NTN®
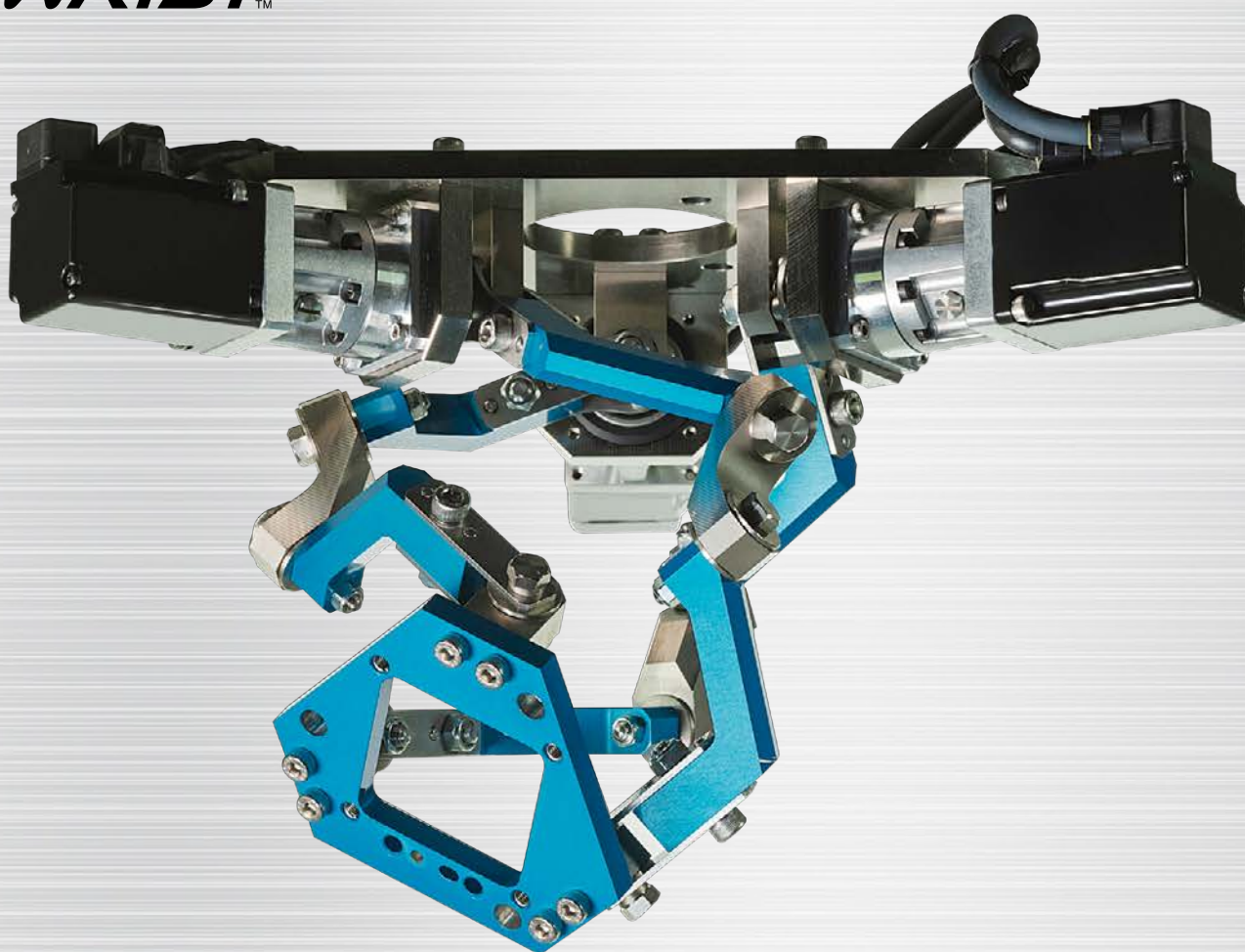
i-WRIST™

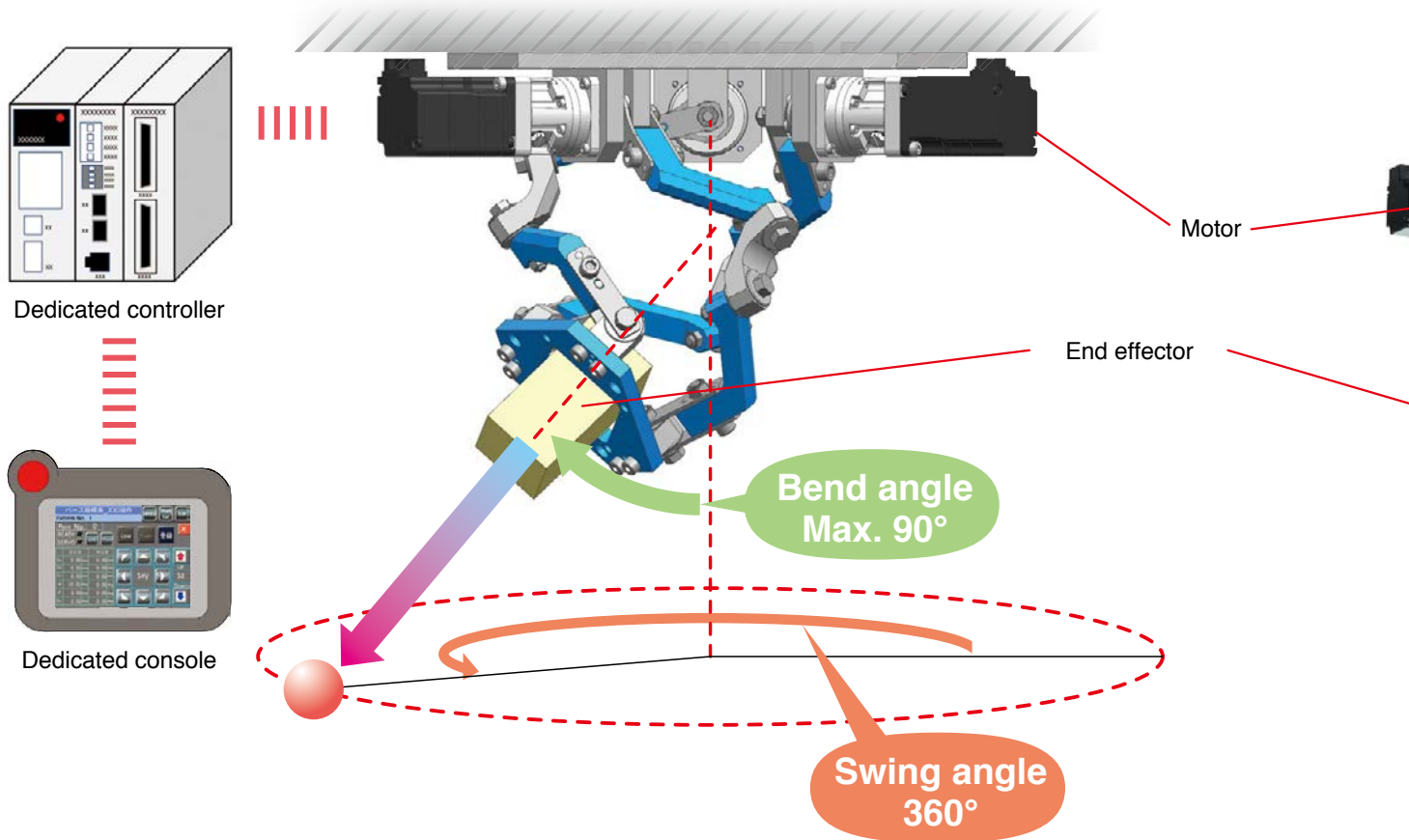# Approach workpieces from various angles!

Wrist Joint Module i-WRIST™

Model diagram of system components

Dedicated controller
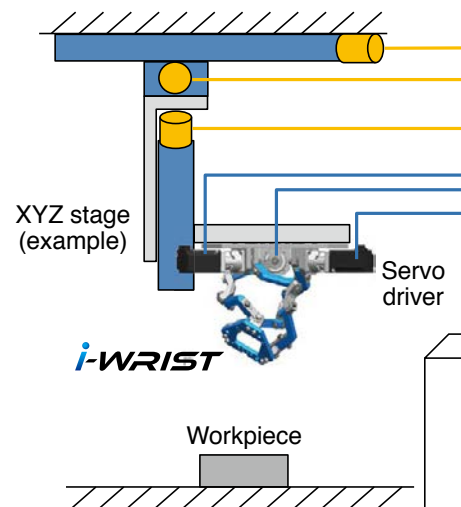
Dedicated console

Motor

End effector

Bend angle Max. 90°

Swing angle 360°

Example configuration

❶ Split specification (Stationary type)

Dedicated console

i-WRIST

Workpiece

XYZRz stage
(example)

(End effector)

Servo driver

Dedicated controller
· CPU
· Input/output module
· Base unit

User's controller
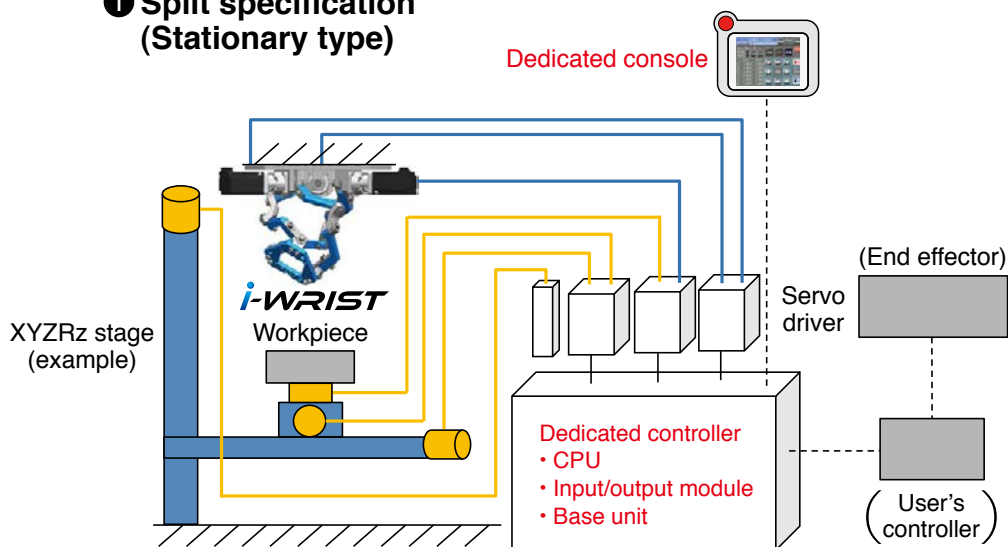
❷ Integrated specification (Stage mounted type)
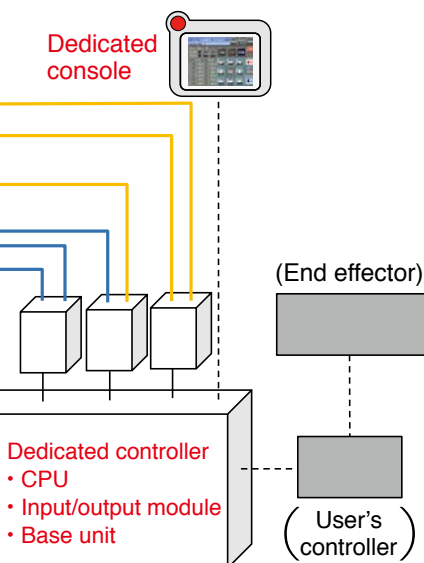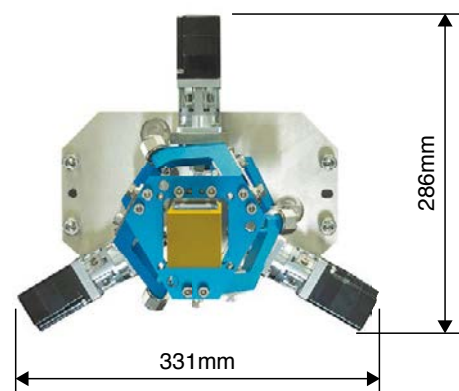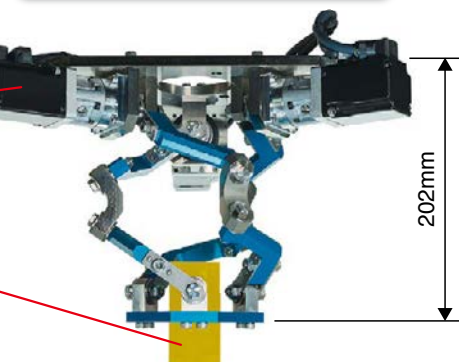
XYZ stage
(example)

i-WRIST

Servo driver

Workpiece

∗ Inquire separately for other configurations.
∗ Components in red are supplied by NTN. Inquire separately for other components.
∗ One dedicated console can control multiple devices.
∗ By customer to arrange the end effector, user's controller, XYZRz stage and workpiece.

i-WRIST™

Compact design

202mm

286mm

331mm

Dedicated console

(End effector)

Dedicated controller
・CPU
・Input/output module
・Base unit

User's controller

Features

1 Approach target positions from various angles!

- **Wide operating range**: maximum bend angle 90°, swing angle 360° (free)
- Coordinated operation combining the XYZ stage and rotation (Rz) stage.
- **Compact** layout.

2 Outstanding productivity!

- Able to move to a specified point **in the quickest time.**
- Equipped with automatic speed calculation algorithm (vibration suppression when stabilized).
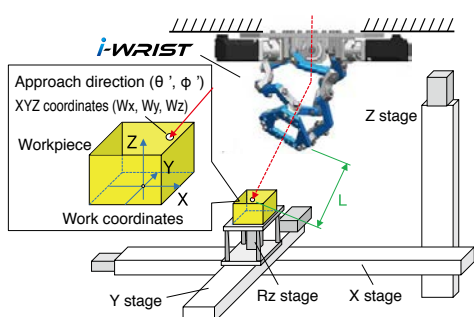- Layout with end effector mounted within link mechanism.

3 Quick changeover time and adjustments!

- Intuitive and easy-to-use dedicated console.
- Cables routed within link mechanism. (prevents cables becoming twisted after repeated swing motions)
- Save multiple operating patterns.

Main operation setting functions

■ **Intuitive teaching process based on XYZ coordinates.**

Fine adjustment of the position using jog button.

i-WRIST

Approach direction (θ', φ')
XYZ coordinates (Wx, Wy, Wz)
Workpiece
Z
Y
X
Work coordinates
Z stage
L
Y stage
Rz stage
X stage

JOG operation screen

Enter XYZ coordinates and approach direction directly.

Coordinates input screen

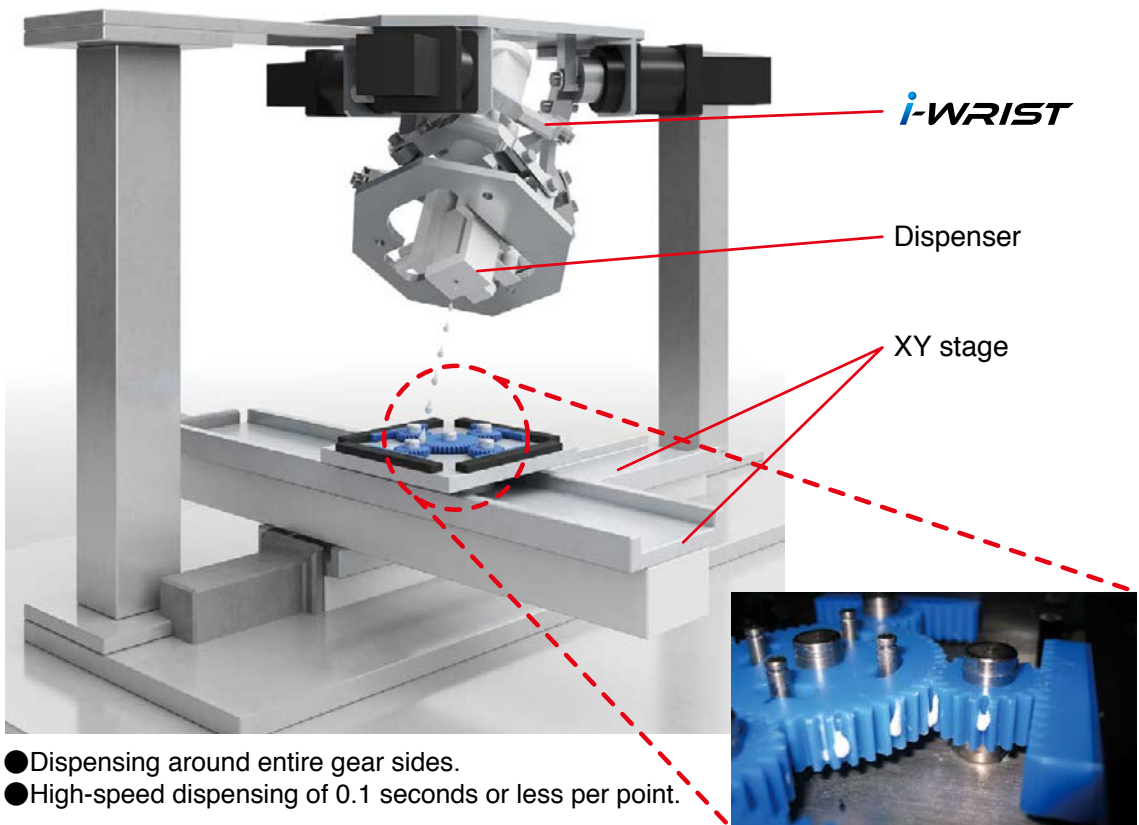■ **Operating conditions, motor gain and other settings can be configured.**

■ **"JOB code" can be output to user's controller for each position, Using this "JOB code" users can set operations for each position with user's controller.**

■ **Data of registered points can be edited and saved on a PC.**

Dedicated console   PC
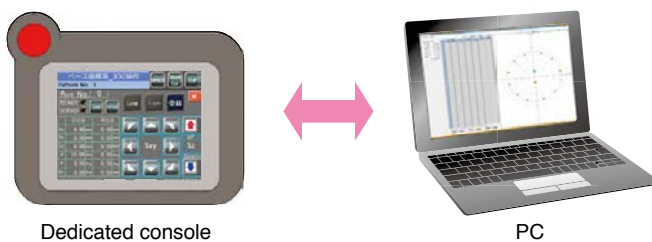
Example of applications

■ Liquid dispensing (grease, adhesive)

i-WRIST

Dispenser

XY stage

●Dispensing around entire gear sides.
●High-speed dispensing of 0.1 seconds or less per point.

■ Appearance inspections

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Camera

Rz stage

XY stage
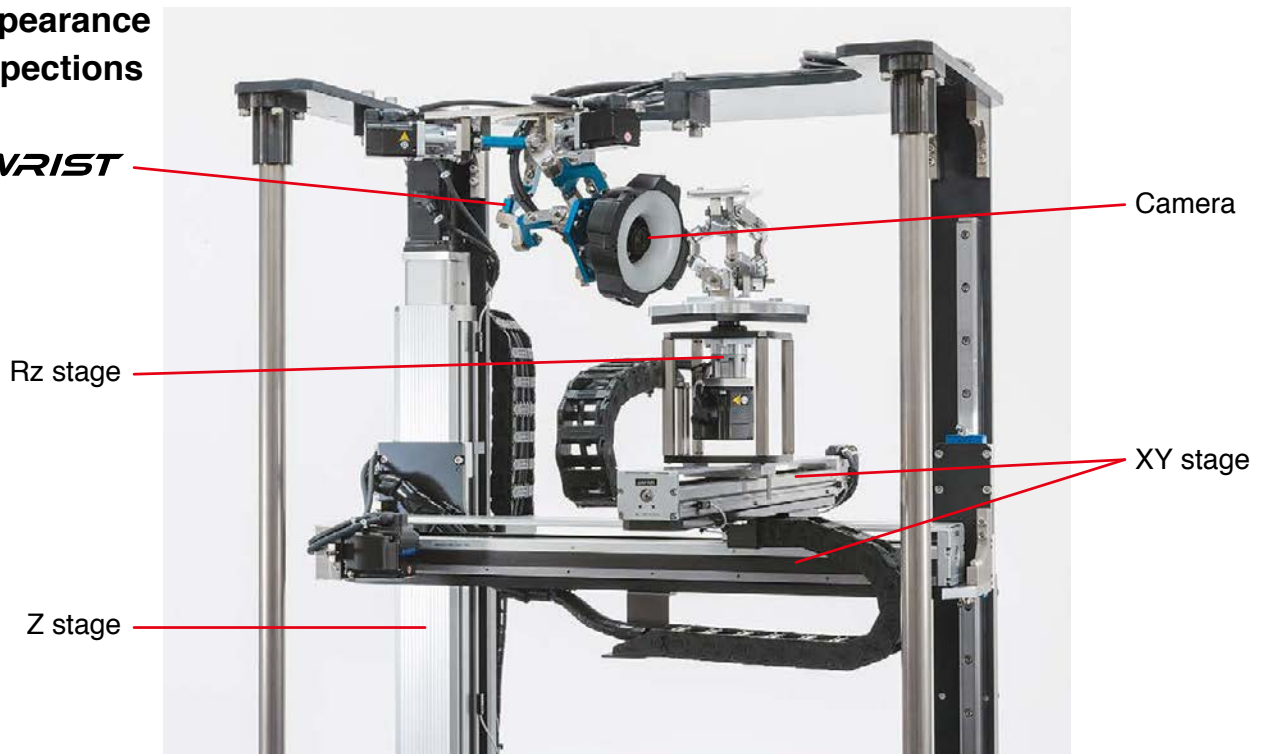
Z stage

●Appearance inspections at more than 7 points per second is possible (depending on size of workpiece).
●Inspect an entire hemispherical surface with a single camera.
●Cooperative control of compact layout combined with XYZRz stage.

■ Other applications: welding, coating, cleaning, assembly, etc.

Specifications

Item	Content		
Wrist Joint Module i-WRIST™		90° bend angle type	45° bend angle type
	Size (W×D×H)	331 × 286 × 202mm	388 × 335 × 191mm
	Mass (kg)	5.4	8.0
	Degrees of freedom	2	
	Operating range — Bend angle (°)	90	45
	Operating range — Swing angle (°)	360 (free*¹)	
	Weight capacity (kg)	1.0	
	Repeated positioning accuracy (°)	±0.05	
	Control mode	PTP (Point to point) control, continuos pass control	
Dedicated controller	Size ： W65 × D110 × H130 mm Attached unit ： I/O unit (input: 32 points, output: 32 points) Rated voltage ： DC 24 V ±20% Controlled object*² ： i-WRIST™ X stage, Y stage, Z stage, Rz stage (up to 4 axes)		
Dedicated console*³	Display size ： W115.2 × L86.4 mm Display device ： Color LCD Rated voltage ： DC 24 V ±20% Mass ： 0.96 kg or less No. of registerable patterns ： 50 patterns (1 pattern: 100 points)		
External interface	Parallel input/output	： input signals EMG stop, Reset, Break, Console ON, Enable SW, Start, Pause, JOB complete, CHG Pattern No., DATA 0 to 6, Servo OFF ： output signals Error, Ready, Busy, Complete, Move complete, Low battery, Reset, Pattern No. complete, DATA 0 to 6, Point 0 to 6, Trigger, JOB Code	

＊1：Swing operations can be repeated in the same direction.
＊2：Inquire separately for control target stage configurations.
＊3：One dedicated console can control multiple devices with same specifications.

What is i-WRIST™

"i-WRIST" is NTN Trade Mark created from combination of "i" (intelligent, innovative, interesting) and "WRIST" (referring to a human wrist).

See a video of i-WRIST in action

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