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CKLASER

Flashing Technology

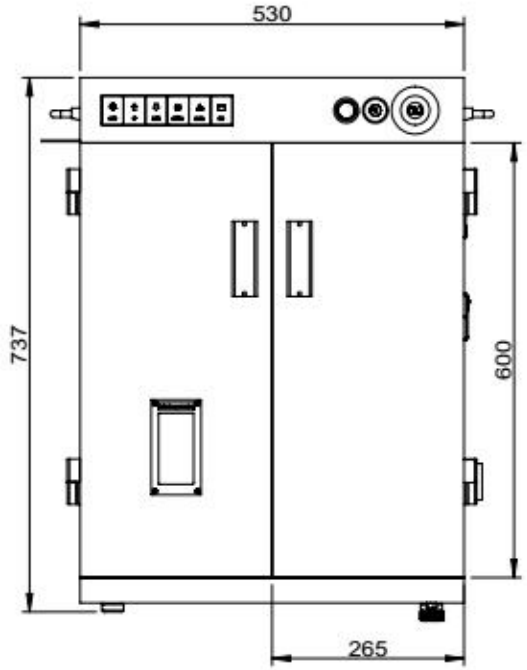
Introduction

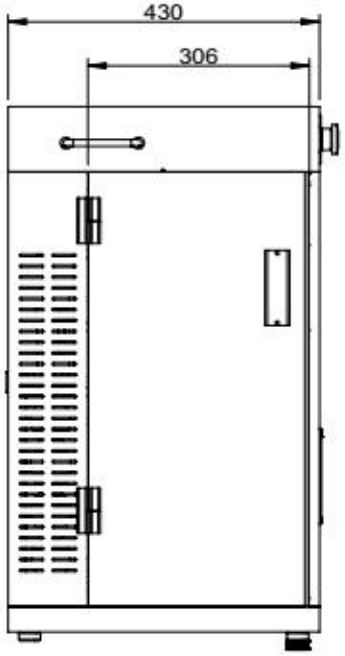
2016 NEW CONCEPT

MINI LASER

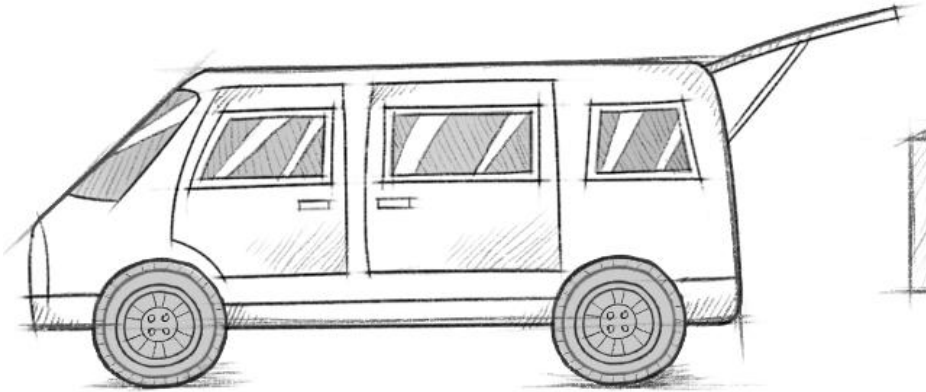
CK-MINI fiber laser marking machine is protable and small ,with full function and high ratio of performance and price, which can offer a different kind of processing way.

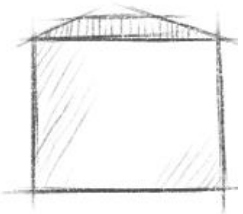
Structure





Unique design- Space-saving ,easy to move





60KG

Compact and small,
convenient transportation

Placed on desktop

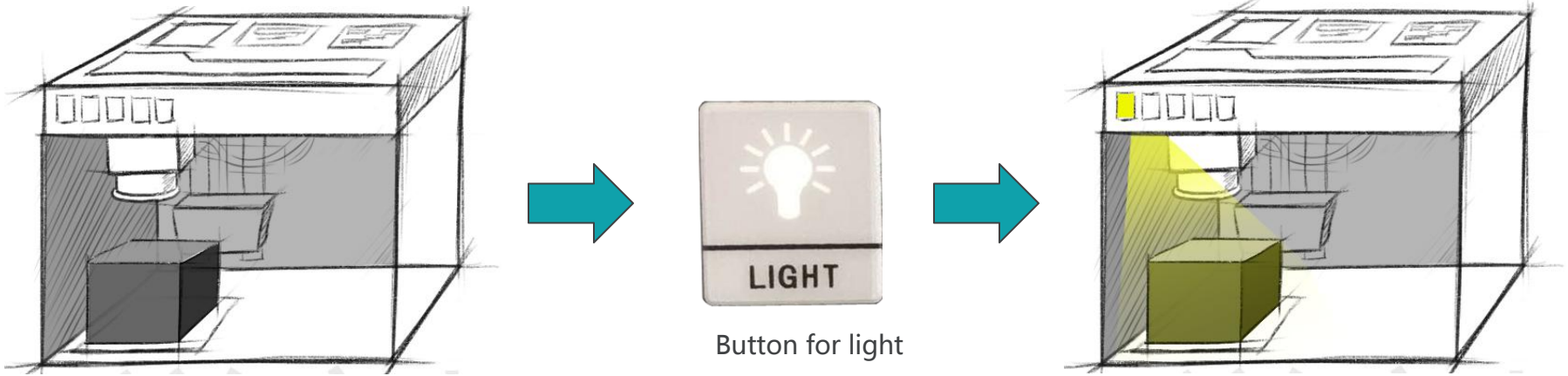
Save space,simple operated

Integrated design, easy to move,it can be placed in desktop,corner or any flat surface.

Unique design- Ultra large processing range

Ultra large processing space, the available processing range is 300*300

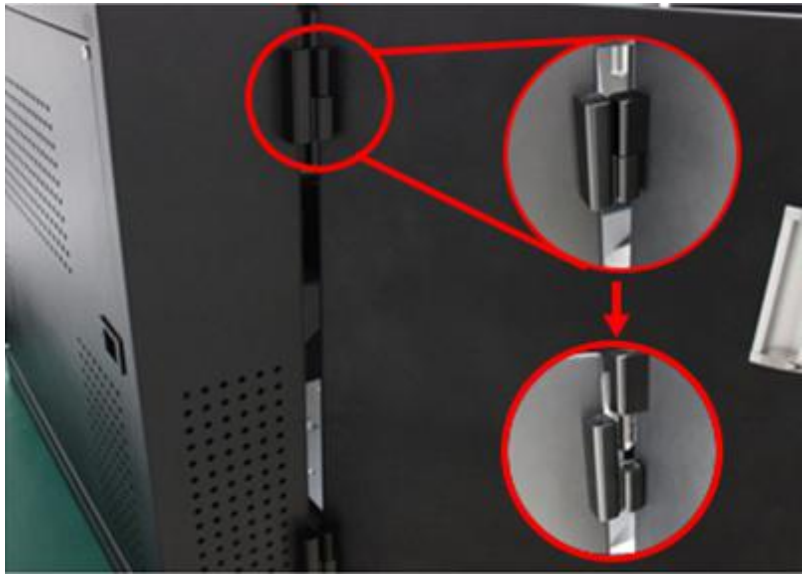
Unique design- lighting function

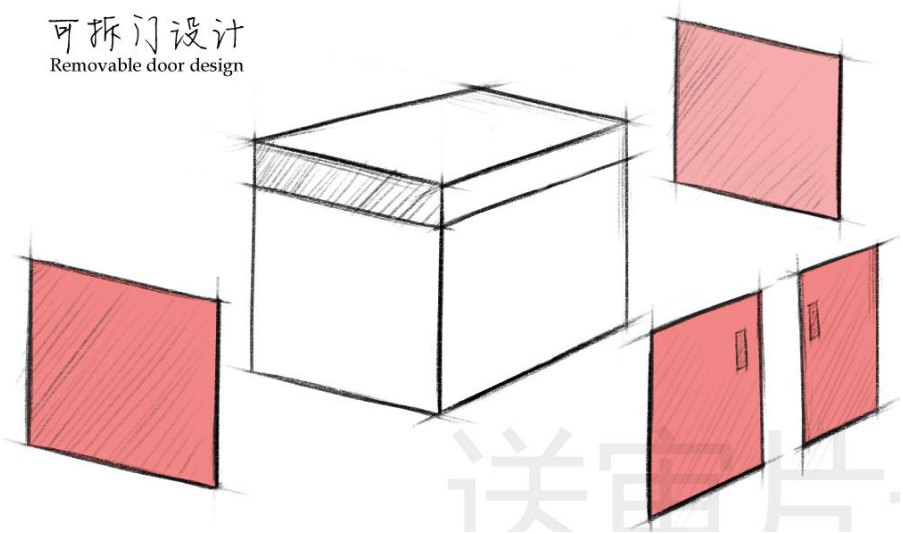


Button for light

High light LED floodlight can light the whole working space

Unique design-- Removable door design



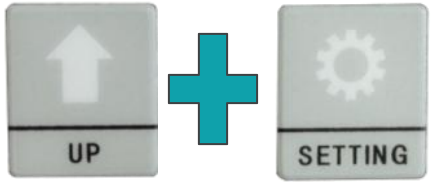


Active ramovable door design is conenvient to utilize.

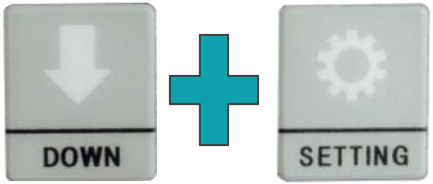
Unique design--Auto lifting

Upward trimming

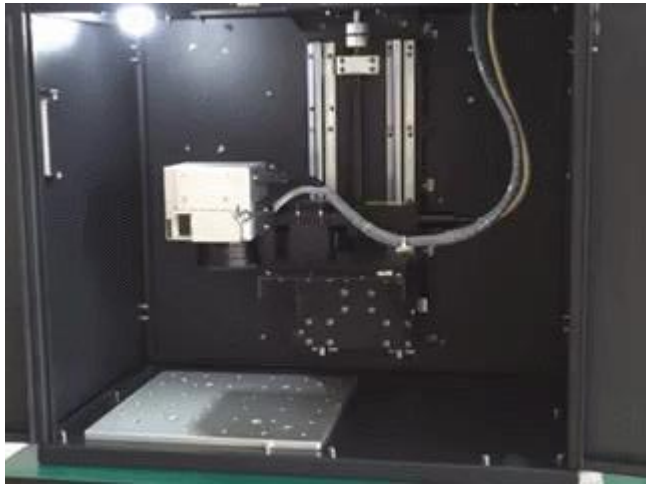
Downward trimming



Upward fast

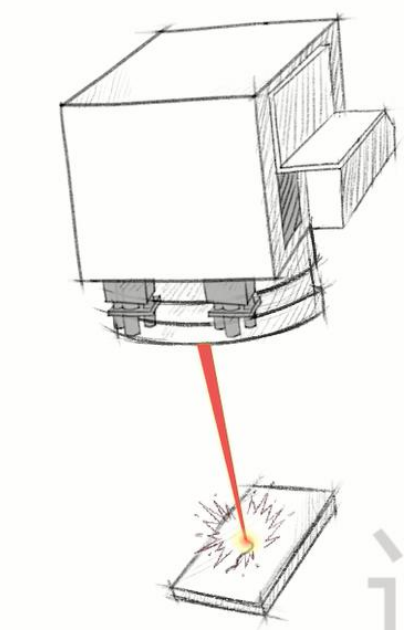


Downward fast



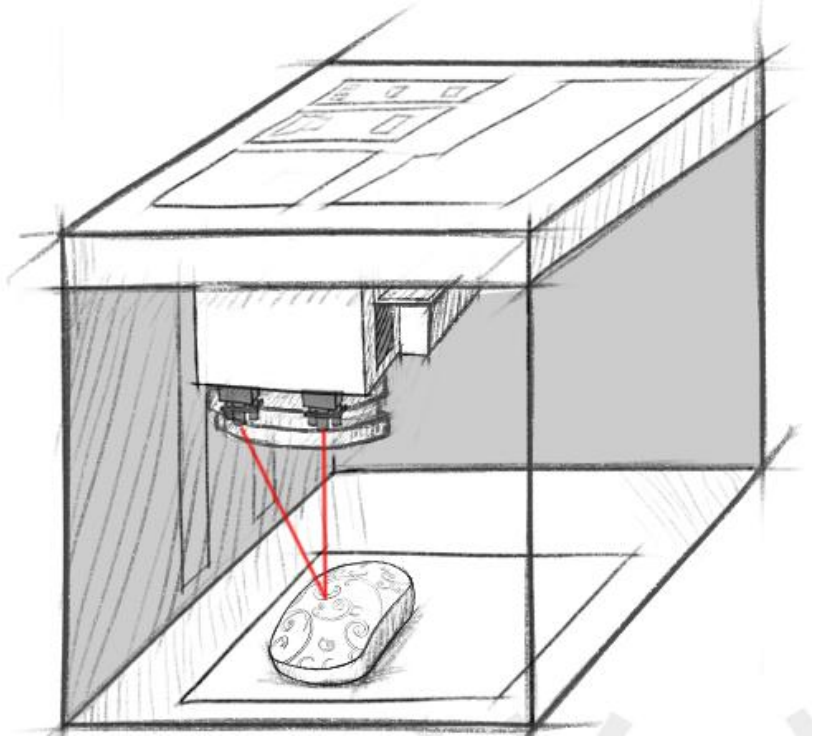
Button controls motor to go up and down automatically to adjust marking height.

Unique design--Auto focus



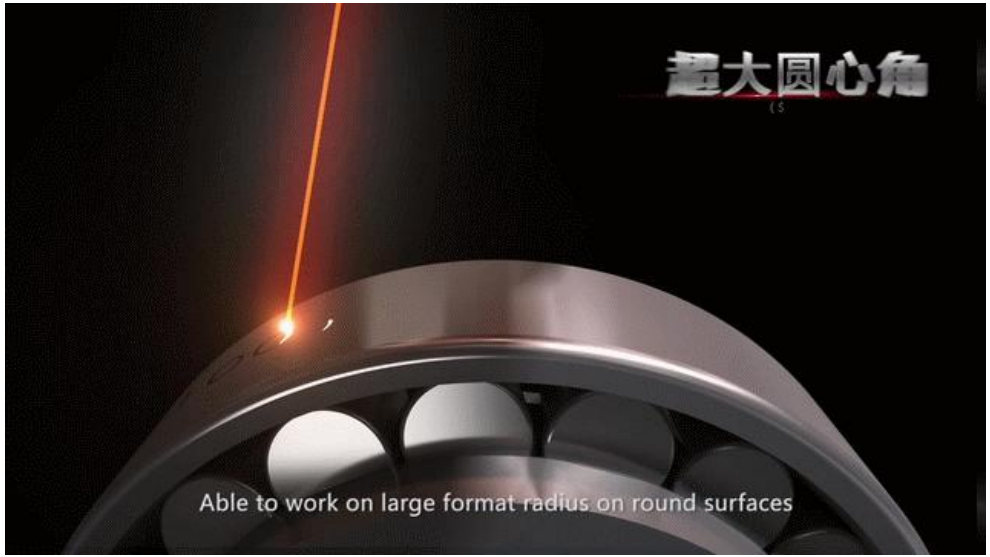
Pacing target articles in working platform, then pressing a red light button, machine can sense the best focal length in articles and adjust the lifting platform to go up and down automatically, to realize the function of auto focus.

Unique design--Double red light positioning



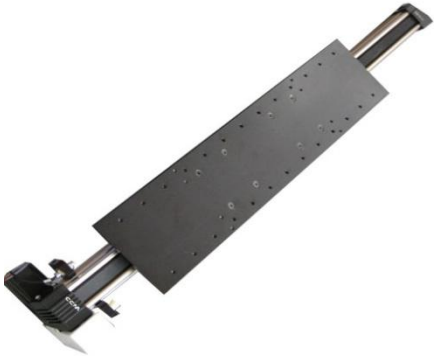
Double indicated red light display marking positioning and range

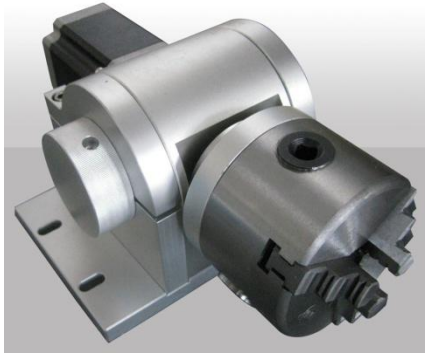
Extensibility-3D function



This type of machine can be updated to 3D laser marker, to realize the function of marking on curve and relief, etc.

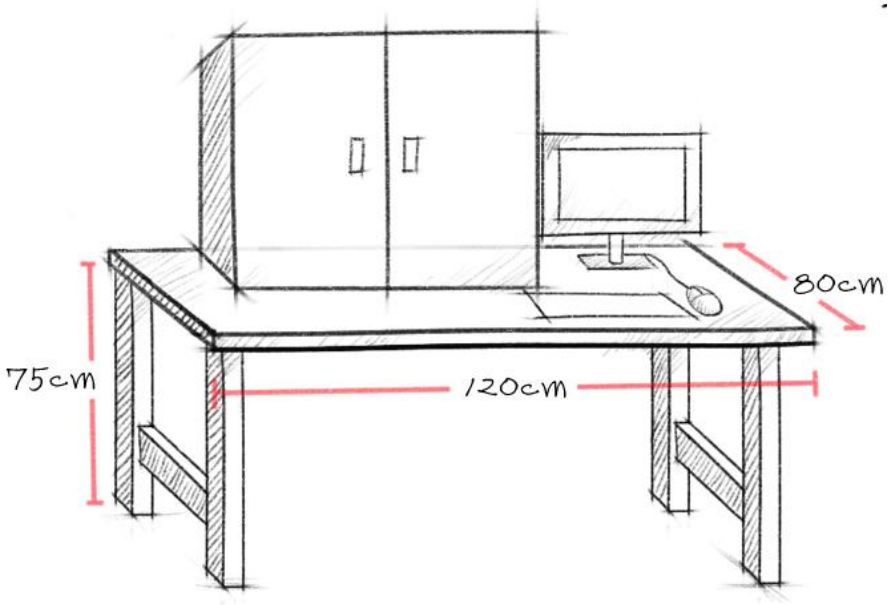
Extensibility-rotary、disk、linar guide rail





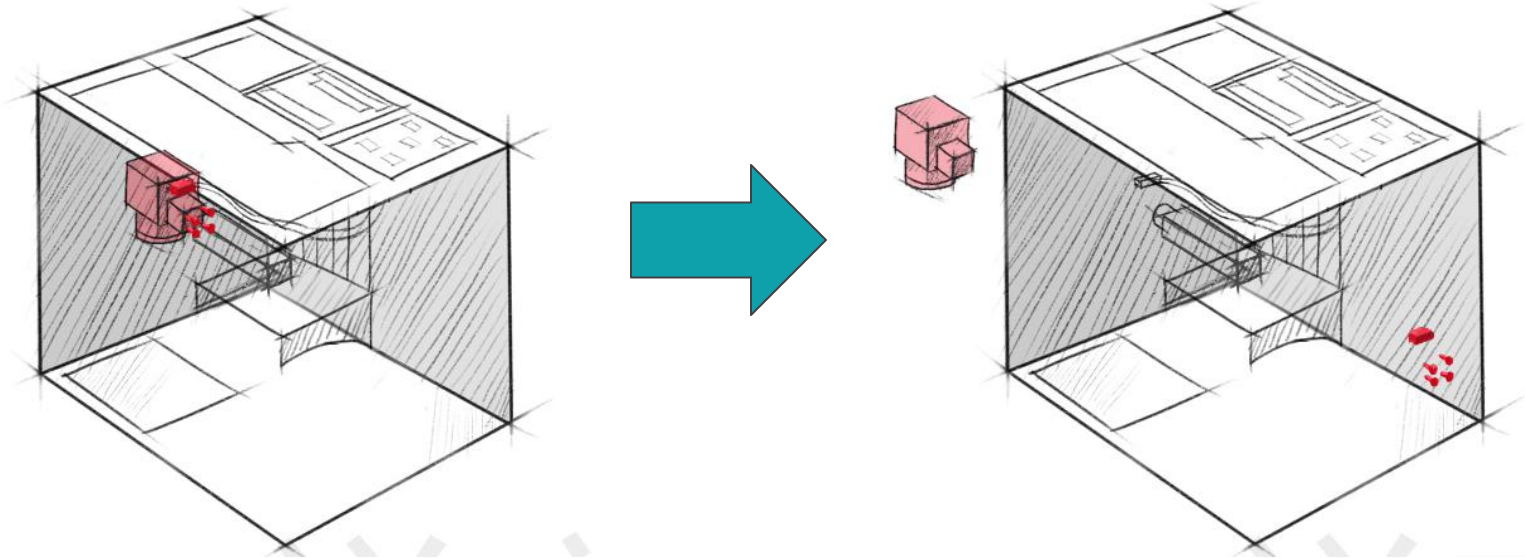
various optional auxiliary accessories

Extensibility-Desktop working platform is available



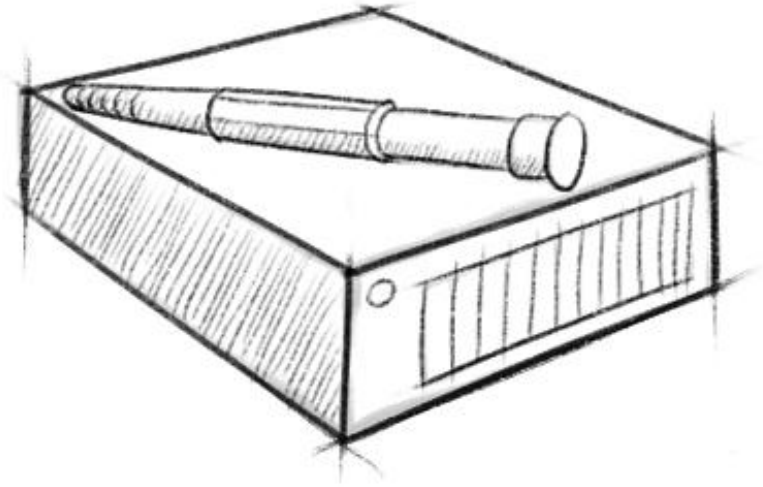
120cmx80cmx75cm's foldable working platform is optional to place desktop laser marking machine

Easy to maintenance-Super easy to maintenance



Resonable and easy to install power source、laser source、control card and other components, all can be changed within 10 minute

Abundant parts to select-Laser source



1. IPG 20M 30M 50W

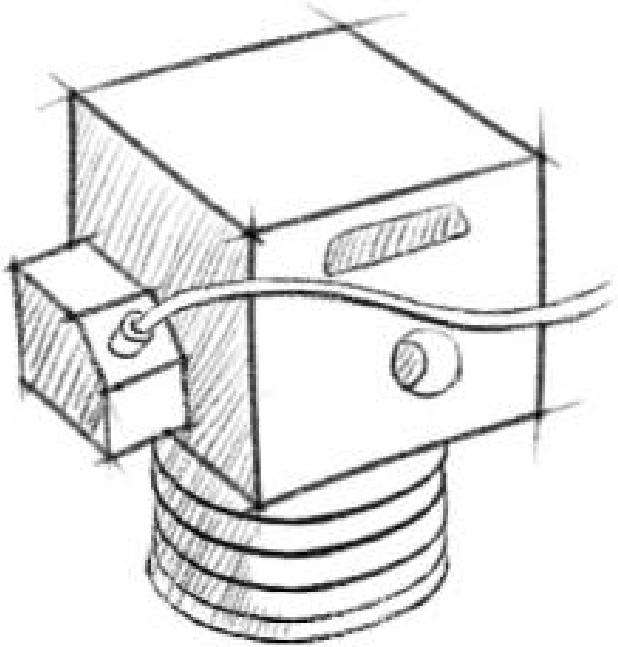
2. JPT 20M 30M 60W M1 M6

3. 联品 20M 30M

4. SPI 20M 30M

5. Nufen 20M 30M 50W

Abundant parts to select -Galvometer



1. 国产　　2. 美国CTI　　3. 德国SCANLAB

Manufacture standard-Manufacture surrounding

Wholesome manufacture system, more stable facilities and better safty performance.

Manufacturing standard--- process flow

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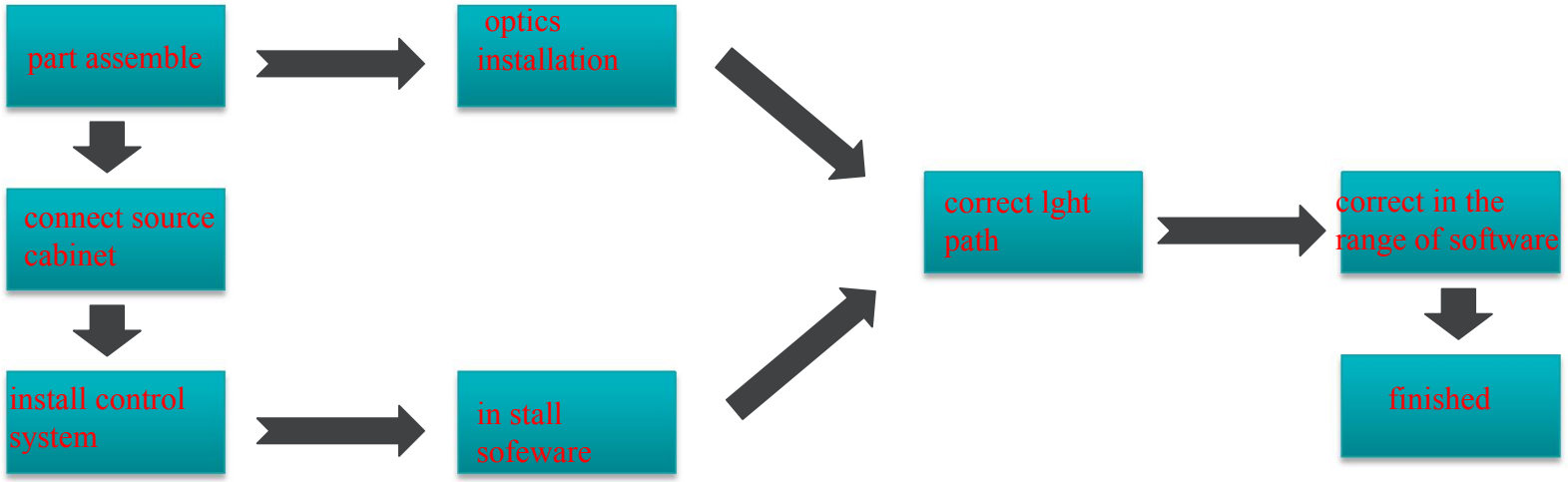
the production process flow of power supply cabinet

The production process flow of machine assembled



Manufacturing standard-- testing flow

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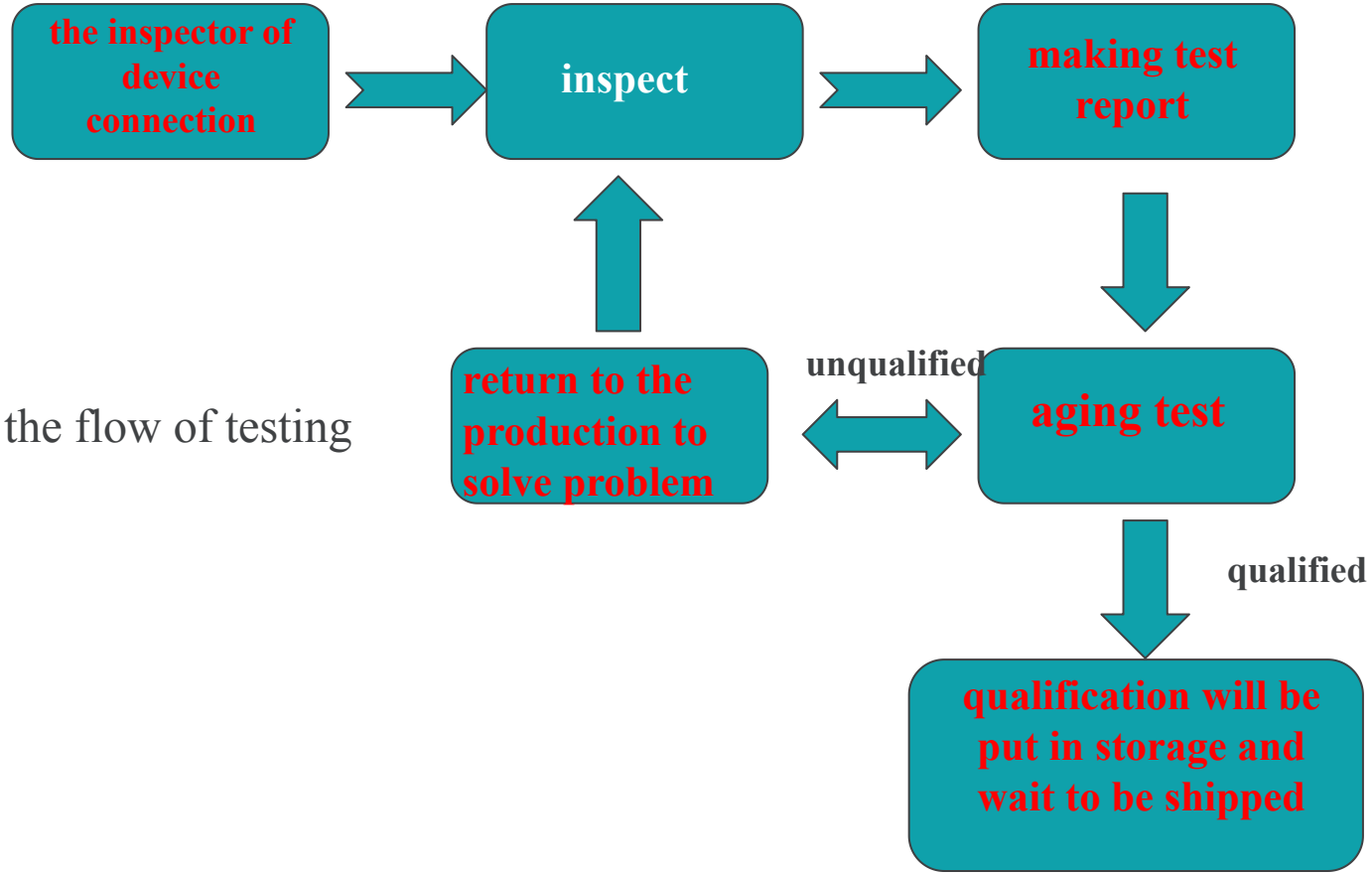

the flow of testing

Manufacture standard-Certification

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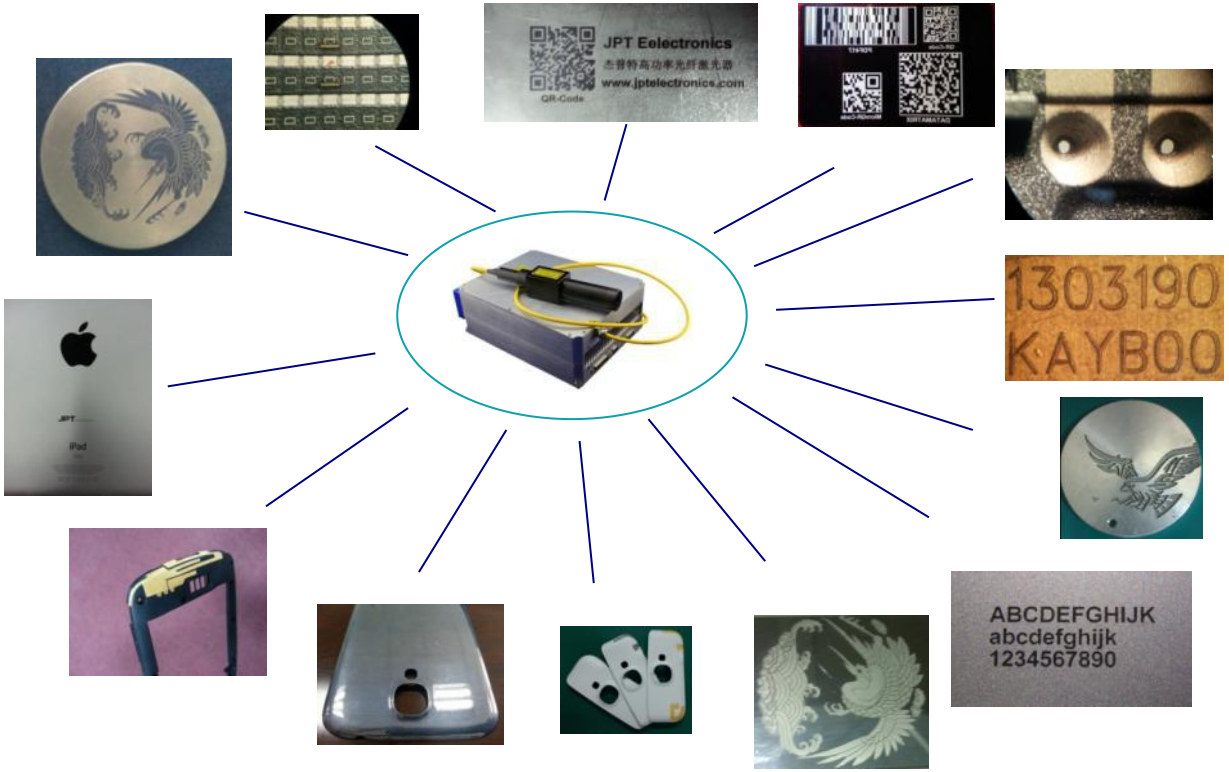
Samples


JPT Eelectronics
www.jptelectronics.com
1303190
KAYB00
ABCDEFGHIJK
abcdefghijk
1234567890

Aluminum deep carving, bright white shading

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Procss requirements

Aluminum deep carved is 3mm, bright white as shading, small taper.

Untreated black and gray shading

Process analysis

First, using high pulse energy to make a deep carving 3mm, then using a low power, after 400Khz frequency melting temperature, part of the aluminum will melte and reduce aluminum color, so that to reach the whitening efficiency.

Whitening treatment

Anodized aluminum black marking

Pocess requirements

this technology is applied to the crust of phones,computers,mobile power and other electronic digital products. By using the permanent marking to mark all kinds of black LOGO or some technical indicators digital, after deal with anodic oxidation in the surface of aluminium alloy. By this process, it can instead of the traditional ink jet , screen printing production, and greatly reduce costs and supplies.

Process parameter

Model ： M6+ 、 M1+

Power：40-80%（20W） Frequency：200~500KHz

Pulse width：2ns-6ns Field lens：F＝210、254mm

Speed：1000~2000mm/s Filling density ：0.001mm

Process analysis

When marking black on Alumina , the narrow pulse width and high frequency of parameter are needed. Using M1+and M6+laser machine can meet this requirement. However, for different thicknesses of oxide, M6+ laser machine with better adatability and has more slective to different darkness and the feeling of process effect, is the prefered light source to mark black on anodized aluminum in current market.

Anodized aluminum white marking

Process requirements

this technology is applied to the crust of phones,computers,mobile power and other electronic digital products. By using laser to strip the oxide layer in the surface of aluminum and to mark some brand LOGO.

Process prameter

Model：M1+ 、LP

Power：75-90%（20W\30W） Frequency：50-100KHz

Pulse width： 100ns、200ns Field lens：F＝160、254mm

Speed：2000mm/s Filling density ：0.04mm

Process analysis

Using M1+ laser machine 100ns the marking effect can be more white and delicate. While in the high-frequency, high-speed ,a high peak power,the marking efficiency will be more high.As LP laser machine 's pulse width is fixed 200ns, the marking effect will be yellowish and the shadding will be rough. In a high frequency,the peak powr is low and the speed is slow.

Two dimensional code in aluminum cans marked black

Process requirements

To have a certain grayscale value, and two dimensional code is readable, depth requirment is shadow, size of two dimentional is 5.5mm×5.5mm, time must control in 6 second.

Process parameter

Model：M1+
Field lens：f=163 mm
Power：8~12W
Pulse width：10ns
Frequency：150kHz
Speed：280mm/s
Filling ：0.01mm

Effect analysis

The small pulse width 's energy act on single pules is small, it can make the edge of work pieces neat and no residue leave,the depth is shadow,which can be recognize by mobile phone's dimensional.The marking time is 5.6 second.

Marking two dimensional code in Electronic chip

Process requirements

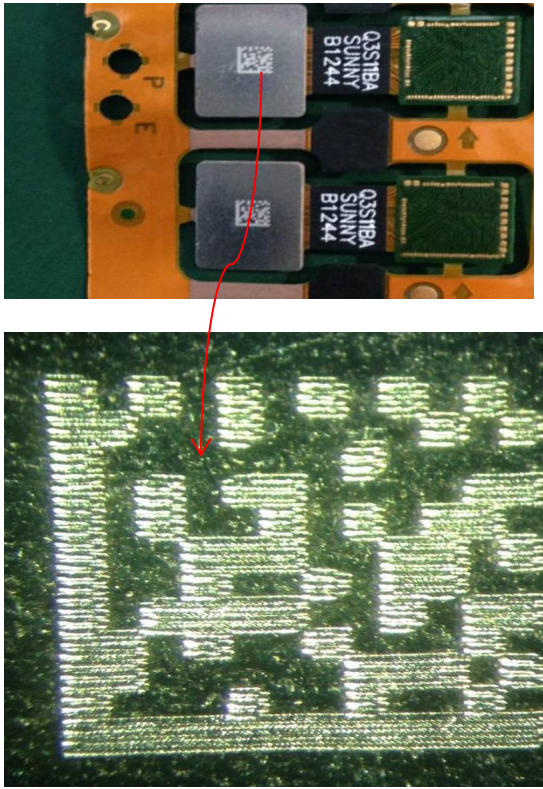
with a sharp contrast, which can be read quickly by scan code gun. no explosion point, with high efficiency

Process parameter

Model：M1+
Feld lens：f=254 mm
Power：16-18W
pulse width：100/80ns
Frequency：60kHz
Speed：1500mm/s
Filling：0.03mm

Effect analysis

The material of electronic chip is steel stainless, and its marking effect can be read rapidly in a certain angle of scan code gun, furthermore ,as it is marking white ,which can make the efficiency more faster.



Marking two dimensional code in a PCB circuit board

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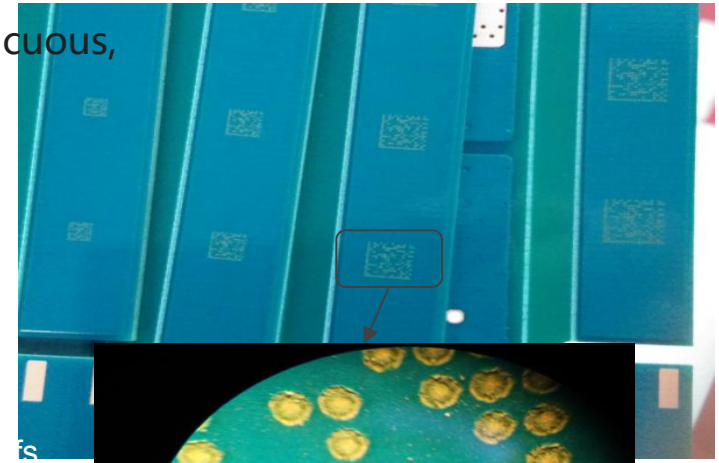
Process requirements

The marking effect of PCB dimensional requires the copper substrate can't be hurt, the color should be white and conspicuous, so that it can be recognize by scan code gun.



Process parameter

Model：M1+ Field lens：F=160mm

Power：42% Pulse width：200ns

Frequency：200Khz

Speed：400mm/s

Filling：0.004mm

Effect analysis

Paint in the surface of the PCB is easy to melte and crack. If the la peak is not high enough ,the layering is difficult to eliminate. So th result it cause is that one layer will be get rid of and one will be maintain. If power is high , paint will be get rid of directly, on the contrary, if the power is too low,it will not be hurt. This case used pulse width and high frequency to eliminate a part of material after soften material by high heat, which will not hurt the substrate.

Removing plating layer of mobile phone protection shell.

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Process requirements

to remove the surface plating layer, with the charateristic of stronge light transmission,neat edge, no sawtooth.

Field lens ：F＝330mm Packing type： Arcuate filling

Power：52%（20W） Packing density：0.04mm

Pulse width：9ns Frequency：80KHz

Speed：3500mm/s

Effect analysis

When removing plating layer, the requirement to energy is not high. If energy is too high ,the edge of work pieces will irregular. In LP and Q-switch machine, as the pulse width is too big, there are serious of sawtooth in the edge. In addition, Q switch machine leak light obviously and easy to leave spot in plating layer. The light of M1+(9ns) is gentle, it can ensure that there is enough energy can remove plating layer cleanly,and no sawtooth exists in edge

Removing eplating layer in mobile phone steel plating layer

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Process requirements

To remove the surface plating layer, and with the charateristic of stronge light transmission,no shading , and high efficency

Process parameter

Feld lens：F＝420mm　　Filling type：arcuate filling

Power：85%（20W）　　Fillinging density：0.04mm

Pulse width ：20ns　　Frequency：140KHz

Speed：4500mm/s

Result analysis

Using big field lens can amplify packing density,improv efficiency.

Q-switch machine frequency (≤80KHz), the speed can't catch up, the efficiency is low.

Big field lens need higher power, the effect of 30W(M1＋)is better than 20(M1＋)

Peeling paint surface

Process requirements

Engraving letter, peeling the balck paint in the middle of grass require mobile phone can be recognized and the border is clear.

Process parameter

Model：M1+

Field lens：F160mm

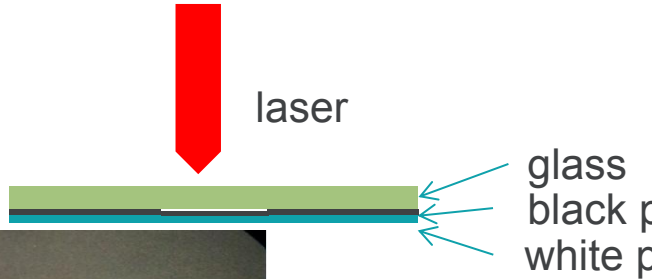
Power：2W

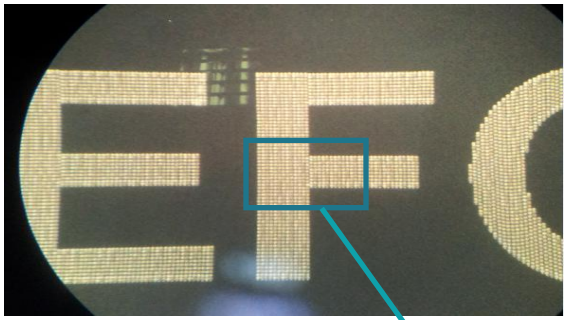
Pulse width：200ns

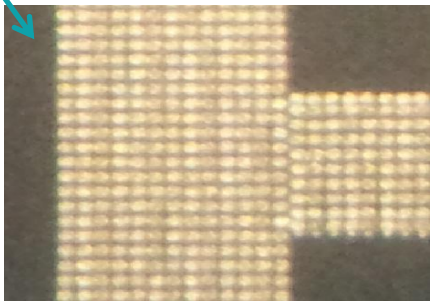
Frequency：17kHz

Speed：950mm/s

Filling：0.034mm







Result analysis

There is a glass layer in the middle of material. When marking, laser is required to through the glass and effect on the bottom of paint. calculate the size of light spot and adjust laser parameter to ensure the light spot not repeat and leakage too much, which can remove part of black paint well and form a recognizable gray.

Marking lattice in foil

Process requirement

Marking lattice in a 0.1mm foil ,size of spot is D=0.5mm, the interval is 0.5mm, size of lattice is50*50mm, require to mark photopermeability and good roundness

Process parameter

Field lens：F100mm

Model：M1+

Power：20W（100%）

Pulse width：200ns

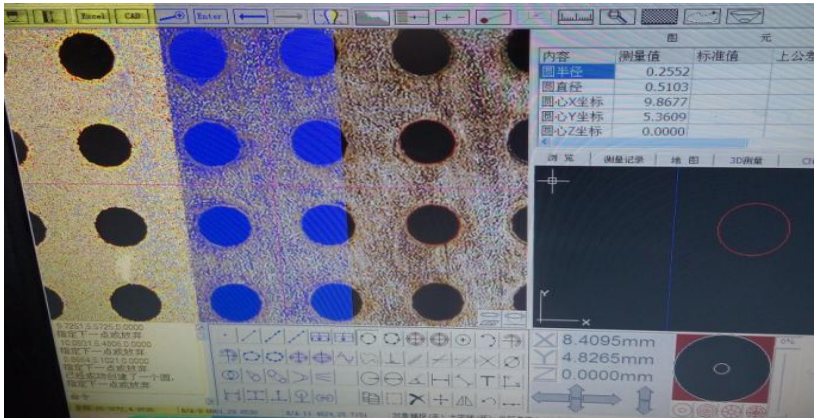
Frequency：50kHz

Speed：800mm/s

Size of hollow :d=0.3mm

Finished time：≈27s

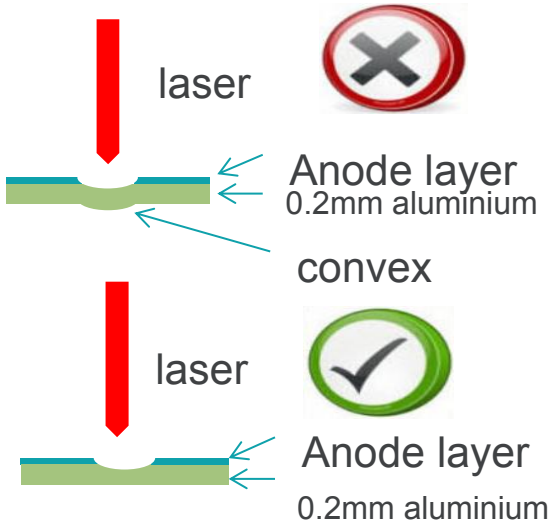
Result:the effect as showen on the right, size of hollw is 0.5mm,size of lattice is 50*50, good effct, using big pulse width and large energy cutting is more powerful.



Stripping Anode layer

Process requirements

Stripping aluminum surface of the anode layer according to customer's sample, which require no convex hull in the back of material.



Process parameter

Field lens：F210mm

Power：12W

Pulse width：8ns

Frequency：130kHz

Speed：5000mm/s

Filling：0.04mm

Processing effect

no convex hull in the back of material

two different effect by two kind of laser source (single pulse)

Marking black in white plastic case

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Process requirements

Marking black in white plastic requires color uniformity, no burning, no explosion point.

Process parameter

Field lens：F＝254mm　Filling type：arc filling

Power：65%（20W）　Packing Pulse width：80ns、100ns

Frequency：10KHz　Speed：600mm/s

Result analysis

Using LP（200ns）to mark black in white plastic case is too big ,the touch feeling is strong. Q-switch（≥20KHz） is too high, which is easy to burn. M1+ uses LP 80ns,100ns, the low frequency（10KHZ） can ensure that in some blackness , there is no touch feeling exist

Marking white in black plastic case

Process requirement

Marking white in black plastic requires color uniformity, no burning, no explosion point.

Process parameter

Field lens：F＝254mm　Filling type：Arcuate filling

Power：65%（20W）　Packing density：0.03mm

Pulse width：60ns　Frequency：10KHz

Speed：600mm/s

Result analysis

Compare with white plastic, black plastic is more easy to absort light and more sensitive to laser. M1+ use middle pulse width (60ns), low frequenc （10KHZ）can marking a more white color.big pulse width and high frequency is easy to make the work pieces sallow. neither LP nor Q-switch can mark a ideal effect.

Marking photopermeability in silicone keys

Process requirements

Remove the black paint and not hurt the white paint on the **process parameter**

Field lens：F＝254mm　　Filling type：Arcuate filling

Remove the paint layer：

Power：80%（20W），Packing density：0.03mm，Pulse width：200ns，
Frequency：50KHz，Speed：2000mm/s

Sweep white：

Power：50%（20W），Packing density：0.03mm，Pulse width：200ns，

Result analysis

The first step is to remove the surface paint by large energy, the second step is to sweep the residue by high frequency . Both PL and M1+ can mark a good effect. As Q-switch machine with low frequency, the effect of sweep white is noe well,and the speed is slow.

Marking photopermeability in mouse paint

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Process requirements

The edge requires no burr,residue ,but good transmittence,and not to destroy the material.

process parameter

Model：M1+

Field lens：f=254mm

Power：10~15W

Pulse width：100~200ns

Frequency：25KHz

Packing：0.04mm

Processing effect

Using the low frequency 25K not only can ensure the effect but also the efficiency. Black paint has good performance in absorbing light , if process by according with the above parameter,only one time can meet the requirement, while the white needs three times.

Marking barcode in plastic

Process requirements

Marking Code 128 barcodes at the specified position ,as red circle shown in FIG, Using the scan code machine,some useful information can be read.
The context of information:231M35141SZN;
size:sample one:29×12.8mm; sample two:：27×13.7mm。

Process parameter

Field lens：F160mm
Model ：YDFLP-20-M2-S
Power：60%
Pulse width：2ns
Frequency：120kHz
Speed：2000mm/s
Packing：90度 0.06mm 4times
Finished time：T1=12.8s、T2=12.7s

Result:Using the scan code machine can read some useful information easily,and obtain better effect.

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Thank you for your watching