Increase Productivity with the World's First Collaborative Welding Robot
GET THE NOVARC SPOOL WELDING ROBOT (SWR) ADVANTAGE
A patented welding technology that tackles your biggest challenges

COLLABORATIVE WELDING ROBOT
- Works with a junior operator
- Equipped with a powerful built-in safety system eliminating the need for hard fencing
- No need for special programming language to operate
- Fast and easy set-up

ADVANCED WELDING FEATURES
- Automatic root to cap welding without the need to shut off the arc
- Tack Fusion™, Root Save™ and Repeat Pass to accommodate tacks and fit-ups
- Capable of welding stringers and multipass joints

SEMI-AUTONOMOUS
- Semi-automated seam tracking using a laser scanner with 0.1 mm accuracy (for pipes up to 0.75” in thickness and more than 4” in diameter)
- Automatic stick-out distance control (tip to pipe distance) with 0.1 mm accuracy

SMALL FOOTPRINT
- Machine base and equipment require only a 4’ by 4’ area in the shop (vs. track mounted robots which need over 40’ by 10’ space)
- Does not block forklift traffic or interfere with shop flow
- Unique ability to weld joints on pipe spools up to 30’ long

OPEN PLATFORM
- Ability to integrate with more than 2 positioners
- Easy integration with existing positioners
- Choice of power source

PRODUCTION MONITORING
- NovData™: Provides supervisors with daily operations and log reports for future analysis
- NovEye™: Camera built into the robotic arm which records each weld

The Spool Welding Robot working with two positioners
WELDING AUTOMATION SOLUTIONS FOR YOUR INDUSTRY
Leverage our experience to solve your problems by moving to mechanized roll welding using the SWR

IMPROVE YOUR BOTTOM LINE
• See 400% increase in productivity (vs. SMAW)
• Deliver 90% arc-on time
• Get a 75% lower cost per joint (vs. SMAW)
• Increase production capacity by 50% (vs. root to cap semi-automatic GMAW)
• Accomplish 30% faster travel speeds (vs. root to cap semi-automatic GMAW)

OPTIMIZE WELDING CAPACITY ON DEMAND
• Collect and preserve weld data to improve robot performance
• Reduce dependency on scarce, highly-skilled pipe welders
• Scale up quickly by easily training junior welders
• Increase capacity quickly through fast deployment
• Operational in just 5 days including a 2-day installation

SCALABLE AND REPEATABLE ARTISAN QUALITY
• Get consistent weld quality using stored welding data
• Choose a pipe recipe from the pre-programmed weld procedures

SWR ROI CALCULATOR
Novarc’s Spool Welding Robot (SWR) is an affordable investment. Use this quick calculator to determine your company’s annual Productivity Increases, Cash Savings and Payback.

CALCULATE YOUR ROI
novarctech.com/roi

*Compared to SMAW
COLLABORATIVE SPOOL WELDING ROBOT (SWR)

Maximize pipe welding productivity

**Easy-to-use Human-Machine Interface (HMI)**
HMI allows operator to:
- Select the pre-programmed welding procedure
- Tune the weld and motion parameters
- Get access to the pass tracking feature and see the graphical representation of weld joint build-up during the weld

**Slender design & compact head**
- Only 2” clearance around the pipe is required

**Three-axis robotic arm**
- Imitates all 1G welding motions
- Moves torch up/down, left/right while creating weave motion

**A light and durable pendant**
- Operators easily start, stop and change motion and weld parameters
- Includes:
  - 6.5” resistive touch screen
  - Hardwired safety rated E-stop
  - Easy-to-find rocker switches, push buttons and joystick

**NovEye™**
- Novarc’s weld monitoring system

**Pneumatic manipulator with adjustable height**
- Easily move the arm between joints within 15 ft of base
- Approach a full range of pipes from 2” to 60” at different heights

**Laser Camera**
- Tracks the seam in real time - no prescan
- Tracks the joint in XYZ axis (height, width, depth all adjusted automatically)

**Power Source**
- Multiple power source options available
PRODUCTION INSIGHTS = TRUE BUSINESS ADVANTAGES

Novarc’s Spool Welding Robot (SWR) maximizes productivity

GET SMARTER WITH NovData™

Novarc’s proprietary comprehensive production monitoring software, NovData™, gives you the insights you need to scale your operation profitably. It automatically creates all the reports you need.

The reports include:

**Daily Operations Report**
- Operator name
- Number and sizes of pipes welded
- Job number
- Welding Procedure Data Sheet
- Total arc-on time
- Generated automatically everyday

**Log Report**
- 50 ms stamped values for voltage, current, WFS, travel speed, true energy and many other parameters
- Operators name
- Spool number
- Work order
- Date
- Time
- Welding Procedure Data Sheet
- Plus, you get a record of the true heat input (true energy over distance traveled)
- Generated automatically for each weld
PRODUCTION INSIGHTS = TRUE BUSINESS ADVANTAGES

Novarc’s Spool Welding Robot (SWR) maximizes productivity

SEE MORE WITH NovEye™

- NovEye™, Novarc SWR’s groundbreaking weld monitoring system, has a camera built into the robotic arm which records each weld. With NovEye™:
- Operators get a clear view from inside the groove on the HMI as each weld progresses in real time.
- Supervisors get videos of all welds to analyze in parallel with the weld parameters saved by NovData™ to improve weld quality.
- Operators can clearly see the effects and changes of the Tack Fusion™ and Root Save™ features.
SELECT SWR OPTIONS

MULTIPLE POWER SOURCES
- Lincoln Power Wave® R450 Robotic
- Miller Auto-Continuum™ 500
- Fronius TPS 400i LSC Advanced

WORKS WITH MULTIPLE POSITIONERS
- The SWR can easily be integrated to work with multiple positioners
- Novarc can also supply one or more positioners based on your need

ELECTRONIC WELDING REGULATOR (EWR)
- Saves shielding gas while providing better gas coverage
- Reliable, defined and verifiable
- Simple to install and works instantly

ARCHOOD™
- No need for welding helmets with Novarc’s welding hood
- Easily and safely attaches to exhaust
- Patent pending

2D INDEXING TABLE
- Hardfacing (e.g. hardbanding) and alloy overlay (stainless, steel, nickel, etc.) applications

LASER-ASSISTED SEAM TRACKING
- Scansonic three-line laser
- For pipes with less than 0.75” in thickness and more than 4” in diameter

MANY MORE OPTIONS AVAILABLE!
CALL US +1 604.428.0050
CUSTOMER TESTIMONIALS

“The Ballast Water Treatment system was installed with the assistance of state-of-the-art robotic pipe welding machines developed by Novarc Technologies, a North Vancouver-based company. Using advanced control techniques, these cutting-edge, collaborative robotic systems - which will be used across Seaspan's shipyards in the Lower Mainland and Vancouver Island - allow pipe welding tasks to be done dramatically more effectively and efficiently. ‘This innovative repair and maintenance project truly was an all-hands-on-deck job, and marks the start of a proud new chapter in Vancouver Drydock’s world-class service offerings,’ said Paul Hebson – Vice President and General Manager, Vancouver Drydock. ‘Over the course of the project we employed almost 60 workers, delivering quality services around the clock. I couldn’t be happier with the final product, work that clearly exemplifies our commitment to our Core Value of Care for both our Customer and the Environment…’”

Seaspan’s Vancouver Drydock Company Ltd.
North Vancouver, BC

“We needed a versatile system that could fit into our welding lab and allow pipes to be welded, and include the option for plate welding as well as overlay/cladding capabilities. Novarc’s SWR system met all of our requirements, and their team was extremely helpful in providing the support we required during the testing and evaluation period. We also found Novarc’s collaborative robot to be extremely intuitive to operate and the entire project was a great success.”

CanmetMATERIALS
Hamilton, ON
Natural Resources Canada

“We were introduced to Novarc Technologies in June 2014. Since then we have been working closely with their team and helping them integrate their robot with our Power Wave R500 welding power source. We have provided Novarc with equipment under consignment and access to work with our technical experts. After the launch of their SWR in April 2016, we visited in April and June 2016 with the head of our automation group from Cleveland. It can be confidently said that we have become very familiar with the product and the company. Novarc’s SWR is designed to semi-automate the pipe welding process. The robot works with an operator in a collaborative manner to increase the capacity of pipe shops, lower their cost per joint and increase the weld quality. It can weld pipe modules up to 30ft while taking an 8ft by 4ft area. The SWR could have a significant impact on the pipe fabrication process industry due to the shortage of trained pipe welders in a growing market. This market is currently comprised of over 10,000 pipe welding shops globally.”

Michael Morgan
GM: Automation
Lincoln Electric Company of Canada

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ABOUT NOVARC TECHNOLOGIES
Founded in 2013, Novarc Technologies is a robotics company specializing in the design and commercialization of collaborative robots for industrial applications. Novarc’s Spool Welding Robot (SWR) is the world’s first of its kind in pipe welding application.

A proven pioneer in the field, Novarc has a dedicated team of robotic engineers, software developers, welders and scientists all eager to solve challenging industrial automation problems by working closely with pipe shops to improve customers’ bottom line.

ABOUT THE SPOOL WELDING ROBOT (SWR)
Unlike other welding solutions, Novarc’s flexible technology is capable of welding a variety of joints, with fewer space restrictions, where operators interactively make adjustments during the weld without the need to pre-program.

Novarc’s team started developing the SWR by working closely with manufacturing shops struggling to automate the pipe spool welding process. Pipe shops were frustrated by the lack of industry innovation and believed that conventional six-axis robots were not feasible for pipe welding, and that robots on rails were too limiting and too expensive.

Then we got to work.

Since then, we mastered the design and creation of a robot whose precision and dexterity matches the exact needs of pipe shops to get the job (and welds!) done.