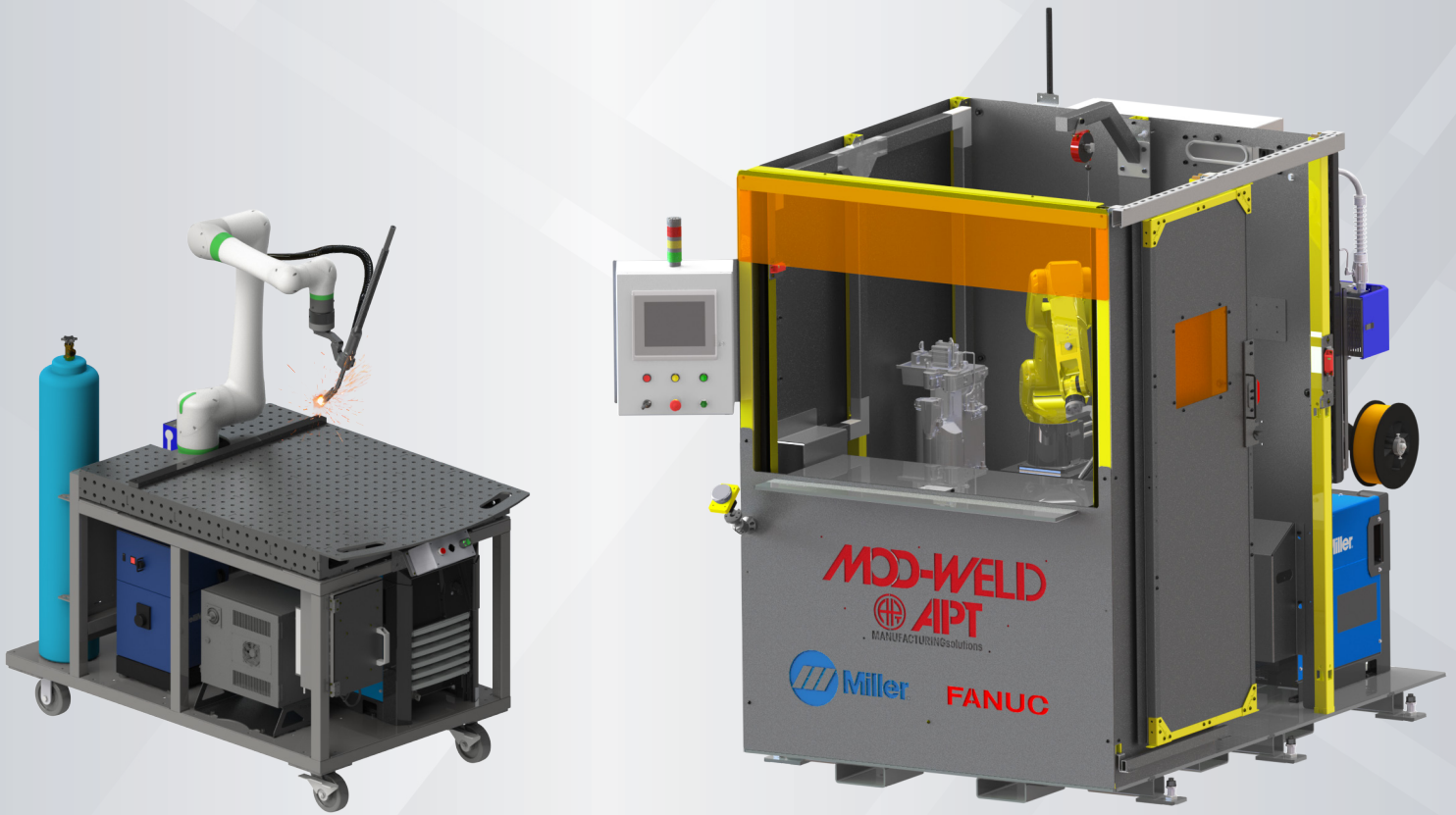


MOD-WELD

MODULAR WELDING SOLUTIONS



FANUC



INTEGRATED BY



MOD-WELD

APT Manufacturing Solutions is a leading FANUC / Rockwell integrator in the United States since 1996. With over 20 engineers and 100 employees APT has 3 strong departments: Machining, Welding and Robot Automation using only the best industry partners such as FANUC America, Rockwell Automation, and Miller Electric. We have been designing weld fixtures and automated equipment since the conception of the company. Our products are designed and built with years of experience with the operator and customers needs in mind.

Why choose MOD-WELD?

The MOD-WELD is a unique system using a FANUC Robot and a Miller Auto-Continuum™ power supply, Rockwell PLC/HMI for I/O and program recipe management all integrated by APT Manufacturing. We have designed the cell to have a small footprint without taking away from the work envelope. The FANUC, Rockwell, and Miller power are all kept outside the cell for ease of maintenance and cleanliness. The side access door allows maintenance and operator to enter the cell in a safe environment.

The rotary and shuttle allow for crane access for fixture exchange. All systems come with manual tip cleaning area and auto tip cleaner option.

The Rockwell controls allows 8 inputs and 8 outputs for part sensing and auto clamps. The Rockwell recipe management through the Operator Interface HMI allows the customer to store and add hundreds of programs. When creating a new program simply rename an old program and create the new weld paths.

Weld Fixture Design

As an added service, APT Manufacturing Solutions will design and build custom weld fixtures for the MOD-WELD.



MOD-WELD

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MOD-WELD Options



Station Types

▲ Single Station

- Allows the customer to load and unload directly into the cell or fixture
- Provides a fixed area for the customer to easily take in and out their weld fixtures

▲ Dual Station

- Allows the customer to load and unload on one fixture outside the weld cell while the other fixture is being welded by the robot
- Provides an area for the customer to easily take in and out their weld fixtures.

Table Types

▲ Fixed Table

- Allows the operator to load the parts directly into their weld fixture at the Weld Cell.
- **Single and Wide:** Both of these versions the operator loads parts directly into the fixture as the robot waits in a safe position for the safety door to close before welding
- **Dual:** This allows the operator to load/unload on one fixture while the robot is safely welding on the other side.
- **Aux Wide:** This is similar to the wide fixed table however we add a FANUC Aux Axis to rotate the fixture into the robot for ease of welding on the back side

▲ Shuttle Table

- Allows the operator to load/unload the product outside of the weld cell, then the auto shuttle will bring the product into the cell for welding. When the robot has completed the welds on shuttle "A" it will shuttle that fixture out and begin welding on shuttle "B"
- Ease of fixture exchange outside the weld cell

▲ Rotary

- Allows the operator to load/unload the product outside of the weld cell, then the rotary table will bring the product into the cell for welding. When the robot has completed the welds on side "A" it will rotate table and begin welding side "B"
- Ease of fixture exchange outside the weld cell

MOD-WELD + FANUC CRX



The MOD-WELD is designed and manufactured around FANUC's new CRX-10iA and CRX-10iA/L industrial collaborative robots. The CRX models come from a long line of reliable FANUC products that are extremely easy to setup, program, and operate – even if it's your first robot.

The system includes the Miller Auto-Continuum Power Supply in either the 350 or 500 amp system. The new Power Source is a smart and powerful digital design, it has the fast response needed to deliver the most stable welding performance for better welding results.

High-Mix, Low-Volume

FANUC's collaborative robots are easy to teach and deploy, which puts them at the forefront of the industry for welding application efficiency. This makes them the perfect fit for high-mix, low-volume production while maintaining high quality welds.

Extended Table Space Options

Add up to 4 side carts in different configurations for customizing your work space.

Why MOD-WELD using FANUC and Miller?

- Easy setup and programming allow companies to respond quickly to customer demands.
- FANUC's intelligent options, including: iRVision, Thru-Arc Seam Tracking and Touch Sensing.
- Ability to work closely with your welding processes.
- Compact design and the elimination of safety guarding saves floor space.
- Ideal for small and large shops.
- Easy programming and redeployment.

FANUC



MOD-WELD COBOT

Collaborative Robot for Arc Welding

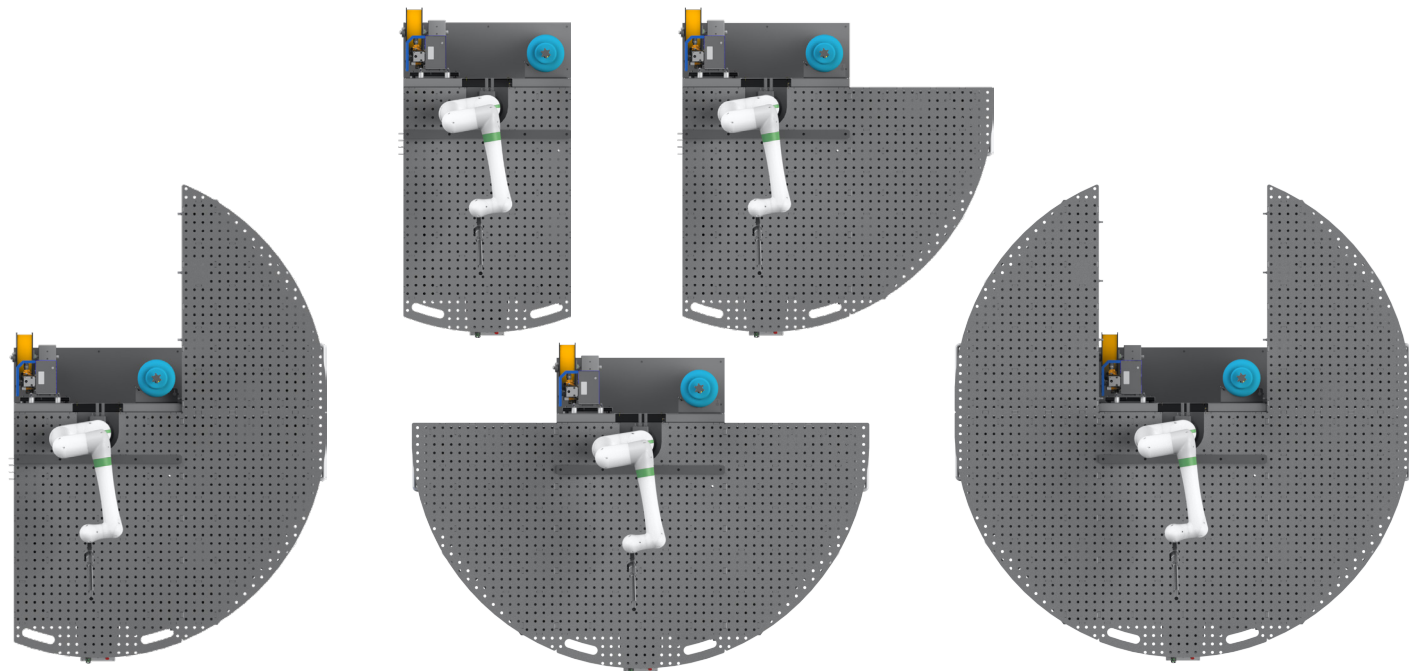
MOD-WELD

FEATURES & SPECS



Base
+
up to 4 Side Carts

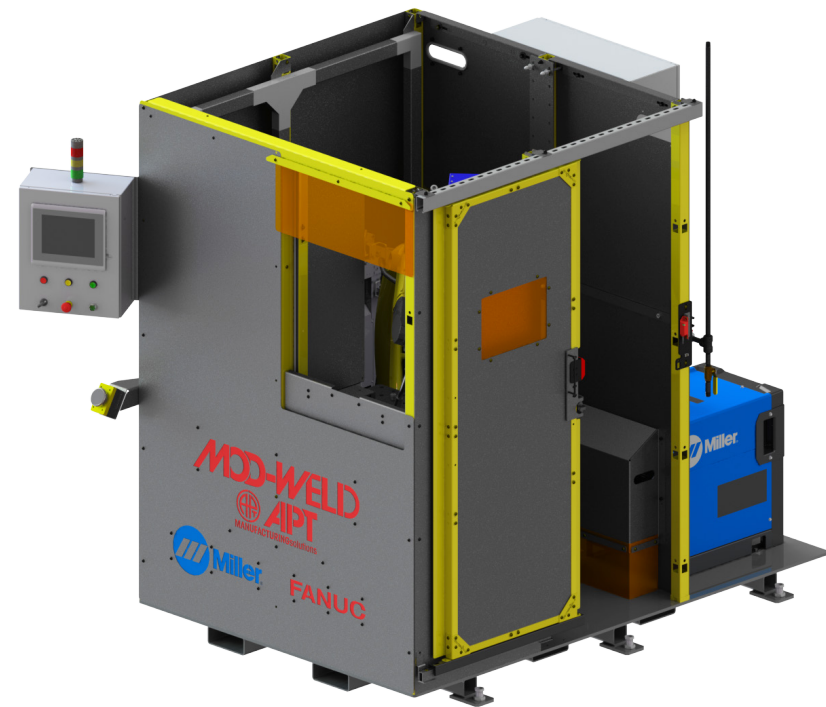
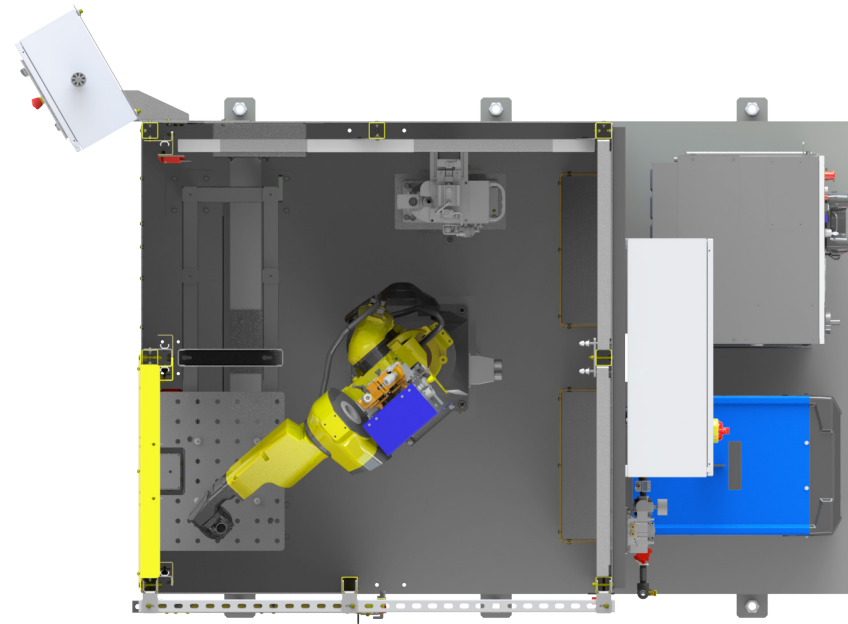
Customize to your needs



MOD-WELD Cobot		
Model	COBOT-10iA	COBOT-10iA/L
6-Axis Robot	FANUC CRX-10iA	FANUC CRX-10iA/L
Miller Power Source	Auto-Continuum™ 350 or 500	Auto-Continuum™ 350 or 500
Welding material type	millerwelds.com/technologies/advanced-welding-processes	
Footprint	40" W x 43" H x 66" L	40" W x 43" H x 66" L
Table Work Space	40 W x 46" D	40 W x 46" D
Clever Move Torch Teach Guidance	Yes	Yes
Miller Hand Torch Option	Yes	Yes
Robot Programming	Tablet or Teach Pendant	Tablet or Teach Pendant
FANUC Robot reach	49"	55"
Power Needed FANUC	110v 20 amp	110v 20 amp
Power Needed Miller	230-575 V 3-phase, 50/60 Hz	230-575 V 3-phase, 50/60 Hz
Holes for Fixture Clamps	2" x 2" Hole Pattern 16mm Dia	2" x 2" Hole Pattern 16mm Dia
Main Welder Weight	Approximately 1200 lbs	Approximately 1200 lbs
Custom Weld Fixture	👍	👍

MOD-WELD Cobot - Accessories and Options		
Part Number	Part Description	COBOT-10iA & -10iA/L
SCLFRR	Side Cart Left Front or Right Rear	Work/Surface 34 3/8" W x 54" Deep with 16mm holes
SCRFLR	Side Cart Right Front or Left Rear	Work/Surface 34 3/8" W x 54" Deep with 16mm holes
SRVRBT	Track, Find, Inspect Seam Option	Call for Specific Needs
BWF	Bulk Wire	Yes
MFE	Miller Fume Extractor	Yes

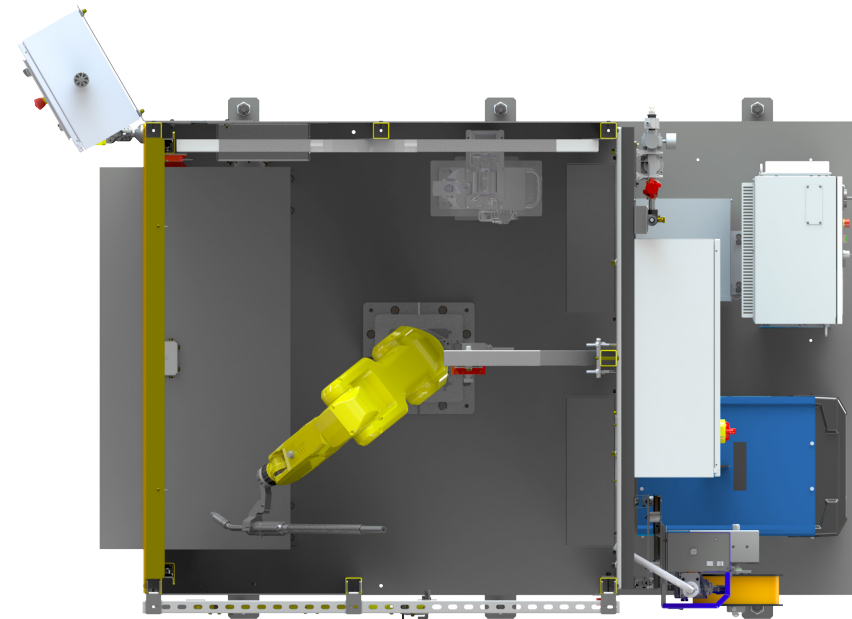
Single Station Fixed Table



MOD-WELD FEATURES & SPECS

Single Station Fixed Table		
Model	SSFT-AM50	SSFT-AM100
6-axis robot	FANUC ARC Mate 50iD	FANUC ARC Mate 100iD
Miller power source	Auto-Continuum™ 350 or 500	Auto-Continuum™ 350 or 500
Welding material type	millerwelds.com/technologies/advanced-welding-processes	
Footprint	5' x 5'	5' x 7.5'
Power needed	480VAC 3-Phase 60 AMP	480VAC 3-Phase 60 AMP
Table size	20" x 16"	20" x 16"
Available I/O	8 in 8 out	8 in 8 out
Available valve bank space	4 closed-center valves and 4 blanks	4 closed-center valves and 4 blanks
Track, Find, Inspect Seam Option	👍	👍
Enclosed cell	👍	👍
Crane accessible	✘	✘
Hood option	👍	👍
Automatic tip cleaner w/ accessories	👍	👍
FANUC Torchmate	👍	👍
Custom Weld Fixture	👍	👍

Single Station Fixed Wide Table



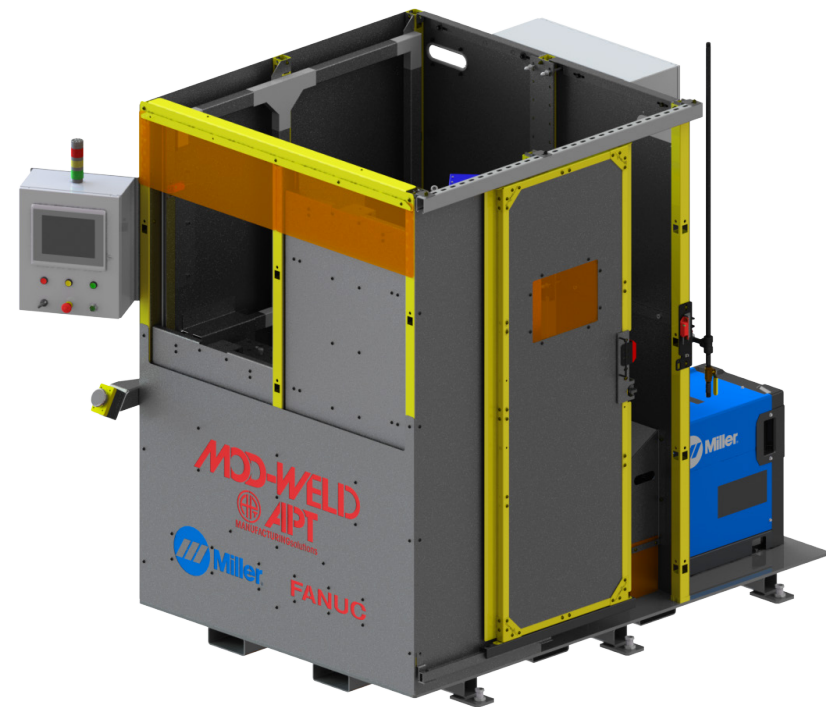
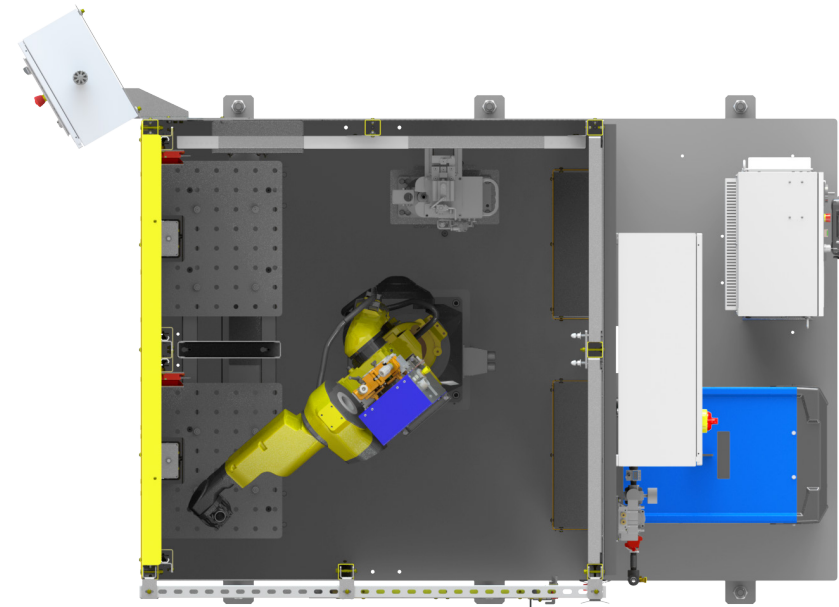
MOD-WELD FEATURES & SPECS

Single Station Fixed Wide Table		
Model	SSFWT-AM50	SSFWT-AM100
6-axis robot	FANUC ARC Mate 50iD	FANUC ARC Mate 100iD
Miller power source	Auto-Continuum™ 350 or 500	Auto-Continuum™ 350 or 500
Welding material type	millerwelds.com/technologies/advanced-welding-processes	
Footprint	5' x 5'	5' x 7.5'
Power needed	480VAC 3-Phase 60 AMP	480VAC 3-Phase 60 AMP
Table size	24" x 48"	24" x 48"
Available I/O	8 in 8 out	8 in 8 out
Available valve bank space	4 closed-center valves and 4 blanks	4 closed-center valves and 4 blanks
Track, Find, Inspect Seam Option	👍	👍
Enclosed cell	👍	👍
Crane accessible	✘	✘
Hood option	👍	👍
Automatic tip cleaner w/ accessories	👍	👍
FANUC Torchmate	👍	👍
Custom Weld Fixture	👍	👍

Dual Station Fixed Table

Load one fixture while welding another

Sliding barn door or speed door

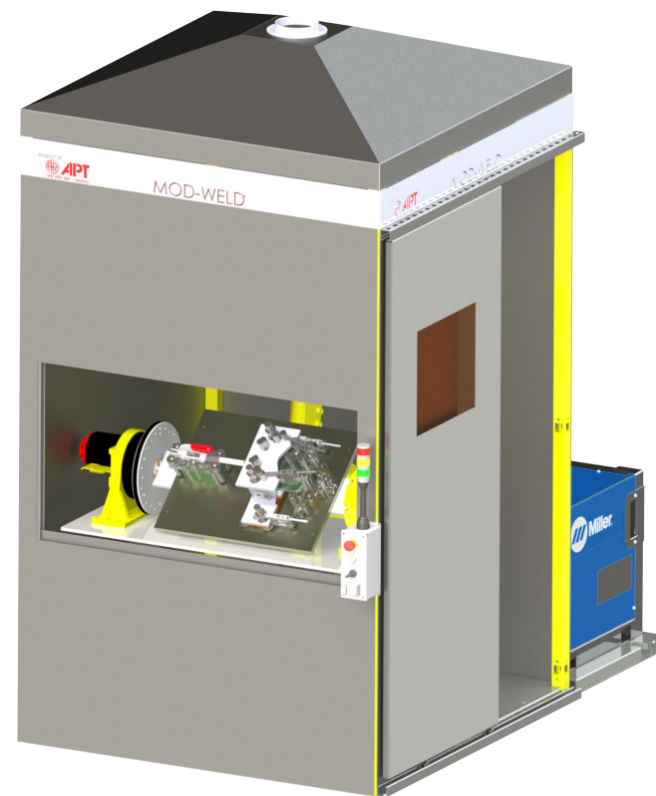
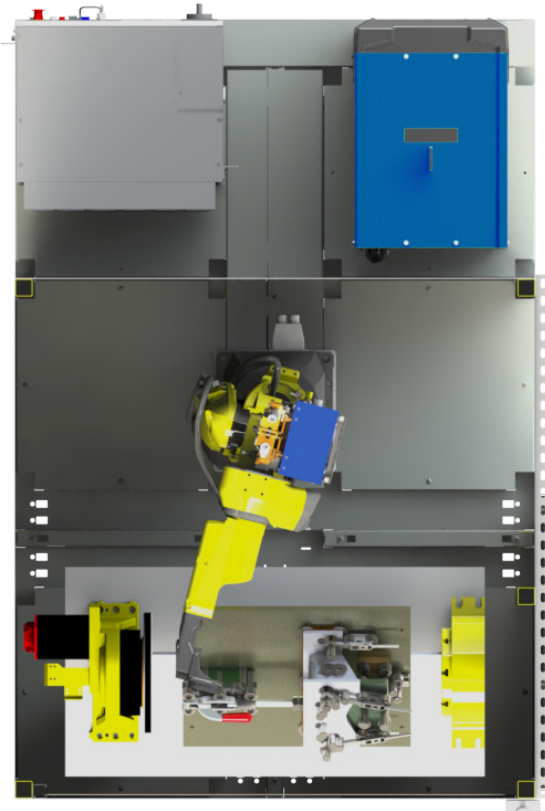


MOD-WELD FEATURES & SPECS

Dual Station Fixed Table		
Model	DSFT-AM100	DSFT-AM-120
6-axis robot	FANUC ARC Mate 100iD	FANUC ARC Mate 120iD
Miller power source	Auto-Continuum™ 350 or 500	Auto-Continuum™ 350 or 500
Welding material type	millerwelds.com/technologies/advanced-welding-processes	
Footprint	5' x 7.5'	5' x 7.5'
Power needed	480VAC 3-Phase 60 AMP	480VAC 3-Phase 60 AMP
Table size	20" x 16"	20" x 16"
Available I/O	8 in 8 out	8 in 8 out
Available valve bank space	4 closed-center valves and 4 blanks	4 closed-center valves and 4 blanks
Track, Find, Inspect Seam Option	👍	👍
Enclosed cell	👍	👍
Crane accessible	✘	✘
Hood option	👍	👍
Automatic tip cleaner w/ accessories	👍	👍
FANUC Torchmate	👍	👍
Custom Weld Fixture	👍	👍

Single Station Aux Wide Table

MOD-WELD FEATURES & SPECS

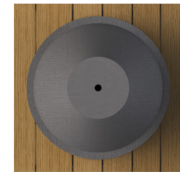


Fixture not included.

Single Station Aux Wide Table		
Model	SSAWT-AM50	SSAWT-AM100
6-axis robot	FANUC ARC Mate 50iD	FANUC ARC Mate 100iD
Miller power source	Auto-Continuum™ 350 or 500	Auto-Continuum™ 350 or 500
Welding material type	millerwelds.com/technologies/advanced-welding-processes	
Footprint	5' x 5'	5' x 7.5'
Power needed	480VAC 3-Phase 60 AMP	480VAC 3-Phase 60 AMP
Table size	30" x 30"	30" x 30"
Available I/O	8 in 8 out	8 in 8 out
Available valve bank space	4 closed-center valves and 4 blanks	4 closed-center valves and 4 blanks
Track, Find, Inspect Seam Option	👍	👍
Enclosed cell	👍	👍
Crane accessible	✘	✘
Hood option	👍	👍
Automatic tip cleaner w/ accessories	👍	👍
FANUC Torchmate	👍	👍
Custom Weld Fixture	👍	👍

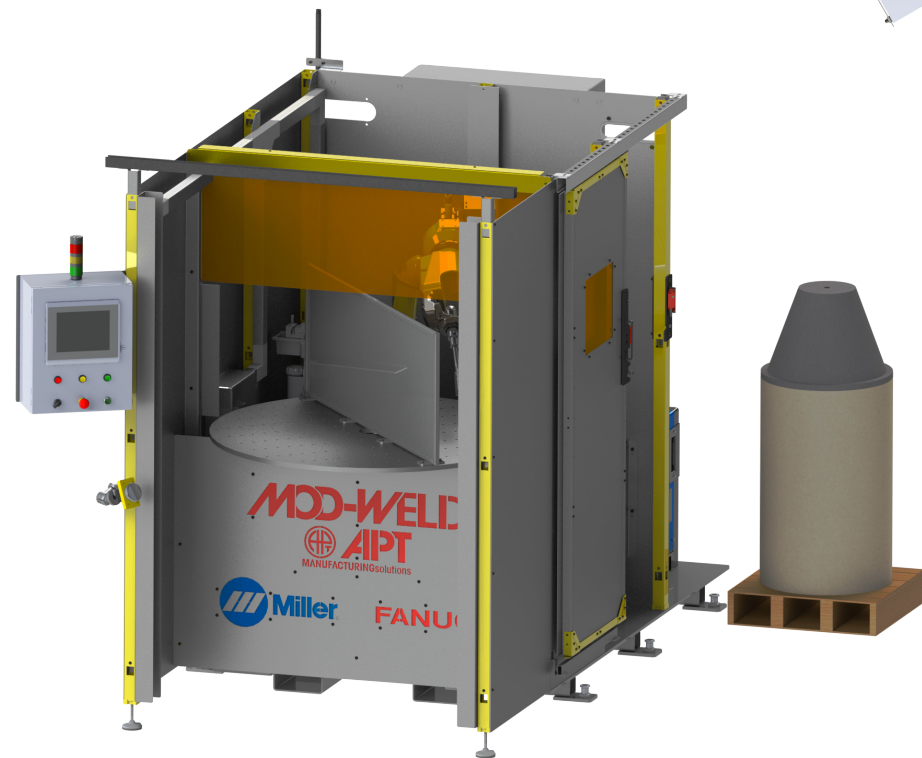
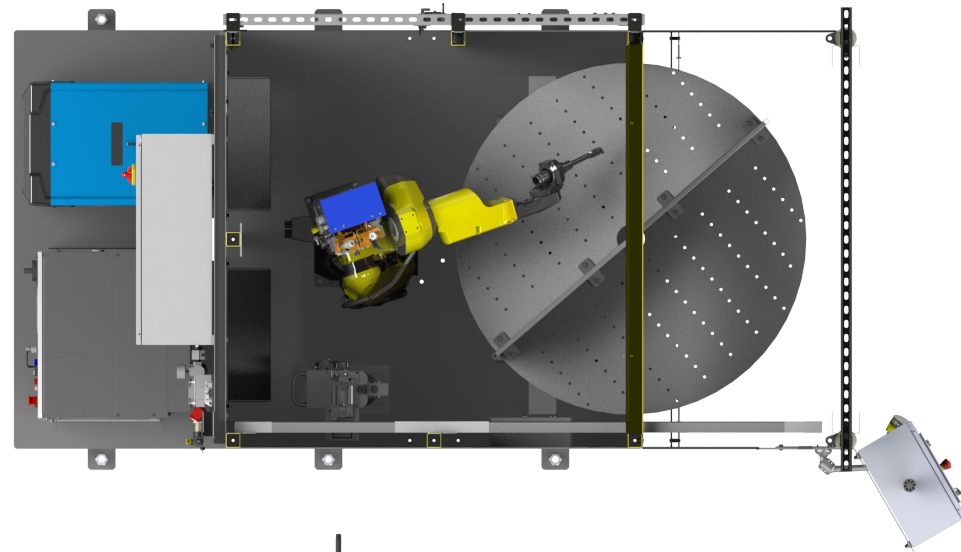
Dual Station Rotary Table

Load one fixture while welding another



Larger fixture size

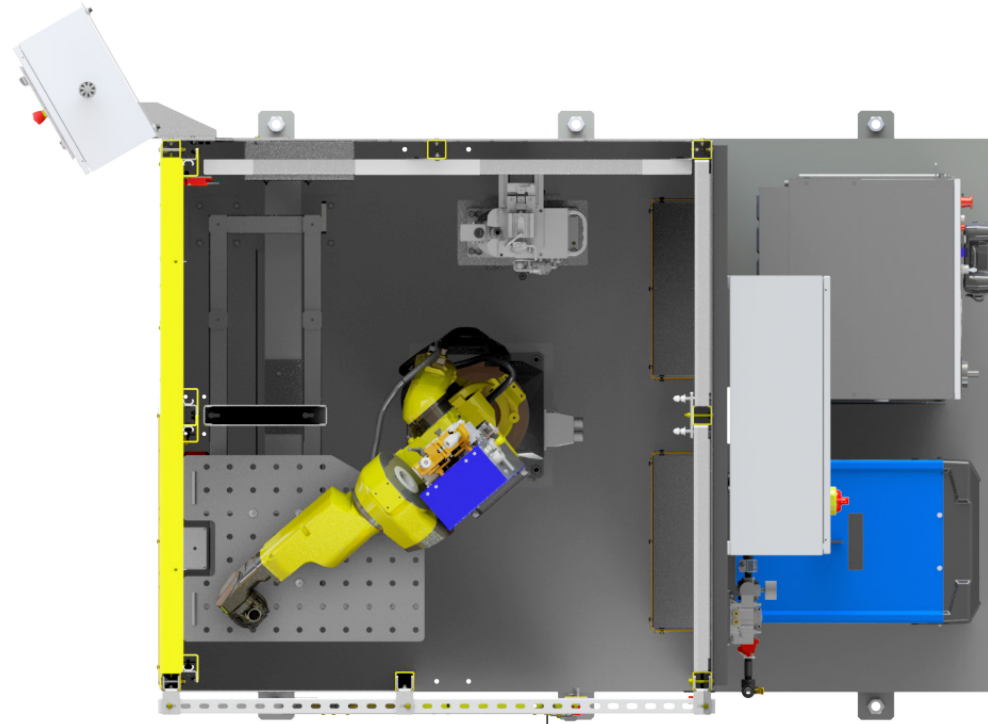
Light curtains



MOD-WELD FEATURES & SPECS

Dual Station Rotary Table		
Model	DSRT-AM100	DSRT-AM-120
6-axis robot	FANUC ARC Mate 100iD	FANUC ARC Mate 120iD
Miller power source	Auto-Continuum™ 350 or 500	Auto-Continuum™ 350 or 500
Welding material type	millerwelds.com/technologies/advanced-welding-processes	
Footprint	5' x 10'	5' x 10'
Power needed	480VAC 3-Phase 60 AMP	480VAC 3-Phase 60 AMP
Table size	Auto index 50" diameter	Auto index 50" diameter
Available I/O	8 in 8 out	8 in 8 out
Available valve bank space	4 closed-center valves and 4 blanks	4 closed-center valves and 4 blanks
Track, Find, Inspect Seam Option	👍	👍
Enclosed cell	👍	👍
Crane accessible	👍	👍
Hood option	👍	👍
Automatic tip cleaner w/ accessories	👍	👍
FANUC Torchmate	👍	👍
Custom Weld Fixture	👍	👍

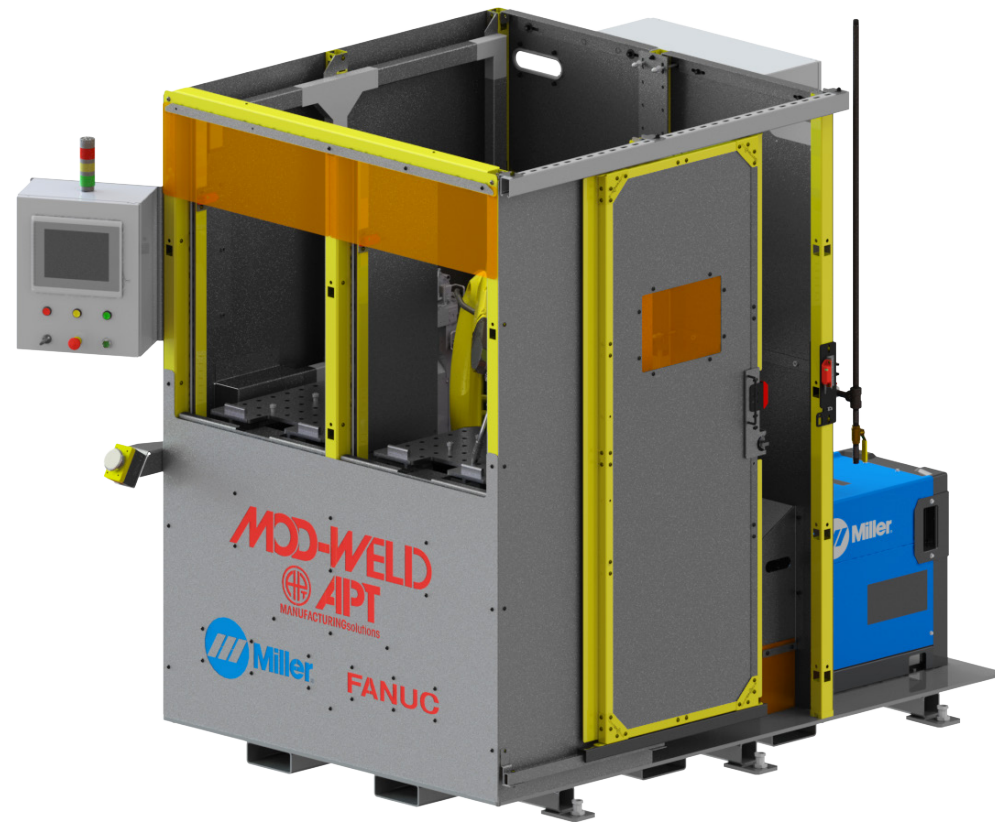
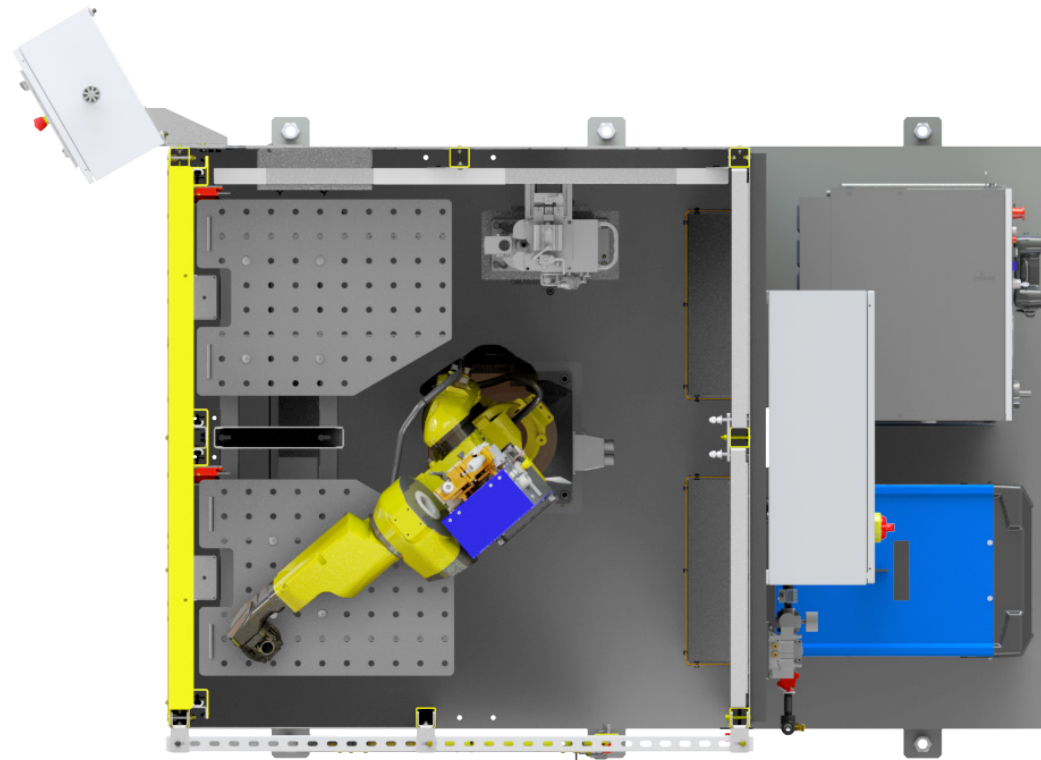
Single Station Shuttle



MOD-WELD FEATURES & SPECS

Single Station Shuttle		
Model	SSS-AM50	SSS-AM100
6-axis robot	FANUC ARC Mate 50iD	FANUC ARC Mate 100iD
Miller power source	Auto-Continuum™ 350 or 500	Auto-Continuum™ 350 or 500
Welding material type	millerwelds.com/technologies/advanced-welding-processes	
Footprint	5' x 5'	5' x 7.5'
Power needed	480VAC 3-Phase 60 AMP	480VAC 3-Phase 60 AMP
Table size	20" x 16"	20" x 16"
Available I/O	8 in 8 out	8 in 8 out
Available valve bank space	4 closed-center valves and 4 blanks	4 closed-center valves and 4 blanks
Track, Find, Inspect Seam Option	👍	👍
Enclosed cell	👍	👍
Crane accessible	👍	👍
Hood option	👍	👍
Automatic tip cleaner w/ accessories	👍	👍
FANUC Torchmate	👍	👍
Custom Weld Fixture	👍	👍

Dual Station Shuttle



MOD-WELD FEATURES & SPECS

Dual Station Shuttle		
Model	DSS-AM100	DSS-AM-120
6-axis robot	FANUC ARC Mate 100iD	FANUC ARC Mate 120iD
Miller power source	Auto-Continuum™ 350 or 500	Auto-Continuum™ 350 or 500
Welding material type	millerwelds.com/technologies/advanced-welding-processes	
Footprint	5' x 7.5'	5' x 7.5'
Power needed	480VAC 3-Phase 60 AMP	480VAC 3-Phase 60 AMP
Table size	20" x 16"	20" x 16"
Available I/O	8 in 8 out	8 in 8 out
Available valve bank space	4 closed-center valves and 4 blanks	4 closed-center valves and 4 blanks
Track, Find, Inspect Seam Option	👍	👍
Enclosed cell	👍	👍
Crane accessible	👍	👍
Hood option	👍	👍
Automatic tip cleaner w/ accessories	👍	👍
FANUC Torchmate	👍	👍
Custom Weld Fixture	👍	👍

CONTROLS MADE SIMPLE WITH VISUAL FACTORY CONCEPTS

- Uses visual factory concepts to allow for the most accurate and efficient information conveyance
- 5 standard HMI screens with enhanced diagnostics
- Simple recipe storage; easily selectable and expandable
- Quick changeovers
- Password-protected levels
- Engineered with perfection

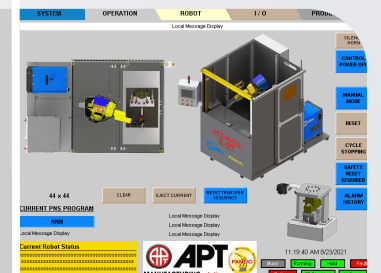
AN IN-DEPTH LOOK AT THE OPERATOR INTERFACE

An important aspect when building a complete MOD-WELD robotic weld cell is the controls integration, and this is an area where we excel. Our entire system has the customer in mind to have fewer HMI control touch points, easy-to-use operator interface, visual factory concepts, and simplified maintenance and troubleshooting.

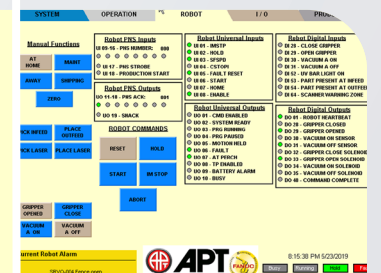
SYSTEM - These screens are used for general machine setup. A majority of the functions available on the systems require security requirements to access them. Several functions on the System HMI screens include: VFD frequency setup; Recipe Management System, Inspection Limits, I/O Link Setup, Login, and System Security Settings.



OPERATION - These screens are used for general machine operation and functionality. 3D model images are used to aid with the intuitiveness and ease of use. Status Indicators, Mode Control, and Manual Operations, along with Operational and Fault Messages are displayed on these screens.



ROBOT - This screen displays all communication and I/O interface between the system PLC and robot. Users may also manually control the functions of the robot and call a specific robot program to run from this screen.



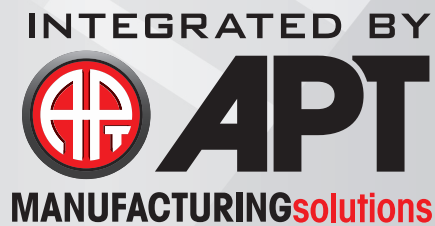
I/O - On this screen users can see all I/O within the system, its present status on/off to run diagnostics and aid in troubleshooting.



PRODUCTION - From these screens the user can view and capture production data to be used for business analytics. Recipe management and the production scheduler allow the users to edit the parameters and schedule all products the system can run.



FANUC



September 2022

Contact APT Manufacturing sales group
for more information about our robotic welding solutions
aptmfg.com/welding