



MATHESON
The Gas Professionals



**MATHESON Delivers:
Gases, Equipment, and
Services for Metal Fabrication Industry**



*Gases – Gas Handling Equipment – Welding and Cutting Tools
Safety Products – Support, Training, Service*



For more than 90 years, MATHESON has provided gases, equipment, and services to end-users in a large number of industries including Metal Fabrication.

Metal Fabrication can mean many things. The industry itself spans a wide range of business types and applications. With this diversity comes a wide range of requirements for compressed gases and related products, services, and expertise.

- **Trains, Trucks, Containers**
- **Modules and Parts for Motor Vehicles**
- **Shipbuilding and Repair**
- **Automotive and Repair**
- **Rail Fabrication**
- **Railroad Containers, Equipment, and Cars**
- **Aerospace**
- **Food, Wine, and Beer Processing**
- **Chemical and Pharmaceutical Manufacturing**
- **Boilers, Vessels, Carpentries**
- **Construction, Civil Engineering, External Maintenance**
- **Tubes and Other Semi-Finished Metallic Products**
- **Refining & Oil, Coal & LNG Transportation**
- **Petrochemicals**
- **Utilities & Waste Management**
- **Maintenance & Turnaround Operations**
- **General Fabrication**
- **Others**

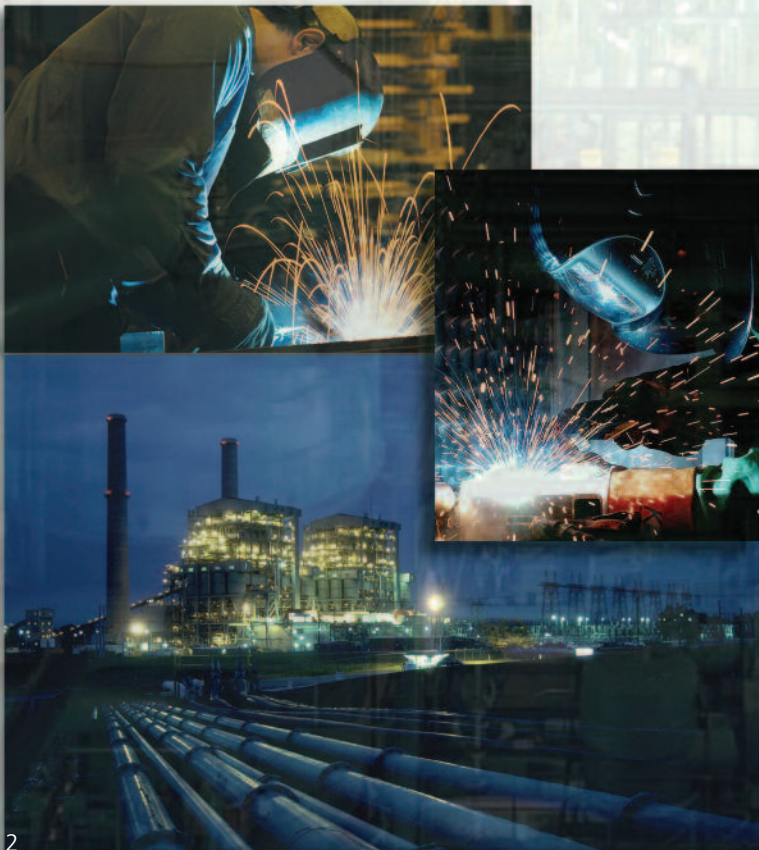
Almost as long as the list of industrial segments is the list of materials used in metal fabrication... each with its own properties.

- **Carbon Steel**
- **Steel Alloys**
- **High Nickel Content Alloys**
- **Chromium Content Alloys**
- **Copper Content Alloys**
- **Stainless Steel**
- **Duplex, Super Duplex**
- **Galvanized Steel**
- **Aluminum**
- **Iron**
- **Plated Materials**
- **Oxidized Materials**
- **Specialized Metals, Titanium, Zirconium, Magnesium**
- **Others**

MATHESON supports the metal fabrication industry with gases and equipment and related items from a national footprint of over 300 locations to serve and supply you.



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Welding Applications

In any welding application, the suitable choice of shielding gas (or welding gas) can improve weld quality, decrease fume and spatter, and reduce overall costs. The MATHESON Welding & Cutting Team can help you evaluate your current process parameters, and evaluate options.

MATHESON's commitment to your success in welding does not stop with cylinders filled with gas.

MATHESON wants to help you improve your process and its results; and earn your business by saving you time and money.

MATHESON Delivers:

- Application Specific Shielding Gas Mixtures (MATHESON *Select*® Brand)
- Argon, Oxygen, Welding Mixtures
- Specific Laser Mixes for Welding
- Gases: Cylinders, 6, 12 and 16-Packs, Micro Bulk and Bulk
- Gas Handling: Regulators, Manifolds, Switchovers
- Welding Supplies: Wire, Rods, Holders, Electrodes
- Welding Equipment: Power Supplies, Torches, Guns, Regulators
- Welding Apparel: Goggles, Helmets, Gloves, Jackets, Blankets
- General Industrial Tools, Saws, Drills
- NANOCHEM®: Delivering the Highest Quality Gas Supply for Critical Weld Requirements.

Tools and supplies – as well as packaged gas – are available from over 300 locations nationwide (and growing).

Cutting Applications

As is the case with welding, the appropriate choice of cutting gas plays an important part in the success, speed, and effectiveness of cutting applications.

The MATHESON Welding & Cutting Team can help you take a look at your tools, processes, and gas – with an eye toward better quality and lower total cost.

MATHESON Delivers:

- Cutting Fuel Gases: Oxyfuel – Acetylene, Propylene, Propane, Others
- Plasma Cutting Gases:– Argon, Hydrogen, Nitrogen, Oxygen
- Lasing and Assist Gases: O₂, N₂ and a Full Line of Lasing Gases
- Gases for Brazing and Soldering
- Cutting and Grinding Abrasives, Tools, Supplies

Tools and supplies – as well as packaged gas – are available from over 300 locations nationwide (and growing).

Lasing Applications

The use of a Laser-based welding or cutting system carries with it the expectation of high quality & throughput. An out-of-spec or out-of-compliance laser gas mix can lead to reduced performance, lower quality, or laser failure.

The MATHESON Welding & Cutting Team can help get the most out of your lasing application by delivering consistent, reliable, and accurately prepared gas products.

MATHESON Delivers:

- Welding and Cutting Gas Blends that Meet Stringent AWS 5.32 Code and Manufacturer Specs
- Gases for Reactive Cutting Applications
- Auto Switchover Manifolds
- Cutting and Grinding Tools and Supplies

Tools and supplies – as well as packaged gas – are available from over 300 locations nationwide (and growing).



Safety Products

No task is so urgent or important that it should not be done safely. In our own labs, plants, and offices we adhere to the motto "Safety First."

Our QSSP certified experts provide a full consultation and are available to survey your site.

MATHESON Delivers:

- An Extensive Line of Personal Protection Equipment and Safety Products from World Class Manufacturers

Allow MATHESON to help you keep your workers safe.

Clean Air Solution; Workplace Safety

Your manufacturing processes may create welding smoke, fumes, grinding dust, etc. Your work or process may take place in poorly ventilated or completely confined spaces.

MATHESON employs cutting edge principles and technology, and is able to offer practical and affordable solutions for a healthier, and more environmentally friendly workplace.

MATHESON Delivers:

- Gases and Consumables Designed to Reduce Fumes and Hexavalent Chromium Emissions for Lower Environmental Impact
- Clean Air Systems
- Large Capacity Dust Collector Systems
- Air Filtering Systems
- Ventilation Systems, Commercial Fans, and Cooling Equipment
- Breathing Air

Allow MATHESON to help you keep your workers free from unhealthy exposure.



Forklift Fleet Support

If your business, facility, or work process depends on forklifts to keep your facility running, MATHESON supplies the propane to keep your forklifts running.

MATHESON Delivers:

- 33 Pound and 43 Pound Packaged Propane Cylinders
- Bulk Propane for On-Site Fueling
- Other Size Packages for Special Requirements

We can do more than simply supply your propane; we can help you manage your propane inventory.

Automation

Many welding or cutting applications can be automated using robotic systems. MATHESON has standard robotic systems for many common applications such as straight lines, circles or arcs, and orbital welds. Our specialists can also customize a system for your more specialized processes.

We even have our own welding and cutting Automation Design and Testing Center in Waverly, NE.

MATHESON Delivers:

- Robotics
- Hard Automation
- Numerically-Controlled Cutting Machines

Automation can improve productivity and worker safety. Find out if automation can help you.

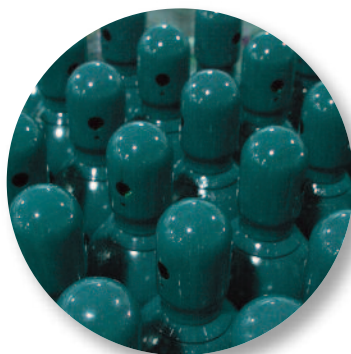
Packaging Versatility

What is your application? Your rate of gas consumption? Your process downtime? Your operating environment and location? How often do you change out cylinders? These questions, and many more, will help us help you with the right solution for gas packaging.

MATHESON Delivers:

- Complete Gas Distribution Options / Systems
- Cylinders
- 6, 12, or 16-packs
- Multiple Packs with Auto Switch-over Capability
- Micro-Bulk
- Bulk

When it comes to packaging, MATHESON delivers answers that keep you focused on results, and not the gas.





MATHESON Delivers Safety

MATHESON places the highest value on Safety – in our own facilities, and in yours. Every day.

- We value our safety record, and we've received many industry awards for our safe operations.
- We offer a full range of products for safe handling and storage of gas ... as well as a complete line of safety equipment.
- Invite us to perform a safety audit of your facility and/or conduct a safety presentation.

MATHESON Delivers Quality

MATHESON also places the highest value on Quality. Our plants are certified to ISO 9001 standards, and we employ Lean Six Sigma (LSS) principles to measure and improve our quality results on a basis of continuous improvement.

MATHESON Delivers Customer Service

Throughout our history of serving customers, MATHESON has always placed a premium value on the relationship we build and maintain with every one of our customers. We have over 300 locations nationwide ready to serve you.

- Ask us about enhanced supply chain management.
- Ask us about on-line ordering and certificates of analysis.
- Ask us how we can lower your cost of ownership and gas use.

MATHESON Delivers Sustainability

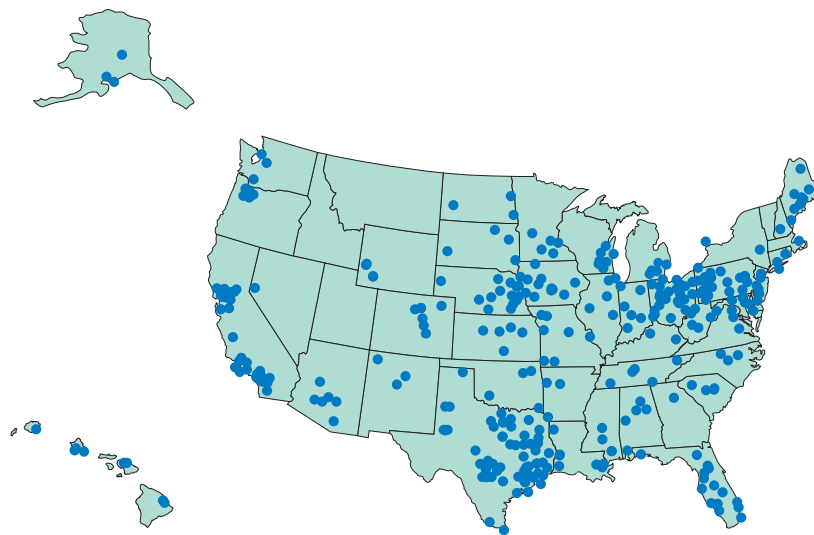
MATHESON is committed, at all levels, and in all locations, to principles of Sustainability and Corporate Responsibility. Our principles embrace Environmental Sensitivity, Community Support, and Financial Performance. Our aim is to ensure uninterrupted access to our products and services.

MATHESON Delivers AWS A5.32 Compliant Shielding Gases

MATHESON Select® Shielding Gases are application specific - each designed and prepared to improve your welding results while reducing waste and total welding process costs.

- Shielding Gas is Matched to Your Application
- Improved Safety and Environmental Impact
- Dedicated, Mix-specific Cylinder Inventory – Consistent Results
- Enhanced Weld Quality, Productivity, and Efficiency
- Lower Welding Costs

MATHESON Select® Product	Alloy Selection	Process	Thickness Range	Attributes
C-25	Carbon Steel	GMAW Short Circuit Transfer	.063" - .250"	Requirement for deep penetration short arc on material < .250"
		CS / SS FCAW	.250" +	Good arc transfer and penetration characteristics on materials < .375"
C-20	Carbon Steel	GMAW Short Circuit / Spray / Pulsed Spray	.063" +	Excellent penetration characteristics
	Carbon Steel	MCAW Spray / Pulsed Spray	.125" +	Superior penetration characteristics. Accommodates all positions in limited pulse spray condition dependent on power source characteristics
	Carbon Steel / Stainless Steel	FCAW Spray	.125" +	Excellent arc transfer. Good penetration characteristics
C-15	Carbon Steel / Stainless Steel	GMAW Short Circuit / Spray Transfer	Light Gauge / Heavy	Excellent short arc / spray. Good penetration
		CS / SS FCAW	Structural Typically .250" +	Increased deposition rate and efficiency. Best arc characteristics
	Carbon Steel	MCAW Spray / Pulsed Spray	.125" +	Superior penetration characteristics. Accommodates all positions in limited pulse spray condition dependent on power source characteristics
C-10	Carbon Steel	GMAW Short Circuit / Spray Transfer	Light Gauge - Medium	Good all round shielding for GMAW / MCAW process considerations
	Carbon Steel	MCAW Spray / Pulsed Spray	.125" +	Superior penetration characteristics. Accommodates all positions in limited pulse spray condition dependent on power source characteristics
CO-104	Carbon Steel / Galvanized Steel	GMAW Short Circuit / Spray Transfer	Light Gauge - .50"	Excellent short arc / spray. Good penetration
		Pulsed Spray		Increased deposition rate and efficiency. Best arc characteristics
	Carbon Steel	MCAW Spray / Pulsed Spray	.125" +	Superior penetration characteristics. Accommodates all positions in limited pulse spray condition dependent on power source characteristics
C-2	Carbon Steel / Stainless Steel	GMAW Short Circuit / Spray Transfer	Materials < .375"	Low oxidation potential / Excellent arc characteristics Little to no spatter / Low fume emissions
Ar	Aluminum / Non Ferrous	GMAW / GTAW	Materials < .375	Good all round shielding gas for non ferrous materials
He-25	Aluminum / Non Ferrous	GMAW / GTAW	.19" - 1.50"	Much improved arc starting and reduced porosity
	Aluminum	GMAW / GTAW	.19" - 1.50"	Excellent arc energy to deal with oxide layer. Increased travel speed, 10%+ typical
He-50	Aluminum / Non Ferrous	GMAW / GTAW	Heavier Sections 1.50" +	Good penetration / reduced porosity on heavier sections. Increased travel speed
He-75	Aluminum / Non Ferrous	GMAW / GTAW	Heavy Sections - 2.00" +	Increased penetration on heavy sections
HC-925	Stainless Steel	GMAW Short Circuit Transfer	Gauge - .250"	Limited parameter range. High heat input on light materials
HC-725	Stainless Steel / Nickel Based Alloys	GMAW Short Circuit / Spray / Transfer / Pulsed Spray Transfer	Gauge - .500"	Excellent short arc & spray on Ni based materials. Stainless / Monel / Hastalloy / Inconel
HC-332	Stainless Steel / Nickel Based Alloys	GMAW Short Circuit / Spray / Transfer / Pulsed Spray Transfer	Gauge - .500"	Excellent short arc spray and pulsed spray on Ni based materials. Stainless / Monel / Hastalloy / Inconel
HC-1018	Galvanized Steel / Stainless Steel	GMAW Short Circuit / Spray Transfer	Gauge - .500"	Excellent arc stability through zinc coatings. Reduced fume & spatter
		CS / SS FCAW	.250" +	Noticable reduction in particulate & fume emissions. Excellent metalurgical characteristics
	Carbon Steel	MCAW Spray / Pulsed Spray	.125" +	Superior penetration characteristics. Accommodates all positions in limited pulse spray condition dependent on power source characteristics
AO-2	Carbon Steel	GMAW Short Circuit / Spray Transfer	Light Gauge / Cold Rolled	Very stable arc with reduced fume emissions
H-3	Stainless Steel (300 series)	GTAW	Light Gauge - .375"	Excellent color match and increased travel speeds
DP-1021	Duplex / Super Duplex	GMAW Short Circuit / Spray	Gauge - .500"	Excellent color match & increased travel speeds
		Pulsed Spray		
DP-122	Duplex / Super Duplex	GTAW	Gauge - .500"	Excellent color match & arc starting characteristics
APN-7*	Aluminum	GTAW / GMAW	0.125" - 1.500"	Excellent penetration characteristics producing porosity free welds. Advanced process capability for ultimate arc control
HENON-237*	Aluminum	GTAW / GMAW	0.125" - 1.500"	Superior penetration characteristics producing porosity free welds with narrow heat affected zone / increased travel speed
APN-10*	Aluminum	GMAW	0.125" - 1.500"	Superior penetration characteristics producing porosity free welds with narrow heat affected zone
HEPN-10* *Patent Pending	Aluminum	GMAW	0.125" - 1.500"	Superior penetration characteristics producing porosity free welds with narrow heat affected zone / increased travel speed



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