We design and manufacture products based on customer's specification. Edge clamping for non-contact on the front and back. Please contact us at any time.

**Key Features**

- **Fixed transfer**
  
  This product is applicable to numerous areas of application that requires various different handling positions and directions, and which prevents misalignment caused by high-speed operation.

- **No contact both on the front and back of the wafer**
  
  This model makes contact with the edges of the workpiece only in order to solve the concern for pad scars caused by clamping and vacuum transfer.

- **Clean room compliant types available**
  
  - **WHA series**
    
    Single-Side Driven Edge Clamp with Side Arm
  
  - **WHF series**
    
    Dual-Side (Synchronized) Driven Edge Clamp via Side Arm & Main Fork

Clean packaging is not available.

**Wafer Clamp Operation (Enlarged View)**

- **Temporary Holding Base**
  
  Drive Side Hold Base

- **Fixed Side Base**
  
  (Gripper End)

- **Wafer**

1. This device receives wafer with holding base on the drive side open

2. Place wafer on temporary holding base.*

3. Clamp wafer with holding base at drive side

*Temporary holding base is WHA-200AS-4 and HA-300AS-6 only.

**WHA Transfer Hand WHA/WHF Series**

**Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>WHA-200AS</th>
<th>WHA-300AS</th>
<th>WHA-450AS</th>
<th>WHF-200AS</th>
<th>WHF-300AS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer Type</td>
<td>Fixed</td>
<td>Fixed</td>
<td>Fixed</td>
<td>Synchronized</td>
<td>Synchronized</td>
</tr>
<tr>
<td>Workpiece Size</td>
<td>dia.200</td>
<td>dia.300</td>
<td>dia.450</td>
<td>dia.200</td>
<td>dia.300</td>
</tr>
<tr>
<td>Transfer Method</td>
<td>Edge Clamp</td>
<td>Edge Clamp</td>
<td>Edge Clamp</td>
<td>Edge Clamp</td>
<td>Edge Clamp</td>
</tr>
<tr>
<td>Transfer Quantity</td>
<td>1 piece</td>
<td>1 piece</td>
<td>1 piece</td>
<td>1 piece</td>
<td>1 piece</td>
</tr>
<tr>
<td>Drive System</td>
<td>Closed</td>
<td>Spring (Clamp Method)</td>
<td>Open</td>
<td>Vacuum Pressure -60KPa to 950KPa (Addition of Negative Pressure Cylinder)</td>
<td></td>
</tr>
<tr>
<td>Total Jaw Stroke</td>
<td>1 Dee</td>
<td>(Clamp 7mm, Clamp Stock 3mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grip Force</td>
<td>2.4N to 1.9N</td>
<td>Approximately 7N</td>
<td>2.4N to 1.9N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleanliness</td>
<td>FED Standard Class 1 (Vacuum Required)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Fork Material</td>
<td>CFRP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top, Temporary Holding Base, &amp; Pad</td>
<td>PEEK</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approximately 0.4kg</td>
<td>Approximately 0.5kg</td>
<td>Approximately 1.7kg</td>
<td>Approximately 1.2kg</td>
<td>Approximately 1.7kg</td>
</tr>
<tr>
<td>Option</td>
<td>Open &amp; Close Confirmation Sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**How To Order**

- **Model**
  
  Single Wafer WHA - 450AS - ET2LS2 - Z

We design and manufacture products based on customer’s specification.

**Wafer Transfer Hand WHA/WHF Series**

**Layout Drawing**

**WHA-200AS-Z (Reference Chart)**

- For dia.200 wafer
- Side arm only (one-side drive type)
Clean Room & Special Type

We design and manufacture products based on customer's specification. Edge clamping for non-contact on the front and back. Please contact us at any time.

Key Features

- **Fixed transfer**
  This product is applicable to numerous areas of application that requires various different handling positions and directions, and which prevents misalignment caused by high-speed operation.

- **No contact both on the front and back of the wafer**
  This model makes contact with the edges of the workpiece only in order to solve the concern for pad scars caused by clamping and vacuum transfer.

Clean room compliant types available

- **WHA series**
  Single-Side Driven Edge Clamp with Side Arm

- **WHF series**
  Dual-Side (Synchronized) Driven Edge Clamp via Side Arm & Main Fork

Clean packaging is not available.

Wafer Clamp Operation (Enlarged View) *WHA series (single-side driven type with side arm only)*

1. This device receives wafer with holding base on the drive side open

   ![Diagram of Wafer Clamp Operation](image)

   - **Temporary Holding Base**
   - **Drive Side Hold Base**
   - **Fixed Side Base (Gripper End)**

2. Place wafer on temporary holding base.*

3. Clamp wafer with holding base at drive side

   *Temporary holding base is WHA-200AS-4 and HA-300AS-6 only.

How To Order

**Single Wafer**

<table>
<thead>
<tr>
<th>Model</th>
<th>Wafer Size</th>
<th>Sensor, Quantity</th>
<th>Special</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHA</td>
<td>450AS</td>
<td>ET2LS2</td>
<td>Z</td>
</tr>
<tr>
<td>WHF</td>
<td>300AS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHF</td>
<td>450AS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Model**

- **Symbol**: Name
  - WHA: Single Wafer Transfer Type Single-Side Driven Edge Clamp
  - WHF: Single Wafer Transfer Type Dual-Side Driven Edge Clamp

**Wafer size**

- **Symbol**: Name
  - 190AS: dia.150 / 6 inches
  - 200AS: dia.200 / 8 inches
  - 300AS: dia.300 / 12 inches
  - 450AS: dia.450 / 16 inches

**Sensor, Quantity**

- **Symbol**: Name
  - ET2: Non-Contact 2-Shape
  - ET2L: Non-Contact 2-Shape
  - S1: +1 Sensor
  - S2: +2 Sensors

We design and manufacture products based on customer’s specification.

Wafer Transfer Hand - WHA/WHF Series

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**Specification**

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<tr>
<th>Model</th>
<th>WHA-200AS</th>
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</thead>
<tbody>
<tr>
<td>Transfer Workpiece</td>
<td>Dia.200</td>
<td>Dia.300</td>
<td>Dia.450</td>
<td>Dia.200</td>
<td>Dia.300</td>
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**Layout Drawing**

**WHA-200AS-Z**

- For dia.200 wafer
- Side arm only (one-side drive type)

---

**For CAD data, please go to** 518
Wafer Transfer Hand  WHA/WHF Series

**WHF-200AS-Z**

WHF-200AS-Z (Reference Chart)
- For dia.200 wafer
- Side arm + main fork (dual-side drive type)

**WHF-300AS-Z**

WHF-300AS-Z (Reference Chart)
- For dia.300 wafer
- Side arm + main fork (dual-side drive type)

**WHF-450AS-Z**

WHF-450AS-Z (Reference Chart)
- For dia.450 wafer
- Side arm only (one-side drive type)

**WHF-200AS-Z**

WHF-200AS-Z (Reference Chart)
- For dia.200 wafer
- Side arm + main fork (dual-side drive type)

**WHF-300AS-Z**

WHF-300AS-Z (Reference Chart)
- For dia.300 wafer
- Side arm + main fork (dual-side drive type)

**WHF-450AS-Z**

WHF-450AS-Z (Reference Chart)
- For dia.450 wafer
- Side arm only (one-side drive type)
### Wafer Transfer Hand  
**WHA/WHF Series**

#### Layout Drawing

**WHA-300AS-Z**

**WHA-300AS-Z (Reference Chart)**

- For dia.300 wafer
- Side arm only (one-side drive type)

**WHA-450AS-Z**

**WHA-450AS-Z (Reference Chart)**

- For dia.450 wafer
- Side arm only (one-side drive type)

**WHA-200AS-Z**

**WHA-200AS-Z (Reference Chart)**

- For dia.200 wafer
- Side arm + main fork (dual-side drive type)

**WHA-300AS-Z**

**WHA-300AS-Z (Reference Chart)**

- For dia.300 wafer
- Side arm + main fork (dual-side drive type)