



Shipbuilding



Set a Course for Greater Shipyard Productivity

We understand that shipbuilding is a competitive business with a variety of welding challenges. That's why we've developed efficient, ship-specific solutions to achieve higher-quality welds throughout the shipyard. Our integrated welding systems and filler metals allow us to provide our customers with several vital benefits, including:

Greater productivity

Leveraging your investment in people and equipment is one key to sustaining success. From bow to stern, we have the right solution to make all your shipbuilding applications more efficient and more productive.

Trusted partnership

Your goals are our goals. Your success is our success. We are your trusted partner who stands ready to help you achieve your welding and fabrication objectives.

Cost reduction

In today's market, cost containment is essential for long-term success. Our people and products will help you reduce costs and remain competitive.

Innovation

At the core of all of our products is innovation. Our designs deliver tangible benefits not found in competing products. We pride ourselves on developing easy-to-use welding solutions that allow you to maximize productivity, quality and safety, producing a superior ship for your customer.

Outstanding support

Our unrivaled customer service enables us to support you in your shipbuilding goals.

Safety

Our products help you create a safe work environment, from personal protective equipment to weld fume extraction.

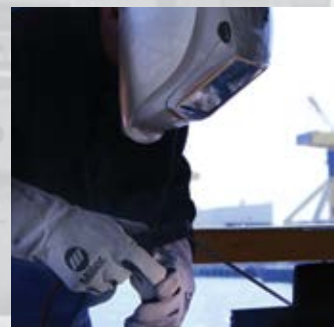
Total welding solution

With our power sources, filler metals, guns and fume extraction products working together through innovative technology, the result is a total welding solution from a single source you can rely on.

Countless capabilities. Trusted advice. Integrated solutions.

Shipbuilders place their trust in the ITW Welding companies for reliable solutions that produce higher-quality welds and improve productivity. Miller, Hobart and Bernard all work together to create a comprehensive welding solution. Whatever your welding needs in shipbuilding, look to ITW Welding companies. Together, we'll develop world-class, integrated solutions to help you achieve your goals.

ITW Welding





Hull

Innovations in Welding for Improved Productivity

Our industry-leading technology and shipbuilding expertise will give you the edge you need in hull production. Induction heating will help you achieve code-quality welds faster and more consistently. Miller-exclusive products, including our ArcReach™ systems and AlumaFeed™ synergic MIG system, can help you optimize weld quality, boost your welding productivity and upgrade worker safety in hull applications.

Dimension™ 650

Developed for harsh environmental conditions and output requirements that range from power-intensive to precise. An unbeatable combination of durability, output, efficiency and capability — all in a smaller, easier-to-handle package.

- **Withstands harsh environments** — All-aluminum construction helps the machine resist corrosion for long life, and exclusive protection input inductor protects machine's performance and reliability from "dirty" input power.
- **93% power efficient** — High electrical efficiency and excellent power factor mean that you can get more welding done with a machine that draws less amperage.
- **Smaller and lighter** — Reduced size and weight results in an easier-to-handle package that exceeds the welding performance of larger, heavier machines.
- **Improved arc performance**
 - Power for thick metals — Gouging mode provides 800 amps of usable power and a full 650 amps of power at 100% duty cycle. Perfect for heavy gouging with 3/8-inch carbons.
 - Excellent short-arc MIG characteristics for precise thin metal welding performance.



CST™ 280

The CST 280 is extra-versatile and durable, yet weighs just 41 pounds. With its dual process capability and easy portability, this compact Stick and TIG power source is ideal for pipe and plate work in shipyards.

- **Superior Stick performance**, even on difficult-to-run electrodes.
- **Includes Lift-Arc™ technology** to improve TIG arc starts.



ArcReach™ Systems

Exclusive Miller® ArcReach technology uses the weld cables to communicate changes in voltage settings. In ArcReach systems, voltage and wire-feed-speed controls are conveniently located at the operator's fingertips — right at the point of use — not back at the power source. By eliminating control cables to the feeder, cabling is streamlined and operators work at maximum efficiency.

Increased productivity

- **No time-consuming trips to the power source** — Operators can easily set optimal welding parameters at the point of use. ArcReach technology extends operators' reach beyond control cable systems and results in more arc-on time.

Improved weld quality

- **Reduces costly "workarounds"** — ArcReach technology lets operators easily set optimal welding parameters without leaving the work area. This allows improved weld quality by proper parameter selection.

Improved worker safety

- **Reduces operator hazards and injuries** — Operators don't have to climb ladders or move through manways to make voltage adjustments. They can set welding parameters right at the point of use, greatly reducing the risk of trip-and-fall injuries.

Maximum efficiency and durability

- **Reduces costs** — Eliminating control cables to the feeder reduces costly cord setup/maintenance/repair tasks.

ArcReach™ system options



Multiprocess XMT® 450 VS and XMT® 350 VS ArcReach Welding Systems



Multiprocess Dimension™ NT 450 ArcReach Welding System

AlumaFeed™ Synergic Aluminum Welding System

Aluminum is an increasingly popular choice for ships of all sizes. Corrosion-resistant and affordable, aluminum's light weight allows ships to travel faster and carry bigger payloads over a longer range. The unique characteristics of aluminum have always presented welding challenges. However, the Miller® AlumaFeed welding system simplifies and improves MIG and Pulsed MIG aluminum welding for shipyard applications.

With the AlumaFeed system, your operators work with consistent arc quality and superior puddle control to produce professional, code-quality welds every time.

- **Long, linear welds** can be accomplished using the feeder's remote start option when connected to various weld positioners.
- **Get the stacked-dime TIG appearance** with the production speeds of MIG, thanks to Profile Pulse™ technology.
- **Reduced burn-through and distortion** — One-knob synergic welding control sets the correct Pulsed MIG parameters based on the wire feed speed set by the operator.
- **Improved portability** — The AlumaFeed wire feeder is ideal for going up stairs, through portholes or mounting on booms to reach every corner of the work area.



ProHeat™ 35 Induction Heating System

Induction heating offers many key advantages for shipbuilders using high-strength steels such as HY-80, HY-100 and BH-36 to reduce weight. Unlike other methods of heating, the ProHeat system has the ability to control heating rates as well as desired target temperatures during the weld process. As a result, the joint achieves the required strength and hardness, and it's easier to meet the strict preheat and interpass standards dictated by AWS and ABS.

- **Faster cycle times** — Induction heating brings the steel to temperature in minutes rather than hours — far faster than with propane or resistance heating.
- **Maintains the desired temperature** without having to stop welding to add more heat.
- **Provides uniform heating.**
- **Safe and cost efficient** — Eliminates operator exposure to open flames, explosive gases and hot heating elements involved with other methods. Reduces labor time, rework and gas use to save on operating costs.
- **Better weld quality** — Welds consistently achieve required strength and hardness, minimizing the risk of hydrogen cracking.

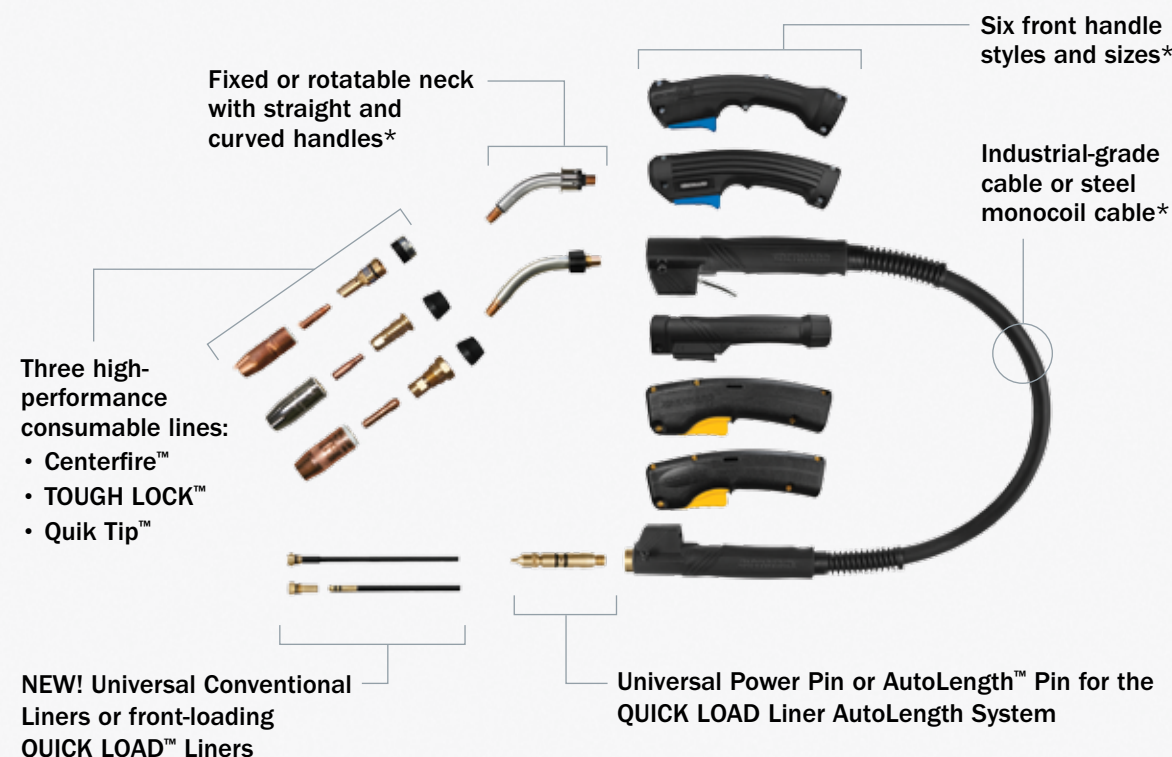


Shown with optional recorder and cooler

For more details on ProHeat™ 35 induction heating, contact Miller Pipe Welding Products at 920-735-4001 or email pwpservice@MillerWelds.com.

Bernard™ Semi-Automatic MIG Guns — Best of the Best Platform

Build the ultimate MIG welding gun for your shipbuilding application as you choose from an expanded list of the best features of our rugged Q-Gun™, S-Gun™ and T-Gun™ MIG gun lines — now consolidated for your convenience into a single gun line and online configurator.



Straight rear strain relief with lifetime warranty is now common to all front handle styles. All Best of the Best configured guns are built to last and backed with a new 1-year manufacturer's warranty.

*Some limitations exist. Please view our online configurator at BernardWelds.com/BTB or contact your customer service representative for more information.

Bernard S-Gun™ 250 Amp MIG Gun

The Bernard S-Gun MIG gun comes with many features that help reduce downtime and costs in your welding operation.

- **Locked neck eliminates downtime and costs** associated with misplaced or missing MIG gun necks. It cannot be easily removed by the welding operator, yet is rotatable and easily serviceable.
- **Excellent compatibility** with the XMT® ArcReach™ system.
- **Exceptional rugged steel monocoil power cable** delivers superior wire feedability and shielding gas flow.
- **Withstands rough conditions** with better comfort and control, thanks to the high-impact, glass-reinforced composite handle with an ergonomic design.



Hobart® Filler Metals

Hobart offers a wide selection of filler metals, including flux-cored wires, submerged arc electrodes and stick electrodes to meet the demands of shipbuilding applications, while also enhancing quality and improving productivity. Attributes include low hydrogen levels to help prevent cracking, excellent impact strengths at low temperatures, X-ray-quality welds and consistent gap bridging.

- **Hobart® Excel-Arc 71™ gas-shielded flux-cored wire**

This high-penetrating, all-position wire is designed for a 100% CO₂ or 75% argon/25% CO₂ shielding gas mixture.

- **Triple 7 gas-shielded flux-cored wire**

With a fast-freezing slag that is easy to remove, this wire permits the welder to use higher current to deposit more metal faster and still produce an X-ray-quality, flat bead in all welding positions. Designed for a 100% CO₂ or 75% argon/25% CO₂ shielding gas mixture.

- **TM-771 gas-shielded flux-cored wire (QPL*)**

Designed for use with 100% CO₂ shielding gas, this wire improves out-of-position welding and provides excellent impact values.

- **TM-770 gas-shielded flux-cored wire (QPL*)**

Gain superior weldability, outstanding mechanical properties and consistent performance with this wire designed for a 75–85% argon/15–25% CO₂ shielding gas mixture.

- **TM-71 HYN gas-shielded flux-cored wire (QPL*)**

Designed for welding HSLA-65 grade steel, this wire exceeds the stringent welding standards established by the U.S. Navy and offers X-ray-quality welds. Designed for a 75% argon/25% CO₂ shielding gas mixture.

- **Hobart FabCO® 81K2-C gas-shielded flux-cored wire**

Characterized by a smooth, stable arc and low spatter levels, this low-alloy wire is an excellent choice for out-of-position applications. Designed for 100% CO₂ shielding gas.

- **Hobart Fabshield® XLR-8 self-shielded flux-cored wire**

Designed specifically for welding out-of-position at high currents, this wire offers high impact strength at low temperatures and excellent mechanical properties within a wide range of heat inputs to minimize cracking.

- **Matrix™ metal-cored wire**

This metal-cored wire offers uncompromised arc starting and wire feeding consistency, ensuring reliable performance every time — regardless of the application. The smooth wire feeding reduces wear on consumables, while faster travel speeds help improve productivity.



- **Metalloy® EM13K-S metal-cored submerged arc electrode with Hobart SWX 110 flux**

Combined, this metal-cored wire and flux produce weld deposits with good mechanical properties and consistent bead tie-in, and increased ability to weld over mill scale and rust without porosity.

- **Hobart 718MC stick electrode (QPL**)**

This stick electrode is designed to improve deposition rates and bead appearance on applications requiring low-temperature impacts.

- **Element wire**

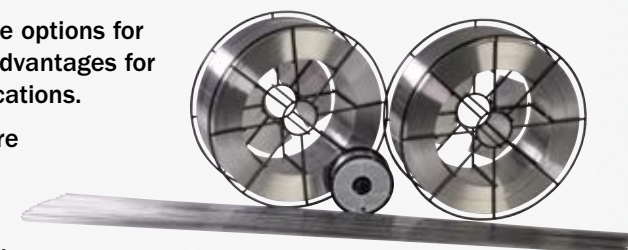
Designed to produce low manganese (Mn) emissions, these wires offer superior weldability and operator appeal. Element wire is available for use with both 100% CO₂ (71T1C, 71Ni1C, 81K2C) and 75% Ar/25% CO₂ (71T1M, 71Ni1M, 81K2M) shielding gas mixtures.

- **Element 71T1C and 71T1M** — Increases productivity and reduces non-value-added activities, such as post-weld cleanup.
- **Element 71Ni1C and 71Ni1M** — Offers superior impact toughness, enhanced all-position capabilities and low hydrogen, as well as carries ABS 3YSA approval.
- **Element 81K2C and 81K2M** — Features best-in-class operator appeal, excellent all-position capabilities and low hydrogen, as well as carries ABS 3YSA approval.

- **Hobart aluminum filler metal**

A premium filler metal solution, Hobart products include options for 5183, 5356, 5554 and 5556 alloys that offer several advantages for consistent welding performance on all aluminum applications.

- **Stretch-wrapped in bundles** to eliminate moisture and fretting corrosion.
- **Superior arc starts** and stability.
- **Consistently smooth beads** for X-ray-quality welds.
- **Outstanding feedability and repeatable performance** for excellent weld operator appeal.
- **Extreme cleanliness** to exceed the AWS porosity standard.



Qualified Products List (QPL)

* Qualified under Military Specification MIL-E24403/1

** Qualified under Military Specification MIL-E22200/10C

Pipe

Solutions That Match Your Demands for Speed and Weld Quality

Our innovative welding solutions for pipe fabrication can save setup time and reduce your production costs. For plate work, pipefitting and welding under challenging shipyard environments, Miller provides power sources that improve productivity and weld quality while lowering operating costs.

PipeWorx™ 400 Welding System

Simplified and optimized specifically for pipe welding, the PipeWorx System delivers more arc-on time, fewer weld defects or reworks and superior weld quality with less training.

- **One-touch welding** — Set up new weld processes with the touch of a button — no need to manually switch polarity or cables between processes. Increases arc-on time and weld quality; reduces errors caused by incorrect settings.
- **True multiprocess machine** — Improved productivity and stable arc performance from one multiprocess machine. Includes conventional Stick, TIG, FCAW and MIG welding processes optimized for pipe welding operations. Advanced RMD® and Pro-Pulse technologies reduce number of required weld passes, reduce rejects and allow stainless steel applications to eliminate the backing gas.
- **Single system design** — One machine designed to perform all of your pipe welding needs — no additional capital investment purchases for multiple machines. One machine footprint also maximizes weld cell space.



Maxstar® 280 Series

Maxstar 280 and 280 DX welders offer a powerful combination of capability and portability: Weighing only 47 pounds, they can weld up to 3/8-inch thick material. These DC TIG/Stick power sources include an energy-efficient inverter design and Auto-Line™ technology.

- **Easy to use** — New operator-friendly interface and Pro-Set™ technology eliminate guesswork with pre-set welding parameters. Designed by Miller weld engineers for speed, convenience, confidence — and excellent results.
- **Capable** — Weld metal up to 3/8-inch thick, delivering up to 280 amps of output power while using less energy than machines with similar output capabilities. Advanced technology to improve results, including a pulse feature that can reduce heat input, increase travel speeds and improve arc directional control.
- **Portable** — Weighing only 47 pounds, Maxstar 280 Series welders have dual carry handles and a carrying strap to provide operators with multiple options for comfortable transport to any jobsite or location.



Sheet Metal

Thin Materials and Confined Workspaces Demand Innovative Welding Solutions

Give your sheet metal operators the ability to weld everything from vents and cabinetry to showers and lavatories with Miller TIG welding solutions. Working with thin materials like aluminum, stainless, copper and nickel can be a challenge for your operators. Our AC/DC TIG solutions allow operators to gain the control and flexibility to overcome these obstacles, producing smooth, high-quality welds.

Dynasty® 280 Series

Dynasty 280 and 280 DX welders offer a powerful combination of capability and portability: Weighing only 52 pounds, they can weld up to 3/8-inch thick material. These AC/DC TIG/Stick power sources include an energy-efficient inverter design and Auto-Line™ technology.

- **Easy to use** — New operator-friendly interface and Pro-Set technology eliminate guesswork with pre-set welding parameters. Designed by Miller weld engineers for speed, convenience, confidence — and excellent results.
- **Capable** — Weld metal up to 3/8-inch thick, delivering up to 280 amps of output power while using less energy than machines with similar output capabilities. The Dynasty 280 DX offers full AC features, including advanced waveforms and wide ranges of balance and frequency.
- **Portable** — Weighing only 52 pounds, Dynasty 280 Series welders have dual carry handles and a carrying strap to provide operators with multiple options for comfortable transport to any jobsite or location.



Dynasty® 350

The Dynasty 350 provides superior arc control and faster travel speeds that deliver greater productivity and superior weld quality while providing maximum energy efficiency compared to traditional welding machines.

- **Advanced AC TIG controls** produce defect-free welds, improve cleaning action and reduce etching.
- **Ensures proper penetration** — Easily joins thick materials to thin materials for proper penetration without blowing through the thin section.
- **Spatter-free solution** — Reduces heat input and eliminates over-welding to ensure proper fit-up and alignment assemblies.





Training

Recruit, Screen, Train, Re-qualify and Manage Weld Operators

You want the most talented weld operators on your team, and you want to keep their skills sharp. Finding, training and managing those operators takes time and effort — but it can be done quicker, easier and more effectively with the Miller® LiveArc™ Welding Performance Management System.

- **Builds higher skill levels** — Welding simulations and live arc welding take place on a single machine, which delivers immediate, objective feedback to improve weld operator performance. Assignments are customizable, and operator performance can be recorded to show improvement over time.
- **Produces faster results** — The intuitive platform requires minimal orientation or supervision, so operators can train quickly and effectively — even in the absence of an instructor.
- **Provides a cost-effective solution** — Weld simulation mode saves money on supplies, while operator-selectable assignments let experienced weld operators spend less time training new hires and more time welding.

The LiveArc™ Welding Performance Management System

- **Industry-exclusive SmartGun** — Compatible with all Miller power sources, the 400-amp MIG SmartGun has built-in LEDs that are tracked by the LiveArc system's cameras. Critical feedback is delivered to improve welding skills via the LiveArc system's main display, the gun's OLED display and vibrating haptic feedback.
- **Intuitive user interface** — Easy to understand and navigate, the user interface guides operators through a range of targeted exercises, displays target values and scores, and captures data for monitoring and evaluation.
- **Welding positioning arm** — Optional accessory allows a variety of out-of-position welding exercises to help students master more advanced skills.



Environment

Maximize Training Space and Enhance Learning Environments

Skilled shipyard weld operators are a valuable resource. By investing in weld fume extraction to create a healthier training environment, you'll have an edge in retaining current workers and in attracting new operators. FILTAIR® weld fume extractors also improve your shipyard operating efficiency in many ways, resulting in:

- **Greater productivity** — A healthy environment, free of fumes, is more conducive to focused training that operators will quickly recall and implement on the job.
- **Cleaner training equipment** — Effective weld fume extraction keeps welding and personal safety equipment cleaner. Trainees and instructors have less downtime cleaning welding helmet lenses, and training equipment lasts longer.
- **Lower installation costs** — FILTAIR weld fume extractors are fully assembled, fully integrated and connected to clamp-together ducting for fast, easy installation.

FILTAIR® Weld Fume Extraction

- **Less floor space** — The ideal solution for shipyard training facilities, FILTAIR requires up to 65% less floor space than traditional cartridge collectors.
- **Superior suction power** — Ensures long-lasting airflow.
- **FilTek® XL filter line** — Designed specifically for weld fume extraction, FilTek XL's exclusive surface-loading media captures even the smallest of weld fume particles, while maintaining the highest level of efficiency.
- **Minimize noise levels** so students can hear the instructor without noisy interruptions.
- **Complete line of solutions** designed to meet weld fume extraction needs of all types of jobs and workspaces.



Safety

Improve Worker Safety and Boost Shipyard Productivity

Head and Face Protection

- **Classic Series Welding Helmets:** Miller quality for the value-minded weld operator
 - Available in a variety of auto-darkening options, some with integrated grinding shield
- **Titanium Series™ Welding Helmets:** Industrial protection for the most extreme welding and grinding applications
 - Aluminum heat shield — Elevated lens protection in high-amperage welding applications
 - Weld/Grind flexibility — Seamless transition from welding to grinding through either flip-up weld visor or external grind control
 - Premium headgear — Superior comfort with dual top straps and simple adjustments
- **Helmet Accessories**
 - Hard hat compatibility — Speedy-loop and slotted hard hat adapter options
 - Helmet bib — WeldX™ helmet bib affixes to helmet with Velcro® fasteners, providing additional neck coverage



Heat Stress Protection

- **Integrated headgear cooling systems** reduce heat-related fatigue and lens fogging
- **CoolBand™ II:** Reduces temperatures up to 8°F underneath the helmet
- **CoolBelt™:** Reduces temperatures up to 17°F underneath the helmet



Respiratory Protection

- **Reduces user exposure to airborne contaminants** such as hexavalent chromium, zinc oxide, manganese and aluminum
- **N95 Disposable Half Mask Respirator**
 - Ergonomic design allows user to feel more comfortable and less constricted without compromising the efficiency and effectiveness of the mask
 - NIOSH Certified, Assigned Protection Factor 10, no Fit Test required
- **LPR-100™ Half Mask Respirator**
 - Low-profile — Comfortably fits underneath a welding helmet without obstructing user's field of vision
 - Revolutionary filter design — Pleated media increases surface area, resulting in extended filter life
 - NIOSH Certified, Assigned Protection Factor 10, Fit Test required for mandatory use
- **Powered Air Purifying Respirator (PAPR)**
 - Lightweight blower with integrated shoulder straps — Provides all-day comfort and reduces fatigue
 - Dual air speeds — Allow user to adjust volume of air to maximize comfort
 - NIOSH Certified, Assigned Protection Factor 25, no Fit Test required



Hand and Body Protection

- **Gloves**
 - Premium line — Crafted with superior materials for enhanced fit, performance, comfort and dexterity
 - Classic line — An economical product offering, featuring standard fit and materials for the value-minded wearer
- **Apparel**
 - WeldX — Miller-exclusive revolutionary material repels sparks and spatter for superior performance and is lightweight to enhance overall comfort
 - Classic cloth — Preshrunk flame-resistant cotton eliminates shrinkage while offering protection expected in welding applications





Countless Capabilities. Trusted Advice. Integrated Solutions.

Meet the challenges of welding quality and productivity in shipbuilding with the right partners — the ITW Welding companies. Miller, Hobart and Bernard work together to create a comprehensive welding solution for your unique shipyard applications.

For all your shipbuilding welding solution needs, contact:

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ITW Welding



MillerWelds.com



HobartBrothers.com