working.
- Able to work for 24 hours continuously; stable performance; free of maintenance in 10,000 hours.
- Human-based design accords with ergonomics, avoiding fatigue after long time working.
- High speed, high efficiency, deep enough, slightly deformation, small heat effect area, high welding quality, pollution free, environmental friendly.

PARAMETER	
Model	BL150J/200J
Laser source	Nd:YAG
Laser Wavelength	1064nm
Rated power	150W/200W
Laser energy	60J/80J
Pulse width	<_20ms
Pulse Frequency	<_50Hz
Beam Diameter	0.1-3.0mm
Spot size	0.2-3.0mm
Power supply	220V+_10%, 50Hz/60Hz
Observing system	Microscope
Cooling system	Water chiller
Total power consumption	5KW
Machine dimensions	300mm*450mm*150mm(L*W*H) 920mm*560mm*1220mm(L*W*H)
Running environment	Tem 5C-30C, Hum 5%-75%
Net weight	150kg (welder) + 75kg (chiller)



This enclosure is used as control box or it includes all the machine. Like Source and Galvo can be fitted inside this enclosure along with control box.



TURNKEY CUSTOM INTEGRATION

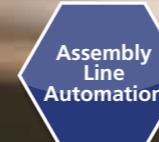
Bradma offers extensive custom integration. Whether your need is a simple fixture or a turn-key laser marking cell, Bradma is unmatched by other laser companies in machine building experience. At Bradma, project support staff includes:

- In-house project engineers
- Project managers
- Electrical engineers
- Mechanical engineer
- In-house machine shop

Automotive integration for all major manufacturers
In addition to custom builds, Bradma also works closely with machine integrators - the focus is always on the customer solution. Wherever your projects take you, Bradma has global.

Bradma offers a full range of communications interfaces for factory automation and integration:

- TCP/IP
- USB, RS232 Serial
- Discrete External I/O (TTL/Opto-isolated)
- EtherNet/IP and PROFINET Multiple Axis Control
- Mark-On-The-Fly (MOTF)
- Bar Code Scanner Support
- Foot Switch Interface
- Dual-Sensor Shutter Interface





CUSTOMIZED LASER MARKING MACHINE FOR SMALL SIZE BURRS AND DRILLS

FEATURES

- 20W Fiber Laser with Rotary index with 2 Station
- Auto focal length adjustment LED
- Changeable Fixture as per Shank Sizes
 - 1.6mm, 1.7, 2, 2.35, 2.40
 - 2mm, 3, 1/8 inch, 4mm, 5mm, 6mm, 7, 8, 10, 12mm.
 - Shank dia, 2mm, 3, 1/8" for Reverse shank drill/ Burr blanks
- Dowel will be Fixed and fixture will be Located from top.

SCOPE OF SUPPLY

- Rotary Table With Electrical Enclosure
- Desktop PC
- Tool Post For Laser Head Mounting
- 20W Fiber Laser Bradma BFL20B
- Shank Holding Fixture

SEQUENCE OF OPERATION

- Switch on the Marking Machine
- Operator will pick the Shank and Place it in Marking Fixture Manually
- Operator will Select Pattern in Software as per Marking Requirement
- Operator will Press 2-Hands Safety Cycle Start Button.
- Rotating Table will Index by 180° and Laser will Start Marking.
- By the Time Laser is Marking, Operator will Load Another Set of Shanks in Fixture
- Cycle Repeats

CUSTOMIZED LASER MARKING MACHINE FOR GEARS FEATURES

FEATURES

- M/C/Fixture Description - Part Marking Fixture.
- Material – Marking to be Done on Gear (Material :- P-FI-05M1)
- Floor to Floor Cycle Time 30 Sec.
- Condition of Part as Presented to M/C Parts will be in Assembled Condition.
- Accuracies to be Achieved Confirmation of Minimum Grade C of the 2D Marking to be Displayed on the Screen in Addition to the Display of Details of 2D Marking.
- General Conditions Fixture and Grade Verification Run-Off to be Prove out at Our End on 50 Parts Minimum.



SCOPE OF SUPPLY

- Slide Table with Electrical and Mechanical Enclosure
- Desktop PC
- Tool Post for Laser Head Mounting
- 20W Fiber Laser Bradma BFL20B
- Gear Holding Fixture

SEQUENCE OF OPERATION

- Operator will select the pattern in software for marking.
- Operator will place one balance shaft Assembly on fixture. Sensors will check physical presence of Insert, Front plastic cover, Rear plastic cover, 4 nos. bolts and gear. After confirming presence of all parts, green lamp on operator panel will glow. Unless and until green lamp on operator panel will glow, the m/c cycle will not start.
- After confirming the green lamp glow, operator will press 2-hands safety cycle start push button
- Slide will take component inside the enclosure and shutter will close automatically.
- Laser marking will start and 2D code will be printed on gear face of balance shaft assembly.
- After marking completion, the PLC will trigger scanner. Scanner will read the 2D code and send OK /not OK signal to PLC.
- If scanner reads the 2D code "Not OK", "Part rejected" will appeared on the screen and shutter will not open and process stop.
- After result, slide will bring the component outside automatically and operator will unload the component.

CUSTOMIZED LASER MARKING MACHINE FOR VALVES



FEATURES

- 20W Fiber laser with easy changeable fixtures
- Auto focal length adjustment LED
- Changeable fixture as per component Changes
- Dowel will be fixed and fixture will be located from top.
- Fume Extractor to remove fumes of component
- Main frame of the Marking Machine is MS Fabricated & Powder coated.
- Marking Head is Mounted on to the MS Fabricated Tool Post
- Fine adjustment provision is provided for Stand Off Adjustment of the marking Head.
- Incoming supply is 1 Phase 240V AC, STD power supply to the Control Panel with proper earthing

SCOPE OF SUPPLY

- 20W Fiber Laser Bradma BFL20B
- Workstation
- Tool Post for Laser Head Mounting
- Desktop Computer
- Locating Fixture

SEQUENCE OF OPERATION

- Switch on the Marking Machine
- Operator will pick the Component and Place it in Marking Fixture Manually
- Operator will Select Pattern in Software as per Marking Requirement
- Operator will Press 2-Hands Safety Cycle Start Button.
- By the time Laser is Marking, Operator will Load another Component in Fixture
- Cycle Repeats

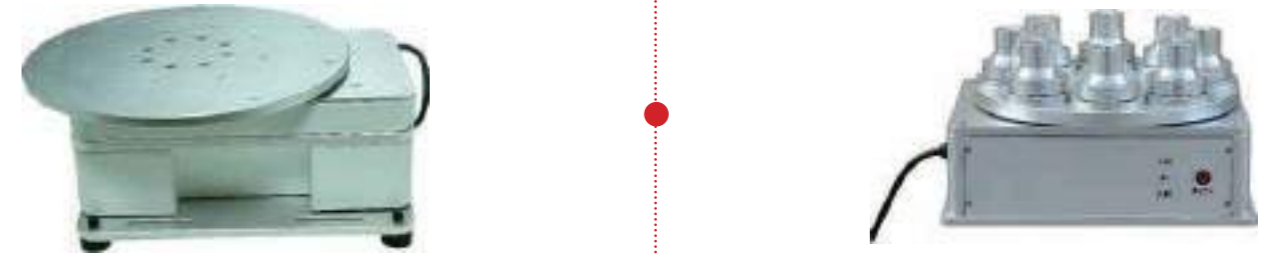
Special Purpose Enclosure



X-Y Axis Platform



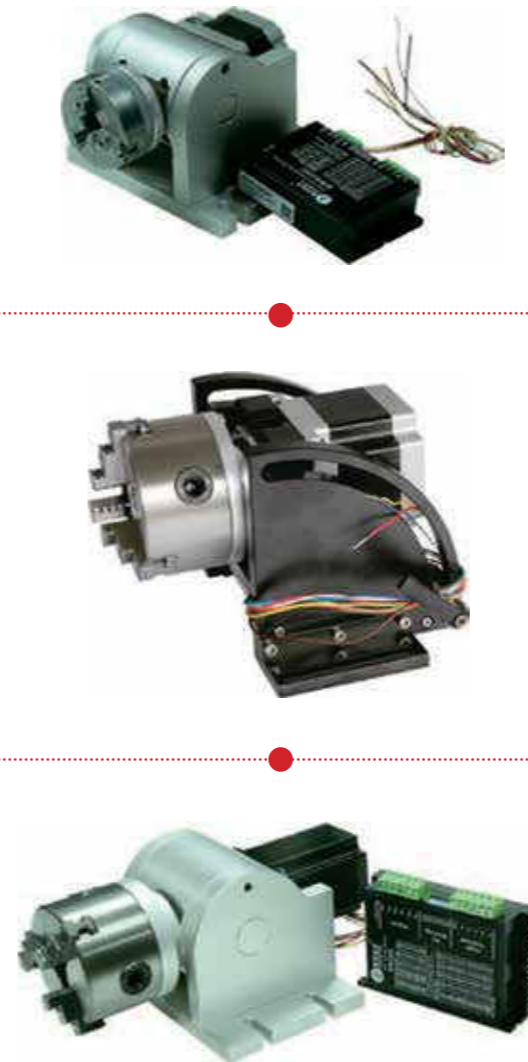
Rotary Turn Platform



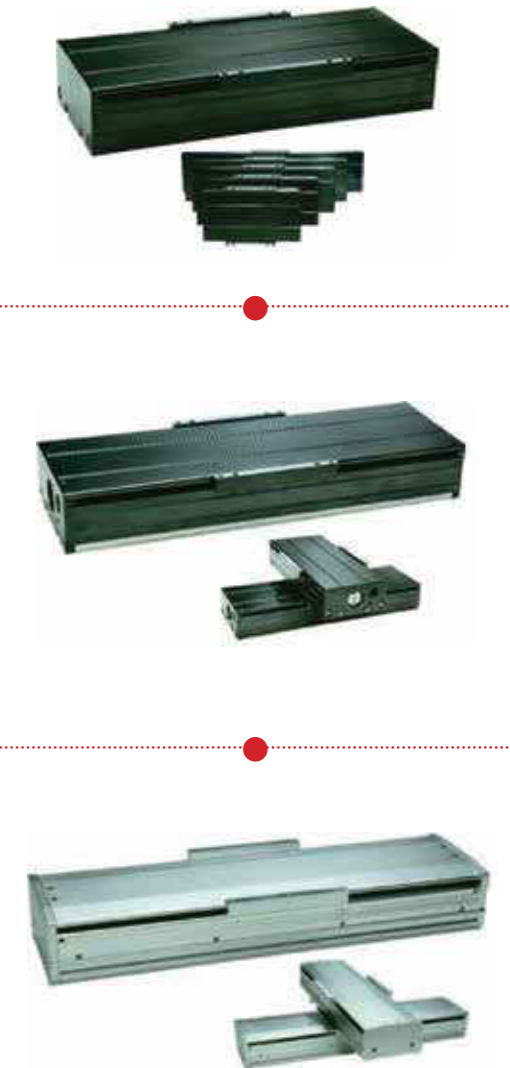
Z-Axis Tool Post (Manual & Auto)



Rotary Chuck



Linear Guide Platform



LASER MARKING SYSTEM SELECTION GUIDE

Laser Systems/ Applications	1064nm Wavelength, Air-Cooled, Single Phase, Diode End-Pumped, Q-Switched, High Pulse Energy, 40 Watt, Nd:yvo4 Laser Marker	1064nm Wavelength, Air-Cooled, Single Phase, Diode End-Pumped, Q-Switched, 25 Watt Nd:yvo4 Laser Marker	1064nm Wavelength, Air-Cooled, Single Phase, Diode End-Pumped, Q-Switched, 15 Watt And 10 Watt, Nd:yvo4 Laser Marker	1064nm Wavelength, Air-Cooled, Single Phase, Diode End-Pumped, Q-Switched, Compact, High Reliability, 9 Watt And 8 Watt, Nd:yvo4 Laser Marker
Marking Metals	Best Choice for High Speed Surface and Deep Marking of Almost Every Type of Metal.	Excellent Choice for High Speed Surface and Deep Marking of Almost Every Type of Metal.	Good Choice for High Speed Surface and Deep Marking of Almost Every Type of Metal.	Good Choice for Surface Marking of almost Every Type of Metal with Very Small Heat Effected Zone.
Marking Plastics and Label Materials (3M, Tesa, Etc.)	Best Choice for High Speed Marking of Plastics and Label Materials.	Excellent Choice for High Speed Marking of Plastics and Label Materials.	Excellent Choice for High Speed Marking of Plastics and Label Materials.	Good Choice for Marking Plastics and Label Materials.
Marking Silicon	Best Choice for Deep Marking of Silicon.	Excellent Choice for Deep Marking of Silicon.	Excellent Choice for Surface Marking of Silicon.	Can Do Surface Marking of Silicon.
Marking Organic Materials	Cannot Mark Wood. Can Mark Some other Organic Materials.	Cannot Mark Wood. Can Mark Some other Organic Materials.	Cannot Mark Wood. can Mark some other Organic Materials.	Cannot Mark Wood. can Mark Some other Organic Materials.
Marking High Quality Graphics	Best Choice for High Speed Marking High Resolution Graphics Due to Small Spot Size.	Excellent Choice for Marking High Resolution Graphics Due to Small Spot Size.	Excellent Choice for Marking High Resolution Graphics Due to Small Spot Size.	Excellent Choice for Marking High Resolution Graphics Due to Small Spot Size.
Workstations	Prostation	Prostation	Prostation	Prostation Ministation Tablepro Drawerpro
Vari-Z 3-Axis Marking	Available	Available	Available on EV15DS	Available on EVCD5



LASER MARKING SYSTEM SELECTION GUIDE

Laser Systems/ Applications	1060nm wavelength, air-cooled, single phase, Q-switched, Dual 50 Watt Yb fiber laser marker	1060nm wavelength, air-cooled, single phase, Q-switched, 50,30, and 20 Watt Yb fiber laser marker (Will provide faster cycle times than FQ10.)	1060nm wavelength, air-cooled, single phase, Q-switched, 10 Watt Yb fiber laser marker	1064nm wavelength, air-cooled, single phase, diode end-pumped, Q-switched, 6 Watt, Nd:YAG laser marker
Marking metals	Best choice complex or multi-surface and deep marking of most metals. Special care is required for copper, brass or any other highly reflective or polished metals.	Better choice for surface and deep marking of some metals. Special care is required for copper, brass or any other highly reflective or polished metals.	Good choice for surface and deep marking of some metals. Special care is required for copper, brass or any other highly reflective or polished metals.	Good choice for surface and deep marking all metals.
Marking plastics and label materials (3M, Tesa, etc.)	Best choice for complex or multi-surface marking many plastics and label materials. (Some surface melting can occur due to long pulse width.)	Better choice for marking many plastics and label materials. (Some surface melting can occur due to long pulse width.)	Better choice for marking many plastics and label materials. (Some surface melting can occur due to long pulse width.)	Good choice for marking plastics and label materials.
Marking silicon	Capable of multi-surface and deep marking of silicon.	Capable of deep marking of silicon.	Capable of deep marking of silicon.	Capable of deep marking of silicon.
Marking organic materials	Cannot mark wood. Can mark some other organic materials.	Cannot mark wood. Can mark some other organic materials.	Cannot mark wood. Can mark some other organic materials.	Cannot mark wood. Can mark some other organic materials.
Marking high quality graphics	Can mark high quality graphics simultaneously in different locations	Can mark high quality graphics on some metals.	Can mark high quality graphics on some metals.	Excellent choice for marking high resolution graphics due to small spot size.
Workstations	ProStation	Prostation MiniStation TablePro DrawerPro	Prostation MiniStation TablePro DrawerPro	Prostation MiniStation TablePro DrawerPro
Vari-Z 3-Axis Marking	Not Available	Available	Available	Not Available



LASER MARKING SYSTEM SELECTION GUIDE

Laser Systems/ Applications	532nm wavelength; air-cooled; single phase; diode end-pumped, Q-switched, green laser marker	10.6um wavelength, air-cooled, single phase, RF excited, 60W CO ₂ laser marker (provides faster cycle times than CO30 series)	10.6um wavelength, air-cooled, single phase, RF excited, 30W CO ₂ laser marker (provides faster cycle times than CO10 series)	10.6um wavelength, air-cooled, single phase, RF excited, 10W CO ₂ laser marker
Marking metals	Excellent choice for high speed surface marking all metals with very small heat effected zone produced.	Can mark anodized metal surfaces. With short focal length lenses, can mark some non-plated metal surfaces.	Can mark anodized metal surfaces. With short focal length lenses, can mark some non-plated metal surfaces.	Can mark some anodized metal surfaces.
Marking plastics and label materials (3M, Tesa, etc.)	Excellent choice for marking plastics. Marks large variety of plastics.	Excellent choice for high speed marking plastics and some label materials.	Excellent choice for high speed marking of plastics and some label materials.	Excellent choice for high speed marking of plastics and some label materials.
Marking silicon	Excellent choice for surface marking of silicon.	Not recommended	Not recommended	Not recommended
Marking organic materials	Cannot mark wood. Can mark some other organic materials.	Excellent choice for marking wood and other organic materials.	Excellent choice for marking wood and other organic materials.	Excellent choice for marking wood and other organic materials.
Marking high quality graphics	Excellent choice for marking high resolution graphics due to small spot size. Highest resolution capability.	Can mark high quality graphics on plastics and on some anodized metal surfaces.	Can mark high quality graphics on plastics and on some anodized metal surfaces.	Can mark high quality graphics on plastics and on some anodized metal surfaces.
Workstations	ProStation TablePro DrawerPro	TablePro DrawerPro others consult factory	TablePro DrawerPro others consult factory	ProStation TablePro DrawerPro others consult factory
Vari-Z 3-Axis Marking	Available	Not Available	Not Available	Not Available



For all applications, it is highly recommended that samples be sent to BRADMA for qualification and testing purposes.

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