

Panasonic

pre-engineered
robotic
arc
welding
solutions



welder shortage?

experienced
welders available:
inquire within

Panasonic ideas for life

workforce transitions

welding electrode to computer code

General fabrication shops are facing a shortage of welders. Today, competition for skilled workers is fierce. Simply put, welding is becoming a lost art; members of the younger generation are seeking higher technology jobs over manual labor.

A recent article in the Wall Street Journal chronicled the plight of small fabrication shop owners trying to find people willing to weld. Furthermore, the American Welding Society recently published a report stating that by 2010 the United States will witness a welder shortfall in excess of 200,000.

Companies large and small are turning to robotic automation solutions. Although the prospect of automating can be unnerving, it will be the best investment your company can make.

It's your decision:



find qualified welders

or invest in automation



simple solutions

with pre-engineered performance

The biggest hurdle for most companies looking to automate is not the financial investment—it is the adoption of new technology.

Companies with as few as 2 employees have purchased robotic arc welding automation from Panasonic and have succeeded on many levels—not only in performance and payback, but especially in applying new technologies.

To that end, we have developed a family of pre-engineered solutions integrating Panasonic robots, servo positioners and arc welding technology to solve your fabrication challenges. This seamless integration flattens the learning curve, allowing you to concentrate on other areas of your business.

While known as a consumer electronics retailer, it is important to note that we too are a manufacturer. We deal with the same pressures that you do: global competition, labor shortfalls, financial commitments and learning curves. Panasonic provides world-class pre-engineered robotic arc welding solutions to ease these common business pressures.

We are dedicated to providing value to your business and supporting the products that we make and solutions we provide. Today and tomorrow.

continuous evolution with **HEAT**

Panasonic's new process: HEAT (High-Efficiency Advanced Tip) was developed for quality-minded manufacturers to control common welding issues associated with GMAW (aka MIG) welding.

Benefits include:

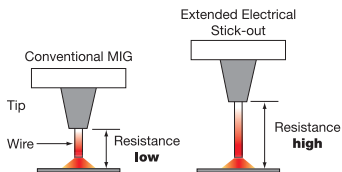
- Up to 40% higher deposition than conventional welding processes
- Less burn-through—ideal for thinner metals
- Improved gap handling without sacrificing travel speed
- Consistent tip-to-wire electrical contact for improved process control

HEAT squeezes process variation out of GMAW by making it more stable. It makes the process window larger and more accommodating of part variations in joint position and gap. And that's while raising productivity 30% or more, depending on the application.

Overall, the HEAT process is more stable, more productive, and more tolerant of part variations than conventional GMAW welding.

new **HEAT** process

Through IR heating, the wire deposition rate on the longer electrical stickout (ESO) is 30-40% greater than on the shorter stickout at the same welding amperage. The resulting HEAT process can be faster and more tolerant of gaps and joint misposition.



technical innovation

continuous
evolution
with
MIG



TAWERS Aluminum MIG

- MIG package can be retrofitted to any existing TAWERS robot
- Ultra stable servo wire feed system
- Improved Arc Starting with Lift Start function
- Low Pulse function promotes the ability to oscillate between 2 parameters (High-Low) during welding
- Synchro-Weave function for true synchronous control of wire feed, parameter control and robot motion

TAWERS High Deposition TIG

- TIG package can be retrofitted to any existing TAWERS robot
- Touch Start eliminates the need for high frequency and associated noise during arc starts
- Unique filler wire arrangement reduces feeding-related issues
- Wire can enter puddle from any position
- Current Shut enables improved wire deposition by preheating filler metal
- Embedded Arc Control enables true synchronized wire feed, parameter and robot motion
- Compact torch design
- Optional Arc Voltage Height Control

continuous
evolution
with
TIG



pre-engineered performance

For over a decade, PerformArcs have been making customers across North America more competitive. A constantly evolving product line built on a core foundation of Panasonic robots, servo positioners and arc welding technology, PerformArcs continue to exceed customers' expectations of flexibility, quality and productivity.

Each PerformArc incorporates a fully welded steel frame and base structure with sheet metal skinned walls—built for your fabrication environment.

Making the choice to automate can be troubling. PerformArc's pre-engineered performance removes the risk.

- **Flexibility**—manufacturing plant layouts change with each job. PerformArcs are pre-wired and pre-assembled for both fast installation and relocation.
- **Centrally located**—full system control, diagnostics, and programming capabilities in one easy-to-access location flattens the learning curve and increases cell uptime.
- **Safety conscious**—all models include a fully integrated safety environment with light curtains and door interlocks, designed for compliance to current safety standards.
- **Supported**—one vendor. A simple statement, but very powerful. Your PerformArc system is pre-engineered by Panasonic, integrates Panasonic robots, Panasonic servo positioners and Panasonic arc welding technology and is backed by Panasonic, today and tomorrow, 24/7/365.

PA-55

manually activated turntable
platen style
250 lbs. per side



PA-102S

high-speed servo turntable
platen style
350 lbs. per side



PA-112S*

high-speed servo turntable
platen style
725 lbs. per side



PA-122S*

high-speed servo turntable
H-frame style
2 outboard servo positioners
440 lbs. per side



PA-132S*

high-speed servo turntable
H-frame style
2 outboard servo positioners
1,100 lbs. per side



PA-212S*

2 opposing welding stations
independent style
2 outboard servo positioners
1,100 lbs. per side



PA232S* also available

2 opposing welding stations
independent style
2 outboard servo positioners
2,200 lbs. per side



PA-360S*

high-speed servo sweep
ferris wheel style
2 outboard servo positioners
1,100 lbs. per side



* multi-robot configuration available

PA-55

Typical Part Sizes

12" x 53"

18" x 45"

24" x 30"



Fast Installation—a fully welded frame, shipped to you pre-wired and pre-assembled, eliminates assembly time—running in minutes.

Integrated Controls—the integrated operator interface panel and full color teach pendant provide full system control, diagnostics and programming capability in one central location, flattening the operator learning curve.

Productive and versatile—manually activated table allows extremely high output-to-investment-ratio. Suitable for both first time users and larger companies automating lower volume projects.

PA-112S

Typical Part Sizes

12" x 87"

24" x 76"

36" x 53"

Optional Sizes

12" x 104.5" 36" x 77"

24" x 95" 48" x 43"



Fast Installation—a fully welded frame, shipped to you pre-wired and pre-assembled, eliminates assembly time—getting you up and running in minutes.

Repeatability—a standard platen design with bolt and dowel holes provides repeatable fixture mounting when multiple fixtures are exchanged on the same workcell.

Flexibility—large work area and 725 lbs per side payload accepts larger/heavier parts, nest type processing of smaller parts or progressive fixtures.

PA-102S

Typical Part Sizes

12" x 53"

18" x 45"

24" x 30"



Fast Installation—a fully welded frame, shipped to you pre-wired and pre-assembled, eliminates assembly time—getting you up and running in minutes.

Repeatability—a standard platen design with bolt and dowel holes provides repeatable fixture mounting when multiple fixtures are exchanged on the same workcell.

Productivity—extremely fast Panasonic AC servo positioner turns 180 degrees in under 2.2 seconds, minimizing index time and maximizing productivity.

PA-122S

Max Part Size

34" x 48"

Optional Size

39.37" x 60"



Fast Installation—a fully welded frame, shipped to you pre-wired and pre-assembled, eliminates assembly time—getting you up and running in minutes.

Maximum accessibility—outboard servo positioners allow for ease of loading or load and tack operations while maximizing welding robot torch accessibility.

Flexibly safe—standard *servo power disconnect* removes drive power on the outboard axis during fixture loading to prevent unexpected motion while maintaining production at the robot.

PA-132S

Max Part Size
40" x 60"



Production flexibility—Larger rotation diameter, increased H/T length, heavier payload and open overhead construction accommodate larger parts and multiple or progressive fixturing.

Maximum accessibility—Outboard servo positioners allow for ease of loading or load and tack operations while maximizing welding robot torch accessibility.

Flexibly safe—Standard *servo power disconnect* removes drive power on the outboard axis during fixture loading to prevent unexpected motion while maintaining production at the robot.

PA-360S

Max Part Size
43" x 118"



High productivity—high speed “ferris wheel” positioner using three independent servo drives provides industry-leading indexing speed, minimizing cycle time impact.

Maximum accessibility—outboard servo positioners allow for ease of loading or load and tack operations while maximizing welding robot torch accessibility.

Flexibly safe—standard *servo power disconnect* removes drive power on the outboard axis during fixture loading to prevent unexpected motion while maintaining production at the robot.

PA-212S

Max Part Size

44" x 120"

Optional Sizes

44" x 96", 44" x 144"



PA-232S

Max Part Size 60" x 120"

Optional Size 66" x 120", 66" x 44"

Open Design—Sidewall design allows for heavier weldments to be crane loaded while standard load station jog allows unlimited positioning for multi-side part loading of final weldout.

Maximum accessibility—Outboard servo positioners allow for ease of loading or load and tack operations while maximizing welding robot torch accessibility.

Flexibly safe—Standard *servo power disconnect* removes drive power on the outboard axis during fixture loading to prevent unexpected motion while maintaining production at the robot.

Custom

Upgrades to
Turn Key



Panasonic manufactures a complete line of PerformArc systems to meet the needs of most manufacturing companies.

PerformArcs use building block components such as PanaDice as the foundation to allow customization when required.

Our network of system integrators can incorporate unique requirements from tooling to complete turnkey integrated systems. Please consult our sales staff to understand how our solutions can meet your custom requirements.



Tawers WG

350A @ 80% duty CV
350A @ 60% duty Pulse



Tawers WGH

450A @ 100% CV
and Pulse



optimized for productivity

TAWERS™ arc welding robots are the culmination of years of research combining the new line of high performance TA series manipulators with the latest generation WG welders fused together using EAC™ technology. This next generation robotic welding solution is offered in a broad range of models to maximize your productivity through world-class advancements unique to the TAWERS platform.

TAWERS robots are optimized for speed—with larger motors and drives, increased acceleration and a high rigidity FEA optimized design. Exceptionally high maximum robot speeds maximize your performance by driving down cycle times.

These advances combined with innovative robot welder communication, industry-leading welding technologies and effective software and hardware improvements create powerful new solutions for your arc welding challenges.

- **Bus communication**—beyond digital, bus communication eliminates the protocols and timing delays of digital, allowing new and exciting features to emerge that reduce cycle times, advance quality and improve flexibility of the welding process.
- **Advanced sensitivity**—servo control algorithms detect undue load on the robot during motion and drop servo power to a soft state to protect the robot during collision situations.
- **Ultra-low spatter**—advanced arc physics analysis and control using a new welding process SP-MAG can save over 100lbs of wire per arc versus conventional CV processes.
- **Dustproof welder**—in the TAWERS solution, the robot controller and welder exist in the same dustproof cabinet assembly that does not exchange outside air with the welding environment, eliminating failures due to welding dust contamination. (WG only)

utilizing

Embedded Arc Control technology



EAC Technology: eliminating barriers... opening opportunities

TAWERS comes standard with Embedded Arc Control (EAC) technology which eliminates the need for three separate control systems and fuses control of the robot, welder and servo wire feeder into a single physical unit. This new control breakthrough is contained entirely internal to the robot controller and is monitored by the TAWERS 64-bit main CPU.

EAC technology controls not only the robot motion path and sequence commands, but simultaneously synchronizes the welding power supply waveform control and servo wire feeder response accordingly, to adjust and correct for dynamic changes in the welding process. TAWERS soars beyond conventional digital communication systems, delivering the first generation of fully software-controlled robotic welding solutions.

- **Robot lift start**—during the arc start process, the robot senses current flow, the robot then lifts to create the arc using voltage—not current—to dramatically limit ignition spatter and increase first arc strike efficiency.
- **Robot lift end**—during the weld cratering process, the robot lifts and ends the process, thus eliminating wire-stick detection and burn-back times while simultaneously sharpening the welding wire.
- **Optional embedded arc data monitoring**—ability to setup process control windows around key process variables and log weld data for quality control records. This allows you to find trends or reasons for poor part quality. Touchup of weld programs find root causes to problems that happen infrequently but could result in a suspect part reaching the end customer.

unlimited applications

TA and TB robot series

The latest generation of robotic manipulators incorporates 3D design and FEA (Finite Element Analysis) to optimize the rigidity and speed in the TA and TB series robotic line. Larger motors and drives coupled with high-end servo control algorithms make the TA series over 50% faster than our previous generation of robots. With unlimited application flexibility, put our latest generation of robotic manipulators to work in your toughest applications.

- **Advanced sensitivity**—servo control algorithms detect undue load on the robot during motion and drop servo power to a soft state to protect the robot during collision situations.
- **Less interference**—curved arm design, slimmer and offset wrist profile contribute to reduce robot self-interference allowing larger overall working ranges versus comparable reach robots.
- **Safety compliance**—designed to the most rigorous safety standards ensuring your investment is not only productive, but safe for your employees (RIA, UL and c-UL compliant).
- **Easy to operate**—each pendant running Windows CE with 7" color TFT display uses common computer commands, flattening the learning curve.



Teach Pendant



TA Controller

TA-1000G2

1058mm reach
6kg payload



TA-1400G2

1374mm reach
6kg payload



TA-1600G2

1598mm reach
8kg payload



TA-1800G2

1796mm reach
8kg payload



TA-1900G2

1895mm reach
6kg payload



TB-1400

1437mm reach
4kg payload



TB-1800 also available

1802mm reach
4kg payload

external arcwelding powersupplies



HM3

- **Flexibility**—the ability to change freely, even during welding, between 3 interactive pulse modes and CV to cover gaps, reduce spatter and customize the arc to your specifications.
- **Quick and clean**—2 starting modes (CV or Pulse) utilizing a patented 2 step high current impulse routine for virtually instantaneous spatter-free arc starts.
- **Quality**—patented Dip Pulse technology clears shorts caused by puddle interference minimizing spatter adhesion in a real-time routine allowing higher travel speeds and improved welding quality.
- **Full Digital Communication**—connection to any Panasonic G2 series robot controller with plug and play capability and full waveform control from the robot teach pendant.

GB2

- **Spatter, controlled**—high-end waveform algorithms control welding spatter during the CV process, minimizing the ball size of the spatter generated and thus increasing the deposition efficiency while reducing spatter adhesion to the work piece.
- **Full Digital Communication**—connection to any Panasonic G2 series robot controller with plug and play capability and full waveform control from the robot teach pendant.
- **Low-voltage or Thin Gauge**—optimized waveform control allows stable arc control at low voltages for excellent thin gauge welding.

servocontrolled positioners



200 kg



500 kg



1000 kg

- **Safety built-in**—all Panasonic servo positioners come standard with *servo disconnect technology* and a host of software commands that allow flexibility while maintaining operator safety.
- **Versatile**—applicable to CO₂, MAG, MIG and TIG welding with built-in rotary ground (500A capacity) and thru-hole design to pass air and I/O cabling.
- **Efficient & easy-to-use**—our optional harmonized external axes control software makes setting welding speeds and other system parameters easy, reduces the number of taught points and ensures the optimum welding position.
- **Any position**—Panasonic “Dice” positioners can be used as building blocks in system designs as main indexers, supplemental outboards or in combination as skyhook style positioners.

PanaDice

PerformArcs use PanaDice as modular building blocks

	PANADICE 200	PANADICE 500	PANADICE 1000	PA-3000 RDV*	PA-3000 RDH*
PA-102S	0	1	0	0	0
PA-112S	0	0	1	0	0
PA-112SW	0	0	1	0	0
PA-122S	2	0	1	0	0
PA-122SW	2	0	1	0	0
PA-132S	0	2	0	0	1
PA-212S	0	2	0	0	0
PA-232S	0	0	2	0	0
PA-360S	0	2	0	1	0

*The PA-3000 series are positioners designed by Panasonic for specific applications. Call for details.

arcwelding software



G2 PC Tools

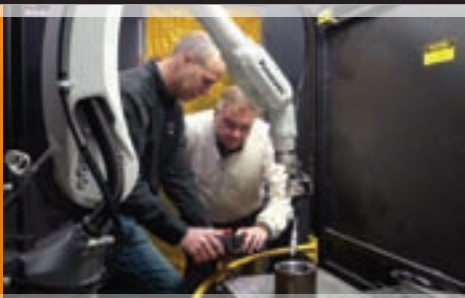
- **Accessibility**—local or global connectivity via removable PC card or Ethernet hookup, full access to system setup information and management of files with editing capability.
- **Transferability**—quick and easy file exchange between robot installations.
- **Time Saving**—reduce downtime by commenting and labeling programs off-line, familiarize staff with program structure as part of total training program.
- **Security**—automatic system backup on regular scheduled intervals, restricting access through password management.

DTPS 3D Simulation

DeskTop Program Simulation Package

- **Dedicated**—simulation package for Panasonic G2 robots and external axes with full tooling and workcell support.
- **Compatible**—merged with G2 PC Tools for complete program editing capability, no translation required—direct program importation into the robot.
- **Efficient**—reduce downtime using off-line program analysis and editing, manage welding process programs over multiple robot systems.

technical support



Applications Engineering

Panasonic's applications department utilizes the latest in robotic, arc welding, system and simulation capabilities to offer a comprehensive analysis of your potential welding projects. In one of our US or Canadian offices we can perform a thorough analysis by providing tangible results on the viability of your project. Contact our sales staff to schedule a project analysis and robotic welding demonstration. Your success is our primary focus and seeing is believing.

Training

By sharing our experience and know-how, our goal is to create experts in productivity within your organization—so you will be better equipped to meet future challenges. In that regard, an investment in a PFSA training solution is an investment in your organization that can offer tremendous operations expertise, productivity gains and ROI.

Maintenance Services

Even the best built, most reliable equipment and software need certain maintenance, care and upgrades over time. PFSA provides a variety of services to maximize your productivity, extend the useful life of your production lines and reduce total operating costs. Because downtime is deadly to your bottom line, we have technical staff available 24/7 through our Technical Assistance Center.

Genuine Panasonic Parts

When you need a replacement part for your robot, we make obtaining parts as easy and as fast as possible. You can order through our Customer Care Center, by phone or online. We'll fill your order and have it on its way to you ASAP. And you'll have the confidence of knowing it is a quality part, meeting the specified need of your machine.

Panasonic

experts in productivity

Panasonic Factory Solutions Company of America

909 Asbury Dr.

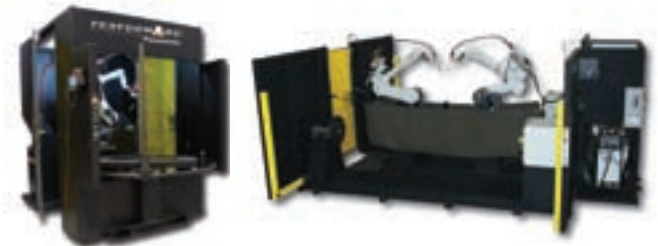
Buffalo Grove, IL 60089

847-495-6100

PFSAmarketing@us.panasonic.com



panasonic**fa**.com



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