

MOBILE WELDING ROBOTS FOR SHIPBUILDING with adaptive intelligence!

Mobile and flexible solutions - operated by welders

Absorbs automatically variations and tolerances

Full automated sensing and welding process

No programming needed - simple to use

Adaptive intelligence integrated

Used at shipyards, e.g.
in double bottoms or
open blocks, on micro
panels or larger panels.

Welds horizontal and
vertical connections,
handles gaps easily and
absorbs variations and
tolerances automatically
without any programming.



Inrotech ApS

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Inrotech's revolutionary intelligent and mobile welding robots open up new possibilities for automation of welding operations in shipbuilding industries. We do it different to others. The Inrotech robot identifies the welding jobs automatically by means of our own innovation, the Adaptive Logic Programming Technology (ALPT) and automatically starts welding without any programming!

For all Inrotech robot systems count following:

- **SELF PROGRAMMING**
The Inrotech robot is provided with an adaptive logical intelligence (ALPT), which makes it able to locate where to weld automatically.
No CAD transfer needed, no engineers needed for programming.
- **EASY TO INSTALL**
Hours after delivery the Inrotech robot is ready for operation.
- **SIMPLE OPERATION**
Operation of the Inrotech robot system is easy and comes with an intuitive touch screen.
It doesn't require any particular robot experience or long education to operate the Inrotech robot.
- **MOBILE AND FLEXIBLE**
No need for safety fence around the Inrotech robot. Suitable for both open and narrow spaces.
Works well with gantry, crane, single or multiple platform, rails or on wheels.
- **PROVEN CONCEPT**
The Inrotech robot systems have been installed and successfully employed at multiple shipyards around the world.

SMALL PARTS & SMALL PANELS

Inrotech's Micro Panel Line (MPL)



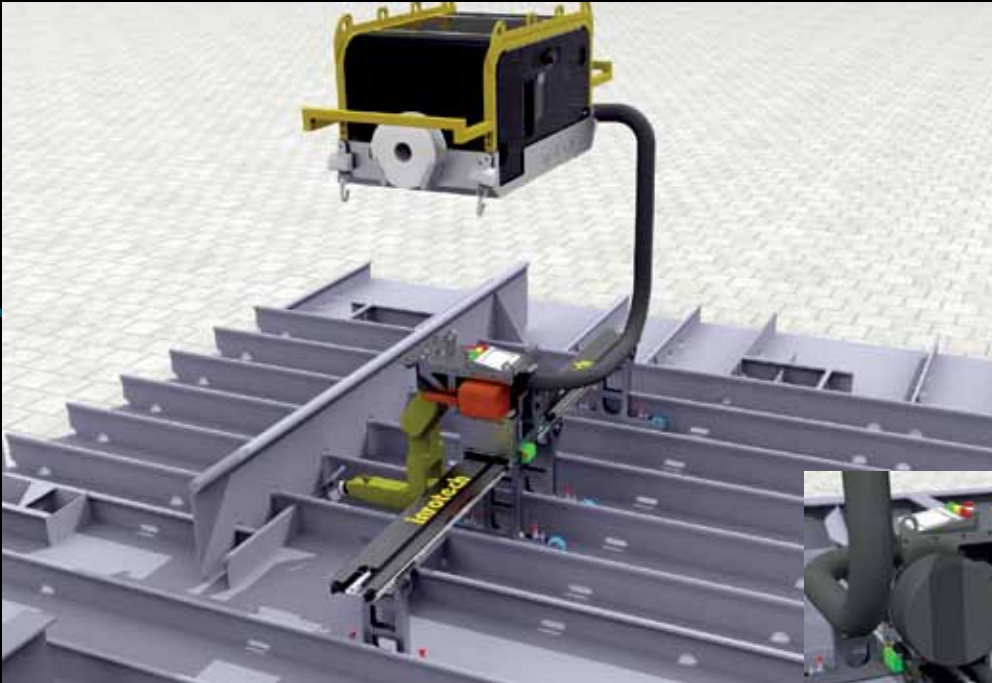
The MPL system is easily operated with few clear commands on a touch panel. No programming or drawing transfers are needed. The Inrotech MPL comes in two versions, a simple system for simple panels and a more sophisticated system for complex panels.

Full automatic sensing and welding of numerous kind of small panels for shipbuilding. Typical welding targets are down hand welding on flat bars and profiles and vertical welding on connection points.



LARGE PANELS & OPEN BLOCKS

Inrotech's Mobile Welding Robot (MWR)



The MWR moves on a rail system, which can easily be extended by units of 1,6 m. The rails are low weight, easy to handle and snap-locked.

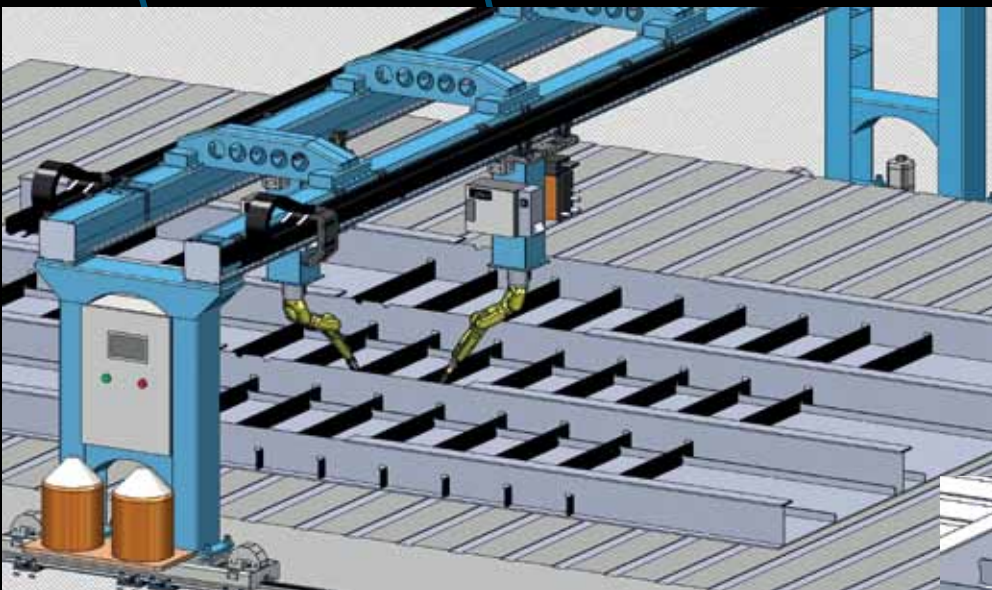
The MWR system is perfect for welding connections and features on large open blocks and panels. Both vertical and horizontal welds, also in multilayers, are easily handled by the Inrotech MWR system.

The MWR will move from job to job, identifying the welding jobs by means of Inrotech's unique sensing technology (ALPT), do the welding and automatically continue to the next job. The cage with the robot controller and welding machine, can either hang in the air or roll on the floor as fits best for each case.



LARGE PANELS & OPEN BLOCKS

Inrotech's Gantry Welding Robot (GWR)



The process of the GWR is very simple. Operators tack weld profiles to the panel and place the panel in the GWR working area. Pushing the "Start" button begins a full-automatic process where the GWR scans the whole panel and identify all welding jobs. The GWR system calculates without any further inputs all the jobs and welds automatically all profiles until full completion.

The Inrotech GWR system can be used to weld on panel lines or in block assembly. The GWR can weld profiles to the main panels, transverse and vertical connections, collars and brackets, all in a very simple and effective process without any programming at all.



STATEMENTS

NOT ONLY AUTOMATIC WELDING – ALSO ADAPTIVE INTELLIGENCE

minimal down-time, maximum return on investment

» Inrotech has developed a new robot technology for Odense Steel Shipyard and pushed the boundaries of robotic application. Mobile robots that can detect welding jobs automatically and perform a continuous high welding quality is no longer a fever imagination of shipbuilders, it has become a reality with Inrotech's mobile welding robot system. «

Thomas Knudsen, VP, Odense Steel Shipyard, Lindø Denmark

» I have worked with Inrotech in one specific large project with very high requirements for the welding technology and the repetitive quality for the weldings. The weldings were performed as multi-run assemblies with full penetration in heavy duty plates on offshore constructions and was carried out in narrow and extreme environments. I was very impressed by the handiness and flexibility of the Inrotech robot as well as the high skills and engagement from the very qualified employees from Inrotech. The concept resulted in both an increased productivity and an unsurpassed quality repetition compared to manual welding and I will not hesitate to recommend similar solutions together with the skills from Inrotech in similar future demanding projects. «

John Stecher Christensen, Project-welding Engineer, Weldadvice - European Welding Consultancy

SHIPYARD REFERENCES

Odense Steel Shipyard, Lindø Denmark
Oshima Shipbuilding, Japan
Vard Tulcea, Romania
Meyer Werft, Germany
BAE Systems, UK
CSSC, Shanghai Waigaoqiao Shipbuilding Co., Ltd
Astilleros de Murueta, S.A., Spa
Aibel, Norge

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