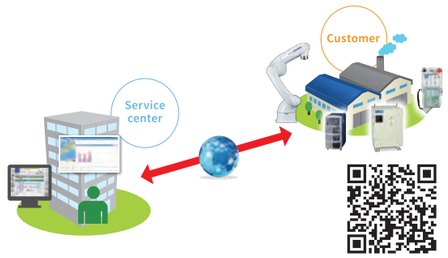
Service

Support for safety after introduction

Remote Maintenance

Connect the robot to a service center via the Internet and advise on robot operation and construction conditions. Safe and secure support can be provided as if a veteran service employee were present near the customer.



■Customer preparations

The intrenet connection environment will be prepared by the customer

LTE router	Smart phone	IN-house LAN
・Data communication sim card ・LAN cable /USB cable	※Use the tethering function of the Android device. (USB cable)	• Internet line • LAN cable

1) Data communication charges will be borne by the customer.
2) This system uses communication equipment, so it may not be possible to use the function as intended due to communication status or interference.

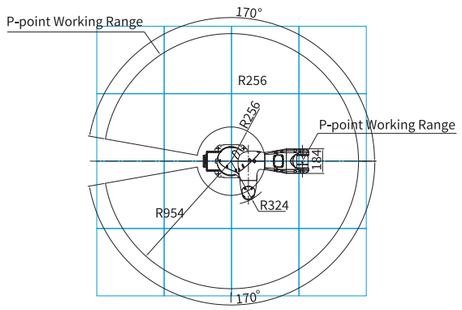
■ Basic specifications and operating range

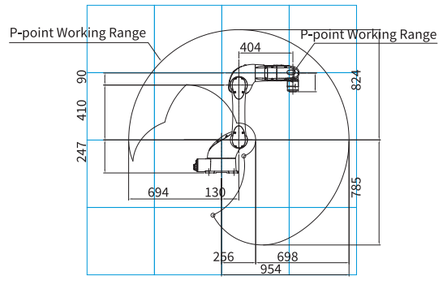
[Manipulator Specifications]

Item			Specification
Name			NVC4
Structure			Vertically articulated type
Number of Axes			6
Wrist Capacity			4 kg
Positional Repeatability			± 0.03 mm (Note 1)
Drive Method			AC servo motor
Drive Capacity			800 W
Position Feedback			Absolute encoder
Working range	Arm	J1 (Rotation)	±170°
		J2 (Front/Back)	-155°～+90°
		J3 (Up/Down)	-155°～+180°
	Wrist	J4 (Swing)	±170°
		J5 (Bending)	-30°～+210°
		J6 (Twist)	±360°
Maximum Speed			1000mm/s (Note 2)
Wrist Allowable Load	Allowable moment	J4 (Rotation)	13.0 N・m
		J5 (Bending)	13.0 N・m
		J6 (Twist)	4.4 N・m
	Allowable Moment of Inertia	J4 (Rotation)	0.462 kg・m²
		J5 (Bending)	0.462 kg・m²
		J6 (Twist))	0.048 kg・m²
Arm Cross-section Area			1.41 m 2 × 340°
Environmental Conditions			Temp.: 0 to 45°C, Humidity: 20～80%RH (No-condensation)
Weight			37 kg
IP code			IP65
Installation method			Floor-mounted
Paint color			Ice Blue

Note 1) Position repeatability of thr tool center point (TCP) value complies with the JIS B 8432 Standard.
Note 2) Regarding the specification of the operation speed, a risk assessment in the use environment is required.

[Manipulator Working Range]





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VEGETABLE OIL INK

DAIHEN

Friendly series Ⅱ

Optimum Collaborative Robot for Arc Welding

FD-VC4

Easy installation and easy relocation

Active at various welding sites!

Birth of optimum collaborative robot for arc welding with high track accuracy and high durability!

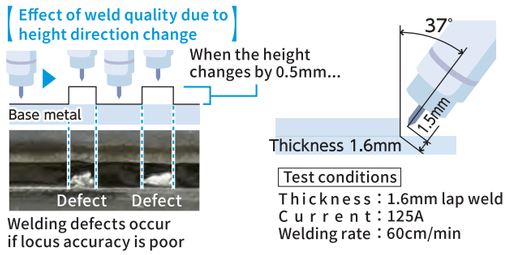
Daihen Collaborative Robot Solves the Problem of Introduction of Robots!

Collaborative Robot for *Arc Welding*

Quality

Achieves high track accuracy enabling high quality welding

Collaborative robots with low trajectory accuracy may cause welding defects as shown in the figure on the right.
Daihen, who knows everything about welding, has developed a new control technology to improve the trajectory accuracy of linear and circular interpolation, which affects welding quality, and installed it in collaborative robots.
Achieves high-quality welding with stable trajectory accuracy equivalent to that of industrial robots.



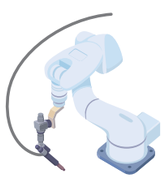
Use

Various welding methods are selectable

- CO_2/ MAG welding
- MAG pulse welding
- Low-Spatter welding
- Ultra-Low-Spatter Technology Synchro-feed robotic welding system
- TIG welding

By adopting the same controller as an industrial robot, a wide variety of peripheral devices and functions can be used.Various welding methods such as CO_2/ MAG welding, ultra-low spatter welding, and TIG welding can be selected to suit the site, and a full range of welding functions can be used, so they are applied to all welding sites.


CO_2/ MAG welding


TIG welding

【Extensive welding-only functions】
- Touch sensor function
- Arc sensor function
- Weaving function
- Offline Teaching System D-ST
- Robotic Welding Management-System FD-AM
- Various welding torches

Support

Option **Simple robot operation**

Teach-less system

PHOTOUCH TEACH

Automatically Generate Teaching Program by Tablet Only

❶ Taking


Shoot with Camera

❷ Selecting

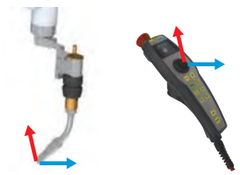

Touching the weld line on screen

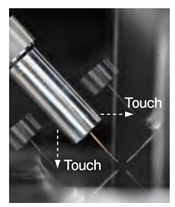
❸ Sending


Transfer generated program

Joystick Pendant "Joy PEN"

A combination of gyro sensor and joystick makes a teaching program by intuitively operating the robot





Wire touch function corrects aiming position

Collaborative robots active in *Various sites*

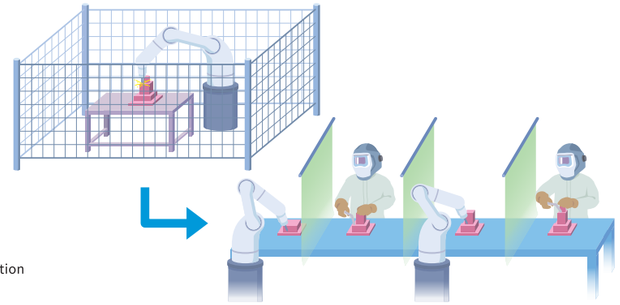
Space saving

Installation is possible even if there is no separation from people by safety fence.

The cooperating robot can work in the same space as a person without installing a safety fence.※1
Therefore, it is no longer necessary to secure a large space for introduction like conventional industrial robots.

※1 If a safety fence is not installed, a risk assessment by the customer is required.

FD-VC4 complies with ISO 10218-1 safety standard for industrial robots. In addition, the Robot Controller conforms to the international standard "ISO 13849-1PLd(Cat.3" and safety certification by a third-party certification body has acquired.



Safety

When contact with a human is detected, the robot stops.

The cooperative robot is equipped with a safety function that automatically stops when a force exceeding a preset contact detection level is detected.
In addition, it has an arm shape that prevents pinching of hands and fingers, and a design that eliminates corners, thereby alleviating impact during contact.

Move

Move to the site where it is needed and run immediately.

Easy-to-install, mobile, and easy-to-move collaborative robots can be easily relocated to suit customer conditions, such as changes in production volume or labor shortages. Automation in large structures, such as shipbuilding, is also possible, and will be used in a variety of welding sites.