

## A Series CO2 Laser Tube

(Laser Accessory for Laser Equipment )

Country of Origin: China

Product Standard: Q/EFR/J 1.1-2015 Certifications: CE certificate, Chinese technical letters patent

### Features of X Series CO2 Laser Tube

1. Non-tunable cavity + glass sealing technology, the laser tube contains the catalyst, which ensures that the laser has a chemical service life of 540 days;
2. The laser intracavity lens is upgraded, the spot quality is good, and it reaches the quasi-TEM00 fundamental mode, which has better accuracy.
3. The beam quality is excellent, the spot is small, and the response speed is fast. It is widely used in laser marking machines and engraving machines.
4. The product has passed the verification of many enterprise customers, the working mode is more stable, and the cost performance is extremely high.
5. It is equipped with a dust cover design for the laser light outlet, which is suitable for a variety of industrial environments.

### Advantages of X Series CO2 Laser Tube

1. Solve the problem of power drop due to mode changes during use.
2. New Product Technology, Non-tunable Cavity + Glass Sealing Technology.
3. More stable!The working mode is more stable and cost-effective.
4. Wider Applicable Environment,It is equipped with a dust cover design for the laser light outlet.

### Parameters

Model	Length(mm)	Diameter(mm)	Rated Power (w)	Max Power (w)	Current (mA)	Catalyst
A1	1100±20	Ø80±2	70	85	540	YES
A2	1250±20	Ø80±2	80	90		
A4	1400±20	Ø80±2	90	110		
A6	1650±20	Ø80±2	120	140		

### Product Showcase

1,2,3,4

### Performance and Application

EFR's high power, durable and stable CO2 laser tubes have a small light spot and can be used as laser cutting machine accessories, laser engraving machine accessories, and laser marking machine accessories. As they play an important part in cutting, engraving and marking of leather products, car seats, clothes, paper, and other products in the advertising, packaging, craft processing, decorative construction material industries, our laser consumables are widely recognized and popular among numerous manufacturers of laser machines.

#### • Installation Request

Please install in strict accordance with the Installation diagram of X series. The laser is equipped with a special power supply (see the table below for specific power supply model). The positive electrode zone is high voltage. The starting voltage is shown in the table below.

Results caused by wrong installation: firing, the inner tube was broken and leak water.

Model	Power Supply	The Starting Voltage
A1	PS-ES80	19 Kv.
A2	PS-ES80	19 Kv.
A4	PS-ES100	24 Kv.
A6	PS-ES150	28 Kv.

### 2. Working Request

Water Cooling: cooling liquid must be pure water, flow is 3-5 Liter per minute, standard water

temperature: 10°C-40°C.

Working Environment: 2-40°C, humidity: 10-60%.

Model	Detected Current	Allowed Maximum Working Current	Daily Working Current	Working Life (under Daily Working Current)
A1	25mA	25mA	24mA	10000 Hours
A2	28mA	27mA	27mA	10000 Hours
A4	30mA	28mA	28mA	10000 Hours
A6	30mA	28mA	28mA	10000 Hours

Table description (take A1 as an example) : Detected current 25mA, allowed maximum working current 25mA, daily working current must be less than 24mA. If working current is less than 24mA, the laser tube working life can be 10000 hours. The above mentioned current is the current showed in the Ammeter which is series connected to cathode.

If the user does not operate as this request: **the cathode will change color** when used for a long period of ultra-current, and the laser tube service life will be greatly shortened.

To protect the electrode from dust, please wrap the high voltage cap by plastic wrap.

### 3. Performance

Cutting.

Engraving. Good engraving performance, can use 5mA currency to engrave by high-frequency pulse under pre-ionized condition.

### 4. Notification

The output mirror surface cannot be cleaned by anything even if cotton ball. Otherwise the power will be reduced a lot.

Cleaning Instruction: 1) do not turn on the laser if the mirror is dirty, 2) blow the mirror surface by oblique front balloon, 3) spray pure alcohol to the mirror surface by injector, 4) do not turn on laser till the alcohol is volatilized, 5. If the above cleaning methods have no obvious effect, professional personnel must glue the alcohol with cotton balls, and then rotate to scrub the mirror from inside to outside. It is best to protect the output mirror from dust. Please note, do not clean it by acetone.

When test the light spot on acrylic, please keep the acrylic 300mm away from output mirror.

- **Safety**

Since the laser tube is making invisible light, goggles is requested during operation. The anode has high voltage. Please note the safety signs.

- **Storage and Transportation**

Before storage or transportation, please drain out the cooling liquid, cover the output side by plastic bag. The storage environment should be 2-40°C, humidity is 10-60%, and pack it in factory way.

Packing notification: please do stick the laser tube and sponge strongly by tape, which will avoid the laser tube longitudinally sliding. At the end of the output mirror, the packing sponge should protrude 70 mm; At the end of the full mirror, the packing sponge should protrude 50mm.

Model of Laser Tube	A1	A2	A4	A6
Quantity of Laser Tube	1	1	1	1
Product Net Weight (Kg)	2.2kg	2.4kg	2.9kg	3.3kg
Carton Capacity	1 laser tube (large carton for air transport)			
Carton Dimension (L×W×H)	131*19*14	146*19*14	161*19*14	186*19*14
Product Rough Weight (Kg)	3.3kg	3.6kg	4kg	4.8kg

### Quality Guarantee

Warranty: 540 days

(A1、A2、A4), 360days A6

1. Within 180 days from the date of leaving the factory, if the output power is less than 80% of the rated power under the premise that the user uses it according to the instructions, we are responsible for

repairing the laser tube or replacing it with a new laser tube for free. The free replacement laser tube enjoys the quality promise of the new laser tube when it leaves the factory. During the period, the one-way freight is borne by the user. We will not be responsible when the laser structure is damaged or changed.

2. From the 181st day to the 360th day, if the output power is less than 75% of the rated power under the premise that the user uses it according to the instructions, we will repair the laser tube or replace it free of charge. The free replacement laser tube or the laser tube that is qualified for repair enjoy the quality promise according to the factory date when the first purchase. During the period, the one-way freight is borne by the user. No responsibility when the laser structure is damaged or changed.

3. We are not responsible for damage or problems that occur during the incorrect usage and do not fall in line with the instruction books.