Linx® shielding gases
= Lower welding costs

The manufacturing industry is becoming increasingly competitive, companies are searching for improvements in quality and speed of production.

In response to this trend, we have developed the Linx range of shielding gases.

Linx shiel

Improved

Linx shielding gases are available in cylinders, microbulk and large bulk modes of gas supply, depending on your need for different volumes.

ding gases = weld quality

Used by leading fabricators worldwide and specially formulated for superior performance, our Linx shielding gases can help you to reduce manufacturing costs.

These carefully balanced gas mixtures offer you:

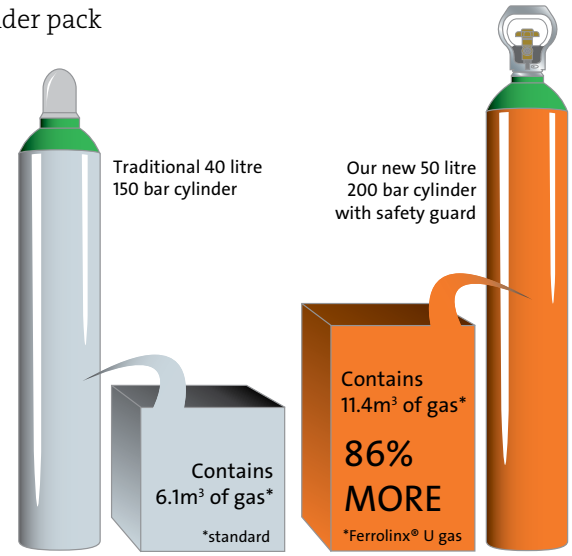
- faster welding
- better weld quality
- improved weld profile
- less spatter
- reduced post-weld cleaning

Time is money: advanced technologies to improve manufacturing efficiency

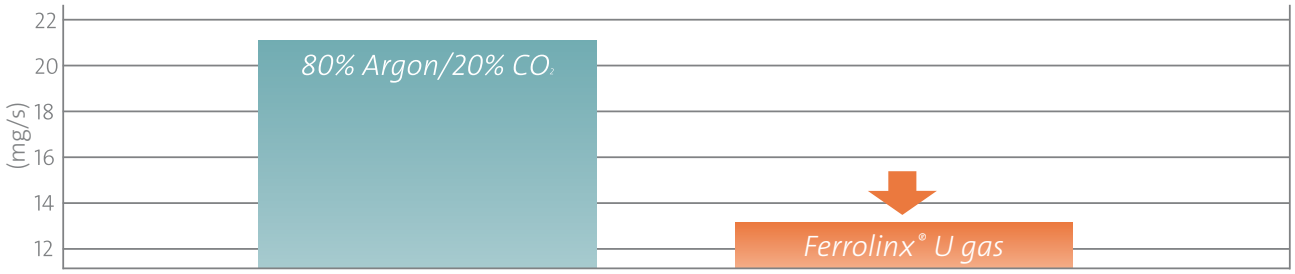
- High-volume 200 bar cylinder technology – with 86% more usable gas, save time and cost
- CryoEase® Microbulk Solution combines small tanks and mixers with regular replenishment by tankers directly, provides an efficient alternative to large cylinder, dewar and cylinder pack users

Productivity without compromise

Linx shielding gases are designed to protect people at work, by generating low levels of fume and ozone.

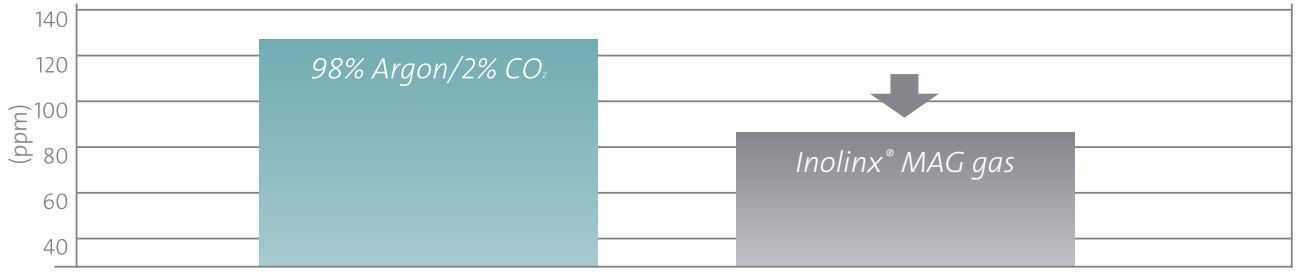


Up to 37% reduction in welding fume vs conventional shielding gases*



Average fume emission rate (mg/s) for manual MAG welding of carbon steel plate, spray transfer.

Up to 30% reduction in ozone exposure vs conventional shielding gases*



Average ozone exposure (ppm) for manual MAG welding of stainless steel plate.

**All fume and ozone measurements carried out by TWI, the world's leading independent welding research association, www.twi.co.uk*

Whatever you're welding, you always need one type of gas – the best

Carbon & Alloy Steels	*Stainless Steel*	*Aluminium & Alloys*
Ferrolinx® U gas the only gas you need for carbon steel MAG. **ISO-14175 classification: M24**	**Inolinx® MAG gas** the best gas for MAG stainless. **ISO-14175 classification: M11**	**Alulinx® gas** one gas that does it all for aluminium and high performance lightweight alloys. **ISO-14175 classification: I3**
Ferrolinx® F gas the thin steel specialist. **ISO-14175 classification: M14**	**Inolinx® TIG gas** the brilliant high speed performer. **ISO-14175 classification: R1**	

Alulinx gas

One gas that does it all for aluminium and high performance lightweight alloys

Alulinx shielding gas has been designed for high quality MIG and TIG welding of aluminium, its alloys and other high performance lightweight materials.

TIG butt weld in 10mm thick 4140 aluminium alloy using Alulinx gas

MIG fillet weld in 10mm thick 4140 aluminium alloy using Alulinx gas

Alulinx gas

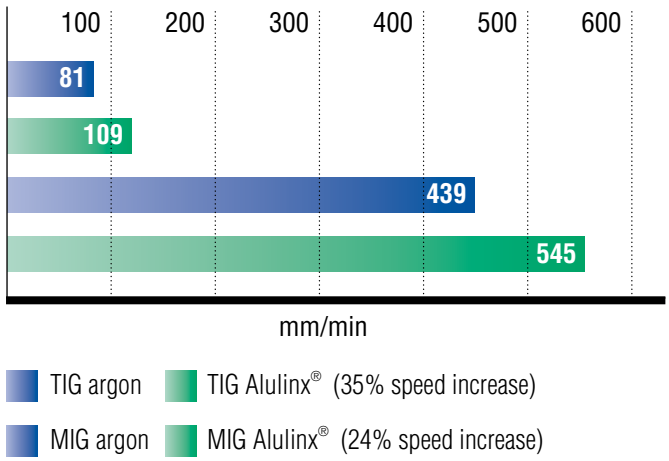
Alulinx shielding gas gives superb weldability, combined with higher welding speeds comparing to argon, as well as promoting safety through low ozone generation.

Applications range

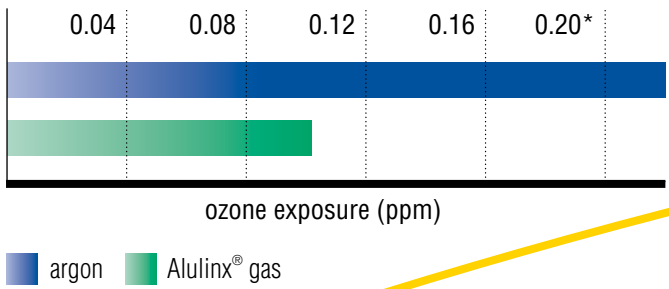
Process	MIG and TIG welding
Material	Aluminium, its alloys and other high performance lightweight materials.
Consumables	Autogenous and with filler wire (all types)

- Improves weld quality and reduces rejects through excellent penetration, low porosity levels, and a flat weld finish. Also, superb arc starting for TIG welding
- Increases welding speed comparing to conventional shielding gas, reduces post-weld cleaning, higher productivity and lower manufacturing cost
- Cuts cylinder stocks, multi-purpose shielding gas (MIG and TIG, all material thickness and modes of metal transfer)
- Improves the work environment, minimal ozone generation

Average weld speeds weld speed for manual MIG and TIG welding of 10mm thick aluminium alloy plate



Average ozone exposure for manual MIG welding aluminium 5% magnesium alloy plate (spray transfer)



* Occupational Exposure Standard for ozone (15 min. ref. period)

TWI

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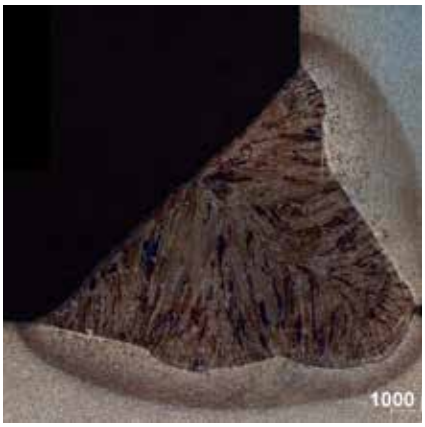
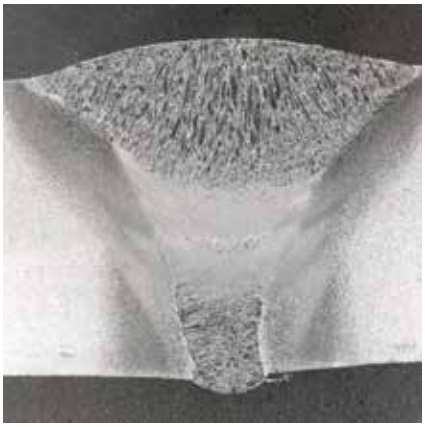
Ferrolinx gases

Purpose-designed for MAG welding carbon, carbon manganese and low-alloy steels, Ferrolinx shielding gases give superb weld quality and excellent penetration together with minimal spatter and low fume levels.



PB MAG (135) fillet in 12mm thick carbon steel using Ferrolinx U gas



PA MAG (135) single sided butt weld in 12mm thick carbon steel using Ferrolinx U gas

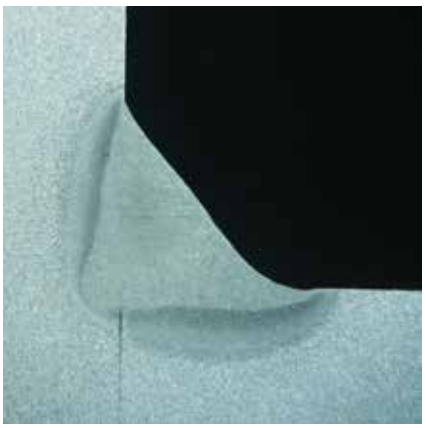
Ferrolinx U gas

Applications range

Process	MAG - Manual, mechanised and robotic
Material	Any thickness and coated steels
Consumables	Solid wire, metal cored, flux cored

- Extremely easy to use, stable arc conditions, tolerant to variations in weld parameters and base material surface finish giving minimal rejects and low manufacturing costs.
- Very low spatter generation, reducing clean-up time and costs.
- Excellent mechanical properties with low porosity levels giving optimal product quality.
- Increases welding speed and productivity comparing to conventional shielding gas.
- Example showing 37% lower fume emission rates than conventional shielding gases.

Ferrolinx F gas



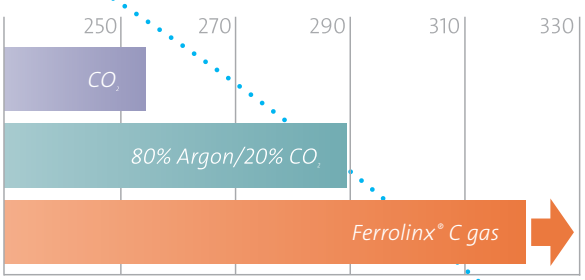
PB MAG (135) fillet in 8mm thick carbon steel using Ferrolinx F gas

Applications range

Process	MAG - Manual, mechanised and robotic
Material	Any thickness of steel
Consumables	Solid wire

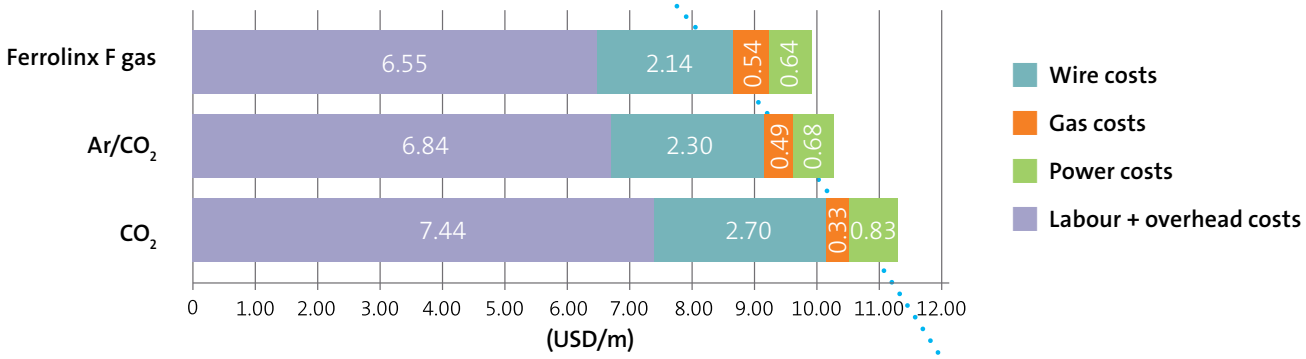
- Ultra low spatter generation and excellent arc control give superb weld quality and minimal product distortion.
- Smooth, flat, oxide free welds requiring virtually no post weld cleaning.
- Increasing welding speed, higher productivity and lower manufacturing cost comparing to conventional shielding gas.
- Up to 57% lower fume emission rate than conventional shielding gases.

Up to 26% speed increase over conventional shielding gases



Average weld speed (mm/min) for manual MAG welding of 3mm thick carbon steel plate, dip transfer.

Up to 13% cost savings – improved performance at reduced cost



TOTAL COST per m weld - PB MAG 135 fillet weld (throat size 5mm), in 8mm thick carbon steel plate.

- Cost calculation based on: skilled MAG welder = 3.97USD/hr; MAG wire (1.0mm) = 1.43USD/kg; electricity = 0.16USD/kWh
- Reduction of polishing time for 30 sec (80%Ar/20%CO2) to 1 min (Ferrolinx F)
- Reduction from excess of weld from 30% for CO2 to 20% for Ar/CO2, to 15% for Linx
- Better process efficiency from 85% for CO2 to 92% for Ar/CO2, to 95% for Linx

Inolinx gases

**The Inolinx gases have been developed to give optimum weld gases quality and ease of use when working with stainless steels.
The Inolinx shielding gases guarantee a high-grade surface finish with low reject rates and superb environmental performance.**

PB MAG (135) fillet in 6mm austenitic stainless steel using Inolinx MAG gas

PB MAG (135) fillet in 3mm austenitic stainless steel using Inolinx MAG gas

Inolinx MAG gas

Applications range

Process	MAG - Manual, mechanised and robotic
Material	Any thickness
Consumables	Solid wire

- Carefully balanced gas formulation containing closely controlled CO_2 and H_2 mix components. Gives unique, brilliant shiny weld with smooth, flat surface profile.
- Superb weld penetration profile giving excellent fusion and ultra low reject levels.
- Increases welding speed comparing to conventional shielding gas, reduces post-weld cleaning, higher productivity and lower manufacturing cost.
- Up to 30% lower ozone exposure than conventional shielding gases.

Inolinx TIG gas

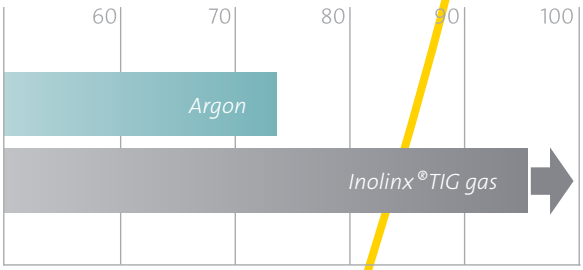
PB TIG (141) fillet in 3mm austenitic stainless steel using Inolinx TIG gas.

Applications range

Process	TIG - Manual, mechanised and robotic
Material	Any thickness
Consumables	Autogenous and with filler wire (all types)

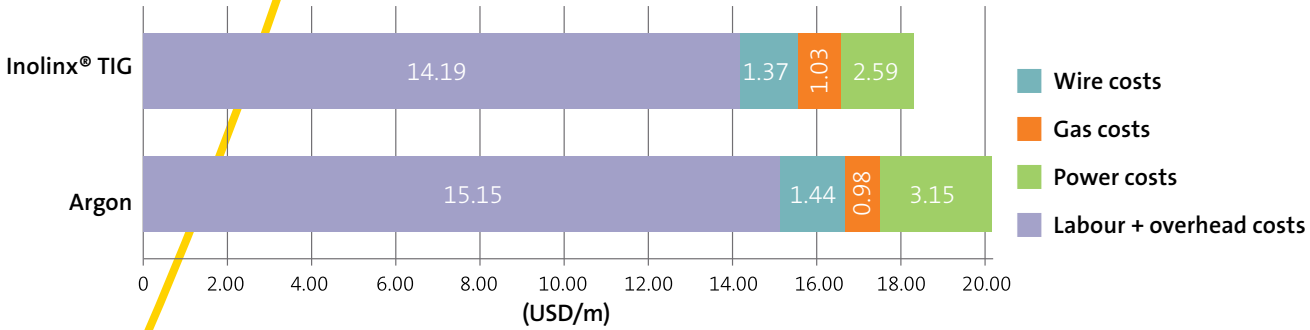
- Superb weld quality, brilliant, shiny weld finish with smooth flat surface profile.
- Controlled hydrogen additions give ultra high speed TIG welding, suitable for manual and robotic use.
- Increases welding speed comparing to conventional shielding gas, reduces post-weld cleaning, higher productivity and lower manufacturing cost.
- Low fume emission rates and ultra low ozone exposure levels.

Up to 30% speed increase over conventional shielding gases



Average weld speed (mm/min) for TIG welding of 3mm austenitic stainless steel.

Up to 7% cost savings and a brighter, cleaner weld



TOTAL COST per m weld - PB TIG 141 fillet weld in 3mm thick austenitic stainless steel plate

Cost calculation based on:

- Skilled TIG welder = 3.97USD/hr
- Stainless TIG wire (1.6mm) = 6.35USD/kg
- Electricity = 0.16USD/kWh

Linx shielding gases = A safe and healthy work environment

Global expertise with local service

Air Products is one of the world's largest gas companies with operations in over 50 countries worldwide. Air Products is an acknowledged leader in welding gas technology and is recognised for innovation, operational excellence and a proven commitment to safety and the environment.

Our global support, together with our local welding expertise, ensures that we offer outstanding service and high performance products. Our wide network of filling plants and agents provides a speedy and reliable delivery service.

You can trust Air Products to keep you at the forefront of world-beating technology.

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