

# How to assemble 2-blades rotating iris diaphragm for laser cut

This rotating [iris diaphragm](#) is similar to a shutter mechanism. The shape is similar to Chinese Taiji or Taichi. The leaves in the middle hole can open or close gradually. You can get STEP and DXF files on [cgtrader.com](#) or [twothreed.com](#). After you have got the files and manufactured parts with a laser cutter (or CNC router), this tutorial shows you how to assemble parts together.

In this tutorial, we assume you manufacture parts using wood plates. Of course, you can try to use other material too. The part's quality is an important factor to make the mechanism work well. This tutorial is based on the mechanism-LS2BLROD50A.

Before assembly, you can [watch the video on Youtube](#).

## What material you need to assemble the rotating iris diaphragm

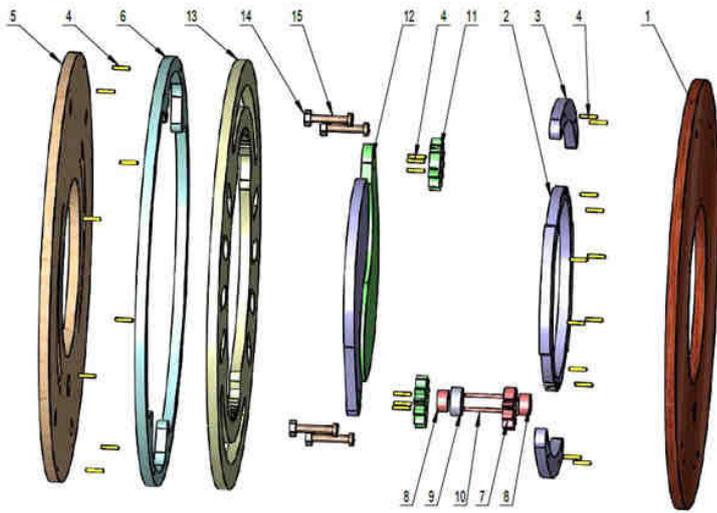
Besides the parts you fabricated with a machine, you should prepare the following materials.

1. Metal Screws-M2x12(>4pcs);
2. Metal Hexagon socket head cap screws-M2(>4pcs);
3. Metal pins-diameter 1mm, length 12mm(>2 pcs);
4. Metal pins-diameter 1mm, length 5mm(>26 pcs);
5. Allen Wrench;
6. Glue for the material you use(in this tutorial, glue for wood)

If you get other design files, refer to the BOM you got to prepare materials.

## Instruction of the 2-blades rotating iris diaphragm

The whole mechanism can be divided into 4 sub-assemblies and 1 main part. First, we need to assemble all the 4 sub-assemblies with materials listed above, and then assemble them together.



NO.	PART NUMBER	QTY.	DESCRIPTION
1	Bottom plate	1	
2	Bottom C Gear	1	
3	cushion support	2	
4	D1L5-pin	26	
5	Cover Plate	1	
6	Cover Support	1	
7	Drive Gear	1	
8	Drive Shaft	2	
9	Drive Support	1	
10	D1L12-Pin	2	
11	Blade Gear	2	
12	Talji Blade	2	
13	Ring_circle	1	
14	M2 Nut	4	
15	M2X12-Screw	4	

LS2BLROD50A

Figure 1

## Steps to assemble the 2-blades rotating iris diaphragm

### Step 1. Assemble the sub-assembly “ASM-Bottom”

There are 4 plates. Add glue between plates and insert D2L5 pins to locate parts in the right position. The pins cannot stick out from the wood. Figure 2.



Figure 2



Figure 3



Figure 4



Figure 5

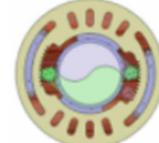


Figure 6

### Step 2. Assemble the sub-assembly “ASM-Blade”

Add glue between the two parts, insert D2L5 pins. Don't let pins stick out. Figure 3.

### Step 3. Assemble the sub-assembly “ASM-Drive”

There are 4 parts in this sub-assembly. Add glue between parts, and insert D1L12 pins into the small holes. Clean the glue on the surfaces. If needed, sand the parts a bit. Parts' surface should be smooth enough. Figure 4.

#### Step 4. Assemble the sub-assembly “ASM-Cover”

Add glue between the part “Cover Plate” and “Cover Support”, and insert D1L5 pins into the small holes. Remove the glue on the outer surfaces. Figure 5.

Until now, the sub-assemblies are ready. Now assembly the whole taiji mechanism.

#### Step 5. Assemble all the sub-assemblies together

Put the “ASM-Bottom” on a table, then put “ASM-Blade”, “ASM-Drive”, and the part “Ring\_circle” in the correct position (refer to Figure 6). Check the mechanism to see if it can run smoothly by rotating the “Ring\_circle”. If it cannot move smoothly, try to repair some parts .

After it can run smoothly, put the “ASM-Cover” on the top, then assemble them together with M2X12 screws and M2 nuts. Rotate the “ASM-Drive” or the “Ring\_circle” again, if the mechanism cannot run smoothly, loose the screws, check the parts or adjust the screws to make them a little loosen. After the mechanism works well, add a bit glue on the screw and nut to lock them.

That is OK. **Note:** If you cannot ensure if your parts can work well, don't use glue before you ensure that. And you need try to make every parts smooth enough. Refer to the [3DPDF](#) file when assembling.

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