FWF30-F10
Mirror Welding Manual

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Foreword

Thank you for choosing our products!

To enable you to have an overall understanding of our company, there is a detailed introduction regarding features, structural features, technical parameters, instructions for use and maintenance of the product in the Manual. Before using this product, please read this Manual carefully, which will help you to use it better.

Due to constant update of product functions, the product you received may differ from the description in the Manual. We hereby express our deep sorry for this matter! During use, in case of any question, please timely call us for consultation, and we will offer dedicated service to you wholeheartedly.

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Chapter I Overview

1.1 Product paramete

Name	Mirror Welding Manual
Model	FWF30-F10
Fiber interface	QBH
Wavelength scope	1070±20nm
Rated power	≦3000W
Collimation focal length	100mm
Focus focal length	F254/F330/F420
Scan range	130*130mm/160*160mm/200*200mm
Auxiliary pressure	＜1Mpa
Weight	7.1KG

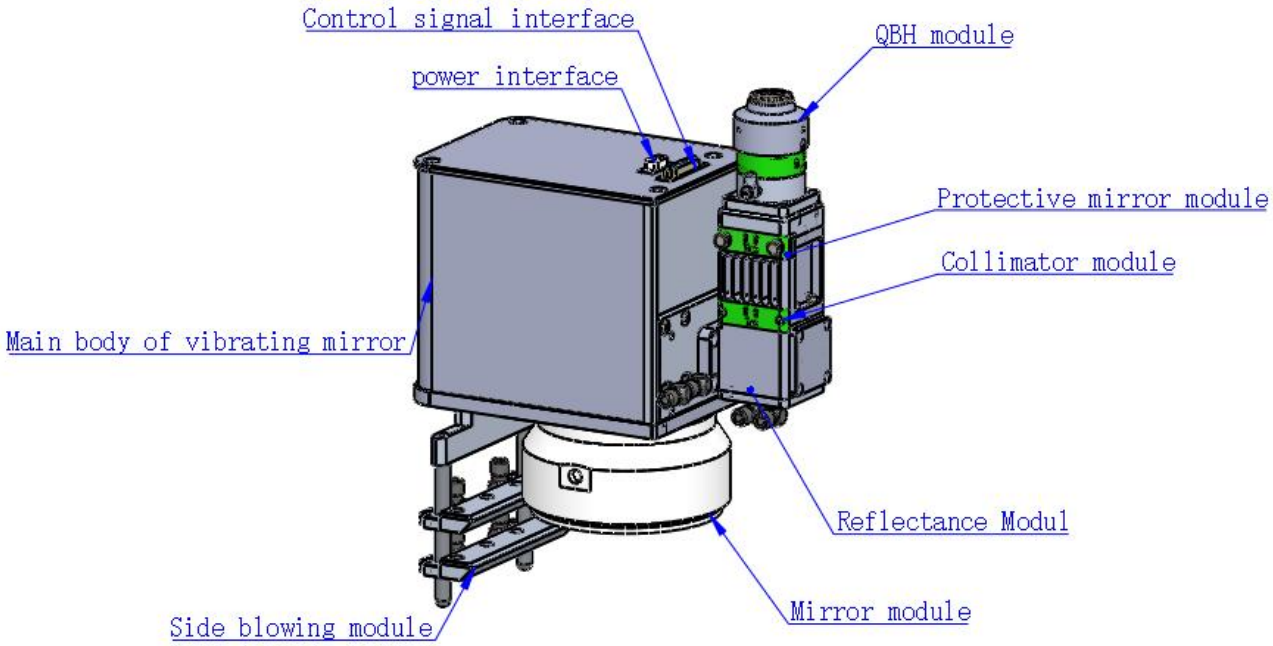
1.2 Precautions

※ To ensure personal safety, wear the special fiber laser protective glasses before operation.

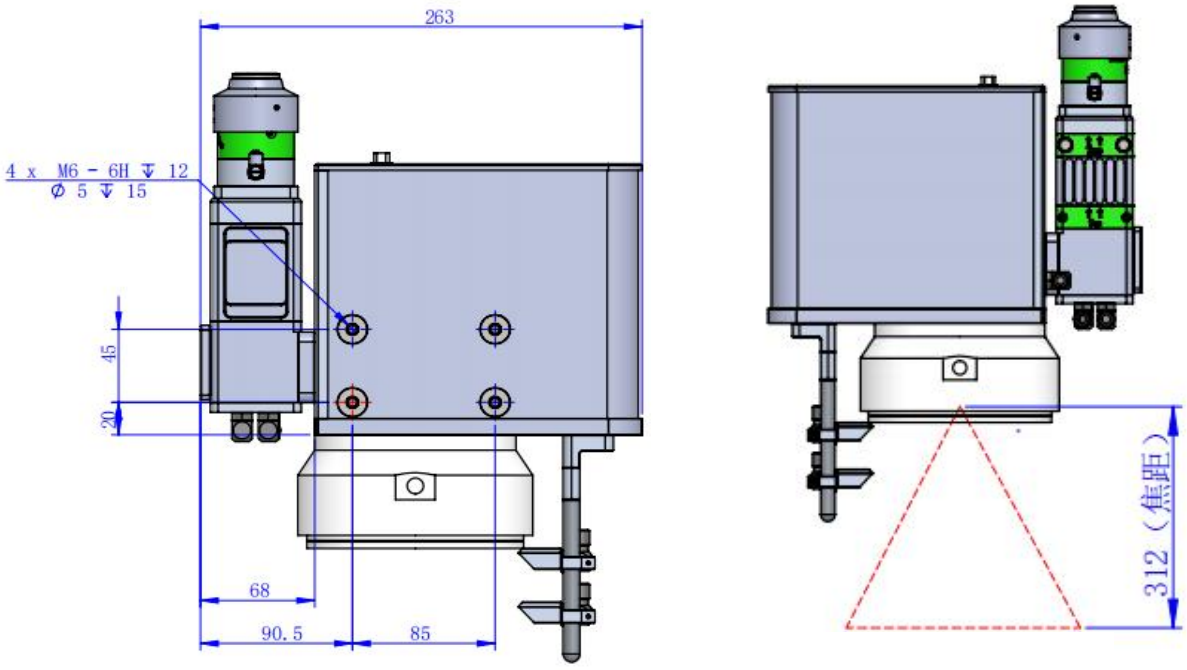
※ It is necessary to keep the product clean and prevent the cooling liquid, condensate water or other foreign matter from intruding into the cavity, or the functional contamination and functional impact of related parts will be incurred.

Chapter II Structural Characteristics

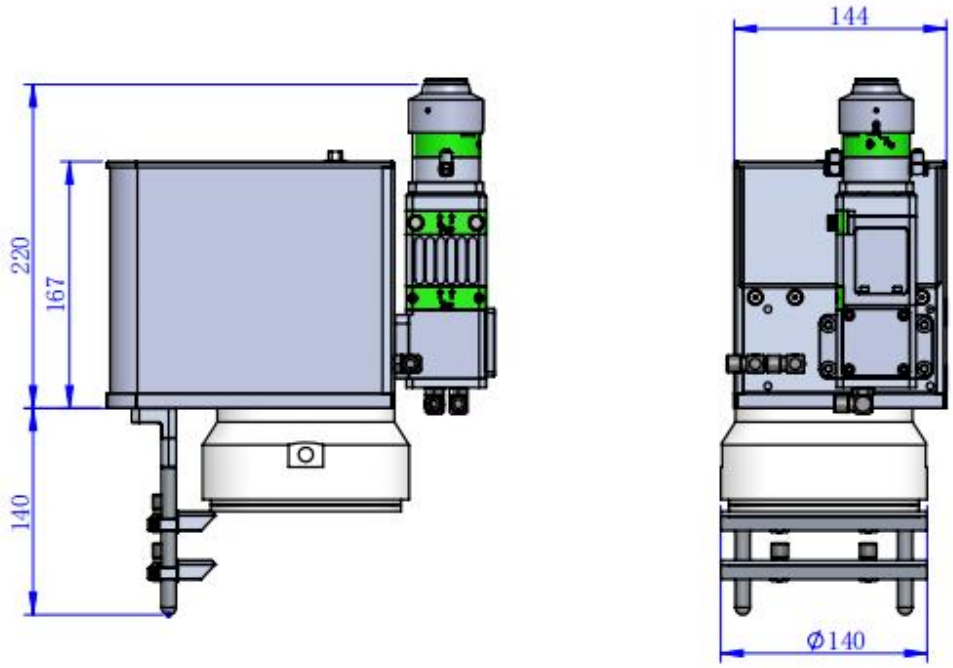
2.1 Product structure



2.2 Installation size



2.3External dimensions



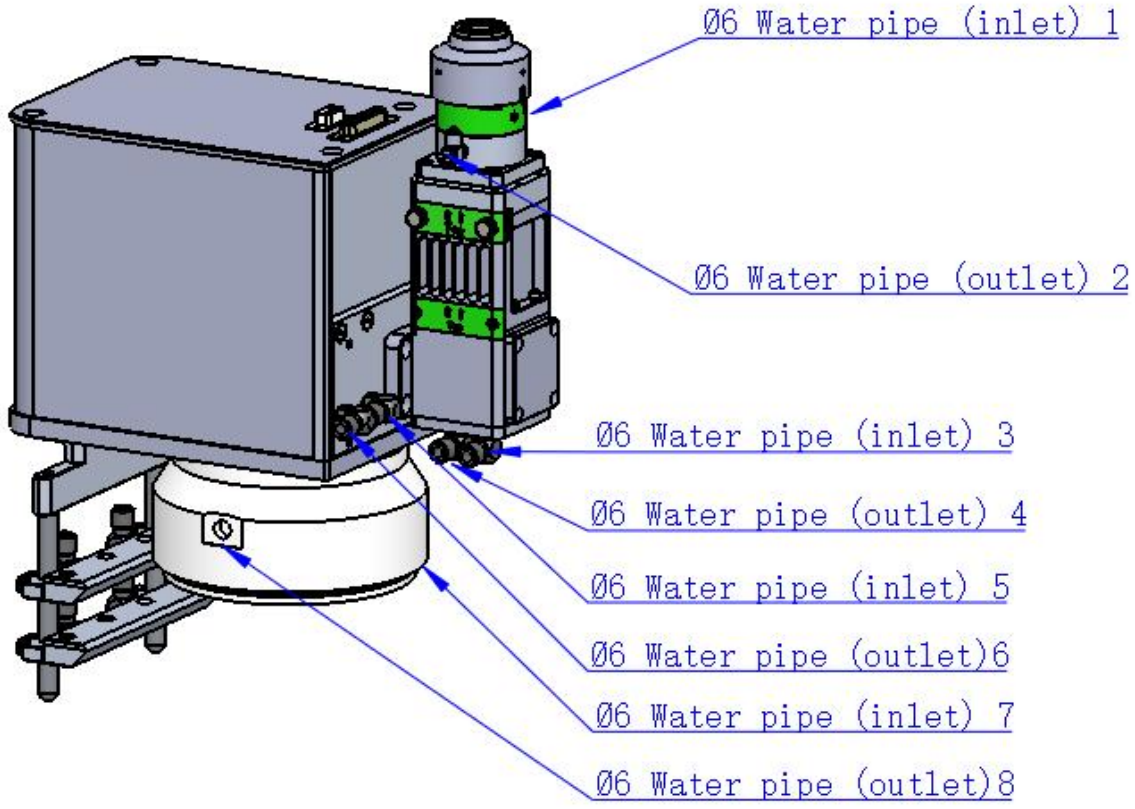
Chapter IIIProduct Installation

3.1 pipeline connection

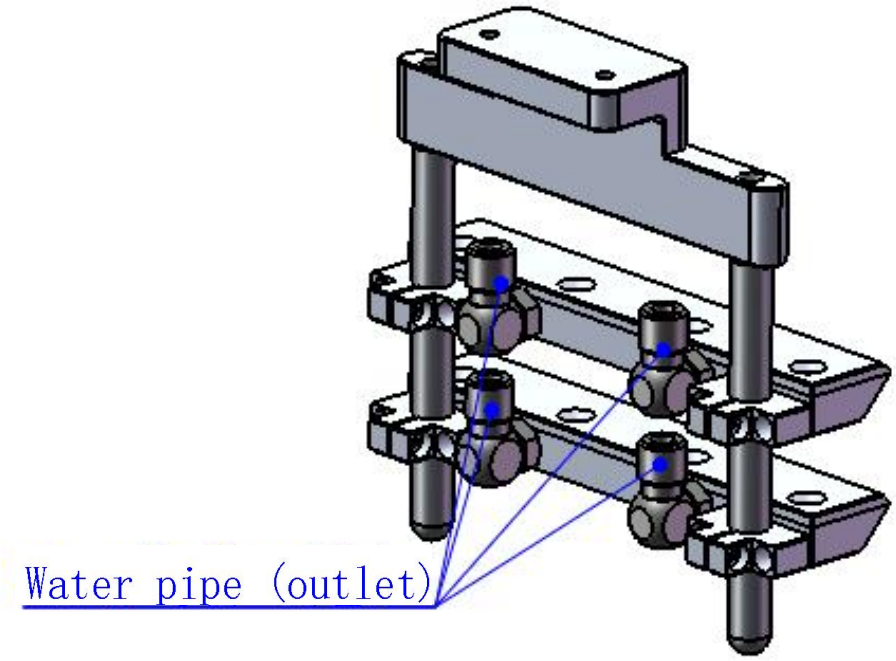
Cooling water circuit connection and usage requirements:

3.1.1 Water Connection:

Connect a 6mm air pipe, which is mainly used to cool and remove excess heat generated by the internal structural components of the water circuit when heat is generated in the cavity. This ensures welding performance. The cooling water pipeline needs to be connected in series, with one inlet and one outlet water flow circulating, following the sequence of 1-8.



3.1.2GasConnection



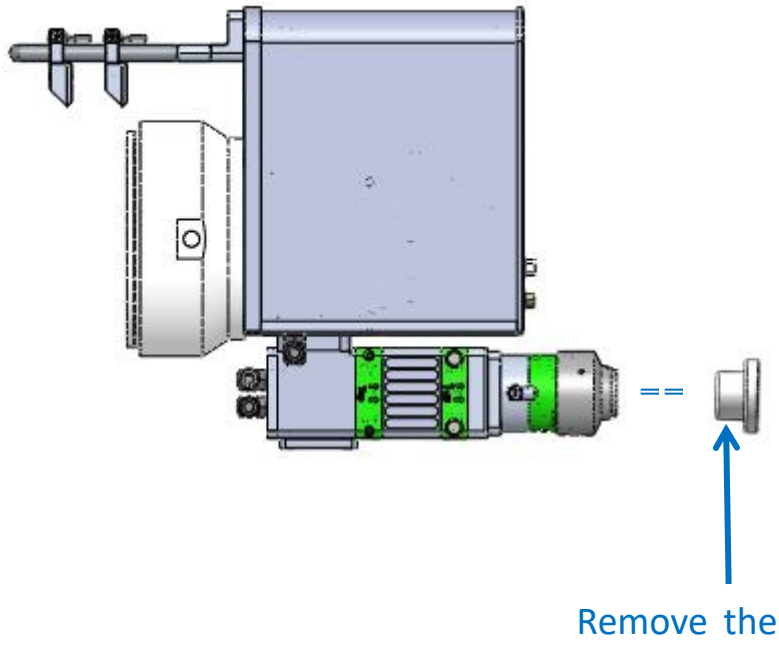
Gas connection: Connect a 6mm gas pipe, with a gas pressure output of less than 1Mpa. Horizontal blowing is used to prevent splashing from damaging the protective lens.

Note: Conventional gas used: Compressed air (requires oil-water filtration)

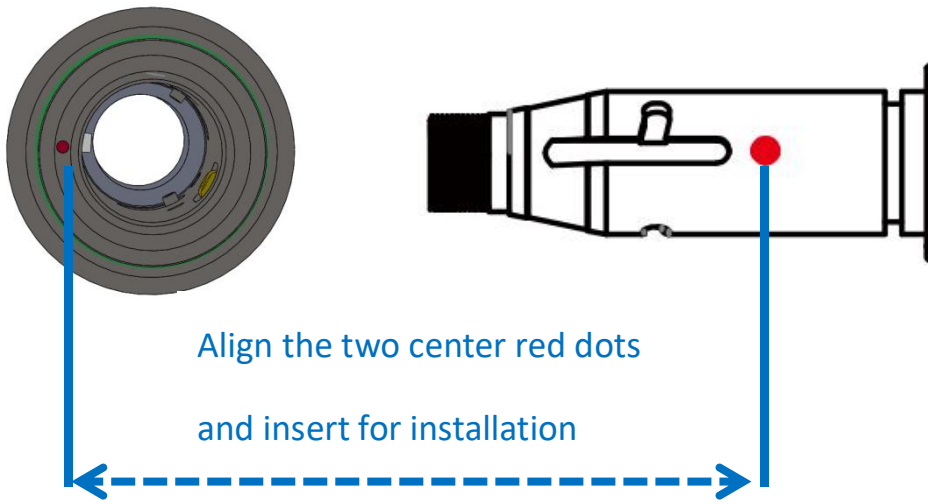
The commonly used gases include argon, nitrogen, compressed air, and oxygen (which require oil-water filtration).

3.2 Fiber optic input installation

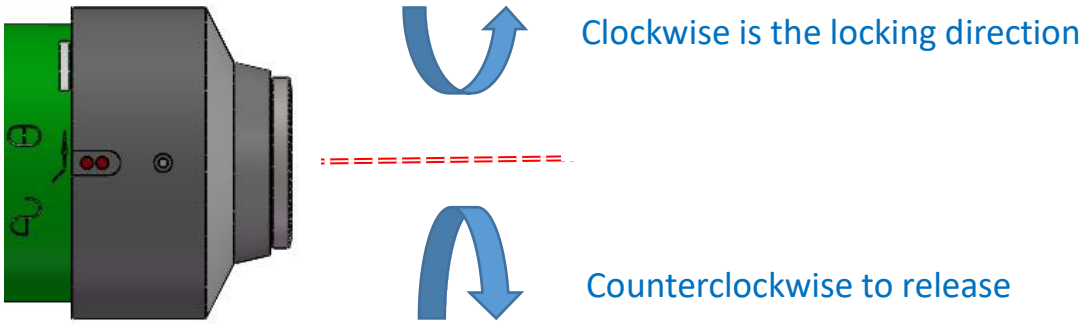
※ Place QBH horizontally and remove the dust seal cover.



※ Align the red dot on the fiber optic head with the red dot on QBH, and slowly insert the fiber optic head into QBH。



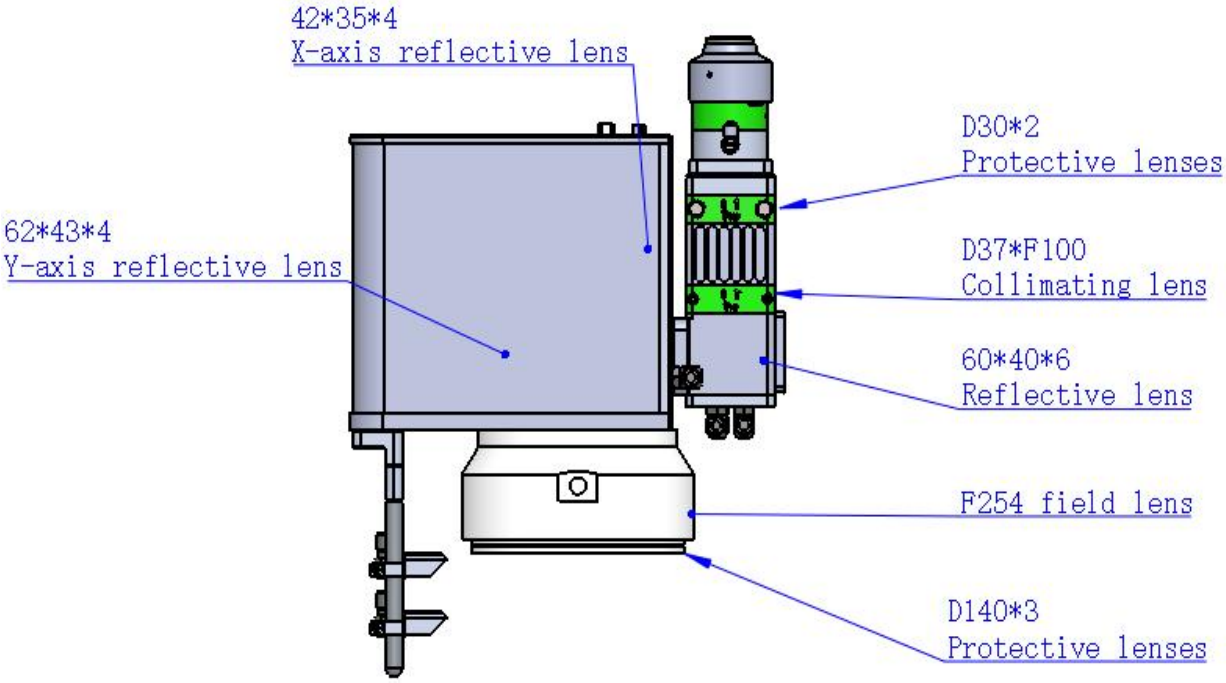
※ Twist QHB to the locked state: Rotate clockwise to the limit position (you can feel a "click" sound), lift up the rotating sleeve, and then rotate the sleeve clockwise again until the fiber head is compressed.



Chapter IV Maintenance

4.1 Structure of optics lens

※The replacement parts are assembled in a dust-free workshop. Except for the protective mirror drawer, which can be disassembled, other modules are generally prohibited from disassembly. If it is necessary to inspect the collimating lens, please place the product in a clean environment and remove it.

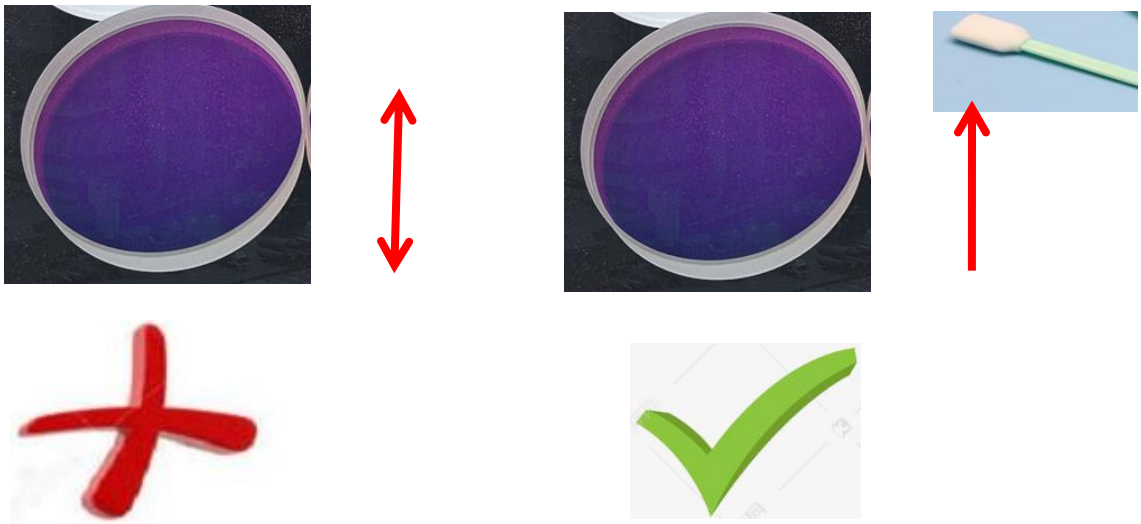


4.2 Cleaning of optics lens

※ When the optics lens are cleaned, the operation method and attention points are as follows:

※ Tools: Dust-free gloves or dust-free fingerstall, dust-free wiping cotton swab, isopropyl alcohol, and caned dry and pure compressed air.

※ Spray the isopropyl alcohol onto the dust-free cotton swab, align the lens to eyes, gently pinch the side edge of the lens with left thumb and index finger and hold the dust-free cotton swab with right hand to gently wipe the front and back of the lens in a single direction from bottom to top or from left to right (avoid wiping back and forth to avert the secondary contamination of lens), blow the surface of the lens with filling dry and pure compressed air and confirm the surface of lens is free from foreign matters after cleaning.



4.3 Disassembly and assembly of optics lens

4.3.1 Disassembly and assembly of protective lenses

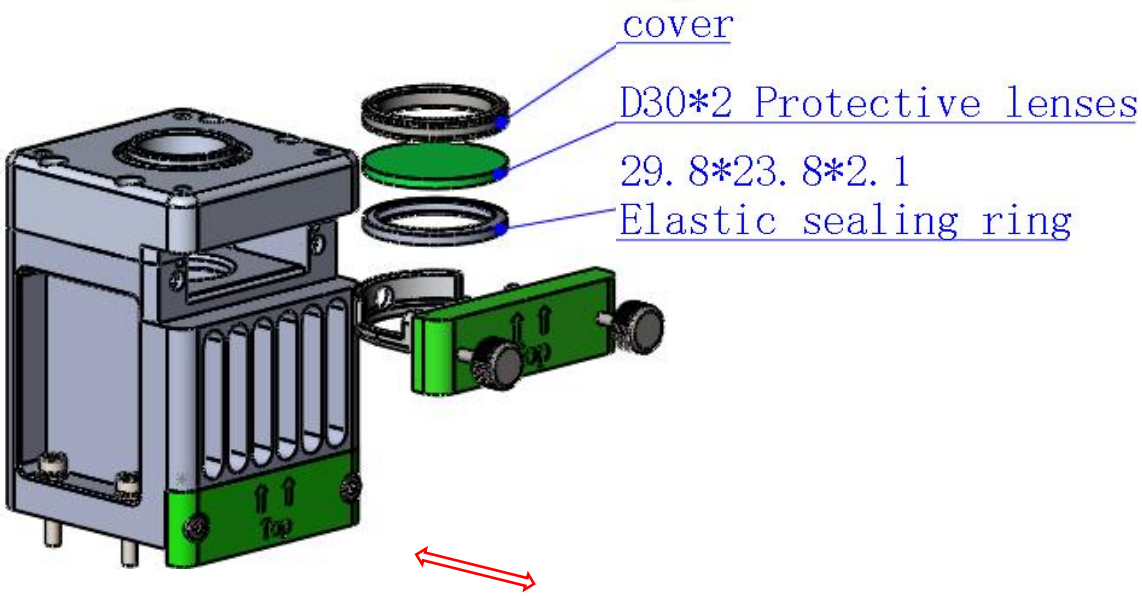
Tools: dust-free cotton swabs, alcohol, and masking tape.

The disassembly and assembly process needs to be completed in a clean place. When disassembling and assembling lenses, dust-free gloves or finger cots must be worn.

※ Disassembly and assembly steps:

Step one, loosen the locking bolt, hold the green handle on both sides, and horizontally pull out the protective lens. When replacing the protective lens, seal the exposed window on the cavity with masking paper to prevent dust from entering.

Step 2: Remove the cover and replace the protective lens。



4.3.2 Disassembly and assembly of collimating lens

Tools: 2.5mm hex wrench, dust-free cotton swab, alcohol, and masking tape.The disassembly process needs to be completed in a clean place, and dust-free finger cots must be worn when disassembling lenses.

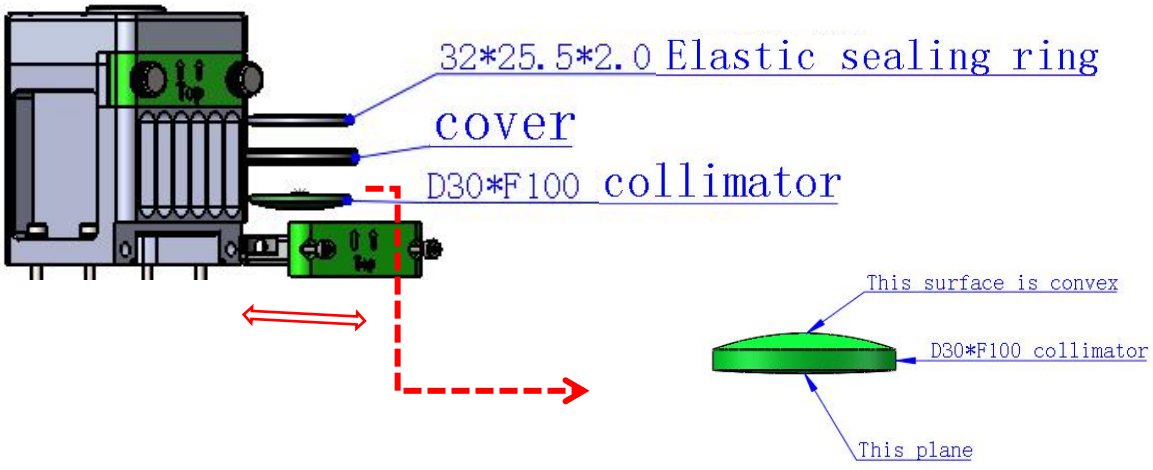
※ Disassembly and assembly steps:

Step 1: First, clean all the dust on the surface.

Step 2: Use a 2.5mm hex wrench to loosen the 2-M3 screw in the picture.

Step 3: Take out the collimation drawer module horizontally and seal the port with masking paper to prevent dust from entering the cavity.

Step 4: Remove the cover upwards and replace the lens. (Note that the concave and convex surfaces of the lens, or the side of the viewing area marked with arrows, should be recorded to identify the orientation of the lens)



4.3.3 Disassembly and assembly of reflective lenses

Tools: 2.5mm hex wrench, Phillips screwdriver, dust-free cotton swab, alcohol

The disassembly and assembly process needs to be completed in a clean place. When disassembling and assembling lenses, dust-free gloves or finger cots must be worn.

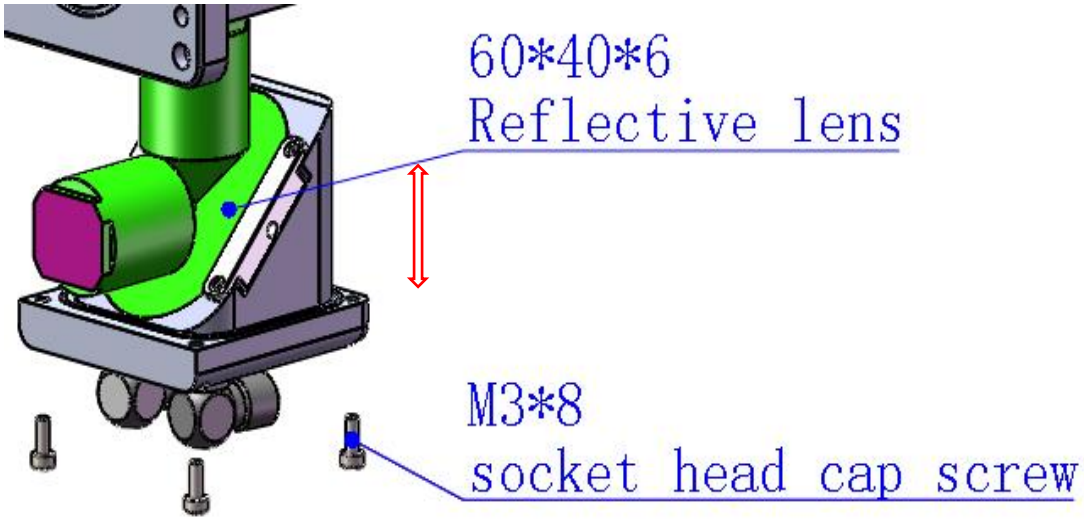
※ Disassembly and assembly steps:

Step 1: First, clean all the dust on the surface.

Step 2: Use a 2.5mm hex wrench to loosen the M3 hex socket head screws in sequence

Step 3: After assembling each component module, seal the exposed sealing surface on the cavity with masking paper to prevent dust from entering.

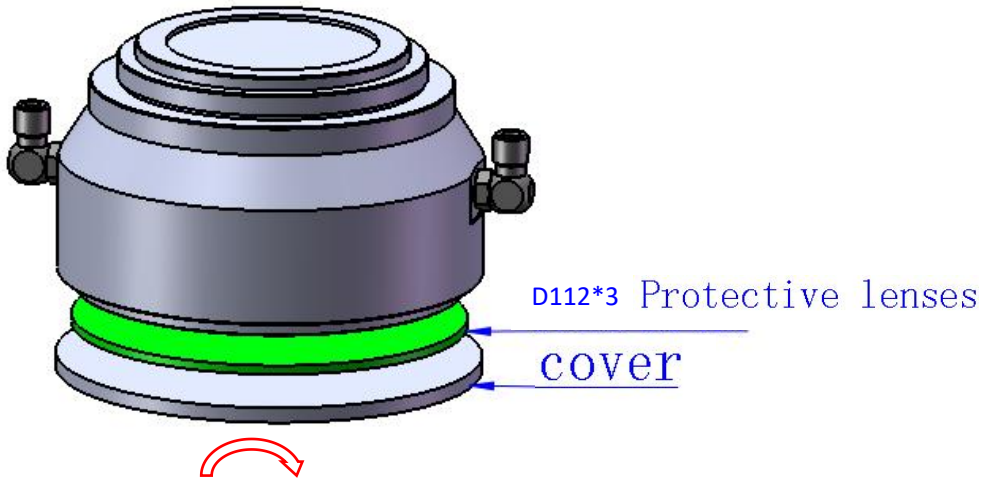
Step 4: Use a Phillips screwdriver to loosen the M2.5 screw, remove the cover, and replace the lens.



4.3.4 Disassembly and assembly of protective lenses

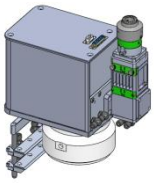
The disassembly and assembly process needs to be completed in a clean place. When disassembling and assembling lenses, dust-free gloves or finger cots must be worn.

Operation method: Loosen the cover counterclockwise to replace the lens.

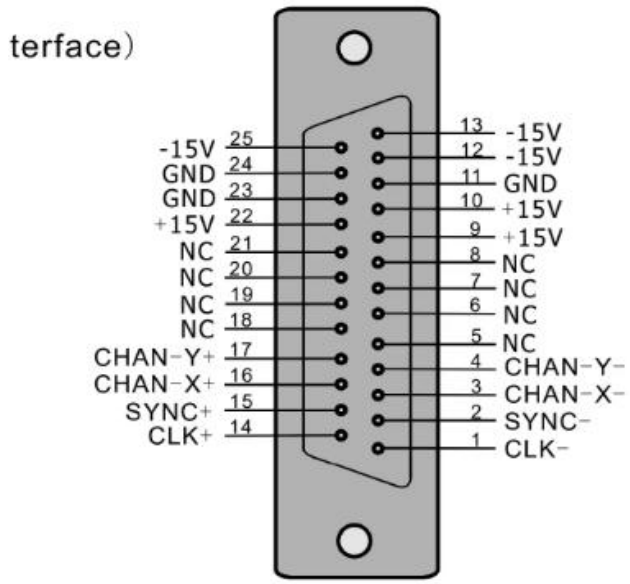


Chapter Velectrical

5.1 Electrical Material List

list				
list	Serial Number	illustration	illustration	notes
1	Galvanometer welding		1	
2	± 15V Switching Power Supply		1	
3	Field mirror control line (10 meters)		1	
4	Field mirror power cord (10 meters)		1	
5	Wind blade component		1	

5.2 Definition of galvanometer control signalinterface



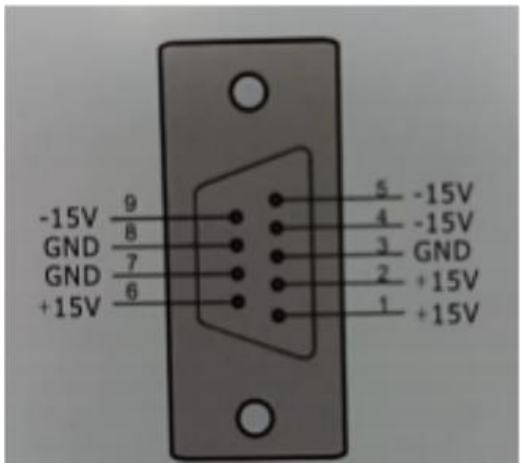
There is a DB25 female connector on the welding head of the vibrating mirror

DB25 Mother Head Definition

Pin	signal	Definition Description
1	CLK-	clock signal-
2	SYNC-	synchronization signal-
3	CHAN-X-	X-axis galvanometer motor signal-
4	CHAN-Y-	Y-axis galvanometer motor signal-
5	NC	Remaining, suspended in the air
6	NC	Remaining, suspended in the air
7	NC	Remaining, suspended in the air
8	NC	Remaining, suspended in the air

9	+15V	Remaining, suspended in the air
10	+15V	Remaining, suspended in the air
11	GND	Remaining, suspended in the air
12	-15V	Remaining, suspended in the air
13	-15V	Remaining, suspended in the air
14	CLK+	clock signal+
15	SYNC+	synchronization signal+
16	CHAN-X+	X-axis galvanometer motor signal+
17	CHAN-Y+	Y-axis galvanometer motor signal+
18	NC	Remaining, suspended in the air
19	NC	Remaining, suspended in the air
20	NC	Remaining, suspended in the air
21	NC	Remaining, suspended in the air
22	+15V	Remaining, suspended in the air
23	GND	Remaining, suspended in the air
24	GND	Remaining, suspended in the air
25	-15V	Remaining, suspended in the air

5.3 Definition of power interface, supplying power to the driver board



PIN	signal	Definition Description
1	+15V	External power input
2	+15V	External power input
3	GND	Power reference ground
4	-15V	External power input
5	-15V	External power input
6	+15V	External power input
7	GND	Power reference ground
8	GND	Power reference ground
9	-15V	External power input

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