

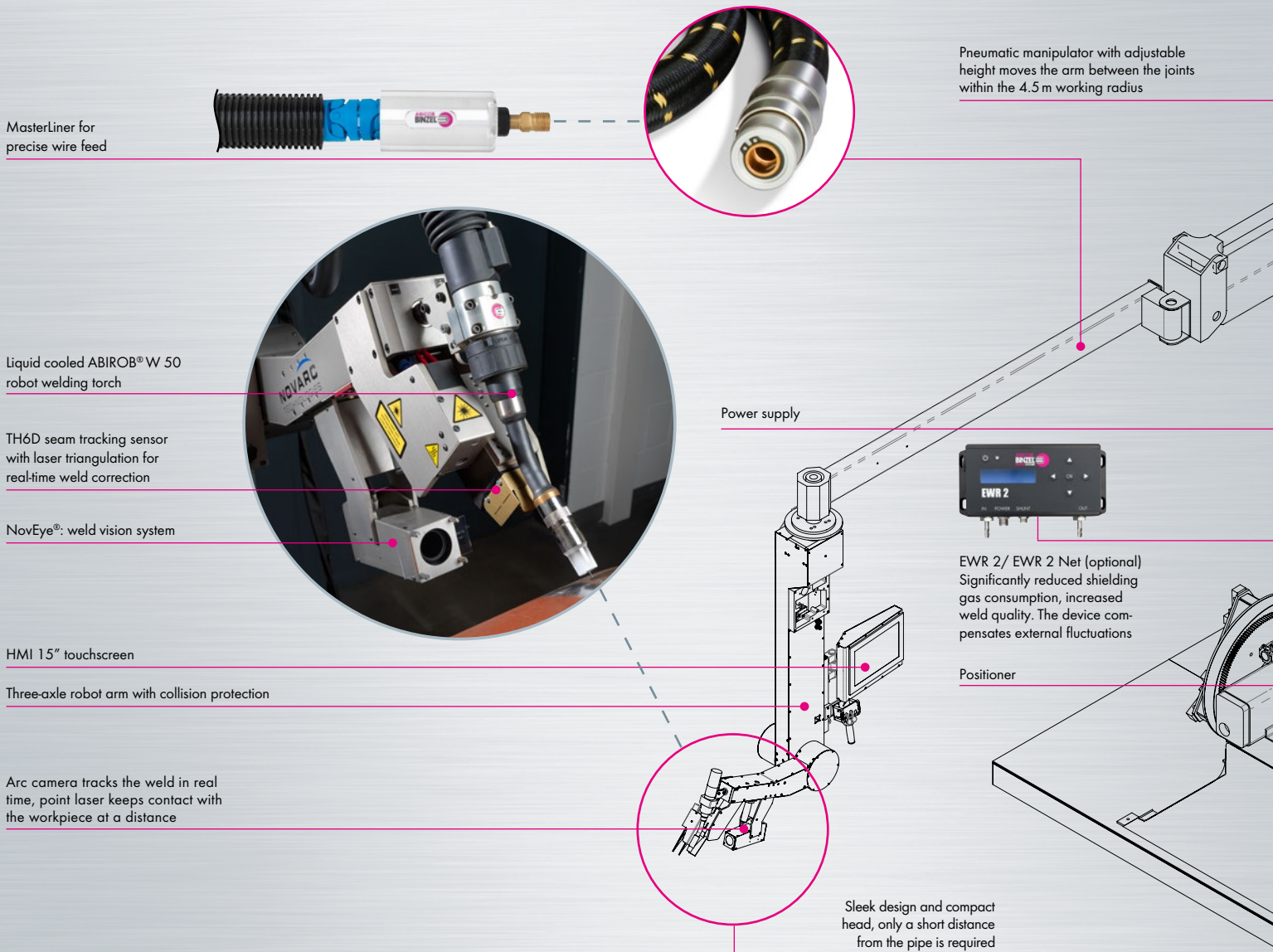


# Spool welding in a new dimension

## Spool welding robot SWR



# Delivering quality faster. With the collaborative welding robot.



## Spool welding robot SWR: Connect. Set. Weld.

Productivity in pipe production reaches a new dimension with the spool welding robot SWR. Welding pipes has never been faster, more resource-efficient and easier to do.

The spool welding robot SWR has been specially developed for welding all types of pipes and small pressure vessels. Designed for use in the production shops and indoors, it is able to weld flanges, T-pieces, manifolds, reducers and more. And it is healthier for the welder, because it takes over ergonomic positional welding.

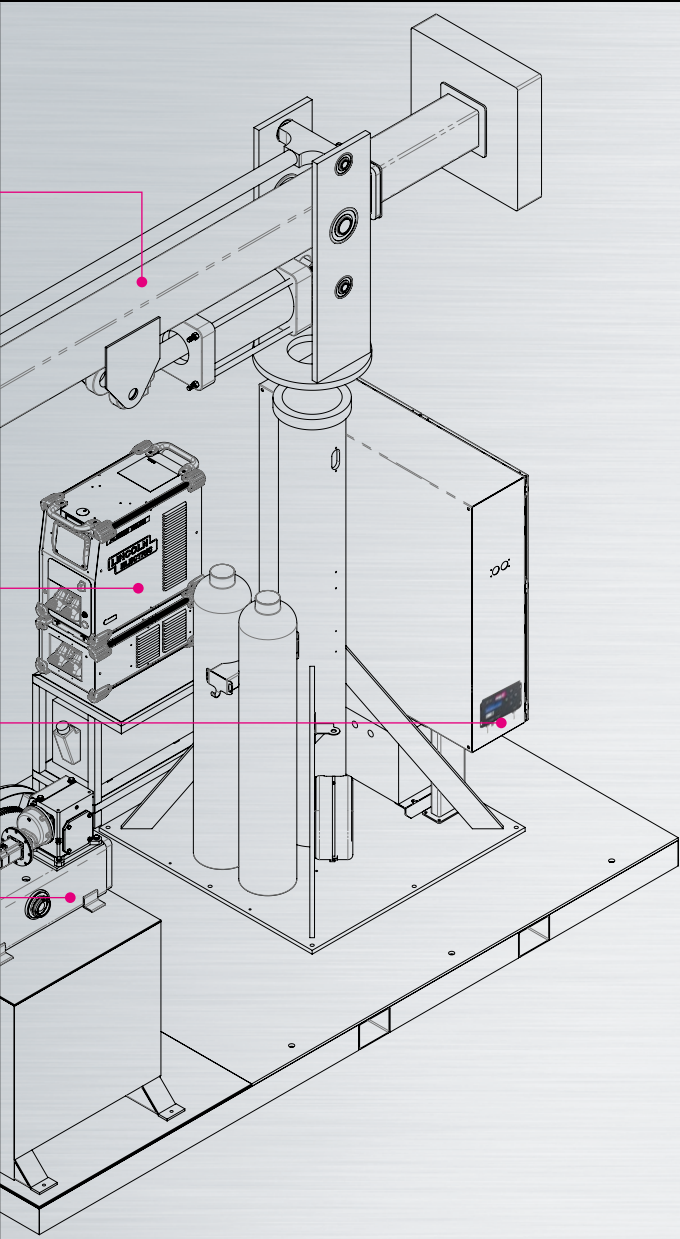
Thanks to the SWR pipe welding robot, more efficient pipe production and at the same time reductions in operating costs, are no longer

wishful thinking, but have become reality. The interplay of sophisticated welding technology with welding parameter data documentation creates synergies that guarantee consistently high quality.

The spool welding robot SWR in combination with the ABIROB® W 500, the TH6D seam tracking sensor and the EWR 2 gas management system EWR 2 represents an economic solution for:

- ship building
- the oil and gas industry
- general fabrication

# Unique solution. Developed for maximum cost effectiveness.



## Technical data in accordance with EN 60204-1, EN 61000-6, ISO/TS 15066-2016 Pool welding robot SWR

Pipe diameters:	5 - 150 cm
Weldable materials:	Unalloyed and low-alloy structural steels, stainless steel and nickel alloys
Working radius:	4.5 m
Footprint:	1.22 m x 1.22 m
Device height:	4.57 m
Working height:	0.3 m - 2.74 m
HMI Human Machine Interface:	5" touchscreen (analogue resistive)
Pivoting arm:	6.5" touchscreen with joystick
Pendulum width:	25.4 mm
Pendulum frequency:	0 - 5 Hz
Flank dwell time:	0 - 0.4 s.
Welding wire diameter:	0.9 - 1.6 mm
Wire feed speed:	0.8 - 30.5 m/min.



The pool welding robot SWR is characterized by a small footprint and long range, up to five positioners are possible.

### Arguments that speak for themselves:

- Process-safe welding from root to cap layer
- Allows a pure welding time of up to 90%
- Increases production capacity by up to 50% compared to semi-automated MIG/MAG process
- Consistently clear view of the process with the NovEye® arc camera
- Welding parameters are logged using the NovData® data acquisition system
- The open platform with a small footprint of 1.22 m x 1.22 m allows up to 5 positioners in a small space
- Welding of pipes and fittings with MIG/MAG and filling wire
- FCAW (flux core arc welding) available as an optional package
- Available as a complete production solution
- Easy operation that is just as easy to perform by junior welders as it is by managers or experienced welders

# Safe and efficient. Ready to start in three minutes.

## Extremely easy handling.



### Easy to use

Junior welders can perform demanding welding that without the SWR can only be performed by highly qualified welders.



### Consistent quality

The SWR welds reliably from root to cap. Adjustments can be made online.



### Easy positioning

The SWR is placed in position. Welding is selected and started with the portable control panel.



### Easy start

Vertical and horizontal release of the brake.



### Continuous control

During the welding process, the user can follow the process live on the screen and has full control over all parameters.



### Versatile application possibilities

Pipes between 5 cm and 150 cm in diameter can be welded with the SWR.

## Experience live and in action.

What the pipe welding cobot SWR can do is best explored by experiencing it live and in action. You have the opportunity to do this in our demonstration centre in the ABICOR BINZEL headquarters. Other possibilities can be found in the ITC centres of ABICOR BINZEL companies in China and the Middle East.

# The perfect combination. High-tech at its finest.

## Welding equipment

**ABIROB® W 500 welding torch**



■ **Strong. Robust. Precise.**

Robust torch neck for long service life, innovative torch design, modular design and high flexibility make this liquid cooled torch ideal for welding pipes. Torch neck and cable assembly component can be changed quickly and without effort, with the same TCP. Hybrid cable assembly technology prevents electrolyte corrosion, supports wire tracking and ensures good coolant flow.

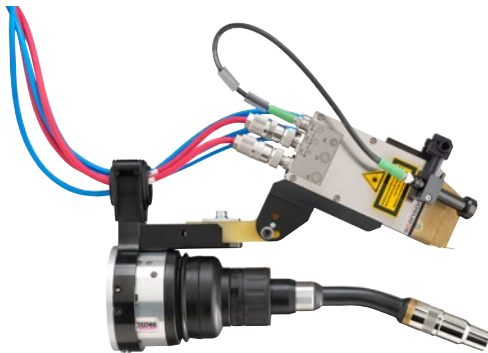
**MasterLiner**



■ **Flexible. Reliable. Maintenance free.**

The MasterLiner is the ideal wire feed system for the spool welding robot SWR, because it makes additional wire drives absolutely unnecessary. Its construction enables uniform wire feed even over longer distances – and thus meets a standard requirement when used with an SWR. The MasterLiner and MasterLiner MAXI are available in the variants “FLEX” with a PA outer tube (external pipe) as well as “HD” (Heavy Duty). The latter consists of an Aramid outer sheath for extreme applications.

**TH6D seam tracking sensor**



■ **Universal. Precise. Resistant.**

The TH6D seam tracking sensor detects joint contours with height offset, gap and angle without contact and passes them as information to the axis controller. The highest process reliability is given even with demanding seam tracking, because, if necessary, the run of the weld seam can be corrected in real time. These features make the TH6D seam tracking sensor an ideal process companion when welding pipes.

■ **Power sources** (without fig.)

Lincoln Power Wave® R450 Robotic, Miller Auto-Continuum®500, Fronius TPS 400i LSC Advanced.

## Economical system solution.

Proven technology from ABICOR BINZEL combines with the spool welding robot SWR to create an economical system solution and high-tech at its finest.

In combination with the ABIROB® W 500, a MasterLiner and the TH6D seam tracking sensor pipes can be welded faster and cheaper and with consistent quality. In addition, the welder is relieved of tiring, recurring welding tasks.



# Pioneer development! Quality assurance made easy.

## Fully automated data collection and documentation.

High quality requirements must be monitored and documented accordingly. For this purpose, the spool welding robot SWR is equipped with an integrated camera and a welding parameter data collection system. The **NovEye® arc camera** provides a consistently clear view of the welding process – during welding in real time. Welding can be recorded and analyzed later. The NovEye® system can be used to correct the arc in the root position during the process.

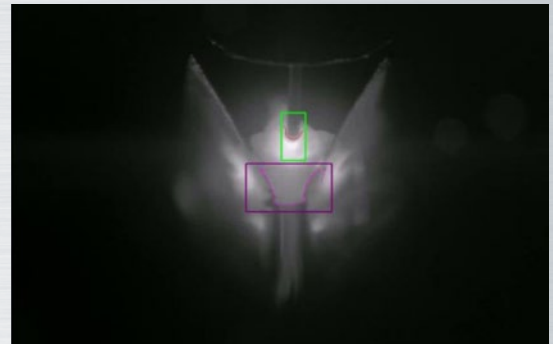
### The **NovData® Data Collection System**

Documents the welding parameters (video and welding data) and supports the subsequent analysis of the results. All in all, the spool welding robot SWR reaches a new level of quality and consistency in semi-automated pipe welding.

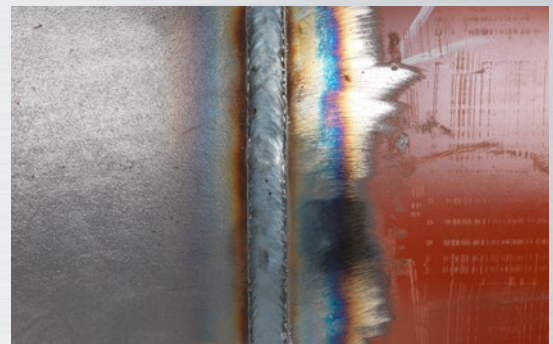
A daily operating report collects the following data:

- name of the machine operator
- number and sizes of welded pipes
- job number
- welding process data sheet etc.

In addition, a log report collects data every 50 milliseconds, including voltage, current, wire feed speed, welding speed, force, actual heat input relative to the weld distance travelled.



Clear view of the process in real time



Welding result: clean seams in consistent quality

## Spool welding robot SWR: simply weld non-stop from the root to the cap.

From the root, the base of the next pass is offset by approx. 0.6 cm (1/4"), which ensures a uniform, stable weld. The advantage: the probability of welding defects occurring is significantly minimized with this technique.

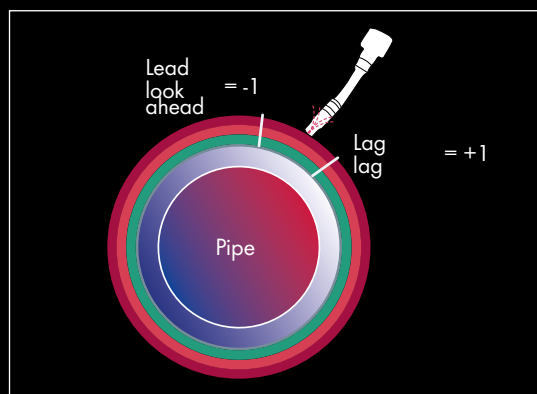


Fig. 1: Display of layers during the welding process

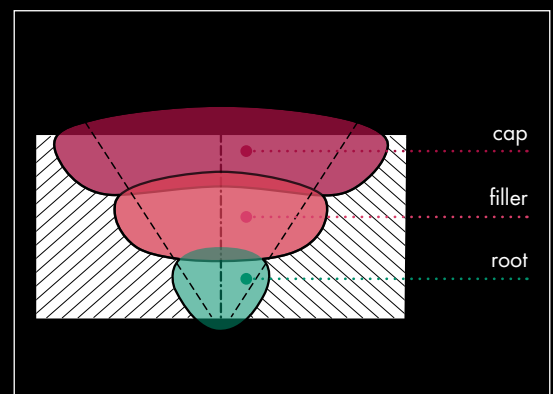


Fig. 2: Cross-section of welding

# Collaborative robot systems: Challenges of industrial automation.



Spool welding robot SWR in action at a shipyard



Construction of the spool welding robot SWR at one of the largest planning, procurement and construction companies in Edmonton, Canada

The spool welding robot SWR is ready for operation in just five days, including two days installation time.

Its safety system is designed so that the cobot stops automatically as soon as external forces act on it, such as from a user or a vehicle in the production shop. For this reason, no further enclosure is necessary.

The spool welding robot SWR takes up little space in an inactive state, so that it does not disturb ongoing activities in the production shop.

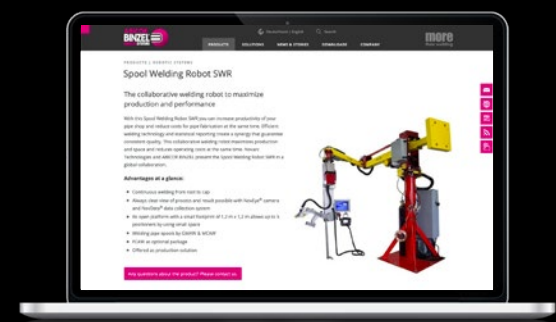


Non-stop pipe welding with the spool welding robot SWR

## Experience the spool welding robot SWR in action.

Please visit the ABICOR BINZEL website for more information about the spool welding robot SWR and action videos about its use with different pipe sizes and pipe diameters.

To contact ABICOR BINZEL directly, it is best to use the product request form on the ABICOR BINZEL website.



# Unique cooperation! ABICOR BINZEL and Novarc Technologies.

A strong cooperation has been established with Novarc Technologies, which was founded in 2013 and specializes in the development of collaborative robots or "cobots" for industrial welding applications. In combination with welding equipment from ABICOR BINZEL, such as a powerful robot welding torch, sophisticated wire feeding solutions and the high-tech seam tracking sensor, the spool welding robot SWR is a unique system solution for pipe production.

**Demonstration centres are now available at the headquarters in Germany and in our company in China as well as the Middle East!**



**Interested? Would you like to experience the spool welding robot SWR live and in action? Or do you have any further questions? Contact us via our website.**



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