NEW The World's First Process-Optimizing Robot

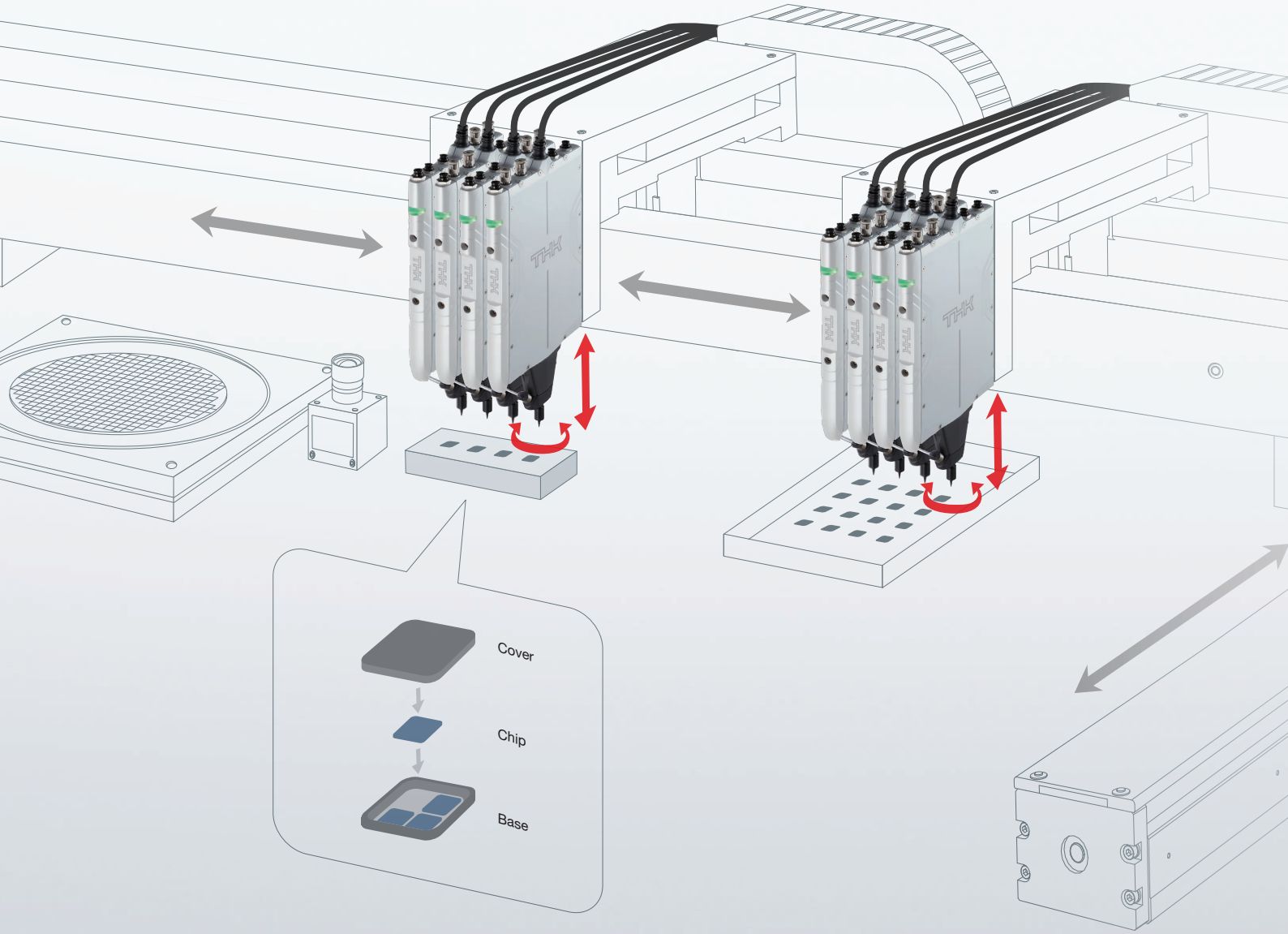
SMART SERIES

Pick and Place Robot

PPR

Sart

CE


Cover
Chip
Base

Competitive strength
on the production floor.

— A robot optimized for pick and place applications —

An all-in-one model equipped with a drive mechanism, sensors, solenoid valve, and control module.
Reduces both workpiece damage and cycle time, contributing to improved productivity.

Reduced
workpiece damage

THK's unique sensing technology detects contact between the nozzle and workpiece.

Minimum detection **0.15 N**

The high-speed feedback control quickly stops the nozzle the moment it contacts the workpiece.

Impact on the workpiece **0.3 N** or less

* Speed at which the workpiece is contacted: 1 mm/s

Reduced
cycle time

The integrated control of the motor, sensors, and pneumatic device reduces the number of communications with the host device, contributing to shortened cycle time.

Visualizes
the pick and place process

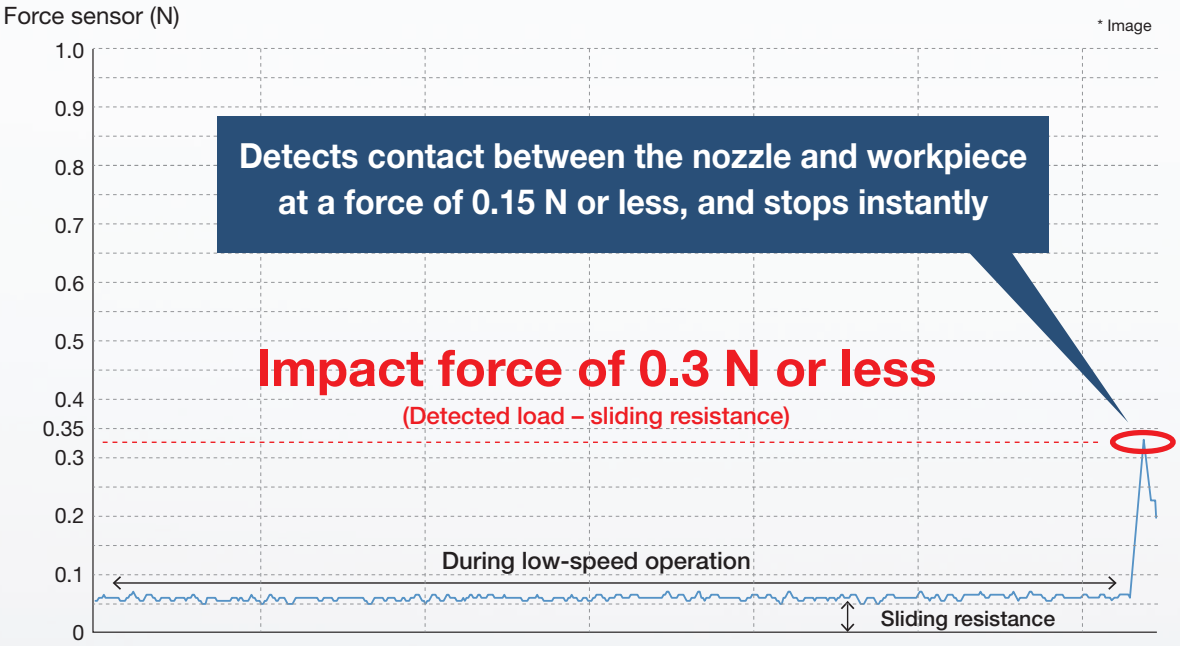
Visualizes various sensor information such as force, flow rate, pressure, and temperature.
The cause of trouble can be investigated, contributing to quality stabilization.

Reduced workpiece damage

The force sensor provides instantaneous contact stop

THK's unique sensing technology detects minute forces when the workpiece comes into contact with the nozzle, which has conventionally been difficult.
The feedback control makes it possible to achieve both high-speed operation and reduced workpiece damage.
* Force sensor resolution: 0.01 N

* Image

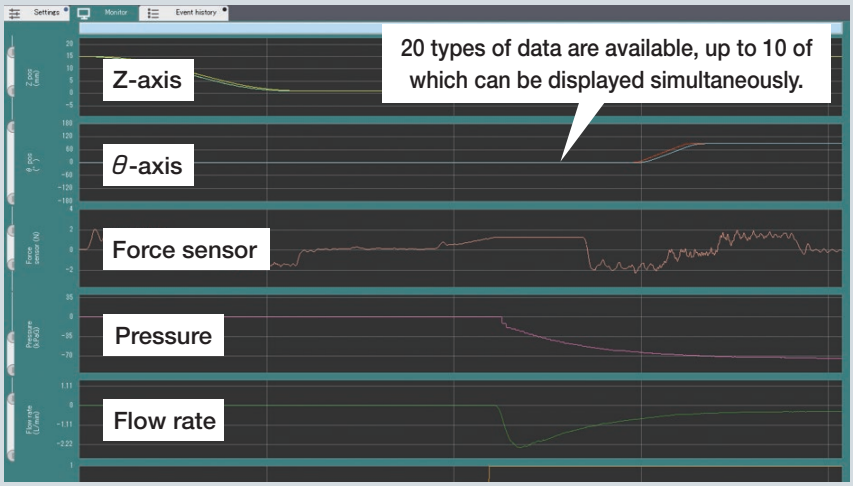


Visualizes the pick and place process

Setting/monitoring software "T-ACT"

Obtaining waveforms by monitor function

All sensor information can be monitored in waveform, including the force, pressure, flow rate, and position sensors.
The information is displayed for each pick-and-place cycle.
* CSV output is also available



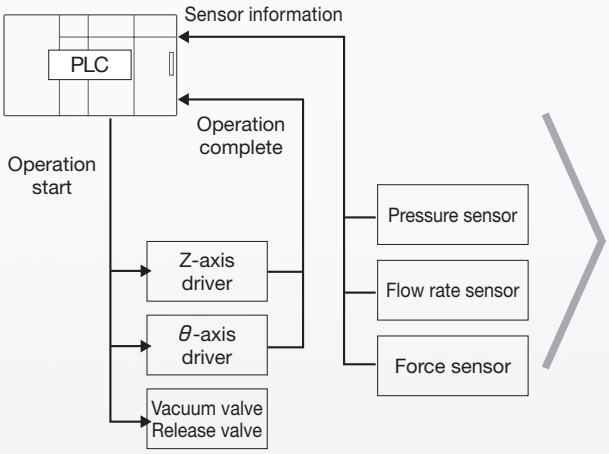
Reduced cycle time

The integrated control system reduces time loss

The PPR enables sequence control with each motor and sensor integrated. Compared to conventional PLC-based control, the number of communications is reduced and time loss is minimized.

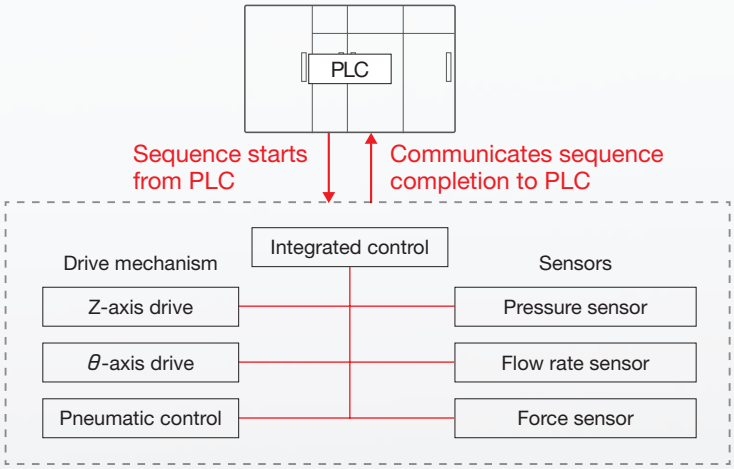
Conventional system

All linked operations and timings are managed by PLC



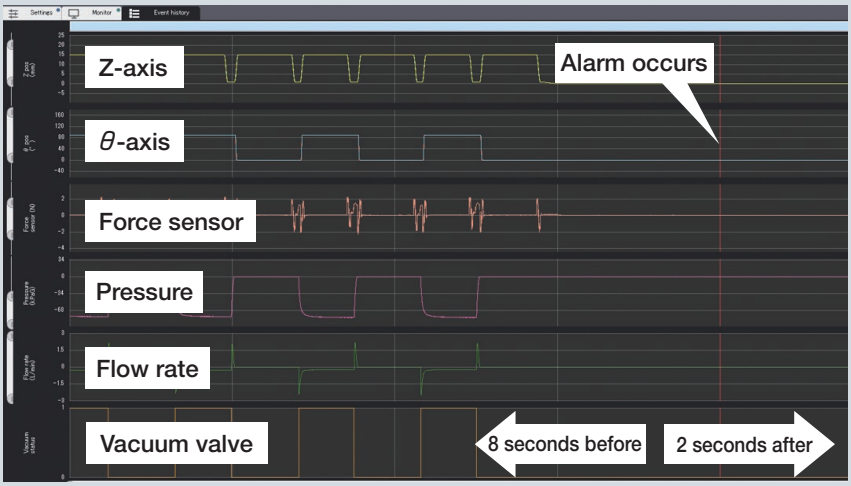
PPR system

Linked operations and timings are completed with integrated control



Error logging function

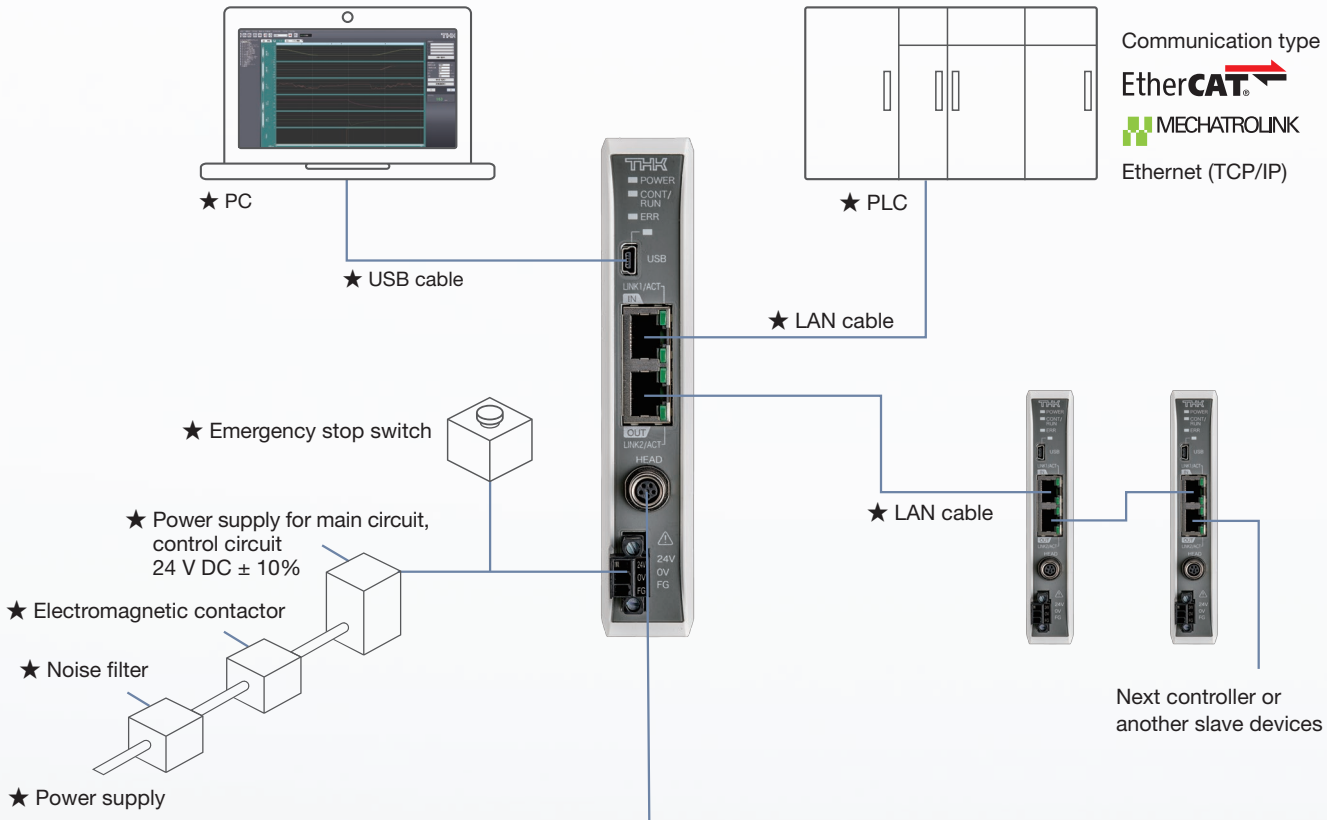
Sensor information can be logged when an alarm occurs or at a specified timing.
Data at a sampling cycle of 0.1 ms can be acquired for a 10-second period.
* Data 8 seconds before and 2 seconds after alarm



System Configuration

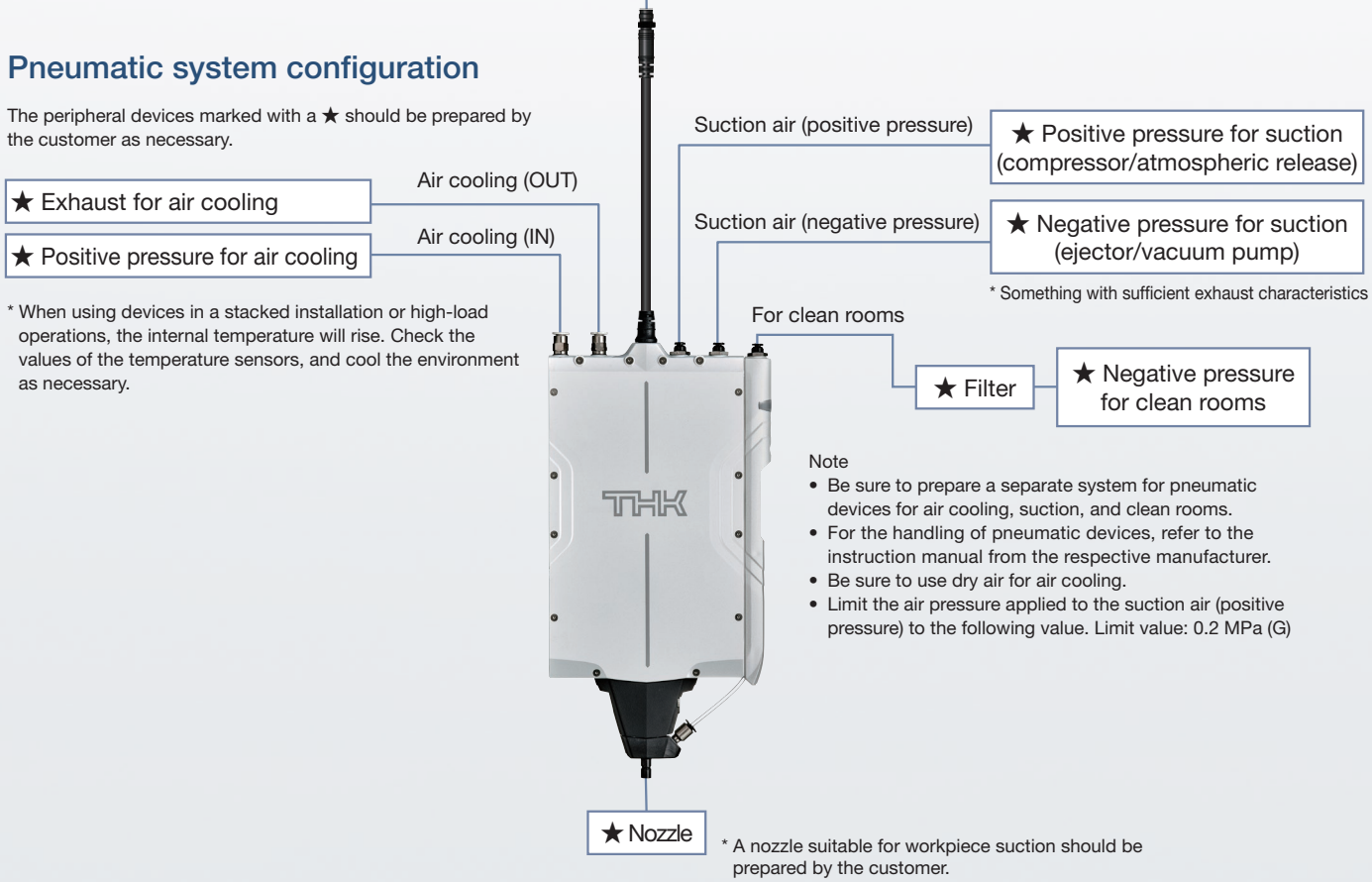
Electrical system configuration

The peripheral devices marked with a ★ should be prepared by the customer as necessary.



Pneumatic system configuration

The peripheral devices marked with a ★ should be prepared by the customer as necessary.



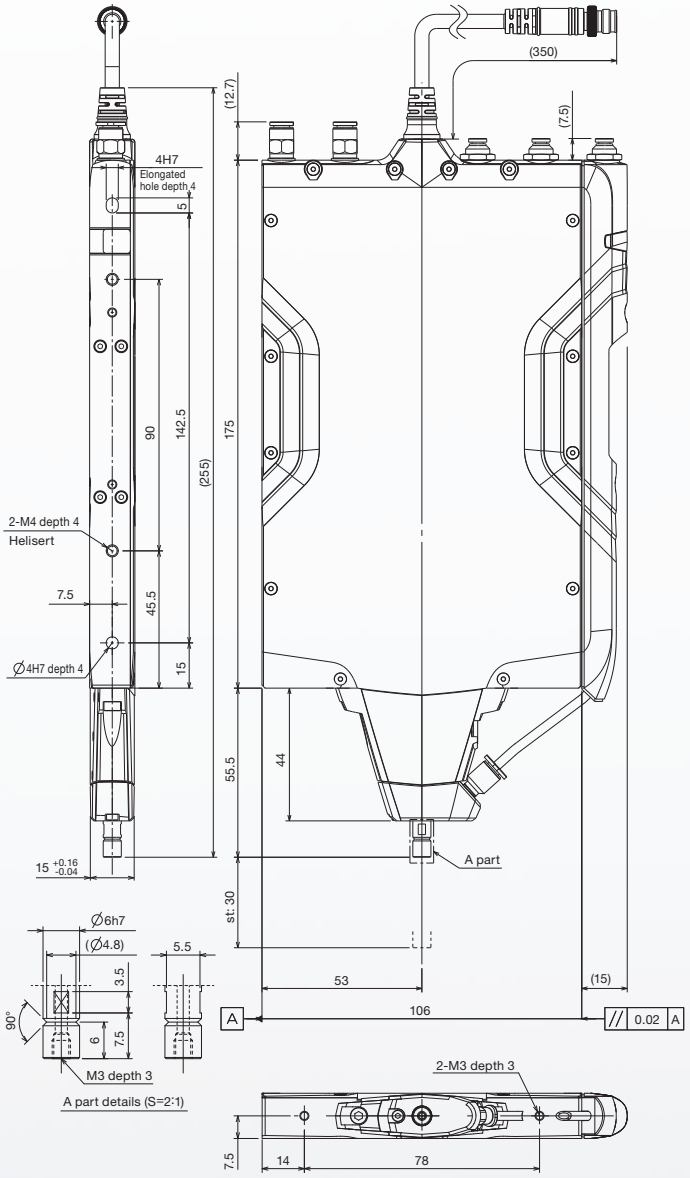
* When using devices in a stacked installation or high-load operations, the internal temperature will rise. Check the values of the temperature sensors, and cool the environment as necessary.

Note
- Be sure to prepare a separate system for pneumatic devices for air cooling, suction, and clean rooms.
- For the handling of pneumatic devices, refer to the instruction manual from the respective manufacturer.
- Be sure to use dry air for air cooling.
- Limit the air pressure applied to the suction air (positive pressure) to the following value. Limit value: 0.2 MPa (G)

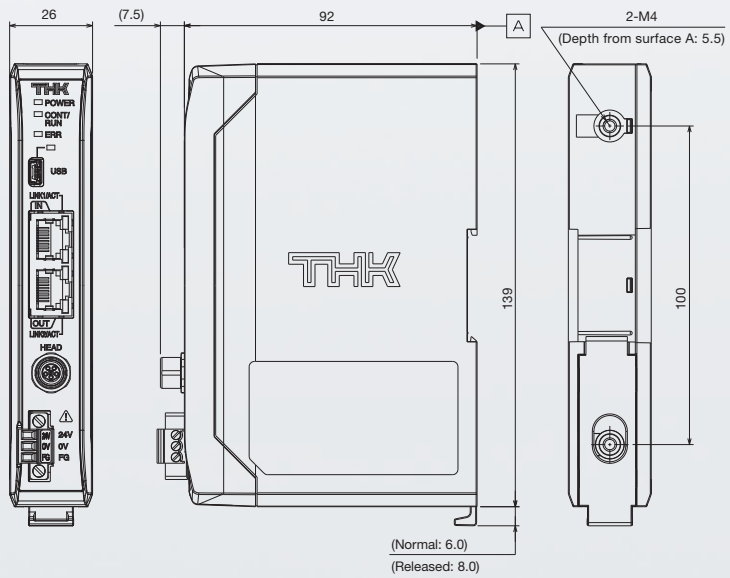
* A nozzle suitable for workpiece suction should be prepared by the customer.

Specifications

Head external dimensions



Controller external dimensions



Product Models

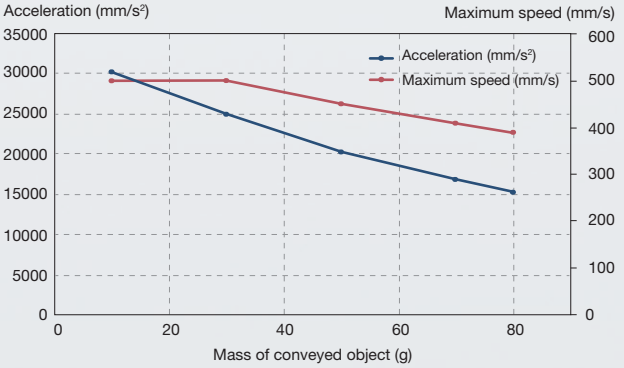
Product	Model
Head	PPR-LR3
Controller	PPR-CTR3
Dedicated head cable (1 m)	PPR-FXC1
Dedicated head cable (3 m)	PPR-FXC3
Dedicated head cable (5 m)	PPR-FXC5

Basic Specifications

Item			Specifications
Head	Z-axis	Stroke	30 (mm)
		Resolution	1 (μm)
		Positioning repeatability	±1 (μm)
		Maximum speed	500 (mm/s)
		Rated thrust[1]	3.3 (N)
		Maximum thrust[1]	5.6 (N)
		Force resolution	0.01 (N)
		Load capacity	80 (g)
		Movable part mass	115 (g)
	θ-axis	Stroke	±180 (deg) (multi-rotation available)
		Resolution	0.01 (deg)
		Positioning accuracy	0.06 (deg/180 deg) or less
		Axis runout accuracy[2]	50 (μm) or less
		Maximum rotational speed	1400 (rpm)
		Rated torque[1]	1.6 (mN·m)
		Maximum torque[1]	5.2 (mN·m)
		Maximum allowable inertia	2 (kg·mm^2)
		Movable part inertia	0.1 (kg·mm^2)
	Operating/storage temperature		0 to 40°C / -10 to 60°C (No freezing)
	Operating/storage humidity		20 to 80% RH / 90% RH or less (No condensation)
	Mass		Approx. 620 (g)
Controller	Input power supply		24 (V) ±10%
	Power supply capacity		4 (A)
	Supported networks		EtherCAT, MECHATROLINK-III, Ethernet (TCP/IP)
	Operating/storage temperature		0 to 50°C / -10 to 60°C (No freezing)
	Operating/storage humidity		90%RH or less / 90%RH or less (No condensation)
	Mass		Approx. 190 (g)
Standards			CE

[1] The values shown are those when the average temperature of the armature winding is 100°C. For items other than the relevant parts, the values are at a temperature of 20°C.
[2] The values shown are those when the shaft is extended as far as possible (st: 30 mm).

Z-axis drive: Acceleration and maximum speed relative to mass of conveyed object



* The above graph assumes a stroke of 10 mm and a duty cycle of 70%.

SMART SERIES

Pick and Place Robot PPR

- The actual products may differ from the illustrations and photographs in this catalog.
- Outward appearances and specifications are subject to change without notice for the purpose of improvement. Please consult with THK before using.
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- For exports of our products and technologies and sales for export, our basic policy is to comply with the Foreign Exchange and Foreign Trade Act and other laws and regulations. Please consult us in advance if you want to export our products by the piece.

Precautions for Safety

In order to promote the safe use of the product, be certain to read the instruction manual carefully, ensure you fully understand its contents, and observe precautions for safety and the installation and operating environments.

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