FF110 APO

■使用说明书

警告

请勿通过本望远镜直接观测太阳，这样做可能导致瞬间失明，请购买专用太阳观测滤镜或滤膜，来获得最安全的观测指导。

www.zwoastro.cn

中文版（简体）

使用产品前请仔细阅读本使用说明书

FF110 APO 是一款口径为 110 毫米，焦距为 766 毫米，原生焦比为 F7.0 的天文摄星镜，用途多样，兼顾目视观测与天文摄影。

该望远镜采用前三后一的四片式光学结构，内含一片 ED 玻璃，并支持全画幅拍摄。采用自平场设计，连接相机等成像配件后，合焦即可直接拍摄（有效合焦范围自 M54-M48 拍摄接口端面算起，后端连接有效长度为42mm-73mm即可合焦）。

遮光罩采用可伸缩式设计，能进一步缩减整体长度，提升便携性。镜筒整体采用高质量CNC工艺加工，内部设有光阑，可有效抑制杂散光。

把手处预留寻星镜基座槽，调焦器两侧亦各配备一个寻星镜基座，不仅便于灵活调整寻星镜位置而无需拆卸，也为安装其他天文配件提供了更多可能。抱箍使用CNC定制手拧螺丝搭配蚌壳式开口设计，无需多余工具，拆卸方便。

FF110 APO 配备 3 英寸齿轮齿条式双速调焦器，支持 1:10 的精密调焦。后端集成 360度像场旋转器，便于精确构图。鸠尾板为 300 毫米标准窄版规格，并设有 1/4 英寸与3/8英寸螺丝孔，可直接连接三脚架使用。

镜筒末端提供 2 英寸与 1.25 英寸接口，方便接驳各类附件。此外，FF110 APO 还标配一个摄影延长管，内含 2 英寸滤镜螺纹，后端配备 M48×0.75 与 M54×0.75 规格的摄影接环，以满足多样化的拍摄需求。

FF110 APO规格：

有效口径： 110mm

焦距： 766mm

焦比： F7

物镜类型： 四片式全分离APO（包括一片ED玻璃）

成像圈： 44mm

调焦筒缩进状态下后端最长连接长度：	调焦筒伸出状态下后端最短连接长度：
拍摄模式：	**拍摄模式：**
73mm（从M48×0.75外螺纹算起）	42mm（从M48×0.75外螺纹算起）
91mm（从M54×0.75外螺纹算起）	60mm（从M54×0.75外螺纹算起）
观测模式：	**观测模式：**
132mm（从1.25英寸目镜基座算起）	101mm（从1.25英寸目镜基座算起）
142mm（从2英寸目镜基座算起）	111mm（从2英寸目镜基座算起）

全长：

664mm（含1.25英寸接口缩进状态） 751mm（含1.25英寸接口遮光罩伸长状态）

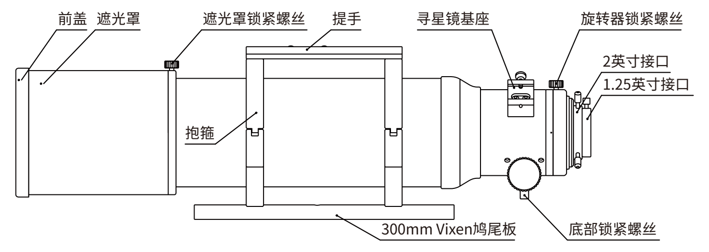
728mm（加拍摄接口缩进状态） 815mm（加拍摄接口遮光罩伸长状态）

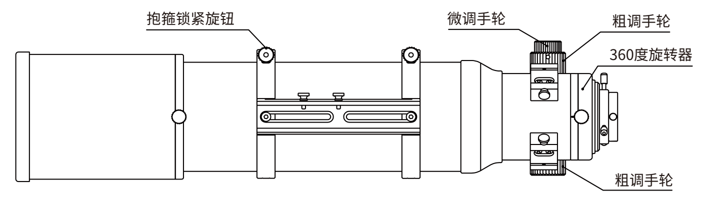
OTA重量： 5.74kg

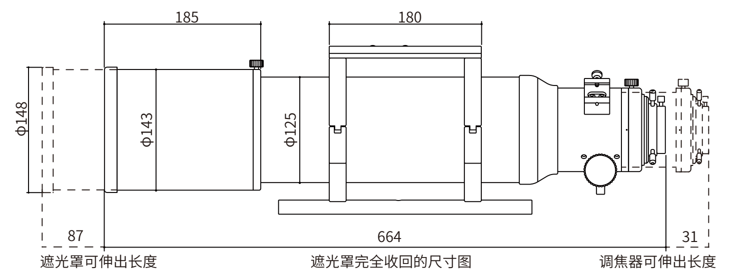
总重（包含提手、抱箍和鸠尾板）： 6.76kg

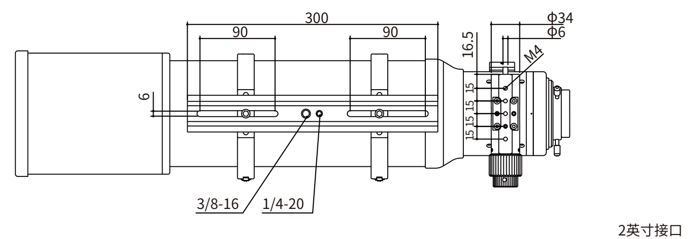
末端接口：（1）M78×1- 55MM 延长环
（2）M78×1 - M54 x 0.75
（3）M54×0.75 - M54 x 0.75
（4）M54×0.75 - M48 x 0.75 (内置 M48×0.75 滤镜螺纹)

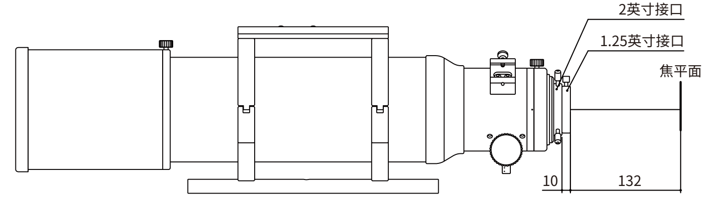
尺寸及部件分布图

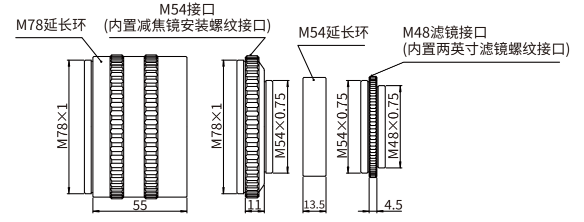




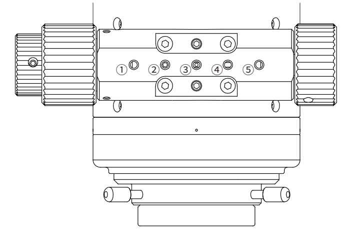








调焦器锁紧螺丝示意图

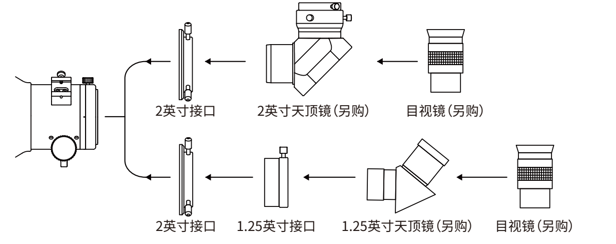


② 承载螺丝

③ 底部锁紧螺丝

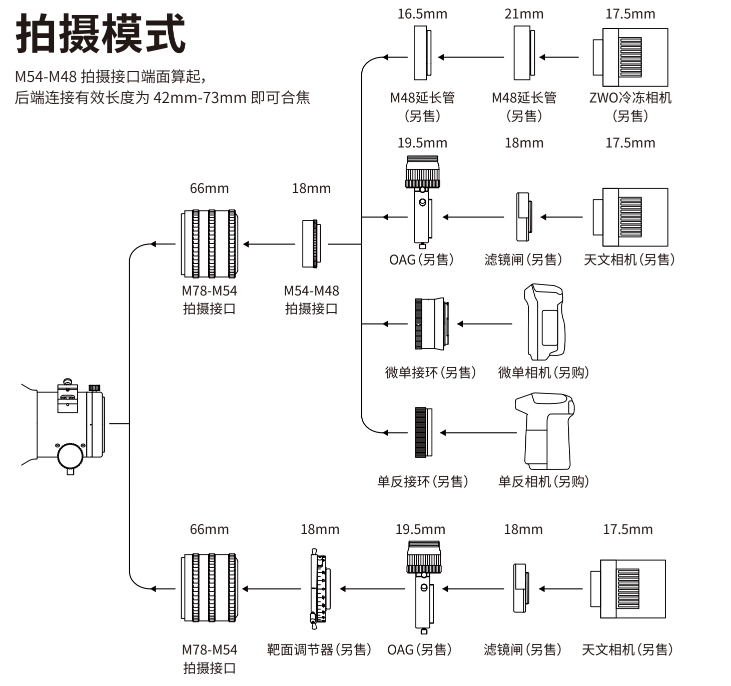
①③④⑤ 可用于EAF安装

目视模式

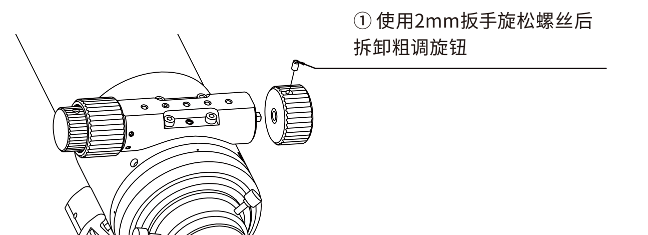


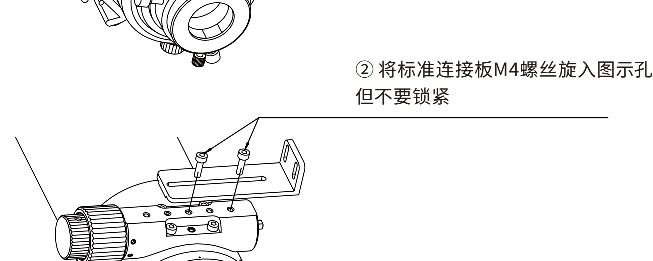
拍摄模式

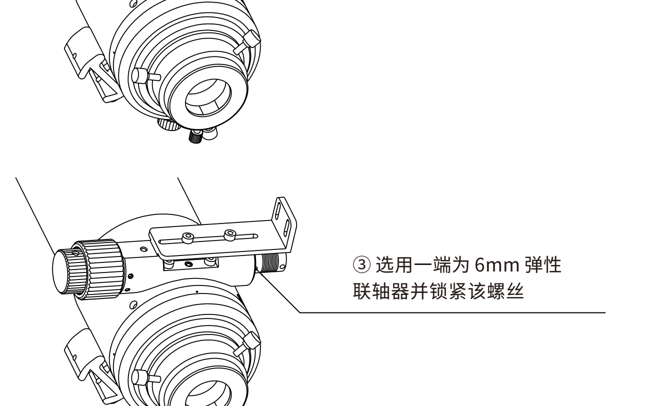
M54-M48 拍摄接口端面算起，
后端连接有效长度为 42mm-73mm 即可合焦

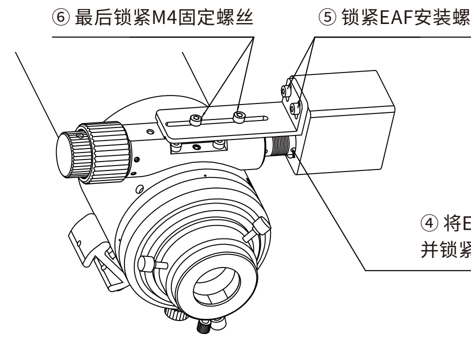


EAF 安装示意图


① 使用2mm扳手旋松螺丝后拆卸粗调旋钮


② 将标准连接板M4螺丝旋入图示孔位，但不要锁紧

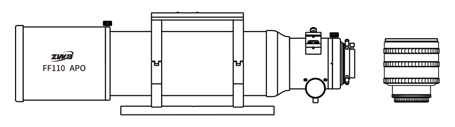

③ 选用一端为 6mm 弹性联轴器并锁紧该螺丝


⑥ 最后锁紧M4固定螺丝

⑤ 锁紧EAF安装螺丝

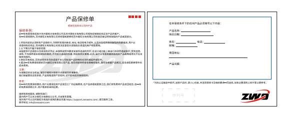
④ 将EAF(另购)插入联轴器并锁紧联轴器端锁紧螺丝

包装含有

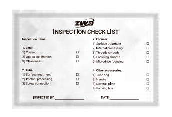


FF110 APO本体一个，抱箍一对，提手一个，
300mm窄版鸠尾板一个，标配四段式摄影延长管

说明书



保修卡



检测单

官方网站　微信公众号　视频号

哔哩哔哩　小红书　抖音

FF110 APO

■ User Manual

WARNING

DO NOT LOOK AT SUN THROUGH TELESCOPE.
IT WILL CAUSE IRREVERSIBLE DAMAGE TO YOUR EYE.

www.zwoastro.com

English

Please read this user manual carefully before using the product.

The FF110 APO is an OTA with an aperture of 110mm, a focal length of 766mm, and a native focal ratio of F7.0. It is designed for both visual observation and astrophotography.

The telescope features a quadruplet optical lens design (three elements in the front and one in the rear), including one piece of ED glass, which can effectively reduce chromatic aberration, and supports 44mm full-frame imaging. With its self-flattened design, after attaching the imaging accessories, users can directly use it for shooting after the OTA is in focus. (The effective back focus is measured from the M54–M48 imaging interface flange. Focus can be achieved when the total rear connection length is between 42 mm and 73 mm).

The retractable dew shield helps reduce overall length and improves portability. The entire lens tube is manufactured using high-quality CNC machining and paint finish, and it also includes an internal baffle to effectively suppress stray light.

On the handle bar of FF110 APO, it has a finder base slot. Besides, there are two finder bases on both sides of the focuser. This allows flexible adjustment of the finder scope position without disassembly and provides additional options for attaching other astronomical accessories. The tube rings feature CNC-machined thumb screws and a clamshell opening design, enabling tool-free installation and removal.

The FF110 APO comes with a 3-inch rack-and-pinion dual-speed focuser offering 1:10 fine adjustment, along with a built-in 360° field rotator at the rear for precise framing. It includes a 300mm standard Vixen dovetail plate with 1/4" and 3/8" screw holes for direct tripod mounting.

The rear interface of the FF110 APO includes both 2-inch and 1.25-inch adapters, enabling compatibility with a wide range of astronomical accessories.

The FF110 APO comes standard with a photographic extension tube, which includes M48*0.75 and M54*0.75 adapters. It also features a built-in 2-inch filter thread for easy attachment of filters.

FF110 APO Specifications:

Aperture size: 110mm
Focal length: 766mm
Focal ratio: F7.0
Objective lens: Quadruplet air-spaced APO（including one ED glass)
Image circle: 44mm

Maximum allowable optical path length （with the focuser fully retreated）:
Imaging Mode:
73mm（from the base of M48×0.75 male thread)
91mm（from the base of M54×0.75 male thread)

Visual Mode:
132mm（from the end of 1.25" eyepiece holder)
142mm（from the end of 2" eyepiece holder)

Minimum allowable optical path length（with the focuser fully extended):
Imaging Mode:
42mm（from the base of M48×0.75 male thread)
60mm（from the base of M54×0.75 male thread)

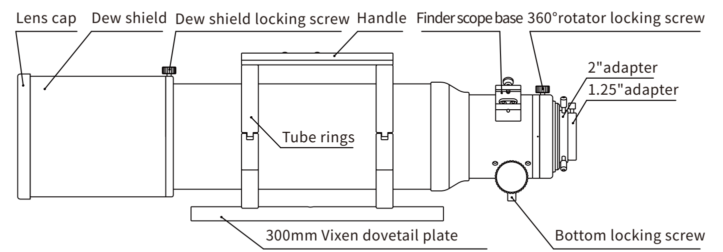
Visual Mode:
101mm（from the end of 1.25" eyepiece holder)
111mm（from the end of 2" eyepiece holder)

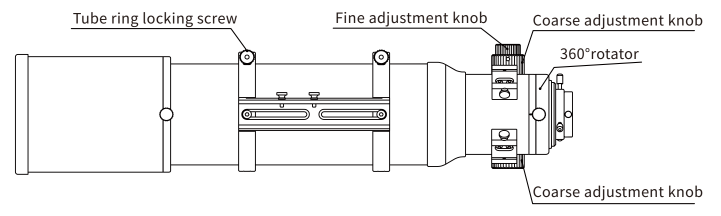
Total length:
664mm（including 1.25" adapter as dew shield contracted)
751mm (including 1.25" adapter, fully stretched)

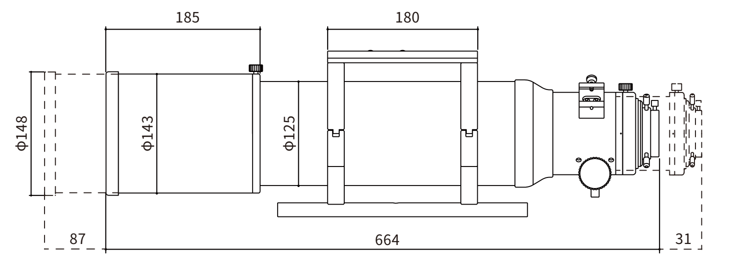
728mm（including the photographic extension tube as dew shield contracted)
815mm (including the photographic extension tube, fully stretched)

Net weight: 5.74kg
Gross weight（Including tube ring&dovetail plate）: 6.76kg
Rear-end thread type:
(1)M78 x 1- 55MM Extension Adapter
(2)M78 x 1 - M54 x 0.75
(3)M54 x 0.75 - M54 x 0.75
(4)M54 x 0.75 - M48 x 0.75 (with built-in M48 × 0.75 filter thread)

Product Overview and Dimensional Diagram



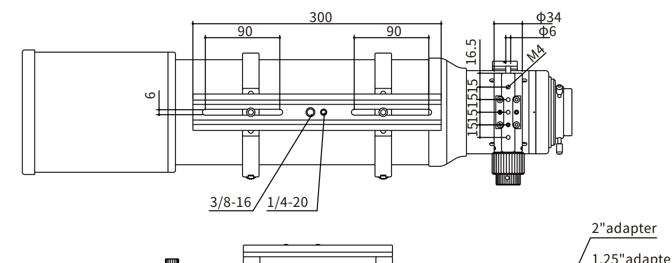


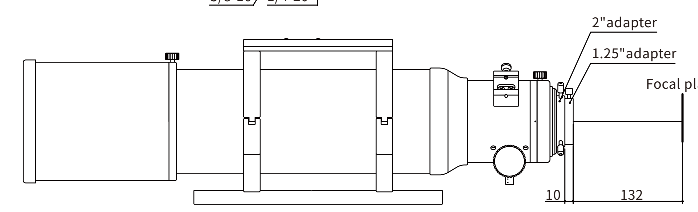


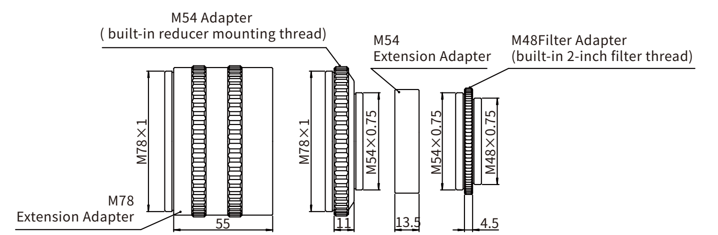
The extended length of the lens hood

Dimension (when the dew shield is contracted)

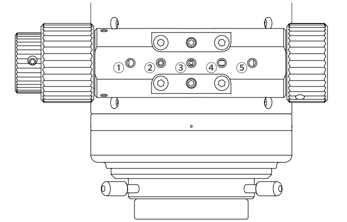
Focuser travel length







The Locking Screw Position Diagram

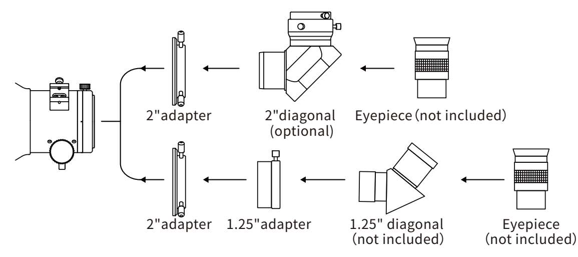


② Bottom Load Adjustment Screw

③ Bottom Locking Screw

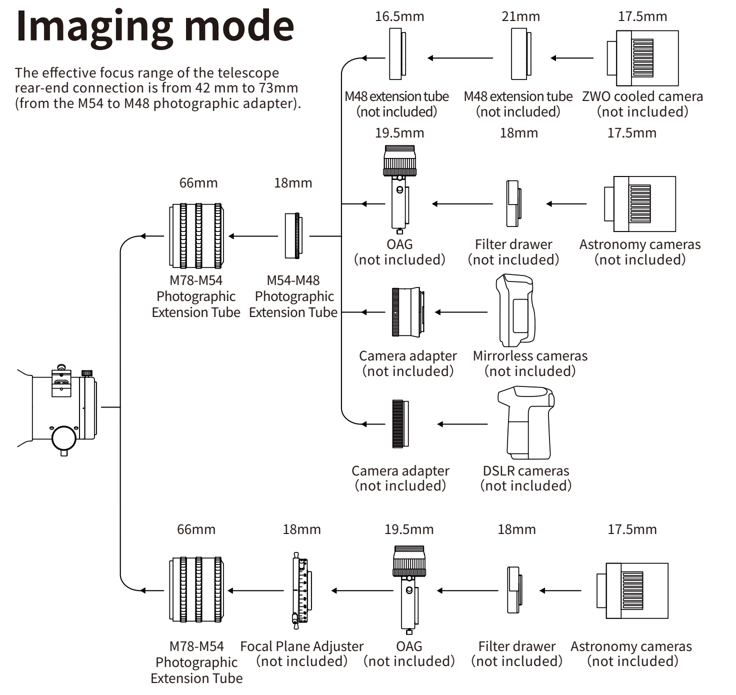
①③④⑤ Can be used for electric focusing bracket installation

Visual Mode

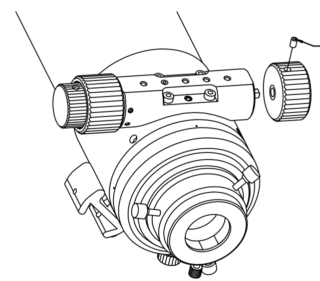


Imaging mode

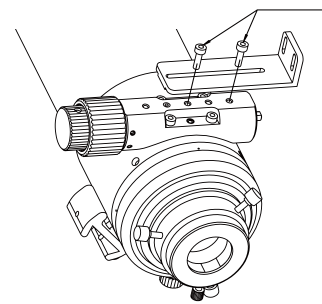
The effective focus range of the telescope rear-end connection is from 42 mm to 73mm (from the M54 to M48 photographic adapter).


16.5mm
21mm
17.5mm
M48 extension tube (not included)
M48 extension tube (not included)
ZWO cooled camera (not included)
19.5mm
18mm
17.5mm
66mm
18mm
OAG (not included)
Filter drawer (not included)
Astronomy cameras (not included)
M78-M54 Photographic Extension Tube
M54-M48 Photographic Extension Tube
Camera adapter (not included)
Mirrorless cameras (not included)
Camera adapter (not included)
DSLR cameras (not included)
66mm
18mm
19.5mm
18mm
17.5mm
M78-M54 Photographic Extension Tube
Focal Plane Adjuster (not included)
OAG (not included)
Filter drawer (not included)
Astronomy cameras (not included)

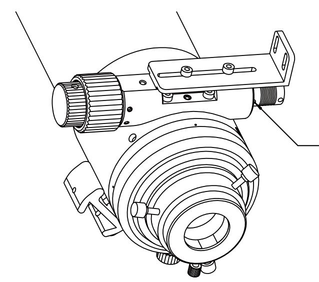
Steps of Installing EAF



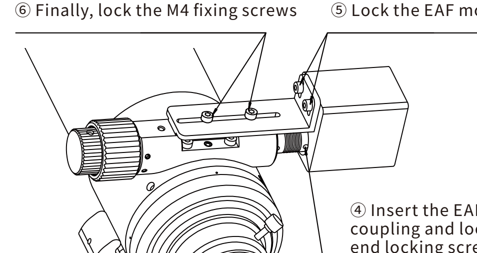
① Use a 2mm wrench to loosen the screw and remove the coarse adjustment knob



② Put the motor bracket on and screw the standard M4 screws into the hole shown, but please do not lock them now.



③ Choose the 6mm flexible coupling and lock this screw.

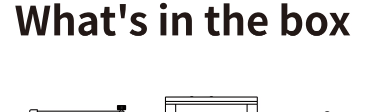


⑥ Finally, lock the M4 fixing screws

⑤ Lock the EAF mounting screws

④ Insert the EAF(optional) into the flexible coupling and lock the coupling end locking screw.

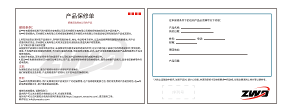
What's in the box



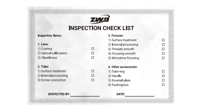
FF110 APO main unit ×1
Carrying Handle ×1
300 mm Narrow Dovetail Plate ×1

Tube Rings ×1 pair
Standard Four-Section Extension Tube

User Manual



Warranty card



Inspection Certificate

Official site Facebook YouTube

Ins Twitter