

AdaptARC[®]

MECHANIZED WELDING SYSTEMS



TRI TOOL
BUILDING PERFORMANCE



The most versatile, high-performance welding equipment available for quality welding.

AdaptARC multi-process welding equipment performing ultra high deposition welds for an Oil & Gas Project. Two tandem weld heads were run simultaneously, laying a total of 160 - 240 lbs. of 1/16" filler wire per day.

"...the welding process we're using was developed by Tri Tool in conjunction with Sauer especially for this project. Utilizing that method, we've been able to not only cut costs, but also make sure the schedule's been maintained."

Brian Stahovec, Project Superintendant - Sauer Group

"...the non-destructive testing companies said that they've never seen a film that looked so good after we shot the weld - they're all 100% x-rays."

Dave Kretin, Project Manager - Sauer Group

AdaptARC[®]

You're in total control with welding equipment that features dynamic configuration options...

- Degree, Time, and Distance Programming
- Precision, User Defined Seam Tracking
- Two Shielded Gas Inputs
- One System with Multiple Processes: GTAW, GMAW-S, GMAW-P, and FCAW
- Wire Speeds Up To 700 Inches per Minute
- Digital Control for Consistent Accuracy

AdaptARC offers maximum operator flexibility with unique multi-process configurability that allows you to switch rapidly back and forth between GTAW & GMAW or FCAW with the SAME weld head and power supply.

All of AdaptARC's mechanized orbital welding equipment is engineered to deliver the superior precision, control, dependability, and ease-of-use that customers worldwide have come to expect from Tri Tool's excellent portable machine tools.

Work faster with AdaptARC's patented features. For instance, use Seam Tracker to pre-set your desired path by setting reference points and upslope. The torch will follow your path for every bead sequence of the weld.



With wire feed speeds of up to 700 inches per minute, AdaptARC is the perfect solution for your high deposition rate welding applications.



The DualARC weld head can be switched between processes in just minutes!

Save time with Tri Tool's patented Quick Change Torch designed to change over from process to process in a few minutes without removing the head from the track.

Call for more information about the AdaptARC system and discover the Tri Tool[®] Advantage - for Welding!



The AdaptARC welding system is comprised of the ORBITMASTER weld controller with its remote control pendant, a matching commercial power supply, the DualARC weld head with coolant re-circulator, and guide tracks.

The ORBITMASTER weld controller has been designed so that you can program the perfect weld everytime.



Complete GTAW arc control.

This multi-process controller can perform pulsed or non-pulsed GTAW and/or GMAW, as well as FCAW, for maximum selectivity. Switch from GTAW to GMAW-P for the ability to control heat inputs needed for special metal alloys or when FCAW wire is not available and high

deposition rates are needed with available solid core wire. Along with conventional bevel joints, the programmable controller is ideal for non-typical seams including multi-axis (saddle-on) type joints, angles, curvatures, indentations, and protrusion welds.

Automatic guidance capability provides control and position recording along a path (from hundreds of points) for rapid, repeatable precision.

Additional advanced features of the ORBITMASTER controller include automatic tip to work piece distance control in all processes, and programmable control is provided for the torch to work piece Arc Voltage Control (AVC), oscillation, travel, wire feed, coolant recirculation and power source/AVC sensing.

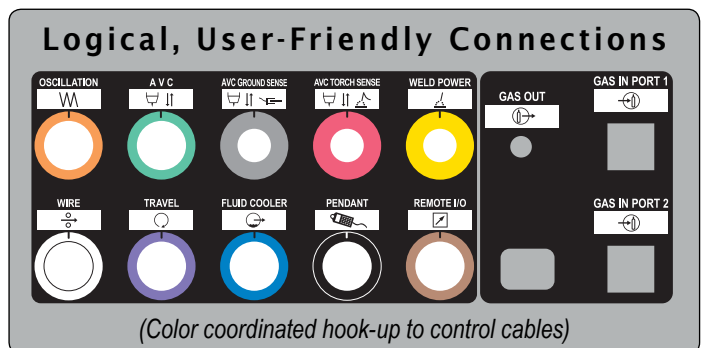


Accurate GMAW metal transfer.

The high performance ORBITMASTER feeds wire up to 700 in/min, especially important if the application requires a huge amount of weld deposition.



- Multi-Process Control
- User Defined Seam Tracking
- Dual Inlet Auto-Purge Gas Ports



Multi-process weld head for both precision orbital and linear welding

The DualARC weld head's design permits rapid change-over from GTAW to GMAW. Automatic steering control provides precision non-symmetrical weld paths for saddle and other special shapes, as well as automatic rewind and bead placement.

- **Rugged Construction for Accuracy**
- **Rapid Process Switching Without Removing Head From Track**
- **Automatic Steering Control**
- **Auto Rewind and Bead Placement**

The weld head traverses on modular guide tracks for accurate and solid positioning, optimal for narrow groove orbital welding. The weld head is perfectly matched to the ORBITMASTER controller for orbital, linear and overlay welding applications.

The weld head travels up to 100 in/min reducing your weld time significantly when positioning the weld head, rewinding, pre-setting a route, or performing a pass.



Rugged construction for welding precision & repeatable accuracy.



The DualARC weld head performing a critical weld on pre-heated pipe in a nuclear power facility on 16" OD X .844" WT (2 1/4 Chrome) - Pre & Post Weld Heat Treat.

The DualARC has been designed from the ground up for ease of user maintenance with "off the shelf parts" that can be changed in-place with common tools. Rugged construction delivers the precision and repeatable accuracy so critical for the tight tolerances of the orbital welding process.



The DualARC weld head travels up to 100 inches per minute for positioning, rewinding to starting point, or pre-setting a route, reducing your weld time significantly!



Designed to facilitate every aspect of the welding procedure

Reduce Downtime and Costs with:

- Nonstop Welding from Root to Cap
- Program Chaining and Linking
- Reduce E-tech Support
- QC Compliance Monitoring
- Modification Reference Screens

AdaptARC's modified short arc for open root welding can eliminate the time consuming hot pass.

Chaining and linking programs together allows the next program to begin at the end of the previous program, for a single combination program that welds the root, hot-pass, fill layers, and cap without stopping.

You can also loop programs to allow the same program to repeat multiple times. This is utilized on such beads as the cap, where the same bead characteristics are repeated for a given number of passes.

For reduced E-tech support costs, AdaptARC's fully digital control system eliminates the frequent calibration that is required on competing systems.

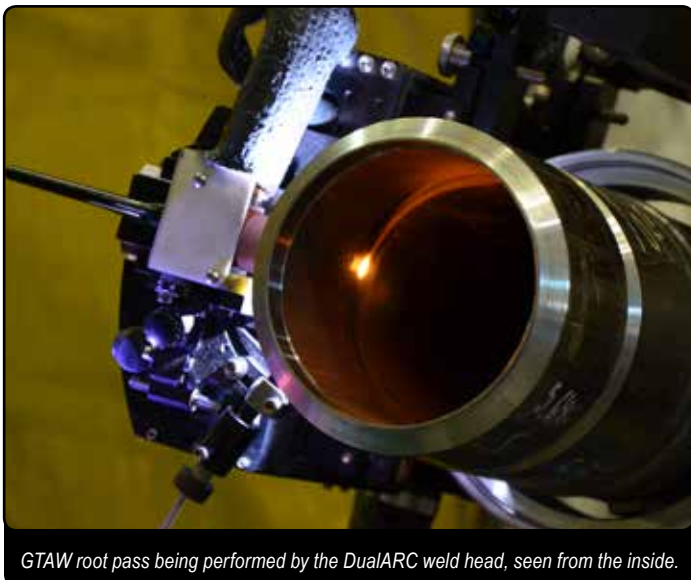
The main screen allows for instant evaluation and monitoring of key parameters including heat input.

In addition, the Modifications screen can be saved and printed for QC compliance to the welding procedure specifications.



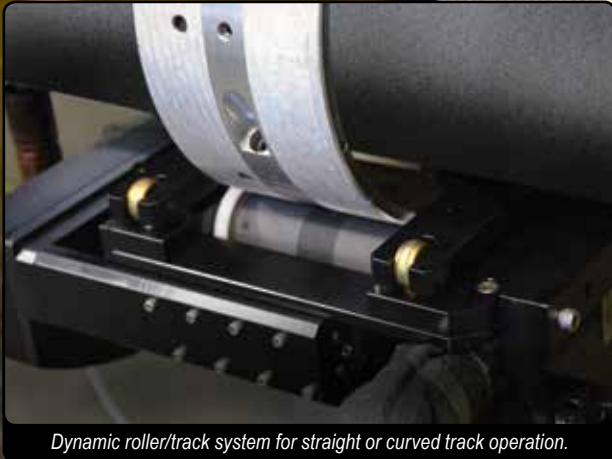
If the gas or coolant should be reduced or fail, the system will automatically shut down and produce a warning screen on the operator's pendant, eliminating porosity issues due to a low bottle or ruptured coolant lines.

ORBITMASTER delivers superior welding performance and results with unprecedented ease and advantages such as precision seam tracking and waveform generation (GMAW) for reduced spatter and smoke.



SUPERIOR MOUNTING

Modular guide tracks for accurate, solid positioning



Dynamic roller/track system for straight or curved track operation.

With AdaptARC cost-effective mounting system you can mount up to three different pipe sizes with just one track. Lightweight, durable tracks are available for any pipe size down to 2".

Custom designed, non-metallic, polymer coated drive wheels combined with specially designed knurling provide tremendous grip, overcoming oil or other obstructions that may be on the track.

- **Each track fits on 3 pipe sizes**
- **Get secure mounting on pre-heated pipe with optional spring-loaded mounting pads**
- **Use either curved or flat track with the DualARC weld head**



DualARC weld head mounted on flat track for weld program development tests.

WELDER FRIENDLY CONTROL

User friendly program interface designed by and for welders

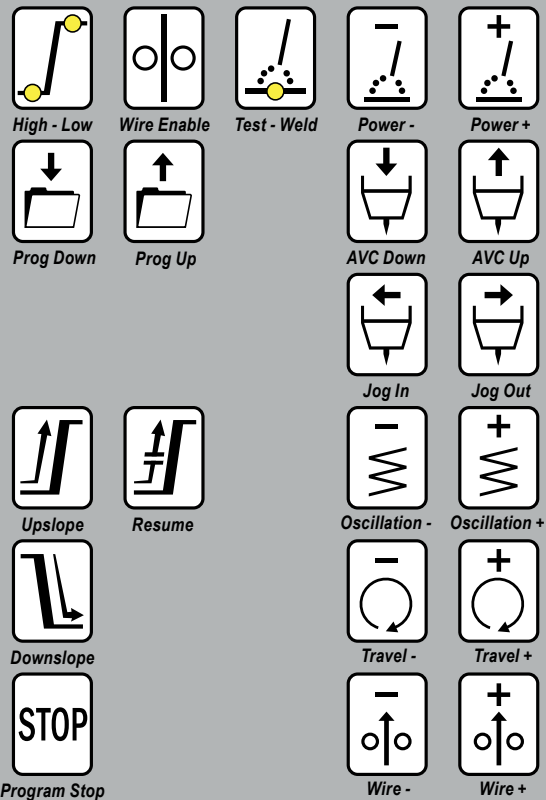
- Simple, logical interface screen
- Practical, easy, pendant control
- Modification reporting screen
- QC compliance monitoring

AdaptARC weld programming is simple, straightforward and easy to learn. The programming system was designed by welders to include the controls you are familiar with and expect. The AdaptARC console comes pre-loaded with weld programs for a variety of processes, and sizes, or follow the screen prompts to create a new program.

The fully featured remote pendant is one of the smallest and most welder-friendly pendants on the market.

A High-Low switch allows simultaneous switching of primary/background parameters in place of the more

Pendant Button Function

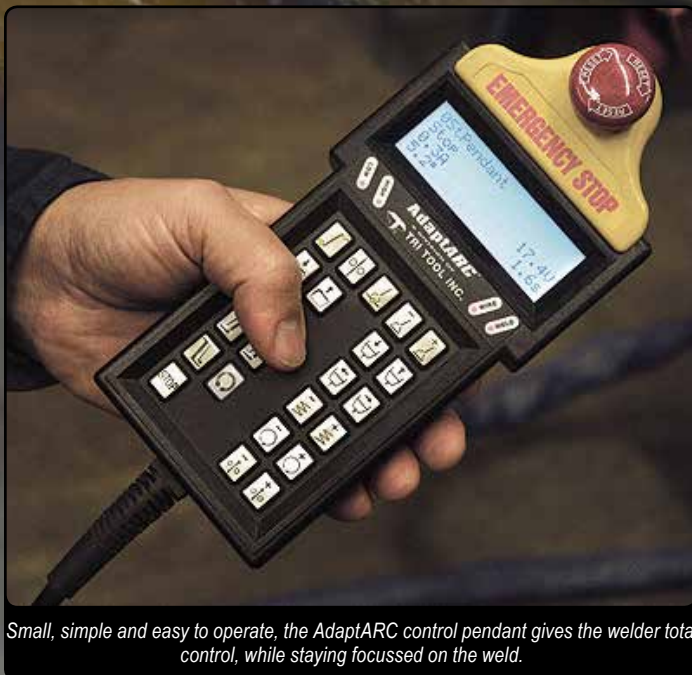


The Remote Control Pendant buttons (GMAW/FCAW shown) are arranged in a logical pattern for efficiency and grouped by function to permit the operator to remain focussed on the weld process.

conventional operation of switching these parameters separately; this allows half the pendant switches and provides much easier operations.

The "Pendant Setting" console screen allows the operator to customize the pendant functions including the incremental amperage increase/decrease per button depression.

Add individual notes to any program to identify specified details of that program such as who created it, when, what materials, etc.



Small, simple and easy to operate, the AdaptARC control pendant gives the welder total control, while staying focussed on the weld.



Maximum versatility for a wide range of welding solutions

- **Development & validation of special weld procedures**
- **Welder training & certification**
- **Specialty weld applications**

The DualARC weld head can be custom configured for special operations, such as ID cladding.

In the photo at the right, a custom welding fixture was developed for a special cladding application that also required video cameras for remote monitoring of the

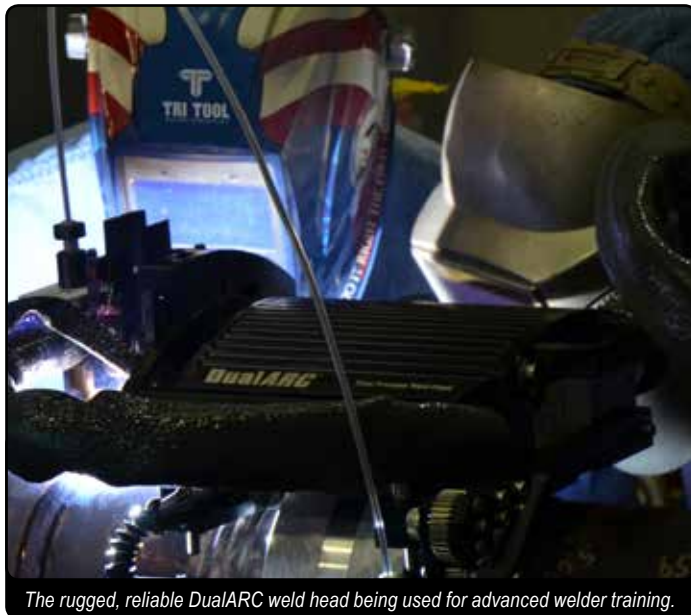


AdaptARC equipment with a custom fixture being used for a cladding operation.

weld process. The ORBITMASTER's high performance Pulse Spray Transfer delivered exceptional quality and deposition rates.

The programmable weld controller's unique capability to reverse travel direction produces rapid, repeatable accuracy with projects involving interrupted openings.

Tri Tool's experienced Special Engineering support can provide you with comprehensive design and manufacturing for any custom AdaptARC fixtures, accessories and mounting systems you need for your specific welding projects.



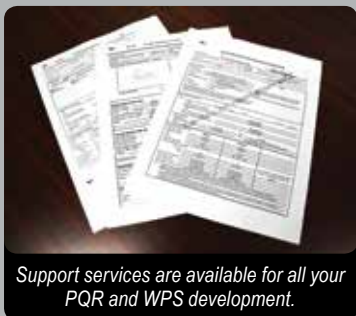
The rugged, reliable DualARC weld head being used for advanced welder training.



This sequence of photos show the formation and transfer of cladding metal.

Welding Program Development

Tri Tool's comprehensive service and support goes beyond quality equipment manufacturing. Welding technology support in the form of ORBITMASTER program development for demanding applications, difficult welding process, materials, or situations is only a phone call away. Programs are easily sent and stored in your system.

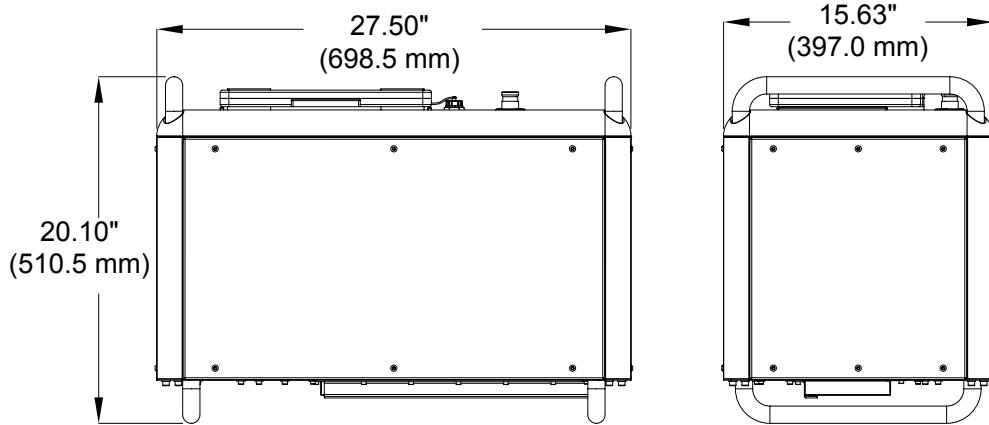


Support services are available for all your PQR and WPS development.



For program assistance call (916)288-6100

Weight:	95 lbs (43.1 kg) (Appx.)	Relative Humidity:	10% to 90%
		Ingress Protection Rating:	IP23
Clearance and Dimensions			Protected against solid objects up to .472" (12 mm) and direct spray of water up to 60° from vertical.
Height:	20.10" (510.5 mm)	Altitudes:	0 to 10,000 feet (0 to 3048 m) above mean sea level
Width:	15.63" (397.0 mm)		
Length:	27.50" (698.5 mm)		
Power Requirements		Fluid Cooler:	Refer to the manufacturer's Owner's Manual for all information pertaining to the fluid cooler
Input Power:	110V Nominal 50/60Hz - 10A		
	230V Nominal 50/60Hz - 5A		
Operating Environment		Certification:	A CE certified version of the ORBITMASTER is available.
Ambient Air Temperature:	0° F (-17.8° C) to +140° F (+60° C)		



RELIABLE SUPPORT



A vast inventory of AdaptARC support parts keeps you up and running!

- Designed with "off-the-shelf" parts so you can find replacements faster in your local area. Modular motor and cable assemblies can be changed in-place with common tools.
- A fully digital control system eliminates frequent calibration and reduces costs for E-Tech support, as is required with other systems.



The unique modular approach to the ORBITMASTER console means that with the removal of 8 screws, a control board can be removed for repair or replacement.

DualARC®

Travel

Maximum Speed: 100 in/min (2.54 m/min)
 Oscillation/Steering Range: 2.00" (50.8 mm)
 Maximum Speed: 180 in/min

AVC

Range 2.00" (50.8 mm)
 Maximum Speed 50 in/min (1.27 m/min)

Wire Feed

Maximum Speed: 700 in/min (17.78 m/min)

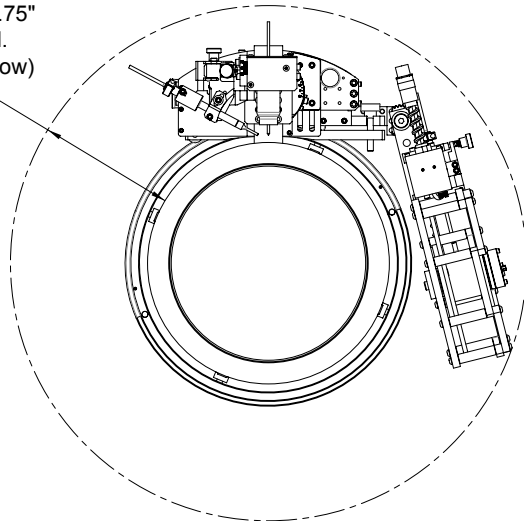
Umbilical Length:

32' (9.75 m) (100' Optional)

Wire Sizes:

.023, .030, .035, .045

Radial Clearance:
 Includes +/- 0.75"
 AVC Travel.
 (See chart below)



Torch

Lead: 15 deg
 Lag: 15 deg
 Tilt: +/-15 deg
 Course Radial Position: 5.875 in (149.22 mm)

Power:

350A @ 100% duty cycle

Weld Processes:

FCAW, GMAW, GMAW-P, GTAW

Environmental:

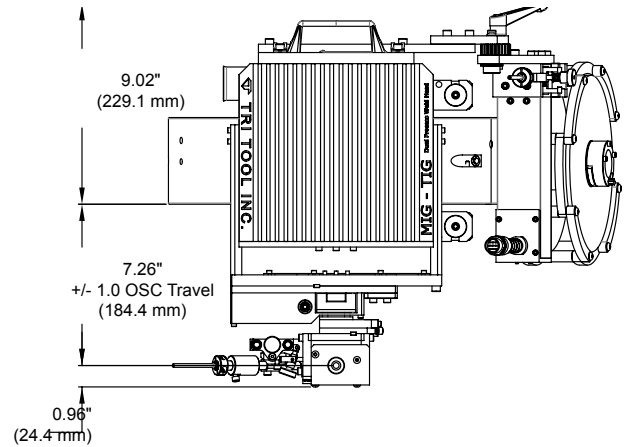
Designed to IP23

Operating Environments

Ambient Air Temperature: 0° F (-17.8° C) to +140° F (+60° C)

Relative Humidity: 10% to 90%

Altitudes: 0 to 10,000 feet (0 to 3048 m) above mean sea level



Radial Clearance - Standard Configuration*

Without Spool (for Remote Wire Feeder**)

Track Size		GTAW		GMAW		Track Size		GTAW		GMAW	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
6	152.4	7.9	200.7	7.9	200.7	6	152.4	5.7	144.8	7.1	180.3
12	304.8	7.3	185.4	7.3	185.4	12	304.8	5.7	144.8	7.3	185.4
16	406.4	7.1	180.3	7.3	185.4	16	406.4	7.1	180.3	7.3	185.4
24	609.6	6.9	175.3	7.4	188.0	24	609.6	6.9	175.3	7.4	188.0
30	762.0	6.9	175.3	7.4	188.0	30	762.0	6.9	175.3	7.4	188.0

* Contact Tri Tool's AdaptARC Staff if you require more restrictive clearances for your applications.

** Tri Tool Inc. can custom configure a Remote Wire Feeder for your specific requirements, call for more information.

THIS INFORMATION IS PROVIDED AS A GUIDELINE ONLY TO ASSIST WITH THE SELECTION OF EQUIPMENT AND ACCESSORIES. THIS INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE. CONTACT YOUR SALES REPRESENTATIVE FOR SPECIFIC DETAILS OR TECHNICAL SPECIFICATIONS.

FIELD PROVEN **AdaptARC** SOLUTIONS!

Versatility and Reliability for a wide range of welding applications

As an equipment manufacturer that provides special engineering and custom equipment design and manufacturing, Tri Tool is uniquely qualified to configure welding systems that are perfectly matched to your special welding situations.

AdaptARC's technological advantage is being clearly proven in terms of project productivity and quality, repeatable, certified welds - each and every day.

Tri Tool Services

Tri Tool Services provides a nationwide network of dependable and qualified welding personnel, equipped with reliable and high performance AdaptARC equipment, ready to perform precision on-site code welding - any time and any place. With proven experience and practical knowledge of welding for construction and maintenance, backed by the industry's finest OEM support. Tri Tool Services is your best choice to stay on-schedule and budget when you require reliable contract code welding services.



AdaptARC equipment doing WPS development in a Geothermal plant.



Turbine shaft cutout, AdaptARC reweld, and re-machine repair for a power plant.



High performance AdaptARC welder in operation at Marcellus Oil & Gas Project.

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3041 SUNRISE BLVD.
RANCHO CORDOVA, CA 95742
800.345.5015 • 916.288.6100
WWW.TRITOO.COM