



Mobile robot automating welding for large structures

Mobile Welding Robot System

Challenges Related to Using Robots for Welding Large Structures

Reasons for using robots

- Shortage of labor and skilled workers
- Inconsistent welding quality attributable to varying worker skills



Robots solve labor shortage issues and ensure consistent welding quality

The reality: Robot welding for large structures poses many real-world challenges.

Shipbuilding



Bridges

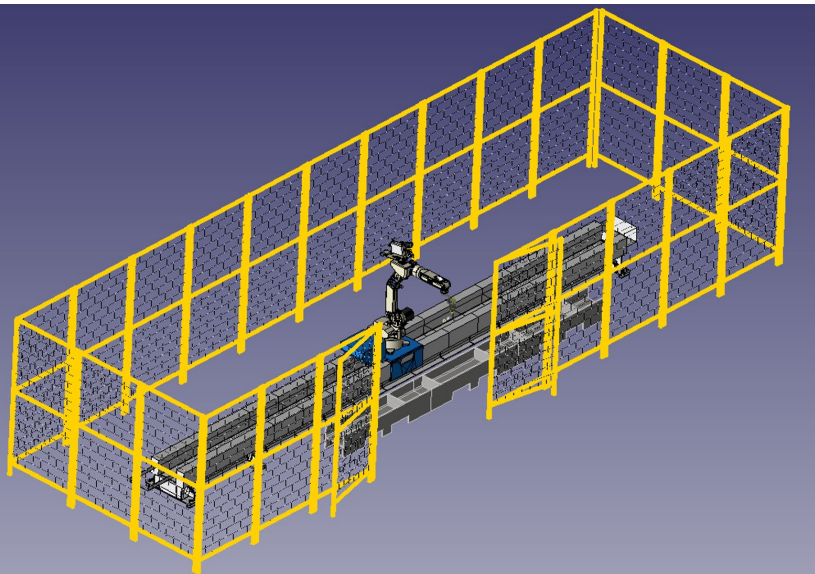


- Requires a large-scale system, restricting factory layouts.
- Accurate workpiece positioning is difficult, requiring corrections during operation.

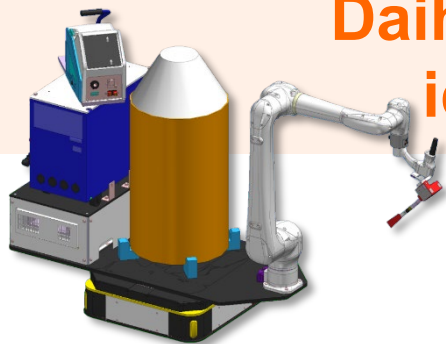
**Layout restricted by
wide safety fencing area**



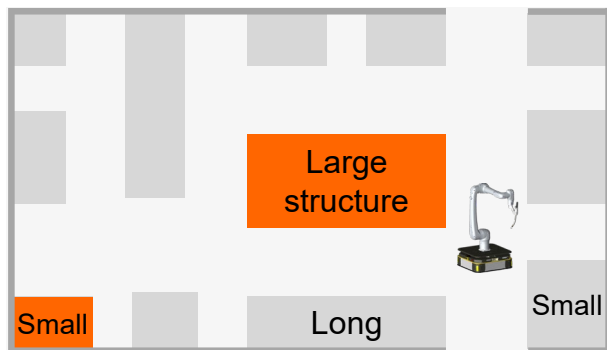
**Mobile welding robot system
resolves all these challenges!**



Daihen's comprehensive mobile welding robot system is **ideal for all kinds of factory layouts.**



Factory layout



Daihen's comprehensive mobile welding robot system

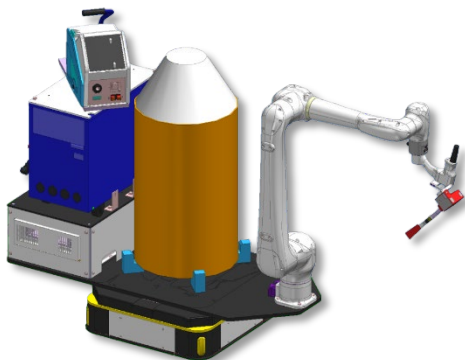
- Daihen provides the robot and welding machine as a package to reduce work burdens related to coordination during introduction and operation.

Ideal for all kinds of factory layouts

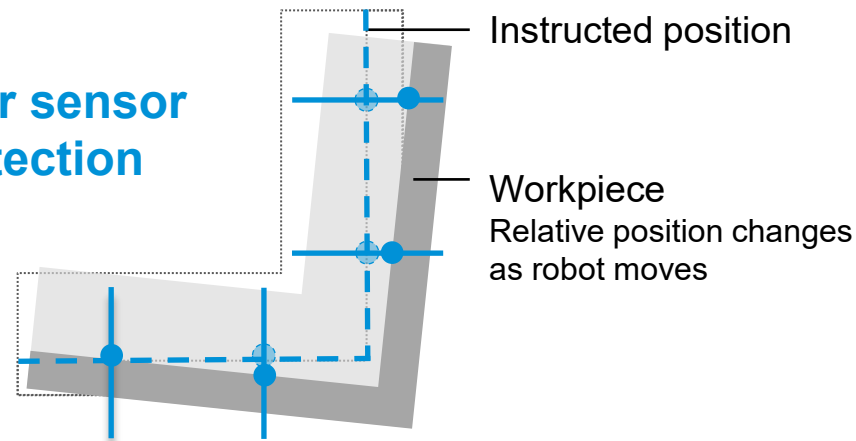
- Robot moves to the workpieces, allowing flexible workpiece placement.
- Compatible with existing environments

Uses **laser sensors** to **automatically identify and compensate** for workpiece shape.

- Laser sensors identify workpiece shape before welding.
- Compensates for the relative position and rotational deviation between the robot and the workpiece.
- Automatically corrects teaching position, reducing operator workload.



**Laser sensor
detection**



Autonomous mobile welding in welding site for **large structures**

Step 1

Robot autonomously moves to welding location.

Step 2

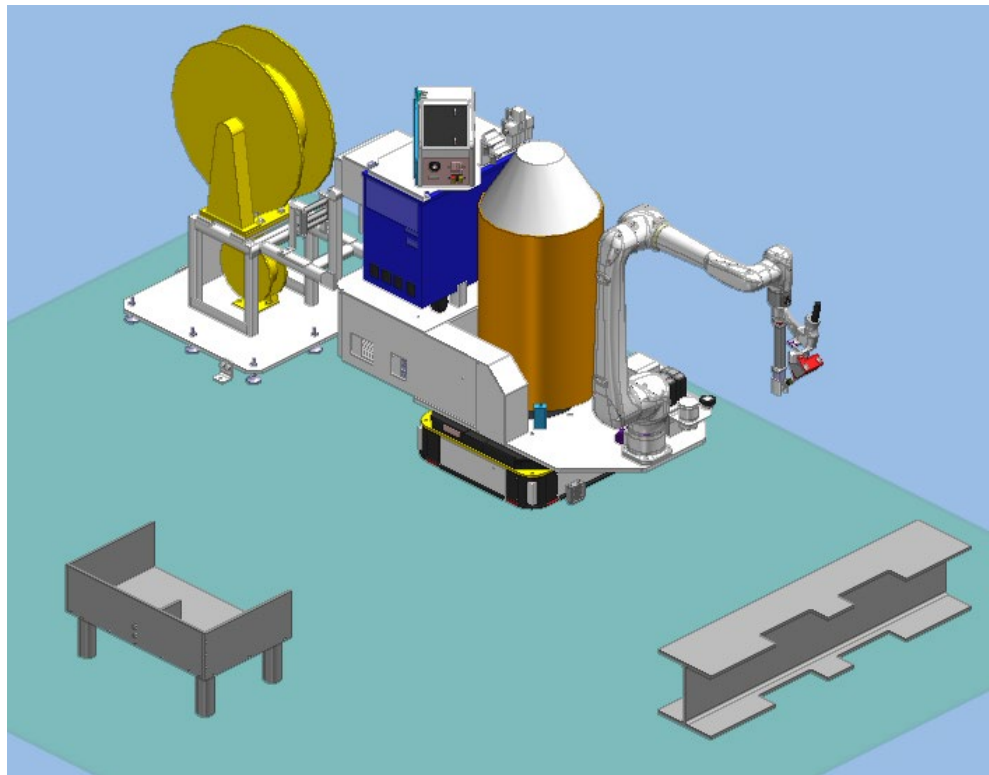
Workpiece and shape detection using laser sensors

Step 3

Welding operation by robot

Step 4

Moves to next welding location.



Detachable Cord Reel Station

DAIHEN

Automatically connects and disconnects **welding power cables**
and **gas hoses** when needed.



Installation



Removal

4×Speed

*We*bee ^{ザ・ショートアーク} **The Short Arc 500** -Field Edition-

Brings high-quality thick-plate welding to any site



- **Compact, tough,** carefully-designed housing

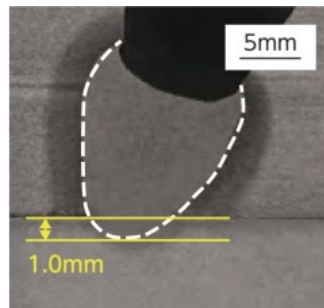
63% reduction in weight

WB M500F
62 kg

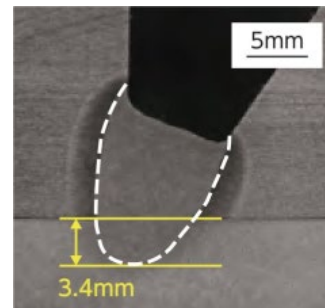
500 A thyristor type
169 kg

- Arc optimized for thick-plate welding

Conventional DC mode



FP GMA mode



Daihen offers solutions to improve production efficiency through a new welding automation method for large structures based on a system combining mobile robots and welding machines.

DAIHEN