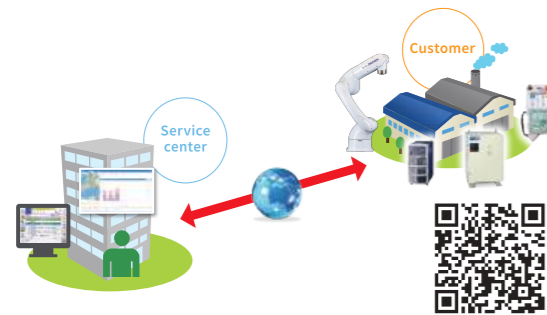


Service

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 internet connection environment will be prepared by the customer

LTE router
 • Data communication sim card
 • LAN cable
 /USB cable



Smart phone
 ※Use the tethering function of the Android device. (USB cable)



IN-house LAN
 • 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.

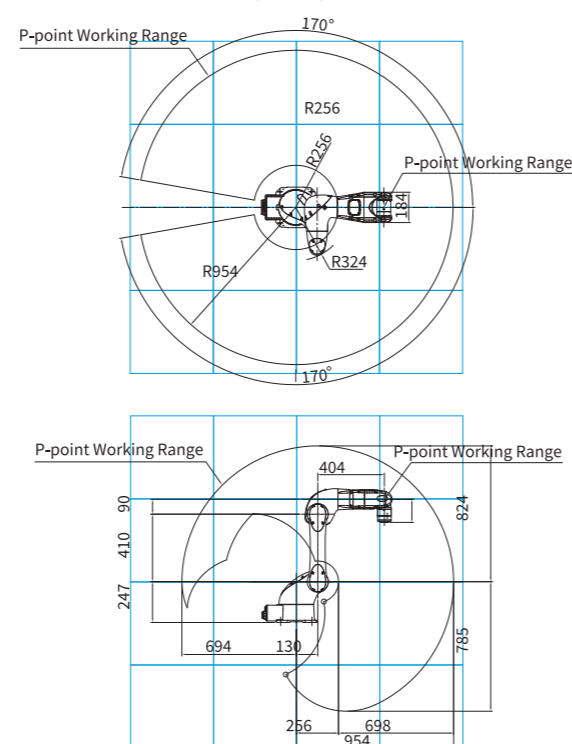
Basic specifications and operating range

[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° J4 (Swing) ±170° | |
| | Wrist | 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 · m ² J5 (Bending) 0.462 kg · m ² J6 (Twist) 0.048 kg · m ² |
| | | | Arm Cross-section Area |
| 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 the 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]



In accordance with DAIHEN's policy to make continuing improvements, design and/or specifications are subject to change without notice and without any obligation on the part of manufacturer.

DAIHEN Corporation

4-1, Koyochi-nishi, Higashinada-ku, Kobe, Hyogo 658-0033, Japan
 Phone: (Country Code 81) 78-275-2006
 Fax: (Country Code 81) 78-845-8159

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- The information contained in this catalog is current as of September 2021 and is subject to revision without notice.
- This product is made of FSC®-certified and other controlled material.



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!

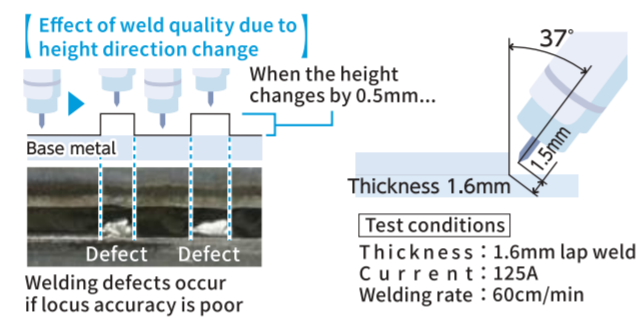
Collaborative Robot for Arc Welding

Collaborative robots active in Various sites

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.



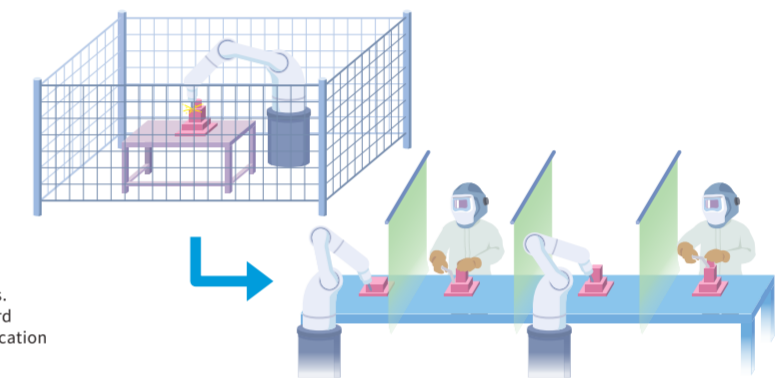
Installation is possible even if there is no separation from people by safety fence.

Space saving

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.



Use

Various welding methods are selectable

CO₂/MAG welding

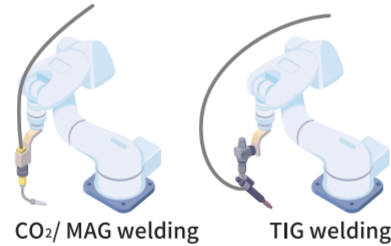
MAG pulse welding

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 CO₂/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.



[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

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

Safety

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.



Support

Option Simple robot operation

Teach-less system

PHOTO TOUCH TEACH

Automatically Generate Teaching Program by Tablet Only

- 1 Taking: Shoot with Camera
- 2 Selecting: Touching the weld line on screen
- 3 Sending: Transfer generated program

Joystick Pendant "Joy PEN"

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



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

Move

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.

