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受注番号:  
ORDER No.

御注文先:  
CUSTOMER

**YASKAWA**

御使用先:  
USER

株式会社 安川電機

## Pre Aligner Specification

Type:XU-ACP130-R03-E1  
(SEMISTAR-PVR1230A)

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備考 NOTE	配布先および部数 COPIES			担当部門 ENG.
	御注文先 CUSTOMER	部 COPIES	部 COPIES	YASKAWA ELECTRIC CORPORATION Technology section 3
	御使用先 USER	部 COPIES	部 COPIES	Industrial Robot Technology Dept. Robotics Div.
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## Revision History

Dwg.No.	Document		Revised Sign	Approved Sign
HU1482362	Pre Aligner Specification			
Data	Rev.#	Contents		

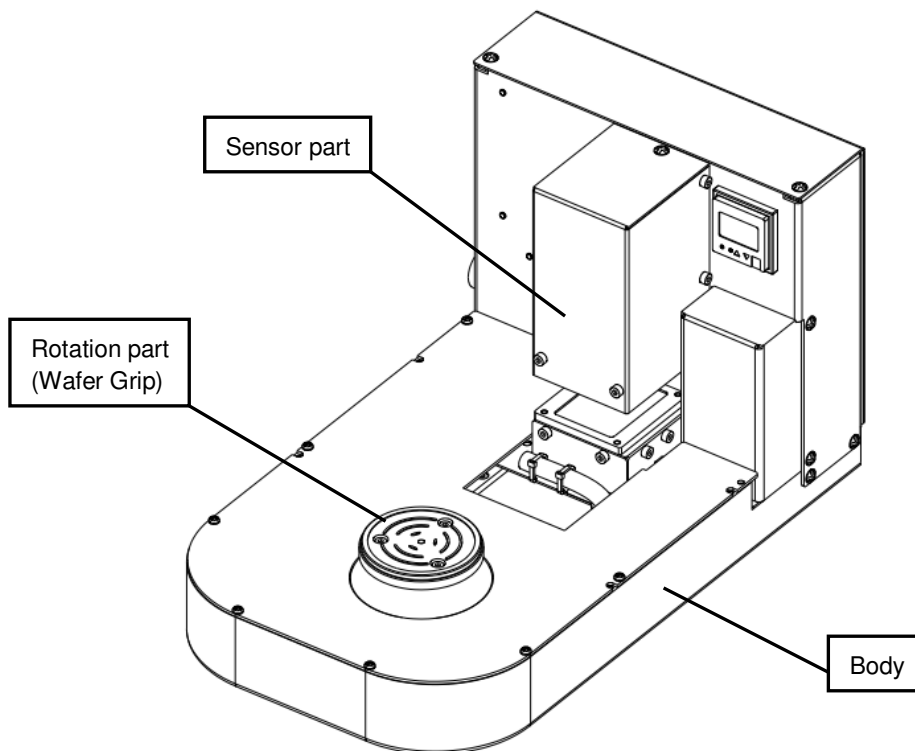
# 1 Application

This document describes specifications of pre-aligner.

## 2 Basic Configuration

This pre-aligner consists of sensor, rotation part and body.

1. Sensor part  
The sensor part detects wafer edge by LED and CCD line sensor.  
Sensor part moves for sensing the edges of 200mm and 300mm wafer.
2. Rotation part  
The rotation part turns the wafer for detecting the notch and the center of wafer. After detection, the notch is rotated to a set position.
3. Body  
They are parts other than a sensor and Rotation part.  
It has a motor, air apparatus, a connector, etc.



### 3 Outline and Specifications

Basic specifications are described in the Fig.1 below.

Table1 Basic Specifications

Item		Specifications
Wafer size		200 mm / 300mm *1
Fiducial Recognition		Notch and Flat
Wafer Material		Silicon or Quartz *2
Light source of sensor		RED LED
Alignment accuracy *1	Rotation	±0.03°
	Wafer center	±0.1mm
Alignment time *1		Less than 1.7sec
The extent of movement		Rotation : unlimited
Clean Class		ISO Class1 *4
Wafer holding method		Vacuum adsorption
Wafer detection		Vacuum sensor and/or CCD Line sensor
Motor		AC servo motor with 20 bit Incremental Encoder (AC200V)
Detection of rotation position		Incremental encoder of a motor
CDA requirement		0.24 to 0.26 MPa (34.8 to 37.7 psi) 1.5L/min
Vacuum requirement		-80 to -70 kPa, 2L/min
Approx. mass		7 kg

\*1 Require switching by command.

(Switching the sensor position with air cylinder)

\*2 Quartz wafer requires the parameter adjustment for the sensor setting. The parameter

Values depend on the conditions of the quartz wafer. Therefore Yaskawa will determine the parameters, Please lend the quartz wafer. Depending on the condition there may be case that the specifications of alignment accuracy and time would not be met. (Standard setting: Silicon)

\*3 It is a value in SEMI standard wafer. A wafer material is silicon and edge presupposes that it is smooth.

\*4 It is based on measurement in Yaskawa's clean booth. Evaluation is performed near a rotation part in the environment of down flow 0.3 m/ sec and Exhaust tube is connected to the Exhaust tube fitting on the Pre-Aligner connector panel.

### 4 Exterior

Wafer Grip: Teflon coating. (Stainless Steel)

Pre Aligner Body: Anodized Aluminum and Stainless Steel.

## 5 Operating & Storage Environments

- Free from corrosive gases or liquid, or explosive gases.
- Free from excessive vibration or shock.
- Free from large electrical noise.
- Free from moisture or chemical liquids.

### Operating environment

- Temperature: 20 ~ 30°C
- Humidity: 35 ~ 55 %RH (non-condensing)
- Meters above the sea level: Less than 1,000 m

### Storage environment

- Temperature: 0 ~ 40 °C
- Humidity: 20 ~ 80 %RH (non-condensing)

## 6 Mounting Requirements

See outline drawing

## 7 Maintenance

Refer to the Instruction Manual and Maintenance Manual.

## 8 Packaging

Collectively packaged and shipped.

## 9 External Cables

Need Encoder Cable and Power Cable to move the Pre Aligner.

The pair of Encoder cable and Power cable are registered as a part number shown below.  
(Each Encoder and Power cable is also registered separately. See the drawing.)

	Part number	Cable length (mm)
Cable set	HU1480858-*	Depends on [*]

## 10 Warranty

### ■ Warranty Period

YASKAWA product(s) are guaranteed for a period of 12 months from the date of delivery to the customer, or 18 months from the date of shipment from the YASKAWA factory, whichever comes first.

### ■ Scope of Warranty

#### **Preliminary Investigation into Cases of Failure**

The preliminary investigation into cases of failure is to be conducted by the customer. This preliminary investigation can be conducted by Yaskawa or by its authorized service representative upon request from the customer. If Yaskawa or its authorized service representative conducts the preliminary investigation upon request from the customer, and finds that the failure of the Yaskawa product(s) was not due to Yaskawa workmanship or materials, Yaskawa shall charge the customer for the investigation fee.

Such an investigation by Yaskawa or its authorized service representative, obtainable upon request from the customer, is only available within Japan. A customer who requests after-sales service, including such preliminary investigations, outside of Japan can apply in the context of the separately concluded overseas after-sales service agreement.

#### **Repairs**

If a product failure occurs within the warranty period due to Yaskawa workmanship or materials, Yaskawa will provide, free of charge, repair and shipping of the repaired product back to the customer, a new product to replace the defective product and shipping of the new product to the customer, or an on-site repair service including travel and labor involved in repair. If Yaskawa or its designated company repairs the defective product(s), and if the warranty period has expired or the remaining effective warranty period is 6 months or less from the date of repair, the period of warranty for the repaired part(s) of the product will be extended for another 6 months from the date of repair.

The warranty does not apply to the following cases, where Yaskawa shall charge the customer for total fees and for the cost of repair or new product(s).

- Failure due to improper maintenance or handling, or carelessness, by the customer.

- Failure due to the customer's system design
- Failure due to modifications made to a Yaskawa product without Yaskawa's full agreement
- Failure due to the use of a Yaskawa product under conditions that fall outside the recommended specifications
- Problems due to force majeure events such as natural disaster and fire
- Failures after the free warranty period has elapsed
- Replenishment or replacement of consumables and expendables such as lubricants, batteries, bearings, cooling fans, and electrolytic capacitors
- Defective products caused by packaging, fumigation, or transportation that are made or arranged by the customer
- Malfunction or failure caused by program(s), such as run command(s), that have been made by the customer
- Requests for supplemental or replacement copies of manuals and/or warning labels because the originals have become dirty or damaged
- Other problems not due to defects in Yaskawa workmanship or materials

## ■ Limitations of Liability

Regardless of the time period of the occurrence, Yaskawa is not liable for any opportunity loss to the customer caused by the failure of Yaskawa product(s), for compensation towards other operations, or for damage to products that are not manufactured by Yaskawa.

### **【Examples】**

- Opportunity loss (including unobtained profit during operation delays or interruptions)
- Damage to objects to be processed (such as raw materials, materials, and semi-finished products of end-user)
- Damage to any equipment
- Costs for investigation into the causes of failure paid by the customer (including fees for an external analysis facility engaged by the customer)
- The customer's expenses incurred in investigating the causes of failure (such as personal costs for holding meetings)
- Costs paid by the customer to external facilities for restoration of a system line (such as the cost of labor, transportation, and trial operation/adjustments)

## ■ Delivered Terms

Standard products that do not entail trial operations or adjustments are regarded as having been received by the customer upon delivery to the customer. Yaskawa is not responsible for local adjustments or trial operations.