

Making our world more productive



# Improve Productivity with Linde's MIG Welding Blends.

Linde's STARGON™ and HELISTAR™ gases can improve weld performance and reduce overall costs.



If you are using traditional gas blends for MIG welding, a move to Linde's STARGON™ or HELISTAR™ welding blends can help you improve weldability and weld quality and reduce post-weld processing. This guide will help you make an informed choice for the right blend for your MIG welding process.

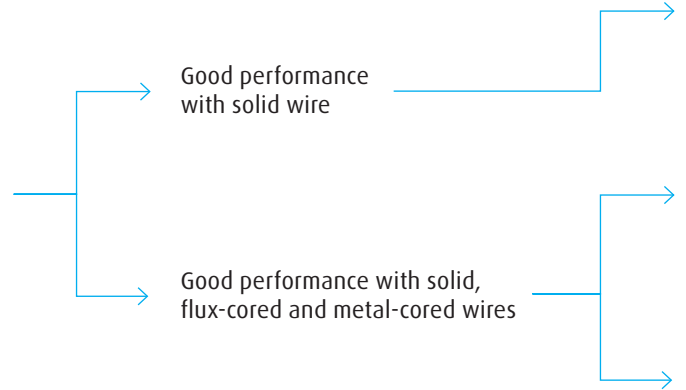
# Follow these steps to know the right gas for the right situation

If the current gas is...

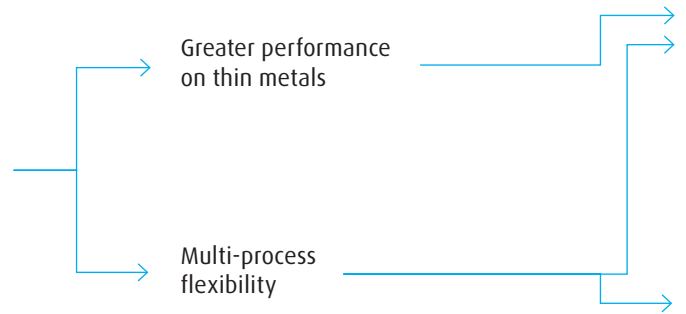
and the primary need/concern is...



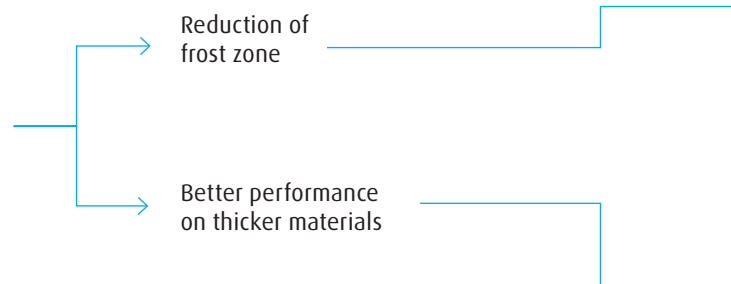
C-25 blend for welding carbon steel



Helium-based Trimix blend for welding stainless steel



Argon gas for welding aluminum



## and the additional need/concern is...

## then the preferred gas is:

Higher deposition  
rates and/or improved  
weld appearance

### STARGON™ CS

STARGON™ CS is a universal shielding gas for joining all types of carbon steel, and it can be used with all modes of metal transfer. STARGON CS produces good arc characteristics and excellent weld mechanical properties, including high deposition rates. For more information, see page 40 of Linde's Gas Solution Guide. P-10671

Versatile uses across  
different processes  
and materials

### STARGON™ VS

STARGON™ VS shielding gas is the most versatile choice for short-circuiting, spray and pulsed-spray welding on a wide variety of surfaces. Its exclusive blend of argon, helium and carbon dioxide provides more stable arc characteristics to support higher travel speeds with better deposition and reduced spatter. For more information, see page 42 of Linde's Gas Solution Guide. P-10671

Control of weld  
hydrogen levels

### STARGON™ LH

STARGON™ LH shielding gas uses a gaseous fluoride addition to help control the level of hydrogen in weld deposits. The lower hydrogen levels reduce the chance of hydrogen-induced weld cracking, while still enhancing weld properties and a high level of productivity. For more information, see STARGON LH sell sheet. P-40-4000

Savings are more important  
than appearance

### STARGON™ SS

STARGON™ SS offers cost savings compared with common high-helium gases. Its carefully controlled blend of argon, carbon dioxide and nitrogen is designed for joining a wide variety of stainless steels. It is also very well-suited for all-position welding as it can be used with all types of metal transfer. For more information, see page 44 of Linde's Gas Solution Guide. P-10671

Appearance is  
the top priority

### HELISTAR™ SS

HELISTAR™ SS produces a broad weld with a flat crown, as well as excellent color match and reduced porosity. In addition to enhancing appearance, HELISTAR SS enables higher welding speeds for short arc, spray and pulsed spray arc welding of stainless steel, and provides superior corrosion resistance. For more information, see page 52 of Linde's Gas Solution Guide. P-10671

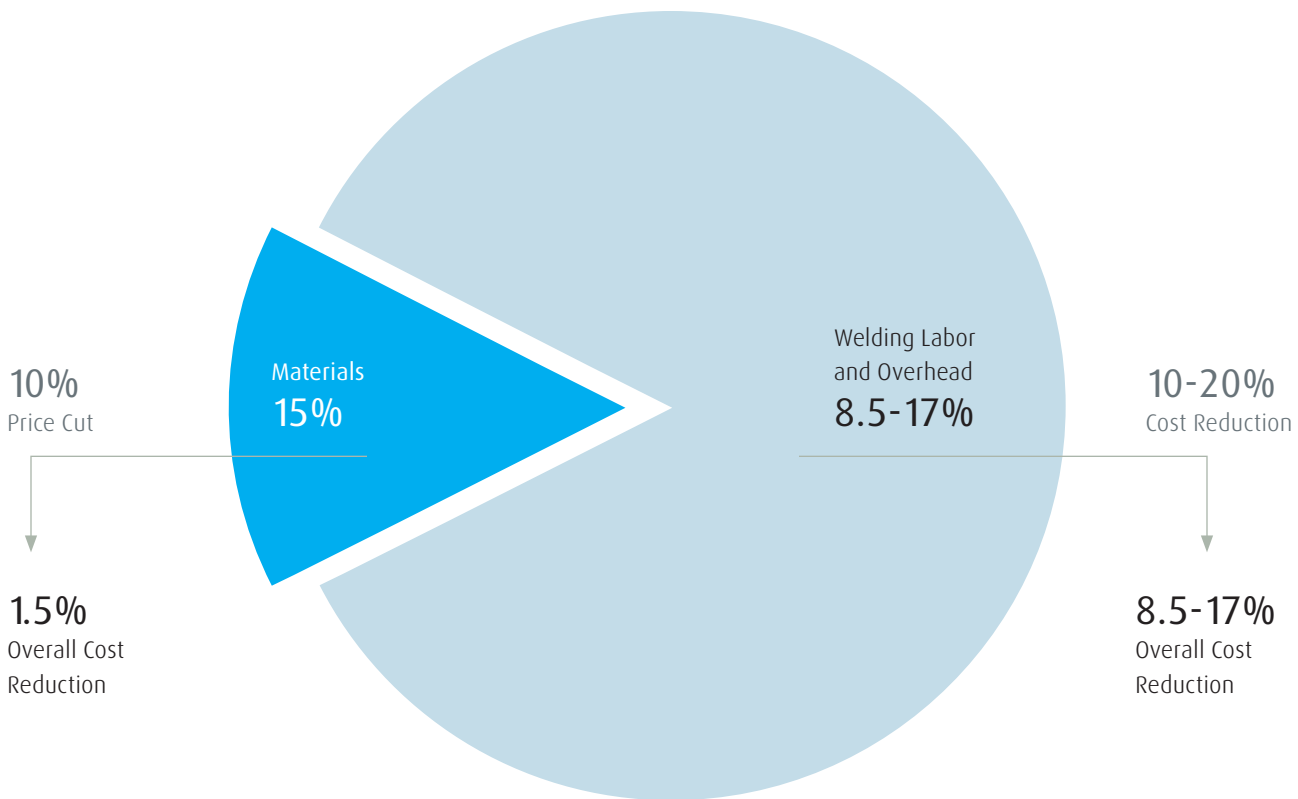
### STARGON™ AL

STARGON™ AL blend is an advanced shielding gas versatile in both TIG and MIG processes for welding aluminum. Compared with pure argon, STARGON AL provides better arc control, fluidity, and weld puddle placement, and results in superior weld speeds and quality. For more information, see STARGON AL sell sheet. P-40-3911

### HELISTAR™ A-25

HELISTAR™ A-25 is a helium-enhanced blend that's ideal for welding aluminum and other non-ferrous base metals of greater thicknesses. Recommend HELISTAR A-25 when an increase in heat input is needed and weld bead appearance is of high importance. For more information, see page 60 of Linde's Gas Solution Guide. P-10671

The Linde STARSOLVER® Program can make your facility more efficient and productive.



The STARSOLVER® Program process begins with Linde's MetFab Productivity Specialists (MPS) reviewing your shop's current welding or cutting operations from start to finish – all with as little disruption to your work as possible. By gathering comprehensive data about your production processes, labor and overhead costs, the team can do a complete analysis of your plant's productivity and find ways to improve it.

#### Your STARSOLVER® evaluation may include:

- Gas analysis
- Gas-to-wire ratio
- Gas supply system
- Weld size
- Weld travel speed
- Wire feed speed
- Wire type, diameter and packaging
- Electrode deposition efficiency
- Automation potential
- Welding processes and equipment
- Operator duty cycle measurements
- Electric power consumption
- Cutting analysis (laser, plasma, oxy-fuel)

Linde Inc.

10 Riverview Dr, Danbury, CT 06810, USA

Phone: 800.225.8247, [www.praxairusa.com](http://www.praxairusa.com)