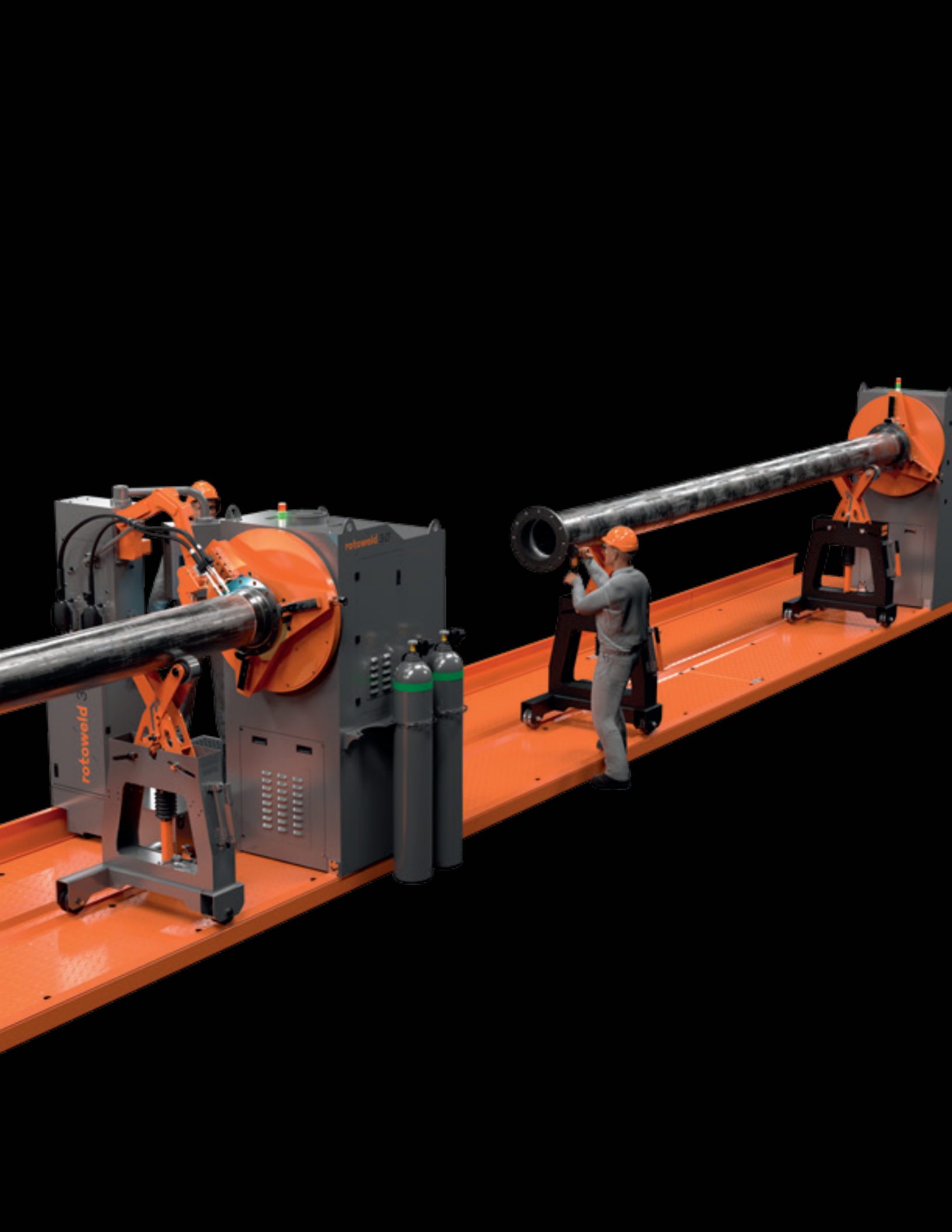
rotoweld 3.0®

by tecnar

rotoweld.com

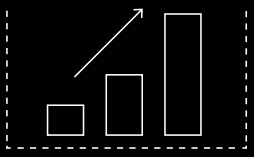

rotoweld
rotoweld

New standard

The Rotoweld 3.0 is the result of 30 years of experience and evolution. It sets new standards for quality and consistency and offers the ultimate solution to today's labour shortage and short delivery window.

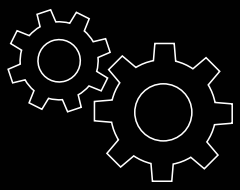
Get the *Rotoweld 3.0* **advantage**:

Minimal welding experience required



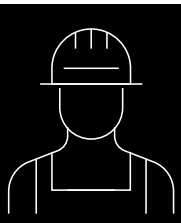
400% productivity increase

High quality weld– every single time



Customizable to your reality

Performance tracking from anywhere, anytime



Improve welder's working conditions

Tecnar's spirit of innovation began with my father's passion for solving practical challenges with breakthrough technology. Today, Tecnar is still a family-owned company that thrives at the leading edge of our industry. And we still take pride in developing products that deliver value the moment they arrive at our clients' facilities.

The Rotoweld makes automation for spool welding a good decision and a great investment for all of our clients. That's why we have designed an easy-to-use turnkey product that rethinks every inch of the process so operators feel confident, safe and competitive.

Alexandre Nadeau
CEO - Tecnar

Table of contents

Innovations that set it apart

The Rotoweld technology was first developed and patented at the Canadian Research Council in the 1980s. Today, this vision-based automated control of weld pool penetration is still the most reliable, productive and consistent automated STT process for welding a standard open bevel.

4D Synergy Welding™

Adjusts the four key welding parameters with a single movement of the joystick

Rootomatic™

Fully automates the root pass penetration control

Fully integrated design

Its ease of use guarantees the highest productivity and quality

Prodatalog

Web-based interface to track performance from anywhere, anytime

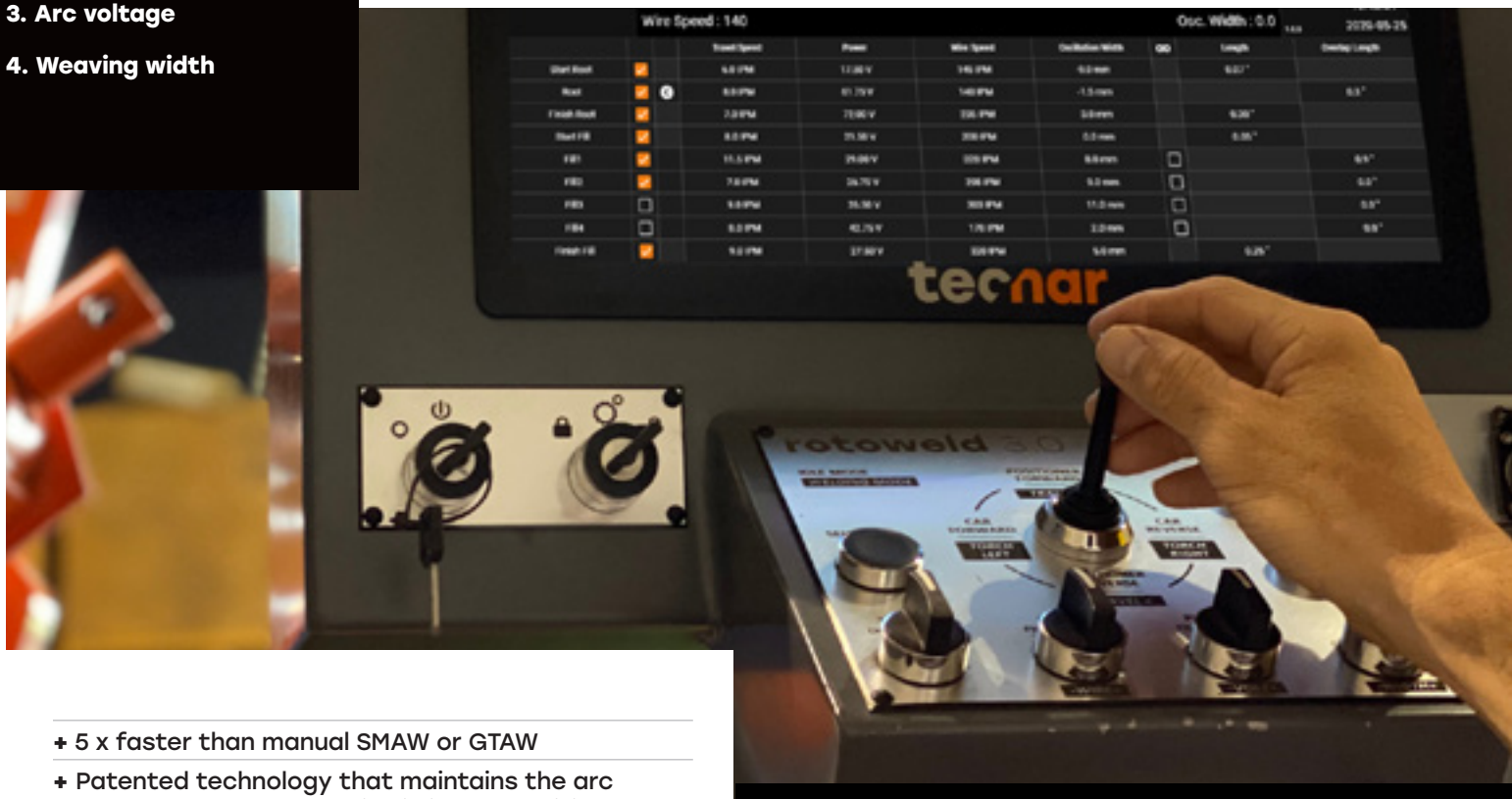
4D Synergy Welding™

4D Synergy Welding™ is a unique patented technology of proprietary algorithms that links the four key welding parameters so that any joystick command maintains ideal welding conditions.

It provides smooth, comfortable welding feeling that is probably the number-one reason why people adopt the Rotoweld as soon as they lay their hands on it.

A single movement of the Rotoweld's joystick controls

1. **Travel speed**
2. **Wire feed rate**
3. **Arc voltage**
4. **Weaving width**



+ 5 x faster than manual SMAW or GTAW
+ Patented technology that maintains the arc and weld puddle dynamics in ideal conditions
+ Made to weld typical spool weld preparations

Scan QR code to get additional information about 4D Synergy

Rootomatic

Rootomatic™ is the ultimate level of Rotoweld automation. The patented technology makes it easier to perform a good root pass with very little experience. And it's all due to 4D Synergy Welding™ technology, plus real-time image processing of the weld puddle and welding arc.

+ Fully automated root pass
+ Minimal welding experience required
+ Adapts the welding process to varying conditions

Scan QR code to get additional information about Rootomatic

Innovations

Fully integrated design

The rails-based design is key to automation since it is the link between the welding robot, the rotators and the support rollers. That's why it's essential to ensure reproducible positioning of the welding torch (stick-out, perpendicularity, angle) and the same welding position every time, regardless of the diameter of the pipe or length of the spool assembly.

Take the advantage of the rail system to the next level:

The welding robot and the welder is seamlessly carried to a second welding station along the rails, so the Twin Bay model eliminates set-up time and increases productivity.

Scan QR code to get additional information about fully integrated design

Prodatalog

Prodatalog™ has two main goals: productivity tracking and quality control. This web-based interface gives you access to the Rotoweld 3.0 intelligence and data required to compete in the modern fabricator market.

Scan QR code to get additional information about Prodatalog

Compatible with workflow tracking software

The Rotoweld is compatible with MSUITE, STRATUS and PypeServer, making it a versatile tool for manufacturers who want to streamline their operations and work more efficiently.

- Easily identifies and pushes the weld ID and information to the Rotoweld software
- Automatically loads the right welding program, if specified
- Links the Prodatalog weld information to the shop's valid weld ID
- Notifies the plant tracking software when the weld is complete
- Sends critical weld information to the weld ID, such as heat input and arc-on-time.

User Interface

The Rotoweld user interface is designed with proprietary operating software to be simple, easy to use and efficient. The Rotoweld UI features a:

- Large centred image to ease pre-welding torch positioning using the LED vision system
- Comprehensive welding program architecture to facilitate tracking critical welding settings and uploading new welding programs
- Live display of all welding parameters, including welding current and live heat input
- A simple log-in function so Rotoweld operators can easily enter the ID and job number of work in progress.

Welding performance

1 min/inch dia

for standard wall pipes prepared with 37.5 deg bevels

1.5 min/inch dia

for heavy wall pipes prepared with 37.5 deg bevels

150+ dia inch

productivity capacity per shift with the Rotoweld 3.0 Single Bay

300+ dia inch

productivity capacity per shift with the Rotoweld 3.0 Twin Bay

Industry's highest productivity output

Welding programs

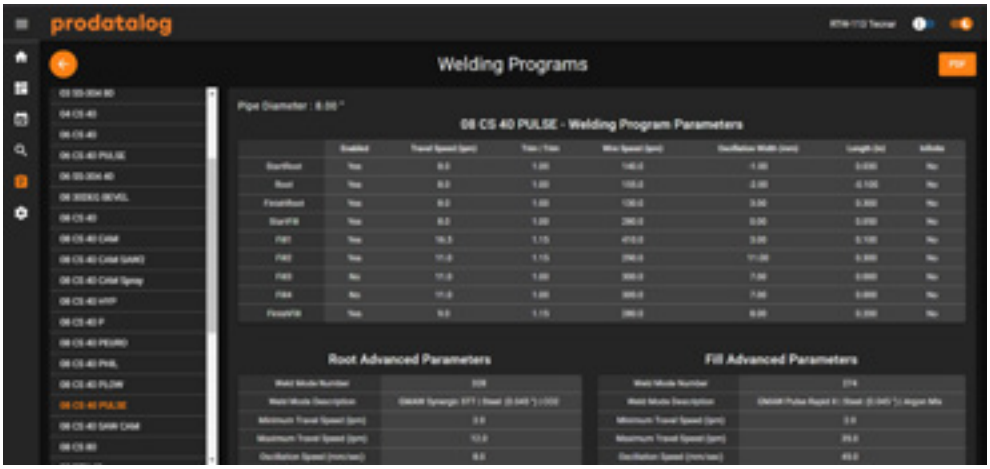
The Rotoweld comes with a built-in bank of base welding programs to accelerate the qualification of WPS. You can also easily import or develop new programs that correspond to your type of production.

Features of the welding programs on the Rotoweld interface:

- User-friendly drop-down menu to load the program based on diameter, material, gauge...
- Step-by-step welding sequences that optimize not only the root, fill and cap but also the start and tie-in of the beads to ensure the highest quality and physical aspect of the weld
- Live cursor during welding that allows the operator to see the progression of the program during welding.

Welding programs in the Rotoweld Prodatalog :

- All the welding programs can be remotely or directly consulted also using the Prodatalog interface
- Back-ups of all the welding programs can be done using the Export To File function from within the Prodatalog
- In the Prodatalog's Weld Inspection page, each logged joint has a complete copy of the welding program used at the time so it makes quality investigation or back-tracking easier for plan managers and operators.

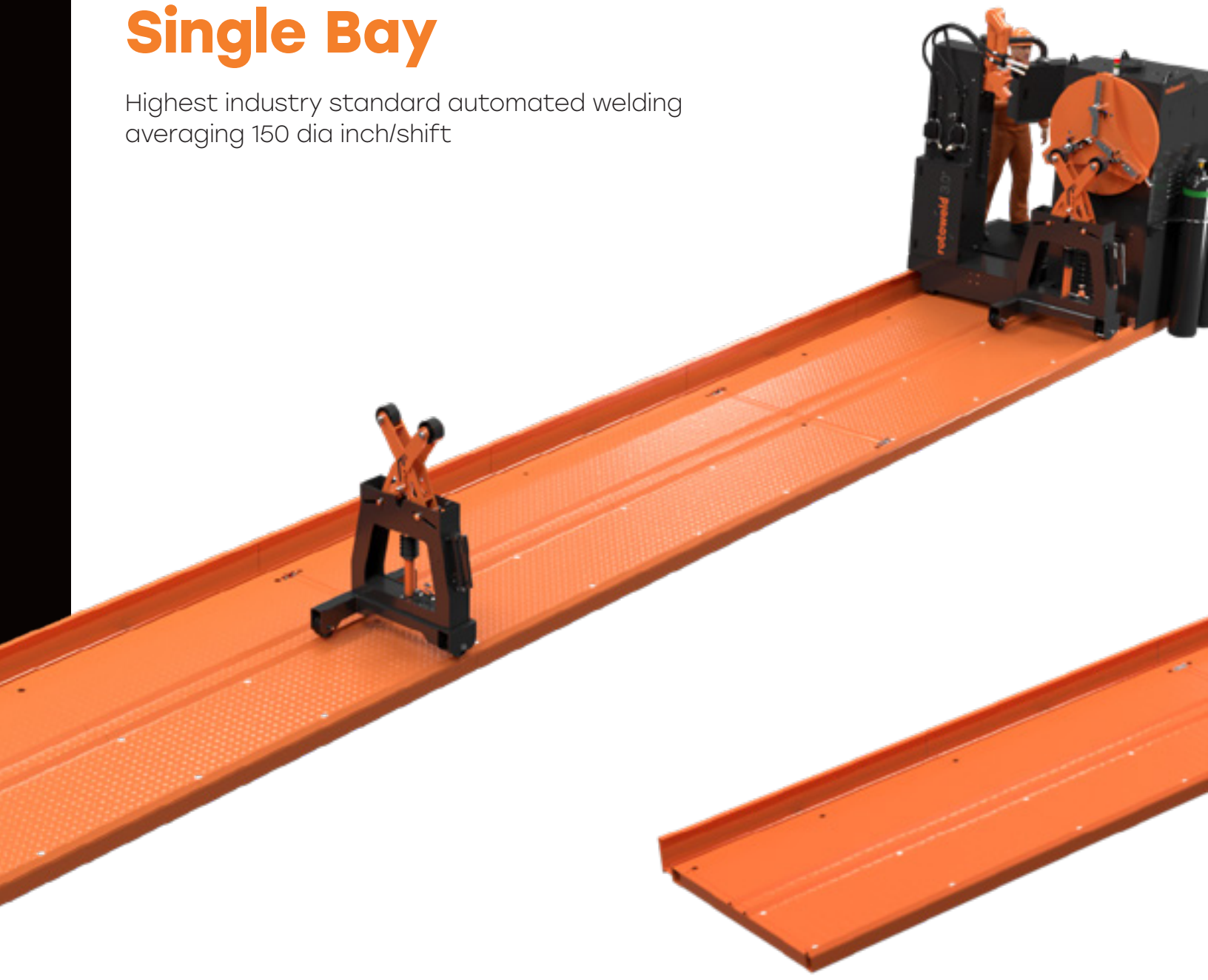


Models

- Rotoweld 3.0 Single Bay
- Rotoweld 3.0 Twin Bay
- Rotoweld 3.0 Single Bay HD
- Rotoweld 3.0 Twin Bay HD
- Welding torches and wire feeder
- Manipulator
- Proprietary designed rail
- Heavy-duty pipe stands
- High-torque rotators

Rotoweld 3.0 Single Bay

Highest industry standard automated welding averaging 150 dia inch/shift



Specs

Diameter capacity	3 in. to 42 in.
Pipe stands capacity	10,000 lbs.
Productivity per shift	150+ dia inch

Scan QR code to get additional information

Rotoweld 3.0 Twin Bay

Double your productivity
by averaging 300 dia inch per shift

Specs

Diameter capacity	3 in. to 42 in.
Pipe stands capacity	10,000 lbs.
Productivity per shift	300+ dia inch

Scan QR code to get additional information

Rotoweld 3.0 Single Bay HD

Built to work hard with exceptional heavy-duty performance and capability

Specs

Diameter capacity	3 in. to 48 in.
Pipe stands capacity	15,000 lbs.
Productivity per shift	150+ dia inch

Scan QR code to get additional information

Rotoweld 3.0 Twin Bay HD

Superior performance to do bigger jobs better and faster

Specs

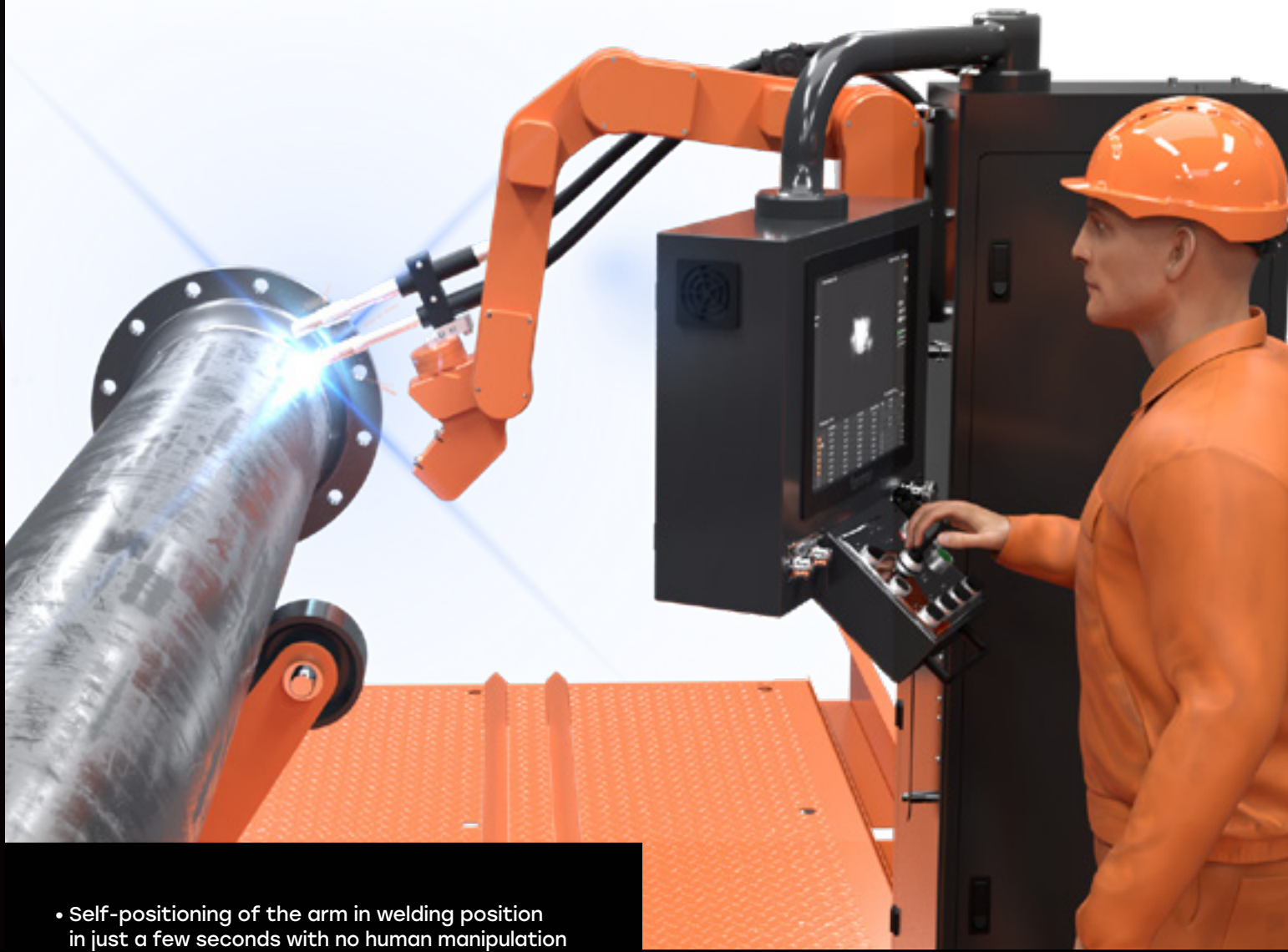
Diameter capacity	3 in. to 48 in.
Pipe stands capacity	15,000 lbs.
Productivity per shift	300+ dia inch

Scan QR code to get additional information

Welding torches and wire feeder

- Designed with 2 welding torches:
  one to perform open-root-pass butt welds
  and the other for filling passes
- Each torch has its own wire spools
  - Root pass is done in GMAW
  - Choices for fill passes: GMAW, FCAW, MCAW
- Torches can be easily switched
  - Optional SAW (standard on HD models)
- Separate gas shielding system for each torch
- Robotized torch manipulator for fast
  and repeatable torch positioning on selected
  pipe diameter.

Manipulator



- Self-positioning of the arm in welding position in just a few seconds with no human manipulation
- Welding vision system controls the puddle penetration and adapts welding parameters in real time
- Embedded LED lighting allows the welder to easily align the torch in the bevel before starting to weld.

Proprietary designed rail system

- Rails are the backbone of the Rotoweld 3.0 and can be level with any shop floor conditions
- Rails are factory pre-assembled and pre-aligned for maximum on-site precision
- Seamless integration; no wires lying on the ground.
- Welding station and optional fume extractor travel on the rails to desired position simply by using the joystick
- Length
  - Single Bay comes with 2 rails for a total of 32 ft. (9.75 m)
  - Twin Bay comes with 5 rails for a total length of 80 ft. (24.4 m).

Heavy-duty pipe stands

- Pipe stands that can be moved quickly and easily on the rail while staying aligned with the rotator to guarantee perfect positioning
- A hand pump connected to the hydraulic cylinder levels the pipe section easily, efficiently and safely
- Heavy-duty steel idler rolls allow the pipe to turn freely. Optional rubber idler rolls are available for stainless steel application.
- Diameter range:
  - 3 in. to 42 in./75 mm to 1,065 mm
  - 3 in. to 48 in./75 mm to 1,219 mm (HD models)
- Load capacity:
  - 10,000 lbs./4,535 kg
  - 15,000 lbs./6,804 kg (HD models)

High-torque rotators

- Minimal set-up time required due to its self-aligned design

- Diameter capacity:
  - 3 in. to 42 in./75 mm to 1,065 mm
  - 3 in. to 48 in./75 mm to 1, 219 mm (on HD models)

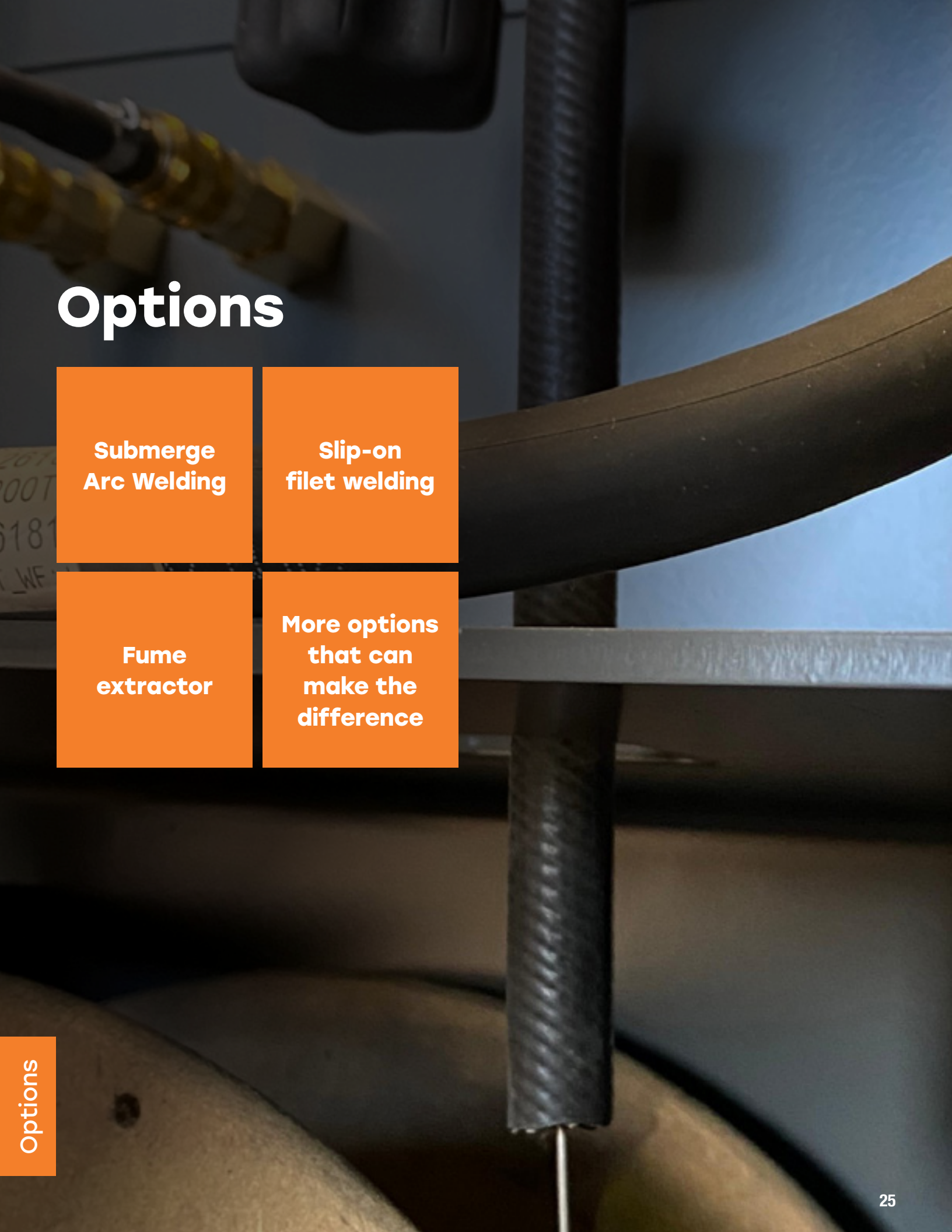
Centre line clearance to ground:
- 65 in./1,605 mm
- 71 in./1,803 mm (on HD models)

Operation speed range: 0.2 to 1.9 rpm

Load capacity: 3,000 lbs./1,360 kg

Maximum torque: 50,000 lbs.-in./5,649 n-m

Optional stainless steel grippers.



Options

Submerge Arc Welding	**Slip-on filet welding**
Fume extractor	**More options that can make the difference**

Submerge Arc Welding

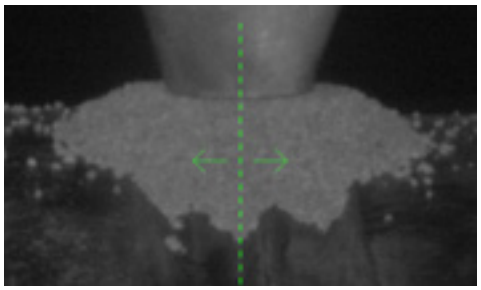
Get the advantage of achieving your root pass and SAW filling on the same machine while reducing the handling time, simplifying the shop operations and improving productivity.

Dedicated twin torch holder

The SAW option features a dedicated twin torch holder with the MIG root pass torch and SAW torch kit for 3/32 wire. It takes less than 20 minutes to change from the MIG-MIG to the MIG-SAW configuration.

Recovery bins

Flux recovery bins, engineered to be easily emptied, are a great advantage of the SAW option. They are mounted directly on the idler rolls so they can be easily placed under the joints and swapped from one side of the idler roll to the other.



Dedicated twin torch holder

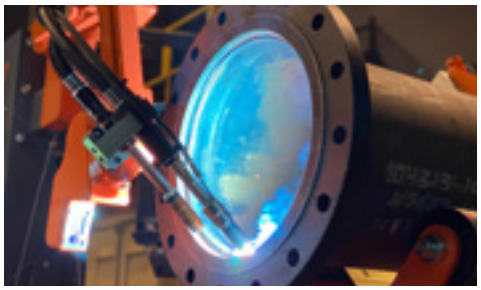
The Rotoweld's LED vision system allows the SAW torch to be positioned on top of the pipe while safely staying on the welding carriage. The SAW vision mode also provides a linear guide as an overlay on the screen to help the welder create a smooth surface finish between passes.

Power source

The SAW option comes with a Lincoln Flextec 650 power source and the Lincoln Power Wave® S500, plus a 100 pound flux pressure feed tank.

Slip-on filet welding

To optimize the number of joints that can be automatically welded in a fabrication shop, Tecnar has designed a Rotoweld 3.0 option to perform filet welds on slip-on flanges.



Seamless integration

This option is a seamless enhancement of the Rotoweld's manipulator in order to rotate the welding torches sideways, anywhere from 0 to 58 degrees, for both exterior and interior filet welds.

100% reproducibility

The torch angle and welding angle are adjustable on the welding program for absolute reproducibility and ease of use.

Fully automated positioning

The filet weld options come with a secondary remote control unit that can be displaced anywhere around the spool so operators can always keep an eye on the process.

Fume extractor

Welding fumes can be a threat to the welder's health and they can make the shop environment an uncomfortable workspace. And with the labour crisis in most developed economies, providing a safe work environment has become mandatory.

- Self-positioning hood with welding carriage
- Recovers the floor space required to move around mobile units
- Easy-to-access pump and filters
- Silent operation at the welding station
- Easy to install and more affordable then wallmounted systems
- More environmentally friendly than wall-mounted systems

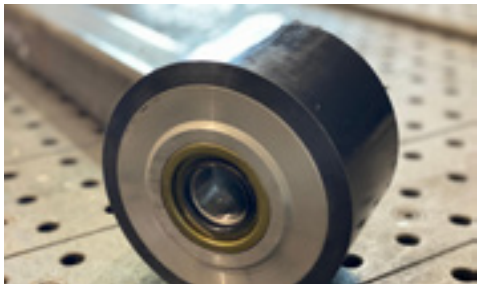
More options that can make the difference

FCAW (flux core)

Your Rotoweld 3.0 can easily be switched to FCAW since all you need are adapted feeder rolls. Get them on your initial order and be ready in no time, when needed, at minimal cost.

Stainless steel grippers

If you dedicate a Rotoweld for stainless steel operations, then it's best to go for the highest standard and have all the grippers changed to stainless steel too.



Rubber idler roll

If you dedicate a Rotoweld for stainless steel operations and want to avoid any contamination, the idler rolls can be ordered with high-capacity rubber sleeves that can sustain 15,000 lbs./6,804 kg of load while keeping your spools clean and smooth.

Before it starts

Step-by-step installation

Training

Ongoing support and warranty

Installation and training

The Rotoweld 3.0 integrated design ensures that installation and training can be completed in less than a week: 2 days for installation and testing and 3 days for operator training.

Recommended personnel during the training period

- 1 to 2 qualified or experienced welders
- Shop superintendent and/or plant manager
- Quality control manager and/or inspection manager

Before it starts

+ 5 crates will be delivered to your facilities

+ To unload the equipment you'll need a 5-ton capacity forklift truck

+ The shop area that needs to be cleared out for installation is a min 240 ft and max of 600 ft depending on the model you will be installing

+ Minimum requirements for commissioning

- Gas cylinders (c/w regulators):
  - 1x 100%CO - CGA 320 (root)
  - 1x 92%Ar.-8%CO - CGA 580 (fill)
- Wire:
  - 3 x (20-kg spool) Lincoln SuperGlide® AWS: ER70S-6 wire, 0.045"

+ Recommended inventory for production

- Gas cylinders (c/w regulators):
  - 5x 100%CO (root)
  - 10x 92%Ar.-8%CO (fill)
- Wire:
  - 8x (20-kg spool) Lincoln SuperGlide® AWS: ER70S-6 wire, 0.045"

+ Coupons* for testing and procedure adjustments

- 4x SCH 40 - 6" dia
- 4x SCH 40 - 8" dia
- 4x SCH 40 - 10" dia
- 4x SCH 40 - 12" dia.
- 4x SCH 160 - 10" dia.

+ Access to miscellaneous equipment

- Cutting: flame, plasma, saw, or lathe
- Tacking: GMAW manual welding machine
- Grinding: power grinder c/w six (6) 1/8"thick (3mm) disks

Step-by-step installation

Step 1
Rails installation — 4 to 6 hours

Step 2
Nylatube & intrack installation — 2 hours

Step 3
Master positioner installation — 1 hour

Step 4
Slave positioner installation — 1 hour

Step 5
Welding carriage installation — 1 hour

Step 6
Pipe support installation — 30 minutes

Step 7
Nalytube protector installation — 2 hours

Step 8
Start-up & Ethernet connection — 1 hour

Training

On-site training

With a five-day plan for any Rotoweld installation, two days are dedicated to installation and start-up with three days focused on training. Clients can also do most of the installation themselves by following the Rotoweld's self-installation guide. That means that start-up is completed on the first day, leaving four days for training.

Free pre-training

To onboard and train your team prior to the arrival of the Rotoweld, Tecnar offers free three-day pre-training at our head office with our product experts. This is an optional path to success offered by Tecnar for clients who want to make sure their teams hit the ground running. All you have to pay is the travelling expense for your team.

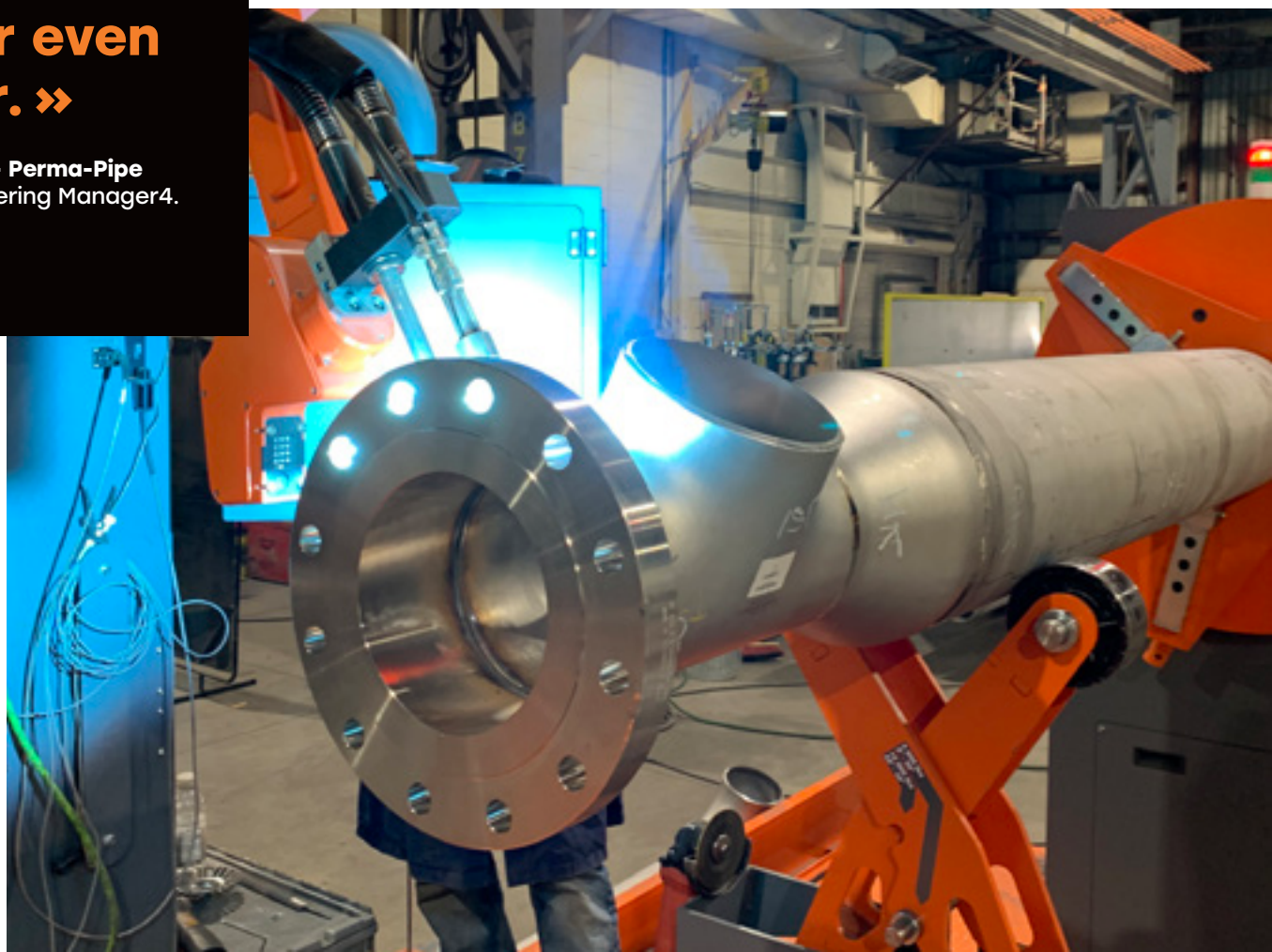
Ongoing support and warranty

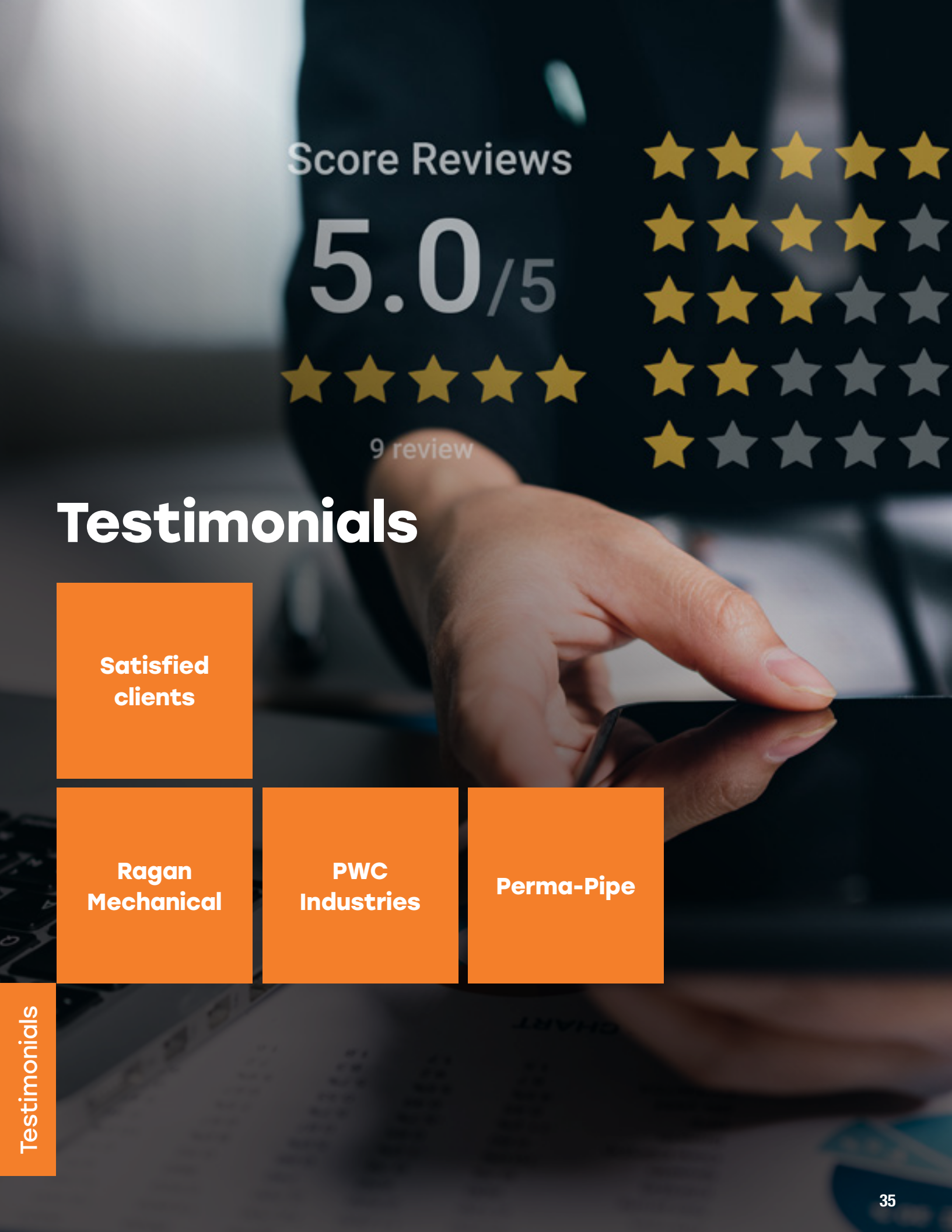
Support

Tecnar is a 45-employee company with highly experienced people in service, engineering, production and marketing. We always keep a very close bond with all our Rotoweld clients and respond to any situation in less than 24 hours. All Rotoweld pieces are in stock at Tecnar and can ship overnight worldwide. Last but not least, if you wish, our team can download and analyze your Prodatalog database free of charge and lend insight on improvements based on our large installation base and extensive experience.

« The Rotoweld 3.0 is a mature product and we like it a lot. But I think we like the support team at Tecnar even better. »

Jason Haskin - Perma-Pipe
Facility Engineering Manager4.
Weaving width





Testimonials

Satisfied clients

Ragan Mechanical

PWC Industries

Perma-Pipe

Satisfied clients

A fully proven and recognized technology with over 30 years of experience in automated welding and over 170 commissioned Rotowelds around the world.

Over 170+

Rotowelds at work around the world

Testimonials

Ragan Mechanical

Ragan Mechanical is a mechanical contractor in the residential, commercial and industrial sectors. In 2016, they invested in their first Rotoweld 3.0 Single Bay. Three years later, they decided to invest in a second unit so machines could be dedicated to different metallurgical groups if necessary. Today, they know they can count on the Rotoweld 3.0 Single Bay to deliver high-quality work, every single day.

99.7 %
X-Ray pass

90 %
of spools are welded with the Rotoweld

2X
Rotoweld Single Bays: Carbon steel/Stainless steel

PWC Industries

PWC industries was a typical small family-owned business that jumped into welding automation in 2003 and since then they renewed their Rotoweld for the 3.0 Twin Bay in 2015. The main goal was to run with minimum employees for maximum throughput, without affecting the quality and consistency. This strategy has never been more appropriate since, according to the American Welding Society, the industry will face a shortage of about 400,000 welding operators by 2024.

“ We like our Rotoweld 3.0 because it reduces the challenge of labour and allows us to deliver a job in record time. “

PWC’s investment in technology gives them the competitive advantage of building steel systems in less time than many other steel manufacturing businesses. This increased productivity is passed on to our customers in the form of decreased costs.

Key to addressing the shortage in the welding workforce

Perma-Pipe

Tecnar has enjoyed a long and prosperous partnership with Perma-Pipe. Over the years, they have purchased 3 Rotowelds–their last was a Rotoweld 3.0 Twin Bay model in 2014. In their experience, this model has reached the level of maturity that makes it both easy to use and highly productive. On a busy day, they can weld an average of 25 joints on 12-inch diameter pipes in a 10-hour shift. As Jason Haskin, Facility Engineering Manager, says, “When you get used to a low rework rate like we have with the Rotoweld, you can’t go back.”

300 dia in
on a busy day

5★
Tecnar service team approval rating

top level
of Rotoweld 3.0 product maturity

Materials

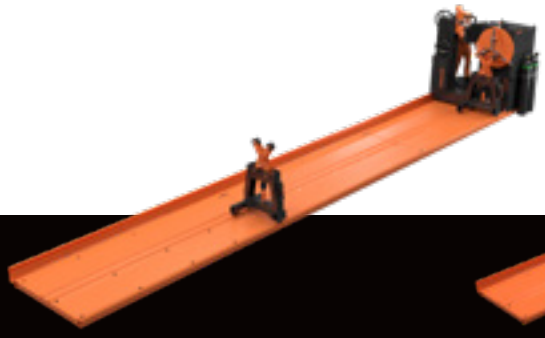
Carbon steel (including A333 Gr. 6)

Stainless steel (304, 316 and similar)

Cr-Mo steel alloys

Duplex stainless steel

Technical specifications



	Rotoweld 3.0 Single Bay	Rotoweld 3.0 Twin Bay
Welding processes		
Root pass	GMAW (short circuit)	GMAW (short circuit)
Fill pass	GMAW (spray or pulsed transfer)	GMAW (spray or pulsed transfer)
Fill pass optionel	SAW (submerged arc)	SAW (submerged arc)
	FCAW (flux core)	FCAW (flux core)
Rotator		
Number of ratator	1	2
Diameter capacity	3 in. to 42 in. / 75 mm to 1,065 mm	3 in. to 42 in. / 75 mm to 1,065 mm
Centre line clearance to ground	65 in. / 1,605 mm	65 in. / 1,605 mm
Operation speed range	0.2 to 1.9 rpm	0.2 to 1.9 rpm
Load capacity	3,000 lbs. / 1,360 kg	3,000 lbs. / 1,360 kg
Maximum torque	50,000 lbs.-in. / 5,649 n-m	50,000 lbs.-in. / 5,649 n-m
Pipe stand		
Number of pipe stands	2	4
Number of foot pedals	2	3
Load capacity	10,000 lbs. / 4,535 kg	10,000 lbs. / 4,535 kg
Dimensions		
Width	7.5 ft. / 2.3 m	7.5 ft. / 2.3 m
Height	9.3 ft. / 2.74 m	9.3 ft. / 2.74 m
Length	32 ft. / 9.75 m	80 ft. / 24.4 m
Welding source		
Root pass - STT	Lincoln Power Wave® S500	Lincoln Power Wave® S500
Fill Pass - GMAW	Lincoln Power Wave® S500	Lincoln Power Wave® S500
Fill Pass - SAW	Lincoln Flextec 650 (option)	Lincoln Flextec 650 (option)

Materials

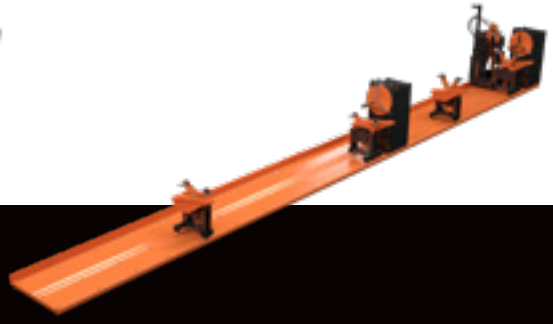
Carbon steel (including A333 Gr. 6)

Stainless steel (304, 316 and similar)

Cr-Mo steel alloys

Duplex stainless steel

Technical specifications



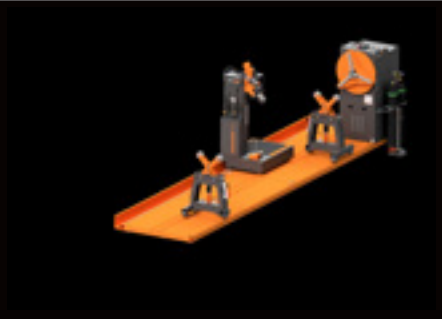
	Rotoweld 3.0 Single Bay HD	Rotoweld 3.0 Twin Bay HD
Welding processes		
Root pass	GMAW (short circuit)	GMAW (short circuit)
Fill pass	GMAW (spray or pulsed transfer)	GMAW (spray or pulsed transfer)
	SAW (submerged arc)	SAW (submerged arc)
Fill pass optionel	FCAW (flux core)	FCAW (flux core)
Rotator		
Number of ratator	1	2
Diameter capacity	3 in. to 48 in. / 75 mm to 1,219 mm	3 in. to 48 in. / 75 mm to 1,219 mm
Centre line clearance to ground	71 in. / 1,803 mm	71 in. / 1,803 mm
Operation speed range	0.2 to 1.9 rpm	0.2 to 1.9 rpm
Load capacity	3,000 lbs. / 1,360 kg	3,000 lbs. / 1,360 kg
Maximum torque	50,000 lbs.-in. / 5,649 n-m	50,000 lbs.-in. / 5,649 n-m
Pipe stand		
Number of pipe stands	2	4
Number of foot pedals	2	3
Load capacity	15,000 lbs. / 6,804 kg	15,000 lbs. / 6,804 kg
Dimensions		
Width	7.5 ft. / 2.3 m	7.5 ft. / 2.3 m
Height	11 ft. / 3.35m	11 ft. / 3.35m
Length	32 ft. / 9.75 m	80 ft. / 24.4 m
Welding source		
Root pass - STT	Lincoln Power Wave® S500	Lincoln Power Wave® S500
Fill Pass - GMAW	Lincoln Power Wave® S500	Lincoln Power Wave® S500
Fill Pass - SAW	Lincoln Power Wave® S500	Lincoln Flextec 650

Rotoweld's configuration

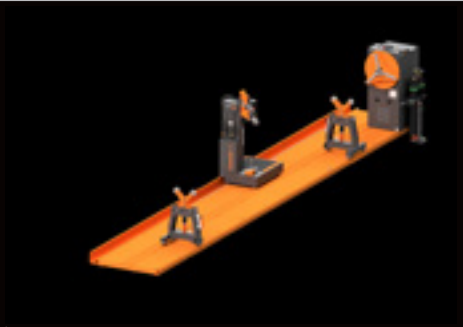
Rotoweld offers a range of configurations to meet the unique needs of your production and the space constraints of your shop. Our specialists can assist you in choosing the best configuration to optimize your welding process.

Rotoweld 3.0 - Single Bay

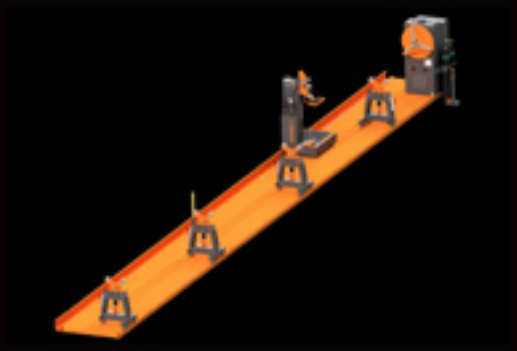
Rotoweld Single Bay 32 ft.



Rotoweld Single Bay 48 ft.

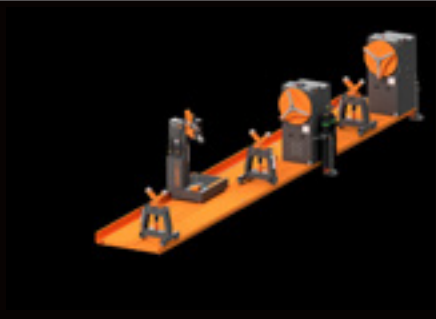


Rotoweld Single Bay 80 ft.

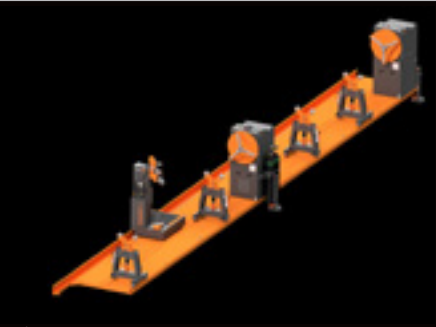


Rotoweld Twin Bay

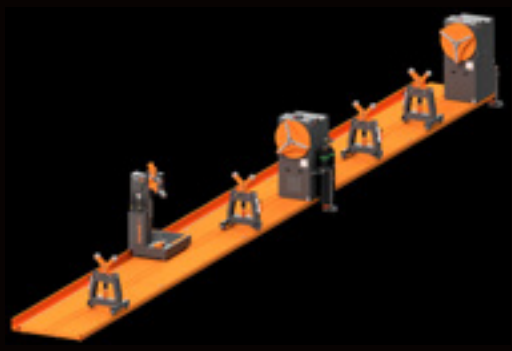
Rotoweld Twin Bay 48 ft.



Rotoweld Twin Bay 64 ft.

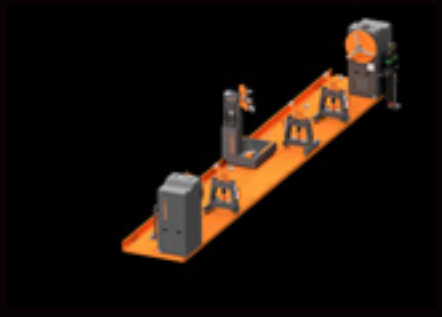


Rotoweld Twin Bay 80 ft.

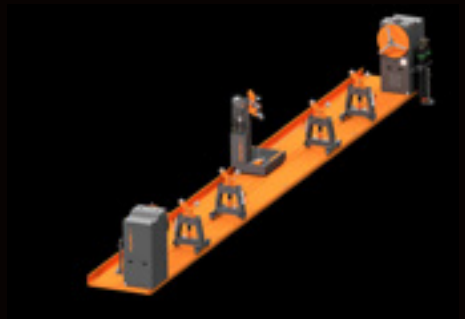


Rotoweld Twin Bay - Face to Face

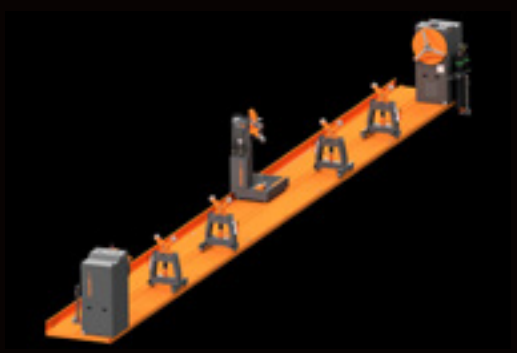
Rotoweld Twin Bay - Face to Face 48 ft.



Rotoweld Twin Bay - Face to Face 64 ft.

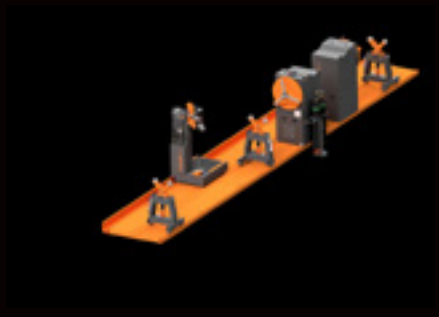


Rotoweld Twin Bay - Face to Face 80 ft.

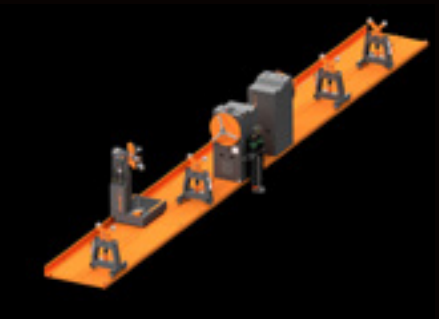


Rotoweld Twin Bay - Back to Back

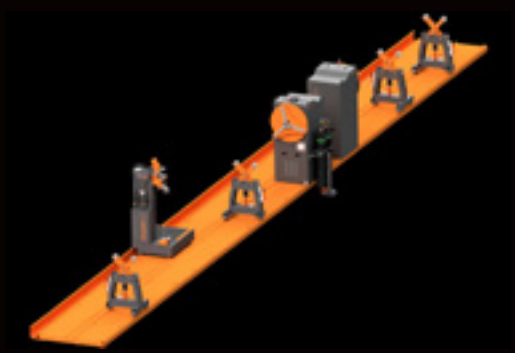
Rotoweld Twin Bay - Back to Back 51 ft.



Rotoweld Twin Bay - Back to Back 67 ft.



Rotoweld Twin Bay - Back to Back 83 ft.



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