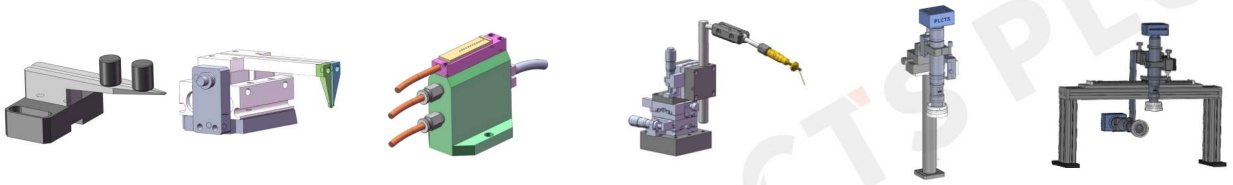
Waveguide Coupling System Accessories



The PLCTS Waveguide Coupling System features a **wide array of optional accessories**, including **Fiber Holders**, **Lens Fixtures**, **Chip Stage Holders**, **Probe Holders**, **Visual Observation Systems**, **Gantry**, and more.

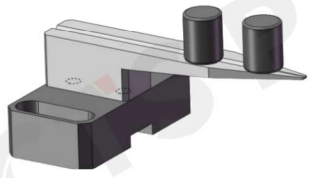
These comprehensive accessories can be selected and purchased based on the specific requirements of the device being coupled.

Fiber Holders

The **core function** of the **Fiber Holder** is to securely and stably fix single fibers or fiber arrays. Through **horizontal or vertical structural designs**, these fixtures meet diverse requirements for waveguide coupling and optical chip testing. They are primarily categorized into **Horizontal Fiber Holders**, **Vertical Fiber Holders**, and **Fiber Array (FA) Holders**.

Horizontal Fiber Holder

> The **Horizontal Fiber Holder** is suitable for **horizontal coupling scenarios**. It supports optical fibers ranging from **125-250μm**, features a **lightweight and convenient design**, and ensures stable magnetic fixing



SLC-S125

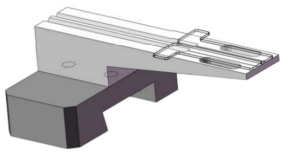
Coupling Type	Horizontal
Dimensions (mm)	60×40×31
Material	Stainless Steel + Aluminum Alloy
Fiber Compatibility	125–250 μm
Weight (g)	41

Features:

- Compatible with **Single-Mode (SM) Fibers** or **Tapered Fibers**
- Compatible with **125–250 μm fibers**
- **larger lateral travel range**, providing enhanced flexibility
- Easy clamping with **magnetic fiber fixation**
- **High stability**, incorporating a **fiber ribbon securing and protection design**
- **Base options are selectable:** Compatible with **Suruga Seiki** series and **Newport dovetail groove designs. Customization** is also available

Horizontal Dual Fiber Holder

> The **Horizontal Dual Fiber Holder** can **simultaneously fix two optical fibers**, facilitating **horizontal coupling alignment** and **multi-channel testing applications**.



SLC-D125

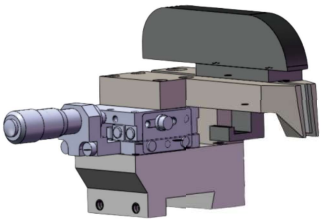
Coupling Type	Horizontal
Dimensions (mm)	60×40×21.5
Material	Stainless Steel + Aluminum Alloy
Fiber Compatibility	125–250 μm
Weight (g)	51

Features:

- Accommodates **Multi-Mode (MM) Fibers** for **alignment assistance**
- Compatible with **125–250 μm fibers**
- **larger lateral travel range**, providing enhanced flexibility
- Easy clamping with **magnetic fiber fixation**
- **High stability**, incorporating a **fiber ribbon securing and protection design**
- **Base options are selectable:** Compatible with **Suruga Seiki** series and **Newport dovetail groove designs. Customization** is also available

Fiber Array (FA) Holder

The **Fiber Array (FA) Holder** can **fix fiber arrays** and achieve **multi-channel waveguide coupling**. The **Horizontal type** is suitable for **edge coupling**, while the **Vertical type** is ideal for **surface grating coupling**, thereby **significantly enhancing testing efficiency**.



PAC-FA-07

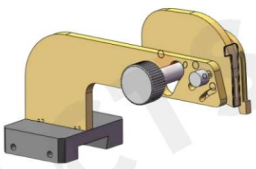
Coupling Type	Horizontal & Vertical Compatible
Dimensions (mm)	87.64×78.5×57
Material	Stainless Steel + Aluminum Alloy
Fiber Array Width	1-7mm
Clamping Angle	8° or 10°
Weight (g)	227

Features:

- Compatible with **Horizontal** and **Vertical** Coupling
- **Vertical Coupling** supports selectable angles of **8° or 10°**
- Compatible with **FA Widths** from **1-7 mm** (customization available upon request)
- The collet is driven by a **micrometer-actuated miniature linear slide**, providing excellent linearity and precise, **controllable clamping force**
- **High stability**, incorporating a **fiber ribbon securing and protection design**
- **Base options are selectable:** Compatible with **Suruga Seiki** series and **Newport dovetail groove designs**. **Customization** is also available

Vertical Single Fiber Holder

The **Vertical Single Fiber Holder** is suitable for securing **Multi-Mode (MM) fibers** and **small Photodiodes (PDs)**, enabling **precise vertical coupling** between the fiber and the chip or detector



SVC-S15

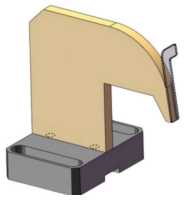
Coupling Type	Vertical Grating Coupling
Dimensions (mm)	100×48.8×63
Material	Stainless Steel + Brass + Aluminum Alloy
Adjustable Angle Range	0-15°
Weight (g)	132

Features:

- Accommodates **Multi-Mode (MM) Fibers** or small **Photodiodes (PDs)** for **alignment assistance**
- Compatible with **0-15°**
- Easy clamping with **magnetic fiber fixation**
- **Pure Angular Adjustment**:: Fiber angle can be adjusted without changing its spatial position
- **High stability**, incorporating a **fiber ribbon securing and protection design**
- **Base options are selectable:** Compatible with **Suruga Seiki** series and **Newport dovetail groove designs**. **Customization** is also available

Vertical Single Fiber Holder

> The **Vertical Single Fiber Holder** is an **angle-fixed type** single fiber securing tool. It is compatible with **125-250μm fiber**, features a **simple structure**, offers **excellent stability**, and is ideal for **standardized vertical coupling tests**



SVC-S08-10

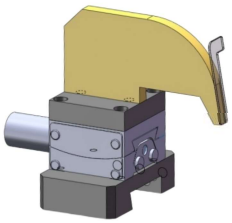
Coupling Type	Vertical
Dimensions (mm)	57×40×56
Material	Brass + Aluminum Alloy
Fiber Compatibility	125–250 μm
Clamping Angle	8° or 10°
Weight (g)	89

Features:

- Compatible with **125–250 μm fibers**
- **Custom Angle** (Typically **8° or 10°**)
- Easy clamping with **magnetic fiber fixation**
- **High stability**, incorporating a **fiber ribbon securing and protection design**
- **Base options are selectable:** Compatible with **Suruga Seiki** series and **Newport dovetail groove designs**. **Customization** is also available

Adjustable Vertical Single Fiber Holder

The **Adjustable Vertical Single Fiber Holder** is designed to **secure a single optical fiber** and provide **continuous angular adjustment** , thereby satisfying the need for **angular flexibility** in **high-precision vertical coupling experiments**



AVC-S020

Coupling Type	Vertical
Dimensions (mm)	52.4×40×57
Material	Stainless Steel + Aluminum Alloy
Fiber Compatibility	125–250 μm
Angle Adjustment Range	0-20°
Weight (g)	138

- Compatible with **125–250 μm fibers**
- **Continuously adjustable angle** from **0-20°**
- Easy clamping with **magnetic fiber fixation**
- **High stability**, incorporating a **fiber ribbon securing and protection design**
- **Base options are selectable:** Compatible with **Suruga Seiki** series and **Newport dovetail groove designs**. **Customization** is also available

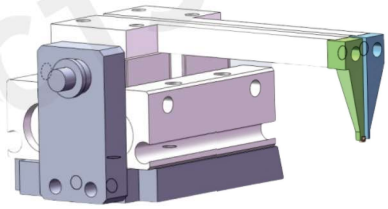
Lens Holders

In the waveguide coupling system, **Lens Holders** are utilized for **stable securing**, **rapid replacement**, and **precise adjustment** of lens positions.

The primary objective is to ensure **stable and repeatable coupling efficiency** while **preventing optical losses** caused by human contact with the lens.

Co-directional Cylinder Pneumatic Clamping-Lens Holder

> The **Co-directional Cylinder Pneumatic Clamping Lens Holder** achieves **symmetrical pneumatic fixation** of the lens, thereby **preventing impacts** during manual loading and unloading that could **affect optical performance**.

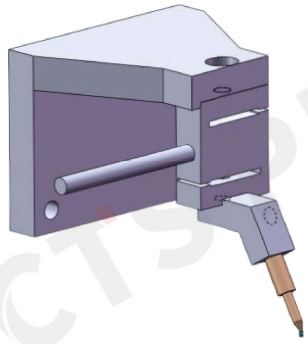


LFC-P-N

- **Symmetrical pneumatic clamping** by co-directional dual cylinders **prevents lens contact** during handling, ensuring **uncompromised optical performance**
- **Enhances the stability of lens mounting**, thus **preventing interference** with **optical performance**
- **Customizable** according to customer lens size

Lens Holder (Vacuum Suction Type)

> **Equipped with a vacuum suction mechanism and a contact probe sensor**, enabling convenient coupling in confined spaces while simultaneously detecting whether the lens has contacted the bottom surface of the device.



LFC-VA-N

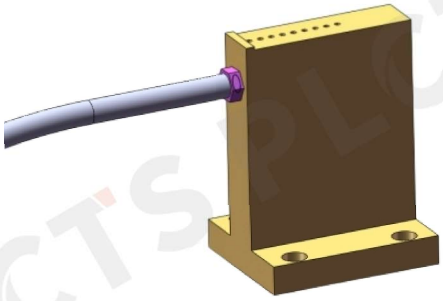
- The lens is secured via **vacuum suction**, avoiding potential **mechanical stress** caused by conventional clamping methods.
- Equipped with a **contact sensor** to detect whether the lens has come into contact with the **device surface**.
- Suitable for **lens coupling experiments** in **confined spaces**, particularly useful in **chip / waveguide alignment.**

Chip Stage Holder

Chip Stage Holder are designed to securely hold chips while providing optional **temperature control** and/or **vacuum suction**.

Different models integrate combinations of **TEC-based temperature control**, **vacuum adsorption**, and **mechanical clamping** to meet diverse requirements in **research experiments** and **batch testing applications**.

Chip Stage (Vacuum Suction Type)

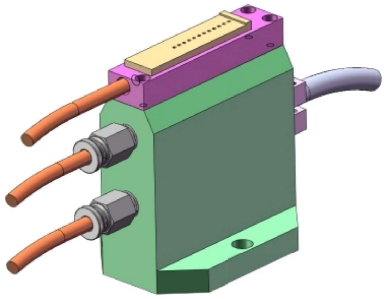


VCT-SM

Parameters | Customizable according to customer chip dimensions and specific application requirements

Description | The open-top design provides ample access space, making it highly suitable for **thin chips** and applications requiring **multi-probe needle testing**.

Chip Stage (Vacuum Suction + TEC Temperature Control)

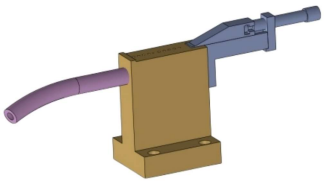


VCT-S-TEC

Parameters |**Temperature control range:** 10–85 °C
Temperature stability: ±0.02 °C
Other specifications can be customized according to customer chip dimensions and specific application requirements.

Description |Integrates **vacuum suction** and **TEC temperature control**, suitable for **temperature-sensitive chips**.
The open-top structure provides ample working space, making it ideal for **thin chips** and applications requiring **multi-probe needle testing**.

Chip Stage (Vacuum Suction + Mechanical Clamping)



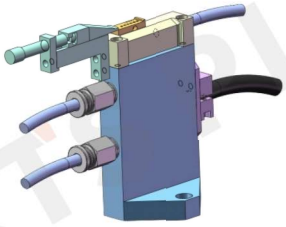
VCT-SM-MC

Parameters | Customizable according to customer chip dimensions and other specific requirements

Description |

Integrates **vacuum suction** and **mechanical clamping**, suitable for a wide range of **chip applications**.

Chip Stage (Vacuum Suction + TEC Temperature Control + Mechanical Clamping)



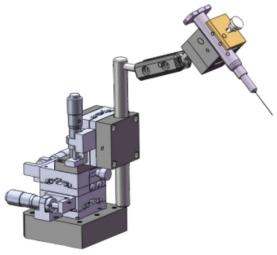
VCT-SD-TEC

Parameters | Customizable according to customer chip dimensions and other specific requirements

Description |

Integrates **vacuum suction** and **mechanical clamping**, suitable for a wide range of **chip applications**.

Dispensing Adjustment Stand

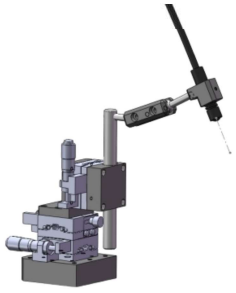


TPLD-US

Coupling Type	Suitable for horizontal and vertical
Dimensions (mm)	90 × 84 × 182
Material	Brass + Aluminum Alloy
Weight (g)	1250
Adjustment	three-axis dispensing adjustment

- **Omnidirectional adjustment design**, enabling dispensing in **any direction**
- Convenient positioning and relocation with a **magnetic base fixation**
- **High precision** and **high-stability positioning stage**
- **High flexibility** and strong compatibility, adaptable to various setups and particularly suitable for integration with **optical coupling platforms**

UV Adjustment Stand



TPLD-UV

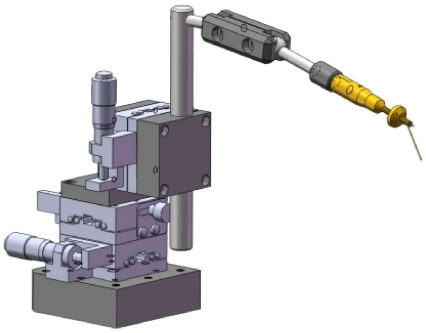
Coupling Type	Suitable for horizontal and vertical
Dimensions (mm)	90 × 84 × 182
Material	Brass + Aluminum Alloy
Weight (g)	1235
Adjustment	three-axis UV alignment and irradiation adjustment

- **Omnidirectional adjustment design**, enabling dispensing in **any direction**
- Convenient positioning and relocation with a **magnetic base fixation**
- **High precision** and **high-stability positioning stage**
- **High flexibility** and strong compatibility, adaptable to various setups and particularly suitable for integration with **optical coupling platforms**

Three-Axis DC Probe Holder

The probe holder for optical coupling platforms adopts an integrated structure based on a **three-axis stainless-steel cross-roller linear stage**, combined with a **universal adjustment fixture**. The probe is secured by **threaded locking**, allowing **360° rotational adjustment**, and is suitable for electrodes with sizes **≥100 μm**.

An **adjustable magnetic vacuum base** enables firm mounting directly on optical platforms. Signal connections support **coaxial cables** (BNC, alligator clip, banana plug) or **triaxial cables** as optional configurations. Customization options such as **fixtures**, **travel range**, and **mounting methods** are available upon request.



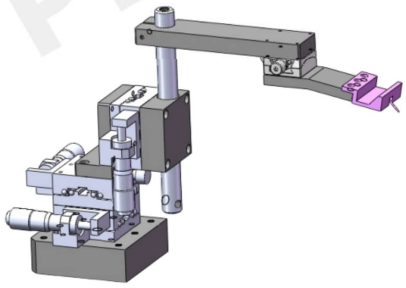
Model: **TPLS1-OT, TPLS1H-OT**

Stage Size	40 × 40 mm
Drive Method	Micrometer side drive
Travel Range	XYZ: 6.5 mm each axis; 360° rotation; 360° precision angular tilt adjustment
Resolution	1μm
Cable Type	1.5 m coaxial cable (BNC / alligator clip / banana plug) or triaxial cable
Guide Type	Linear cross-roller guide
Current Measurement Range	10 pA – 10 A
Leakage Current	≤10 pA (coaxial), ≤100 fA (triaxial)
Mounting Method	Magnetic fixation

RF Probe Holder

The RF probe holder designed for optical coupling platforms adopts imported **XYZ cross-roller guide stages**, featuring an integrated **20° tilt adjustment** design. This enables multi-angle probe positioning during operation, improving **testing stability** and **alignment coordination**.

The base is equipped with a **high-strength magnetic mounting**, allowing direct attachment to optical platforms for convenient setup and operation. Customization options such as **fixtures**, **travel range**, and **mounting methods** are available upon request.

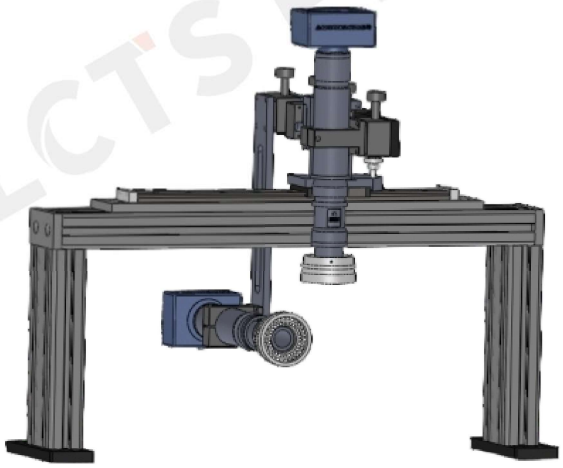


Model: **TPLR1-OT**

Stage Size	40 × 40 mm
Drive Method	Micrometer side drive
Travel Range	XYZ: ±6.5 mm each axis; 20° tilt adjustment
Resolution	1μm
Cable Type	1.5 m RF cable
Guide Type	Linear cross-roller guide
Mounting Method	Magnetic fixation

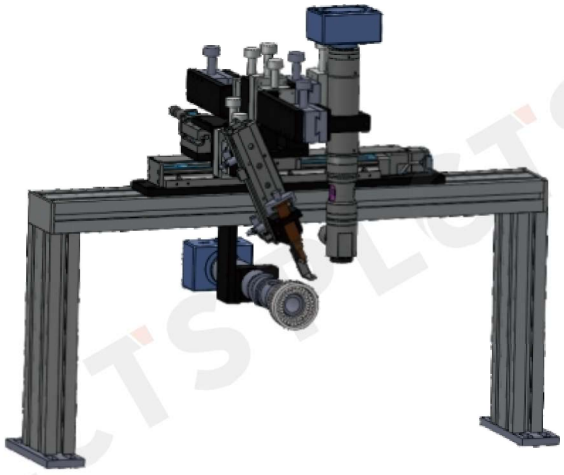
PLCT Optoelectronics provides professional **gantry systems for coupling platforms**, available in both **manual** and **motorized** configurations. This series features **precise adjustment capability**, **high-magnification optical imaging**, and **high-definition visualization**, enabling efficient and accurate alignment operations.

Manual Gantry System



Model	PV60
Precision focus adjustment along the optical axis, with a **working distance of 86 mm**	
Three-axis adjustment with a **40 mm travel range**, compatible with **adapters**, **mounting plates**, and various **objective fixtures**	
0.7–4.5× optical magnification, with a maximum **electronic magnification up to 340×**, and **1:7 zoom ratio**	
500 mm frame length, **150–250 mm long-travel guide rail**, locking structure design, and **130 mm working height**	
8 MP HDMI camera with **C-mount interface** and **crosshair ring illumination**, supporting **measurement**, **image capture**, **video recording**, and **annotation**	
4K high-definition display, optional **video splitter**, optimized multi-view layout for space efficiency, supporting **top view** and **side view observation**	

Motorized Gantry System



Model	PV60-E
Motorized long-travel slide (150 mm), facilitating future upgrades for **automated dispensing** and **UV curing processes**	
8 MP HDMI camera with **C-mount interface**, integrated **crosshair** and **ring illumination**, supporting **measurement**, **image capture**, **video recording**, and **annotation**	
Vertical optics: 0.7–4.5× magnification **Side optics:** 0.35–2.25× magnification Maximum **electronic magnification up to 340×**, with **1:7 zoom ratio**	
4K high-definition display, support for **multiple monitors** and optional **video splitter**, enabling optimized multi-view layout for space efficiency and full-field observation	
Supports **top view** and **front/rear side-view observation**, integrating **UV adjustment mechanisms** and **motorized pneumatic dispensing adjustment structures**	