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A quick guide to choosing a laser marking system.

- What laser marking system should I buy?
- How do I choose the technical data of the laser marking system?
- What source of laser should I choose?
- How to distinguish an original from a cheap copy?

Dear Customers!

By implementing a policy of transparency in the selection of marking, cleaning and laser welding systems, our company provides customers with accurate knowledge of device components. We hope that this will allow customers to make an informed choice of the device based on quality - where this criterion is appropriate - or price, if it is the main criterion and usually the only one.

In the past, our clients have repeatedly asked where the price difference in the offered products comes from. More than once, this situation caused confusion and despair for a customer who purchased a device from a third party - looking similar or even identical - but unfortunately it functioned poorly, briefly or was deffective.

Ladies and Gentlemen, the price of the device in our company is primarily due to the quality of the components it is made of. Price differences are due to differences in quality, heads, power modules and, above all, the quality of the light source.

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Most customers do not realize that the quality, durability, precision of the light source is not mainly dependent on the manufacturer (Raycus, IPG, JPT is one of the best companies on the market) but depends on the light source model.

As a result, despite the use of the same housing, the devices differ significantly in price and quality. For the customer who buys the device, the quality of the internal components is visually unrecognizable. In addition, the risk of buying cheap devices increases because there are companies on the market that "repaint" the sources of very cheap producers to brand-name sources. It is a criminal practice - described in another article on our website.

Therefore, it is worth making purchases only from reputable sellers only after visiting the seller's company. Unfortunately, practice proves that the website, even if it is made best, does not guarantee the reliability and honesty of the seller.

The comparison of light sources described in this article is based on original laser sources from a well-known manufacturer - Raycus. Data was collected based on the latest specifications available at the time of writing.

A fair choice can be made on the basis of technical parameters:

- Light sources
- Laser head or galvo system
- Quality of optical fiber

and

- Seller experience
- Personal control of the seller's company
- Checking various types of equipment with the seller
- Receiving reliable information from the seller about the type and originality of the laser source, galvo, head, etc.

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At the same time, it should be remembered that the system is usually as unreliable as its cheapest element - so following only the price may not be strongly justified.

To make your selection, you can use **the laser sources table**, in which we have compiled a list of different Raycus light sources. Each laser bears our quality mark in © Quedex Mark units, which - the bigger the better - means high component reliability, beam quality and product life.

Each product we offer has original certificates, holograms and the serial number of the light source - which allows you to control the legality and type of light source. Unfortunately, we have encountered the practice of sticking new nameplates on laser light sources many times. Identification with a hologram and a number - is the only possible visual identification of the product type.

Another extremely useful way to identify the source is to check the technical parameters of the laser control program. This should be done with the help of a technician or the operator of the device - by checking whether the given parameters can be entered into the control program and whether the laser is functioning correctly when using these parameters.

In the discussed example, Raycus laser light sources have the manufacturer's markings like "Q, QS, QE and QB" and this is dictated by the internal structure of the light generating element. The table allows you to assess the technical parameters, and the © Quedex Mark index (the bigger, the better) allows you to understand where, among other things, the price differences of devices come from.

Unfortunately, today the famous saying: "The bitterness of poor quality remains long after the sweetness of low price has been forgotten" still holds true, so let us choose consciously - only devices of appropriate quality and honest suppliers.

We should also remember to protect the eyesight and respiratory tract when working with lasers. Both are covered in our other news articles.

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The Laserman sources table

Laserman Pulsed fiber laser	Raycus RFL-P20QS	Raycus RFL-P30QS	Raycus RFL-P10Q	Raycus RFL-P20Q	Raycus RFL-P30Q	Raycus RFL-P100Q	Raycus P20QB	Raycus P30QB	Raycus RFL-P50QB	Raycus RFL-P20QE
Wavelength (nm)	1060~1085	1060~1085	1060~1085	1060~1085	1060~1085	1060~1085	1060~1085	1060~1085	1060~1085	1060~1085
Polarization	Random	Random	Random	Random	Random	Random	Random	Random	Random	Random
Optical isolator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nominal average output power (W)	≥ 20	≥ 30	≥ 10	≥ 20	≥ 30	≥ 100	≥ 20	≥ 30	≥ 50	≥ 20
Single pulse energy (mJ)	0.67	0.75	1@20kHZ	1@20kHZ	1@30kHZ	1	1@20kHz	1@30kHz	1@50kHz	0.66@30kHZ
Beam quality (M)	<1.5	<1.6	<1.5	<1.5	<1.5	≤2	<1.5	<1.5	<1.6	<1.5
Beam Diameter (mm)	6～8	6～8	6～8	6～8	6～8	6～8	6～8	6～8	6～8	6～8
Pulse duration (ns)	110-140	130-150	80-100@20kHZ	90-130@20kHZ	90-130@30kHZ	≤130	<120@20kHz	<120@30kHz	90-150@50kHz	115-140@30kHZ
Pulse repetition rate (kHz)	30-60	40-60	20-60	20-60	30-60	20-100	20 - 60	30 - 60	50-100	30-60
Output Power Adjustment (%)	10-100	10-100	10-100	10-100	10-100	10-100	10-100	10-100	10-100	10-100
Output Fiber Cable length (m)	2.0～3.0	2.0～3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Working voltage (VDC)	24±1	24±1	24±1	24±1	24±1	24±1	24±1	24±1	24±1	24±1
Power consumption (20℃) (W)	170	240	120	170	240	500	200@20℃	300@20℃	340	170
Cooling	Forced Air Cooled	Forced Air Cooled	Forced Air Cooled	Forced Air Cooled	Forced Air Cooled	Forced Air Cooled	Forced Air Cooled	Forced Air Cooled	Forced Air Cooled	Forced Air Cooled
Dimension W×D×H（mm）	215×95×290	215×95×290	260×391×120	260×391×120	260×391×120	360×123×390	215×286×95	215×286×95	260×391×120	260×391×120
Operating temperature（℃）	0℃～40℃	0℃～40℃	0℃～40℃	0℃～40℃	0℃～40℃	0℃～40℃	0℃～40℃	0℃～40℃	0℃～40℃	0℃～40℃
Store temperature（℃）	-20℃～60℃	-20℃～60℃	-20℃～60℃	-20℃～60℃	-20℃～60℃	-20℃～60℃	-20℃～60℃	-20℃～60℃	-20℃～60℃	-20℃～60℃
Humidity（%）	≤80%	≤80%	≤80%	≤80%	≤80%	≤80%	≤80%	≤80%	≤80%	≤80%
Quedex® quality mark (higher = better)	1	1	2	2	2	2	5	5	5	6