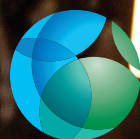




# MATHESON's LaserPro™ Gases and Gas Delivery Equipment for Metal Fabrication



**MATHESON**  
The Gas Professionals



# MATHESON's LaserPro™ Support Gases and Services



Microbulk



High Pressure, High Flow Liquid Cylinders



Multipacks



Trifecta® Gas Supply System



Bulk tanks with Trifecta® Supply System

MATHESON delivers the LaserPro™ line of gases specifically designed to meet the stringent purity requirements for use in lasers. Impurities have a negative effect on laser beam performance, and MATHESON produces the LaserPro™ line of laser gases to meet or exceed the purities demanded by laser manufacturers and users.

We supply laser support gases in bulk, tube trailers, microbulk, liquid Dewars, high pressure cylinders and multipacks. Our qualified laser experts can determine and recommend the best method for delivering laser gases to meet the specific flow and pressure parameters for your laser.

As a leading supplier of laser gases, MATHESON has the experience and expertise to make your operation productive and profitable.

## MATHESON delivers:

- A complete line of high purity gas products, specifically designed for lasers, including laser assist and process gases – in any grade needed to meet your requirements
- Preblended gas mixtures in any composition desired, eliminating the need to mix gases in house
- A total gas supply system, including high quality gas control equipment specifically designed for laser applications
- Customized solutions specific to your requirements
- Complete turnkey laser systems
- Laser support services

## Laser Assist Gases

An assist gas is a secondary stream of gas that is used in combination with the primary laser beam. Assist gases play a crucial role in the quality and efficiency of the laser cutting process. Assist gases are typically supplied through a nozzle near the laser beam. The primary purpose of an assist gas is to remove molten material and debris from the cut zone which helps improve the quality and precision of the final product.

There are several types of gases that can be used as laser assist gases. The choice depends on the material being cut and the desired result. Oxygen, Nitrogen, Helium, Argon, and Nitrogen/Oxygen blends are commonly used assist gases.

MATHESON laser experts will evaluate your application and recommend the best assist gas for your application. Different gases have different properties and react differently with different materials so selecting the appropriate assist gas is crucial.

MATHESON will also recommend the best supply method for your application, whether it's a multipack, high-pressure cylinder, microbulk, or sophisticated Trifecta® system.



**MATHESON**  
*LaserPro™*

# MATHESON's LaserPro™ Gas Delivery Equipment

**MATHESON's LaserPro™** systems for assist gases are designed to meet and exceed the laser industry's demanding requirements for gas purity, pressure and flow. All of our equipment complements our line of assist gases.

## Assist Gas Process Equipment

Assist gases are supplied to the nozzle to assist with cutting by removing the metal that has been heated by the laser beam. MATHESON's LaserPro™ assist gas equipment provides the high capacity with constant delivery pressures up to 1000 psig. Dome loaded regulators for assist gases are able to provide these flows and pressures with the economical pricing of a single stage regulator and the consistency of a more expensive two stage regulator. These are available for both cryogenic and high-pressure sources.

Lasers may require not only high pressures, but also high flowrates of gas. Pressures may be up to 450-500 psig and flowrate requirements may be up to 6000 scfh and greater.

In addition to regulators, we offer wall mounting and installation kits, including hoses, fittings, and filters.



# Assist Gas Equipment

The model **LPHF Assist Gas Regulators** deliver high pressure and high flow of Nitrogen Oxygen, Argon and Helium. The key to the performance of this regulator is the servo-dome load technology. The servo-dome load feature allows the regulator to supply high flow rates with straight line pressure regulation. The LPHF series is constructed of brass barstock, with PTFE seats and seals. The maximum inlet pressure is 3000 psig (optional 5500 psig).

## Features:

- 250, 500, or 1000 psig delivery pressure
- Fast on/off response, even at high flow
- 3000 psig inlet pressure (5500 psig optional)
- Tamper proof, self-reseating internal safety valve on 250 and 500 psig models only
- One piece encapsulated seat design with 10 micron filtration
- 1/2" NPT female inlet / outlet
- Conforms to CGA E-4 standard for gas pressure regulators

## Specifications:

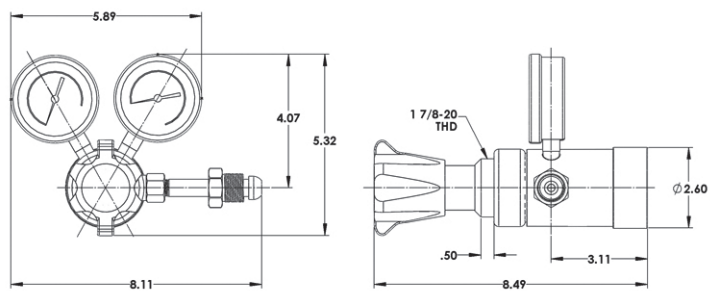
- Cv:
  - LPHF: 0.55
  - LPCR: 0.37
  - LP701: 0.17
- Maximum Flow Rate:
  - 6000 scfh Air LPHF series (inlet > 400 psig)
  - 2500 scfh Air LPCR series (inlet > 400 psig)
  - 1000 scfh Air LP701 series (inlet 2000 psig)
- Pressure Regulation\*:
  - 0.3 psig/100 psig for 250 and 500 psig delivery pressure (LPHF SERIES)
  - 0.5 psig/100 psig for 1000 psig delivery pressure
- Weight:
  - LPHF: 8.5 lbs
  - LP701: 3.5 lbs.
  - LPCR: 3.1 lbs



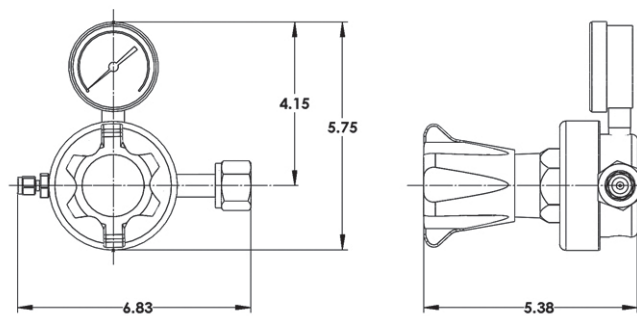
*LPHF Series for High Pressure and Cryogenic Source*



*LPCR Series for Cryogenic Source*



*LPHF Series*



*LPCR Series*

\*Delivery pressure change per cylinder pressure decay

# Assist Gas Equipment

## Ordering Information:

<b>SEQ LPHF250580</b>	Nitrogen, Argon and Helium, 0-250 psig delivery range, CGA 580 inlet, 1/2" FNPT outlet, internal relief valve, 10 micron inlet filter, Cv = 0.55
<b>SEQ LPHF250540</b>	Oxygen, 0-250 psig delivery range, CGA 540 inlet, 1/2" FNPT outlet, internal relief valve, 10 micron inlet filter, Cv = 0.55
<b>SEQ LPHF500580</b>	Nitrogen, Argon and Helium, 0-500 psig delivery range, CGA 580 inlet, 1/2" FNPT outlet, internal relief valve, 10 micron inlet filter, Cv = 0.55
<b>SEQ LPHF500540</b>	Oxygen, 0-500 psig delivery range, CGA 540 inlet, 1/2" FNPT outlet, internal relief valve, 10 micron inlet filter, Cv = 0.55
<b>SEQ LPHF1000580</b>	Nitrogen, Argon and Helium, 0-1000 psig delivery range, CGA 580 inlet, 1/2" FNPT outlet, 10 micron inlet filter, Cv = 0.4
<b>SEQ LPHF1000540</b>	Oxygen, 0-1000 psig delivery range, CGA 540 inlet, 1/2" FNPT outlet, 10 micron inlet filter, Cv = 0.4
<b>SEQ LPHF250NI</b>	0-250 psig delivery range, 1/2" FNPT inlet, 1/2" FNPT outlet, internal relief valve, 10 micron inlet filter, Cv = 0.55
<b>SEQ LPHF500NI</b>	0-500 psig delivery range, 1/2" FNPT inlet, 1/2" FNPT outlet, internal relief valve, 10 micron inlet filter, Cv = 0.55
<b>SEQ LPHF1000NI</b>	0-1000 psig delivery range, 1/2" FNPT inlet, 1/2" FNPT outlet, 10 micron inlet filter, Cv = 0.4
<b>SEQ LP701250540</b>	0-250 psig delivery range, 1/4" FNPT inlet, 1/4" FNPT outlet, 10 micron inlet filter, Cv = 0.17

## Related Options:

<b>SEQ LPHFPMN</b>	Panel mount nut (LPHF series only)
<b>SEQ LPHFWMBR</b>	Wall mount bracket (LPHF series only)
<b>SEQ 6086580</b>	Stainless steel flex hose, 1/2" ID, 6', CGA 580 inlet, 1/2" NPTM out, 3500 psig MAWP
<b>SEQ 6086540</b>	Stainless steel flex hose, 1/2" ID, 6', CGA 540 inlet, 1/2" NPTM out, 3500 psig MAWP

## Cylinder Adapter Kits:

<b>SEQ 5804P8P</b>	CGA 580 adapter kit, CGA 580 with 1/4" NPT female to 1/2" NPT male
<b>SEQ 5404P8P</b>	CGA 540 adapter kit, CGA 540 with 1/4" NPT female to 1/2" NPT male



# Assist Gas Equipment

## Basic Laser Gas Kit

### Applications

**MATHESON's LaserPro™ Universal Basic Laser Start-Up Kits** provide the most common equipment necessary for supplying assist gases to the laser. Basic kits contain a high-flow, dome-loaded regulator for Nitrogen, Oxygen, Argon or Helium assist gas, high-capacity hoses for the assist gas, and various fittings and filters to help with the laser installation.



### Basic Assist Gas Kits

<b>SEQ LPNAG25025</b>	LaserPro™ Nitrogen, Argon and Helium assist gas kit, 250 psig delivery pressure
<b>SEQ LPNAG50025</b>	LaserPro™ Nitrogen, Argon and Helium assist gas kit, 500 psig delivery pressure
<b>SEQ LPOAG25025</b>	LaserPro™ Oxygen assist gas kit, 250 psig delivery pressure
<b>SEQ LPOCAG25025</b>	LaserPro™ Oxygen assist gas kit, Liquid Cylinders, 250 psig delivery pressure, with LPCR regulator

### Each kit consists of:

**Assist Gas Regulator:** See regulator listings for model numbers / delivery pressures

<b>SEQ LP25HS</b>	25' of high flow capacity hose, rated to 2000 psig
<b>SEQ LPFTR90</b>	90 micron "T" filter
<b>SEQ LPADPFP</b>	3/4" flair x 1/2" NPT male fitting
<b>SEQ LPADP84</b>	1/2" MNPT x 1/4" MNPT
<b>SEQ LPADPFBS</b>	3/4" flare x 1/2" bspp

### Options:

<b>SEQ LP50HS</b>	50' of high flow capacity hose, rated to 2000 psig
<b>SEQ 60838PF8PF</b>	Stainless steel flex hose, 3', 1/2" ID, 1/2" NPT female in/out
<b>SEQ 608108PF8PF</b>	Stainless steel flex hose, 10', 1/2" ID, 1/2" NPT female in/out
<b>SEQ LPHFWMBR</b>	Wall mount bracket for LPHF series regulators

# MATHESON's LaserPro™ Delivers

## 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 Customer Service

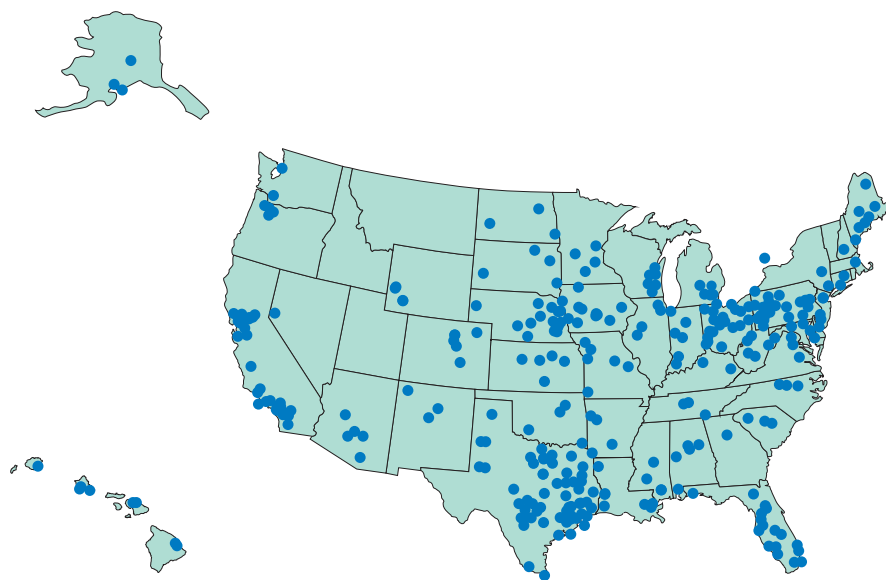
Throughout our history of serving customers, MATHESON has always placed a premium value on the relationship we build and maintain with every one of our customers. We have over 300 locations nationwide ready to serve you.

- 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.





**Over 300 locations coast-to-coast.**



**MATHESON**

**The Gas Professionals**

**[www.mathesongas.com](http://www.mathesongas.com)**

**800-416-2505**

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